PLUMBING GENERAL NOTES:

PART 1 – GENERAL AND RELATED DOCUMENTS

DRAWING AND GENERAL PROVISIONS OF CONTRACT, INCLUDING GENERAL AND SUPPLEMENTARY CONDITIONS AND OTHER DIVISION-1 SPECIFICATION SECTIONS, APPLY TO WORK OF THIS SECTION.

WORK INCLUDED: THE PLUMBING SYSTEM FOR THIS WORK INCLUDES ALL NATURAL GAS, COLD WATER DISTRIBUTION, DOMESTIC WATER HEATING AND DISTRIBUTION, VENTS AND WASTES, FLOOR DRAIN, EQUIPMENT, PLUMBING FIXTURES AND TRIM, AND ALL OTHER PLUMBING ITEMS INDICATED ON THE DRAWINGS OR DESCRIBED IN THESE SPECIFICATIONS, PLUS ALL OTHER PLUMBING ITEMS NEEDED FOR A COMPLETE AND PROPER INSTALLATION.

CODES AND STANDARDS: IN ADDITION TO COMPLYING WITH ALL PERTINENT CODES AND REGULATIONS, COMPLY WITH THE FOLLOWING:

2018 INTERNATIONAL PLUMBING CODE
2018 INTERNATIONAL FUEL GAS CODE
LOCAL UTILITY COMPANIES REGULATIONS.

SUBMITTALS
PRODUCT DATA: WITHIN 15 CALENDAR DAYS AFTER AWARD OF CONTRACT, SUBMIT COMPLETE MATERIALS LIST OF ALL ITEMS PROPOSED TO BE FURNISHED AND INSTALLED UNDER THIS SECTION, ALONG WITH CATALOG CUTS AND OTHER DATA REQUIRED TO DEMONSTRATE COMPLIANCE WITH THE SPECIFIED REQUIREMENTS.

OPERATION AND MAINTENANCE MANUAL: UPON COMPLETION OF THE WORK, AND AS A CONDITION OF ITS ACCEPTANCE, COMPILE AND SUBMIT MANUALS AS REQUIRED.

PRODUCT HANDLING / PROTECTION: USE ALL MEANS NECESSARY TO PROTECT THE MATERIALS OF THIS SECTION BEFORE, DURING, AND AFTER INSTALLATION AND TO PROTECT THE WORK AND MATERIALS OF ALL OTHER TRADES.
REPLACEMENT: IN THE EVENT OF DAMAGE, IMMEDIATELY MAKE ALL REPAIRS AND REPLACEMENTS NECESSARY TO THE APPROVAL OF THE ARCHITECT AND AT NO ADDITIONAL COST TO THE OWNER.

PART 2 – PRODUCTS

PIPE – SOIL, WASTE TO BE SOLID CORE PVC. VENTS UTILIZE FOAM CORE.

DOMESTIC WATER PIPING: ALL HOT AND COLD WATER PIPING, UNLESS OTHERWISE SHOWN ON THE DRAWINGS, SHALL BE CPVC. USING CPVC SCHEDULE 40 FOR MAIN DISTRIBUTION PIPE ABOVEGROUND, CPVC SCHEDULE 80 FOR MAIN DISTRIBUTION PIPE UNDERGROUND AND CPVC FOR GUEST ROOM WATER DISTRIBUTION.

NO JOINTS OR CONNECTION SHALL BE MADEIN OR BELOW THE SLAB. REFER TO LOCAL CODE FOR ANY OTHER REQUIREMENTS FOR TYPE OF MATERIALS APPROVED AND METHODS OF JOINING.

NATURAL GAS PIPING: ALL GAS PIPING BELOW GRADE SHALL BE BLACK STEEL PIPE, PLASTIC COATED, WITH WELDED FITTINGS AND JOINTS. ALL GAS PIPING ABOVE GRADE, 3" (INCH) AND LARGER SHALL BE BLACK STEEL PIPE WITH WELDED FITTINGS AND JOINTS; 2-1/2" (INCH) AND SMALLER SHALL BE THREADED BLACK STEEL PIPE WITH MALLEABLE IRON FITTINGS.

PIPE WRAPPING: WRAP ALL GAS PIPE BURIED IN THE GROUND, AND OTHER PIPE WHERE SO NOTED ON THE DRAWING, WITH "SCOTCHRAP". WRAP ALL STRAIGHT RUNS WITH 0.020-INCH THICK TAPE, APPLIED IN HALF-LAP LAYERS. PRE-WRAP ALL JOINTS, VALVES AND SIMILAR IRREGULAR SURFACES USING 0.010-INCH THICK TAPE.

VALVES: ALL VALVE DESIGN IS BASED ON THE USE OD "WALWORTH" IN THE MODEL SHOWN BELOW. PROVISO VALVES EQUALING AND EXCEEDING THE QUALITY OF THOSE UPON WHICH DESIGN IS BASED.

TYPE	SIZE RANGE:	PART NUMBER:
GATE	3" AND SMALLER	3
GLOBE	2" AND SMALLER	95
CHECK	2" AND SMALLER	412
GAS COCK	1" AND SMALLER	597
GAS COCK	1 1/4" AND LARGER	655 & 7904
WRENCH-CHANGED FOR USE WITH EACH COCK.		

VALVE BOXES: ALL VALVE BOXES, UNLESS OTHERWISE SHOWN ON THE DRAWING, SHALL EQUAL THE QUALITY OF "FOMI", TRAFFIC TYPE, OF THE REQUIRED DEPTH, AND SHALL HAVE LOCK TYPE CAST IRON COVERS LABELED WATER OR GAS AS REQUIRED.
PIPE SLEEVES AND ESCUTCHEONS: ALL PIPE SLEEVES AND ESCHTCHEONS SHALL EQUAL OR EXCEED THE QUALITY OF "ADJUSTO-CRETE", SHALL HAVE AMPLE CLEARANCE FOR PIPE AND COVERING, AND SHALL HAVE CHROME PLATED WALL AND FLOOR ESCUTCHEONS OVER THE PIPE IN FINISHED AREAS.

HANGERS AND SUPPORTS, UNLESS OTHERWISE SHOWN ON THE DRAWINGS, SHALL EQUAL OR EXCEED THE QUALITY OF THE FOLLOWING:

ITEM:	MANUFACTURER & MODEL NO.
PIPE RING HANGER	GRINNEL 107R
SIDE BEAM CLAMP	GRINNEL 202
TRAPEZE HANGERS	SUPERSTRUT A1200
VERTICAL RISER	GRINNEL 261

HANGER RODS SHALL CONFORM TO THE FOLLOWING:

PIPE SIZE:	ROD DIAMETER:
1/2 " TO 2"	3/8 "
2 1/2 " TO 3 1/2 "	1/2 "
4" TO 5"	5/8 "

AT THE CONTRACTOR'S OPTION, TRAPEZE HANGERS MAY BE USED WHERE PARALLEL RUNS OF PIPE OCCURS. ALL RODS ON TRAPEZE HANGERS SHALL BE 1/2" MINIMUM.

VENT FLASHING: PROVIDE VENT FLASHING AT EACH VENT THROUGH THE ROOF, EQUAL TO OR EXCEEDING THE QUALITY OF "SEMO" NUMBER 1100-2 FLASHING AND COUNTER FLASHING.

ISOLATE ALL DISSIMILAR METALS WITH ISOLATORS EQUALING OR EXCEEDING THE QUALITY OF "EPCO" DIELECTRIC UNIONS.

PIPING INSULATION
ALL HOT WATER AND HOT WATER RETURN PIPING SHALL BE INSULATED WITH 1" THICK (MIN.) I NSULATION HAVING A CONDUCTIVITY NO GREATER THAN 0.28 BTU-IN/(H-FT2-DEGREE F).

ALL EXPOSED EXTERIOR COLD WATER PIPING SHALL BE INSULATED WITH 1" THICK (MIN.) INSULATION HAVING A CONDUCTIVITY NO GREATER THAN HAVE 0.28 BTU-IN/(H-FT2-DEGREE F) AND HAVE AND HAVE ALUMINUM JACKETING APPLIED OVER INSULATION.

ACCESS PLATES: PROVIDE ACCESS PLATES EQUALING OR EXCEEDING THE QUALITY OF SMITH # 4760, PRIME COATED STEEL FOR PAINTED WALLS, WITH ALLEN KEY LOCKING DEVICES.
PROVIDE SINGLE HW/CW VALVE ON THE 1ST FLOOR FOR ALL (4) ROOMS IN THE STACK.

OTHER MATERIAL: ALL OTHER MATERIALS, NOT SPECIFICALLY DESCRIBED BUT REQUIRED FOR A COMPLETE AND PROPER INSTALLATION OF THE WORK OF THIS SECTION, SHALL BE NEW, FIRST QUALITY OF THEIR RESPECTIVE KINDS, AND AS SELECTED BY THE ARCHITECT.
INSPECTION: EXAMINE THE AREAS AND CONDITIONS UNDER WHICH WORK OF THIS SECTION WILL BE INSTALLED. CORRECT CONDITIONS DETRIMENTAL TO THE PROPER AND TIMELY COMPLETION OF THE WORK. DO NOT PROCEED UNTIL UNSATISFACTORY CONDITIONS HAVE BEEN CORRECTED.

PLUMBING SYSTEM LAYOUT: LAYOUT THE PLUMBING SYSTEM IN CAREFUL COORDINATION WITH THE DRAWINGS, DETERMINING PROPER ELEVATIONS FOR ALL COMPONENTS OF THE SYSTEM AND USING ONLY THE MINIMUM NUMBER OF BENDS TO PRODUCE A SATISFACTORY FUNCTIONING SYSTEM. FOLLOW THE GENERAL LAYOUT SHOWN ON THE DRAWINGS IN ALL CASES EXCEPT WHERE OTHER WORK MAY INTERFERE. LAYOUT ALL PIPES TO FALL WITHIN PARTITION, WALLS, OR ROOF CAVITIES, AND TO NOT REQUIRE FURRING OTHER THAN AS SHOWN ON THE DRAWINGS.

TRENCHING AND BACKFILLING: GENERAL– DIG TRENCHES STRAIGHT AND TRUE TO LINE AND GRADE, WITH BOTTOM OF TRENCH FREE FROM ROCK POINTS AND WITH PIPE CUSHION CONSISTING OF EITHER UNDISTURBED NATURAL SOIL OR COMPACTED FINE SAND. PROVIDE A MINIMUM TRENCH OF 16" FOR MAIN SOIL AND DRAINAGE PIPE, AND A MINIMUM OF 24" COVER BELOW FINISHED GRADE WHEREVER CONDITIONS WILL PERMIT. WHERE CONDITIONS REQUIRE VARIANCE FROM THESE MINIMUMS, SECURE ARCHITECT'S APPROVAL BEFORE PROCEEDING WITH THE VARIANCE. PERFORM ALL SUCH VARIANCES AT NO ADDITIONAL COST TO THE OWNER.

BACKFILLING: BACK FILL PROMPTLY UPON RECEIPT OF ALL NECESSARY VARIANCES, USING STOCKPILED MATERIAL EXCAVATED FROM THE TRENCH, OR USING OTHER MATERIAL APPROVED BY THE ARCHITECT. ALL BACKFILL MATERIAL SHALL BE FREE FROM ROCKS, LARGE CLODS, ROOTS, AND OTHER FOREIGN MATTER, AND SHALL BE COMPACTED IN 6" LAYERS TO A MINIMUM OF 95 PERCENT COMPACTION. JETTING OF BACKFILL WILL NOT BE PERMITTED. PROMPTLY REMOVE ALL EXCESS EXCAVATED MATERIAL FROM THE SITE.

INSTALLATION, GENERAL: DO NOT CUT INTO OR REDUCE THE SIZE OF ANY LOAD-CARRING STRUCTURAL MEMBER WITHOUT THE PRIOR APPROVAL OF THE ARCHITECT. INSTALL ALL PIPES TO CLEAR ALL BEAMS AND OBSTRUCTIONS AND IN ACCORDANCE WITH THE FOLLOWING:

1. INSTALL ALL PIPING PROMPTLY, CAPPING OR PLUGGING ALL OPEN ENDS.
2. INSTALL ALL PIPING GENERALLY LEVEL AND PLUMB, FREE FROM TRAPS, AND IN A MANNER TO CONSERVE SPACE FOR OTHER WORK.
3. CUSHION ALL TRAPS AND BEARING TO MINIMIZE TRANSFER OF SOUND. PROVIDE COMPLETE ISOLATION OF ALL DISSIMILAR METALS. FIRMLY ANCHOR ALL PIPES INTO POSITION.
4. PROVIDE UNIFORM PIPCH OF AT LEAST 1/4 INCH PER FOOT FOR MAIN HORIZONTAL WASTE AND SOIL PIPING WITHIN THE BUILDING. PITCH ALL VENTS FOR PROPER DRAINAGE. INSTALL VENT PIPING WITH EACH BEND 45 DEGREES MINIMUM FROM THE HORIZONTAL WHEREVER STRUCTURAL CONDITIONS WILL PERMIT.
5. PROVIDE AIR CHAMBERS OR WATER HAMMER ARRESTORS ON HOT AND COLD WATER AT THE FIXTURES.
6. CONCEAL ALL PIPING UNLESS OTHERWISE SHOWN ON THE DRAWINGS.
7. INSPECT EACH PIECE OF PIPE, COUPLINGS, FITTINGS, AND EQUIPMENT FOR DEFECTS AND OBSTRUCTIONS. PROMPTLY REMOVE ALL DEFECTIVE MATERIAL FROM THE SITE.
8. PLUMBER SHALL CUT ALL HOLES IN CABINETS FOR LAVATORIES, SINKS AND FAUCETS.

JOINTS AND CONNECTIONS: PREPARATION – PROPERLY REAM ALL CUT PIPE. CUT ALL THREADS STRAIGHT AND TRUE. APPLY BEST QUALITY TEFLON TAPE TO MALE PIPE THREADS, BUT NOT TO INSIDE OF FITTINGS. USE GRAPHITE ON ALL CLEANOUT PLUGS.
PACKING: PACK ALL JOINTS IN CAST IRON SOIL AND WASTE PIPE AND FITTINGS, USING OAKUM, AND SECURING WITH ONE INCH DEEP CAULKING OF LEAD. FULLY AND PROPERLY CAULK AND FINISH.

COPPER: MAKE ALL JOINTS IN COPPER TUBING WITH 95-5 TIN-ANTOMY SOLDER, APPLIED IN STRICT ACCORDANCE WITH THE MANUFACTURERS' RECOMMENDATIONS.

PVC: MAKE ALL JOINTS IN PVC PIPING WITH PROPER JOINT CEMENT, APPLIED IN STRICT ACCORDANCE WITH THE MANUFACTURERS' RECOMMENDATIONS.

SUPPORTING: USE A SEPARATE HANGER FOR EACH BRANCH. SUPPORT VERTICAL RISERS AT THE FLOOR WITH THE EXTENSION PIPE CLAMPS APPROVED BY THE ARCHITECT. WHEREVER INSULATED PIPE IS SUPPORTED BY RING HANGERS, THE RINGS SHALL PASS FREELY AROUND THE INSULATION AT POINT OF CONTACT WITH SADDLES APPROVED BY THE ARCHITECT.

SLEEVING, SEALING, ESCUTHEONS AND FIRE SAFING:
ALL PIPING THROUGH ALL INTERIOR AND EXTERIOR WALLS SHALL BE SLEEVED.
ANNULAR SPACE BETWEEN PIPING AND SLEEVE SHALL BE SEALED WATERTIGHT WITH NON-HARDENING COMPOUND (WHERE WALLS ARE NOT FIRE RATED) OR FIRE SAFING (WHERE WALLS ARE FIRE RATED).
SLEEVE AND FIRE SAFING SHALL MAINTAIN FIRE RATING OF WALL ASSEMBLY.
EACH END OF SLEEVE SHALL BE FITTED WITH TWO PIECE CHROME PLATED ESCUTHEON PLATE.

WATER HAMMER ABSORBING DEVICES
BUILDING WATER SUPPLY SYSTEMS WHERE QUICK-ACTING VALVES ARE INSTALLED SHALL BE PROVIDED WITH WATER HAMMER ARRESTER(S) TO ABSORB/ HIGH PRESSURES RESULTING FROM THE QUICK CLOSING OF THESE VALVES.
AIR CHAMBERS SHALL BE SIZED AND INSTALLED AS PER 2018 INTERNATIONAL PLUMBING CODE LISTED MECHANICAL DEVICES SHALL BE PDI APPROVED.

WATER HAMMER ARRESTOR. SIZE AS NOTED. PROVIDE PROPERLY SIZED WATER HAMMER ARRESTOR TO EACH GROUP OF FIXTURES WHETHER SHOWN OR NOT ON PLANS. PROVIDE ACCESS PANEL WHERE LOCATED IN ACCESSIBLE WALL/CEILING.

INSTALLATION

HOT WATER PIPING: INSULATE ALL HOT WATER PIPING WITH THE SPECIFIED INSULATION, APPLYING IN STRICT ACCORDANCE WITH THE MANUFACTURERS' RECOMMENDATIONS, AND:
TIGHTLY BUTT ALL JOINTS TOGETHER. HOLD THE LONGITUDINAL SEAMS WITH COPPER-CLAD INSULATING STAPLES (AT LEAST FOUR STAPLES PER THREE FOOT SECTION).
INSULATE FITTINGS WITH INSULATING CEMENT TO THE THICKNESS ON THE ADJACENT PIPES.
APPLY INSULATION IN TWO LAYERS, ALLOWING FIRST COAT TO DRY BEFORE APPLYING THE SECOND COAT. TROWEL THE FINAL COAT TO A SMOOTH AND EVEN FINISH, THEN COVER THE FITTING WITH AND EIGHT OUNCE CANVAS AND "ARBOL LAGGING ADHESIVE" TO A SMOOTH FINISHED SURFACE. UPON COMPLETION OF INSULATING, FINISH ALL EXPOSED CANVAS JACKETING WITH TWO COATS OF "ARBOL LAGGING ADHESIVE".

STERILIZATION OF PIPES
CHLORINATION: AFTER PRELIMINARY PURGING OF THE SYSTEM, CHLORINATE THE ENTIRE POTABLE WATER SYSTEM IN ACCORDANCE WITH THE CURRENT PROCEDURE OF THE AMERICAN WATERWORKS ASSOCIATION FOR FLUSHING AND DISINFECTING WATER MAINS, AND IN ACCORDANCE WITH ALL OTHER PERTINENT RULES AND REGULATIONS. WHEN STERILIZATION IS COMPLETE, ARRANGE WITH THE PERTINENT AUTHORITIES FOR TEST ON MAINS AND SYSTEM. CHLORINATE ONLY WHEN BUILDING IS UNOCCUPIED.
CLOSING IN UNINSPECTED WORK: DO NOT COVER UP OR ENCLOSE WORK UNTIL IT HAS BEEN PROPERLY AND COMPLETELY INSPECTED AND APPROVED. SHOULD ANY OF THE WORK BR COVERED UP OR ENCLOSED PRIOR TO ALL REQUIRED INSPECTIONS APPROVALS, UNCOVER THE WORK AS REQUIRED AND, AFTER IT HAS BEEN COMPLETELY INSPECTED AND APPROVED, MAKE ALL REPAIRS AND REPLACEMENTS WITH SUCH MATERIALS AND WORKMANSHIP AS ARE NECESSARY TO THE APPROVAL OF THE ARCHITECT, AND AT NO ADDITIONAL COST TO THE OWNER.
TESTING:
GENERAL: FURNISH ALL TEST PUMPS, GAGES, EQUIPMENT, AND PERSONNEL REQUIRED, AND TEST AS NECESSARY TO DEMONSTRATE THE INTEGRITY OF THE FINISHED INSTALLATION TO THE APPROVAL OF ALL PERTINENT AUTHORITIES AND THE ARCHITECT.

SOIL & WASTE:	UNLESS OTHERWISE DIRECTED, PLUG ALL OPENING AND FILL WITH WATER TO A HEIGHT EQUAL TO THE LOWEST VENT. ALLOW TO STAND ONE HOUR OR LONGER AS REQUIRED. RECAULK LEAKING JOINTS AS DIRECTED AND THEN RE-TEST.
WATER LINES:	TEST AND MAKE TIGHT AT 150 PSI WATER GAGE, RETAIN FOR FOUR HOURS; REPAIR ALL LEAKING JOINTS AS DIRECTED AND THEN RE-TEST.
GAS:	AIR TEST TO PRESSURE EQUAL TO 100 PSI; RETAIN FOR FOUR HOURS; SOAP TEST IF THE THE PRESSURE DROPS; REPAIR ALL LEAKS; AND THEN RE-TEST.
VALVES:	TEST ALL VALVE BONNETS FOR TIGHTNESS. TEST OPERATE ALL VALVES AT LEAST ONCE FROM CLOSED TO-OPEN-TO CLOSED POSITION WHILE VALVE IS UNDER PRESSURE. TEST ALL AUTOMATIC VALVES FOR PROPER OPERATION AT THE SETTING INDICATED. TEST PRESSURE RELIEF VALVE AT LEAST THREE TIMES.
OTHER:	TEST ALL PIPING SPECIALITIES FOR PROPER OPERATION. TEST ALL VENT POINTS TO ENSURE THAT AIR HAS BEEN VENTED.

GENERAL NOTES:

1. THE CONTRACTORS SHALL CONSTRUCT MEP SYSTEM ACCORDING TO MEPC'S PLANS, CALCULATION, DETAILS AND SPECIFICATION. ALL REQUESTS FOR ALTERNATE MATERIAL, EQUIPMENT AND SOLUTIONS MUST BE SUBMITTED THROUGH REQUEST FOR INFORMATION (RFI). FAILURE TO SUBMIT THE RFI SHALL RESULT IN THE DISAPPROVAL OF CHANGE ORDER (IF ANY) FOR THE PROPOSED ALTERNATE MATERIAL, EQUIPMENT, AND SOLUTION.
2. THE CONTRACTORS ARE REQUIRED TO FOLLOW THE SPECIFIED EQUIPMENT'S INSTALLATION MANUAL FROM THE MANUFACTURER
3. THE CONTRACTORS ARE REQUIRED TO FOLLOW THE LOCAL BUILDING CODE OF AUTHORITY HAVING JURISDICTION.
4. THE COMPLETE COLD AND HOT WATER SYSTEMS MUST BE TESTED, BALANCED, AND COMMISSIONED BY QUALIFIED COMMISSIONER AGENT DURING THE CONSTRUCTION PHASE PRIOR TO FULL OPERATION. FAILURE TO PROPERLY CONDUCT TESTING, BALANCING, AND COMMISSIONING THE PLUMBING SYSTEM SHALL RESULT IN SYSTEM DYSFUNCTION, WHICH IS FULLY RESPONSIBLE BY THE CONTRACTOR.
5. DURING THE BIDDING PROCESS, THE CONTRACTOR IS RESPONSIBLE TO BID ANY NECESSARY PLUMBING ACCESSORIES OF THE SPECIFIED PLUMBING FIXTURE.
6. DURING THE BIDDING PROCESS, THE CONTRACTORS ARE REQUIRED TO SUBMIT THE RFI TO RECEIVE OUR SOLUTION IN CASE THE LOCATION OF PLUMBING PIPES AND STRUCTURAL BEAMS AND FOOTING ARE CONFLICT. OTHERWISE, WE ARE NOT RESPONSIBLE FOR ANY ADDITIONAL FEE ARISING FROM CHANGE ORDERS.
7. THE CONTRACTOR MUST SUBMIT THE LIST OF BIDDING PLUMBING FIXTURES TO THE ARCHITECT, OWNER, INTERIOR DESIGNER, OR HOTEL FRANCHISE PRIOR TO ORDERING AND INSTALLATION.
8. THE CONTRACTORS ARE REQUIRED TO SUBMIT THEIR VALUED ENGINEERING (IF ANY) TO MEP GREEN DESIGN AND BUILD PLLC FOR ASSESSMENT AND COMMENT/APPROVAL BEFORE EXECUTING THEM ON THE JOB SITE. OTHERWISE, THE CONTRACTORS SHALL HOLD ALL RESPONSIBILITIES REGARDING RESPONDING TO THE INSPECTORS, RESUBMITTING PLANS FOR CITY REAPPROVAL, ETC. DUE TO THE CHANGES MADE ON THE JOB SITE WITHOUT WRITTEN APPROVAL FROM THE ENGINEER OF RECORD AND OWNER.

SYMBOLS AND LEGEND

SYMBOLS	ABBREV.	DESCRIPTION	MATERIAL
———	WASTE	SOIL OR WASTE	SOLID CORE PVC
———	SD	STORM DRAIN	
———	V	VENT	VENT UTILIZE FOAM CORE
———	CD	CONDENSATE DRAIN	
———	HWR	HOT WATER RETURN	CPVC SCHEDULE 40 FOR MAIN DISTRIBUTION PIPE ABOVEGROUND, CPVC SCHEDULE 80 FOR MAIN DISTRIBUTION PIPE UNDERGROUND CPVC FOR GUEST ROOM WATER DISTRIBUTION
———	CW	COLD WATER	
———	HW	HOT WATER	
———	GAS	GAS LINE	BLACK STEEL PIPE, PLASTIC COATED
	FD	FLOOR DRAIN	
	FS	FLOOR SINK	
	FCO	FLOOR CLEAN OUT	
	WCO	WALL CLEAN OUT	
	CCO	CEILING CLEAN OUT	
	G.V.w/B.C.	GATE VALVE WITH BALL COCK	BASED ON THE USE OD "WALWORTH" IN THE MODEL SHOWN IN GENERAL NOTES
	C.V	CHECK VALVE	
		GAS SHUT-OFF VALVE	
		AUTOMATIC GAS SHUT-OFF VALVE	
		EMERGENCY GAS SHUT-OFF VALVE	
		PRESSURE REGULATOR VALVE	
		THERMOSTATIC MIXING VALVE	
		AUTOMATIC BALANCING VALVE	SET TO 0.5 GPM
GM		GAS METER	
WM		WATER METER	
BP		BACKFLOW PREVENTOR	
		AHU-FLOOR MOUNTED	
		AHU-ABOVE CEILING	

BACKFLOW PREVENTION TYPES

NO.	THE TYPE OF PROTECTION	ITEMS/ EQUIPMENT (SIZE)
1	REDUCED PRESSURE ZONE ASSEMBLY (RPZA)	DOMESTIC WATER LINE (2")
2	DOUBLE CHECK VALVE ASSEMBLY (DCVA)	FIRE LINE
3	REDUCED PRESSURE ZONE ASSEMBLY (RPZA)	ICE MACHINE (⅜"), ICE MAKER (¾"), CONVECTION OVEN (¾"), POOL (1½")
4	DOUBLE CHECK VALVE ASSEMLY (DCVA)	COFFEE MACHINE (⅜"), REF (½"), COFFEE BREWER (¼"), JUICE DISPENSER (¾")
5	VACUUM BREAKER (VB)	HOSE BIBB (½"), FROST PROOF HYDRANT (¾")

REVIEWED FOR CODE COMPLIANCE
01/12/2024

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MEP GREEN DESIGN & BUILD
FAST AND ACCURATE

AUG. 18, 2023

COLORADO REGISTERED 51953 PROFESSIONAL ENGINEER

Holiday Inn Express
3400 S. LINCOLN AVE
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DV

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PL

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PLUMBING NOTES & LEGEND

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SHEET: 93 OF 140

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PLUMBING FIXTURE SCHEDULE

(THE PLUMBING FIXTURES SHALL BE VERIFIED BY FRANCHISE/OWNER PRIOR TO PURCHASING OR INSTALLATION)

