

## GENERAL NOTES

- LEGENDS, SYMBOLS, NOTES, AND ABBREVIATIONS SHOWN ON THIS DRAWING PERTAIN TO PLUMBING DRAWINGS ONLY. ALL LEGEND SYMBOLS AND ABBREVIATIONS SHOWN ON THIS DRAWING DO NOT NECESSARILY APPEAR IN THESE CONTRACT DOCUMENTS. SEE MECHANICAL AND FIRE PROTECTION DRAWINGS FOR ADDITIONAL ABBREVIATIONS AND NOTES.
- BEFORE SUBMITTING A PROPOSAL, BIDDERS SHALL VISIT AND EXAMINE CAREFULLY ALL AREAS OF WORK TO BECOME FAMILIAR WITH EXISTING CONDITIONS AND WITH THE JOB DIFFICULTIES THAT WILL IMPACT EXECUTION OF WORK. SUBMISSION OF A PROPOSAL WILL BE CONSTRUED AS EVIDENCE THAT SUCH AN EXAMINATION HAS BEEN MADE AND LATER CLAIMS WILL NOT BE RECOGNIZED FOR EXTRA LABOR, EQUIPMENT, OR MATERIALS.
- THE CONTRACT DRAWINGS ARE DIAGRAMMATIC IN NATURE AND, DUE TO THE SCALE OF DRAWINGS IT IS NOT FEASIBLE TO SHOW ALL OFFSETS, FITTINGS, AND OTHER APPURTENANCES NECESSARY TO MEET THE ACTUAL FIELD CONDITIONS. PROVIDE ALL OFFSETS, FITTINGS, VALVES, TRAPS, AND OTHER MATERIAL AS REQUIRED FOR A COMPLETE AND OPERATING SYSTEM WITHOUT ADDITIONAL COST TO THE OWNER.
- BEFORE COMMENCING WORK, CONTRACTOR SHALL VERIFY INVERT ELEVATIONS OF ALL PIPING WITH THE PROPER DRAINAGE SLOPE AND SOIL COVER.
- BEFORE COMMENCING WORK, CONTRACTOR SHALL BRING TO THE ATTENTION OF THE PLUMBING ENGINEER AND/OR OWNER ANY CONCERNS REGARDING THE DESIGN. DO NOT PROCEED WITH THE WORK UNTIL ALL CONCERNS ARE RESOLVED.
- THE PLUMBING CONTRACTOR SHALL BE RESPONSIBLE FOR THE ACTUAL EQUIPMENT SIZES, CONNECTION SIZES, ETC., AS REQUIRED TO SUIT PROJECT CONDITIONS AND THE LISTED SCHEDULES FROM THE BASIS-OF-DESIGN. INSTALL ALL EQUIPMENT AS DESIGNED AND PER WRITTEN INSTALLATION GUIDES FROM THE MANUFACTURER.
- REFER TO ARCHITECTURAL DRAWINGS FOR FINAL LOCATION OF ALL EQUIPMENT.
- THE PLUMBING CONTRACTOR SHALL PAY ALL FEES, GIVE NOTICE, FILE NECESSARY DRAWINGS, OBTAIN PERMITS AND CERTIFICATES OF APPROVAL REQUIRED FOR ALL WORK UNDER THIS CONTRACT. HE SHALL COMPLY WITH LOCAL ORDINANCES, STATE AND FEDERAL LAWS, LOCAL AND NATIONAL CODES, AND LOCAL A.H.J. THE GOVERNING CODE IS THE 2023 FLORIDA PLUMBING CODE, 8TH EDITION.
- COORDINATE NEW WORK WITH OTHER TRADES AND EXISTING SITE CONDITIONS.
- COORDINATE WITH THE ELECTRICAL CONTRACTOR ALL ELECTRICAL REQUIREMENTS FOR EQUIPMENT PROVIDED, INCLUDING STARTERS, DISCONNECTS, FUSES, TRANSFORMERS, ETC.
- SEAL OPENINGS AROUND PIPING PENETRATIONS THROUGH PARTITIONS, WALLS, ROOFS AND WALLS WITH NON-COMBUSTIBLE MATERIAL.
- PROVIDE ALL NECESSARY FLASHING AND COUNTERFLASHING ON ALL EXTERIOR PENETRATIONS TO MAINTAIN THE WEATHERTIGHT INTEGRITY OF THE BUILDING.
- ALL EQUIPMENT CONCRETE PADS SHALL BE COORDINATED WITH PURCHASED EQUIPMENT. U.O.N. THE EQUIPMENT PAD SHALL BE 4" THICK WITH A FOOTPRINT 6" LARGER THAN THE SUPPORTING EQUIPMENT.
- INSTALLATION OF ADA PLUMBING FIXTURES AND RELATED PIPING, TRIM AND ACCESSORIES SHALL COMPLY WITH THE AMERICANS WITH DISABILITIES ACT.
- INSTALL EQUIPMENT AND PIPING TO BE READILY ACCESSIBLE FOR OPERATION, MAINTENANCE AND REPAIR. MINOR DEVIATIONS FROM THE CONTRACT DRAWINGS MAY BE MADE TO ACCOMPLISH THIS, BUT CHANGES WHICH INVOLVE EXTRA COST SHALL NOT BE MADE WITHOUT APPROVAL FROM THE ENGINEER AND/OR OWNER.
- WHERE THE INCOMING WATER STATIC PRESSURE EXCEEDS 80 PSIG, A PRESSURE REDUCING VALVE SHALL BE INSTALLED TO REDUCE THE PRESSURE.
- WHERE THE INCOMING WATER STATIC PRESSURE DOES NOT REACH 42 PSIG, A DOMESTIC WATER BOOSTER SHALL BE INSTALLED TO INCREASE THE PRESSURE.
- SEE DOMESTIC WATER RISER DIAGRAMS FOR BRANCH SHUT-OFF VALVES. COORDINATE WITH OTHER TRADES FOR ACCESS. PROVIDE CEILING AND WALL ACCESS PANELS.
- FOLLOWING PIPING INSTALLATION, THE PIPING SHALL BE PRESSURE TESTED IN ACCORDANCE WITH THE APPLICABLE PLUMBING CODE. LONG PIPE RUNS MAY BE TESTED IN SECTIONS, PROVIDED THAT ADEQUATE ISOLATION MEANS ARE EMPLOYED. ALL TESTS SHALL BE WITNESSED. PROVIDE TEST CERTIFICATES TO OWNER.
- UNDER NO CIRCUMSTANCES WILL THE PLUMBING CONTRACTOR OR HIS WORKMEN BE PERMITTED TO USE ANY PART OF THE BUILDING AS A SHOP EXCEPT AS PERMITTED.
- REMOVE RUBBISH FROM PREMISES AND SITE AT THE END OF EACH WORK AND AS DIRECTED. DISPOSE OF THE WASTE MATERIALS LEGALLY.
- STORE MATERIALS IN DESIGNATED SPACES.
- MATERIALS AND SURFACES DISTURBED WHILE INSTALLING NEW EQUIPMENT, ETC. SHALL BE RESTORED TO ACCEPTABLE CONDITION AS DETERMINED BY THE ENGINEER.
- NEW EQUIPMENT AND MATERIALS SHALL BE FULLY TESTED AND THOROUGHLY CLEANED BEFORE TURNING THE SAME FOR ACCEPTANCE.
- ALL DOMESTIC WATER SHALL BE INSTALLED WITHIN THERMAL ENVELOPE OF BUILDING.

