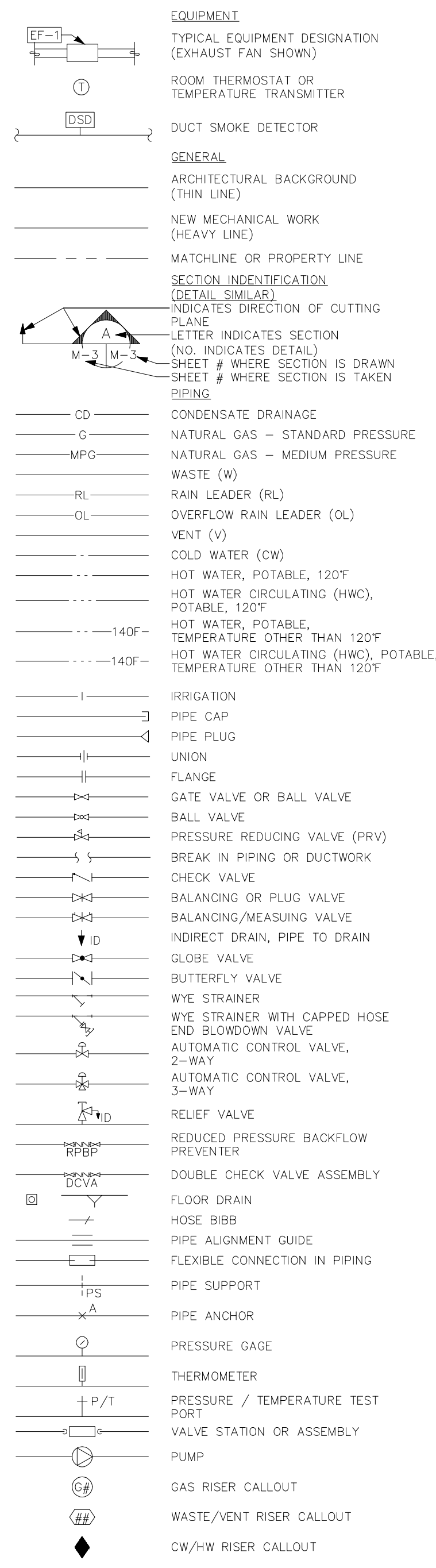


LEGEND

- ACU AIR CONDITIONING UNIT
- AFF ABOVE FINISHED FLOOR
- AHJ AUTHORITY HAVING JURISDICTION
- BHP BRAKE HORSEPOWER
- BTUH BTU/HOUR THERMAL UNIT PER HOUR
- C COMMON
- CAP CAPACITY
- CC COOLING COIL
- CD CEILING DIFFUSER
- CFM CUBIC FEET PER MINUTE
- CLG CEILING, COOLING
- CM COMBUSTION
- CMB CONTINUE, CONTROL
- CONT CONTRACTOR
- COP COEFFICIENT OF PERFORMANCE
- CWS CHILLED WATER SUPPLY
- CWR CHILLED WATER RETURN
- D DIAMETER
- DB DRY BULB, DECIBEL
- DEG DEGREE
- DIM DIMENSION
- DISCH DISCHARGE
- DN DOWN
- EAT ENTERING AIR TEMPERATURE
- EFF EFFICIENCY
- EG ENGINE, GENERATOR
- ELEC ELECTRIC
- EQUIV EQUIVALENT
- EXHA EXHAUST
- EXT EXTERIOR, EXTERNAL
- FH FAHRENHEIT
- FCU FAN COIL UNIT
- FCW FILTERED COLD WATER
- FLR FLOOR
- FLL FUEL OIL FILL
- FPM FEET PER MINUTE
- FPS FEET PER SECOND
- GAS GAS
- GAL GALLONS
- GPM GALLONS PER MINUTE
- GWB GYPSUM WALLBOARD
- HD HEAD
- HORIZ HORIZONTAL
- HP HORSEPOWER
- HPU HEAT PUMP UNIT
- HVAC HEATING, VENTILATING, AND AIR CONDITIONING
- HWR HOT WATER RETURN
- HWS HOT WATER SUPPLY
- ID INDIRECT DRAIN
- INS INSIDE DIAMETER
- IN INCH
- KW KILOWATT
- L LONG, LENGTH
- LB POUND
- MBH THOUSAND BTU PER HOUR
- MECH MECHANICAL
- MCA MINIMUM CIRCUIT AMPACITY
- MOCP MAXIMUM OVER CURRENT PROTECTION
- MTD MOUNTED
- OD OUTSIDE DIMENSION OR DIAMETER
- OPNG OVERFLOW DRAIN
- P PUMP
- PD PRESSURE DROP, PUMPED DRAIN
- POC POINT OF CONNECTION
- PRV PRESSURE REDUCING VALVE
- PSIG POUNDS PER SQUARE INCH GAUGE
- RD ROOF DRAIN
- REF REFERENCE
- RPM REVOLUTIONS PER MINUTE
- SCH SCHEDULE
- SF SQUARE FOOT
- SRS SUDS RELIEF
- SS STAINLESS STEEL
- SQ SANITARY SEWER SQUARE
- TYP TYPICAL
- UN UNLESS OTHERWISE NOTED
- V VENT
- VTR VENT THRU ROOF
- W WASTE
- WAIT WAIT
- WIDE WIDE



