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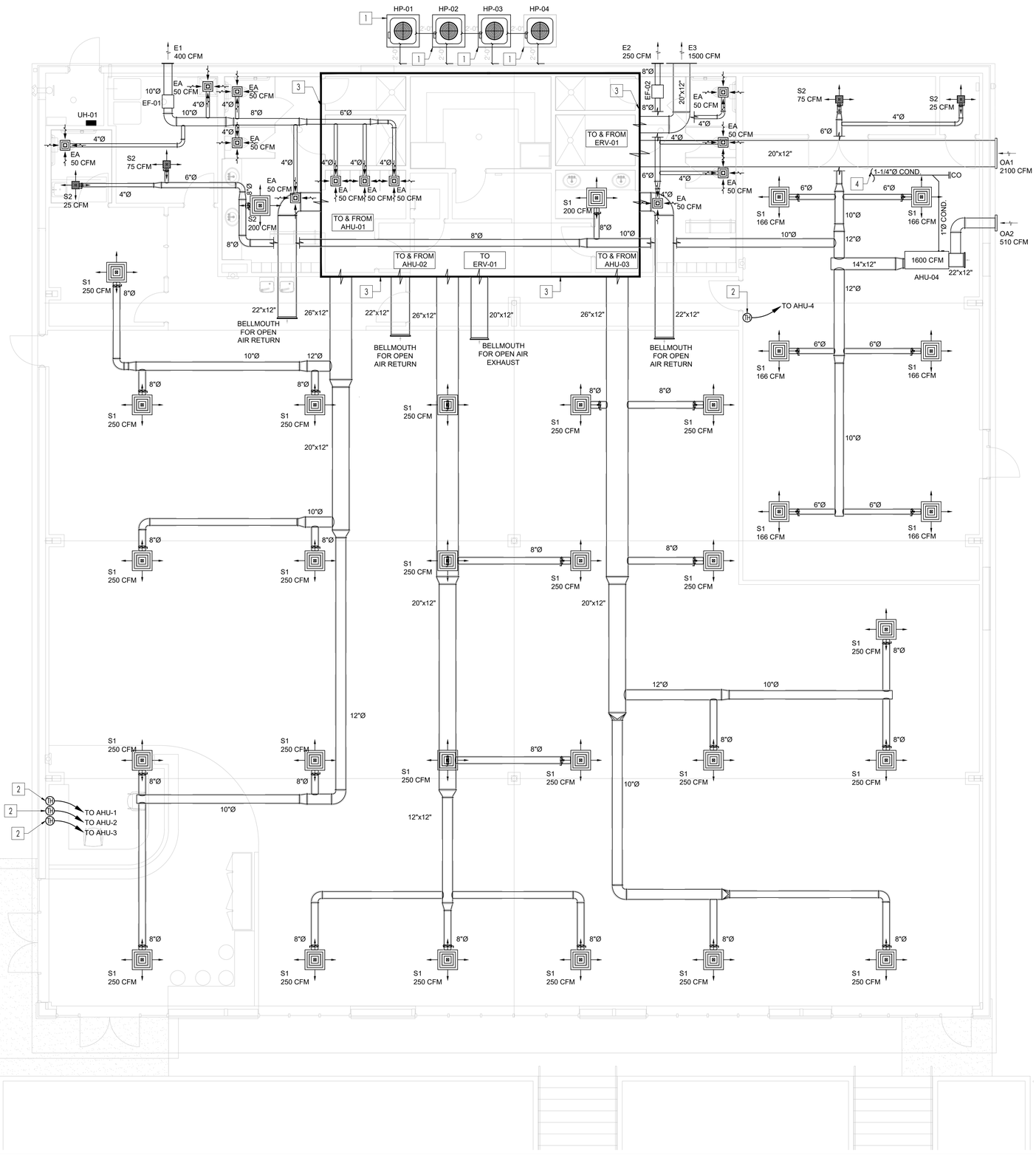
INNOVATING SOLUTIONS

51 Unit Fitness Facility

Resindencial

Springtown, Texas



MECHANICAL KEYED NOTES:

1. OUTDOOR HEAT PUMP CONDENSER HOUSEKEEPING PAD - PROVIDE THE PAD SIZE AS PER THE MANUFACTURER'S REQUIREMENTS.
2. PROVIDE 7 DAYS 24 HOUR PROGRAMMABLE THERMOSTATS - COMPLY WITH IECC FOR ALL CONTROLS REQUIREMENTS.
3. LIMIT OF ATTIC.
4. SEE ATTIC PLAN FOR CONDENSATE DRAIN LINE CONTINUATION.

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Houston, TX 77068
Office: 346-509-5860
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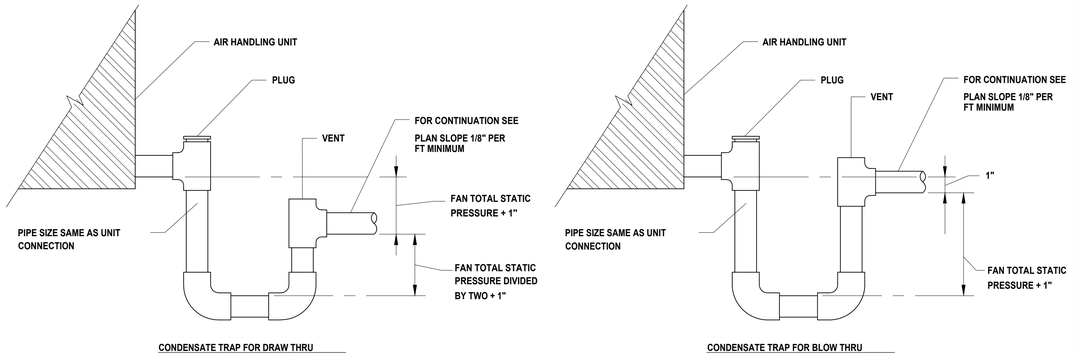
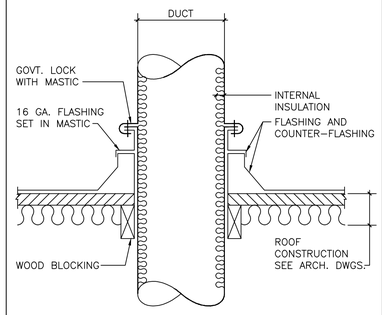


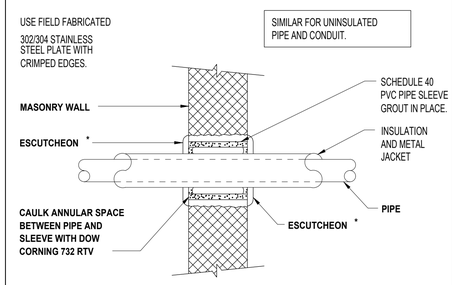
1 CONDENSATE DRAIN DETAIL

SCALE: N.T.S.