## EQUIPMENT LEGEND

RP	HOT WATER RECIRCULATING PUMP
IWH	INSTANTANEOUS WATER HEATER
P	PUMP
PRV	PRESSURE REDUCING VALVE
RPZ	REDUCED PRESSURE ZONE (BACKFLOW PREVENTER)
EWH	ELECTRIC WATER HEATER

## GENERAL SYMBOLS

	BALL VALVE		FLOOR DRAIN
	BALANCING VALVE		ROOF DRAIN
	BACKFLOW VALVE		AREA DRAIN
	BACKWATER VALVE		PITCH OF PIPE (DN)
	CHECK VALVE		BACKFLOW PREVENTER REDUCED PRESSURE ZONE
	CLEANOUT		TRAP PRIMER
	GATE VALVE		WATER HAMMER ARRESTOR
	PIPE DN/DROP		UNION
	PIPE UP/RISE		HOUSE TRAP (PLAN)
	STRAINER W/BLow-OFF		GAS COCK
	PUMP, IN-LINE		THERMOMETER
	WATER METER		
	HOUSE TRAP (RISER)		
	CURB VALVE BOX (PLAN)		
	VACUUM RELIEF VALVE		

	EQUIPMENT TYPE (SEE SCHEDULES)
	EQUIPMENT NUMBER (SEE SCHEDULES)

	SECTION NUMBER
	SHEET NUMBER DRAWN ON

## TYPICAL ABBREVIATIONS

ABS	ACRYLONITRILE BUTADIENE STYRENE	KW	KILOWATTS
ABV	ABOVE	LAV	LAVATORY
AC	AIR CHAMBER (SHOCK ABSORBER)	LVG	LEAVING
AD	AREA DRAIN	LWT	LEAVING WATER TEMPERATURE
ADA	AMERICANS WITH DISABILITY ACT (MEETING REQUIREMENTS OF)	MAX	MAXIMUM
AFF	ABOVE FINISHED FLOOR	MBH	1,000 BTUS PER HOUR
AG	AIR GAP	MC	MECHANICAL CONTRACTOR
AHJ	AUTHORITY HAVING JURISDICTION	MECH	MECHANICAL
AP	ACCESS PANEL	MH	MANHOLE
AVG	AVERAGE	MIN	MINIMUM
AWT	AVERAGE WATER TEMPERATURE	MJ	MECHANICAL JOINT
BFP	BACKFLOW PREVENTER	MR	MOP RECEPTOR
BOP	BOTTOM OF PIPE	NPS	NOMINAL PIPE SIZE
BOS	BOTTOM OF STEEL	NTS	NOT TO SCALE
CENT	CENTRIFUGAL	OD	OUTSIDE DIAMETER
CISP	CAST IRON SOIL PIPE	PC	PLUMBING CONTRACTOR
CLG	CEILING	PH	PHASE
CO	CLEANOUT	PLMB	PLUMBING
CONC	CONCRETE	PRI	PRIMARY
CONN	CONNECTION	PSI	POUNDS PER SQUARE INCH
CU	COPPER (TUBING)	PSIG	POUNDS PER SQUARE INCH GAUGE
CW	DOMESTIC COLD WATER	PVC	POLYVINYL CHLORIDE
DIA	DIAMETER	RD	ROOF DRAIN
DFU	DRAINAGE FIXTURE UNIT	RHW	RECIRCULATING HOT WATER ROOM
DIP	DUCTILE IRON PIPE	RM	RAIN WATER COLLECTOR
DN	DOWN	RPM	REVOLUTIONS PER MINUTE
DR	DRAIN	RWC	RAIN WATER COLLECTOR
DWG	DRAWING	SAN	SANITARY
EA	EACH	SEC	SECONDARY
ELEC	ELECTRICAL	SFU	SUPPLY FIXTURE UNITS
EL	ELEVATION	SP	STATIC PRESSURE (IN. WG.)
EQ	EQUAL	SQ	SQUARE
EWI	ENTERING WATER TEMPERATURE	SS	SERVICE SINK
EXT	EXTERNAL	TEMP	TEMPERATURE
FD	FLOOR DRAIN	T&P	TEMPERATURE AND PRESSURE (RELIEF VALVE)
FLEX	FLEXIBLE	TP	TRAP PRIMER
FLR	FLOOR	TYP.	TYPICAL
FT	FOOT OR FEET	UN	UNLESS OTHERWISE NOTED
GALV	GALVANIZED	UP	UP OR UPWARD
GC	GENERAL CONTRACTOR	UR	URINAL
GF	GAS FURNACE	V	VENT PIPE
GPH	GALLONS PER HOUR	V-PH-Hz	VOLTS-PHASE-HERTZ
GPM	GALLONS PER MINUTE	VB	VALVE BOX
HB	HOSE BIBB	VTR	VENT THRU ROOF
HD FT	HEAD IN FEET OF WATER	W	WASTE PIPE
HOR	HORIZONTAL	W/O	WITHOUT
HP	HORSEPOWER	WC	WATER CLOSET
HW	HOT WATER (DOMESTIC)	WG	WATER GAUGE
HZ	HERTZ	WH	WATER HEATER
ID	INSIDE DIAMETER	WM	WASHING MACHINE
IN	INCH		
I.E.	INVERT ELEVATION		
JC	JANITORS CLOSET		