GENERAL NOTES

- GENERAL NOTES - MECHANICAL**
1. REFERENCE TO RELATED WORK: "REF" INDICATIONS DENOTE WORK COVERED ELSEWHERE (ARCHITECTURAL, STRUCTURAL, CIVIL, ELECTRICAL, LANDSCAPE, OR KITCHEN), OR ITEM BASED ON A SPECIFIC MANUFACTURER'S DIMENSIONS (VERIFY).
 2. ELECTRICAL CHARACTERISTICS: REFER TO ELECTRICAL DRAWINGS FOR ELECTRICAL CHARACTERISTICS (VOLTAGES, ETC. OF MECHANICAL EQUIPMENT, UNLESS OTHERWISE INDICATED).
 3. CODES: COMPLETE INSTALLATION OF THE MECHANICAL SYSTEM SHALL BE PER THE APPLICABLE BUILDING, MECHANICAL, ENERGY, PLUMBING, FIRE, AND HEALTH CODES AND REGULATIONS AS ADOPTED BY THE LOCAL AHJ.
 4. PREPARE AND SUBMIT FOR REVIEW A SHOP DRAWING BASED ON FINAL STRUCTURAL SHOP DRAWINGS FOR LOCATING AND ROUTING ALL DUCTWORK, DAMPERS, EQUIPMENT, PIPING, ETC.
 - A. COORDINATE FLOOR AND BEAM PENETRATIONS WITH STRUCTURAL.
 - B. COORDINATE FINAL LOCATION AND ROUTING WITH CEILING, LIGHTS, WALLS, FIRE SPRINKLER PIPING, AND OTHER TRADES WORK.
 - C. INCLUDE ADDITIONAL OFFSETS, ELBOWS, ROUTING, EQUIVALENT DUCT SIZING EXCHANGE, RELOCATING, ETC. AS REQUIRED FOR A COMPLETE OPERATING MECHANICAL SYSTEM.
 - D. PROVIDE SHOP DRAWINGS AT NO ADDITIONAL COST TO THE OWNER.
 5. MECHANICAL CONTRACTOR SHALL LOCATE AND COORDINATE EXACT LOCATION OF ALL MECHANICAL EQUIPMENT WITHIN THE STRUCTURE.
 6. ACCESS DOORS: COORDINATE WITH ARCHITECT AND LOCATE ALL ACCESS DOORS ON SHOP DRAWINGS PRIOR TO BEGINNING OF CONSTRUCTION. ACCESS DOORS IN FIRE RATED STRUCTURE SHALL BE FIRE RATED. VERIFY ACCESS DOOR LOCATIONS WITH GENERAL CONTRACTOR PRIOR TO BIDDING.
 7. RATED PENETRATION: DUCT PENETRATIONS THROUGH RATED ENCLOSURES SHALL BE FIRE/SMOKE DAMPERED PER THE LATEST EDITION OF THE UNDERWRITERS LABORATORIES(UL) FIRE RESISTANCE WITH HOURLY RATINGS FOR THROUGH-PENETRATION FIRE STOPS SYSTEM VOLUME #2, OR SHALL BE INSTALLED IN STRICT ACCORDANCE WITH THE MANUFACTURER'S UL LISTINGS (SM OR EQUIVALENT) DETERMINE REQUIREMENTS WITH GENERAL CONTRACTOR PRIOR TO BID.
 8. ROOF PENETRATIONS: SEE ARCHITECTURAL DRAWINGS FOR ROOF CAP, ROOF CURB, ROOF DRAIN, AND VIR DETAILS.
 9. EXPOSED PIPING: PROVIDE CHROME PLATING FOR EXPOSED PIPING IN FINISHED ROOMS.
 10. PENETRATIONS: PROVIDE ESCUTCHEON PLATES FOR EXPOSED PIPING PENETRATIONS AND SHEET METAL FLASHING FOR EXPOSED DUCTWORK PENETRATIONS.
 11. SHAFT AND PLENUM CONNECTIONS: SEAL CONNECTIONS TO AIR SHAFTS AIRTIGHT. PROVIDE AIRTIGHT SEAL AROUND PENETRATIONS IN AIR PLENUMS.
 12. LIGHT FIXTURE CLEARANCE: COORDINATE LOCATIONS OF MECHANICAL WORK TO PROVIDE CLEARANCES OVER LIGHTING FIXTURES FOR REMOVAL AND REPLACEMENT.
 13. CABLE TRAYS: DUCTWORK AND PIPING INSTALLED ADJACENT TO ELECTRICAL CABLE TRAYS SHALL ALLOW MINIMUM ACCESS OF 6" ABOVE AND TO THE SIDE OF CABLE TRAYS.
 14. MOTORS: COMPLY WITH ENERGY CODE ENFORCED BY AHJ FOR MINIMUM EFFICIENCIES UNDER FULL LOAD.
 15. ACCESS CLEARANCES FOR MAINTENANCE AND REPLACEMENT: VERIFY PHYSICAL DIMENSIONS OF EQUIPMENT TO ENSURE THAT ACCESS CLEARANCES CAN BE MET. COORDINATE LOCATIONS OF MECHANICAL WORK AND WORK OF OTHER TRADES TO PROVIDE ACCESS CLEARANCES FOR SERVICE AND MAINTENANCE.
- COORDINATION REQUIREMENTS**
1. PIPING: COORDINATE WITH STRUCTURAL FOR EXACT LOCATION OF ALL STRUCTURAL FRAMING AND FOOTINGS AND FINALIZE THE EXACT ROUTING OF ALL PIPES WITH STRUCTURAL AND AT THE SITE PRIOR AND DURING THE CONSTRUCTION.
 2. ADJUSTMENTS: ALL EQUIPMENT, MOTORS, FANS GAS BURNERS, IGNITION DEVICES, DRIVES, ETC. SHALL BE ADJUSTED AND BALANCED TO OPERATE AT SPECIFIED RATINGS AS REQUIRED FOR THIS PROJECT SITE AND ACCOUNTING FOR ELEVATION ABOVE SEA LEVEL.
 3. APPROVALS: MECHANICAL AND PLUMBING EQUIPMENT SHALL BE APPROVED FOR INSTALLATION IN THE PROJECT LOCATION AND SHALL HAVE ALL CERTIFICATIONS AND RATINGS TO MEET ALL ENERGY, POLLUTION, ENVIRONMENTAL, SEISMIC, ETC. CODES AND REGULATIONS. THE CONTRACTOR SHALL COORDINATE WITH HIS MANUFACTURE SUPPLIERS AND SHALL INCLUDE ALL COSTS REQUIRED TO MEET THESE REQUIREMENTS IN HIS BID.