SYMBOL	DESCRIPTION	PROVIDE THE FOLLOWING SIZE BRANCH CONNECTION TO THE DISTRIBUTION MAIN–UNLESS OTHERWISE SPECIFIED				REMARKS	"P" TRAP SIZE	SPECIFICATION
		CW	HW	SAN.	VENT			
WC–1	WATER CLOSET (GUEST ROOM)	1/2 "	––	3"	2"	MOUNT SUPPLY LINE 9" AFF MIN.	INTEGRAL	AM–STANDARD "CHAMPION PRO RIGHT HEIGHT ELONGATED TOILET" #211AA.104 1.28 GPF. SUPPLY WITH A CLOSED SEAT AND COVER
WC–2 ADA	WATER CLOSET (GUEST ROOM)	1/2 "	––	3"	2"	MOUNT SUPPLY LINE 9" AFF MIN.	INTEGRAL	AM–STANDARD "CHAMPION PRO RIGHT HEIGHT ELONGATED TOILET" #211AA.104 1.28 GPF. SUPPLY WITH A CLOSED SEAT AND COVER
WC–3 ADA	WATER CLOSET (RESTROOM)	3/4 "	––	4"	2"	MOUNT SUPPLY LINE 9" AFF MIN.	INTEGRAL	KOHLER "K–3999–0" HIGHLINE LEFT–HAND NESTED TRIP LEVER OFFERS A CHOICE OF 1.28 GPF SUPPLY WITH AN OPENED SEAT (NO COVER)
SH–1	SHOWER (GUEST ROOM)	1/2 "	1/2 "	2"	2"	SET SHOWER SPUD HEIGHT 6"–10" AFF MIN.	2"	SHOWER PAN MINCEY MARBLE MODEL SP–3660–16.5 OS/SF (L/R). FORTE MULTI–FUNCTION SHOWERHEAD K–22170–G, SHOWER ARM K–7397–CP 1.75 GPM. PROVIDE WITH RITE–TEMP PRESSURE BALANCING SHOWER TRIM TS8981–4–CP (TRIM), #P8304–KS–NA (VALVE), DRAIN 9132–CP, DRAIN COVER–WHITE 9157"
SH–2 ADA	SHOWER (GUEST ROOM)	1/2 "	1/2 "	2"	2"	SET SHOWER SPUD HEIGHT 6"–10" AFF MIN.	2"	SHOWER PAN MINCEY MARBLE MODEL TD–RI–36–ADJ–62: 31–36 ADJUSTABLE ROLL–IN TRENCH DRAIN PAN. FORTE MULTI–FUNCTION SHOWERHEAD K–22166–G–CP, SHOWER ARM K–7397–CP 1.75 GPM. PROVIDE WITH RITE–TEMP PRESSURE BALANCING SHOWER TRIM TS8981–4–CP (TRIM), #P8304–KS–NA (VALVE), TRANSFER TRIM #T8984–4–CP; TRANSFER VALVE #728–K–NA; HAND SHOWER KIT #22178–G–CP; SUPPLY ELBOW #22172–CP, DRAIN 9132–CP, DRAIN COVER–WHITE 9157". PHENOLIC SHOWER SEAT WITH WALL BRACKET MODEL FUPHWB2815. NOTE: SHOWER SEAT MUST SUPPORT MIN. 250LB.
SH–3 ADA	SHOWER (GUEST ROOM)	1/2 "	1/2 "	2"	2"	SET SHOWER SPUD HEIGHT 6"–10" AFF MIN.	2"	SHOWER PAN MINCEY MARBLE MODEL RI–31–ADJ–62–C/SF: 31–36 ADJUSTABLE ROLL–IN SHOWER PAN. FORTE MULTI–FUNCTION SHOWERHEAD K–22166–G–CP, SHOWER ARM K–7397–CP 1.75 GPM. PROVIDE WITH RITE–TEMP PRESSURE BALANCING SHOWER TRIM TS8981–4–CP (TRIM), #P8304–KS–NA (VALVE), TRANSFER TRIM #T8984–4–CP; TRANSFER VALVE #728–K–NA; HAND SHOWER KIT #22178–G–CP; SUPPLY ELBOW #22172–CP, DRAIN 9132–CP, DRAIN COVER–WHITE 9157". PHENOLIC SHOWER SEAT WITH WALL BRACKET MODEL FUPHWB2815. NOTE: SHOWER SEAT MUST SUPPORT MIN. 250LB.
SH–4	SHOWER (STAFF ROOM)	1/2 "	1/2 "	2"	2"	SET SHOWER SPUD HEIGHT 6"–10" AFF MIN.	2"	SHOWER PAN K–1935–0 48" X 36" ALCOVE SHOWER BASE, CENTER DRAIN. FORTE MULTI–FUNCTION SHOWERHEAD K–22170–G, SHOWER ARM K–7397–CP 1.75 GPM. PROVIDE WITH RITE–TEMP PRESSURE BALANCING SHOWER TRIM TS8981–4–CP (TRIM), #P8304–KS–NA (VALVE), DRAIN 9132–CP, DRAIN COVER–WHITE 9157"
SH–5 ADA	SHOWER (STAFF ROOM)	1/2 "	1/2 "	2"	2"	SET SHOWER SPUD HEIGHT 6"–10" AFF MIN.	2"	SHOWER PAN MINCEY MARBLE MODEL RI–31–ADJ–62–C/SF: 31–36 ADJUSTABLE ROLL–IN SHOWER PAN. FORTE MULTI–FUNCTION SHOWERHEAD K–22166–G–CP, SHOWER ARM K–7397–CP 1.75 GPM. PROVIDE WITH RITE–TEMP PRESSURE BALANCING SHOWER TRIM TS8981–4–CP (TRIM), #P8304–KS–NA (VALVE), TRANSFER TRIM #T8984–4–CP; TRANSFER VALVE #728–K–NA; HAND SHOWER KIT #22178–G–CP; SUPPLY ELBOW #22172–CP, DRAIN 9132–CP, DRAIN COVER–WHITE 9157". PHENOLIC SHOWER SEAT WITH WALL BRACKET MODEL FUPHWB2815. NOTE: SHOWER SEAT MUST SUPPORT MIN. 250LB.
LAV–1	LAVATORY (GUEST ROOM)	1/2 "	1/2 "	1 1/4 "	1 1/2 "	SEE NOTE 1 BELOW	1 1/4 "	AMERICAN STANDARD STUDIO RECTANGULAR UNDERMOUNT BATHROOM –0614.000.020. SUPPLY WITH VANITY FAUCET LAVATORY MOEN MODEL 6190 1.5 GPM WITH DRAIN 1 1/4 " C.P. P.TAP 3/8 " CHROME PLATED ANGLE STOPS W/FLEX RISERS. INSULATE THE SUPPLIES STOPS AND "P" TRAP.
LAV–2 ADA	LAVATORY (GUEST ROOM)	1/2 "	1/2 "	1 1/4 "	1 1/2 "	SEE NOTE 1 BELOW	1 1/4 "	AMERICAN STANDARD STUDIO RECTANGULAR UNDERMOUNT BATHROOM –0614.000.020. SUPPLY WITH VANITY FAUCET LAVATORY MOEN MODEL 6190 1.5 GPM WITH DRAIN 1 1/4 " C.P. P.TAP 3/8 " CHROME PLATED ANGLE STOPS W/FLEX RISERS. INSULATE THE SUPPLIES STOPS AND "P" TRAP.
LAV–3 ADA	LAVATORY (RESTROOM)	1/2 "	1/2 "	1 1/4 "	1 1/2 "	SEE NOTE 1 BELOW	1 1/4 "	AMERICAN STANDARD MODEL 0496.221.020. SUPPLY WITH KOHLER FAUCET MODEL K–99491–4–CP LAVATORY CENTERSET LESS DRAIN 1.5GPM WITH DRAIN 1 1/4 " C.P. P.TAP 3/8 " CHROME PLATED ANGLE STOPS W/FLEX RISERS. INSULATE THE SUPPLIES STOPS AND "P" TRAP.
LAV–4 ADA	LAVATORY (STAFF RESTROOM)	1/2 "	1/2 "	1 1/4 "	1 1/2 "	SEE NOTE 1 BELOW	1 1/4 "	WALL–MOUNT BATHROOM SINK, ADAAG COMPLIANT, KOHLER K–2007–0, "K–99491–4–CP" BATHROOM SINK FAUCET 1.5 GPM
S–1	SINK (STAFF ROOM)	1/2 "	1/2 "	2"	2"	––	2"	ELKAY LUSTERTONE CLASSIC STAINLESS STEEL 16" X 18–1/2" X 7–7/8" SINGLE BOWL UNDERMOUNT SINK WITH PERFECT DRAIN MODEL ELUH1316PD. ELKAY GOURMET SINGLE HOLE BAR FAUCET PULL–OUT SPRAY AND LEVER HANDLE LKGT1042 1.75 GPM, ELKAY PERFECT DRAIN CHROME PLATED BRASS BODY VANDAL–RESISTANT STRAINER LKPDVR1BB
S–2 ADA	SINK (STAFF ROOM)	1/2 "	1/2 "	2"	2"	––	2"	ELKAY LUSTERTONE CLASSIC STAINLESS STEEL ELUHAD131655 16" X 18–1/2" X 5–3/8", SINGLE BOWL UNDERMOUNT ADA SINK. ELKAY GOURMET SINGLE HOLE BAR FAUCET PULL–OUT SPRAY AND LEVER HANDLE LKGT1042 1.75 GPM, ELKAY 3–1/2" DRAIN FITTING" STAINLESS STEEL BODY STRAINER BASKET AND OFFSET TAILPIECE LKAD35
HS	HAND SINK	1/2 "	1/2 "	1 1/2 "	2"	––	1 1/2 "	ADVANCE TABCO MODEL 7–PS–23, WALL MOUNTED, 9" WIDE x 9" FRONT–TO–BACK x 5" DEEP BOWL, 20 GAUGE 304 SERIES STAINLESS STEEL, SPLASH MOUNTED FAUCET, 1–1/2" FLAT – TOP STRAINER, NSF & CSA LISTED. SUPPLY WITH P–TRAP 7–PS–10, FAUCET K–124 DECK MOUNTED 4"OC, 6" EXTENDED D SPOUT
EDF	BI–LEVEL DRINKING FOUNTAIN	1/2 "	––	1 1/2 "	1 1/2 "	––	––	ELKAY MODEL LZSTLBWSLK EZH2O BOTTLE FILLING STATION & VERSATILE BI–LEVEL ADA COOLER FILTERED B GPH LIGHT GRAY
MS–1	MOP SINK	3/4"	3/4"	3"	2"	––	3"	E.L. MUSTEE & SONS 65M. PROVIDE WITH MUSTEE 63.600A, HOSE HOLDER E.L. MUSTEE 65.700, MOP HANGER E.L. MUSTEE 63.600, WALL GUARD E.L. MUSTEE 67.2424
SHO–1	SHOWER PAN	1/2 "	1/2 "	2"	2"	––	2"	60"x30" TILE OVER CURBED SHOWER PAN MODEL: "AP860X30CURB–PANS". FORTE MULTI–FUCTION SHOWERHEAD K–22170–G, SHOWER ARM K–7397–CP 1.75 GPM. PROVIDE WITH RITE–TEMP PRESSURE BALANCING SHOWER TRIM TS8981–4–CP (TRIM), #P8304–KS–NA (VALVE). SHOWER DRAIN 9132–CP
SHO–2	SHOWER BASE	1/2 "	1/2 "	2"	2"	––	2"	36" X 36" ACCESSIBLE SHOWER PAN ACRYLIC MODEL: APA3636BFPAN PROVIDE WITH RITE–TEMP PRESSURE BALANCING SHOWER TRIM TS8981–4–CP (TRIM), #P8304–KS–NA (VALVE), TRANSFER TRIM #T8984–4–CP; TRANSFER VALVE #728–K–NA; HAND SHOWER KIT #22178–G–CP; SUPPLY ELBOW #22172–CP, DRAIN 9132–CP, DRAIN COVER–WHITE 9157". PHENOLIC SHOWER SEAT WITH WALL BRACKET MODEL FUPHWB2815. NOTE: SHOWER SEAT MUST SUPPORT MIN. 250LB.
SK–1	BREAK SINK	1/2 "	1/2 "	2"	2"	––	2"	BREAK ROOM SINK ELKAY LUSTERTONE CLASSIC STAINLESS STEEL 17" X 20" X 7–5/8", 2–HOLE SINGLE BOWL DROP–IN SINK + FAUCET KIT. INCLUDED LK406GN04T4C FAUCET 2.2 GPM, LK1BB DRAIN, LK500 P–TRAP.
SK–2	WORKTABLE SINK	1/2 "	1/2 "	2"	2"	––	2"	ELKAY MODEL# LR2522PD LUSTERTONE CLASSIC STAINLESS STEEL 25" X 22" X 8–1/8", SINGLE BOWL DROP–IN SINK WITH PERFECT DRAIN. SINK IS MANUFACTURED FROM 18 GAUGE 304 STAINLESS STEEL WITH A LUSTROUS SATIN FINISH, CENTER DRAIN PLACEMENT, AND SIDES AND BOTTOM PADS. SUPPLY WITH ELKAY GOURMET PULL–OUT SPRAY KITCHEN FAUCET MODEL#LKGT1041, 1.75 GPM.
SK–3	KITCHEN SINK	1/2 "	1/2 "	2"	––	––	––	ADVANCE TABCO MODEL K7–CS–32, 3–COMPARTMENT SINK, (3) 20"x12"x12" DEEP BOWLS, (2) LEFT & RIGHT DRAINBOARDS 11 5/8", 8" HIGH BACKSPLASH, 18 GA 304 SERIES STAINLESS STEEL. SUPPLY WITH ADVANCE TABCO K–112 WALL–MOUNT FAUCET WITH 8" CENTERS – 12" SWING NOZZLE. PROVIDE GARBAGE DISPOSAL, IN SINK ERATOR MODEL 77, 1/2 HP OR EQUAL.
WB	WASHER BOX	3/4"	3/4"	2"	2"	––	2"	GUY GRAY "BB200–TS" CENTER DRAIN GALVANIZED WWOB WITH DOMESTIC VALVES
HDS	HYDRATION STATION	1/2 "	––	1 1/2 "	2"	––	1 1/2 "	HAWS 2000S BOTTLE FILLING STATION, RECESSED WALL–MOUNTED, CSA CERTIFIED
FPYH	FROST PROOF YARD HYDRANT	1"	––	––	––	––	––	MERRILL MP7501A M–2000 FROST PROOF YARD HYDRANT
HB	HOSE BIBB	3/4"	––	––	––	––	––	HOSE BIBB WITH VACUUM BREAKER. WOODFORD B67 WITH WALL BOX AND REMOVEABLE LOOSE TEE KEY HANDLE. FREEZEPROOF ASSEMBLY.
FD–1	FLOOR DRAIN (PUBLIC AREAS)	––	––	3"	2"	––	3"	SIOUX CHIEF #833–3PNR FINISHLINE DRAIN WITH NICKLE BRONZE TOP. FLASHING COLLAR WITH PVC BASE. ADJUSTABLE BEFORE AND AFTER CONCRETE POUR.
FD–2	FLOOR DRAIN (GUEST ROOM/ MECHANICAL ROOM)	––	––	2"	2"	––	2"	SIOUX CHIEF #833–2PNR FINISHLINE DRAIN WITH NICKLE BRONZE TOP. FLASHING COLLAR WITH PVC BASE. ADJUSTABLE BEFORE AND AFTER CONCRETE POUR.
FS–1	FLOOR SINK (KITCHEN AREA)	––	––	3"	2"	––	3"	SIOUX CHIEF #861 SERIES – 12" CAST IRON FLOOR SINK WITH 6–1/8" DEEP SUMP, ACID RESISTANT, OPEN HALF NICKLE BRONZE GRATE, STAINLESS STEEL DEBRIS SCREEN FLOOR SINK SHALL BE MOLDED WITH IMPACT–MODIFIED PVC WITH SCH 40 HUB CONNECTION. STRAINER SHALL BE HEAL PROOF AND MEET ALL APPLICABLE LOAD REQUIREMENTS FOR INTENDED USE.
FS–2	FLOOR SINK (GENERAL AREAS)	––	––	3"	2"	––	3"	SIOUX CHIEF #861–3PNV SERIES – 12 X 12 ACID RESISTANT FLOOR SINK TO BE INSTALLED WITH NICKEL BRONZE TOP WITH APPLICABLE GRATE CONFIGURATION. ALUMINUM DOME STRAINER TO BE PROVIDED AND INSTALLED
CO	EXTERIOR CLEANOUT	––	––	––	––	––	––	SIOUX CHIEF # 834–3DNRV – ON GRADE CLEANOUT, DUCTILE BODY, 4" NO HUB CONNECTION,ROUND NICKLE BRONZE TOP,VANDLE RESISTANCE SCREWS, FINISHLINE STYLE ADJUSTABLE AFTER CONCRETE POUR.
FCO	FLOOR CLEANOUTS (ON GRADE CLEANOUT HEAVY DUTY)	––	––	––	––	––	––	SIOUX CHIEF # 834–4DNRVH – ON GRADECLEANOUT, DUCTILE BODY, 4" NO HUB CONNECTION,HEAVY DUTY ROUND NICKLE BRONZE TOP,VANDLE RESISTANCE SCREWS, FINISHLINE STYLE ADJUSTABLE AFTER CONCRETE POUR.
FCO–2	FLOOR CLEANOUTS (ABOVE GRADE CLEANOUT TO BE ORDERD WITH CLAMPING COLLAR KIT 822–CKIT)	––	––	––	––	––	––	SIOUX CHIEF # 822–CF3DNRV/ # 822–CF4DNRV – FLOOR CLEANOUTS, 18GA STAINLESS DECK/ MOUNTING FLANGE,DUCTILE IRON BODY, NO HUB CONNECTION, ROUND NICKLE BRONZE TOP,FINISHLINE ADJUSTABLE AFTER CONCRETE POUR,VANDAL RESISTANT SCREWS WITH CLAMPING COLAR 822–CKIT
EW	EYE WASH	1/2"	1/2"	2"	1 1/2 "		1 1/2 "	EYE WASH MODEL 7260BT–7270BT HAWS CORP
TMV	THERMOSTATIC MIXING VALVE (PUBLIC LAVATORY & HAND SINK)	––	––	––	––	––	––	THERMOSTATIC MIXING VALVE FOR RESTROOM LAVATORY: ZURN #ZW1070XL ASSE R LISTED 1070, 10 GAL/MIN @ 45 PSI PRESSURE LOSS, 0.5 GAL/MIN MINIMUM. SET UP HOT WATER DELIVERED FOR PUBLIC LAVATORIES MAXIMUM TEMPERATURE OF 110°F
	THERMOSTATIC MIXING VALVE (ONLY EYE WASH)	––	––	––	––	––	––	THERMOSTATIC MIXING VALVE FOR EYEWASH. SET UP THE HOT WATER TEMPERATURE DELIVERED FOR EYEWASH TO BE BETWEEN 65 AND 90 DEGREES. HAWS MODEL # 9201EW.
TD	TRENCH DRAIN (LAUNDRY ROOM)	––	––	––	––	––	––	IMC/TEDDY TRE–48–SQ TRENCH DRAIN SYSTEM. TRENCH DRAIN SYSTEM, 48"W X 4"D, 4" DEEP RECEPTACLE, (1) 2" OD DRAIN, PERFORATED WASTE STRAINER, 14/304 STAINLESS STEEL, BRUSHED SATIN FINISH, (SQ) GRID GRATING

05/22/24

NOTE: 1. ALL BATH LAVATORY DRAINS ARE TO ROUGHED IN 16" ABOVE THE FLOOR HEIGHT TO
2. INSTALL 1.28 GALLON TOILETS IN ALL BATHROOMS TO REDUCE WATER CONSUMPTION AND SEWAGE CHARGES AVOID INTERFERENCE OF THE VANITY BASE SHELF AND P–TRAP.
3. ALL TUBS MUST BE EITHER CAST IRON OR STEEL. ONE PIECE ACRYLIC SHOWER OR TUBS ARE PROHIBITED.
4. ALL GUEST BATHROOM TOILETS MUST BE ELONGATED STYLE, CLOSED FRONT WITH A LID.
5. ANTI–SCALD FAUCETS MUST BE INSTALLED ON ALL BATHTUB/SHOWERS TO PREVENT WATER TEMPERATURE EXCEEDING 125 DEGREES F.
6. ALL HEADS OF THE SANITARY WARES TO BE USED THE FLEX PIPE OR SWING JOINTS FOR CONNECTION.
7. THE CHECK VALVES TO BE USE AS NEEDED TO PREVENT LOW–HEAD DRAINAGE.
8. THE PIPE JOINS TO BE PRIMED W/ COLORED PRIMER BEFORE PVC CEMENT.
9. ALL TRENCHES AND HOLES TO BE BACKFILLED AND COMPACTED TO ORIGINAL GRADE.

COLD WATER SUPPLY FIXTURE UNITS (WSFU)

NO.	FIXTURE	X	CWSFU	=	TOTAL
PRIVATE					
101	WATER CLOSET	X	2.2	=	222.20
101	LAVATORY	X	0.7	=	70.70
101	SHOWER	X	1.4	=	141.40
11	KITCHEN SINK	X	1.4	=	15.40
11	DISH WASHER	X	1.4	=	15.40
11	CLOTHES WASHER	X	1.4	=	15.40
PUBLIC					
3	WATER CLOSET FLUSH TANK	X	5	=	15.00
1	URINAL	X	10	=	10.00
3	LAVATORY	X	2	=	6.00
1	SHOWER	X	4	=	4.00
6	RESIDENTIAL CLOTHES WASHER	X	1.4	=	8.40
1	HAND SINK	X	3	=	3.00
1	BREAK SINK	X	3	=	3.00
3	COMMERCIAL CLOTHES WASHER	X	4	=	12.00
2	EYE WASH	X	3	=	6.00
1	MOP SINK	X	4	=	4.00
1	3–COMP. SINK	X	4	=	4.00
2	DISH WASHER	X	1.4	=	2.80
1	HYDRATION STATION	X	0.25	=	0.25
2	EDF	X	0.25	=	0.50
4	ICE MACHINE	X	1	=	4.00
2	COFFEE MACHINE	X	1	=	2.00
1	JUICE DISPENSER	X	1	=	1.00
2	CONVECTION OVEN	X	1	=	2.00
1	REF.	X	1	=	1.00
6	HOSE BIBB	X	1	=	6.00
1	POOL	X	30	=	30.00
3	WASH BASIN (SHOWER PAN)	X	4	=	12.00
					617.45

TOTAL DEMAND BASED ON 617.45 FIXTURE UNIT FOR FLUSH TANK = 155 GPM. USE 3" MAIN. LOSS PER 100 FEET: 1.9 PSI

CHOOSE: 2" WATER METER

COLD WATER CALCULATION COMPLY WITH 2018 INTERNATIONAL PLUMBING CODE

HOT WATER SUPPLY FIXTURE UNITS (FOR GUESTROOMS, RESTROOMS, OTHER PUBLIC AREAS...)

NO.	FIXTURE	X	CWSFU	=	TOTAL
PRIVATE					
101	LAVATORY	X	0.5	=	50.50
101	SHOWER	X	1	=	101.00
11	KITCHEN SINK	X	1	=	11.00
11	DISH WASHER	X	1.4	=	15.40
11	CLOTHES WASHER	X	1.4	=	15.40
PUBLIC					
3	LAVATORY	X	1.5	=	4.50
1	SHOWER	X	3	=	3.00
6	RESIDENTIAL CLOTHES WASHER	X	1	=	6.00
1	HAND SINK	X	2.25	=	2.25
1	BREAK SINK	X	2.25	=	2.25
3	COMMERCIAL CLOTHES WASHER	X	3	=	9.00
1	UTILITY	X	2.25	=	2.25
2	EYE WASH	X	2.25	=	4.50
1	MOP SINK	X	2.25	=	2.25
1	3–COMP. SINK	X	3	=	3.00
2	DISH WASHER	X	1.4	=	2.80
3	WASH BASIN (SHOWER PAN)	X	3	=	9.00
					244.10

POSSIBLE HOT WATER DEMAND BASED ON 244.1 FIXTURE UNIT= 73.2 GPM.

PROBABLE MAXIMUM DEMAND: 73.2 GPM x 0.25 = 18.3 GPM

HEATING CAPACITY REQUIRED (TO RISE UP COLD WATER 55°F TO 140°F): 735 888 BTUH

SELECT 4 STORAGE WATER HEATER 250,000 BTU/EACH.

HOT WATER CALCULATION COMPLY WITH 2018 INTERNATIONAL PLUMBING CODE

DRAINAGE FIXTURE UNITS (DFU) SUMMARY

NO.	FIXTURE	X	DFU	=	TOTAL
PRIVATE					
101	BATHROOM GROUP (1 TANK WATER CLOSET, 1 LAVATORY, SHOWER)	X	5	=	505.00
11	KITCHEN SINK	X	2	=	22.00
11	DISH WASHER	X	2	=	22.00
11	CLOTHES WASHER	X	2	=	22.00
PUBLIC					
3	WATER CLOSET	X	4	=	12.00
1	URINAL	X	2	=	2.00
3	LAVATORY	X	1	=	3.00
1	SHOWER	X	2	=	2.00
1	HAND SINK	X	2	=	2.00
1	BREAK SINK	X	2	=	2.00
6	RESIDENTIAL CLOTHES WASHER	X	2	=	12.00
3	COMMERCIAL CLOTHES WASHER	X	3	=	9.00
2	EYE WASH	X	2	=	4.00
1	MOP SINK	X	3	=	3.00
1	3–COMP. SINK	X	3	=	3.00
2	DISH WASHER	X	2	=	4.00
1	HYDRATION STATION	X	0.5	=	0.50
2	EDF	X	0.5	=	1.00
8	FLOOR SINK	X	5	=	40.00
1	POOL	X	50	=	50.00
3	WASH BASIN (SHOWER PAN)	X	2	=	6.00
					726.50

USE 6" MAIN SLOPED @1/4" PER FOOT

SANITARY SEWER CALCULATION COMPLY WITH 2018 INTERNATIONAL PLUMBING CODE

HYDRAULIC CALCULATION

A	INCOMING PRESSURE (RESIDUAL)	80	PSI
B	PRESSURE LOSS THROUGH 2 INCH WATER METER (AWWA STANDARD)	15	PSI
C	PRESSURE LOSS THROUGH 2 INCH REDUCED PRESSURE BACKFLOW PREVENTER (BASED ON WATT SERIES 009)	14	PSI
E	PRESSURE LOSS DUE TO ELEVATION = 45 FEET (1 FT = 0.43 PSI)	19.35	PSI
F	1.8 PSI PRESSURE LOSS PER 100 FEET OF PIPE (TOTAL PIPE LENGTH = 350 FT)	6.30	PSI
G	TOTAL PRESSURE LOSSES	54.65	PSI
H	PRESSURE AVAILABLE TO HIGHEST/ FARTHEST FIXTURE	25.35	PSI

NOTE:

(G) TOTAL PRESSURE LOSSES = SUM (B) TO (F)

(H) PRESSURE AVAILABLE TO HIGHEST/FARTHEST FIXTURE = (A) RESIDUAL PRESSURE – (G) TOTAL PRESSURE LOSSES

THE PRESSURE AVAILABLE TO HIGHEST/ FARTHEST FIXTURE IS MORE THAN 25 PSI REQUIRED FOR FIXTURES AND FAUCETS

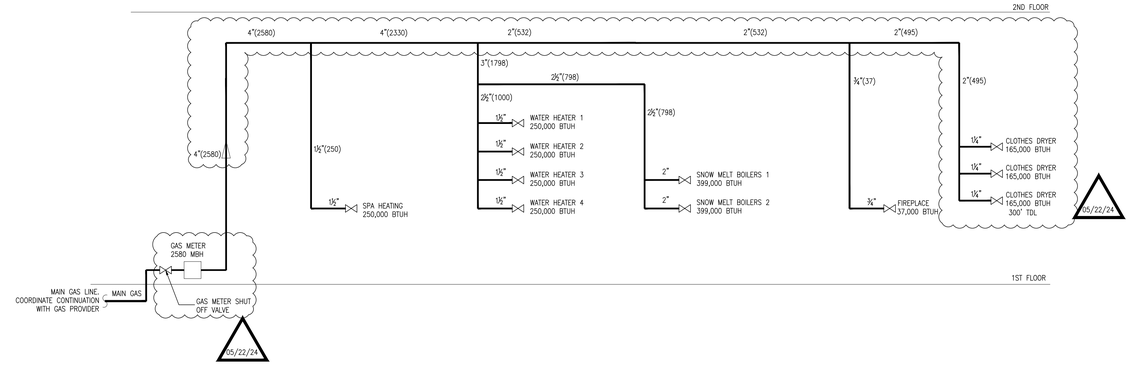
=> NO NEED A BOOSTER PUMP FOR THIS PROJECT.

GAS FIRED WATER HEATER SCHEDULE

ITEM NO.	MANUFACTURER & MODEL	QUANTITY	TYPE	CAPACITY (GAL.)	DELIVERY TEMP	RECOVERY (GAL/HOUR /EACH)	NATURAL GAS INPUT (MBH)	THERMAL EFFIENCY	INTAKE/EXHAUST (PVC)	ELEC.	WEIGHT (LBS)/ EACH	REMARKS
WH–1,2,3,4 (FOR GUESTROOMS, RESTROOMS, OTHER PUBLIC AREAS...)	A.O SMITH BTH–250(A)	4	HIGH EFF. DIRECT VENT	100	140°F	323 @ 90°F. RISE	250	96%	3" (0"–50") 4" (51"–120")	––	553	PROVIDE COMMON VENTING KITS
ALTERNATE MANUFACTURERS: BRADFORD WHITE, RHEEM/RUUD, STATE, LOCHINVAR												
NOTES: PROVIDE WITH 3 YEARS WARRANTY												

CIRCULATING PUMP SCHEDULE

EQUIPMENT NO.	LOCATED	MANU.	MODEL	GPM	HEAD (FT.)	MOTOR			CONNECTIONS	
						HP	RPM	VOLTAGE	SUCTION	DISCHARGE
CIRCULATE PUMP–1	MECHANICAL/ FIRE ROOM (1ST FLOOR)	AMSTRONG	H53	10	28	½	1800	115/1ø/60	1 ½"	1 ½"
CIRCULATE PUMP–2	MECHANICAL/ FIRE ROOM (1ST FLOOR)	AMSTRONG	H32	1.5	17.5	⅛	1800	115/1ø/60	1"	1"
CIRCULATE PUMP–3	MAIN LAUNDRY ROOM (1ST FLOOR)	AMSTRONG	H32	1.5	17.5	⅛	1800	115/1ø/60	1"	1"
CIRCULATE PUMP–4	MAIN LAUNDRY ROOM (1ST FLOOR)	AMSTRONG	H32	2	18	⅛	1800	115/1ø/60	1"	1"
CIRCULATE PUMP–5	MECHANICAL/ STORAGE ROOM (4TH FLOOR)	AMSTRONG	H51	5	22.5	¼	1801	115/1ø/60	1"	1"
CIRCULATE PUMP–6	HOUSEKEEPING ROOM (4TH FLOOR)	AMSTRONG	H51	5	22.5	¼	1802	115/1ø/60	1"	1"



GAS SCHEMATIC DIAGRAM (<2 PSI)

SCALE: N.T.S

BASIS OF DESIGN

MAXIMUM DEMAND = 2,580,000 BTUH (2580 MBH) 05/22/24

TOTAL DEVELOPED LENGTH FROM THE GAS METER TO THE MOST REMOTE OUTLET = 300 FT.