## SEISMIC DESIGN NOTES

- ALL PLUMBING EQUIPMENT, PIPING, ETC. SHALL BE INSTALLED IN COMPLIANCE WITH FLORIDA BUILDING CODE - 2023 8TH EDITION AND AUTHORITIES HAVING JURISDICTION.
- WHERE VIBRATION AND/OR SEISMIC CONTROLS ARE REQUIRED THE PROVISION OF SAID DEVICES SHALL BE A PART OF THE SCOPE OF WORK. NO ADDITIONAL MONIES SHALL BE DUE TO TO THE CONTRACTOR FOR THE AFOREMENTIONED WORK.
- ALL VIBRATION AND SEISMIC PROTECTION DEVICES SHALL BE THE PRODUCTS OF A SINGLE MANUFACTURER.
- SUBMIT FOR APPROVAL SHOP DRAWINGS AND CALCULATIONS AND/OR CERTIFICATIONS MEETING THE REQUIREMENTS OF APPLICABLE CODES AND DESIGN STANDARDS. SHOP DRAWINGS AND CALCULATIONS SHALL BE SIGNED AND SEALED BY A PROFESSIONAL ENGINEER LICENSED IN FLORIDA.
- SEISMIC PROTECTION DEVICES SHALL MEET PROJECT SPECIFICATIONS AND CODE REQUIREMENTS.

## PLUMBING SPECIALTIES SCHEDULE

EQUIP. TAG NO.	SYSTEM	CW	BASIS OF DESIGN
ET-1	EXPANSION TANK	-	AMTROL ST-12 EXPANSION TANK, 4.4 GAL
BFP-1	BACKFLOW PREVENTOR	1/2"	WATTS LF9D
BFP-2	BACKFLOW PREVENTOR	2"	WATTS LF007M2QT
MV-1	MIXING VALVE	1/2"	WATTS LFMV-M1-UT
WHA-A	WATER HAMMER ARRESTER	1/2"	WATTS LF15M2-A 1/2 (1-11 WSFU)

- NOTES:  
1. ALL BACKFLOW PREVENTORS TO DRAIN TO CLOSEST FLOOR DRAIN OR SUMP PUMP.

## PLUMBING FIXTURE SCHEDULE

EQUIP. TAG NO.	FIXTURE	SOIL OR WASTE	COLD WATER	HOT WATER	BASIS OF DESIGN	DESCRIPTION	NOTES
WC-1	STANDARD WATER CLOSET	3"	1/2"	-	AMERICAN STANDARD EDGEMERE 204AA.104	VITREOUS CHINA, FLOOR MOUNTED, TANK TYPE	1,3
LAV-1	LAVATORY SINK	1-1/4"	1/2"	1/2"	ELKAY QUARTZ WHITE CLASSIC NIDEX ELGU2522WH0	SINGLE DRAIN UNDERMOUNT 24X24	1,4
HB-2	HOSE BIB	-	1/2"	-	WOODFORD MODEL 24 WALL FAUCET	WALL FAUCET WITH INTEGRAL VACUUM BREAKER.	1,6
SH-1	SHOWER	2"	1/2"	1/2"	STERLING ENSEMBLE 72131100 WITH GROHE 2713500	60"x34" WHITE MOLDED CENTER DRAIN W/ CHROME HARDWARE	1,5
SH-2	SHOWER	2"	1/2"	1/2"	STERLING ENSEMBLE 72121100 WITH GROHE 2713500	48"x34" WHITE MOLDED CENTER DRAIN W/ CHROME HARDWARE	1,5
KS-1	KITCHEN SINK	1-1/2"	1/2"	1/2"	MR 1824 STAINLESS STEEL SINK WITH GROHE 32665003	CENTER DRAIN SINK WITH SINGLE HANDLE CHROME FAUCET	1
MR-1	MOP RECEPTOR	3"	1/2"	1/2"	MUSTEE 63CM WITH FAUCET KIT	24"x24"x10" WHITE FIBERGLASS, PROVIDE DRAIN PIECE KIT	1
WB-1	WASHER BOX	1-1/2"	1/2"	1/2"	OATEY 38995 METAL WASHING MACHINE OUTLET BOX	1/4 TURN BRASS HAMMER BALL VALVES, 2" RUBBER TAIL PIECES	
FD-1	FLOOR DRAIN	2"	-	-	JAY R. SMITH 2110Y	2" NO HUB OUTLET WITH 8-1/2" ROUND TOP	2
HB-1	WALL HYDRANT	-	1/2"	-	WOODFORD MODEL 24B	CONCEALED IN BOX, ANTI SIPHON VACUUM BREAKER, LOOSE KEY TEE.	1,6
UR-1	STANDARD URINAL	2"	3/4"	-	AMERICAN STANDARD WASHBROOK 6590001.020	VITREOUS CHINA, WHITE, WALL HUNG, URINAL W/ FLUSH VALVE	1
RD-1	PRIMARY ROOF DRAIN	4"	-	-	JAY R. SMITH1935	12"NO HUB OUTLET WITH 20" COMBINATION GRAVEL STOP	
RD-2	SECONDARY ROOF DRAIN	4"	-	-	JAY R. SMITH1935	12"NO HUB OUTLET WITH 20" COMBINATION GRAVEL STOP	
EWC-1	ELECTRIC WATER COOLER	2"	1/2"	-	ELKAY LZSTBWSLK	BI-LEVEL W/ BOTTLE FILLER, WALL HUNG, ONE PIECE CONSTRUCTION.	1
TD-1	TRENCH DRAIN	4"	-	-	ZURN Z886-DGE-HDF	HIGH DENSITY POLYETHYLENE CHANNEL, DUCTILE IRON GRATE.	1
FS-1	FLOOR SINK	2"	-	-	JAY R. SMITH 305	12"x12" FLOOR SINK W/ FULL GRATE AND SEDIMENT TRAY	1
EEW-1	EMERGENCY EYE WASH	1-1/4"	1/2"	1/2"	BRADLEY S19-22B WALL MOUNT/FACEWASH UNIT	10.75" STAINLESS STEEL BOWL, STANDARD SPRAYHEAD ASSEMBLY.	7

ALL FIXTURES TO BE MOUNTED PER ANSI REQUIREMENTS.