- PLUMBING NOTES**
1. CONNECTIONS: PROVIDE PLUMBING FIXTURE CONNECTIONS TO BUILDING WASTE, VENT, COLD WATER, AND HOT WATER SYSTEM IN ACCORDANCE WITH DRAWINGS, MANUFACTURER'S RECOMMENDATIONS, AND LOCAL CODES. CONNECT TO EACH FIXTURE, EQUIPMENT, ETC. WITH ALL ACCESSORIES, VALVES, VACUUM BREAKERS, REGULATORS, UNIONS, ETC. AS REQUIRED AND AS RECOMMENDED BY THE MANUFACTURERS. REFER TO PLUMBING FIXTURE CONNECTION SCHEDULE ON PLANS.
 2. HOT AND COLD: WATER PIPING CONNECTION TO EACH FIXTURE SHALL BE COLD WATER ON THE RIGHT HAND SIDE AND HOT WATER ON THE LEFT HAND SIDE.
 3. HOT WATER: NON-CIRCULATING HOT WATER PIPE SHALL NOT EXCEED 10' UNLESS OTHERWISE SHOWN ON DRAWINGS.
 4. VENT STACKS: COORDINATE VENT STACK WITH HVAC EQUIPMENT TO MAINTAIN MINIMUM 10' CLEARANCE FROM OUTSIDE AIR INTAKES.
 5. CLEANOUTS: PROVIDE CLEANOUTS PER CURRENT CPC AND AS REQUIRED BY LOCAL JURISDICTIONS. CLEANOUTS SHALL BE LOCATED IN WALLS/FLOORS WHERE THEY ARE NOT HIGHLY VISIBLE. LOCATIONS SHALL BE SUBMITTED TO ARCHITECT FOR APPROVAL. NOTE: NOT ALL CLEANOUTS ARE SHOWN ON THE PLUMBING DRAWINGS.
 6. SHUT-OFFS: PROVIDE SHUT-OFF VALVES/STOPS AT HOT AND COLD WATER SUPPLY TO EACH FIXTURE. EXCEPTION: PROVIDE SCREWDRIVER STOPS AT BATH/SHOWERS.
 7. TUB SPOUTS SHALL BE THREADED (NO PUSH-ON FITTINGS).
 8. TRAP ARMS: PROVIDE TRAP ARMS SUCH THAT THE MAXIMUM LENGTH WILL NOT EXCEED CODE REQUIREMENTS.
 9. FREEZE PROTECTION: WATER PIPING SHALL BE INSTALLED ON THE WARM SIDE OF INSULATION. ROUTE NO WATER PIPING IN ATTIC SPACE. HEAT TAPING IS NOT ACCEPTABLE.
 10. TRAP PRIMERS: PROVIDE TRAP PRIMERS AND PIPING FOR DRAINS AND FLOOR SINKS. ARRANGE PIPING TO ACHIEVE EQUAL FLOW TO EACH DRAIN AND FLOOR SINK FOR TRAP PRIMERS SERVING MULTIPLE DRAINS AND FLOOR SINKS.
 11. PER CPC 508.3, WATER HEATERS SHALL BE PLACED ON A CONCRETE PAD AT LEAST 3" ABOVE ADJOINING GROUND LEVEL.
 12. ACCESS PANELS: PROVIDE ACCESS PANELS FOR ALL SHUT OFF VALVES.