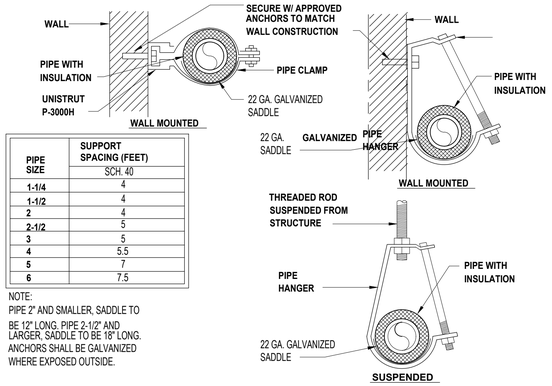
2 DUCT ROOF PENETRATION

SCALE: N.T.S.



3 PIPE THRU EXTERIOR WALL

SCALE: N.T.S.

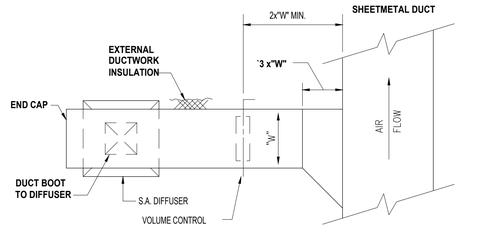


PIPE SIZE	SUPPORT SPACING (FEET)
	SCH. 40
1-1/4	4
1-1/2	4
2	4
2-1/2	5
3	5
4	5.5
5	7
6	7.5

NOTE:
PIPE 2" AND SMALLER, SADDLE TO BE 12" LONG. PIPE 2-1/2" AND LARGER, SADDLE TO BE 18" LONG. ANCHORS SHALL BE GALVANIZED WHERE EXPOSED OUTSIDE.

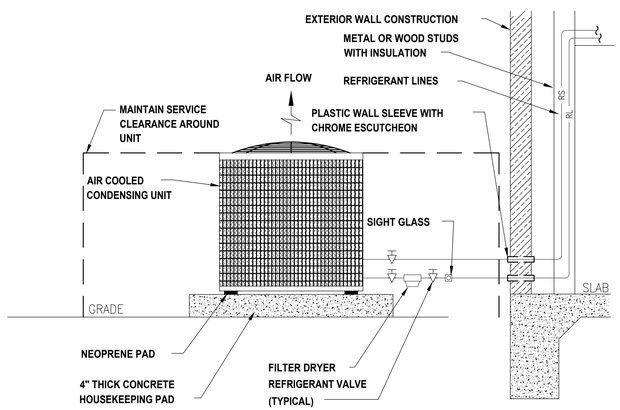
5 CONDENSATE SUPPORT & INSTALLATION DETAIL

SCALE: N.T.S.



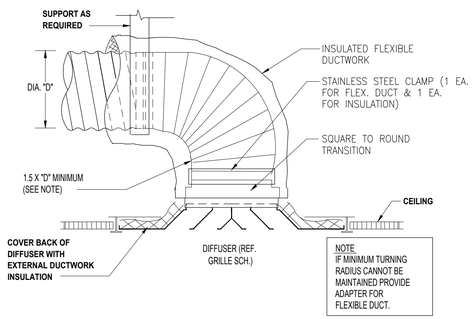
6 RIGID SUPPLY DUCT TAP TO SINGLE AIR DIFFUSER

SCALE: N.T.S.



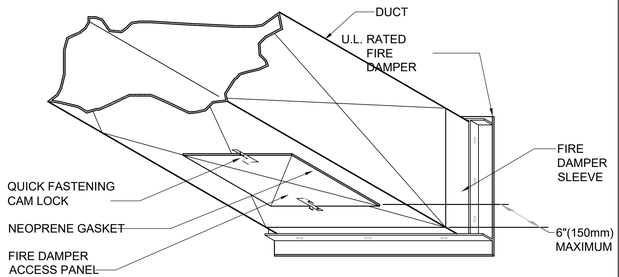
8 OUTDOOR HEAT PUMP INSTALLATION DETIAL

SCALE: N.T.S.



7 FLEXIBLE DUCT CONNECTION TO SUPPLY AIR DIFFUSER

SCALE: N.T.S.



8 FIRE DAMPER ACCESS DETAIL

SCALE: N.T.S.

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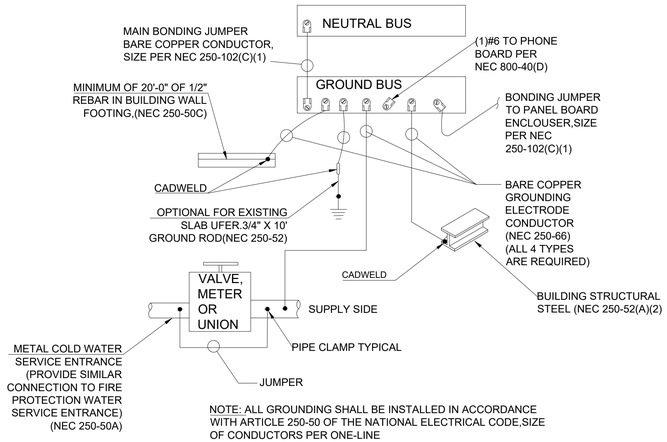
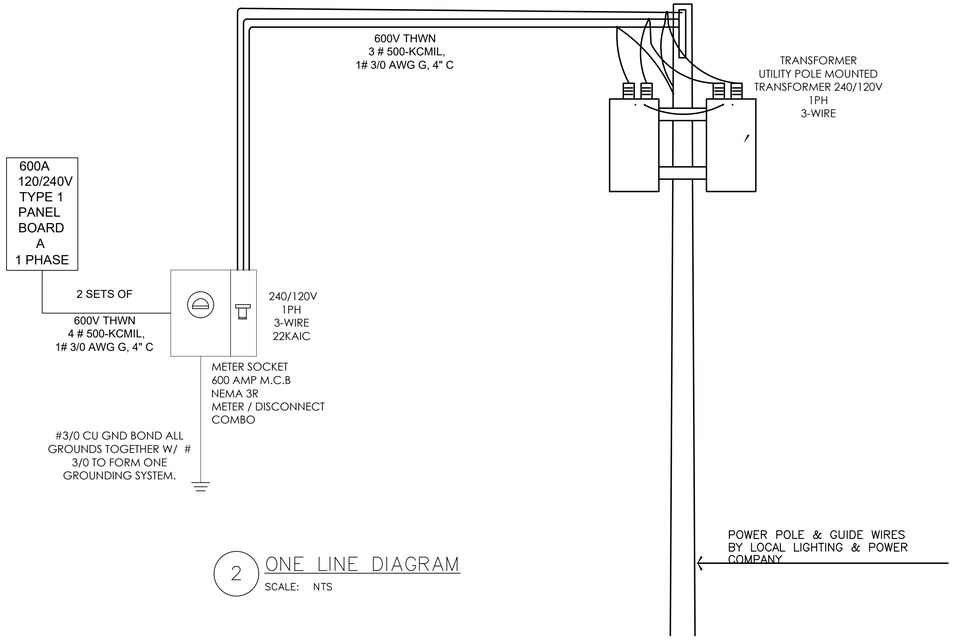


NOTE: ALL GROUNDING SHALL BE INSTALLED IN ACCORDANCE WITH ARTICLE 250-50 OF THE NATIONAL ELECTRICAL CODE,SIZE OF CONDUCTORS PER ONE-LINE