- NOTES:  
1. FURNISH AND INSTALL ISOLATION VALVE, PIPING/FLEXIBLE PIPING AND REDUCERS TO MAKE FINAL CONNECTIONS TO FIXTURE VALVES.  
2. ALL FLOOR DRAINS TO BE INCLUDED WITH TRAP PRIMER SURESEAL #97042 OR APPROVED EQUAL INSTALLED PER MANUFACTURER'S REQUIREMENTS, RUBBER BOOT TYPE SEALS ARE UNACCEPTABLE. 18"x18" AREA AROUND DRAIN TO BE DEPRESSED SLOPE (1/8" PER FOOT).  
3. PROVIDE WITH PROFLO PFXCAZ32CC12 SUPPLY KIT AND AMERICAN STANDARD SEAT COVER.  
4. PROVIDE PROFLO PFGD100 GRID DRAIN, PROFLO PFXCAZ32CL12 SUPPLY KIT AND PROFLO PPFTB107 P-TRP.  
5. PROVIDE GROHE BALANCE VALVE 35015001 AND PROFLO OF140NC SHOWER DRAIN.  
6. 3/4" MPT HOSE CONNECTION, WALL FLANGE AND TEE KEY OPERATION, CONFIRM WALL THICKNESS AT INSTALLATION POINT(S)  
7. FURNISH AND INSTALL EMERGENCY THERMOSTATIC MIXING VALVE SUCH AS MODEL S19-2000 WITH COLD WATER BYPASS. EYE WASH STATION SHALL DELIVER 80°F TEMPERED WATER. EXTEND TEMPERED WATER LINE TO CONNECT TO EMERGENCY EYEWASH. ENTIRE INSTALLATION SHALL BE EXECUTED IN LINE WITH MANUFACTURER'S WRITTEN REQUIREMENTS. CONTRACTOR SHALL FURNISH AND INSTALL ALL REQUIRED ACCESSORIES FOR MIXING VALVE INCLUDING BUT NOT LIMITED TO MOUNTING BRACKETS, RECESSED CABINET, ETC. FURNISH AND INSTALL EYEWASH WITH OPERATIONAL ADAPTERS AS NECESSARY.

## ELECTRIC WATER HEATER (WH)

EQUIP. TAG NO.	NOMINAL CAPACITY (GAL)	RATED STORAGE VOLUME (GAL)	WATTAGE	FIRST HOUR RATING (GAL)	UNIFORM ENERGY FACTOR	RECOVERY AT 70 DEGREES F RISE	BASIS OF DESIGN	DESCRIPTION	NOTES
WH-1	120	96	12000	156	0.92	72	A.O. SMITH - DRE-120-12	ELECTRIC WATER HEATER, NON BLANKETED	1,2,3

- NOTES:  
1. 208 V, 1 PH, 60 HZ, 12,000 WATTS.  
2. WATER HEATER ELEMENTS ARE TO OPERATE NON-SIMULTANEOUS.  
3. SET MAXIMUM TEMPERATURE TO 120 F.

## TANKLESS ELECTRIC WATER HEATER (WH)

EQUIP. TAG NO.	NOMINAL CAPACITY (GPM)	RATED STORAGE VOLUME (GAL)	HEATING CAPACITY (WATTS)	DEGREES F RISE @ 0.5 GPM	DIMENSIONS (LxWxH)	BASIS OF DESIGN	DESCRIPTION	NOTES
WH-2	1.6	-	1,440	90	9.63"x9.71"x 15.39"	EEMAX EMT1	TANKLESS INSTANTANEOUS WATER HEATER	1,2

- NOTES:  
1. 120 V, 1 PH, 60 HZ, 12.0 AMPERES.  
2. SET MAXIMUM TEMPERATURE TO 120 F.

## AIR COMPRESSOR (C)

EQUIP. TAG NO.	COMPRESSOR TANK (GAL)	COMPRESSOR HORSEPOWER (HP)	MAX PSI	COMPRESSOR CFM@90 PSI	ELECTRICAL (V/PH/HZ)	MCA	BASIS OF DESIGN	DESCRIPTION	NOTES
C-1	80	5	175	14	230/1/60	22	CAMPBELL HAUSFELD HSS180	80 GALLON TWO STAGE AIR COMPRESSOR	1

- NOTES:  
1. FULLY ENCLOSED METAL BELT GUARD.

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PROJECT NAME AND ADDRESS

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ISSUES/REVISIONS

NO.	DESCRIPTION	DATE
-	DESIGN DEVELOPMENT	09/06/24
-	PERMIT/BID SET	03/28/25
1	REVISION 1	07/18/25
2	REVIEW COMMENTS	10/16/25

TITLE  
PLUMBING COVER SHEET

PROJECT

24026

SCALE  
NONE

SHEET

P0.1

# PLUMBING SPECIFICATIONS

## A. CODES AND STANDARDS

THE FOLLOWING CODES AND STANDARDS SHALL BE FOLLOWED FOR ALL WORK AND INTENT IN THIS PROJECT:

- 2023 FLORIDA PLUMBING CODE 8TH EDITION
- 2023 FLORIDA BUILDING CODE 8TH EDITION

## B. GENERAL REQUIREMENTS

- CONSIDER DRAWINGS AND SPECIFICATIONS AS SUPPLEMENTING EACH OTHER. PERFORM OR FURNISH WORK SPECIFIED BUT NOT SHOWN, OR SHOWN BUT NOT SPECIFIED, AS THOUGH MENTIONED IN BOTH SPECIFICATIONS AND DRAWINGS.
- PROVIDE MINOR ITEMS, ACCESSORIES OR DEVICES AS NECESSARY FOR COMPLETION AND PROPER OPERATION OF SYSTEMS WHETHER OR NOT THEY ARE SPECIFICALLY CALLED FOR BY SPECIFICATIONS OR DRAWINGS.
- WORK INCLUDES PROVIDING ALL LABOR, MATERIAL, EQUIPMENT AND SERVICE NECESSARY AND REASONABLY INCIDENTAL TO PROPER COMPLETION OF ALL SYSTEMS AS SHOWN ON DRAWINGS AND AS SPECIFIED. PROVIDE MEANS TO FURNISH AND INSTALL COMPLETE AND IN PLACE. WORD "FURNISH" MEANS TO FURNISH AT SITE OF WORK UNLESS OTHERWISE STATED.
- COORDINATE WORK AND EQUIPMENT OF MECHANICAL TRADES WITH WORK AND EQUIPMENT SPECIFIED ELSEWHERE TO ASSURE COMPLETE AND SATISFACTORY INSTALLATION. PERFORM WORK SUCH AS EXCAVATION, BACKFILL, CONCRETE, FLASHING, ETC., REQUIRED UNDER DIVISION 15 IN ACCORDANCE WITH REQUIREMENTS OF APPLICABLE DIVISION OF SPECIFICATIONS.
- REPAIR DAMAGE TO WORK INSTALLED UNDER DIVISION 15 OR TO WORK OF OTHERS, CAUSED BY NEGLECT ON THE PART OF THE DIVISION 15 CONTRACTOR AT OWN EXPENSE AND TO SATISFACTION OF ENGINEER.
- DRAWINGS ARE DIAGRAMATIC AND INDICATE ARRANGEMENTS AND APPROXIMATE SIZES AND RELATIVE LOCATIONS OF PRINCIPLE APPARATUS, EQUIPMENT, DEVICES AND SERVICES TO BE PROVIDED.
- LAYOUT OF EQUIPMENT INDICATED ON DRAWINGS SHALL BE CHECKED AND COMPARED AGAINST ALL DRAWINGS AND SPECIFICATIONS OF ALL TRADES AND EXACT LOCATIONS DETERMINED USING APPROVED SHOP DRAWINGS OF SUCH EQUIPMENT. WHERE PHYSICAL INTERFERENCE OCCUR, CONSULT WITH ENGINEER AND PREPARE DATED, DIMENSIONED DRAWINGS CORRECTING SUCH INTERFERENCES. SUBMIT TO ENGINEER FOR REVIEW OF SUCH DRAWINGS AND DISTRIBUTE SAME AS REQUIRED.
- WORK SHALL BE GUARANTEED TO BE FREE FROM LEAKS OR DEFECTS. DEFECTIVE MATERIALS, WORKMANSHIP AND DAMAGE TO WORK OF ALL DIVISIONS RESULTING FROM SAME SHALL BE REPLACED OR REPAIRED AS DIRECTED FOR DURATION OF STIPULATED GUARANTEED PERIODS. DURATION OF GUARANTEE FOLLOWING DATE OF BENEFICIAL USE OF SYSTEMS SHALL BE ONE YEAR, UNLESS SPECIFIED OTHERWISE.
- TO COORDINATE FIT AND INSTALLATION OF MECHANICAL AND ELECTRICAL WORK PREPARE FULLY-DIMENSIONED 3/8-INCH SCALE REPRODUCIBLE SHOP DRAWINGS, DELINEATING PROPOSED SHEET METAL INSTALLATION. THEN ADD THOSE REMAINING ITEMS WHICH ARE UNDER DIVISION 15 AND DISTRIBUTE PRINTS TO CONTRACTORS FOR OTHER DIVISIONS.
- EXCEPT WHEN OTHERWISE SHOWN ON THE CONTRACT DRAWINGS OR SPECIFIED, TERMINATE VENTS PASSING THROUGH ROOF 24 INCHES ABOVE ROOF.
- WHERE DEVICES, SUCH AS VALVES, DAMPERS, TRAPS, JUNCTION BOXES, ETC., ARE CONCEALED IN CONSTRUCTION OR BEHIND WALL OR CEILING SURFACE, AND WHERE ACCESS PANELS ARE NOT INDICATED ON DRAWINGS, FURNISH ACCESS PANEL OF ADEQUATE SIZE TO PERMIT SERVICE OR ADJUSTMENT OF SUCH CONCEALED DEVICE, BUT IN NO CASE SHALL PANEL BE LESS THAN 12"x16".
- PREPARE COMPLETE MAINTENANCE MANUALS OUTLINING RECOMMENDED MAINTENANCE, TOGETHER WITH, FOR EXAMPLE, TYPE OIL, FREQUENCY OF INSPECTION, BELT TENSION ADJUSTMENT, BOLT PART NUMBERS, AS RECOMMENDED BY MANUFACTURER OF EQUIPMENT.
- INSTRUCT OWNER'S REPRESENTATIVES DURING REGULAR WORKDAY IN OPERATION OF EACH MECHANICAL SYSTEM FOR TOTAL OF 40 HOURS.

## C. SUBMITTALS

- PROVIDE MINOR ITEMS, ACCESSORIES OR DEVICES AS NECESSARY. SUBMIT FUTURE PIPING, VALVE, INSULATION, AND EQUIPMENT CUTS FOR ALL ITEMS INCLUDED IN SPECIFICATION AND THAT APPLY TO PROJECT TO ENGINEER.
- ENGINEER WILL NOT REVIEW SUBMITTALS THAT DO NOT BEAR CONTRACTOR'S APPROVAL STAMP AND WILL RETURN THEM WITHOUT ACTION.

## D. GENERAL PLUMBING

- ALL WORK SHALL MEET OR EXCEED THE LATEST REQUIREMENTS OF ALL NATIONAL, STATE, COUNTY, MUNICIPAL AND OTHER AUTHORITIES EXERCISING JURISDICTION OVER CONSTRUCTION WORK AT THE PROJECT.
- INSTALLATION PROCEDURES, METHODS, AND CONDITIONS SHALL COMPLY WITH THE LATEST REQUIREMENTS OF THE FEDERAL OCCUPATIONAL SAFETY AND HEALTH ACT (OSHA).
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE INSTALLATION AND FILING UNTIL THE INSTALLATION HAS BEEN APPROVED BY THE AUTHORITIES HAVING SUCH JURISDICTION.
- CERTIFICATION SHALL BE SUBMITTED ATTESTING THAT SPECIFIED PERFORMANCE CRITERIA HAVE BEEN MET BY ALL SECTIONS OF THE PLUMBING SYSTEMS AND EQUIPMENT.
- PROVIDE COPPER PANS FOR SHOWER FLOORS, JANITOR'S FLOOR SINKS, AND OTHER DESIGNATED AREAS HAVING FLOOR DRAINS ABOVE GROUND. CLAMP COPPER PAN TO FLOOR DRAIN, TURN PAN UP INTO WALLS AND THRESHOLDS AS INDICATED IN DETAILS ON THE DRAWINGS.