- PLUMBING NOTES**
1. DISASSEMBLY PROVISIONS: PROVIDE UNIONS OR FLANGES AT PIPING CONNECTIONS TO EQUIPMENT, COILS, TRAPS, CONTROL VALVES, AND OTHER COMPONENTS TO ALLOW DISASSEMBLY FOR MAINTENANCE.
 2. REDUCERS: PROVIDE AS REQUIRED FROM LINE PIPE SIZE TO EQUIPMENT, TRAP, COIL, AND CONTROL VALVE CONNECTION SIZES.
 3. OFFSETS: PROVIDE FOR BRANCH LINES TO EQUIPMENT.
 4. DIELECTRIC UNIONS: PROVIDE AT CONNECTIONS OF DISSIMILAR PIPE.
 5. REFRIGERANT PIPING: PROVIDE SIZING & INSTALLATION IN STRICT ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
 6. CONDENSATE DRAIN: PROVIDE A P-TRAP FOR EACH HVAC UNIT CONDENSATE PAN WITH PLUG TEES FOR CLEANING. CONDENSATE DRAINS SHALL BE DISCHARGED TO AN INDIRECT WASTE OR OUTSIDE.

DRAWINGS ARE DIAGRAMMATIC, SHOWING THE GENERAL LOCATION, TYPE, LAYOUT, AND EQUIPMENT REQUIRED. THE DRAWINGS SHALL NOT BE SCALED FOR EXACT MEASUREMENT. REFER TO ARCHITECTURAL DRAWINGS FOR DIMENSIONS. REFER TO MANUFACTURER'S STANDARD INSTALLATION DRAWINGS FOR EQUIPMENT CONNECTIONS AND INSTALLATION REQUIREMENTS. PROVIDE DUCTWORK, CONNECTIONS, ACCESSORIES, OFFSETS, AND MATERIALS NECESSARY FOR A COMPLETE SYSTEM.

DRAWING LEGEND

DESCRIPTION	LINE SYMBOL
SANITARY LINE	
VENT PIPING	
FLOOR DRAIN	FD
HOT WATER SUPPLY	
HOT WATER RETURN	
COLD WATER SUPPLY	
CLEAN OUT	CO

FIXTURE UNIT SCHEDULE

FIXTURE	QTY.	ABBR.	S. OR W.	V.	CW.	HW.
LAVATORY		LAV	2"	1 1/2"	1/2"	1/2"
HAND SINK		SK	2"	1 1/2"	1/2"	1/2"
MOP SINK		MS	2"	1 1/2"	1/2"	1/2"
3 COMPARTMENT SINK		CS	2"	1 1/2"	1/2"	1/2"
DISH WASHER		DS	2"	1 1/2"	1/2"	1/2"
WATER CLOSET (TANK)		WC	4"	2"	1/2"	-
FLOOR DRAIN		FD	3"	1 1/2"	-	-

ELECTRIC WATER HEATER SCHEDULE

FIXTURE SYMBOL	MANUFACTURER	MODEL NUMBER	CAPACITY GALLONS	ELECTRICAL DATA			DIMENSIONS	
				VOLT	PH.	NO.ELEMENTS	KW	DIA.
WH-1~7			25	360	3	3	3	