1 GROUNDING DETAIL

SCALE: NTS



2 ONE LINE DIAGRAM

SCALE: NTS

*	LOAD SUMMARY	Location: CL	DF	CONNECTED LOAD A	B	DEMAND TOTAL
L	Lighting	4.15	1.25	2.55	1.60	5.19
R	Convenience Recept	12.92		7.14	5.78	11.17
H	Heating (Space)	36.00	1.25	18.00	18.00	36.00
C	Cooling		1.00			
A	HVAC	48.37	1.00	24.18	24.18	48.37
P	Process		1.00			
O	Other Continuous		1.25			
K	Kitchen	25.71	13.00	11.90	13.80	16.71
N	Noncontinuous		1.00			
			1.00			
	Total	**127.15**		63.78	63.37	117.43

Total Demand Load (KVA)	117.43
Total Demand Current (A)	489.31
Min. Feeder Ampacity (A)	587.17

PANEL A	
PANELBOARD DESIGNATION	
SYSTEM VOLTAGE	240/120V, 1Φ, 3W
BUS SIZE	600A
SYSTEM TYPE	NORMAL
FEEDER PROT	600A-2P C/B Bus Plug
CONDUCTOR SIZE	500-kcmil - #3G CU
CONDUCTOR/PHASE	2
MAINS	600A MCB
SCCR	FULLY RATED
MCB RATING	80%
GROUND FAULT	NO
FEEDER LENGTH (FT)	100
FEEDER V. DROP (%)	0.645
FAULT CURRENT	
KAIC RATING	18
ENCLOSURE	TYPE 1

	DESCRIPTION	*	WIRE	GRD	CB	KVA	A	B	KVA	CB	WIRE	GRD	DESCRIPTION	*	
1	LIGHTING GYM OPEN SPACE	L	2x 14 AWG	- #14G	15A-1P	1.00	1.55		0.55	15A-1P	2x 14 AWG	- #14G	LIGHTING	L	2
3	LIGHTING CORRIDOR - BATHROOM	L	2x 14 AWG	- #14G	15A-1P	0.60		1.20	0.60	15A-1P	2x 14 AWG	- #14G	LIGHTING CORRIDOR - BATHROOM	L	4
5	LIGHTING OUTDOOR	L	2x 14 AWG	- #14G	15A-1P	0.50	1.00		0.50	20A-1P	2x 12 AWG	- #12G	SIGNAGE	L	6
7	EMERGENCY LIGHTS	L	2x 14 AWG	- #14G	15A-1P	0.20		0.40	0.20	20A-1P	2x 12 AWG	- #12G	FIRE ALARM	L	8
9	RECEPTACLES TREADMILLS	R	2x 12 AWG	- #12G	20A-1P	1.00	2.00		1.00	20A-1P	2x 12 AWG	- #12G	RECEPTACLES TREADMILLS	R	10
11	RECEPTACLES TREADMILLS	R	2x 12 AWG	- #12G	20A-1P	1.00		2.26	1.26	20A-1P	2x 12 AWG	- #12G	RECEPTACLES GYM	R	12
13	RECEPTACLES GYM	R	2x 12 AWG	- #12G	20A-1P	1.26	2.16		0.90	20A-1P	2x 12 AWG	- #12G	RECEPTACLES GYM	R	14
15	FRIDGE	K	2x 12 AWG	- #12G	20A-1P	0.90		2.16	1.26	20A-1P	2x 12 AWG	- #12G	RECEPTACLES	R	16
17	RECEPTACLES	R	2x 12 AWG	- #12G	20A-1P	0.72	1.62		0.90	20A-1P	2x 12 AWG	- #12G	RECEPTACLES BATHROOMS GFCI	R	18
19	RECEPTACLES	R	2x 12 AWG	- #12G	20A-1P	1.08		1.26	0.18	20A-1P	2x 12 AWG	- #12G	RECEPTACLE GFCI	R	20
21	DRINKING FOUNTAIN	R	2x 12 AWG	- #12G	20A-1P	1.00	1.18		0.18	20A-1P	2x 12 AWG	- #12G	RECEPTACLE OUTDOOR	R	22
23	DRINKING FOUNTAIN	R	2x 12 AWG	- #12G	20A-1P	1.00		2.00	1.00	20A-1P	2x 12 AWG	- #12G	RECEPTACLE EQUIPMENT	K	24
25	DRYER	K	3x 10 AWG	- #10G	30A-2P	2.60	5.10		2.50	30A-2P	3x 10 AWG	- #10G	UH-01	A	26
27		K				2.60		5.10	2.50					A	28
29	SAUNA	K	3x 4 AWG	- #6G	80A-2P	8.30	26.30		18.00	200A-2P	3x 3/0 AWG	- #3G	EWH-01	H	30
31		K				8.30		26.30	18.00					H	32
33	RECEPTACLE EQUIPMENT	K	3x 12 AWG	- #12G	20A-2P	1.00	1.00						SPACE		34
35		K				1.00		1.91	0.91	15A-2P	3x 14 AWG	- #14G	AHU-01	A	36
37	HP-01	A	3x 4 AWG	- #10G	50A-2P	3.98	4.90		0.91					A	38
39		A				3.98		4.90	0.91	15A-2P	3x 14 AWG	- #14G	AHU-02	A	40
41	HP-02	A	3x 4 AWG	- #10G	50A-2P	3.98	4.90		0.91					A	42
43		A				3.98		4.90	0.91	15A-2P	3x 14 AWG	- #14G	AHU-03	A	44
45	HP-03	A	3x 4 AWG	- #10G	50A-2P	3.98	4.90		0.91					A	46
47		A				3.98		4.90	0.91	15A-2P	3x 14 AWG	- #14G	AHU-04	A	48
49	HP-04	A	3x 4 AWG	- #10G	50A-2P	3.94	4.85		0.91					A	50
51		A				3.94		6.08	2.15	25A-2P	3x 10 AWG	- #10G	ERV	A	52
53	RECEPTACLE OUTDOOR	R	2x 12 AWG	- #12G	20A-1P	0.18	2.33		2.15					A	54
55	SPARE				20A-1P								SPACE		56
57	SPARE				20A-1P								SPACE		58
59	SPARE				20A-1P								SPACE		60
	(KVA)														
					Total Connected Load		63.78	63.37							