## E. PIPING

- DELIVERY, STORAGE, AND HANDLING:
  - FACTORY APPLY PLASTIC END-CAPS FOR ALL PIPING, EXCEPT FOR HUB-AND-SPIGOT AND CLAY PIPES. MAINTAIN END-CAPS IN PLACE UNTIL PIPE IS INSTALLED.
  - STORE PIPE AND FITTINGS INSIDE FOR PROTECTION FROM MOISTURE AND DIRT, OR WITH WEATHERPROOF PACKAGING.
- DOMESTIC HOT AND COLD WATER PIPING:
  - DOMESTIC WATER PIPING WITHIN SPACES AND BELOW GRADE: ASTM B88 TYPE K COPPER TUBE WITH WROUGHT OR CAST COPPER FITTINGS AND LEAD-FREE SOLDERED JOINTS SHALL BE UTILIZED. DOMESTIC COLD WATER PIPING WITHIN NON RESIDENTIAL SPACES AND ABOVE GRADE: ASTM B88 TYPE L COPPER TUBE WITH WROUGHT OR CAST COPPER FITTINGS AND LEAD-FREE SOLDERED JOINTS SHALL BE UTILIZED. DOMESTIC WATER PIPING SHALL BE INSTALLED AND WITHOUT ANY PITCH OR AS PERMITTED BY FLORIDA BUILDING CODE 2023 AND THE AUTHORITY HAVING JURISDICTION, PROPOSED PIPING SHALL CROSS LINKED POLYETHYLENE (PEX) PLASTIC PIPE AND TUBING ADHERING TO ASTM F876.

- DOMESTIC WATER SERVICE PIPING INSTALLED UNDERGROUND AND OUTSIDE THE BUILDING STRUCTURE: ASTM B88 TYPE K COPPER TUBE WITH WROUGHT OR CAST COPPER FITTINGS, AND LEAD-FREE SOLDERED JOINTS SHALL BE UTILIZED, OR AS PERMITTED BY FLORIDA BUILDING CODE 2023 AND THE AUTHORITY HAVING JURISDICTION, PROPOSED PIPING SHALL CROSS LINKED POLYETHYLENE (PEX) PLASTIC PIPE AND TUBING ADHERING TO ASTM F876.

- VENT, AND SANITARY PIPE:
  - WASTE, STORM, VENT, AND DRAIN PIPING MATERIALS WITHIN SPACES AND BELOW GRADE: SOIL, WASTE, AND VENT PIPING SHALL CONFORM TO ASTM A74 AND SHALL BE SERVICE WEIGHT HUB AND SPIGOT CAST IRON OR CONFORM TO ASTM D2665 AND SHALL BE PVC PLASTIC PIPE AND DWV FITTINGS.
  - ANY ITEM OR MATERIAL THAT IS NOT INDICATED WITHIN THE DRAWING SET, IS NOT SPECIFIED, AND IS REQUIRED FOR THE COMPLETE INSTALLATION OF ANY PART OF THE WORK DESCRIBED HEREIN, SHALL BE FURNISHED AS PER THE CODE REQUIRED.

- INSTALLATION:
  - UNLESS SHOWN OTHERWISE, ROUTE PIPING IN THE MOST DIRECT MANNER, PARALLEL TO BUILDING LINES.
  - LOCATE PIPING TO MAINTAIN CLEARANCE AROUND EQUIPMENT, AND MINIMUM PIPING HEADROOM OF 7 FEET, EXCEPT WHERE OTHERWISE SHOWN.
  - CLOSE OPEN ENDS OF PIPING AND EQUIPMENT, WHEN NOT BEING WORKED ON, WITH FLANGE COVERS, CAPS OR PLUGS.
  - DO NOT USE PIPES SMALLER THAN 1/2 INCH, UNLESS OTHERWISE DOCUMENTED.
  - PROVIDE VALVED VENTS AT ALL HIGH POINTS OF WATER PIPING, AND VALVED DRAINS AT ALL LOW POINTS OF WATER PIPING FOR DRAINING AND FLUSHING. LOCATIONS SHALL BE DETERMINED BY THE CONTRACTOR.
  - PROVIDE ESCUTCHEONS AT ALL LOCATIONS WHERE PIPING, INSTALLED EXPOSED TO VIEW, PENETRATES WALLS, PARTITIONS, FLOORS AND CEILINGS.
  - PIPES SHALL NOT BE INSTALLED IN TRANSFORMER VAULTS, ELECTRICAL EQUIPMENT ROOMS, ELEVATOR MACHINE ROOMS OR SIMILAR AREAS CONTAINING ELECTRICAL EQUIPMENT. PIPES SHALL NOT BE INSTALLED OVER, AROUND, IN FRONT OF, IN BACK OF, OR DIRECTLY BELOW, ELECTRICAL CONTROLS, PANELS, TERMINALS, BOXES, OR SIMILAR EQUIPMENT. PROVIDE DRIP PANS OVER ELECTRICAL EQUIPMENT (AT NO COST TO THE OWNER) ONLY AFTER APPROVAL BY THE OWNER.

## F. VALVES

- DOMESTIC WATER VALVES (NIBCO, STOCKHAM, WATTS, APOLLO):
  - SHUT-OFF VALVES - 2 INCHES AND SMALLER: BALL VALVES CLASS 600, TWO PIECE DESIGN, BRONZE BODY, CHROME PLATED BALL, REINFORCED TEFLON SEATS, BLOWOUT PROOF STEM, THREADED ENDS.
  - CHECK VALVES - 2 INCHES AND SMALLER: CLASS 125, BRONZE BODY, SWING TYPE BRONZE DISC, THREADED ENDS.
  - BALANCING GLOBE VALVES: CLASS 125 ALL BRONZE CONSTRUCTION WITH THREADED ENDS.
- NATURAL GAS VALVES (HAMMOND, WATTS, STOCKHAM, DEZURIK):
  - VALVES 2 INCH AND SMALLER: U.L. LISTED A.G.A. APPROVED, TWO PIECE, FULL PORT, CARBON STEEL, BALL VALVE, WITH STAINLESS STEEL BALL, PRESSURE RATED STEM, RPTSE SEATS, THREADED ENDS RATED AT 1500 PSI WOB.
  - EMERGENCY SHUT-OFF: VALVE TO BE C.S.A. CERTIFIED, UL LISTED SOLENOID NORMALLY OPEN TYPE, RATED FOR MINIMUM OF 5 PSI, WITH ALUMINUM BODY, NBR SEALS, DISC AND DIAPHRAGM, STAINLESS STEEL SPRINGS, CORE AND PLUG/OUT AS MANUFACTURED BY ASCO SERIES 8215 OR APPROVED EQUAL. 120V/1PH/60HZ.
- GENERAL:
  - DO NOT INSTALL VALVES WITH STEM DOWN.
  - DISCHARGE LINES FROM RELIEF VALVES SHALL BE PIPED TO WITHIN 4" OF FLOOR AND EXTEND TO FLOOR DRAINS WHEREVER FLOORS ARE NOT PITCHED TO DRAINS.