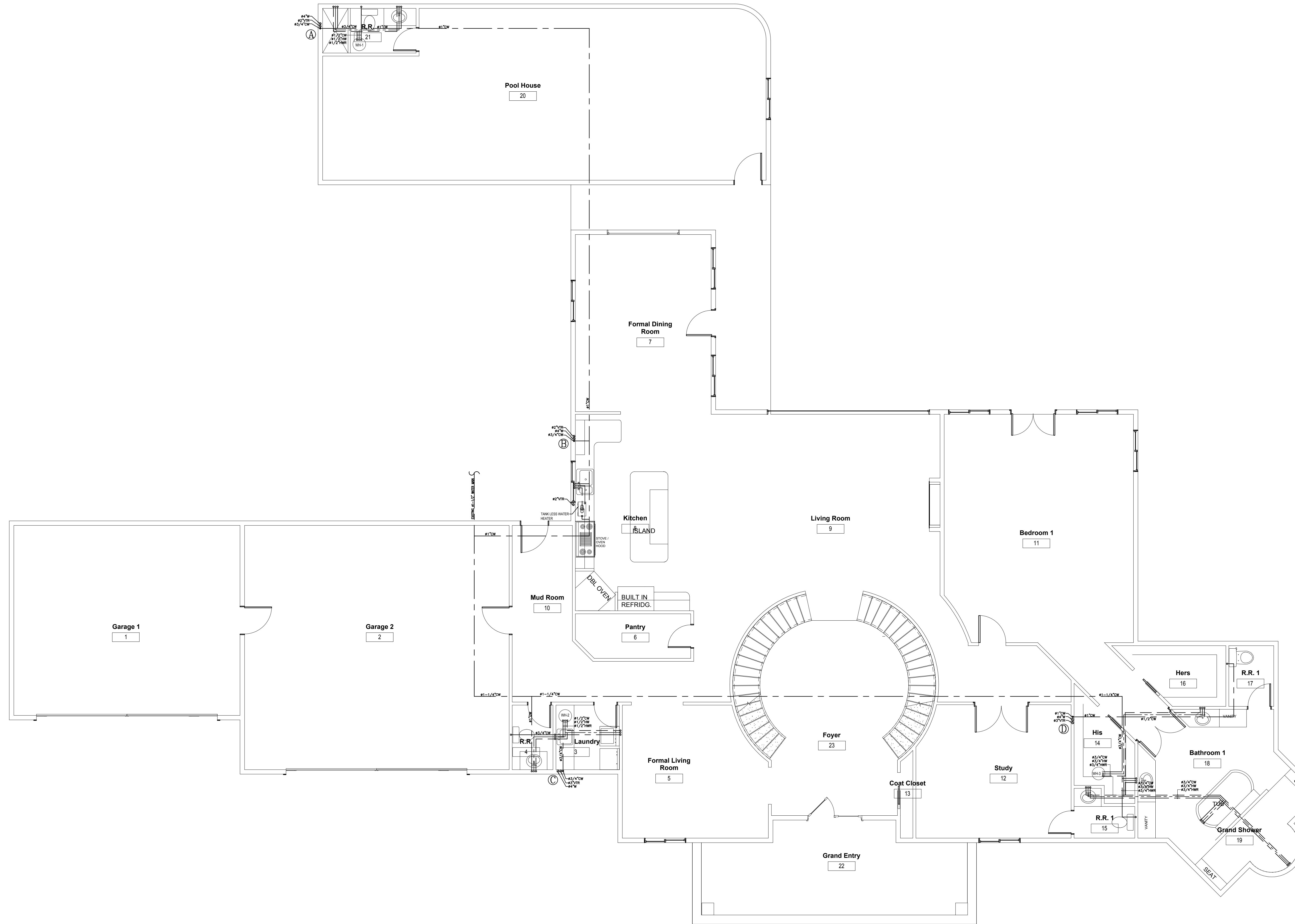
PIPE MATERIALS

1. UNDERGROUND SERVICE ENTRANCE PIPING: CPVC.
2. ABOVEGROUND WATER DISTRIBUTION PIPING: CPVC. (SEE COMBUSTIBLE PIPING NOTE BELOW)
3. UNDERGROUND WASTE & VENT PIPING: NO-HUB CAST IRON
4. ABOVEGROUND WASTE & VENT PIPING: NO-HUB CAST IRON
5. ABOVEGROUND GAS PIPING: STEEL PIPE, ASTM A 53; TYPE E OR S; GRADE B; SCHEDULE 40; BLACK.
6. UNDERGROUND GAS PIPING: POLYETHYLENE, ASTM D-2513.
7. CONDENSATE DRAIN PIPING: COPPER TUBING, TYPE M.