NOTE: TDL= TOTAL DEVELOPED LENGTH FROM METER

INLET PRESSURE: 7 IN W.C

PRESSURE DROP: 0.5 W.C

INSTALL GAS SHUT OFF VALVE FOR EACH APPLIANCE

GAS CALCULATION COMPLY WITH TABLE 402.4(2) SCHEDULE 40 METALLIC PIPE 2018 INTERNATIONAL FUEL GAS CODE

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MEP GREEN DESIGN & BUILD
FAST AND ACCURATE

MAY 22, 2024

NEW MEXICO REGISTERED PROFESSIONAL ENGINEER 51953

Holiday Inn Express

3350 S. LINCOLN AVE
STEAMBOAT SPRINGS, CO 80487

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DRAWING ISSUE DATES:
8/18/23 PERMIT SET

REVISION DATES:
10/19/23 Staff/GM Toilets, Permit Revisions
11/29/23 Mt. Werner Revisions
02/15/24 Pool Removal, Guestroom Addition
03/05/24 Updated plans
05/14/24 Updated plans
05/22/24 Updated plans

PROJECT MANAGER:
DV

DRAWN BY:
PL

SHEET TITLE:
PLUMBING SCHEDULE & DIAGRAM

P1.1

SHEET: 95 OF 142

ASI #2 5/28/24

PLUMBING FIXTURE SCHEDULE

(THE PLUMBING FIXTURES SHALL BE VERIFIED BY FRANCHISE/OWNER PRIOR TO PURCHASING OR INSTALLATION)

SYMBOL	DESCRIPTION	PROVIDE THE FOLLOWING SIZE BRANCH CONNECTION TO THE DISTRIBUTION MAIN–UNLESS OTHERWISE SPECIFIED				REMARKS	"P" TRAP SIZE	SPECIFICATION
		CW	HW	SAN.	VENT			
WC–1	WATER CLOSET (GUEST ROOM)	1/2 "	––	3"	2"	MOUNT SUPPLY LINE 9" AFF MIN.	INTEGRAL	AM–STANDARD "CHAMPION PRO RIGHT HEIGHT ELONGATED TOILET" #211AA.104 1.28 GPF. SUPPLY WITH A CLOSED SEAT AND COVER
WC–2 ADA	WATER CLOSET (GUEST ROOM)	1/2 "	––	3"	2"	MOUNT SUPPLY LINE 9" AFF MIN.	INTEGRAL	AM–STANDARD "CHAMPION PRO RIGHT HEIGHT ELONGATED TOILET" #211AA.104 1.28 GPF. SUPPLY WITH A CLOSED SEAT AND COVER
WC–3 ADA	WATER CLOSET (RESTROOM)	3/4 "	––	4"	2"	MOUNT SUPPLY LINE 9" AFF MIN.	INTEGRAL	KOHLER "K–3999–0" HIGHLINE LEFT–HAND NESTED TRIP LEVER OFFERS A CHOICE OF 1.28 GPF SUPPLY WITH AN OPENED SEAT (NO COVER)
SH–1	SHOWER (GUEST ROOM)	1/2 "	1/2 "	2"	2"	SET SHOWER SPUD HEIGHT 6"–10" AFF MIN.	2"	SHOWER PAN MINCEY MARBLE MODEL SP–3660–16.5 OS/SF (L/R). FORTE MULTI–FUNCTION SHOWERHEAD K–22170–G, SHOWER ARM K–7397–CP 1.75 GPM. PROVIDE WITH RITE–TEMP PRESSURE BALANCING SHOWER TRIM TS8981–4–CP (TRIM), #P8304–KS–NA (VALVE), DRAIN 9132–CP, DRAIN COVER–WHITE 9157"
SH–2 ADA	SHOWER (GUEST ROOM)	1/2 "	1/2 "	2"	2"	SET SHOWER SPUD HEIGHT 6"–10" AFF MIN.	2"	SHOWER PAN MINCEY MARBLE MODEL TD–RI–36–ADJ–62: 31–36 ADJUSTABLE ROLL–IN TRENCH DRAIN PAN. FORTE MULTI–FUNCTION SHOWERHEAD K–22166–G–CP, SHOWER ARM K–7397–CP 1.75 GPM. PROVIDE WITH RITE–TEMP PRESSURE BALANCING SHOWER TRIM TS8981–4–CP (TRIM), #P8304–KS–NA (VALVE), TRANSFER TRIM #T8984–4–CP; TRANSFER VALVE #728–K–NA; HAND SHOWER KIT #22178–G–CP; SUPPLY ELBOW #22172–CP, DRAIN 9132–CP, DRAIN COVER–WHITE 9157". PHENOLIC SHOWER SEAT WITH WALL BRACKET MODEL FUPHWB2815. NOTE: SHOWER SEAT MUST SUPPORT MIN. 250LB.
SH–3 ADA	SHOWER (GUEST ROOM)	1/2 "	1/2 "	2"	2"	SET SHOWER SPUD HEIGHT 6"–10" AFF MIN.	2"	SHOWER PAN MINCEY MARBLE MODEL RI–31–ADJ–62–C/SF: 31–36 ADJUSTABLE ROLL–IN SHOWER PAN. FORTE MULTI–FUNCTION SHOWERHEAD K–22166–G–CP, SHOWER ARM K–7397–CP 1.75 GPM. PROVIDE WITH RITE–TEMP PRESSURE BALANCING SHOWER TRIM TS8981–4–CP (TRIM), #P8304–KS–NA (VALVE), TRANSFER TRIM #T8984–4–CP; TRANSFER VALVE #728–K–NA; HAND SHOWER KIT #22178–G–CP; SUPPLY ELBOW #22172–CP, DRAIN 9132–CP, DRAIN COVER–WHITE 9157". PHENOLIC SHOWER SEAT WITH WALL BRACKET MODEL FUPHWB2815. NOTE: SHOWER SEAT MUST SUPPORT MIN. 250LB.
SH–4	SHOWER (STAFF ROOM)	1/2 "	1/2 "	2"	2"	SET SHOWER SPUD HEIGHT 6"–10" AFF MIN.	2"	SHOWER PAN K–1935–0 48" X 36" ALCOVE SHOWER BASE, CENTER DRAIN. FORTE MULTI–FUNCTION SHOWERHEAD K–22170–G, SHOWER ARM K–7397–CP 1.75 GPM. PROVIDE WITH RITE–TEMP PRESSURE BALANCING SHOWER TRIM TS8981–4–CP (TRIM), #P8304–KS–NA (VALVE), DRAIN 9132–CP, DRAIN COVER–WHITE 9157"
SH–5 ADA	SHOWER (STAFF ROOM)	1/2 "	1/2 "	2"	2"	SET SHOWER SPUD HEIGHT 6"–10" AFF MIN.	2"	SHOWER PAN MINCEY MARBLE MODEL RI–31–ADJ–62–C/SF: 31–36 ADJUSTABLE ROLL–IN SHOWER PAN. FORTE MULTI–FUNCTION SHOWERHEAD K–22166–G–CP, SHOWER ARM K–7397–CP 1.75 GPM. PROVIDE WITH RITE–TEMP PRESSURE BALANCING SHOWER TRIM TS8981–4–CP (TRIM), #P8304–KS–NA (VALVE), TRANSFER TRIM #T8984–4–CP; TRANSFER VALVE #728–K–NA; HAND SHOWER KIT #22178–G–CP; SUPPLY ELBOW #22172–CP, DRAIN 9132–CP, DRAIN COVER–WHITE 9157". PHENOLIC SHOWER SEAT WITH WALL BRACKET MODEL FUPHWB2815. NOTE: SHOWER SEAT MUST SUPPORT MIN. 250LB.
LAV–1	LAVATORY (GUEST ROOM)	1/2 "	1/2 "	1 1/4 "	1 1/2 "	SEE NOTE 1 BELOW	1 1/4 "	AMERICAN STANDARD STUDIO RECTANGULAR UNDERMOUNT BATHROOM –0614.000.020. SUPPLY WITH VANITY FAUCET LAVATORY MOEN MODEL 6190 1.5 GPM WITH DRAIN 1 1/4 " C.P. P.TAP 3/8 " CHROME PLATED ANGLE STOPS W/FLEX RISERS. INSULATE THE SUPPLIES STOPS AND "P" TRAP.
LAV–2 ADA	LAVATORY (GUEST ROOM)	1/2 "	1/2 "	1 1/4 "	1 1/2 "	SEE NOTE 1 BELOW	1 1/4 "	AMERICAN STANDARD STUDIO RECTANGULAR UNDERMOUNT BATHROOM –0614.000.020. SUPPLY WITH VANITY FAUCET LAVATORY MOEN MODEL 6190 1.5 GPM WITH DRAIN 1 1/4 " C.P. P.TAP 3/8 " CHROME PLATED ANGLE STOPS W/FLEX RISERS. INSULATE THE SUPPLIES STOPS AND "P" TRAP.
LAV–3 ADA	LAVATORY (RESTROOM)	1/2 "	1/2 "	1 1/4 "	1 1/2 "	SEE NOTE 1 BELOW	1 1/4 "	AMERICAN STANDARD MODEL 0496.221.020. SUPPLY WITH KOHLER FAUCET MODEL K–99491–4–CP LAVATORY CENTERSET LESS DRAIN 1.5GPM WITH DRAIN 1 1/4 " C.P. P.TAP 3/8 " CHROME PLATED ANGLE STOPS W/FLEX RISERS. INSULATE THE SUPPLIES STOPS AND "P" TRAP.
LAV–4 ADA	LAVATORY (STAFF RESTROOM)	1/2 "	1/2 "	1 1/4 "	1 1/2 "	SEE NOTE 1 BELOW	1 1/4 "	WALL–MOUNT BATHROOM SINK, ADAAG COMPLIANT, KOHLER K–2007–0, "K–99491–4–CP" BATHROOM SINK FAUCET 1.5 GPM
S–1	SINK (STAFF ROOM)	1/2 "	1/2 "	2"	2"	––	2"	ELKAY LUSTERTONE CLASSIC STAINLESS STEEL 16" X 18–1/2" X 7–7/8" SINGLE BOWL UNDERMOUNT SINK WITH PERFECT DRAIN MODEL ELUH1316PD. ELKAY GOURMET SINGLE HOLE BAR FAUCET PULL–OUT SPRAY AND LEVER HANDLE LKGT1042 1.75 GPM, ELKAY PERFECT DRAIN CHROME PLATED BRASS BODY VANDAL–RESISTANT STRAINER LKPDVR1BB
S–2 ADA	SINK (STAFF ROOM)	1/2 "	1/2 "	2"	2"	––	2"	ELKAY LUSTERTONE CLASSIC STAINLESS STEEL ELUHAD131655 16" X 18–1/2" X 5–3/8", SINGLE BOWL UNDERMOUNT ADA SINK. ELKAY GOURMET SINGLE HOLE BAR FAUCET PULL–OUT SPRAY AND LEVER HANDLE LKGT1042 1.75 GPM, ELKAY 3–1/2" DRAIN FITTING" STAINLESS STEEL BODY STRAINER BASKET AND OFFSET TAILPIECE LKAD35
HS	HAND SINK	1/2 "	1/2 "	1 1/2 "	2"	––	1 1/2 "	ADVANCE TABCO MODEL 7–PS–23, WALL MOUNTED, 9" WIDE x 9" FRONT–TO–BACK x 5" DEEP BOWL, 20 GAUGE 304 SERIES STAINLESS STEEL, SPLASH MOUNTED FAUCET, 1–1/2" FLAT – TOP STRAINER, NSF & CSA LISTED. SUPPLY WITH P–TRAP 7–PS–10, FAUCET K–124 DECK MOUNTED 4"OC, 6" EXTENDED D SPOUT
EDF	BI–LEVEL DRINKING FOUNTAIN	1/2 "	––	1 1/2 "	1 1/2 "	––	––	ELKAY MODEL LZSTLBWSLK EZH2O BOTTLE FILLING STATION & VERSATILE BI–LEVEL ADA COOLER FILTERED 8 GPH LIGHT GRAY
MS–1	MOP SINK	3/4"	3/4"	3"	2"	––	3"	E.L. MUSTEE & SONS 65M. PROVIDE WITH MUSTEE 63.600A, HOSE HOLDER E.L. MUSTEE 65.700, MOP HANGER E.L. MUSTEE 63.600, WALL GUARD E.L. MUSTEE 67.2424
SHO–1	SHOWER PAN	1/2 "	1/2 "	2"	2"	––	2"	60"x30" TILE OVER CURBED SHOWER PAN MODEL: "AP860X30CURB–PANS". FORTE MULTI–FUCTION SHOWERHEAD K–22170–G, SHOWER ARM K–7397–CP 1.75 GPM. PROVIDE WITH RITE–TEMP PRESSURE BALANCING SHOWER TRIM TS8981–4–CP (TRIM), #P8304–KS–NA (VALVE). SHOWER DRAIN 9132–CP
SHO–2	SHOWER BASE	1/2 "	1/2 "	2"	2"	––	2"	36" X 36" ACCESSIBLE SHOWER PAN ACRYLIC MODEL: APA3636BFPAN PROVIDE WITH RITE–TEMP PRESSURE BALANCING SHOWER TRIM TS8981–4–CP (TRIM), #P8304–KS–NA (VALVE), TRANSFER TRIM #T8984–4–CP; TRANSFER VALVE #728–K–NA; HAND SHOWER KIT #22178–G–CP; SUPPLY ELBOW #22172–CP, DRAIN 9132–CP, DRAIN COVER–WHITE 9157". PHENOLIC SHOWER SEAT WITH WALL BRACKET MODEL FUPHWB2815. NOTE: SHOWER SEAT MUST SUPPORT MIN. 250LB.
SK–1	BREAK SINK	1/2 "	1/2 "	2"	2"	––	2"	BREAK ROOM SINK ELKAY LUSTERTONE CLASSIC STAINLESS STEEL 17" X 20" X 7–5/8", 2–HOLE SINGLE BOWL DROP–IN SINK + FAUCET KIT. INCLUDED LK406GN04TAC FAUCET 2.2 GPM, LK18B DRAIN, LK500 P–TRAP.
SK–2	WORKTABLE SINK	1/2 "	1/2 "	2"	2"	––	2"	ELKAY MODEL# LR2522PD LUSTERTONE CLASSIC STAINLESS STEEL 25" X 22" X 8–1/8", SINGLE BOWL DROP–IN SINK WITH PERFECT DRAIN. SINK IS MANUFACTURED FROM 18 GAUGE 304 STAINLESS STEEL WITH A LUSTROUS SATIN FINISH, CENTER DRAIN PLACEMENT, AND SIDES AND BOTTOM PADS. SUPPLY WITH ELKAY GOURMET PULL–OUT SPRAY KITCHEN FAUCET MODEL#LKGT1041, 1.75 GPM.
SK–3	KITCHEN SINK	1/2 "	1/2 "	2"	––	––	––	ADVANCE TABCO MODEL K7–CS–32, 3–COMPARTMENT SINK, (3) 20"x12"x12" DEEP BOWLS, (2) LEFT & RIGHT DRAINBOARDS 11 5/8", 8" HIGH BACKSPLASH, 18 GA 304 SERIES STAINLESS STEEL. SUPPLY WITH ADVANCE TABCO K–112 WALL–MOUNT FAUCET WITH 8" CENTERS – 12" SWING NOZZLE. PROVIDE GARBAGE DISPOSAL IN SINK ERATOR MODEL 77. 1/2 HP OR EQUAL.
WB	WASHER BOX	3/4"	3/4"	2"	2"	––	2"	GUY GRAY "BB200–TS" CENTER DRAIN GALVANIZED WMOB WITH DOMESTIC VALVES
HDS	HYDRATION STATION	1/2 "	––	1 1/2 "	2"	––	1 1/2 "	HAWS 2000S BOTTLE FILLING STATION, RECESSED WALL–MOUNTED, CSA CERTIFIED
FPYH	FROST PROOF YARD HYDRANT	1"	––	––	––	––	––	MERRILL MP7501A M–2000 FROST PROOF YARD HYDRANT
HB	HOSE BIBB	3/4"	––	––	––	––	––	HOSE BIBB WITH VACUUM BREAKER. WOODFORD B67 WITH WALL BOX AND REMOVEABLE LOOSE TEE KEY HANDLE. FREEZEPROOF ASSEMBLY.
FD–1	FLOOR DRAIN (PUBLIC AREAS)	––	––	3"	2"	––	3"	SIOUX CHIEF #833–3PNR FINISHLINE DRAIN WITH NICKLE BRONZE TOP. FLASHING COLLAR WITH PVC BASE. ADJUSTABLE BEFORE AND AFTER CONCRETE POUR.
FD–2	FLOOR DRAIN (GUEST ROOM/ MECHANICAL ROOM)	––	––	2"	2"	––	2"	SIOUX CHIEF #833–2PNR FINISHLINE DRAIN WITH NICKLE BRONZE TOP. FLASHING COLLAR WITH PVC BASE. ADJUSTABLE BEFORE AND AFTER CONCRETE POUR.
FS–1	FLOOR SINK (KITCHEN AREA)	––	––	3"	2"	––	3"	SIOUX CHIEF #861 SERIES – 12" CAST IRON FLOOR SINK WITH 6–1/8" DEEP SUMP, ACID RESISTANT, OPEN HALF NICKLE BRONZE GRATE, STAINLESS STEEL DEBRIS SCREEN FLOOR SINK SHALL BE MOLDED WITH IMPACT–MODIFIED PVC WITH SCH 40 HUB CONNECTION. STRAINER SHALL BE HEAL PROOF AND MEET ALL APPLICABLE LOAD REQUIREMENTS FOR INTENDED USE.
FS–2	FLOOR SINK (GENERAL AREAS)	––	––	3"	2"	––	3"	SIOUX CHIEF #861–3PNV SERIES – 12 X 12 ACID RESISTANT FLOOR SINK TO BE INSTALLED WITH NICKEL BRONZE TOP WITH APPLICABLE GRATE CONFIGURATION. ALUMINUM DOME STRAINER TO BE PROVIDED AND INSTALLED
CO	EXTERIOR CLEANOUT	––	––	––	––	––	––	SIOUX CHIEF # 834–3DNRV – ON GRADE CLEANOUT, DUCTILE BODY, 4" NO HUB CONNECTION,ROUND NICKLE BRONZE TOP,VANDLE RESISTANCE SCREWS, FINISHLINE STYLE ADJUSTABLE AFTER CONCRETE POUR.
FCO	FLOOR CLEANOUTS (ON GRADE CLEANOUT HEAVY DUTY)	––	––	––	––	––	––	SIOUX CHIEF # 834–4DNRVH – ON GRADECLEANOUT, DUCTILE BODY, 4" NO HUB CONNECTION,HEAVY DUTY ROUND NICKLE BRONZE TOP,VANDLE RESISTANCE SCREWS, FINISHLINE STYLE ADJUSTABLE AFTER CONCRETE POUR.
FCO–2	FLOOR CLEANOUTS (ABOVE GRADE CLEANOUT TO BE ORDERD WITH CLAMPING COLLAR KIT 822–CKIT)	––	––	––	––	––	––	SIOUX CHIEF # 822–CF3DNRV/ # 822–CF4DNRV – FLOOR CLEANOUTS, 18GA STAINLESS DECK/ MOUNTING FLANGE,DUCTILE IRON BODY, NO HUB CONNECTION, ROUND NICKLE BRONZE TOP,FINISHLINE ADJUSTABLE AFTER CONCRETE POUR,VANDAL RESISTANT SCREWS WITH CLAMPING COLAR 822–CKIT
EW	EYE WASH	1/2"	1/2"	2"	1 1/2 "		1 1/2 "	EYE WASH MODEL 7260BT–7270BT HAWS CORP
TMV	THERMOSTATIC MIXING VALVE (PUBLIC LAVATORY & HAND SINK)	––	––	––	––	––	––	THERMOSTATIC MIXING VALVE FOR RESTROOM LAVATORY: ZURN #ZW1070XL ASSE R LISTED 1070, 10 GAL/MIN @ 45 PSI PRESSURE LOSS, 0.5 GAL/MIN MINIMUM. SET UP HOT WATER DELIVERED FOR PUBLIC LAVATORIES MAXIMUM TEMPERATURE OF 110°F
	THERMOSTATIC MIXING VALVE (ONLY EYE WASH)	––	––	––	––	––	––	THERMOSTATIC MIXING VALVE FOR EYEWASH. SET UP THE HOT WATER TEMPERATURE DELIVERED FOR EYEWASH TO BE BETWEEN 65 AND 90 DEGREES. HAWS MODEL # 9201EW.
TD	TRENCH DRAIN (LAUNDRY ROOM)	––	––	––	––	––	––	IMC/TEDDY TRE–48–SQ TRENCH DRAIN SYSTEM. TRENCH DRAIN SYSTEM, 48"W X 4"D, 4" DEEP RECEPTACLE, (1) 2" OD DRAIN, PERFORATED WASTE STRAINER, 14/304 STAINLESS STEEL, BRUSHED SATIN FINISH, (SQ) GRID GRATING

NOTE: 1. ALL BATH LAVATORY DRAINS ARE TO ROUGHED IN 16" ABOVE THE FLOOR HEIGHT TO
2. INSTALL 1.28 GALLON TOILETS IN ALL BATHROOMS TO REDUCE WATER CONSUMPTION AND SEWAGE CHARGES AVOID INTERFERENCE OF THE VANITY BASE SHELF AND P–TRAP.
3. ALL TUBS MUST BE EITHER CAST IRON OR STEEL. ONE PIECE ACRYLIC SHOWER OR TUBS ARE PROHIBITED.
4. ALL GUEST BATHROOM TOILETS MUST BE ELONGATED STYLE, CLOSED FRONT WITH A LID.
5. ANTI–SCALD FAUCETS MUST BE INSTALLED ON ALL BATHTUB/SHOWERS TO PREVENT WATER TEMPERATURE EXCEEDING 125 DEGREES F.
6. ALL HEADS OF THE SANITARY WARES TO BE USED THE FLEX PIPE OR SWING JOINTS FOR CONNECTION.
7. THE CHECK VALVES TO BE USE AS NEEDED TO PREVENT LOW–HEAD DRAINAGE.
8. THE PIPE JOINS TO BE PRIMED W/ COLORED PRIMER BEFORE PVC CEMENT.
9. ALL TRENCHES AND HOLES TO BE BACKFILLED AND COMPACTED TO ORIGINAL GRADE.

COLD WATER SUPPLY FIXTURE UNITS (WSFU)

NO.	FIXTURE	X	CWSFU	=	TOTAL
PRIVATE					
101	WATER CLOSET	X	2.2	=	222.20
101	LAVATORY	X	0.7	=	70.70
101	SHOWER	X	1.4	=	141.40
11	KITCHEN SINK	X	1.4	=	15.40
11	DISH WASHER	X	1.4	=	15.40
11	CLOTHES WASHER	X	1.4	=	15.40
PUBLIC					
3	WATER CLOSET FLUSH TANK	X	5	=	15.00
1	URINAL	X	10	=	10.00
3	LAVATORY	X	2	=	6.00
1	SHOWER	X	4	=	4.00
6	RESIDENTIAL CLOTHES WASHER	X	1.4	=	8.40
1	HAND SINK	X	3	=	3.00
1	BREAK SINK	X	3	=	3.00
3	COMMERCIAL CLOTHES WASHER	X	4	=	12.00
2	EYE WASH	X	3	=	6.00
1	MOP SINK	X	4	=	4.00
1	3–COMP. SINK	X	4	=	4.00
2	DISH WASHER	X	1.4	=	2.80
1	HYDRATION STATION	X	0.25	=	0.25
2	EDF	X	0.25	=	0.50
4	ICE MACHINE	X	1	=	4.00
2	COFFEE MACHINE	X	1	=	2.00
1	JUICE DISPENSER	X	1	=	1.00
2	CONVECTION OVEN	X	1	=	2.00
1	REF.	X	1	=	1.00
6	HOSE BIBB	X	1	=	6.00
1	POOL	X	30	=	30.00
3	WASH BASIN (SHOWER PAN)	X	4	=	12.00
					617.45

TOTAL DEMAND BASED ON 617.45 FIXTURE UNIT FOR FLUSH TANK = 155 GPM. USE 3" MAIN. LOSS PER 100 FEET: 1.9 PSI

CHOOSE: 2" WATER METER

COLD WATER CALCULATION COMPLY WITH 2018 INTERNATIONAL PLUMBING CODE

HOT WATER SUPPLY FIXTURE UNITS (FOR GUESTROOMS, RESTROOMS, OTHER PUBLIC AREAS...)

NO.	FIXTURE	X	CWSFU	=	TOTAL
PRIVATE					
101	LAVATORY	X	0.5	=	50.50
101	SHOWER	X	1	=	101.00
11	KITCHEN SINK	X	1	=	11.00
11	DISH WASHER	X	1.4	=	15.40
11	CLOTHES WASHER	X	1.4	=	15.40
PUBLIC					
3	LAVATORY	X	1.5	=	4.50
1	SHOWER	X	3	=	3.00
6	RESIDENTIAL CLOTHES WASHER	X	1	=	6.00
1	HAND SINK	X	2.25	=	2.25
1	BREAK SINK	X	2.25	=	2.25
3	COMMERCIAL CLOTHES WASHER	X	3	=	9.00
1	UTILITY	X	2.25	=	2.25
2	EYE WASH	X	2.25	=	4.50
1	MOP SINK	X	2.25	=	2.25
1	3–COMP. SINK	X	3	=	3.00
2	DISH WASHER	X	1.4	=	2.80
3	WASH BASIN (SHOWER PAN)	X	3	=	9.00
					244.10

POSSIBLE HOT WATER DEMAND BASED ON 244.1 FIXTURE UNIT= 73.2 GPM.

PROBABLE MAXIMUM DEMAND: 73.2 GPM x 0.25 = 18.3 GPM

HEATING CAPACITY REQUIRED (TO RISE UP COLD WATER 55°F TO 140°F): 735 888 BTUH

SELECT 4 STORAGE WATER HEATER 250,000 BTU/EACH.

HOT WATER CALCULATION COMPLY WITH 2018 INTERNATIONAL PLUMBING CODE

DRAINAGE FIXTURE UNITS (DFU) SUMMARY

NO.	FIXTURE	X	DFU	=	TOTAL
PRIVATE					
101	BATHROOM GROUP (1 TANK WATER CLOSET, 1 LAVATORY, SHOWER)	X	5	=	505.00
11	KITCHEN SINK	X	2	=	22.00
11	DISH WASHER	X	2	=	22.00
11	CLOTHES WASHER	X	2	=	22.00
PUBLIC					
3	WATER CLOSET	X	4	=	12.00
1	URINAL	X	2	=	2.00
3	LAVATORY	X	1	=	3.00
1	SHOWER	X	2	=	2.00
1	HAND SINK	X	2	=	2.00
1	BREAK SINK	X	2	=	2.00
6	RESIDENTIAL CLOTHES WASHER	X	2	=	12.00
3	COMMERCIAL CLOTHES WASHER	X	3	=	9.00
2	EYE WASH	X	2	=	4.00
1	MOP SINK	X	3	=	3.00
1	3–COMP. SINK	X	3	=	3.00
2	DISH WASHER	X	2	=	4.00
1	HYDRATION STATION	X	0.5	=	0.50
2	EDF	X	0.5	=	1.00
8	FLOOR SINK 3"	X	5	=	40.00
1	FLOOR SINK 4"	X	6	=	6.00
1	POOL	X	50	=	50.00
3	WASH BASIN (SHOWER PAN)	X	2	=	6.00
					732.50

05/28/24

USE 6" MAIN SLOPED @1/4" PER FOOT

SANITARY SEWER CALCULATION COMPLY WITH 2018 INTERNATIONAL PLUMBING CODE

HYDRAULIC CALCULATION

A	INCOMING PRESSURE (RESIDUAL)	80	PSI
B	PRESSURE LOSS THROUGH 2 INCH WATER METER (AWWA STANDARD)	15	PSI
C	PRESSURE LOSS THROUGH 2 INCH REDUCED PRESSURE BACKFLOW PREVENTER (BASED ON WATT SERIES 009)	14	PSI
E	PRESSURE LOSS DUE TO ELEVATION = 45 FEET (1 FT = 0.43 PSI)	19.35	PSI
F	1.8 PSI PRESSURE LOSS PER 100 FEET OF PIPE (TOTAL PIPE LENGTH = 350 FT)	6.30	PSI
G	TOTAL PRESSURE LOSSES	54.65	PSI
H	PRESSURE AVAILABLE TO HIGHEST/ FARTHEST FIXTURE	25.35	PSI

NOTE:

(G) TOTAL PRESSURE LOSSES = SUM (B) TO (F)

(H) PRESSURE AVAILABLE TO HIGHEST/FARTHEST FIXTURE = (A) RESIDUAL PRESSURE – (G) TOTAL PRESSURE LOSSES

THE PRESSURE AVAILABLE TO HIGHEST/ FARTHEST FIXTURE IS MORE THAN 25 PSI REQUIRED FOR FIXTURES AND FAUCETS

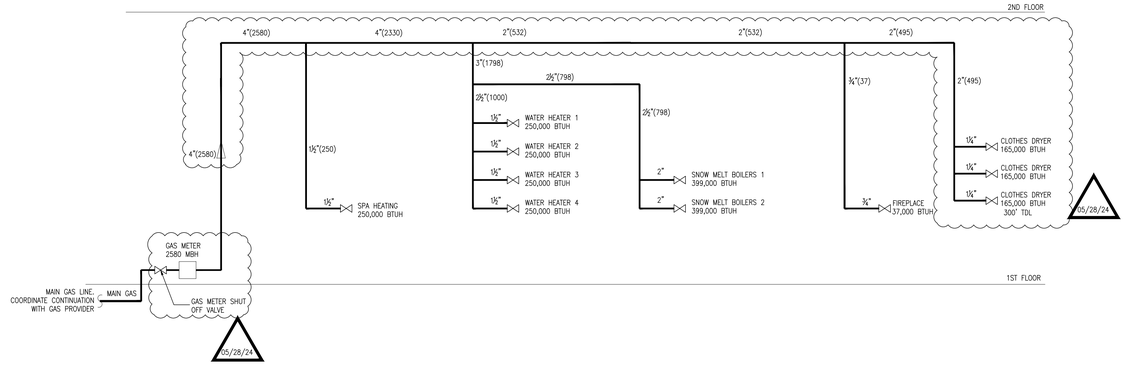
=> NO NEED A BOOSTER PUMP FOR THIS PROJECT.