## G. PRESSURE GAUGES AND THERMOMETERS

- THERMOMETERS:
  - DESCRIPTION: STRAIGHT CASE, RED READING MERCURY, 9 INCH PLASTIC OR CAST ALUMINUM CASE, BLACK FINISH, BRASS STEM, ADJUSTABLE ANGLE TYPE. THERMOMETERS SHALL HAVE AN ACCURACY OF 1 PERCENT OF FULL SCALE. PROVIDE THERMOMETERS WITH EXPANSION HEADS. APPROVED MODEL: WEKSLER MODEL A4SH.
- PRESSURE GAUGES:
  - PROVIDE DIAL TYPE GAUGES WITH BLACK PHENOLIC TURRET CASE, GLASS FACE AND BRASS OR STAINLESS STEEL SNAP RING WITH WHITE FACE AND BLACK NUMERALS, 270 DEGREE ARC. THE DIAL DIAMETER SHALL BE 4-1/2"
  - PROVIDE GAUGES WITH 1/4 INCH NPT BOTTOM OR BACK CONNECTION, BRASS BODY AND CORE SNUBBER.

## H. HANGERS

- GENERAL:
  - PROVIDE HANGERS AND SUPPORTS MANUFACTURED BY B-LINE, ELCEM METAL PRODUCTS OR GRINNELL, UNLESS OTHERWISE SPECIFIED.
  - EXCEPT AS OTHERWISE INDICATED, PROVIDE FACTORY-FABRICATED PIPING HANGERS, SUPPORTS, RISER CLAMPS, ROD ATTACHMENTS, BUILDING ATTACHMENTS, SHIELDS AND SADDLES, OF THE FOLLOWING MSS TYPES LISTED, TO SUIT PIPING SYSTEMS.
  - SELECT AND APPLY SUPPORTS IN ACCORDANCE WITH MSS SP-69 AND MANUFACTURER'S PUBLISHED PRODUCT INFORMATION.
  - SELECT SIZE OF HANGERS AND SUPPORTS TO FIT PIPE SIZE FOR BARE PIPING, AND TO FIT AROUND PIPING INSULATION WITH SADDLE OR SHIELD FOR INSULATED PIPING.
  - PROVIDE PLASTIC COATED OR COPPER-PLATED HANGERS AND SUPPORTS FOR COPPER-PIPING SYSTEMS.
- EQUIPMENT:
  - HORIZONTAL PIPE HANGERS: ADJUSTABLE STEEL CLEVIS HANGERS: MSS TYPE 1; ADJUSTABLE STEEL BAND HANGERS: MSS TYPE 7
  - VERTICAL PIPE CLAMPS: TWO-BOLT RISER CLAMPS: MSS TYPE 8.
- INSTALLATION:
  - INSTALL PIPE HANGERS, SUPPORTS, CLAMPS, AND ATTACHMENTS TO SUPPORT PIPING PROPERLY FROM BUILDING STRUCTURE, AND COMPLYING WITH MSS SP-69, SP-89, AND ENFORCED PLUMBING CODE. DO NOT USE WIRE OR PERFORATED METAL TO SUPPORT PIPING, AND DO NOT SUPPORT PIPING FROM OTHER PIPING.
  - ARRANGE FOR GROUPING OF PARALLEL RUNS OF HORIZONTAL PIPING TO BE SUPPORTED TOGETHER ON TRAPEZE TYPE HANGERS WHERE POSSIBLE.
  - INSTALL ADDITIONAL BUILDING ATTACHMENTS WHERE SUPPORT IS REQUIRED FOR ADDITIONAL CONCENTRATED LOADS, INCLUDING VALVES, FLANGES, GUIDES, STRAINERS, EXPANSION JOINTS, AND AT CHANGES IN DIRECTION OF PIPING.
  - INSTALL HANGERS AND SUPPORTS COMPLETE WITH NECESSARY INSERTS, BOLTS, NUTS, WASHERS AND OTHER ACCESSORIES.
  - SUPPORT FIRE-WATER PIPING INDEPENDENTLY OF OTHER PIPING.
  - INSTALL HANGERS AND SUPPORTS TO ALLOW CONTROLLED MOVEMENT OF PIPING SYSTEMS AND TO PERMIT FREEDOM OF MOVEMENT BETWEEN PIPE ANCHORS, AND TO FACILITATE ACTION OF EXPANSION JOINTS, EXPANSION LOOPS, EXPANSION BENDS AND SIMILAR UNITS, IF PROVIDED.
  - PROVIDE A SUPPORT NOT OVER ONE FOOT FROM EACH CHANGE IN DIRECTION PIPE FITTING JOINT AND NOT OVER FIVE FEET FROM A VALVE.
  - SUPPORT VERTICAL RUNS AT EACH FLOOR. COPPER TUBING SHALL BE SUPPORTED AT MAXIMUM INTERVALS OF TEN FEET OR AT EACH FLOOR WHICHEVER IS LESS.

## I. PIPE IDENTIFICATION

- LETTER AND NUMBER ALL MECHANICAL EQUIPMENT SHOWN ON THE CONTRACT DRAWINGS IDENTIFYING THE EQUIPMENT NUMBER AND SERVICE. NAMEPLATES SHALL BE .020" THICK ALUMINUM WITH PERMANENT 1/2-INCH HIGH WHITE LETTERS ON A BLACK BACKGROUND, MECHANICALLY AFFIXED OR PRESSURE-SENSITIVE ADHERED AND INSTALLED IN A READILY VISIBLE LOCATION ON THE EQUIPMENT. COORDINATE THE FINAL EQUIPMENT DESIGNATIONS WITH THE OWNER.
- IDENTIFY ALL PIPING, EXPOSED AND ACCESSIBLE, AFTER PIPING HAS BEEN TESTED, INSULATED OR PAINTED.
- IDENTIFY ALL VALVES WITH A TAG. PERMANENTLY STAMP AND MARK VALVE TAGS WITH A SERVICE DESIGNATION, NORMAL VALVE POSITION, AND AN IDENTIFYING NUMBER AS LARGE AS POSSIBLE. EACH VALVE SHALL HAVE A UNIQUE NUMBER COORDINATED WITH THE SERVICE DESIGNATIONS SHOWN ON THE CONTRACT DRAWINGS.