3 PANEL BOARD SCHEDULE

SCALE: NTS

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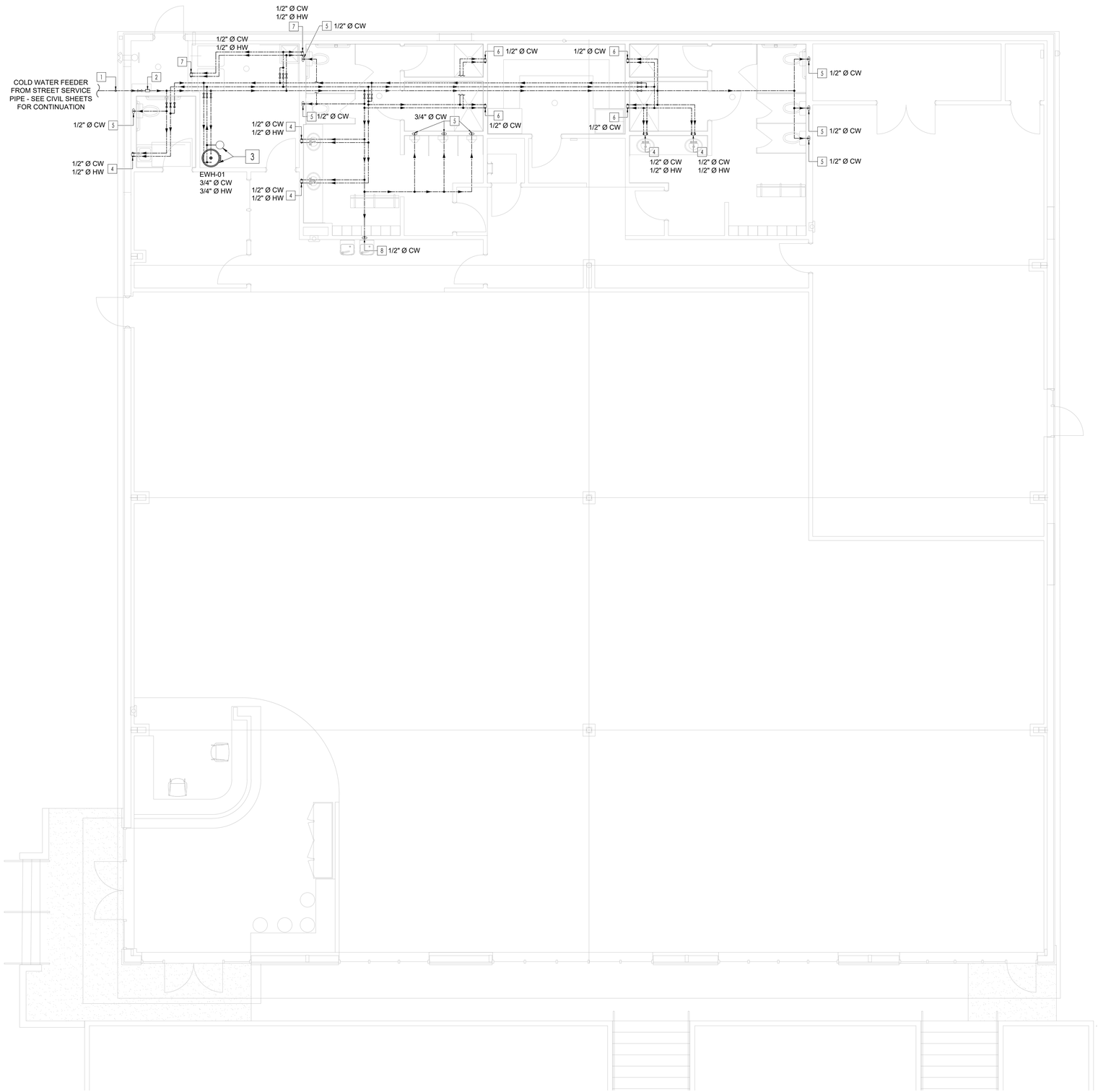

WATER SUPPLY KEYED NOTES:

1. DCW ENTRY - PROVIDE INSULATION FOR FREEZE PROTECTION.
2. BACKFLOW PREVENTER - WILKINS 375 - 1.5" OR EQUAL.
3. FLOOR MOUNTED ELECTRIC WATER HEATER - INSTALL ON A DRAIN PAN - PROVIDE EXPANSION TANK AS PER SCHEDULE OF EQUIPMENT.
4. DCW & DHW DROP IN WALL TO FIXTURE TERMINAL WITH THERMOSTATIC MIXING VALVE.
5. DCW DROP IN WALL TO FIXTURE.
6. DCW & DHW DROP TO SHOWER TERMINAL WITH PRESSURE / TEMPERATURE ANTI-SCALDING BALANCING VALVE.
7. DCW & DHW DROP IN WALL TO FIXTURE TERMINAL.
8. DCW DRINKING FOUNTAIN CONNECTION WITH BACKFLOW PREVENTER AND VACUUM BREAKER.

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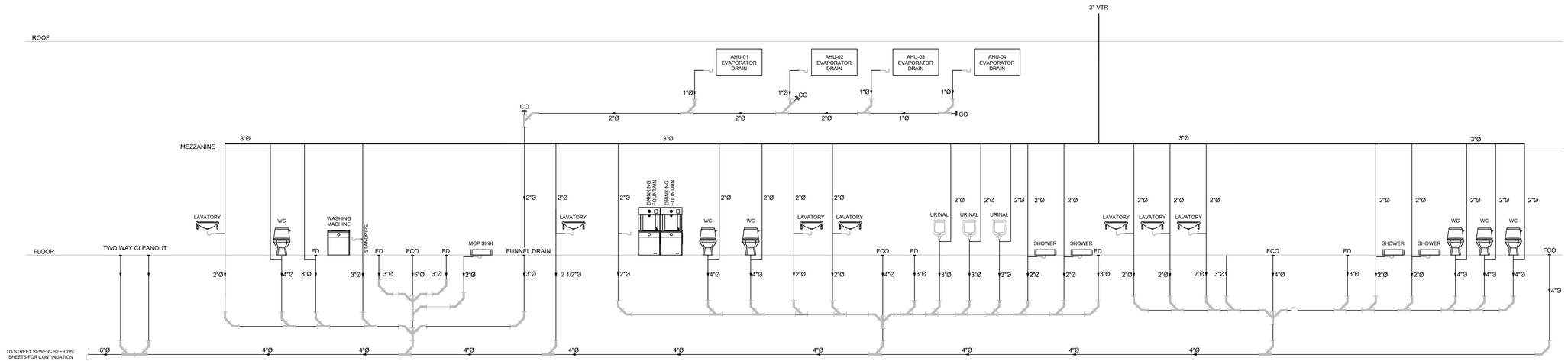
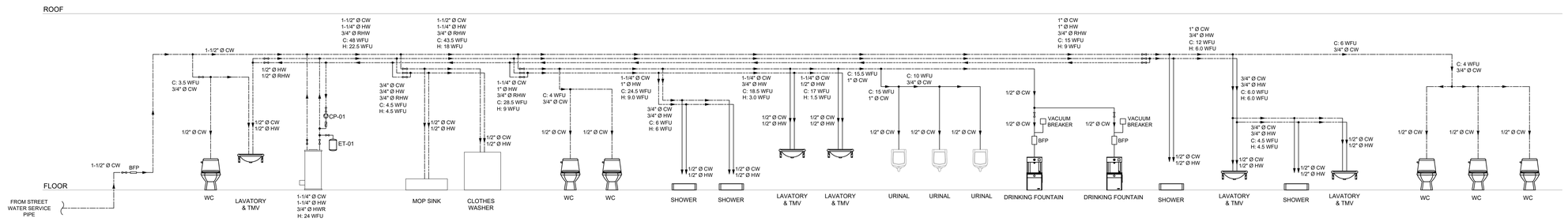


SEWER RISER DIAGRAM - NTS



WATER SUPPLY RISER DIAGRAM - NTS

WATER MAINS SIZING & WATER LOAD CALCULATION

FROM IPC - TABLE E 103.3 (2)