GAS FIRED WATER HEATER SCHEDULE

ITEM NO.	MANUFACTURER & MODEL	QUANTITY	TYPE	CAPACITY (GAL.)	DELIVERY TEMP	RECOVERY (GAL/HOUR /EACH)	NATURAL GAS INPUT (MBH)	THERMAL EFFIENCY	INTAKE/EXHAUST (PVC)	ELEC.	WEIGHT (LBS)/ EACH	REMARKS
WH–1,2,3,4 (FOR GUESTROOMS, RESTROOMS, OTHER PUBLIC AREAS...)	A.O SMITH BTH–250(A)	4	HIGH EFF. DIRECT VENT	100	140°F	323 @ 90°F. RISE	250	96%	3" (0"–50") 4" (51"–120")	––	553	PROVIDE COMMON VENTING KITS
ALTERNATE MANUFACTURERS: BRADFORD WHITE, RHEEM/RUUD, STATE, LOCHINVAR												
NOTES: PROVIDE WITH 3 YEARS WARRANTY												

CIRCULATING PUMP SCHEDULE

EQUIPMENT NO.	LOCATED	MANU.	MODEL	GPM	HEAD (FT.)	MOTOR			CONNECTIONS	
						HP	RPM	VOLTAGE	SUCTION	DISCHARGE
CIRCULATE PUMP–1	MECHANICAL/ FIRE ROOM (1ST FLOOR)	AMSTRONG	H53	10	28	½	1800	115/1ø/60	1 ½"	1 ½"
CIRCULATE PUMP–2	MECHANICAL/ FIRE ROOM (1ST FLOOR)	AMSTRONG	H32	1.5	17.5	⅛	1800	115/1ø/60	1"	1"
CIRCULATE PUMP–3	MAIN LAUNDRY ROOM (1ST FLOOR)	AMSTRONG	H32	1.5	17.5	⅛	1800	115/1ø/60	1"	1"
CIRCULATE PUMP–4	MAIN LAUNDRY ROOM (1ST FLOOR)	AMSTRONG	H32	2	18	⅛	1800	115/1ø/60	1"	1"
CIRCULATE PUMP–5	MECHANICAL/ STORAGE ROOM (4TH FLOOR)	AMSTRONG	H51	5	22.5	¼	1801	115/1ø/60	1"	1"
CIRCULATE PUMP–6	HOUSEKEEPING ROOM (4TH FLOOR)	AMSTRONG	H51	5	22.5	¼	1802	115/1ø/60	1"	1"



GAS SCHEMATIC DIAGRAM (<2 PSI)

SCALE: N.T.S

BASIS OF DESIGN

MAXIMUM DEMAND = 2,580,000 BTUH (2580 MBH) 05/28/24

TOTAL DEVELOPED LENGTH FROM THE GAS METER TO THE MOST REMOTE OUTLET = 300 FT.

NOTE: TDL= TOTAL DEVELOPED LENGTH FROM METER

INLET PRESSURE: 7 IN W.C

PRESSURE DROP: 0.5 W.C

INSTALL GAS SHUT OFF VALVE FOR EACH APPLIANCE

GAS CALCULATION COMPLY WITH TABLE 402.4(2) SCHEDULE 40 METALLIC PIPE 2018 INTERNATIONAL FUEL GAS CODE

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MEP GREEN DESIGN & BUILD
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MAY 28, 2024

NEW MEXICO REGISTERED PROFESSIONAL ENGINEER 51953

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05/28/24 Updated plans

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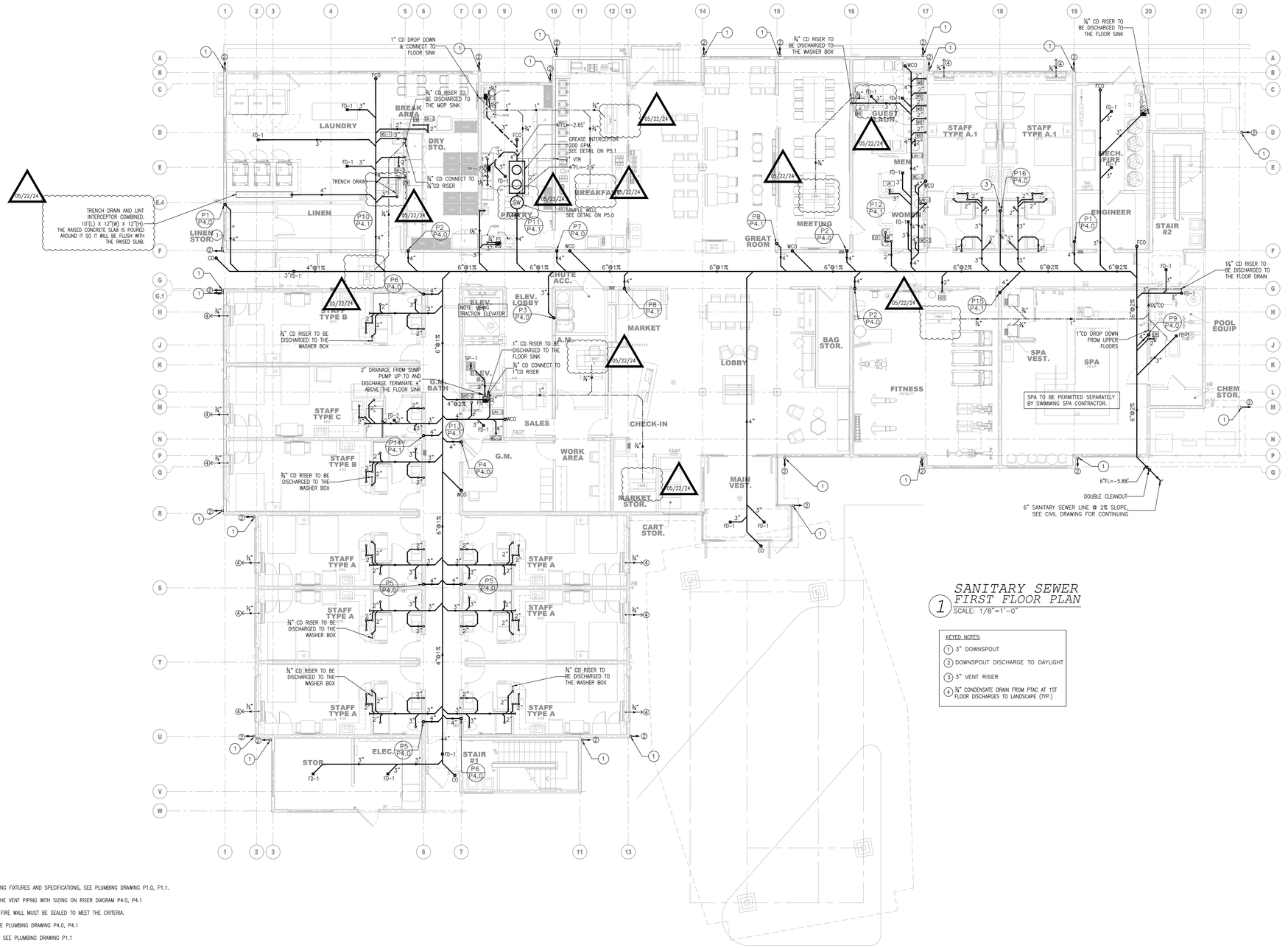
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SHEET TITLE:
PLUMBING SCHEDULE & DIAGRAM

P1.1

SHEET: 95 OF 142

ASI #3 6/11/24



SANITARY SEWER FIRST FLOOR PLAN

SCALE: 1/8"=1'-0"

KEYED NOTES:

1. 3" DOWNSPOUT
2. DOWNSPOUT DISCHARGE TO DAYLIGHT
3. 3" VENT RISER
4. ¾" CONDENSATE DRAIN FROM PTAC AT 1ST FLOOR DISCHARGES TO LANDSCAPE (TYP.)

NOTES:

1. FOR GENERAL NOTES, PLUMBING FIXTURES AND SPECIFICATIONS, SEE PLUMBING DRAWING P1.0, P1.1.
2. FOR DRAWING CLARITY, SEE THE VENT PIPING WITH SIZING ON RISER DIAGRAM P4.0, P4.1
3. ALL PENETRATIONS THROUGH FIRE WALL MUST BE SEALED TO MEET THE CRITERIA.
4. FOR SCHEMATIC DIAGRAMS SEE PLUMBING DRAWING P4.0, P4.1
5. FOR GAS SCHEMATIC DIAGRAM SEE PLUMBING DRAWING P1.1
6. ALL FLOOR DRAINS TO BE INSTALLED W/TRAP SEALS.
7. PROVIDE DRAIN & VENT FOR SWIMMING POOL PER RECOMMENDATION OF POOL EQUIPMENT SUPPLIER.
8. CONTRACTOR TO SUPPLY THE TEMPERED WATER LIMITING DEVICE FOR WATER HEATER SYSTEM
9. VACUUM RELIEF VALVE INSTALLED IN THE COLD WATER SUPPLY LINE ABOVE THE TOP OF THE HEATER OR TANK, SHALL BE PROVIDED TO PREVENT SIPHONING OF ANY STORAGE WATER HEATER OR TANK.
10. DRAIN SIZES FROM PLUMBING FIXTURES SHALL BE AS FOLLOWS:
    WATER CLOSETS– 3"ø
    BATHTUB – 2"ø
    LAVATORY – 2"ø
    FLOOR DRAIN (GUESTROOM)– 2"ø
    FLOOR DRAIN (PUBLIC AREAS) – 3"ø
    FLOOR SINK – 3"ø

1. THE PLUMBING CONTRACTOR MUST PREPARE SHOP DRAWING TO COORDINATE WITH STRUCTURAL ENGINEER BEFORE INSTALLING AND GUARANTEE THE WATER, SEWER AND STORM LINE DO NOT RUNNING ALONG WITH THE GRADE BEAMS.

2. THE CONTRACTOR MUST PERFORM THE COLD/HOT WATER BALANCING TO ENSURE SUFFICIENT HOT WATER THAT DELIVERS TO EVERY GUESTROOM UNIT BEFORE CEILING TILE IS INSTALLED

EQUIPMENT SCHEDULE

ITEM NO	QTY	EQUIPMENT CATEGORY	EQUIPMENT REMARKS	COLD WATER SIZE (IN)	COLD WATER AFF (IN)	HOT WATER SIZE (IN)	HOT WATER AFF (IN)	SHEET DRAIN (IN)	DIRECT DRAIN AFF (IN)	INDIR DRAIN SIZE (IN)	PLUMBING REMARKS	COMMENTS
007	1	HAND SINK	SOAP & TOWEL DISPENSER BY VENDOR	1/2	12	1/2	12	1 1/2	24			
013A	2	COMBI OVEN-STEAMER	W/ EQUIPMENT STAND	1/2	*					1 1/2	*FROM FILTER ITEM #014	SEE MFR. INFO. FOR HIGH TEMP. PIPING NEED
014	1	FILTER SYSTEM		1/2	24							
017	1	COFFEE BREWER	BY VENDOR	1/4	*						*FROM FILTER ITEM #023.	
023A	1	ICE (BAGE)	FULL TABLE	3/8	*					3/4	*FROM FILTER ITEM #023.	
024	1	THREE COMPARTMENT SINK	FURNISH W/ BASKET DRAINS							(3)1 1/2		
024.1	1	FAUCET AND PRE-RINSE		1/2		1/2						
026	1	UNDERCOUNTER WAREWASHER				3/4	12			1		

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PROJECT MANAGER:
DV

DRAWN BY:
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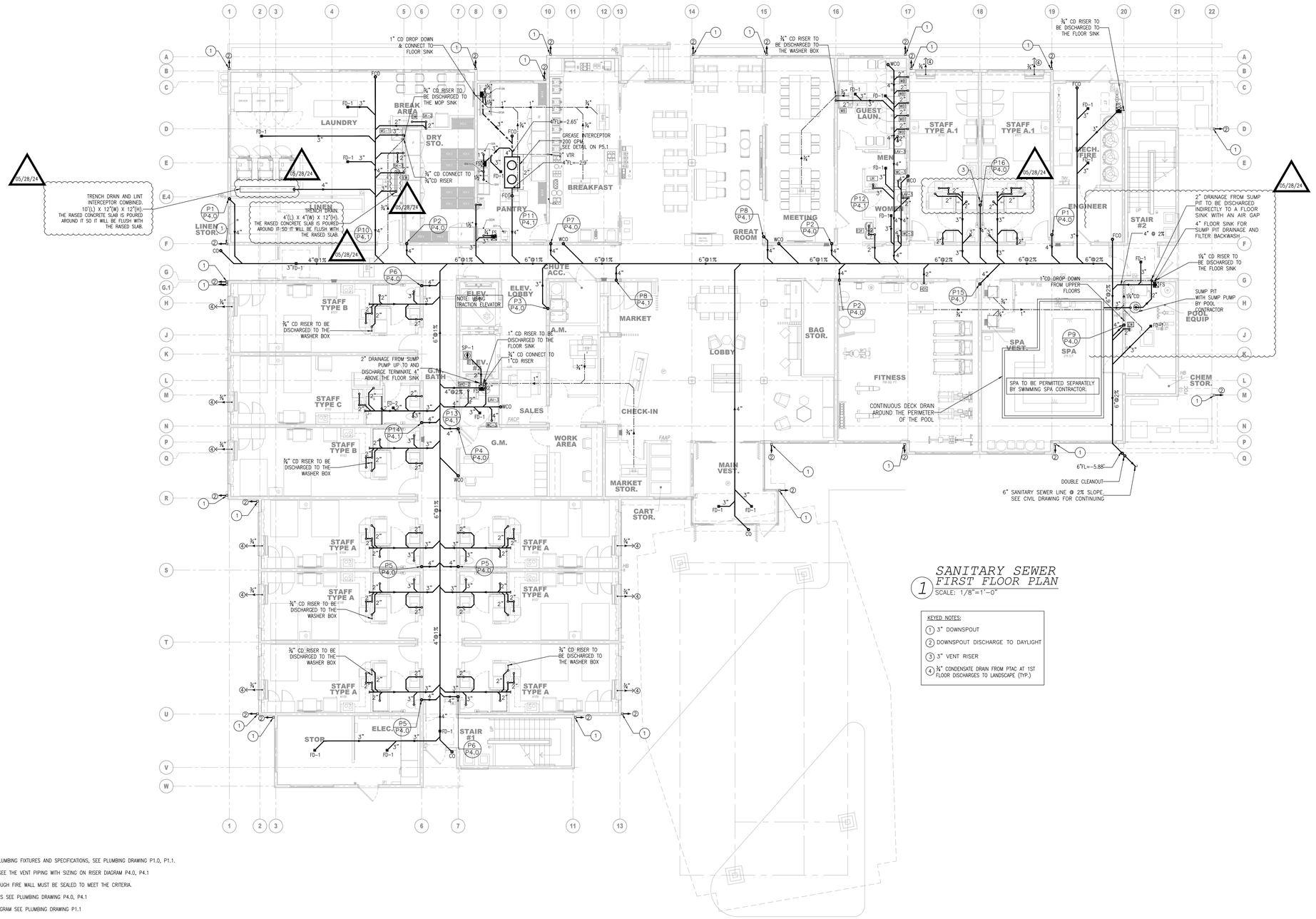
SHEET TITLE:
SANITARY SEWER FIRST FLOOR PLAN

P2.0

SHEET: 96 OF 142

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ASI #2 5/28/24



SANITARY SEWER FIRST FLOOR PLAN

1 SCALE: 1/8"=1'-0"

KEYED NOTES:

1. 3" DOWNSPOUT
2. DOWNSPOUT DISCHARGE TO DAYLIGHT
3. 3" VENT RISER
4. ¾" CONDENSATE DRAIN FROM PTAC AT 1ST FLOOR DISCHARGES TO LANDSCAPE (TYP.)

NOTES:

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EQUIPMENT SCHEDULE

ITEM NO	QTY	EQUIPMENT CATEGORY	EQUIPMENT REMARKS	COLD WATER SIZE (IN)	COLD WATER AFF (IN)	HOT WATER SIZE (IN)	HOT WATER AFF (IN)	SHEET DRAIN (IN)	DIRECT DRAIN AFF (IN)	INDIR DRAIN SIZE (IN)	PLUMBING REMARKS	COMMENTS
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014	1	FILTER SYSTEM		1/2	24							
017	1	COFFEE BREWER	BY VENDOR	1/4	*						*FROM FILTER ITEM #023.	
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024	1	THREE COMPARTMENT SINK	FURNISH W/ BASKET DRAINS							(3)1 1/2		
024.1	1	FAUCET AND PRE-RINSE		1/2		1/2						
026	1	UNDERCOUNTER WAREWASHER				3/4	12			1		

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03/05/24 Updated plans
05/14/24 Updated plans
05/22/24 Updated per Submittal
05/28/24 Updated plans

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DV

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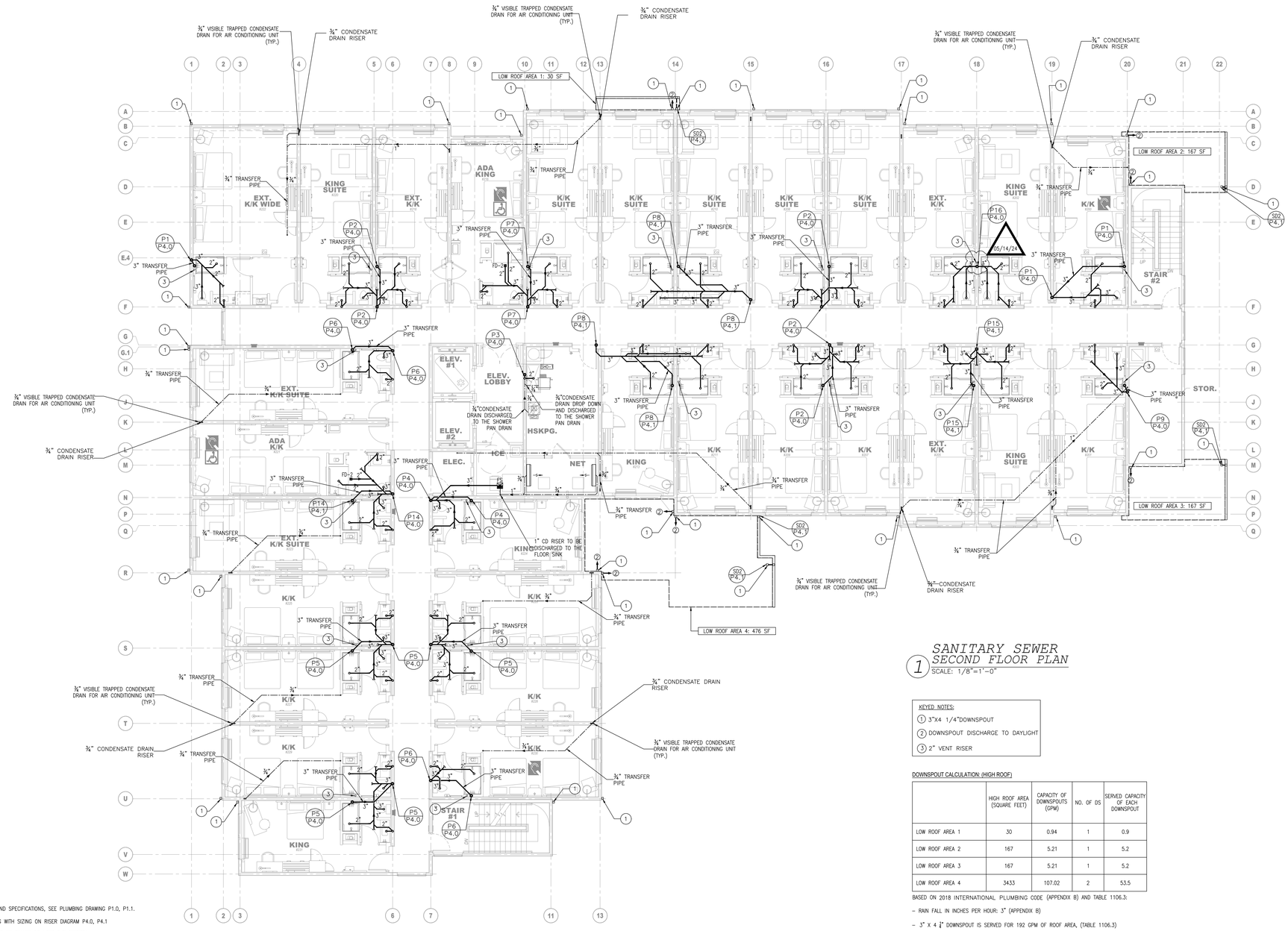
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SANITARY SEWER FIRST FLOOR PLAN

P2.0

SHEET: 96 OF 142

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ASI #3 6/11/24



SANITARY SEWER SECOND FLOOR PLAN

1 SCALE: 1/8"=1'-0"

KEYED NOTES:

1. 3"X4 1/4"DOWNSPOUT
2. DOWNSPOUT DISCHARGE TO DAYLIGHT
3. 2" VENT RISER

DOWNSPOUT CALCULATION: (HIGH ROOF)

	HIGH ROOF AREA (SQUARE FEET)	CAPACITY OF DOWNSPOUTS (GPM)	NO. OF DS	SERVED CAPACITY OF EACH DOWNSPOUT
LOW ROOF AREA 1	30	0.94	1	0.9
LOW ROOF AREA 2	167	5.21	1	5.2
LOW ROOF AREA 3	167	5.21	1	5.2
LOW ROOF AREA 4	3433	107.02	2	53.5

BASED ON 2018 INTERNATIONAL PLUMBING CODE (APPENDIX B) AND TABLE 1106.3:

- RAIN FALL IN INCHES PER HOUR: 3" (APPENDIX B)
- 3" X 4 ¼" DOWNSPOUT IS SERVED FOR 192 GPM OF ROOF AREA, (TABLE 1106.3)

NOTES:

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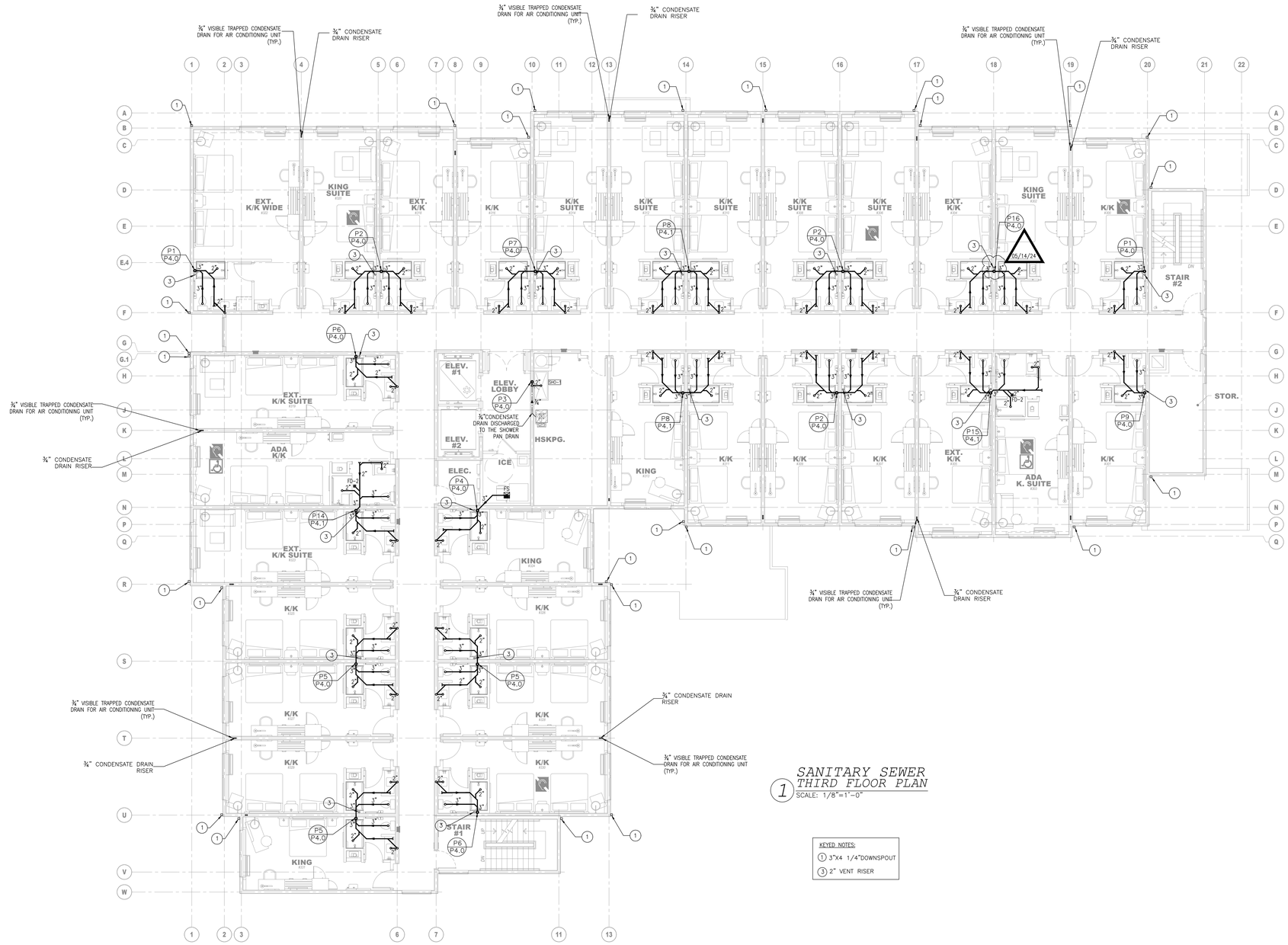
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SANITARY SEWER SECOND FLOOR PLAN

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ASI #2 5/28/24



SANITARY SEWER THIRD FLOOR PLAN

SCALE: 1/8"=1'-0"

KEYED NOTES:

1. 3"X4 1/4"DOWNSPOUT
3. 2" VENT RISER

NOTES:

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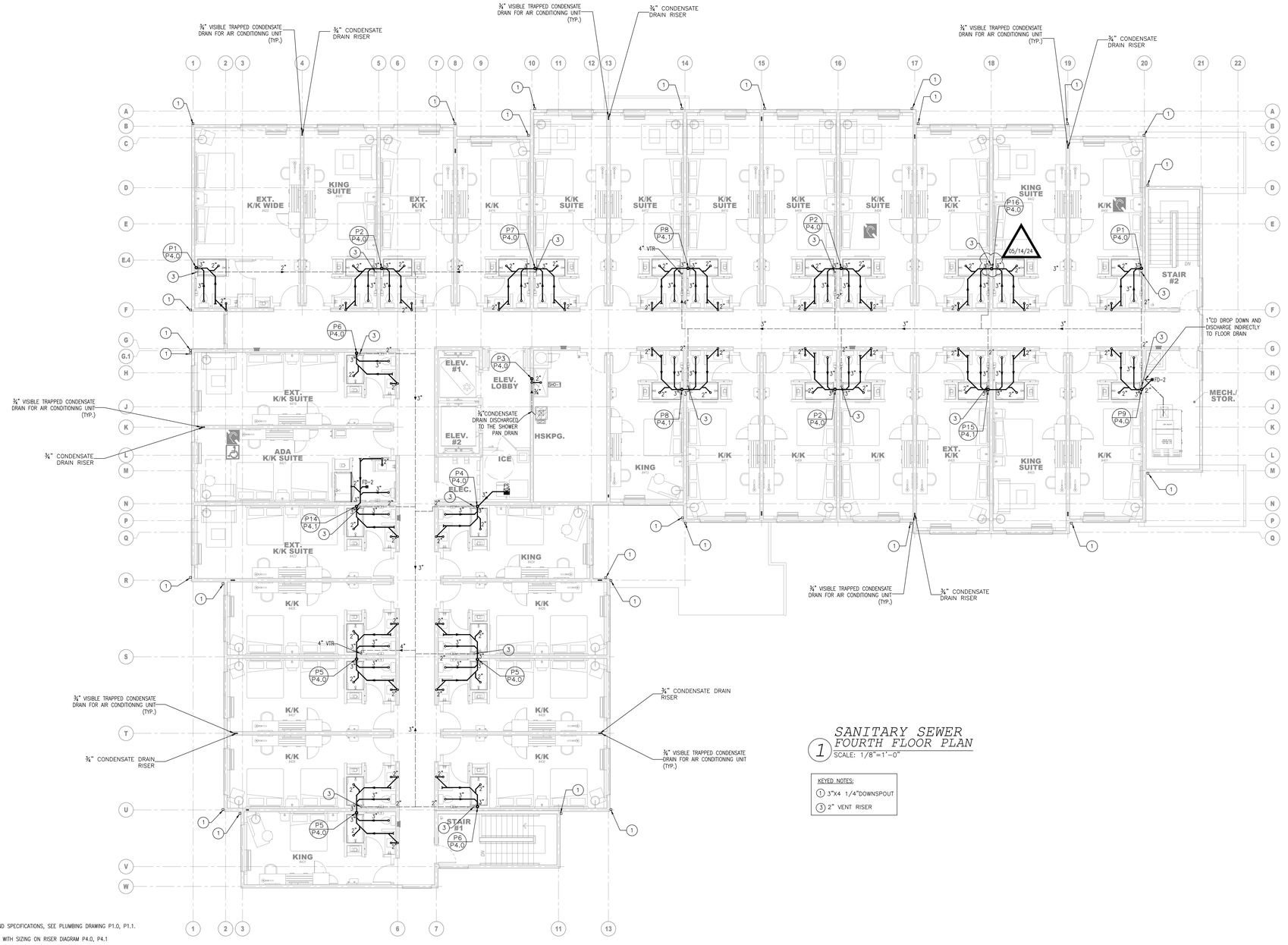
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P2.2

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1 SANITARY SEWER FOURTH FLOOR PLAN

SCALE: 1/8"=1'-0"

KEYED NOTES:

1. 3"X4 1/4"DOWNSPOUT
3. 2" VENT RISER

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MEP GREEN DESIGN & BUILD®
FAST AND ACCURATE

MAY 14, 2024

COLORADO REGISTERED PROFESSIONAL ENGINEER 51953

Holiday Inn Express

3350 S. LINCOLN AVE
STEAMBOAT SPRINGS, CO 80487

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DRAWING ISSUE DATES:
8/18/23 Permit Set

REVISION DATES:
10/19/23 Staff/GM Toilets, Permit Revisions
11/29/23 Mt. Werner Revisions
02/15/24 Pool Removal, Guestroom Addition
03/05/24 Updated plans
05/14/24 Updated plans