8. UNDERGROUND STORM PIPING: PVC.
9. ABOVEGROUND STORM PIPING: NO-HUB CAST IRON.

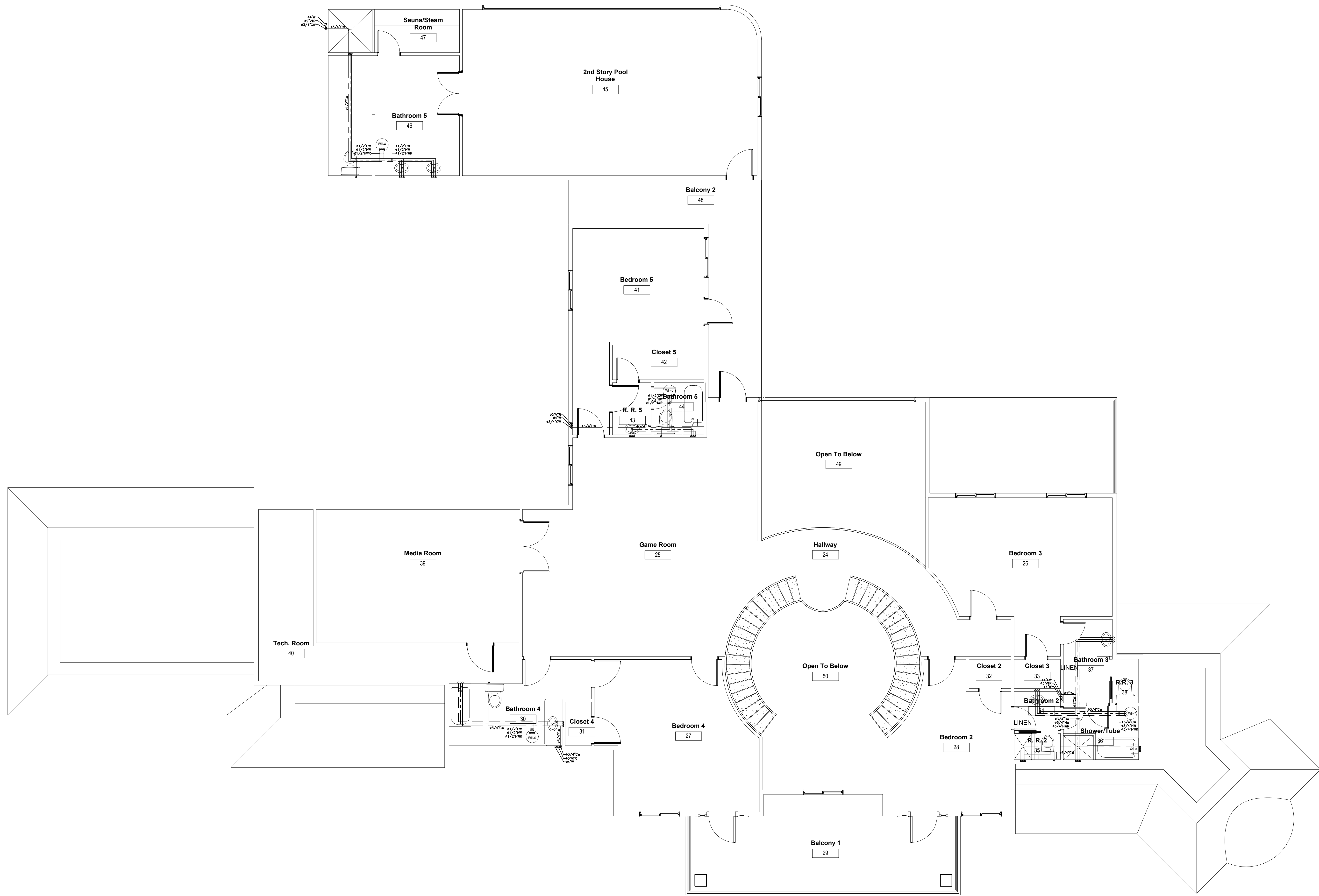
NOTE:
 1. ALL METALLIC PIPE, FITTINGS AND PARTS OF FIXTURES BURIED IN THE GROUND SHALL BE PROTECTED BY AT LEAST 40 MILS PLASTIC SLEEVE OR EQUIVALENT WRAPPING. FERROUS PIPING IS PROHIBITED UNDERGROUND.
 2. COMBUSTIBLE PIPING NOTE: FOR COMBUSTIBLE PIPING PENETRATING A RATED ASSEMBLY, PIPING SHALL BE FIRESTOPPED AT EACH PENETRATION PER 1505.3.