FIXTURE	OCCUPANCY	W.S.F.U	QTY.	TOTAL W.S.F.U
WC - FLUSHOMETER TANK	PUBLIC	2.0	6	12.0
LAVATORY	PUBLIC	2.0	5	10.0
URINAL - 3/4" VALVE	PUBLIC	5.0	3	15.0
SHOWER	PUBLIC	4.0	4	16.0
CLOTHES WASHER - 8 lb	PUBLIC	3.0	1	3.0
DRINKING FOUNTAIN	-	0.25	2	0.5
MOP SINK	-	3.0	1	3.0
				TOTAL = 59.5 WFU
				EQUIVALENT FLOW (IPC TABLE E103.3(3))= 32 GPM
				Ø1-1/2" MAIN CW PIPE WILL OPERATE AT AROUND 6 FT/s

SCHEDULE OF PLUMBING PIPES MATERIAL

PIPING SYSTEM	LOCATION	ACCEPTABLE PIPING MATERIAL
VENT	IN RETURN AIR PLENUM SPACES	<=1-1/2", DMV COPPER OR SCHEDULE 40 GALVANIZED PIPE AND FITTINGS >=2", ASTM A-74 CAST IRON SOIL PIPE AND FITTINGS
	IN NON-PLENUM AREAS	ASTM D-1785 PVC SCHEDULE 40, SOLVENT CEMENT TYPE JOINTS
SANITARY WASTE	BELOW AND ABOVE GRADE	ASTM D-1785 PVC SCHEDULE 40, SOLVENT CEMENT TYPE JOINTS
	ABOVE SLAB IN RETURN AIR PLENUM SPACES	ASTM A-74 CAST IRON PIPE, HUBLESS SERVICE WEIGHT
DOMESTIC WATER	-	TYPE L COPPER TUBING WITH WROUGHT COPPER FITTINGS AND 95/5 SOLDER JOINTS. OPTIONAL: CPVC PIPES.

SCHEDULE No. 1
SWING TANK SCHEDULE

TAG	EWH-01
MANUFACTURER	BRADFORD WHITE
MODEL	CEHDS0(AL)36 3*CF
TYPE	ELECTRIC - TANK
HEATER INPUT POWER (kW)	36
ELECTRICAL DATA	240V / 1Ø / 60 Hz
NUMBER OF ELEMENTS	4 / SIMULTANEOUS
NOMINAL TANK CAPACITY (GAL)	50
HEATER RECOVERY @ 90°F RISE (GPH)	164
APPROXIMATE SHIPPING WEIGHT (lbs)	460
HEIGHT x DIAMETER	52 3/4" x 24"

NOTES:

1. HEATER SHALL HAVE CSA CERTIFIED AND ASME RATED T&P RELIEF VALVE.
2. HEATER SHALL HAVE TWO ANODE RODS FOR PROTECTION.
3. HEATER SHALL MEET OR EXCEED THE THERMAL EFFICIENCY AND/OR STANDBY LOSS REQUIREMENTS OF THE US DOE AND CURRENT EDITION OF ASHRAE/IESNA 90.1.
4. HEATER SHALL HAVE FACTORY SUPPLIED INSULATION BLANKET.
5. PROVIDE EXPANSION TANK AS PER KEYED NOTES.
6. PROVIDE BASE PAN AS PER INSTALLATION DETAILS.
8. PROVIDE UL LISTED FIELD PHASE CONVERSION KIT FOR POWER SUPPLY IF REQUIRED.

SCHEDULE No. 2
EXPANSION TANK SCHEDULE

TAG	ET-01
MANUFACTURER	AMTROL
MODEL	ST-12C
TOTAL VOLUME (GAL)	6.4
MAX. ACCEPTANCE (GAL)	3.2
SYSTEM CONNECTION	3/4"
MAX. WORKING PRESSURE (PSI)	250
APPROXIMATE SHIPPING WEIGHT (lbs)	42
HEIGHT x DIAMETER	14" x 12"

NOTES:

1. EXPANSION TANK SHOULD BE ASME TESTED & STAMPED.
2. BLADDER SHOULD BE ANSI/NSF61 APPROVED.
3. ALL INTERNAL PARTS MUST COMPLY WITH FDA APPROVALS.
4. TANKS SHALL HAVE FACTORY SUPPLIED INSULATION BLANKET.

SCHEDULE No. 3
RE-CIRCULATING PUMP SCHEDULE

TAG	CP-01
MANUFACTURER	GRUNDFOS
MODEL	ALPHA2 15-/55
ACTUAL FLOW (GPM)	2.2
ACTUAL HEAD (PSI)	3
TYPE OF CONNECTION	FLANGE
POWER SUPPLY	115V / 1Ø / 60 Hz
MAX AMPS DRAW	0.65 AMPS
APPROXIMATE WEIGHT (lbs)	7.37

NOTES:

1. PUMP SHOULD BE ETL CERTIFIED.
2. PUMP SHOULD HAVE AUTO ADAPT FEATURE.
3. PUMP SHOULD BE LISTED FOR DOMESTIC HOT WATER USED.
4. PROVIDE PUMP WITH LED DISPLAY SHOWING THE ENERGY CONSUMPTION AND FLOW.

DISINFECTION OF POTABLE WATER SYSTEM

POTABLE WATER SYSTEM EQUIPMENT AND PIPING SHALL BE PURGED OF DELETERIOUS MATTER AND DISINFECTED PRIOR TO UTILIZATION. THE METHOD TO BE FOLLOWED SHALL BE THAT PRESCRIBED BY THE HEALTH AUTHORITY OR AUTHORITY HAVING JURISDICTION OR IN THE ABSENCE OF A PRESCRIBED METHOD, THE PROCEDURE DESCRIBED IN EITHER AWWA C651 OR AWWA C652 OR AS DESCRIBED AS BELOW. THIS REQUIREMENT SHALL APPLY TO "ONSITE" OR "IN PLANT" FABRICATION OF A SYSTEM OR TO A MODULAR PORTION OF A SYSTEM.

1. THE PIPE SYSTEM SHALL BE FLUSHED WITH CLEAN, POTABLE WATER UNTIL DIRTY WATER DOES NOT APPEAR AT THE POINTS OF OUTLET.

2. THE SYSTEM OR PART THEREOF SHALL BE FILLED WITH A WATER/CLHLORINE SOLUTION CONTAINING NOT LESS THAN 50 PARTS PER MILLION (50mg/L) OF CHLORINE, AND THE SYSTEM OR PART THEREOF SHALL BE VALVES OFF AND ALLOWE TO STAND FOR 24-HOURS, OR THE SYSTEM OR PART THEREOF SHALL BE FILLED WITH A WATER CHLORINE SOLUTION CONTAINING NOT LESS THAN 200 PARTS PER MILLION (200mg/L) OF CHLORINE AND ALLOWED TO STAND FOR 3-HOURS.

3. FOLLOWING THE REQUIRED STANDING TIME, THE SYSTEM SHALL BE FLUSHED WITH CLEAN WATER UNTIL THE CHLORINE IS PURGED FORM THE SYSTEM.