PROJECT MANAGER:
DV

DRAWN BY:
PL

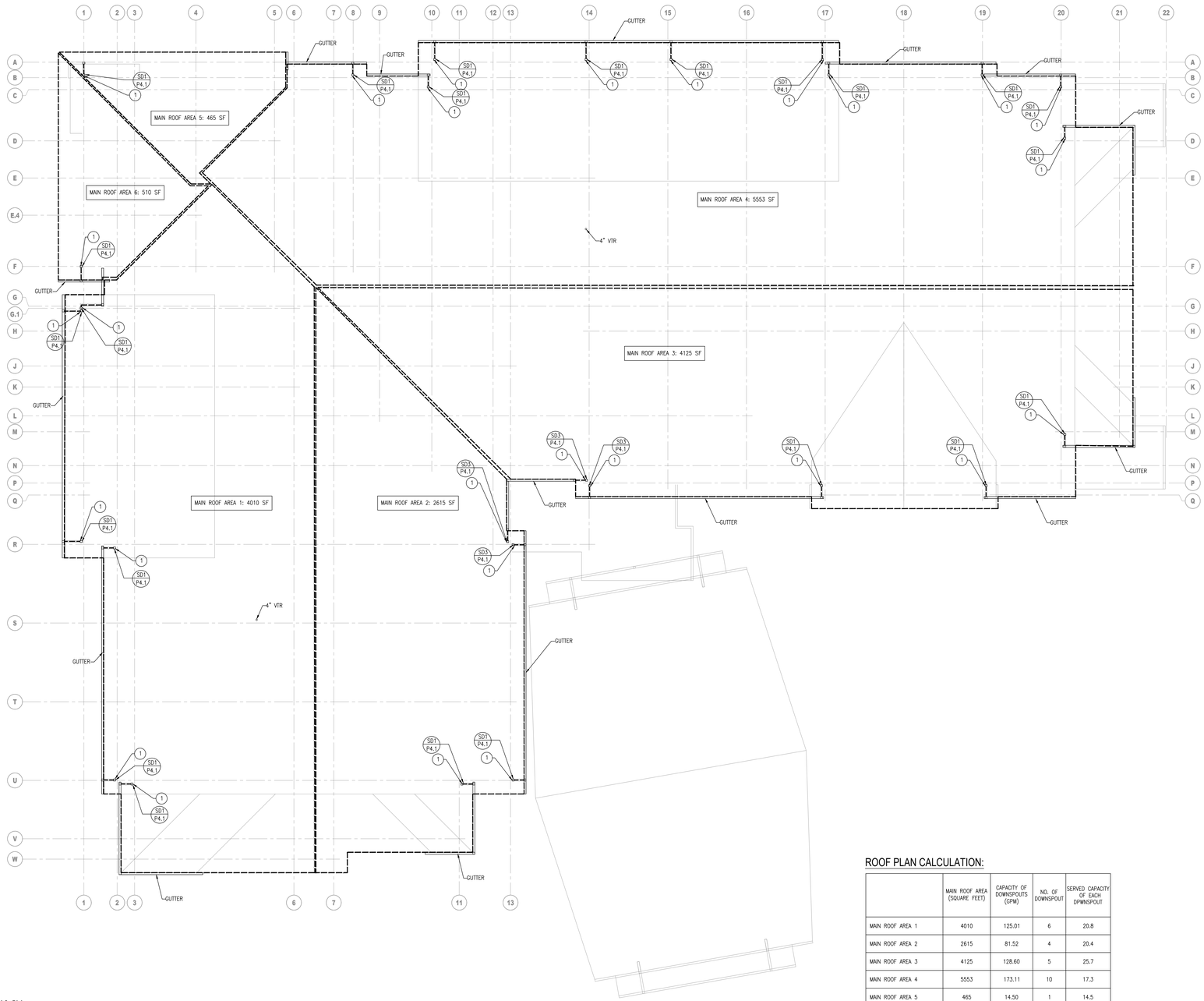
SHEET TITLE:
SANITARY SEWER FOURTH FLOOR PLAN

P2.3

SHEET: 99 OF 142

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ASI #2 5/28/24



NOTES:

1. FOR GENERAL NOTES, PLUMBING FIXTURES AND SPECIFICATIONS, SEE PLUMBING DRAWING P1.0, P1.1.
2. FOR DRAWING CLARITY, SEE THE VENT PIPING WITH SIZING ON RISER DIAGRAM P4.0, P4.1
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6. ALL FLOOR DRAINS TO BE INSTALLED W/TRAP SEALS.
7. PROVIDE DRAIN & VENT FOR SWIMMING POOL PER RECOMMENDATION OF POOL EQUIPMENT SUPPLIER.
8. CONTRACTOR TO SUPPLY THE TEMPERED WATER LIMITING DEVICE FOR WATER HEATER SYSTEM
9. VACUUM RELIEF VALVE INSTALLED IN THE COLD WATER SUPPLY LINE ABOVE THE TOP OF THE HEATER OR TANK, SHALL BE PROVIDED TO PREVENT SIPHONING OF ANY STORAGE WATER HEATER OR TANK.
10. DRAIN SIZES FROM PLUMBING FIXTURES SHALL BE AS FOLLOWS:
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    LAVATORY – 2"ø
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    FLOOR DRAIN (PUBLIC AREAS) – 3"ø
    FLOOR SINK – 3"ø

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ROOF PLAN CALCULATION:

	MAIN ROOF AREA (SQUARE FEET)	CAPACITY OF DOWNSPOUTS (GPM)	NO. OF DOWNSPOUT	SERVED CAPACITY OF EACH DPWNSPOUT
MAIN ROOF AREA 1	4010	125.01	6	20.8
MAIN ROOF AREA 2	2615	81.52	4	20.4
MAIN ROOF AREA 3	4125	128.60	5	25.7
MAIN ROOF AREA 4	5553	173.11	10	17.3
MAIN ROOF AREA 5	465	14.50	1	14.5
MAIN ROOF AREA 6	510	15.90	1	15.9

BASE ON 2018 INTERNATIONAL PLUMBING CODE, APPENDIX B:
- RAIN FALL IN INCHES PER HOUR: 3" (APPENDIX B)
- 3" X 4 4" DOWNSPOUT IS SERVED FOR 192 GPM OF ROOF AREA, (TABLE 1106.3)

1 STORM DRAINAGE ROOF PLAN
SCALE: 1/8"=1'-0"

KEYED NOTES:
(1) 3"X4 1/4"DOWNSPOUT

REVIEWED FOR CODE COMPLIANCE
01/12/2024

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AUG. 18, 2023
COLORADO REGISTERED 51953 PROFESSIONAL ENGINEER

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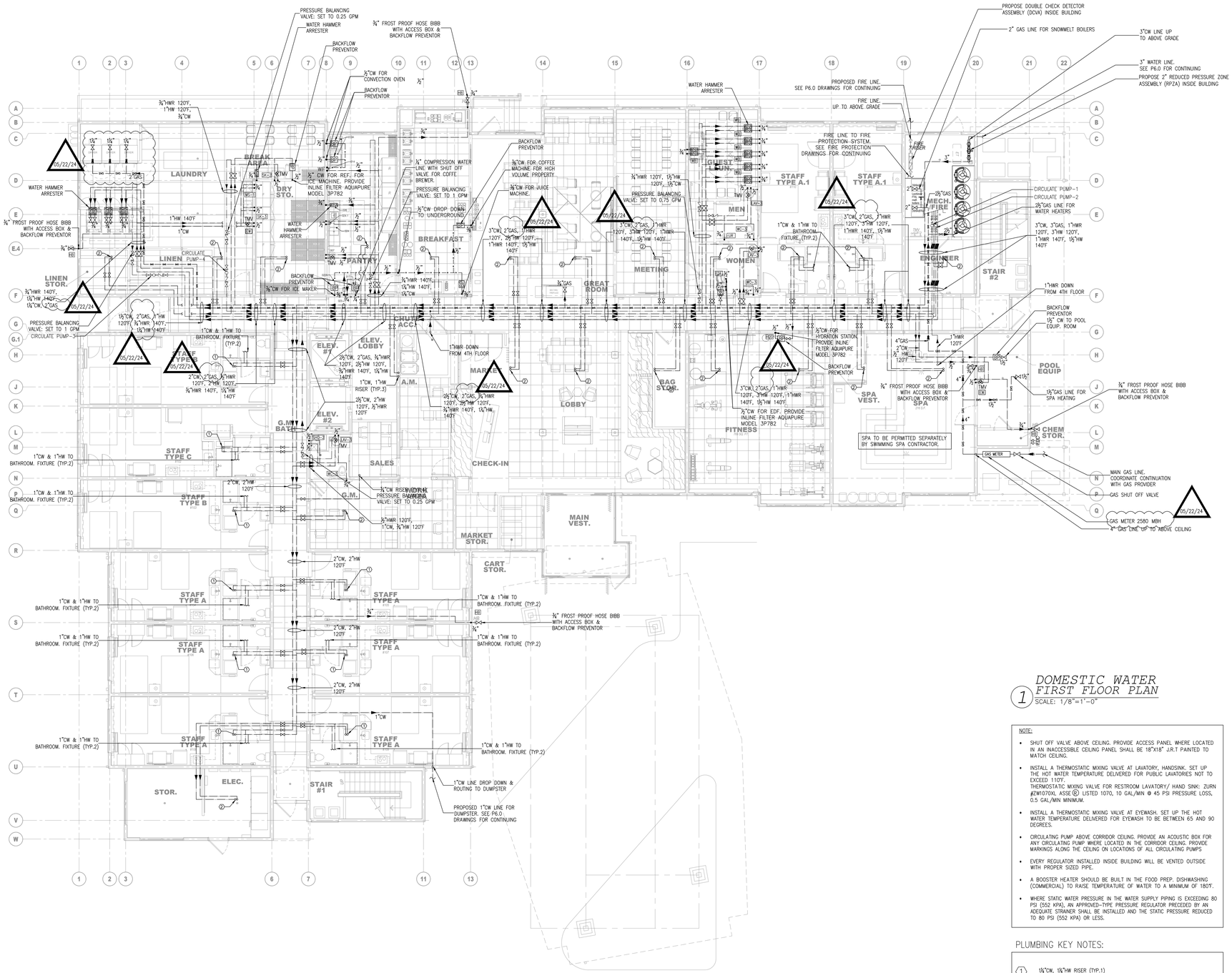
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SHEET TITLE:
STORM DRAINAGE ROOF PLAN

P2.4

SHEET: 99 OF 140

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DOMESTIC WATER FIRST FLOOR PLAN

1 SCALE: 1/8"=1'-0"

NOTE:

- SHUT OFF VALVE ABOVE CEILING. PROVIDE ACCESS PANEL WHERE LOCATED IN AN INACCESSIBLE CEILING PANEL SHALL BE 18"X18" J.R.T PAINTED TO MATCH CEILING.
- INSTALL A THERMOSTATIC MIXING VALVE AT LAVATORY, HANDSINK. SET UP THE HOT WATER TEMPERATURE DELIVERED FOR PUBLIC LAVATORIES NOT TO EXCEED 110°F. THERMOSTATIC MIXING VALVE FOR RESTROOM LAVATORY/ HAND SINK: ZURN #ZW1070XL ASSE Ⓢ LISTED 1070, 10 GAL/MIN @ 45 PSI PRESSURE LOSS, 0.5 GAL/MIN MINIMUM.
- INSTALL A THERMOSTATIC MIXING VALVE AT EYEWASH. SET UP THE HOT WATER TEMPERATURE DELIVERED FOR EYEWASH TO BE BETWEEN 65 AND 90 DEGREES.
- CIRCULATING PUMP ABOVE CORRIDOR CEILING. PROVIDE AN ACOUSTIC BOX FOR ANY CIRCULATING PUMP WHERE LOCATED IN THE CORRIDOR CEILING. PROVIDE MARKINGS ALONG THE CEILING ON LOCATIONS OF ALL CIRCULATING PUMPS
- EVERY REGULATOR INSTALLED INSIDE BUILDING WILL BE VENTED OUTSIDE WITH PROPER SIZED PIPE.
- A BOOSTER HEATER SHOULD BE BUILT IN THE FOOD PREP. DISHWASHING (COMMERCIAL) TO RAISE TEMPERATURE OF WATER TO A MINIMUM OF 180°F.
- WHERE STATIC WATER PRESSURE IN THE WATER SUPPLY PIPING IS EXCEEDING 80 PSI (552 KPA), AN APPROVED-TYPE PRESSURE REGULATOR PRECEDED BY AN ADEQUATE STRAINER SHALL BE INSTALLED AND THE STATIC PRESSURE REDUCED TO 80 PSI (552 KPA) OR LESS.

PLUMBING KEY NOTES:

1. ¾"CW, ¾"HW RISER (TYP.1)
2. 1"CW, 1"HW RISER (TYP.2)

NOTES:

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EQUIPMENT SCHEDULE

ITEM NO	QTY	EQUIPMENT CATEGORY	EQUIPMENT REMARKS	COLD WATER SIZE (IN)	COLD WATER AFF (IN)	HOT WATER SIZE (IN)	HOT WATER AFF (IN)	DIRECT DRAIN SIZE (IN)	DIRECT DRAIN AFF (IN)	INDIR DRAIN SIZE (IN)	PLUMBING REMARKS	COMMENTS
007	1	HAND SINK	SOAP & TOWEL DISPENSER BY VENDOR	1/2	12	1/2	12	1 1/2	24	1 1/2	*FROM FILTER ITEM #014	SEE MFR. INFO. FOR HIGH TEMP. PIPING NEEDS.
013A	2	COMBI OVEN-STEAMER	W/ EQUIPMENT STAND	1/2	*					1 1/2	*FROM FILTER ITEM #014	SEE MFR. INFO. FOR HIGH TEMP. PIPING NEEDS.
014	1	FILTER SYSTEM		1/2	24						*FROM FILTER ITEM #023	
017	1	COFFEE BREWER	BY VENDOR	1/4	*						*FROM FILTER ITEM #023	
022A	1	ICE (BASE)	FULL TABLE	3/8	*					3/4	*FROM FILTER ITEM #023	
022.3	1	FILTER SYSTEM	FOR ICE MAKER & COFFEE BREWER	3/4	48							
024	1	THREE COMPARTMENT SINK	FURNISH W/ BASKET DRAINS							(3)1 1/2		
024.1	1	FAUCET AND PRE-RINSE		1/2		1/2						
026	1	UNDERCOUNTER WAREWASHER				3/4	12			1		

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MEP GREEN DESIGN & BUILD
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MAY 22, 2024

COLORADO REGISTERED 51953 PROFESSIONAL ENGINEER

Holiday Inn Express

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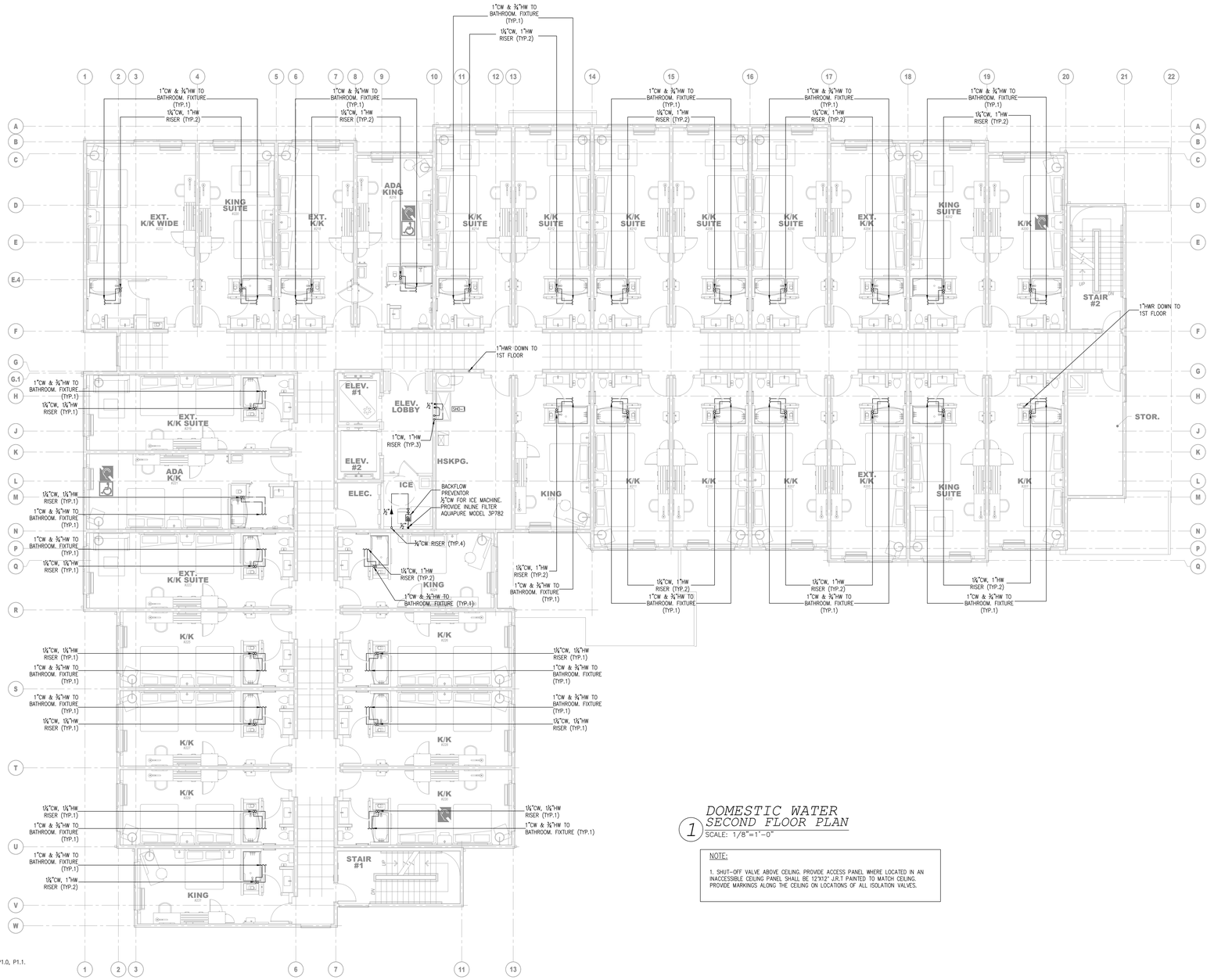
SHEET TITLE:
DOMESTIC WATER FIRST FLOOR PLAN

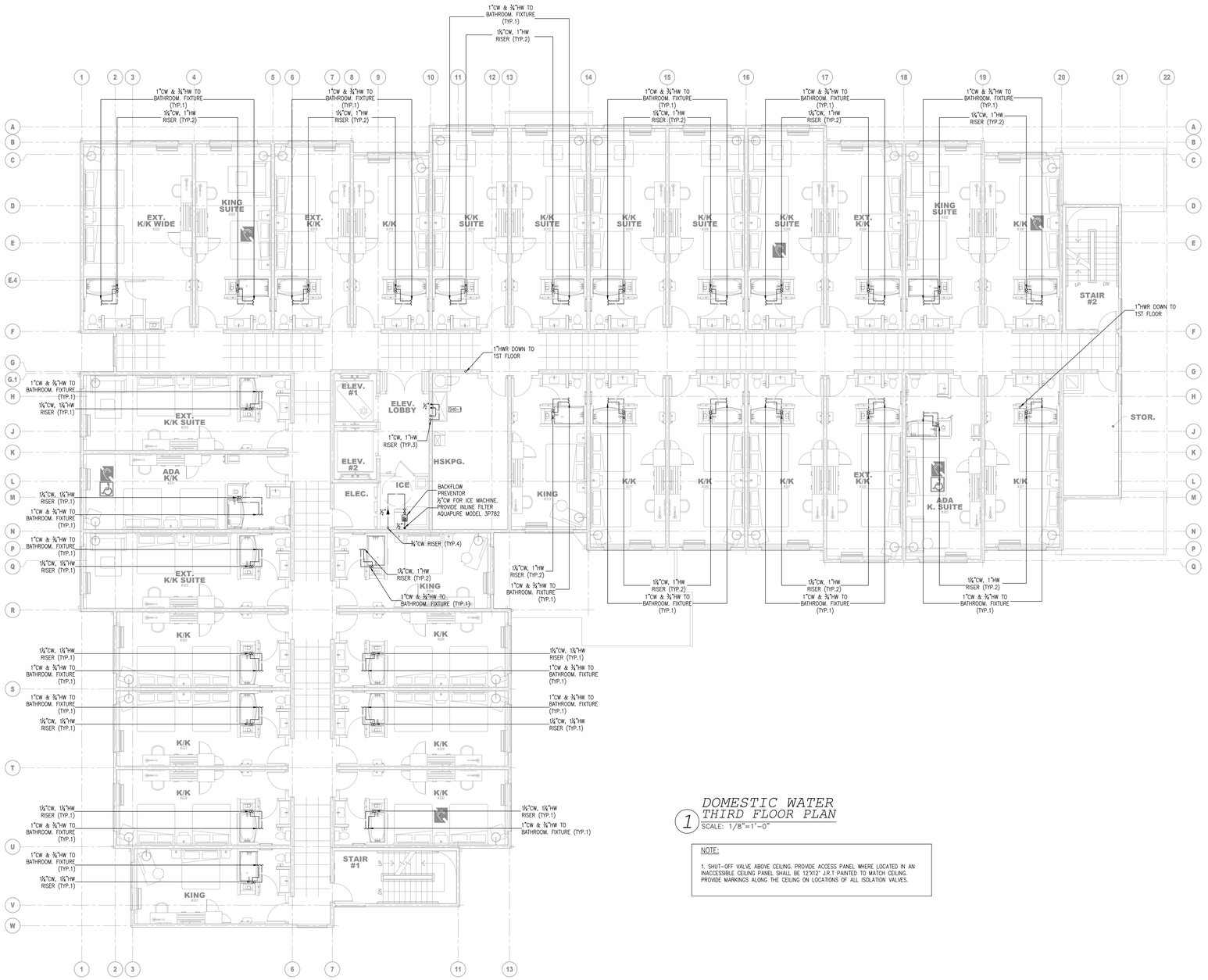
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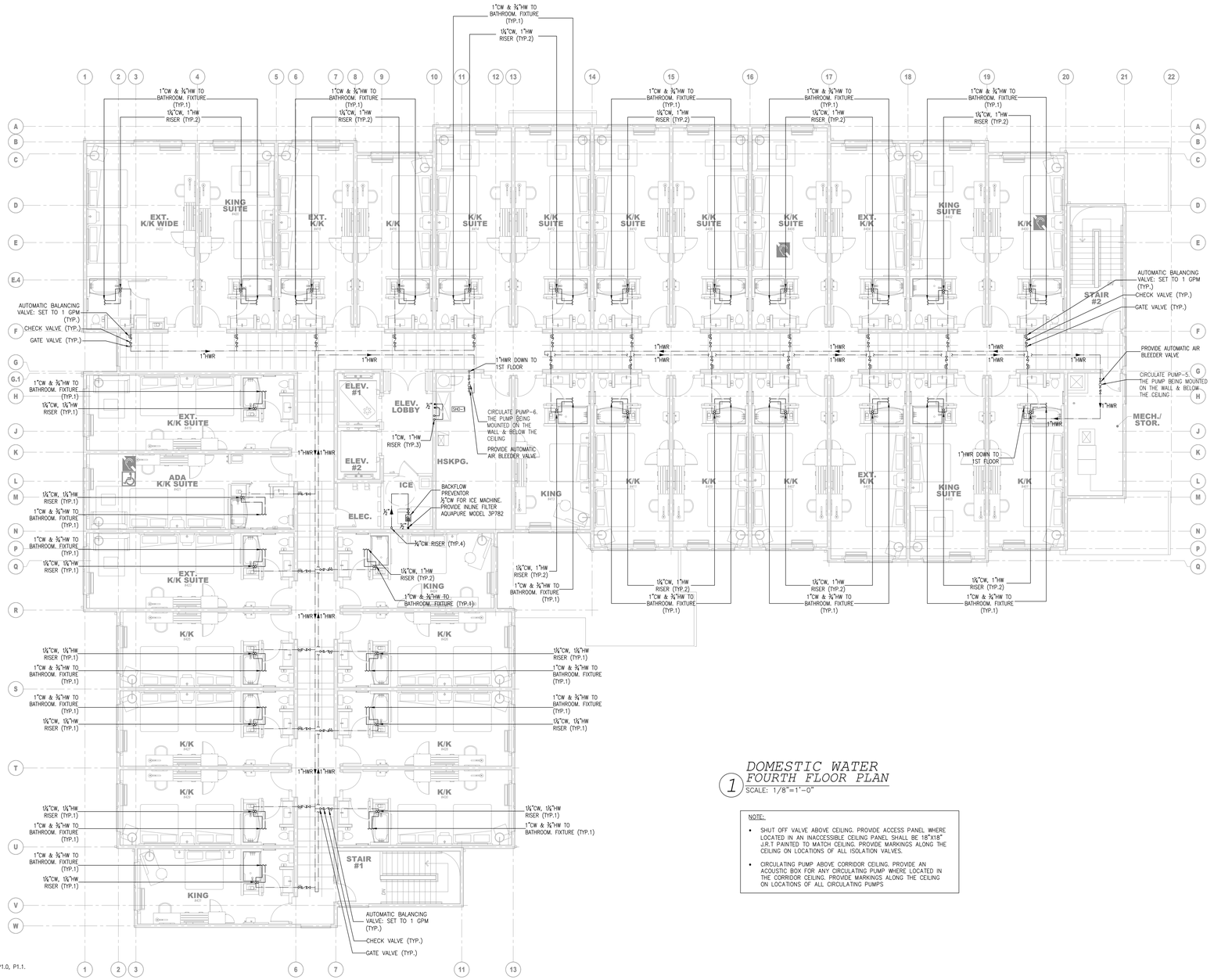
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ASI #2 5/28/24


1"CW & ¾"HW TO BATHROOM. FIXTURE (TYP.1)
1½"CW, 1"HW RISER (TYP.2)
EXT. K/K WIDE
KING SUITE
EXT. K/K
ADA KING
K/K SUITE
STAIR #2
1"HWR DOWN TO 1ST FLOOR
STOR.
EXT. K/K SUITE
ADA K/K
ELEV. #1
ELEV. #2
ELEV. LOBBY
ELEC.
HSKPG.
ICE
KING
BACKFLOW PREVENTOR ¾"CW FOR ICE MACHINE. PROVIDE INLINE FILTER AQUAPURE MODEL 3P782
¾"CW RISER (TYP.4)
1"CW, 1"HW RISER (TYP.3)
1½"CW, 1"HW RISER (TYP.2)
1"CW & ¾"HW TO BATHROOM. FIXTURE (TYP.1


1"CW & ¾"HW TO BATHROOM. FIXTURE (TYP.1)
1½"CW, 1"HW RISER (TYP.2)
1"CW & ¾"HW TO BATHROOM. FIXTURE (TYP.1)
1½"CW, 1"HW RISER (TYP.2)
1"HWR DOWN TO 1ST FLOOR
1"CW & ¾"HW TO BATHROOM. FIXTURE (TYP.1)
1¼"CW, 1¼"HW RISER (TYP.1)
1"CW, 1"HW RISER (TYP.3)
BACKFLOW PREVENTOR ¾"CW FOR ICE MACHINE. PROVIDE INLINE FILTER AQUAPURE MODEL 3P782
¾"CW RISER (TYP.4)
1½"CW, 1"HW RISER (TYP.2)
1"CW & ¾"HW TO BATHROOM. FIXTURE (TYP.1



1 DOMESTIC WATER FOURTH FLOOR PLAN

SCALE: 1/8"=1'-0"

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REVIEWED FOR CODE COMPLIANCE
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OCT. 19, 2023

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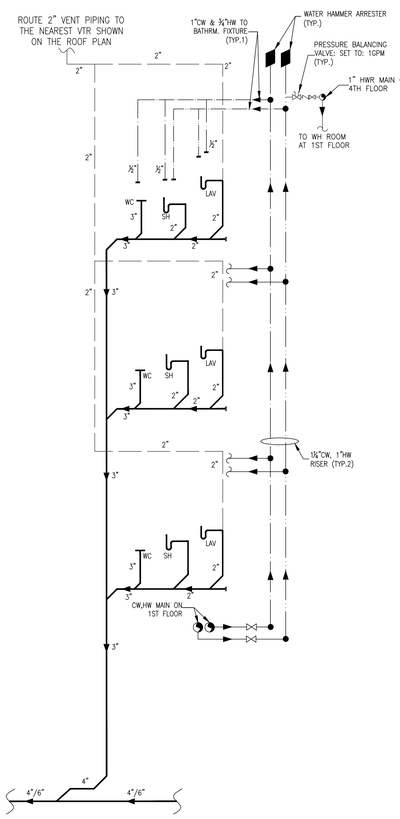
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SHEET TITLE:
DOMESTIC WATER FOURTH FLOOR PLAN

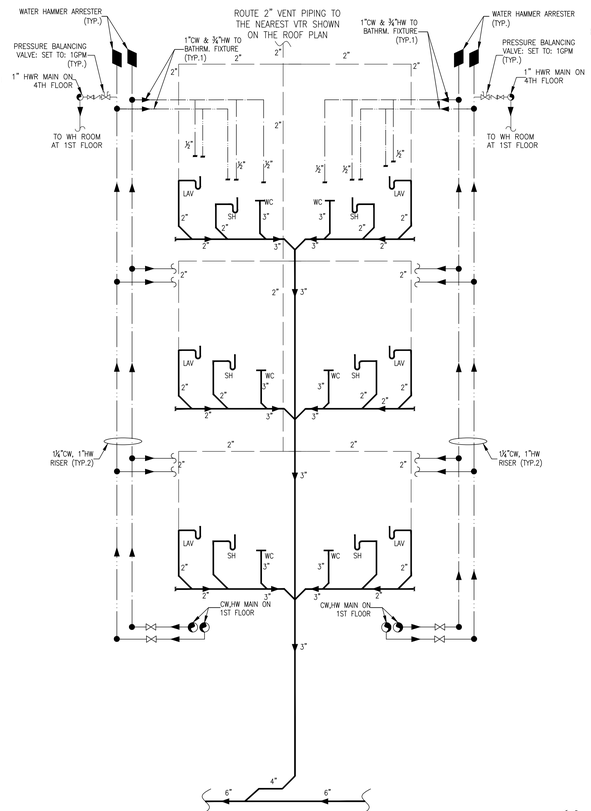
10/19/23
NOTE:
- NEW BACKGROUND

P3.3
SHEET: 103 OF 140

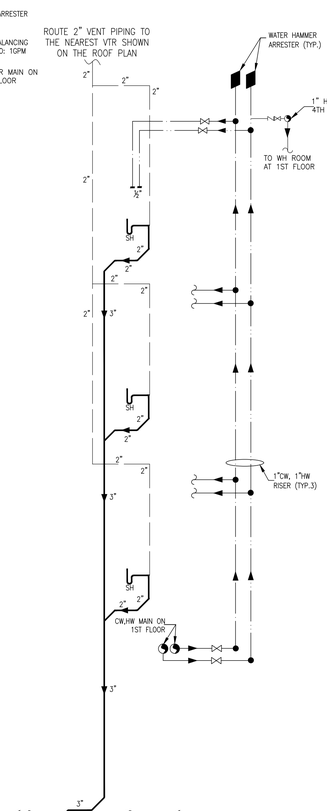
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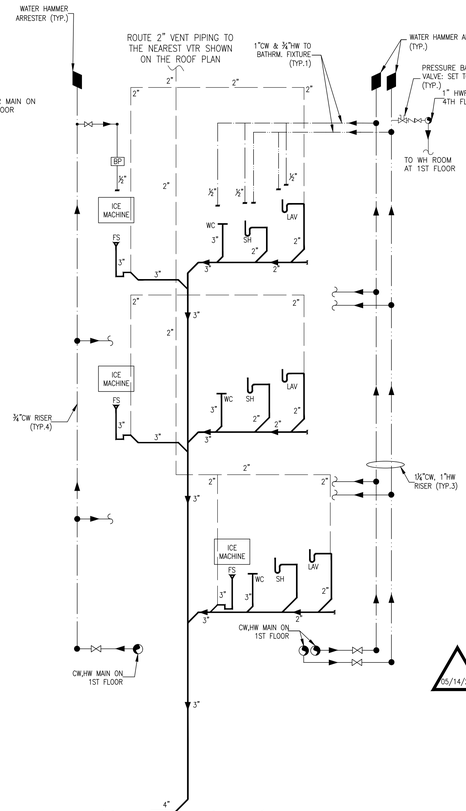
P1 SANITARY WASTE FLOW SCHEMATIC DIAGRAM
SCALE: N.T.S