PIPE INSULATION SCHEDULE

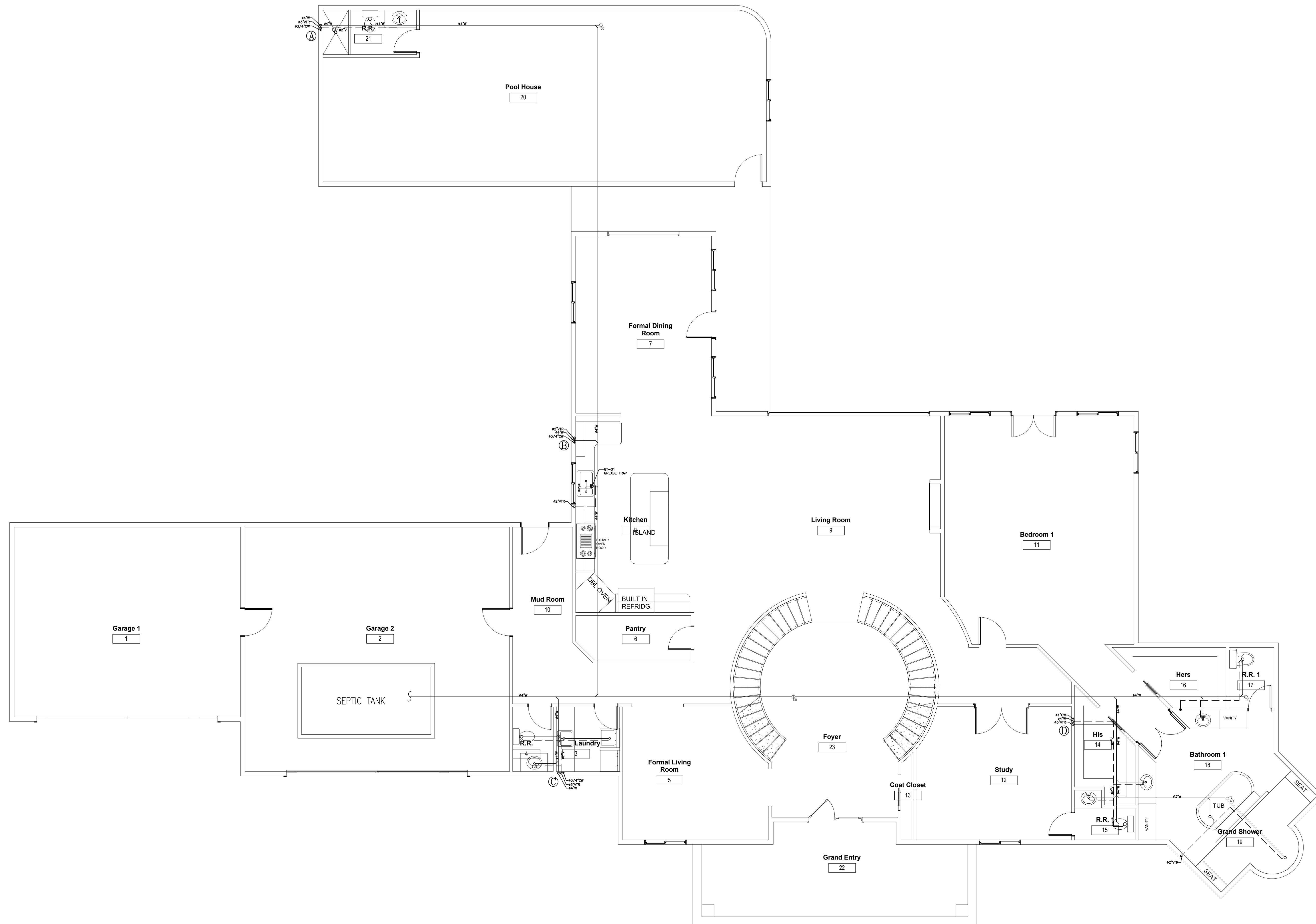
SERVICE	MATERIAL	THICKNESS	FEILD APPLIED JACKET	VAPOR RETARDER REQUIRED
DOMESTIC COLD WATER AND CONDENSATE DRAINS	MINERAL-FIBER WITH JACKET	ALL SIZES: 1/2"	NONE	YES
DOMESTIC, HOT AND RECIRCULATED HOT WATER, OPERATING TEMPERATURE: 105 TO 140 DEG F.	MINERAL-FIBER WITH JACKET	RUNOUTS: 1/2" 1/2"-2" PIPE: 1" 2"-6" PIPE: 1-1/2"	NONE	YES
EXPOSED SANITARY DRAINS AND DOMESTIC WATER SUPPLIES AND STOPS FOR FIXTURES FOR THE DISABLED.	"LAV-GUARD" AS MANUFACTURED BY TRUEBRO	N/A	PVC P-TRAP AND SUPPLY COVERS	NO