4. THE PROCEDURE SHALL BE REPEATED WHERE SHOWN BY A BACTERIOLOGICAL EXAMINATION THAT CONTAMINATION REMAINS PRESENT IN THE SYSTEM.

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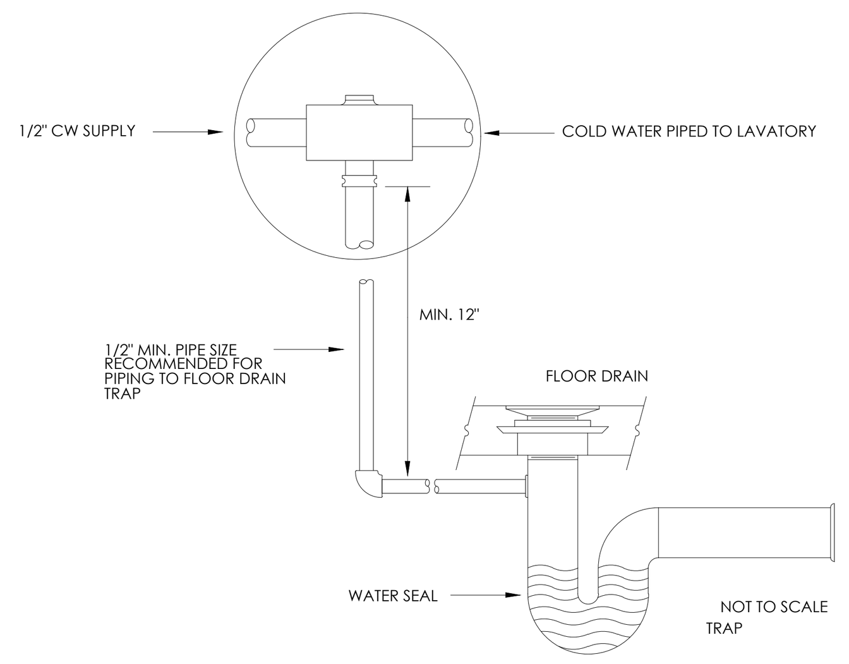
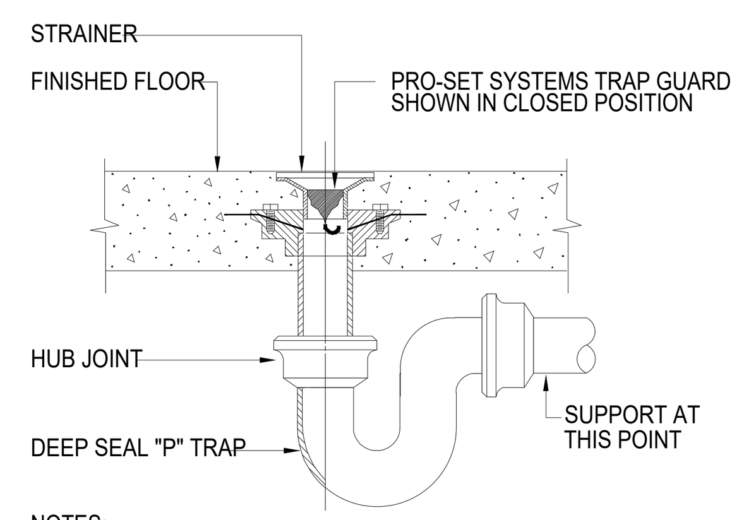


1 TRAP PRIMER DETAIL

SCALE: N.T.S.

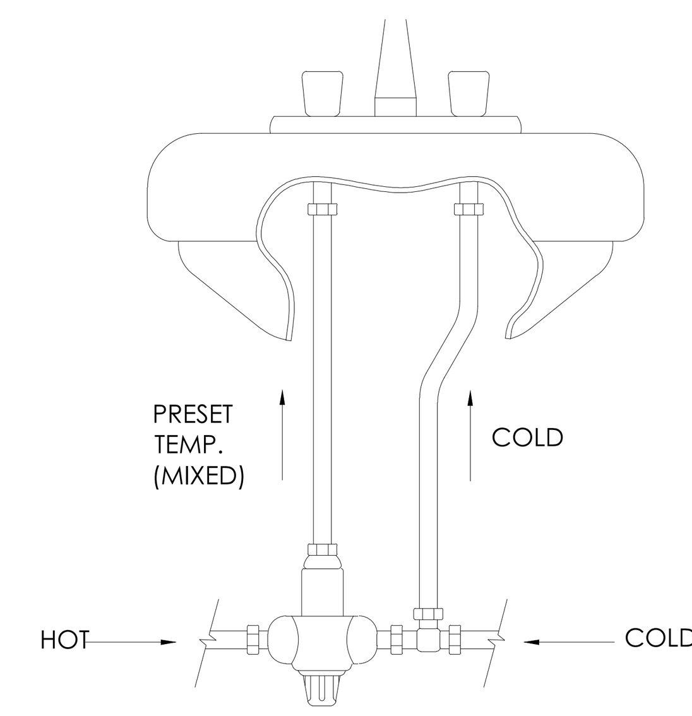


NOTES:

1. TRAP GUARD SHALL BE FACTORY FITTED TO MATCH EACH FLOOR DRAIN (AND FLOOR SINK) BY SIZE, MODEL, AND MANUFACTURER.
2. FLOOR SINK/HUB DRAIN TRAP GUARD INSTALLATION IS SIMILAR.
3. INSTALLATION OF TRAP GUARD TO BE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
4. INSERT TRAP GUARD ONLY AFTER FINAL RODDING OF DRAINS. INSTALL TRAP GUARD WITH CLEAR SILICONE CAULK FOR GAS TITE SEAL. FOR DRAIN RODDING AFTER INSTALLATION, INSERT SEWER TAPE THROUGH LIGHTLY GREASED 1-1/2" PVC PIPE TO PROTECT TRAP GUARD.

2 FLOOR DRAIL WITH TRAP SEAL PROTECTION

SCALE: N.T.S.