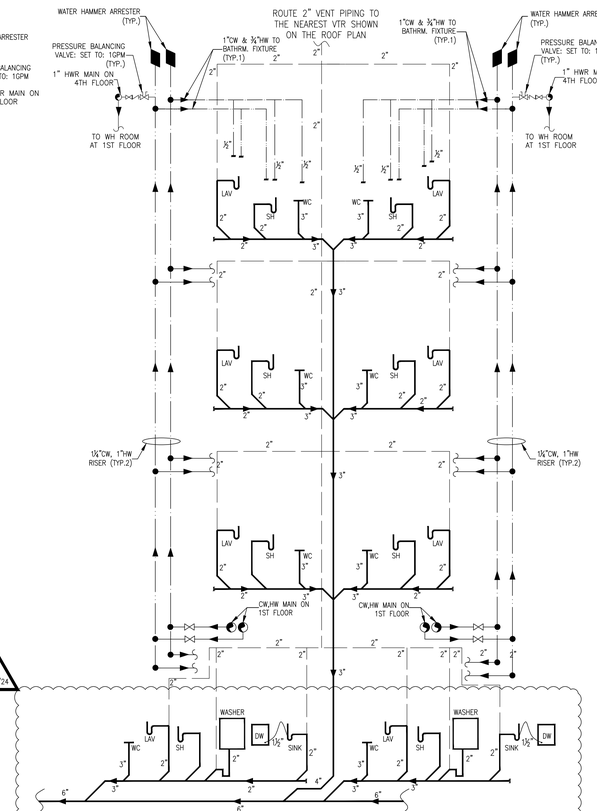
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SCALE: N.T.S



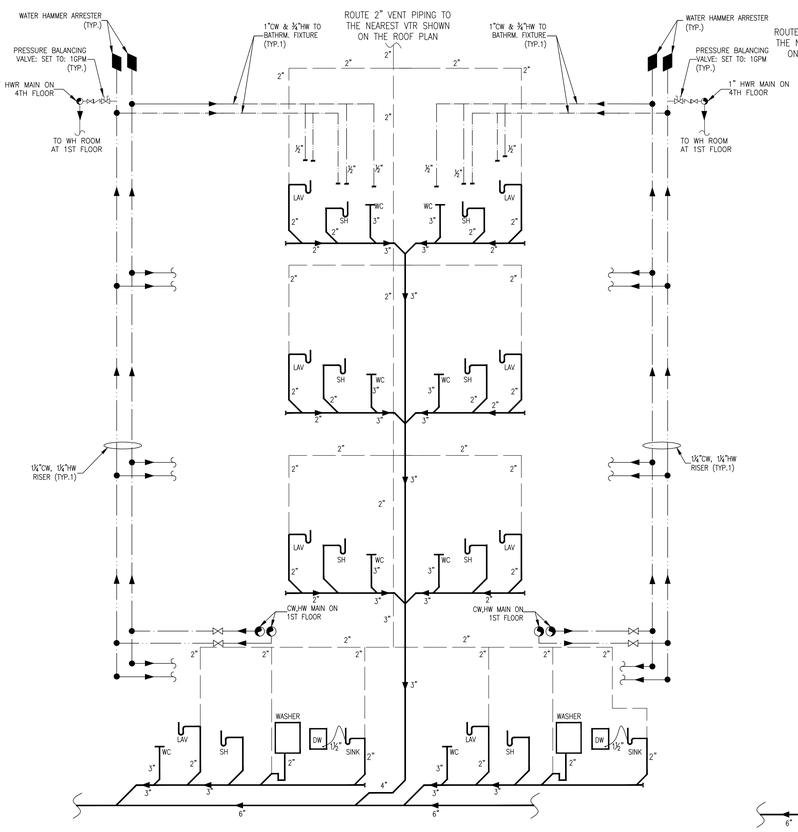
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SCALE: N.T.S



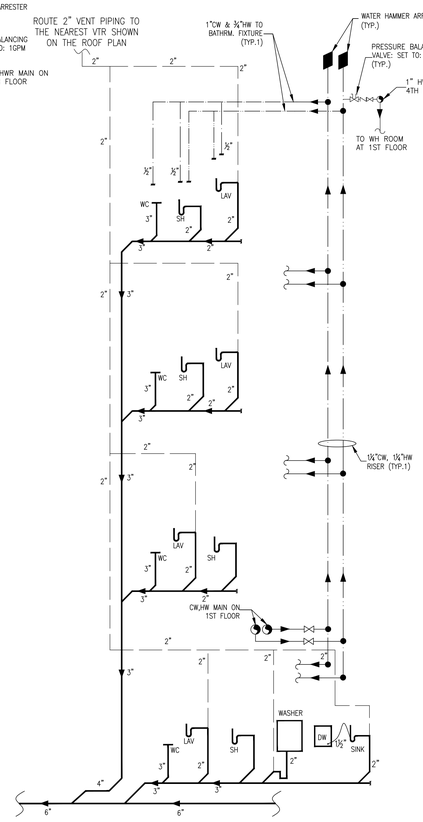
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SCALE: N.T.S



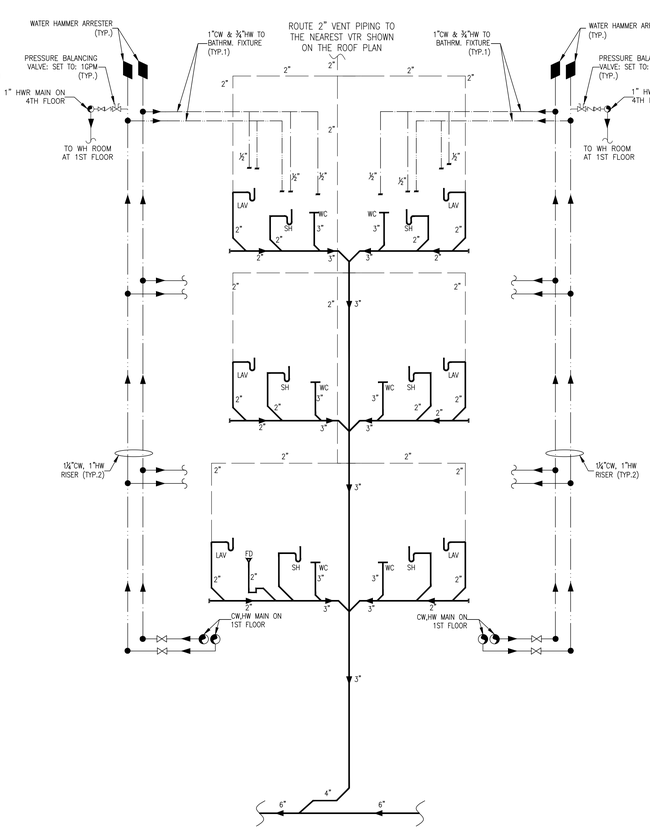
P16 SANITARY WASTE FLOW SCHEMATIC DIAGRAM
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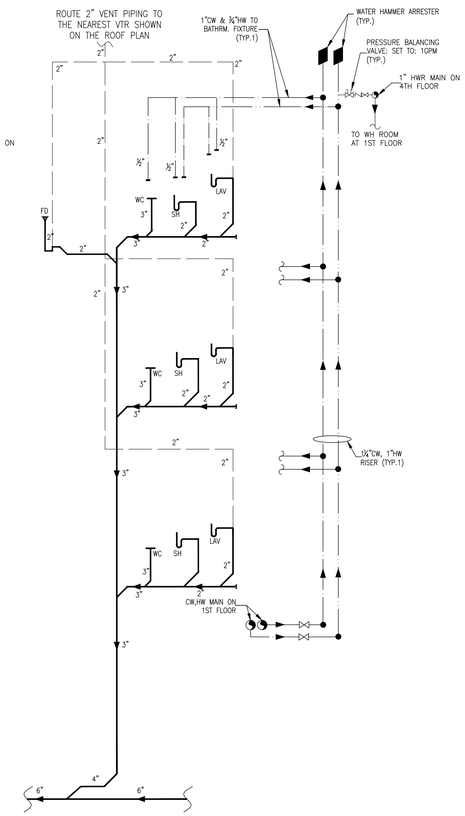
P5 SANITARY WASTE FLOW SCHEMATIC DIAGRAM
SCALE: N.T.S



P6 SANITARY WASTE FLOW SCHEMATIC DIAGRAM
SCALE: N.T.S



P7 SANITARY WASTE FLOW SCHEMATIC DIAGRAM
SCALE: N.T.S



P9 SANITARY WASTE FLOW SCHEMATIC DIAGRAM
SCALE: N.T.S

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MEP GREEN DESIGN & BUILD
FAST AND ACCURATE

MAY 14, 2024
COLORADO REGISTERED
51953
PROFESSIONAL ENGINEER

Holiday Inn Express

3350 S. LINCOLN AVE
STEAMBOAT SPRINGS, CO 80487

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02/15/24 Pool Removal, Guestroom Addition
05/14/24 Updated plans

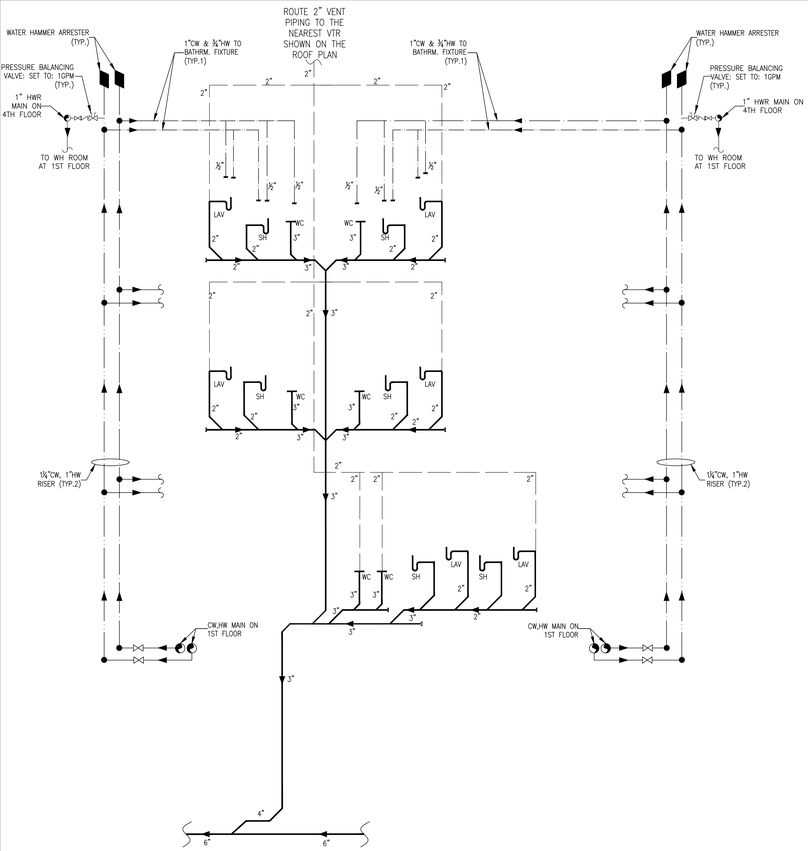
PROJECT MANAGER:
DV

DRAWN BY:
PL

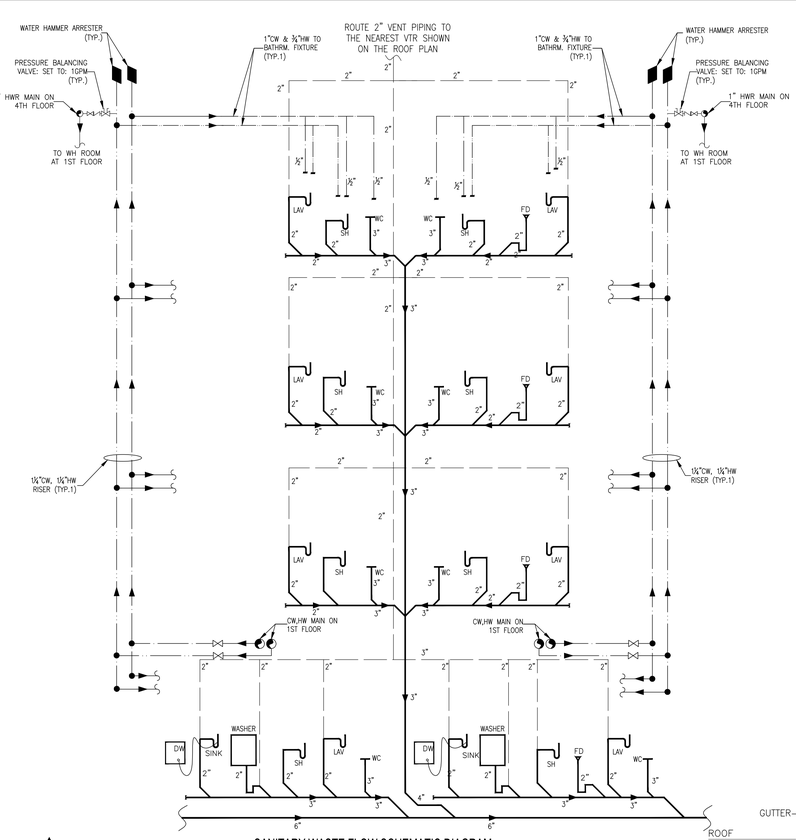
SHEET TITLE:
PLUMBING RISERS

P4.0
SHEET: 105 OF 142

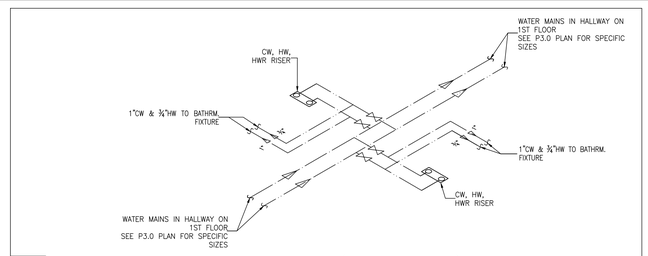
ASI #2 5/28/24



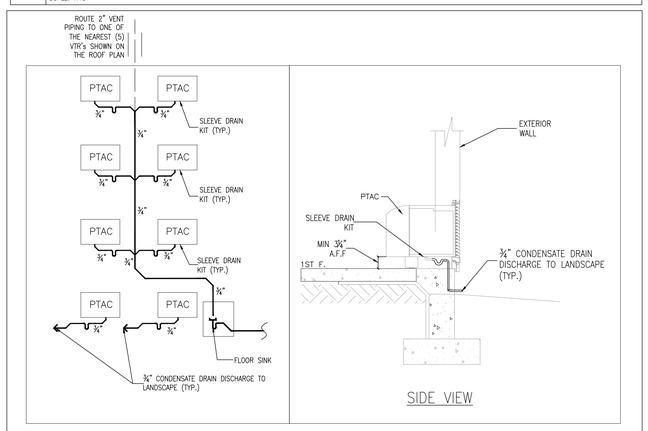
P8 SANITARY WASTE FLOW SCHEMATIC DIAGRAM
SCALE: N.T.S



P14 SANITARY WASTE FLOW SCHEMATIC DIAGRAM
SCALE: N.T.S



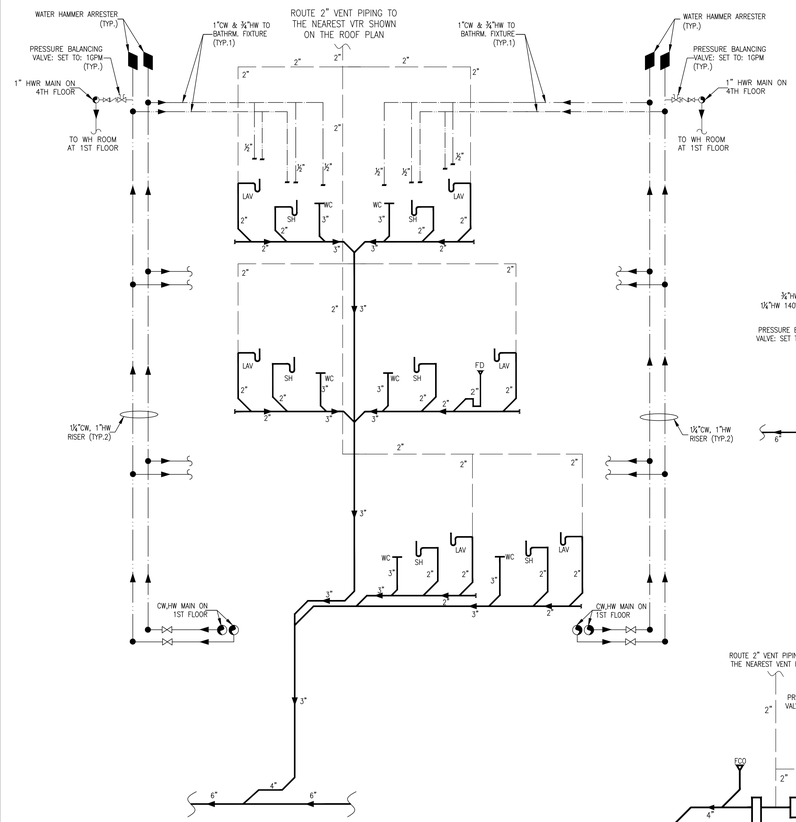
1 TYPICAL BACK TO BACK WATER DIAGRAM (AT 1 ST FLOOR)
SCALE: NTS



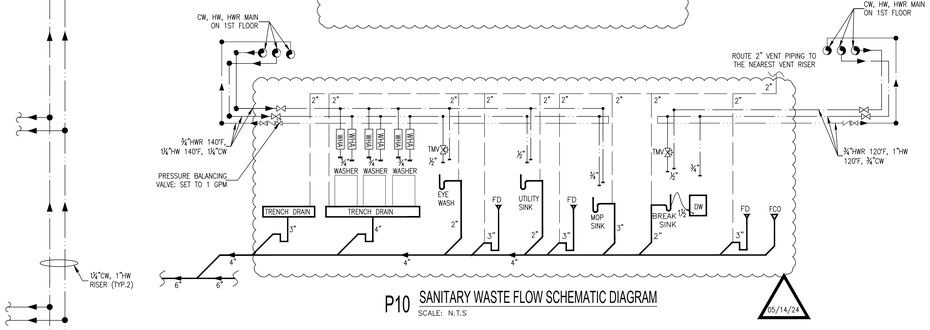
SIDE VIEW

CD1 CONDENSATE DRAIN SCHEMATIC DIAGRAM
SCALE: N.T.S

2 CONDENSATE DRAIN SCHEMATIC DIAGRAM
SCALE: NTS

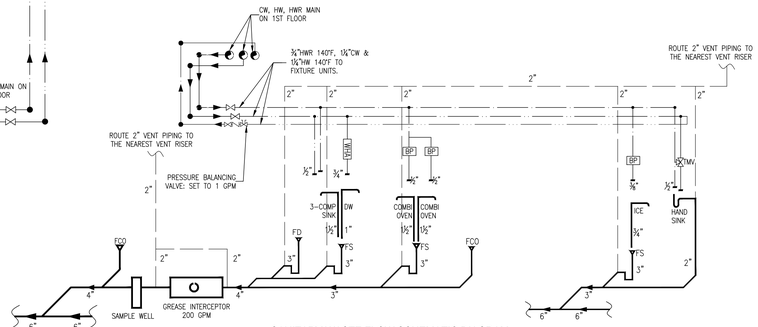


P15 SANITARY WASTE FLOW SCHEMATIC DIAGRAM
SCALE: N.T.S

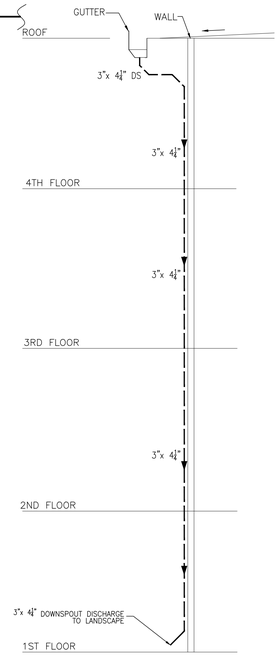


P10 SANITARY WASTE FLOW SCHEMATIC DIAGRAM
SCALE: N.T.S

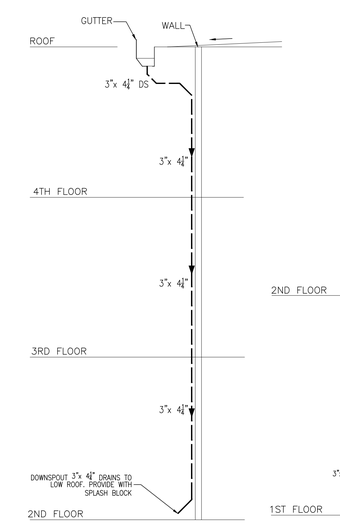
05/14/24



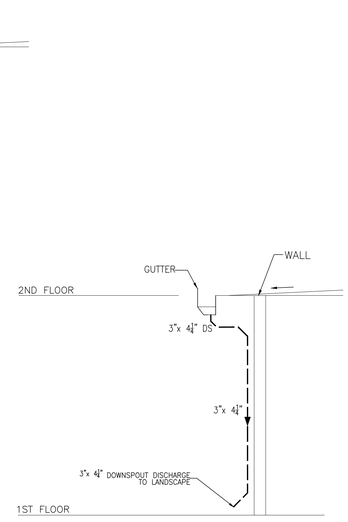
P11 SANITARY WASTE FLOW SCHEMATIC DIAGRAM
SCALE: N.T.S



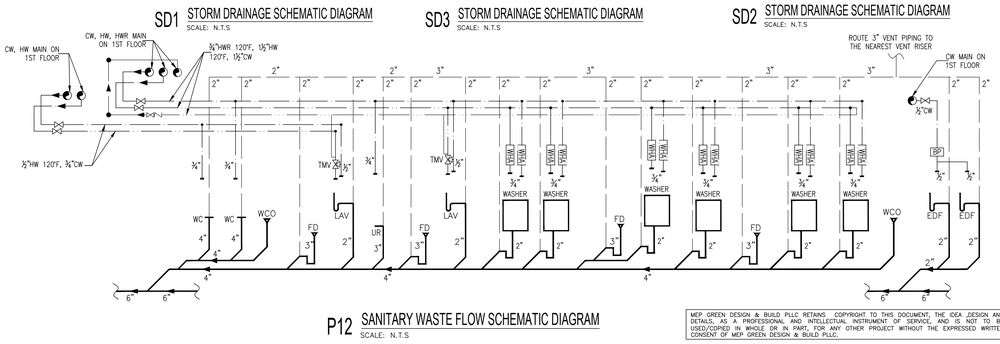
SD1 STORM DRAINAGE SCHEMATIC DIAGRAM
SCALE: N.T.S



SD3 STORM DRAINAGE SCHEMATIC DIAGRAM
SCALE: N.T.S



SD2 STORM DRAINAGE SCHEMATIC DIAGRAM
SCALE: N.T.S



P12 SANITARY WASTE FLOW SCHEMATIC DIAGRAM
SCALE: N.T.S

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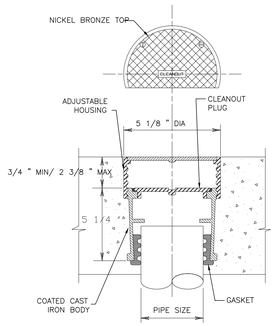
PROJECT MANAGER:
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DRAWN BY:
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SHEET TITLE:
PLUMBING RISERS

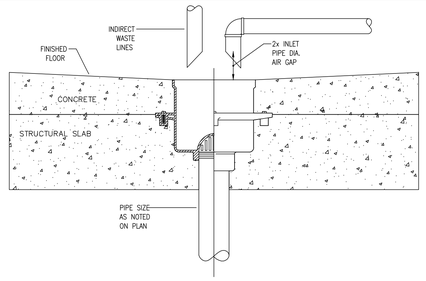
P4.1
SHEET: 106 OF 142

ASI #2 5/28/24



1 FLOOR CLEANOUT

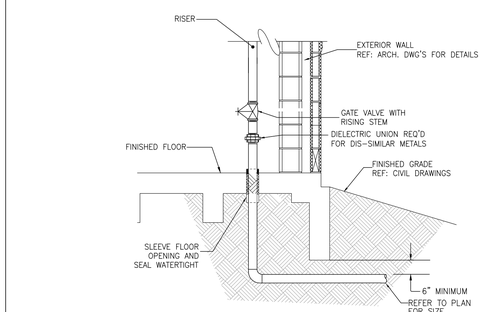
SCALE: NTS



NOTES:
1. ALL FLOOR DRAINS / SINKS SHALL BE PROVIDED WITH TRAP PRIMER CONNECTIONS AND VENT PIPING PER 2018 INTERNATIONAL PLUMBING CODE. REFER TO FLOOR DRAIN DETAIL FOR ADDITIONAL INFORMATION.
2. VERIFY FLOOR CONSTRUCTION TYPE WITH ARCHITECTURAL DRAWINGS AND EXISTING CONDITIONS. MATERIAL SHOWN AS EXAMPLE "ONLY". CONTRACTOR SHALL FIELD VERIFY EXISTING FLOOR TYPE PRIOR TO INSTALLATION.

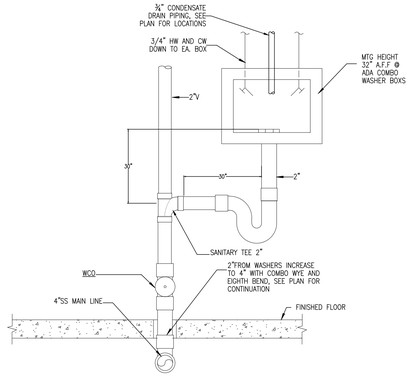
2 TYPICAL INDIRECT WASTE PIPING TO FLOOR DRAIN/SINK DETAIL

SCALE: NTS



3 DOMESTIC WATER SERVICE ENTRY DETAIL

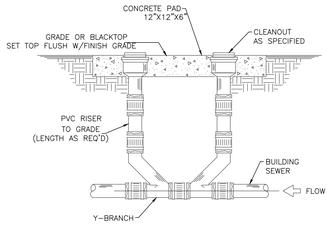
SCALE: NTS



NOTES
1. IF THERE ARE MORE THAN TWO WASHERS, INSTALL ADDITONAL WASHERS PER THIS DETAIL.
2. TOP MOUNT VALVES SHOWN, IF GUEST LAUNDRY IS ON UPPER FLOOR, PROVIDE BOTTOM MOUNT VALVES.
3. PROVIDE SIOUX CHIEF "LAUNDRY MINI" WATER HAMMER ARRESTORS ON EACH OUTLET.

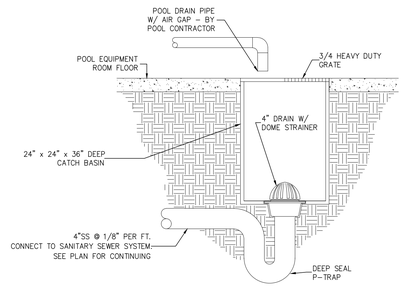
4 WASHER BOX

SCALE: NTS



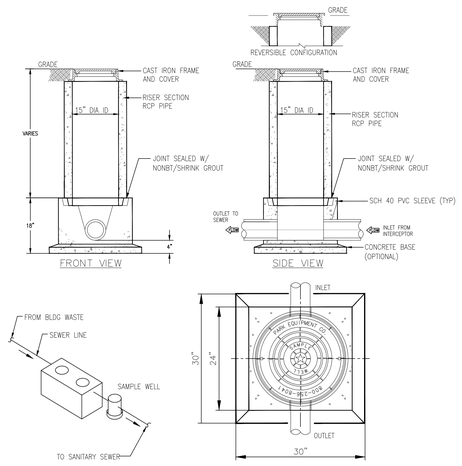
5 DOUBLE CLEANOUT

SCALE: NTS



6 POOL DRAIN CATCH BASIN DETAIL

SCALE: NTS



NOTES:
1. SAMPLING WELL MUST BE INSTALLED UNDER A SEPARATE PERMIT.
2. USE 15" T&G R.C.P. FOR INSTALLATION FOR INSTALLATION 6'-0" DEEP AND LESS
3. USE 24" T&G R.C.P. FOR INSTALLATION GREATER THAN 6'-0" DEEP. (STD RING AND M.H. COVER REQUIRED)
4. SAMPLING WELL MUST BE SET IN A CIRCULAR OR SQUARE CONCRETE PAD (1'-0" GREATER THAN OUTSIDE DIAMETER OF PIPE.)
5. INSIDE INSTALLATION NOT PERMITTED, WHERE OUTSIDE INSTALLATION IS POSSIBLE.
6. INSTALLATION INSIDE BLDG MUST BE POURED IN PLACE (15"MIN) NO CONCRETE PIPE IS PERMITTED, (AIR-TIGHT COVER REQUIRED.)
7. LAWN INSTALLATION MUST BE 4" ABOVE FINISHED GRADE.
8. DRIVE & SIDEWALK INSTALLATION MUST BE BROUGHT TO FINISHED GRADE
9. TO BE INSTALLED ON PRIVATE PROPERTY, IN AN ACCESSIBLE LOCATION TO CITY PERSONNEL.