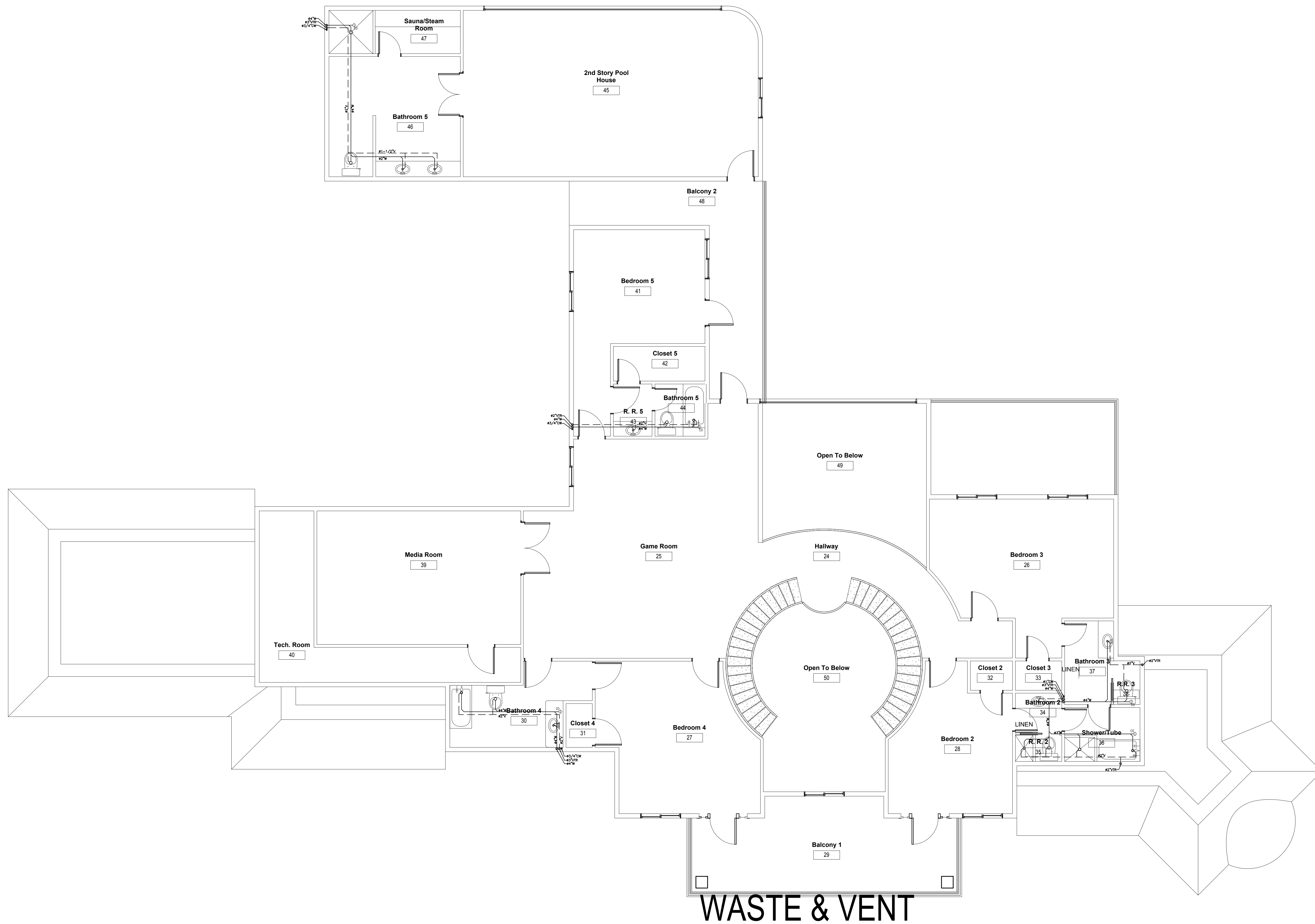
WATER SUPPLY



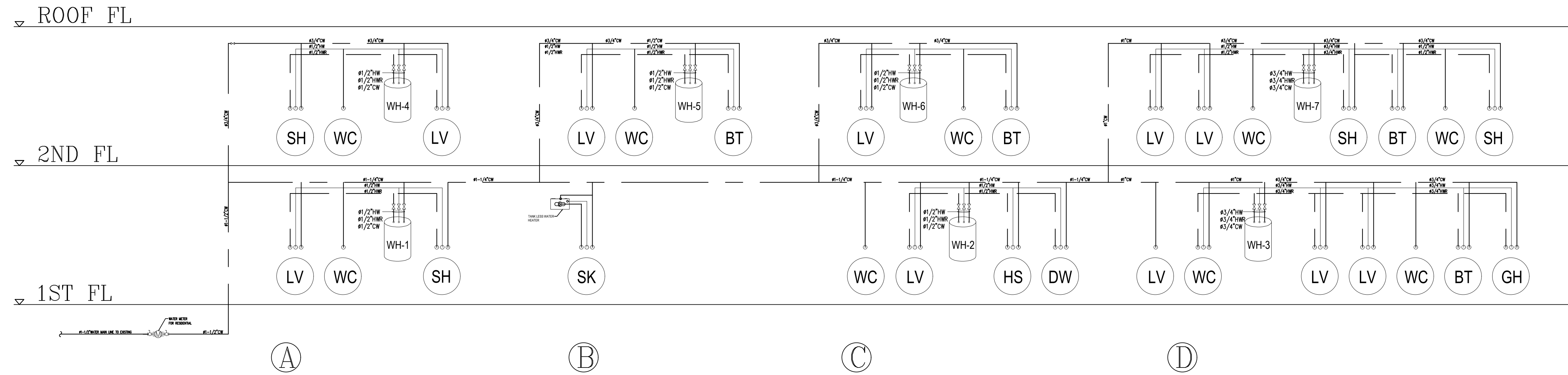
WATER SUPPLY



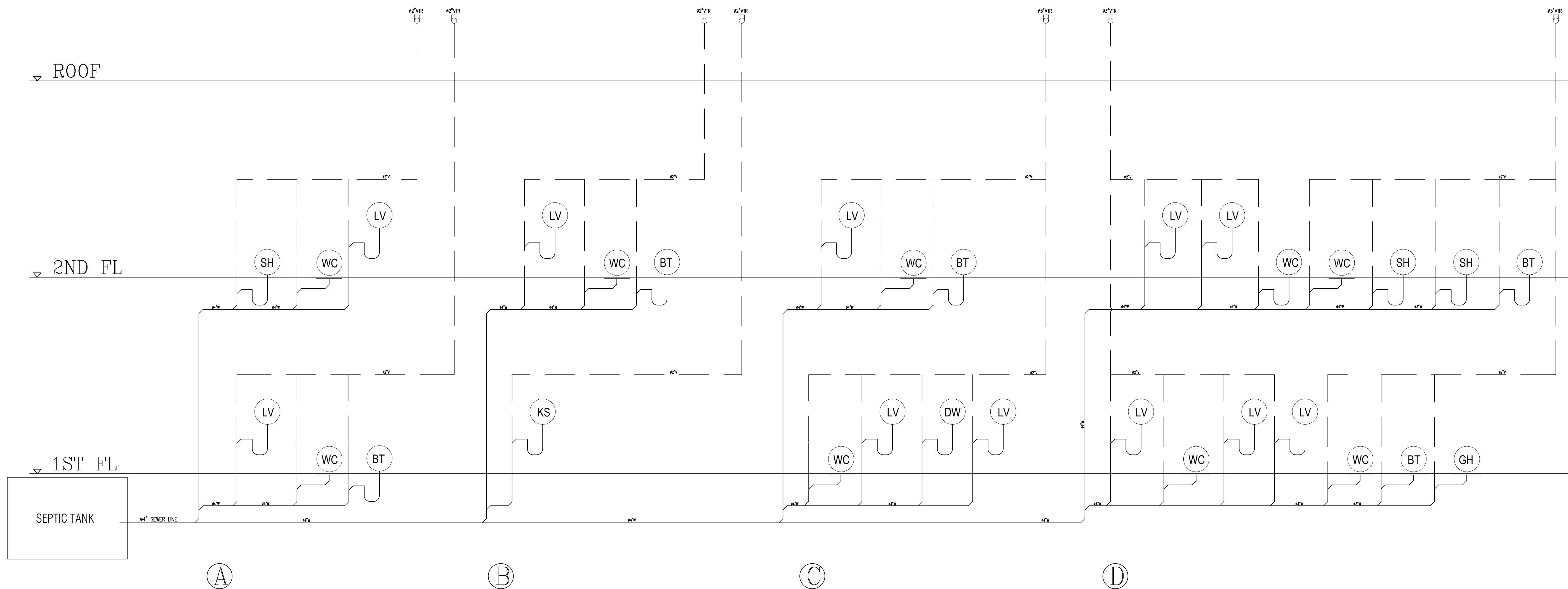
WASTE & VENT



WASTE & VENT



COLD & HOT WATER SUPPLY RISER DIAGRAM



WASTE AND VENT LINE RISER DIAGRAM