3 THERMOSTATIC MIXING VALVE DETAIL

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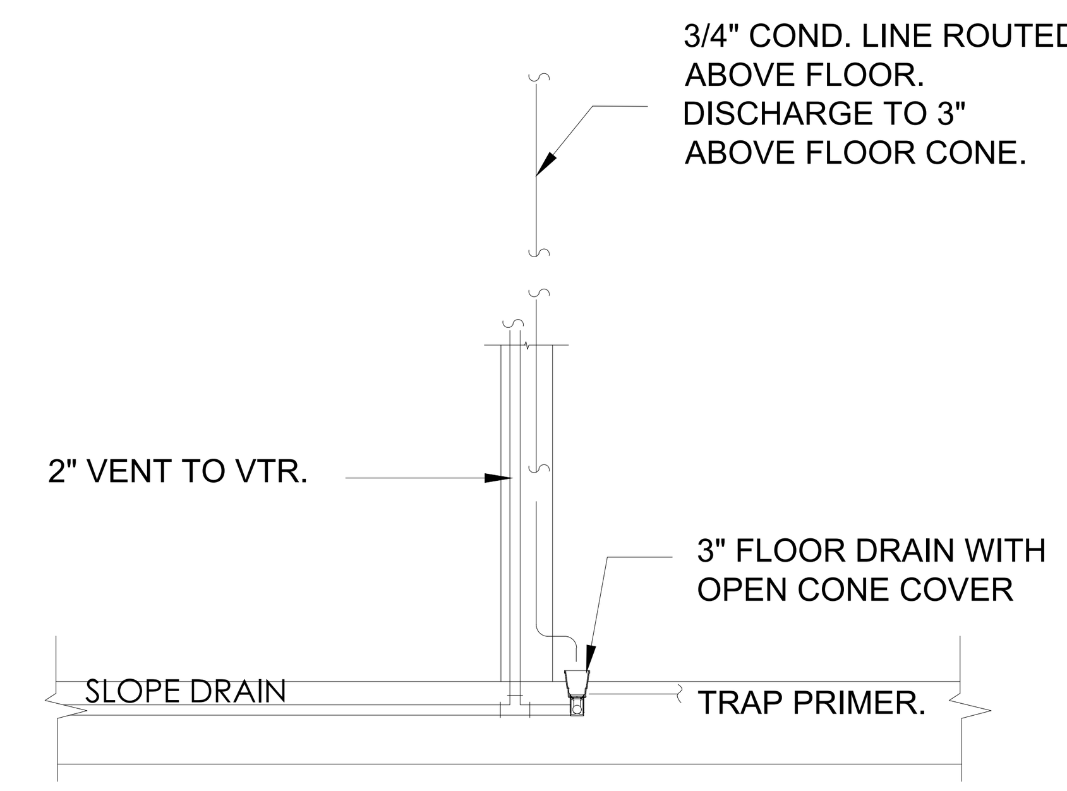
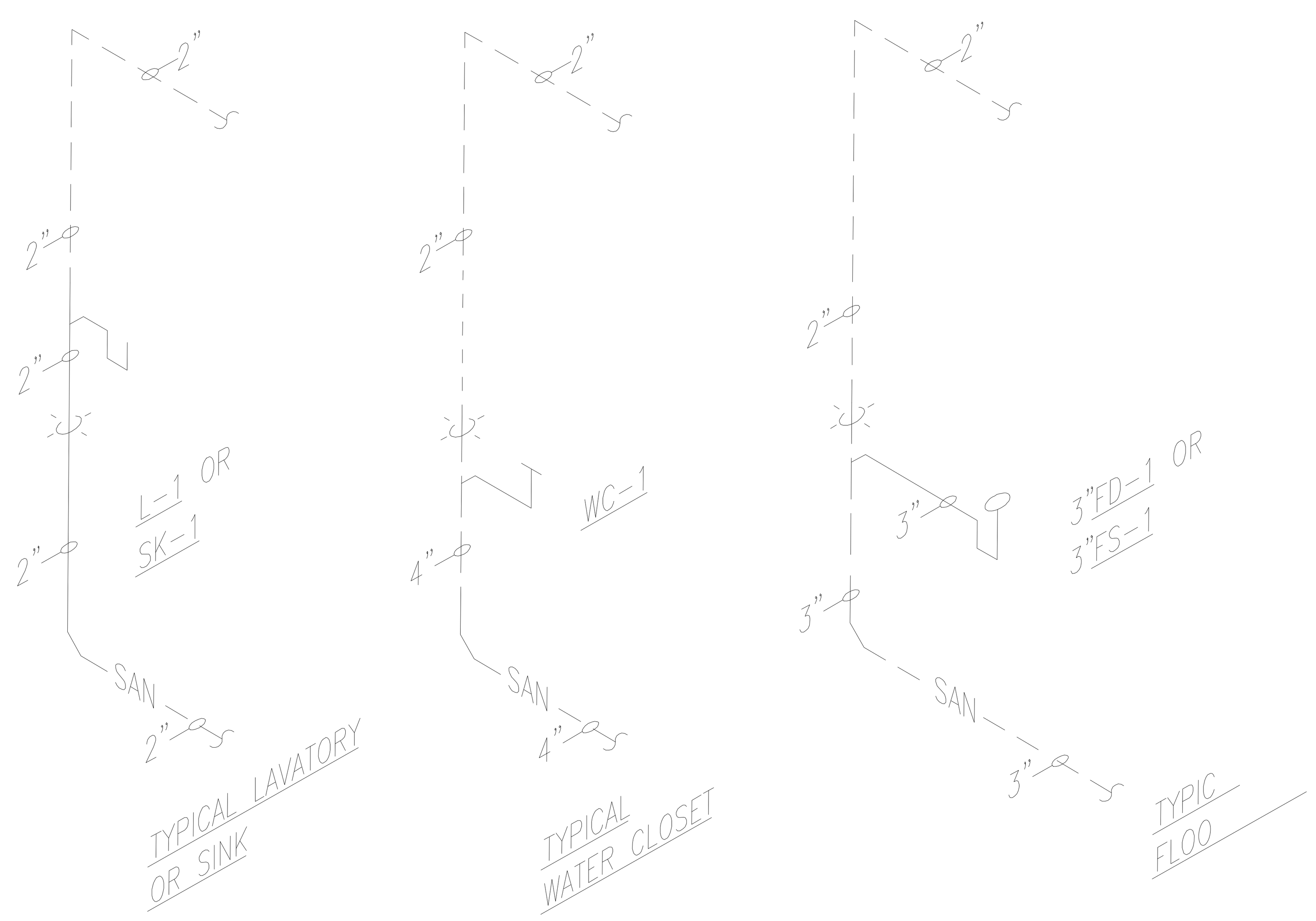


4 CONDENSATE DRAIN TERMINATION DETAIL

SCALE: N.T.S.