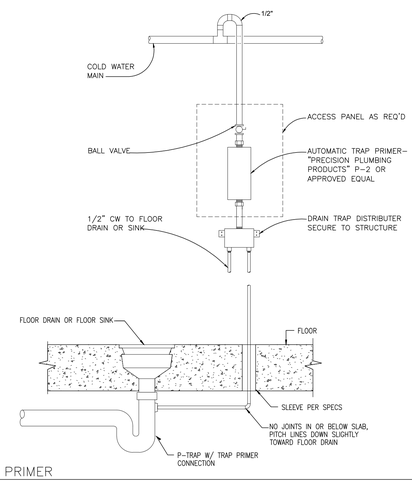
SPECIFICATIONS:

CONCRETE: CLASS 1 CONCRETE WITH OF DESIGN STRENGTH OF 4500 PSI AT 28 DAYS. UNIT IS OF MONOLITHIC CONSTRUCTION AT FLOOR AND FIRST STAGE OF WALL WITH SECTIONAL RISER TO REQUIRED DEPTH

CI CASTINGS: CAST IRON FRAMES AND GRATES ARE MANUFACTURED OF GREY CAST IRON CONFORMING TO ASTM A48-76 CLASS 30, HEAVY-DUTY AASHTO H-20

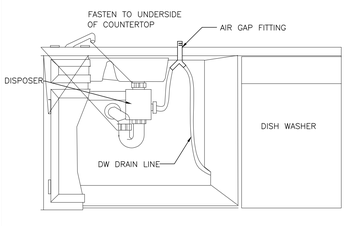
9 SAMPLING WELL DETAIL

SCALE: NTS



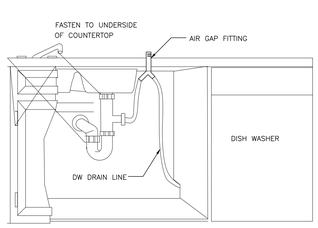
10 AUTOMATIC TRAP PRIMER

SCALE: NTS



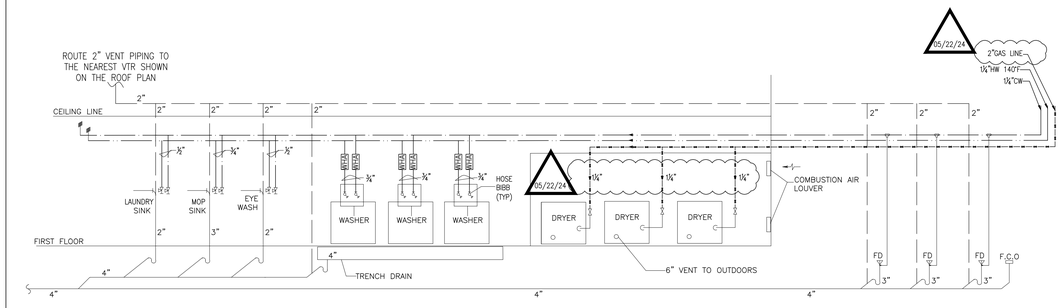
11 DISH WASHER - DISPOSER INSTALLATION DETAIL

SCALE: NTS



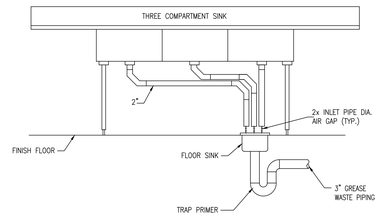
12 DISH WASHER WITH TEE INSTALLATION

SCALE: NTS



13 LAUNDRY RISER SCHEMATIC DIAGRAM

SCALE: NTS



14 3-COMP SINK DIAGRAM

SCALE: NTS

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P5.0

SHEET: 107 OF 142

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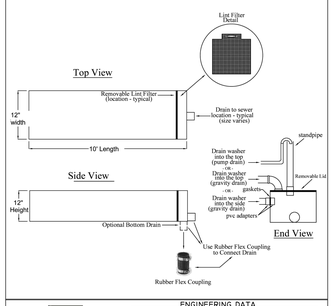
ASI #2 5/28/24

05/22/24

H-M COMPANY
Since 1927
WWW.DRAINTROUGHS.COM
1500 GILBERT AVENUE
CINCINNATI, OHIO 45206
TELEPHONE: (513) 281-3822
FAX: (513) 281-0572
TELEPHONE: (800) 543-1988

SUBMITTAL SHEET

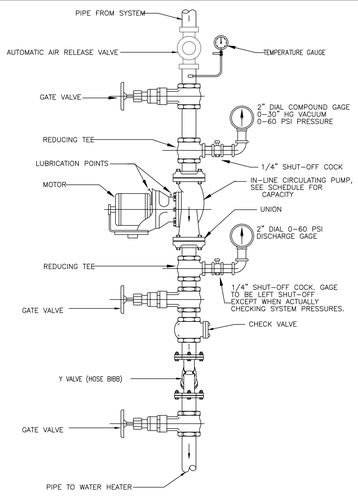
DRAIN TROUGH



ENGINEERING DATA
COMMERCIAL GRADE
BODY MATERIAL: 1/4" POLYPROPYLENE
LID MATERIAL: 3/8" POLYPROPYLENE
LINT FILTER MATERIAL: 1/4" PVC
LINT FILTER HOLES: 3/8"
CHEMICAL RESISTANT
MAXIMUM WATER TEMPERATURE: 190 DEGREES
LID ATTACHED WITH STAINLESS STEEL SCREWS
OPTIONAL SECOND FILTER CAN BE INSTALLED
CAN MANUFACTURE ANY SIZE NEEDED

TRENCH DRAIN
MANUFACTURE: H-M COMPANY
SIZE: 10'L x 12"W x 12"H

1 DETAIL OF TRENCH DRAIN – LAUNDRY ROOM
SCALE: NTS



NOTE FOR CIRCULATING PUMP:

1. THE AUTOMATIC TIME SWITCHES INSTALLED TO AUTOMATICALLY SWITCH OFF THE RECIRCULATING HOT-WATER SYSTEM OR HEAT TRACE.

2. PROVIDE A TEMPERATURE CONTROL THAT CAN BE SET TO SWITCH OFF THE USAGE TEMPERATURE MAINTENANCE SYSTEM DURING EXTENDED PERIODS WHEN HOT WATER IS NOT REQUIRED.

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

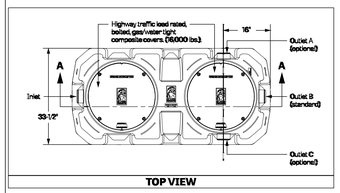
3. AUTOMATIC AIR RELEASE VALVE SHALL BE INSTALLED ON THE RECIRCULATION LOOP PIING INLET SIDE OF THE RECIRCULATION PUMP AND NO MORE THAN 4 FT FROM THE PUMP.

4. CHECK VALVE OR SIMILAR DEVICE SHALL BE LOCATED BETWEEN THE RECIRCULATION PUMP AND THE WATER HEATING EQUIPMENT.

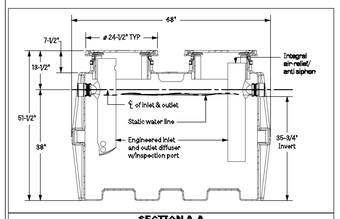
5. HOSE BIBB SHALL BE INSTALLED BETWEEN THE PUMP AND WATER HEATING EQUIPMENT. AN ISOLATION VALVE SHALL BE INSTALLED BETWEEN THE HOSE BIBB AND WATER HEATING EQUIPMENT.

6. ISOLATION VALVES SHALL BE INSTALLED ON BOTH SIDES OF THE PUMP

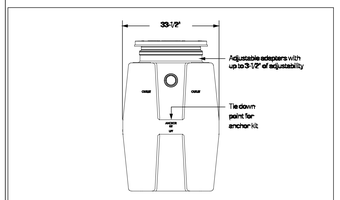
2 HOT WATER CIRCULATION PUMP DETAIL
SCALE: NTS



TOP VIEW



SECTION A-A



OUTLET END VIEW

GREASE INTERCEPTOR SIZING:

* 1 OF 3-COMP. SINK:
  3 x 18(L) x 24(W) x 14(D) = 18144 CU.IN.
  CONTEND IN GALLONS: 231 CU.IN./GALLON
  18144 / 231 = 78.55 GALLONS
  ACTUAL DRAINAGE LOAD:
  0.75 x 78.55 = 58.91 GALLONS
* 1 OF DISHWASHER: 30 GPM
* 1 OF FLOOR SINK: 32.5 GPM
* 1 OF FLOOR DRAIN: 32.5 GPM

DRAIN DOWN TIME PERIOD (D.P) = 2 MINUTES
TOTAL FLOW RATE OF SINK (GPM) = 58.91 / 2 = 29.45 (GPM)

SIZE OF GREASE INTERCEPTOR:
29.45 + 30 + 32.5 + 32.5 = 124.45 GPM

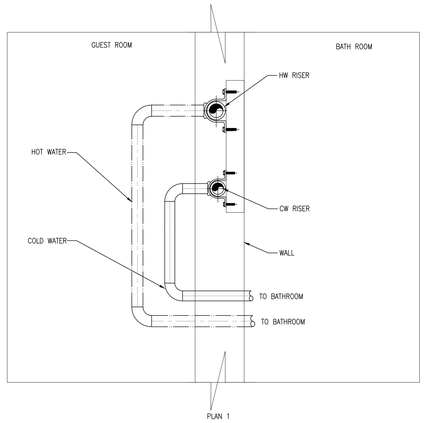
SELECT MINIMUM CAPACITY OF GREASE INTERCEPTOR AVAILABLE @ SIZE 200 GPM

– THE FREQUENCY OF REMOVING GREASE: TWICE PER MONTH

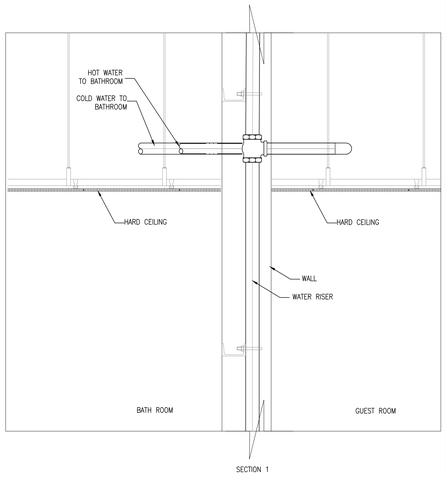
CHOOSE GREASE INTERCEPTOR SCHIER "GB-250" 200 GPM

–LOCATION: OUTDOOR
–INSTALLATION: BELOW GRADE
–FLOW RATES / GREASE CAPACITIES: 200 GPM (12.6 L/S) / 1,196 LBS.
–SOLIDS CAPACITY: 21 GAL.
–LIQUID CAPACITY: 275 GAL.
–WEIGHT: 230 LBS.
–CONNECTIONS: 4" (100 MM) PLAIN END
–COVER: BOLTED GAS/WATER TIGHT COMPOSITE WITH 16,000 LB. LOAD RATING

3 GREASE INTERCEPTOR DETAIL
SCALE: NTS

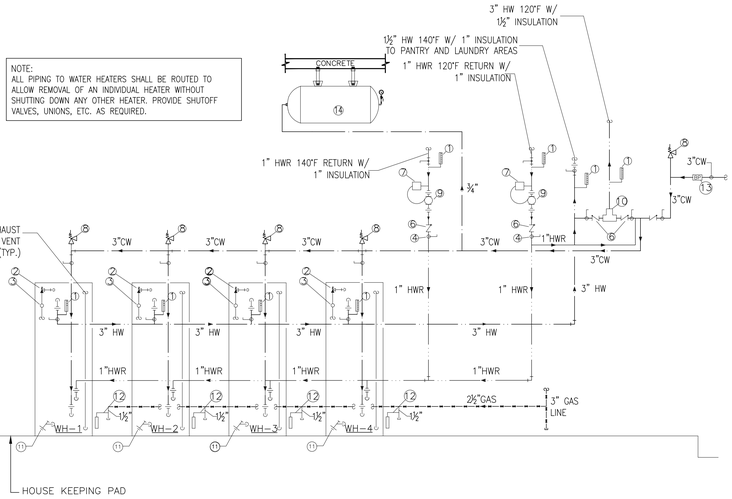


PLAN 1



SECTION 1

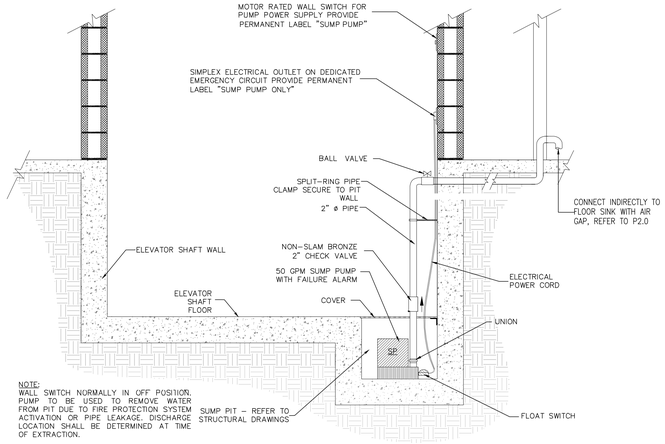
4 SHUT-OFF VALVE INSTALLATION DETAIL
SCALE: NTS



BILL OF MATERIALS (WATER HEATER)

1. WEISS #9VS12 VARI-ANGLE THERMOMETER 30°-240°F (TYPICAL)
2. ASME RATED TEMPERATURE AND PRESSURE RELIEF VALVE
3. T&P VALVE DRAIN SHALL BE ROUTED TO FLOOR DRAIN
4. PLUG COCK (TYPICAL)
5. DIELECTRIC UNION (TYPICAL)
6. CHECK VALVE (TYPICAL)
7. IMMERSION TYPE CLOSE DIFFERENTIAL AQUATINT WITH TIMER
8. VACUUM RELIEF VALVE WATTS #N36 INSTALLED IN THE COLD WATER SUPPLY LINE ABOVE THE TOP OF THE HEATER OR TANK, SHALL BE PROVIDED TO PREVENT SIPHONING OF ANY STORAGE WATER HEATER OR TANK
9. CIRCULATING PUMP-1 & 2
10. HOT WATER MIXING VALVE MODEL DRV50R DIGITAL MIXING VALVES BY ARMSTRONG INTERNATIONAL (THE BRAIN) TO GENERATE 120°F HOT WATER
11. DRAIN VALVE
12. GAS COCK(TYPICAL)
13. LISTED BACKFLOW PREVENTER
14. THERMAL EXPANSION TANK 40 GAL (CEILING MOUNTED)

5 GAS STORAGE WATER HEATER PIPING DIAGRAM (FOR GUESTROOMS, RESTROOMS, OTHER PUBLIC AREAS...)
SCALE: NTS



NOTE:
WALL SWITCH NORMALLY IN OFF POSITION. PUMP TO BE USED TO REMOVE WATER FROM PIT DUE TO FIRE PROTECTION SYSTEM ACTIVATION OR PIPE LEAKAGE. DISCHARGE LOCATION SHALL BE DETERMINED AT TIME OF EXTRACTION.

SUMP PUMP SCHEDULE

MARK	LOCATION	MANUFACTURER	MODEL	TYPE	GPM	HEAD (FT.)	MOTOR			CONNECTIONS	
							HP	RPM	VOLTAGE	SUCTION	DISCHARGE
SP-1	ELEVATOR SUMP PIT	ZOELLER	M292	SUBMERSIBLE	100	16	1/2	1725	120/16/60	N/A	1 1/2"

6 SUMP PUMP DETAIL
SCALE: NTS

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MEP GREEN DESIGN & BUILD
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MAY 22, 2024

COLORADO REGISTERED 51953 PROFESSIONAL ENGINEER

Holiday Inn Express

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DRAWING ISSUE DATES:
6/16/23 Permit Set

REVISION DATES:
11/29/23 Mt. Werner Revisions
03/05/24 Updated plans
05/22/24 Updated plans

PROJECT MANAGER:
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PL

SHEET TITLE:
PLUMBING DETAILS

P5.1
SHEET: 108 OF 142

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ASI #2 5/28/24

10/19/23

HIGH EFFICIENCY
CONDENSING BOILERS

FTXL™
FIRE TUBE BOILER



- 5 MODELS FROM 399,000 TO 850,000 BTU/HR
- UP TO 98% THERMAL EFFICIENCY
- UP TO 10:1 TURNDOWN RATIO
- FLOW RATES FROM 10 TO 150 GPM
- SMART SYSTEM™ W/OPERATING CONTROL
- CON·X·US® REMOTE CONNECT CAPABLE

DESIGNED ★ ENGINEERED ★ ASSEMBLED USA

Lochinvar®

FTXL™
FIRE TUBE BOILER

THE NEW 98% STANDARD

Lochinvar re-defined the fire-tube boiler category with its KNIGHT™ Wall-Mount and CREST™ lines. For residential and light commercial applications, the FTXL™ adds models from 399,000 to 850,000 Btu/hr, and takes Lochinvar's fire-tube technology to the next level. FTXL offers best-in-class AHRI Thermal Efficiency and footprints, plus remote connectivity that puts the SMART SYSTEM™ control at your fingertips, anywhere!

REDUCE INSTALLATION COST WITH VARIABLE FLOW TECHNOLOGY

FTXL can operate over a wide range of flow rates* with very low pressure drop. This permits installation of a "full flow" (variable primary) system eliminating the time and materials cost of primary/secondary piping, and pumps needed to maintain flow in a water-tube boiler. Variable flow also makes FTXL more flexible at handling frequent fluctuations in the system flow rate.

*See back page for minimum and maximum flow rates by model.

SMOOTH-RUNNING, MODULATING COMBUSTION

FTXL boilers have a top-mounted, micrometal fiber burner, with a blower/gas valve assembly that drives heat energy downward, through stainless steel fire tubes, with exhaust venting through the bottom of the unit. With up to 10:1 modulation turndown, the burner automatically changes its firing rate as building heat loads vary. An FTX500 fires at its maximum 500,000 Btu/hr rate when heat load is highest, then gradually "turns down" to as low as 10% (50,000 Btu/hr) as load decreases. A modulating system runs smoothly and efficiently, without frequent on/off cycling.

MINIMUM SUPPLY PRESSURE, INSTALLER-FRIENDLY

FTXL operates with supply gas pressure as low as 4 inches water column. *Negative Re*gulation draws gas into a pre-mix combustion system, instead of relying on utility pressure through the gas valve. The result is steady operation in low gas pressure systems or when peak demand occurs on gas supply. Automatic fan speed control fine-tunes the correct fuel/air ratio entering the burner, providing superior combustion throughout the entire operating range.



MICROMETAL FIBER BURNER DELIVERS HEAT TO THE COMBUSTION CHAMBER

BAFFLES DIRECT THE FLOW OF WATER FOR OPTIMAL HEAT TRANSFER

WATER ENTERS THE BOTTOM AND TRAVERSES UP AND AROUND FIRE TUBES

DOWNWARD FLOW OF FLUE GASES TRANSFER HEAT WITHIN FIRE TUBES

CON·X·US®

INTRODUCING BOILER PLANT CONTROL, *FROM ANYWHERE.*

FTXL features the next generation of Lochinvar's all-in-one SMART SYSTEM operating control with a re-designed multi-color LCD interface. SMART SYSTEM provides outstanding functionality, and can be integrated directly into a Building Automation System via ModBus and other communications protocols. And now, the CON·X·US mobile communication platform allows SMART SYSTEM to go where no other boiler has gone before.†

SMART SYSTEM™

CON·X·US provides the ability to monitor and manage multiple FTXL boiler plants without ever stepping into the mechanical room. CON·X·US will send alerts via text or e-mail notifying of changes in system status, and anytime, from anywhere, a user can check system status and re-program any boiler function. Once downloaded, the free CON·X·US mobile application allows for remote access to all SMART SYSTEM functions using any Internet-capable device.



ANDROID APP ON Google play

Download on the App Store

†CON·X·US control board sold separately. See back cover for a complete list of SMART SYSTEM features.

NOTE:

CONTRACTOR SHALL PROVIDE AUTOMATIC SNOW MELT CONTROLS INCLUDING SNOW/ICE SENSORS PAVEMENT AND AMBIENT TEMPERATURE SENSORS (WATTS RADIANT SMART CONTROLLER, SNOW/ICE SENSOR 090, OR EQUAL) CONTROLS SHALL BE CONFIGURED TO AUTOMATICALLY SHUT OFF THE SYSTEM WHEN PAVEMENT IS 50 DEGREES OR HIGHER AND NO PRECIPITATION IS FALLING OR OUTDOOR TEMPERATURE IS ABOVE 40 DEGREES.

REVIEWED FOR CODE COMPLIANCE 01/12/2024

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OCT. 19, 2023
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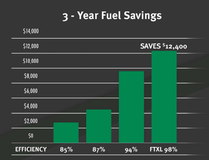
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STEAMBOAT SPRINGS, CO 80487

HOW 98% TRANSLATES INTO FTXL SAVINGS

Even when compared to other condensing boilers, the FTXL fire-tube combustion system will produce significant fuel cost savings. Here are three comparisons, based on building load of approximately 19,000 therms/year, at a cost of $1.09 per therm of natural gas.

Fuel savings is based on a heating load of 19,000 therms per year being supplied by an 82% efficient boiler at the DOE National average for natural gas of $1.09.

3 - Year Fuel Savings

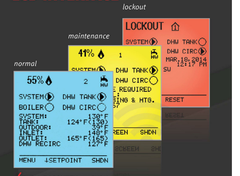


WIRELESS OUTDOOR SENSOR

Easy to install, greatly reduces time and materials cost for running sensor wire from standard outdoor temperature sensor to boiler control. Approximate range 2,000 feet line-of-sight.



ENHANCED MULTI-COLOR LCD INTERFACE



LOCH-N-LINK® EASY USB FLASH PROGRAMMING

Use a USB drive to name, store and easily manage multiple existing proven parameter sets. Quickly upload them via the front panel port into the FTXL boiler, reducing installation and programming time by up to 30 minutes per boiler.





PEACE OF MIND, WHEN IT MATTERS MOST

Up to eight FTXL boilers can be sequenced using a 2-wire daisy-chain connection. Cascade sequencing can be programmed for "Lead-Lag" or "Efficiency Optimized" operation.

With Lead-Lag operation, one lead boiler modulates to capacity on demand. As load increases, the system then cascades to additional lag boilers in sequence. The first-on role shifts daily, distributing equal runtimes to each unit.

In an Efficiency Optimized system, all boilers fire and modulate simultaneously at the same BTU/hr input rates, maximizing thermal efficiency.

If the lead boiler is turned off for maintenance, Cascade Redundancy automatically shifts the lead role to the second sequenced boiler. Peace of mind comes from knowing the system will still function with no downtime until the original lead boiler is back online.

THE SMALLEST FOOTPRINT, EASY TO INSTALL & SERVICE

FTXL can be installed with zero clearance on the left and right, and the boiler's installed footprint is just 6.2 sq. ft.

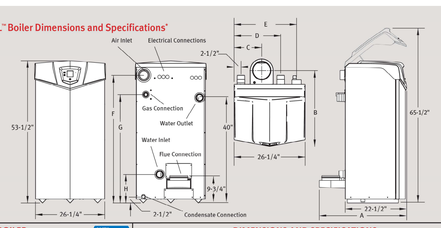
All water, gas and vent connections are in the back of the unit. A hinged top opens for easy access to components and the front panel is easily removed using no tools.

FLEXIBLE VENTING OPTIONS

FTXL offers 6 venting options, and permits direct-vent air intake and exhaust runs up to 100 equivalent feet, using PVC, CPVC, polypropylene or stain-less steel pipe. Plus multiple units can be common-vented to reduce time and materials costs.

TO LEARN MORE, LOG ON TO WWW.FTXLBOILER.COM TODAY!

FTXL™ Boiler Dimensions and Specifications*



FTXL BOILER — DIMENSIONS AND SPECIFICATIONS

Model Number	Input MBH Min Btu/Hr	Max Btu/Hr	Turn-down	Gross Output MBH	Net AHRI Rating Water MBH	Therm. Eff.%	Flow (GPM) Min	Flow (GPM) Max	HEX Water Volume (Gal)	A	B	C	D	E	F	G	H	Water Conn.	Vent Size	Air Inlet	Gas Conn.	Ship. Wt. (lbs.)
FTX0399(LN)	39.9	399	10:1	379	345	98.0	10	105	12	20-1/2	27-1/2	10-1/4	17	23-1/4	46-1/4	39-1/2	10-3/4	2	4	4	1	459
FTX0500(LN)	50	500	10:1	489	425	97.7	15	105	12	20-1/2	27-1/2	10-1/4	17	23-1/4	46-1/4	39-1/2	10-3/4	2	4	4	1	504
FTX0600(LN)	85.7	600	7:1	585	509	97.5	15	105	12	20-1/2	27-1/2	10-1/4	17	23-1/4	46-1/4	39-1/2	10-3/4	2	4	4	1	504
FTX0755(LN)	103.6	725	7:1	705	613	97.2	20	150	17	33	28-1/2	10-1/2	17-1/2	23-1/2	48-1/2	41-1/4	11	2-1/2	6	4	1	575
FTX0850(LN)	121.4	850	7:1	825	717	97.0	25	150	16	33	28-1/2	10-1/2	17-1/2	23-1/2	48-1/2	41-1/4	11	2-1/2	6	4	1	604

*Information subject to change without notice. Dimensions are in inches. Select "N" or "L" for Natural or LP gas. "The Net AHRI Water Ratings shown are based on a piping and pickup allowance of 1.15. "Lochinvar should be consulted before selecting a boiler for installations having unusual piping and pickup requirements, such as interoffset system operation, extensive piping systems, etc." The ratings here have been determined under the orientation governing forced draft burners.

SMART SYSTEM FEATURES

- **Smart System Digital Operating Control**
  - Multi-Color Graphic LCD Display w/Navigation Dial
- **Loch-N-Link® USB Thumb Drive Port for Easy Programming**
- **Cascading Sequencer with Built-in Redundancy**
  - Selectable Cascade Type:
    - Lead Lag/Efficiency Optimization
    - Multiple Size Boilers
  - Front-End Loading
- 3 Reset Temperatures Inputs w/Independent Outdoor Reset Curves for Each Outdoor Sensor
- **Four-Pump Control**
  - System Pump with Parameter for Continuous Operation
  - Boiler Pump with Variable-Speed Control
  - Domestic Hot Water Boiler Pump
  - Domestic Hot Water Recirculation Pump Control with Sensor
- **Building Management System Integration**
  - 0-10 VDC Input to Control Modulation or Setpoint
  - 0-10 VDC Input from Variable-Speed System Pump
  - 0-10 VDC Modulation Rate Output Signal
  - 0-10 VDC Enable/Disable Signal
- **Programmable System Efficiency Optimizers**
  - Space Heating Night Setback
  - DHW Night Setback
  - Anti-Cycling
  - Ramp Delay
  - Boost Time and Temperature
- **High-Voltage Terminal Strip**
  - 120 VAC/60 Hertz/1 Phase
  - Pump Contacts for 3 Pumps
- **Low-Voltage Terminal Strip**
  - Building Recirculation Pump Start/Stop
  - Proving Switch Contacts
  - Flow Switch Contacts
  - Alarm Contacts
  - Runtime Contacts
  - 3 Space Heat Thermostat Contacts
  - Tank Thermostat Contacts
  - System Sensor Contacts
  - Tank Sensor Contacts
  - Cascade Contacts
  - 0-10 VDC BMS Contacts
  - 0-10 VDC Boiler Rate Output Contacts
  - 0-10 VDC Boiler Pump Speed Contacts
  - 0-10 VDC System Pump Speed Contacts
  - ModBus Contacts
- **Time Clock**
- **Data Logging**
  - Ignition Attempts
  - Last 10 Lockouts
  - Space Heat Run Hours
  - Domestic Hot Water Run Hours

STANDARD FEATURES

- **97%-98% Thermal Efficiency**
- **Modulating Burner with up to 10:1 Turndown**
  - Direct Spark Ignition
  - Low NOx Operation
  - Sealed Combustion
  - Low Gas Pressure Operation
- **Stainless Steel Fire-Tube Heat Exchanger**
  - ASME-Certified, "H" Stamped
  - 160 psi Working Pressure
  - 50 psi Relief Valve
  - Combustion Analyzer Test Port
  - Fully Welded Design
- **Vertical and Horizontal Direct Vent**
  - Direct Vent up to 100 feet
  - PVC, CPVC, Polypropylene or AL29-4C
  - Factory Supplied Sidewall Vent Termination
- **Smart System Control**
- **Other Features**
  - On/Off Switch
  - Adjustable High Limit with Manual Reset
  - Automatic Reset High Limit
  - Manual Reset Low Water Cutoff
  - Flue Temperature Sensor
  - Low Air Pressure Switch
  - Temperature and Pressure Gauge
  - Condensate Trap
  - Zero Service Clearances
  - 10-Year Limited Warranty (See Warranty)
  - Custom Maintenance Reminder with Contact Info
  - Password Security
  - Customizable Freeze Protection Parameters

OPTIONAL EQUIPMENT

- CON·X·US® Remote Connectivity
- Motorized Isolation Valve
- Wireless Outdoor Temperature Sensor
- Multi-Temperature Loop Control
- Variable-Speed Boiler Circulator
- Constant-Speed Boiler Circulator
- ModBus Communication
- Alarm Bell
- Condensate Neutralization Kit
- Concentric Vent Kit (FTX400-FTX600)
- BMS Gateway to BACnet or LonWorks
- BACnet MSTP
- High and Low Gas Pressure Switches w/Manual Reset (FTX500-FTX850)
- **Firing Controls**
  - M9-Standard Construction
  - M13-CSD-1/FM/GE Gap (FTX500-FTX850)

Lochinvar®
FTXE-03 (Reprint FTXE-03 4/22)

Lochinvar, LLC
300 Maddox Simpson Parkway
Lebanon, Tennessee 37090
P: 615.889.8900 / F: 615.547.1000
Lochinvar.com

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8/18/23 PERMIT SET

REVISION DATES:
10/19/23 Staff/GM Toilets, Permit Revisions

PROJECT MANAGER:
DV

DRAWN BY:
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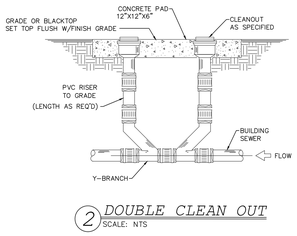
SHEET TITLE:
PLUMBING DETAILS

10/19/23
NOTE:
- NEW SHEET

P5.2
SHEET: 108 OF 140

1 SNOWMELT BOILERS DETAILS
SCALE: NTS

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2 DOUBLE CLEAN OUT
SCALE: NTS

LEGEND

—— – – SS – – SS – – SS ——	EXISTING SANITARY SEWER
—— – – WSA – – WSA – – WSA ——	EXISTING WATER LINE
○	SANITARY SEWER MANHOLE
Ⓦ	PROPOSED WATER METER
———	PROPOSED SANITARY SEWER
—— — —— — —— — —— — ——	PROPOSED WATER LINE
—— GAS —— GAS —— GAS —— GAS ——	PROPOSED GAS LINE

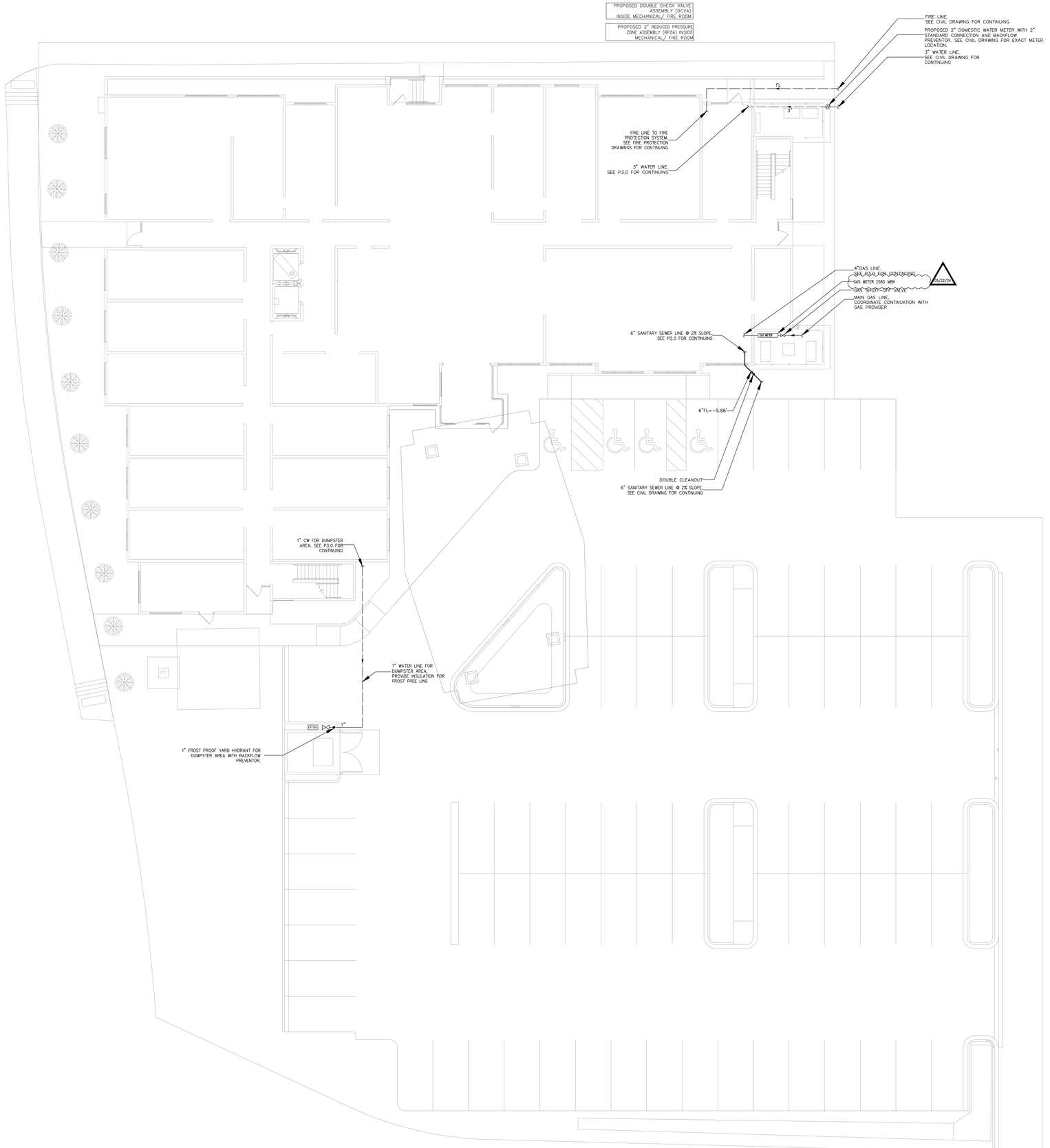
PIPING MATERIALS SCHEDULE

PLUMBING SYSTEM	PLUMBING MATERIAL DESCRIPTION
SANITARY DRAIN PIPING	SCHEDULE 40 PVC PIPE AND FITTINGS SOLVENT WELD ASTM D-2665,1120
STORM DRAIN PIPING	SCHEDULE 40 PVC PIPE AND FITTINGS SOLVENT WELD ASTM D-2665,1120
DOMESTIC WATER PIPING	C-900
FIRE PROTECTION SYSTEM	C-900
GAS PIPING	BLACK STEEL PIPE, PLASTIC COATED

NOTE:

- WHERE STATIC WATER PRESSURE IN THE WATER SUPPLY PIPING IS EXCEEDING 80 PSI (552 KPA), AN APPROVED-TYPE PRESSURE REGULATOR PRECEDED BY AN ADEQUATE STRAINER SHALL BE INSTALLED AND THE STATIC PRESSURE REDUCED TO 80 PSI (552 KPA) OR LESS.

- OUTDOOR PLUMBING EQUIPMENT/DEVICES/VALVES SHALL BE PROTECTED BY ENCLOSURE TO PROVIDE PROTECTION AGAINST FREEZE AND VANDALISM.



1 PLUMBING SITE PLAN
SCALE: 3/32"=1'-0"

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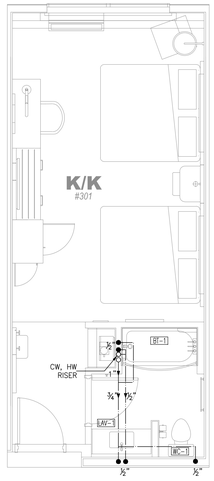
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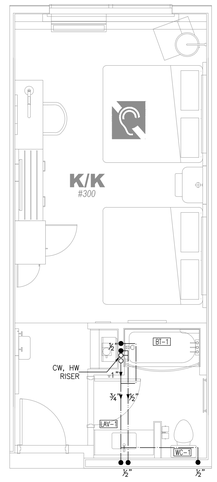
SHEET TITLE:
PLUMBING SITE PLAN

P6.0

SHEET: 110 OF 142



1 K/K STANDARD
SCALE: 1/4"=1'-0"



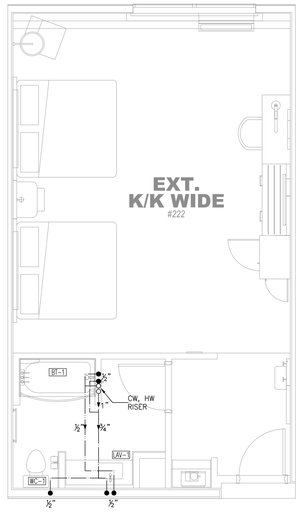
2 K/K STANDARD (HA)
SCALE: 1/4"=1'-0"



3 ADA K/K
SCALE: 1/4"=1'-0"



4 EXT. K/K
SCALE: 1/4"=1'-0"



5 EXT. K/K WIDE
SCALE: 1/4"=1'-0"



6 K/K SUITE
SCALE: 1/4"=1'-0"



7 K/K SUITE (HA)
SCALE: 1/4"=1'-0"



8 EXT. K/K SUITE
SCALE: 1/4"=1'-0"



9 ADA K/K SUITE
SCALE: 1/4"=1'-0"

10/19/23
NOTE:
- NEW BACKGROUND

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DRAWING ISSUE DATES:
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REVISION DATES:
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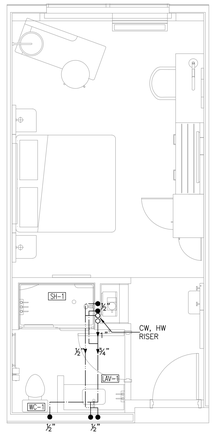
PROJECT MANAGER:
DV

DRAWN BY:
PL

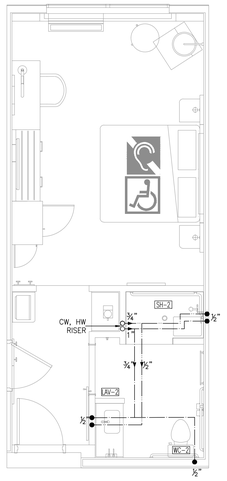
SHEET TITLE:
DOMESTIC WATER TYPICAL GUESTROOM PLAN

P7.0

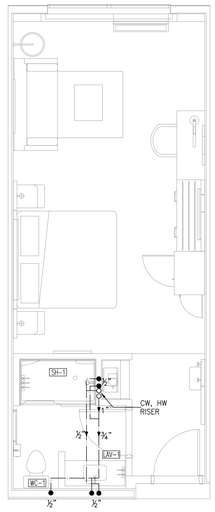
SHEET: 109 OF 140



1 KING STANDARD
SCALE: 1/4"=1'-0"



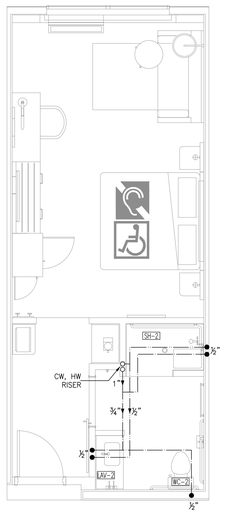
2 ADA KING
SCALE: 1/4"=1'-0"



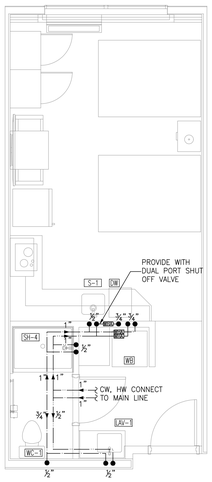
3 KING SUITE
SCALE: 1/4"=1'-0"



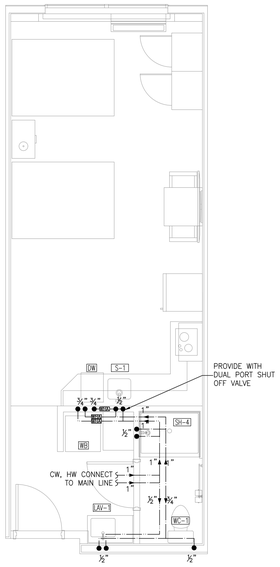
4 KING SUITE(HA)
SCALE: 1/4"=1'-0"



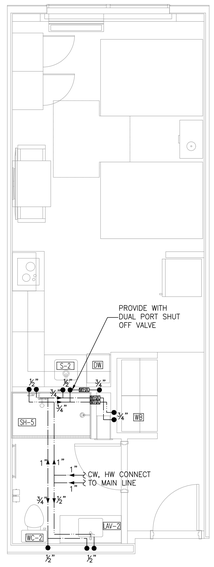
5 ADA KING SUITE
SCALE: 1/4"=1'-0"



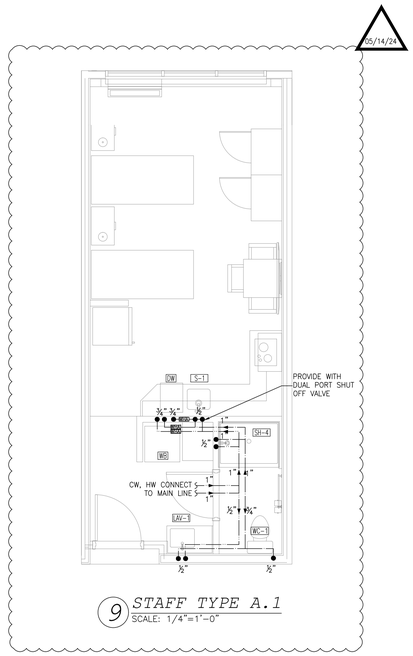
6 STAFF TYPE A
SCALE: 1/4"=1'-0"



7 STAFF TYPE B
SCALE: 1/4"=1'-0"



8 STAFF TYPE C
SCALE: 1/4"=1'-0"



9 STAFF TYPE A.1
SCALE: 1/4"=1'-0"

05/14/24

NOTE:

- NEW BACKGROUND

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51953

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05/14/24 Updated plans

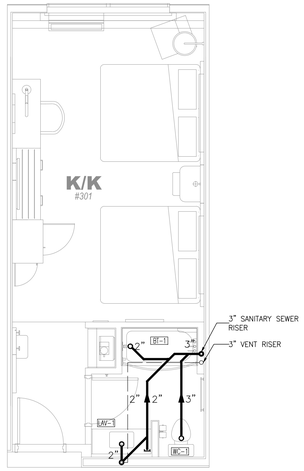
PROJECT MANAGER:
DV

DRAWN BY:
PL

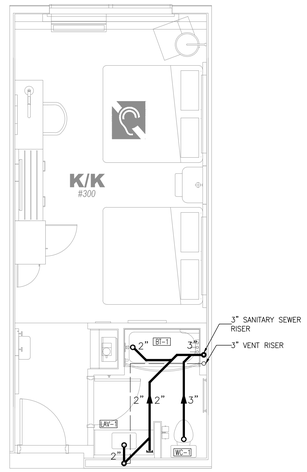
SHEET TITLE:
DOMESTIC WATER
TYPICAL
GUESTROOM PLAN

P7.1

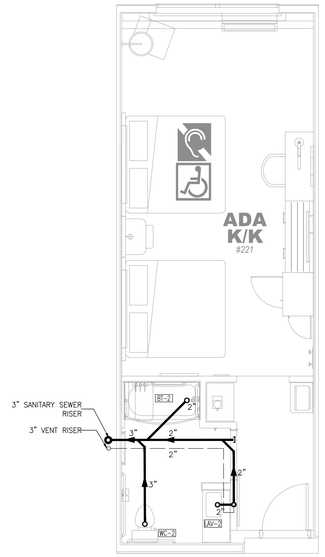
SHEET: 112 OF 142



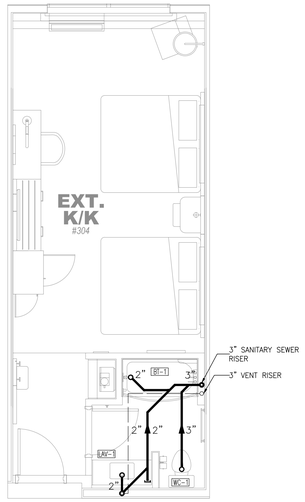
1 K/K STANDARD
SCALE: 1/4"=1'-0"



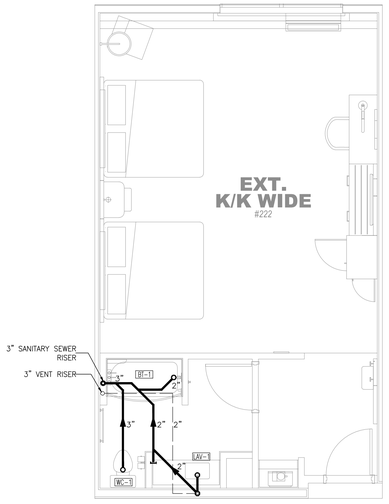
2 K/K STANDARD (HA)
SCALE: 1/4"=1'-0"



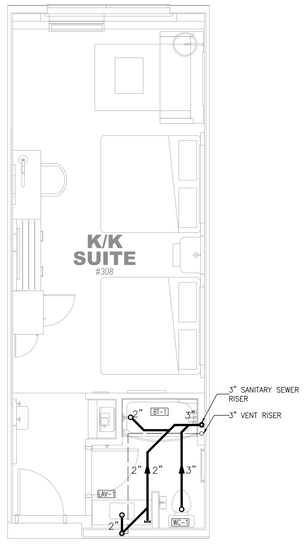
3 ADA K/K
SCALE: 1/4"=1'-0"



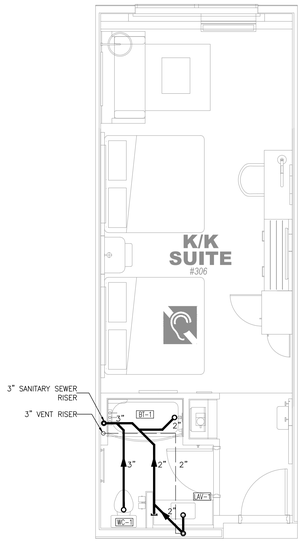
4 EXT. K/K
SCALE: 1/4"=1'-0"



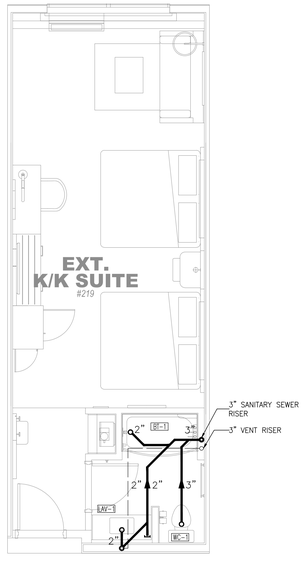
5 EXT. K/K WIDE
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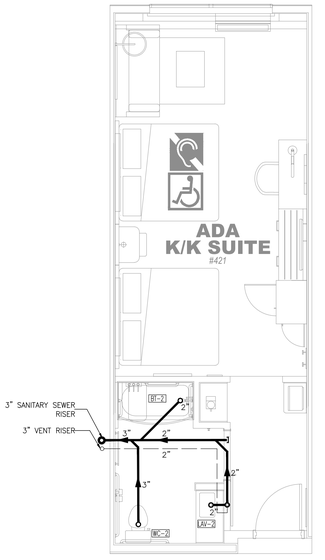
6 K/K SUITE
SCALE: 1/4"=1'-0"



7 K/K SUITE (HA)
SCALE: 1/4"=1'-0"



8 EXT. K/K SUITE
SCALE: 1/4"=1'-0"



9 ADA K/K SUITE
SCALE: 1/4"=1'-0"

10/19/23
NOTE:
- NEW BACKGROUND

REVIEWED FOR CODE COMPLIANCE
01/12/2024

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OCT. 19, 2023

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REVISION DATES:
10/19/23 Staff/GM Toilets, Permit Revisions

PROJECT MANAGER:
DV

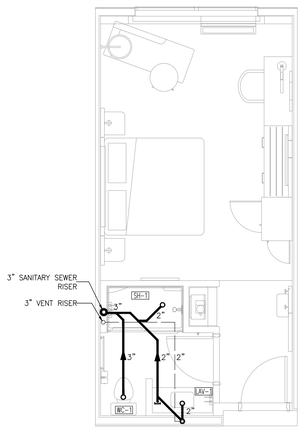
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PL

SHEET TITLE:
SANITARY SEWER TYPICAL GUESTROOM PLAN

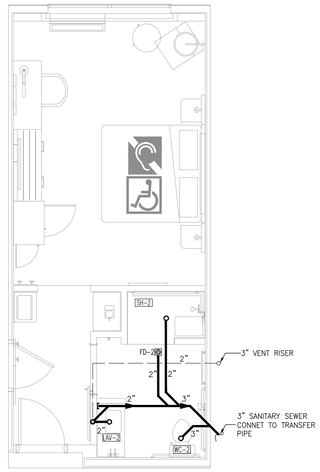
P7.2

SHEET: 111 OF 140

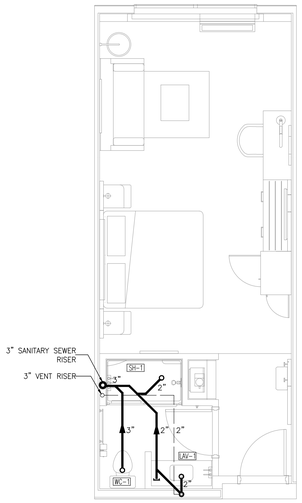
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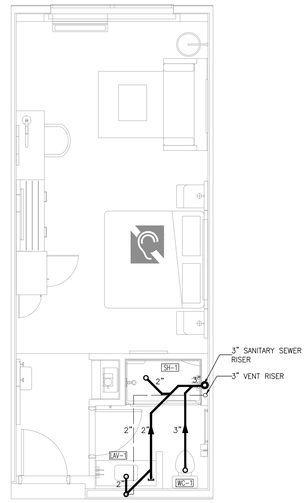
1 KING STANDARD
SCALE: 1/4"=1'-0"



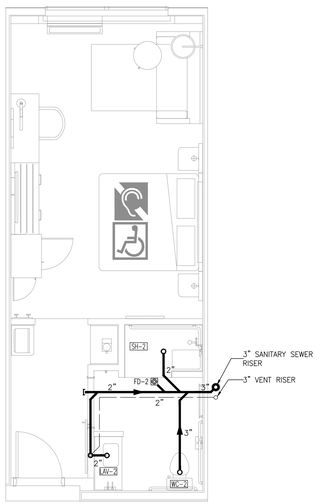
2 ADA KING
SCALE: 1/4"=1'-0"



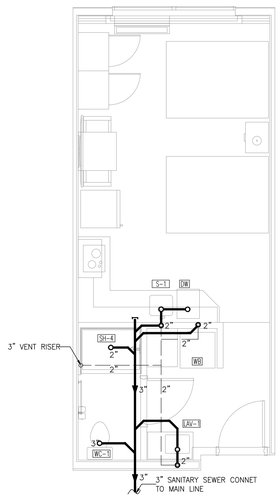
3 KING SUITE
SCALE: 1/4"=1'-0"



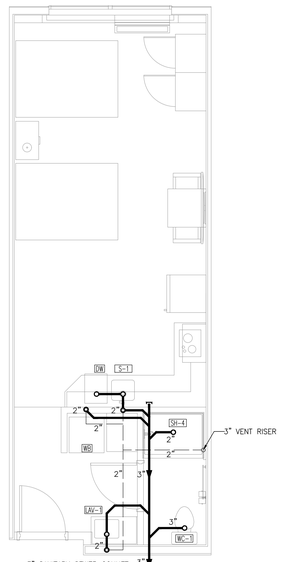
4 KING SUITE (HA)
SCALE: 1/4"=1'-0"



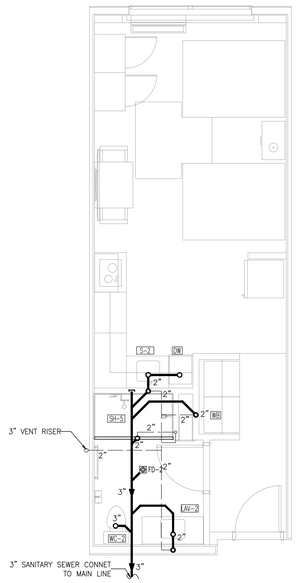
5 ADA KING SUITE
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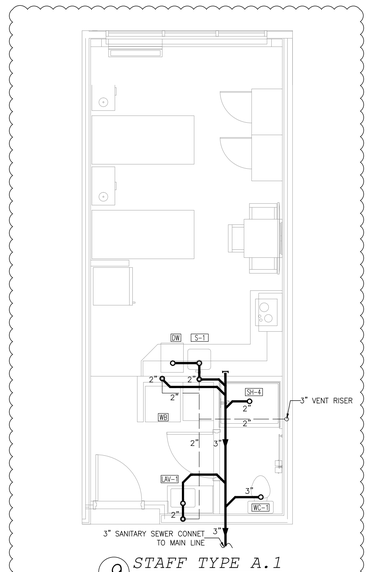
6 STAFF TYPE A
SCALE: 1/4"=1'-0"



7 STAFF TYPE B
SCALE: 1/4"=1'-0"



8 STAFF TYPE C
SCALE: 1/4"=1'-0"



9 STAFF TYPE A.1
SCALE: 1/4"=1'-0"

05/14/24

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MAY 14, 2024

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03/05/24 Updated plans
05/14/24 Updated plans

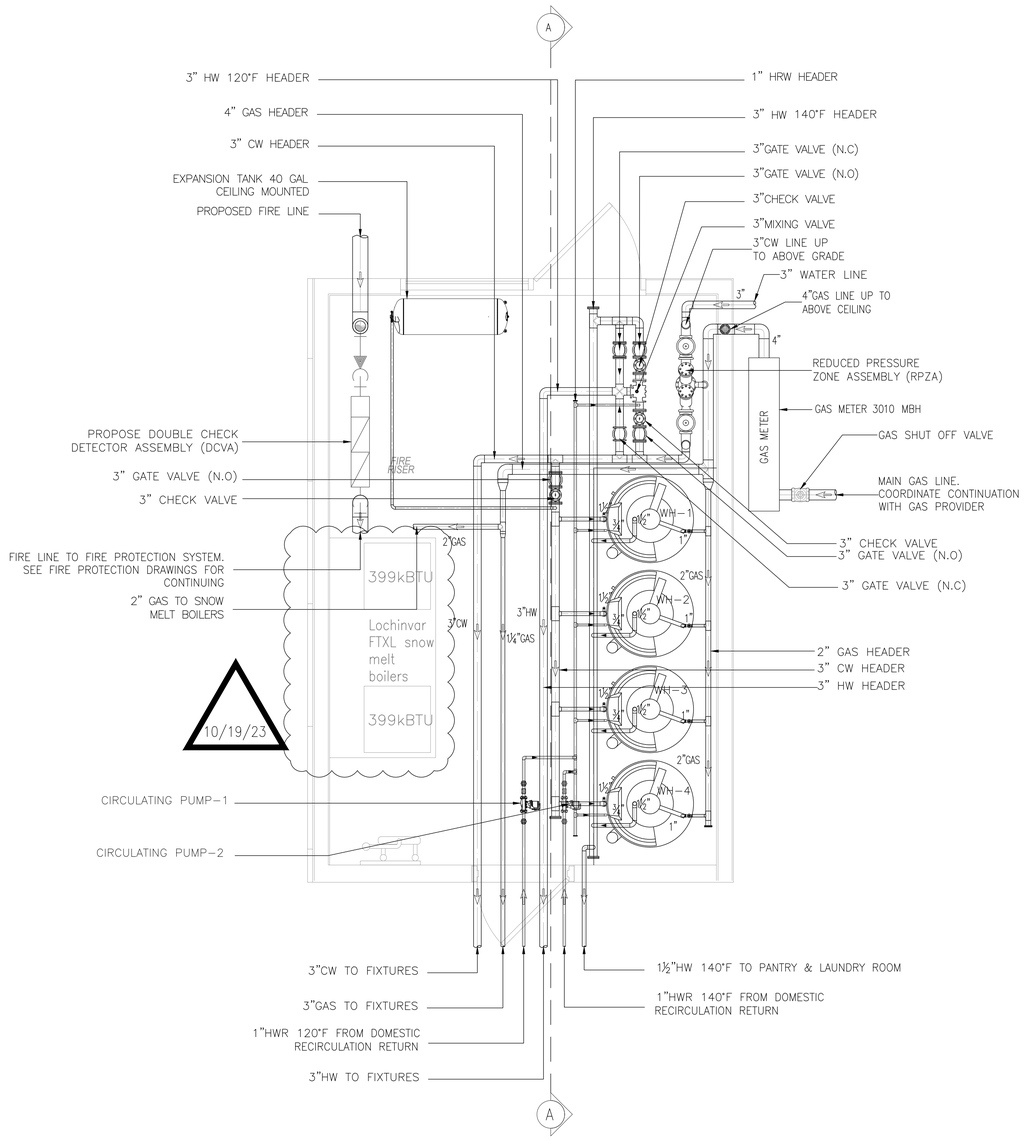
PROJECT MANAGER:
DV

DRAWN BY:
PL

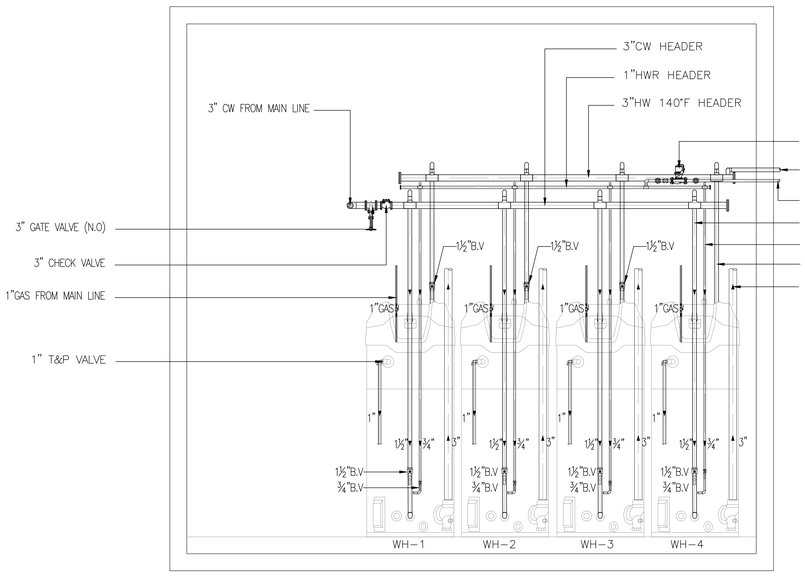
SHEET TITLE:
SANITARY SEWER TYPICAL GUESTROOM PLAN

P7.3

SHEET: 114 OF 142



PLAN VIEW



VIEW A

NOTE:
ALL PIPING TO WATER HEATERS SHALL BE ROUTED TO ALLOW REMOVAL OF AN INDIVIDUAL HEATER WITHOUT SHUTTING DOWN ANY OTHER HEATER. PROVIDE SHUTOFF VALVES, UNIONS, ETC. AS REQUIRED.

1 ENLARGED MECHANICAL/ FIRE ROOM

SCALE: 1/2"=1'-0"

REVIEWED FOR CODE COMPLIANCE
01/12/2024

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REVISION DATES:
10/19/23 Staff/GM Toilets, Permit Revisions

PROJECT MANAGER:
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SHEET TITLE:
ENLARGED MECHANICAL / FIRE ROOM

P7.4

SHEET: 113 OF 140

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