5 TYPICAL WASTE & VENT RISERS

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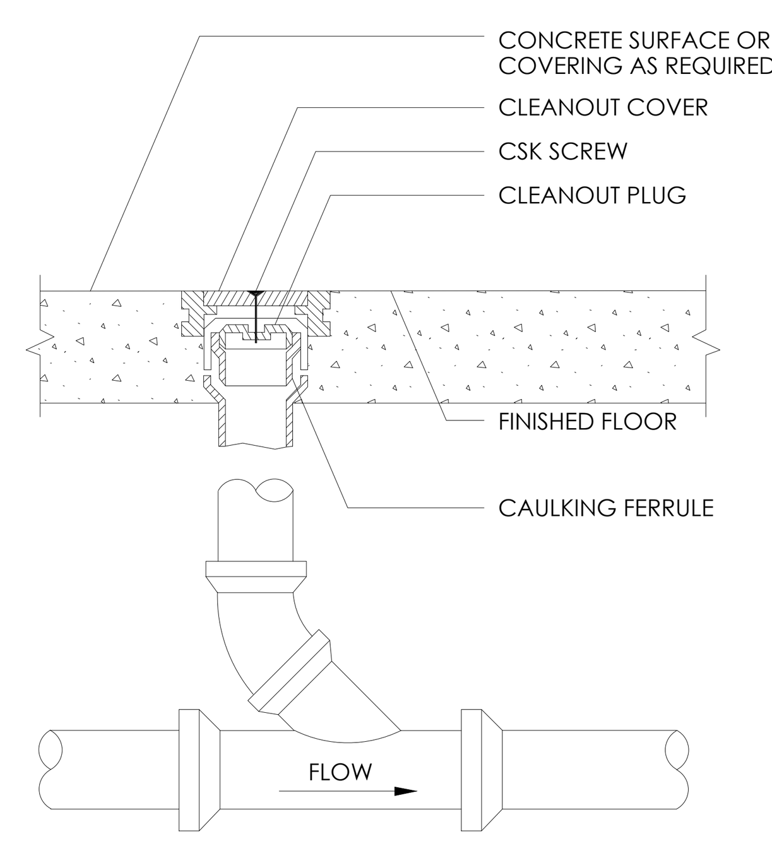
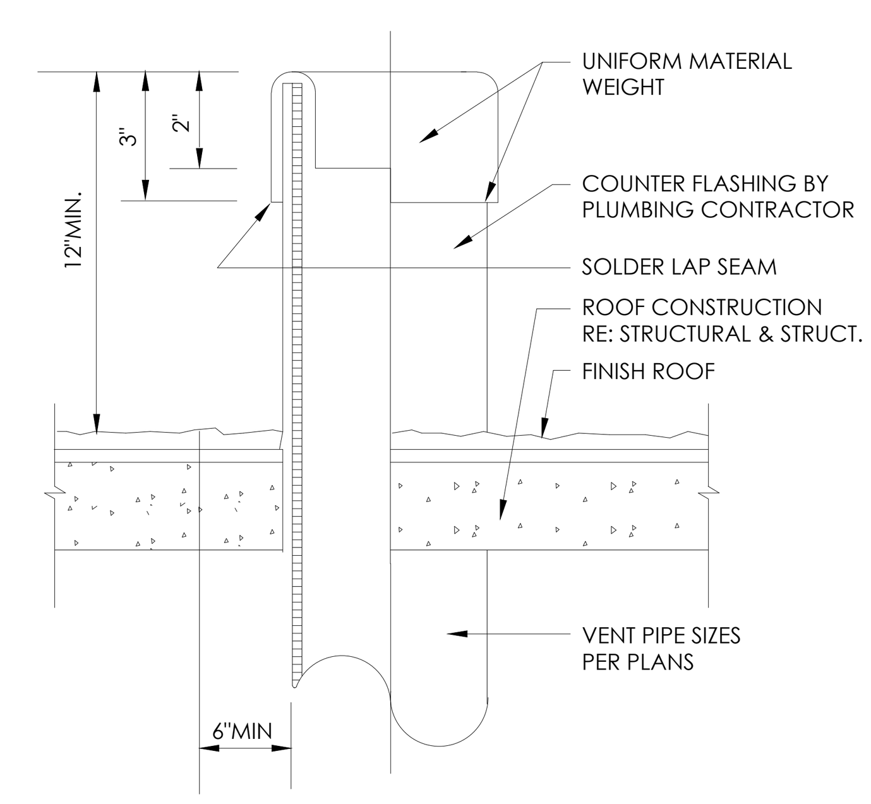


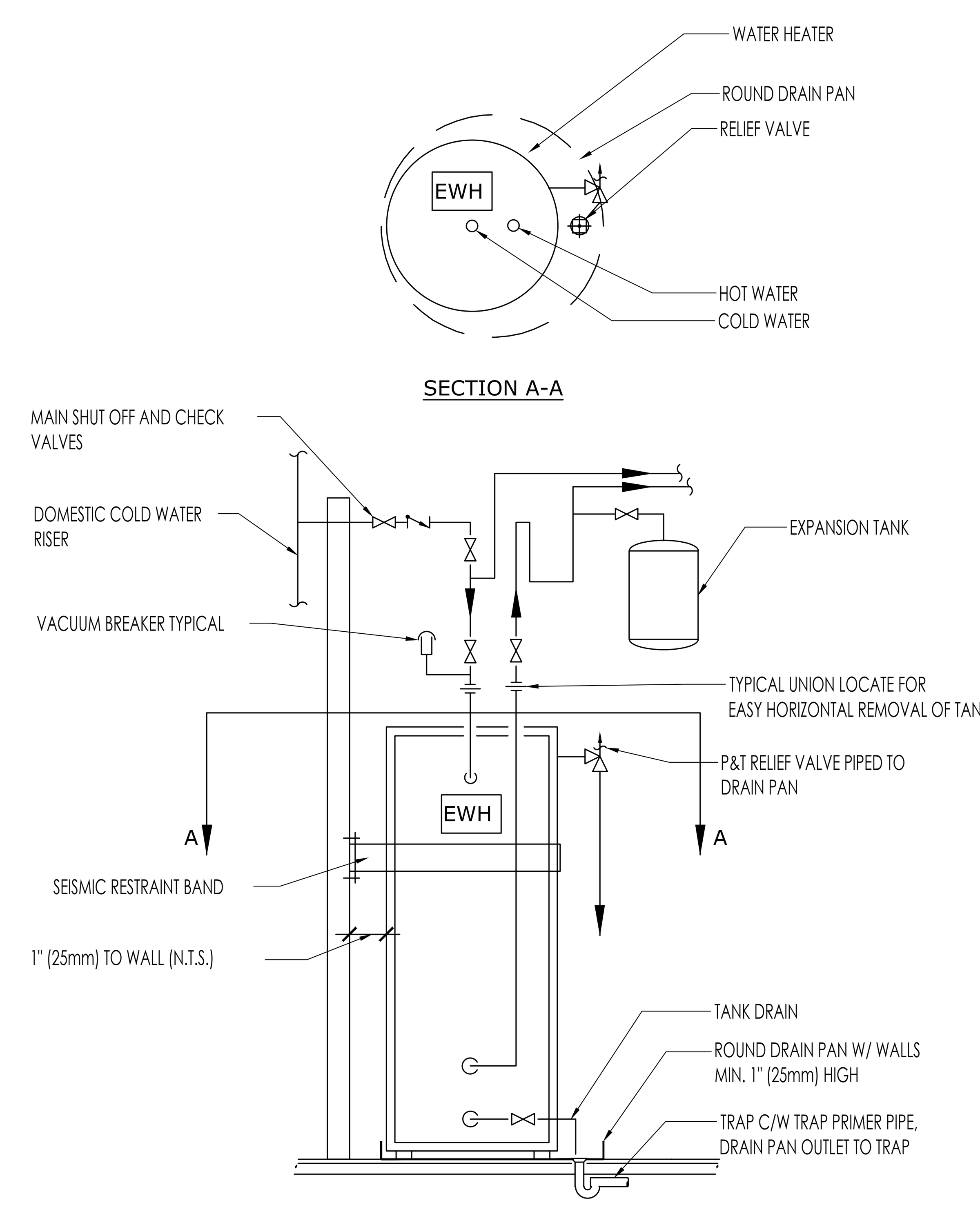
6 FLOOR CLEAN-OUT DETAIL

SCALE: N.T.S.



7 VENT THRU ROOF DETAIL

SCALE: N.T.S.



8 ELECTRIC WATER HEATER DETAIL

SCALE: N.T.S.

GDI ENGINEERING
INNOVATING SOLUTIONS
GDI ENGINEERING
3707 Cypress Creek Parkway, Suite 310
Houston, TX 77068
Office: 346-509-5860
www.gdiengdesign.com