## J. PIPE PENETRATIONS AND SLEEVES

- GENERAL:
  - FOR ALL PENETRATIONS, PROVIDE PIPE SLEEVE 2 PIPE DIAMETERS LARGER THAN PASSING PIPE.
  - HILTI, 3M, APPROVED MANUFACTURERS.
- NON-FIRE RATED CONSTRUCTION:
  - PROVIDE MINERAL FIREPROOFING FILLER MATERIAL IN THICKNESSES REQUIRED FOR EACH PIPE SLEEVE.
  - PROVIDE CLOSED-CELL POLYETHYLENE FOAM OR OPEN-CELL POLYURETHANE FOAM BACKUP STRIP FOR FILLER MATERIAL.
  - PROVIDE BUTYL ELASTOMER OR EPOXIDIZED POLYURETHANE TERPOLYMER FLEXIBLE VAPOR BARRIER SEALANT FOR SEALING BOTH ENDS OF PIPE SLEEVE.
- FIRE RATED CONSTRUCTION:
  - ALL PIPE PENETRATION SEAL SYSTEMS SHALL BE UL APPROVED AND APPROVED BY THE LOCAL AUTHORITY HAVING JURISDICTION FOR THE APPLICATION.
  - PROVIDE SMOKE-TIGHT AND FIRE-TIGHT SEAL USING AN INTUMESCENT ELASTOMERIC MATERIAL IN PUTTY OR CAULK FORM. REMOVE INSULATION FROM PIPING AT THE PORTION OF THE PIPE PASSING THROUGH THE SLEEVE.

## K. INSULATION

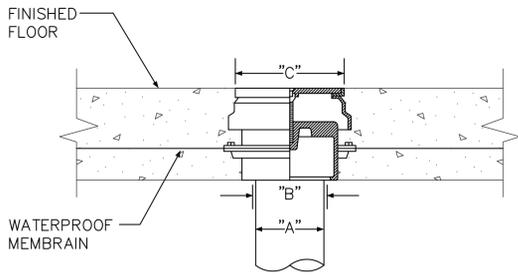
- APPROVED MANUFACTURERS:
  - FIBERGLASS PIPING AND DUCTWORK INSULATION: JOHNS MANVILLE, KNAUF, OWENS-CORNING.
  - ELASTOMERIC INSULATION: ARMSTRONG, RUBATEX.
- FIBERGLASS PIPE INSULATION: PIPE INSULATION, MEETING ASTM STANDARD C 547, CONSISTING OF INORGANIC GLASS FIBERS BONDED WITH THERMOSETTING RESIN, MOLDED INTO TUBULAR SECTIONS SPLIT LENGTHWISE, MANUFACTURER: JOHNS-MANVILLE MICRO-LOK AP-T. JACKETS SHALL BE FACTORY APPLIED, COMPOSITE WITH INSULATION, WITH MAXIMUM WATER VAPOR PERMEANCE OF 0.02 PERMS, FABRICATED FROM WHITE KRAFT PAPER BONDED TO ALUMINUM FOIL, REINFORCED WITH FIBERGLASS SCRM.
- ELASTOMERIC INSULATION: FLEXIBLE, TUBULAR, SELF-SEAL, CONFORMING TO ASTM C 177 OR C 518 WITH THERMAL CONDUCTIVITY OF 0.27 AT 75°F. MANUFACTURER: ARMSTRONG, ARMAFLEX 2000 - FOR PIPING UP TO 2" DIA. INSTALLED INSIDE THE BUILDING.
- EXECUTION:
  - APPLY INSULATION ON CLEAN, DRY SURFACES AFTER LEAKAGE AND OTHER TESTS HAVE BEEN COMPLETED.
  - WHERE PIPING IS HEAT-TRACED, PROVIDE THE INSULATION THICKNESS SCHEDULED FOR HEAT-TRACED LINES AND NOT THE THICKNESS SCHEDULED FOR THE SPECIFIC PIPING SYSTEM. INSULATE PIPING AFTER TRACING HAS BEEN INSTALLED AND TESTED FOR CONTINUITY.
  - FOR RAINWATER CONDUCTORS, DOMESTIC COLD AND HOT WATER SYSTEMS PROVIDE 1-INCH FIBERGLASS INSULATION OR 1/2-INCH ELASTOMERIC INSULATION.
  - ALL HORIZONTAL RAINWATER CONDUCTORS AND ROOF DRAIN BODIES SHALL BE INSULATED.

## L. PLUMBING SPECIALTIES

- SHOCK ABSORBERS - MARK SA: J. R. SMITH NO. 5000 SERIES ALL STAINLESS STEEL DESIGNED TO LAST LIFE OF PIPING. TYPE A - NO. 5005, TYPE B - NO. 5010, TYPE C - NO. 5020, TYPE D - NO. 5030; OR PRECISION PLUMBING PRODUCTS INC., "SC" SERIES, PISTON OPERATED, TYPE K COPPER BARREL WITH BRASS THREADED ADAPTOR DESIGNED TO LAST LIFE OF PIPING. TYPE A - SC-500, TYPE B - SC-750, TYPE C - SC-100, TYPE D - SC-1200.
- PROVIDE MANUFACTURED COMPRESSION UNITS, OF STAINLESS STEEL, ON BOTH DOMESTIC COLD AND HOT WATER LINES INSTALL IN UPRIGHT POSITION AT ALL QUICK-CLOSING VALVES AND SOLENOIDS. LOCATE AND SIZE IN ACCORDANCE WITH PLUMBING AND DRAINAGE INSTITUTE.
- CLEANOUTS - MARK CO: J. R. SMITH 4020-4034 WITH ROUND NICKEL BRONZE TOPS WITH ROUND ACCESS COVER.

## M. PIPE SUPPORT

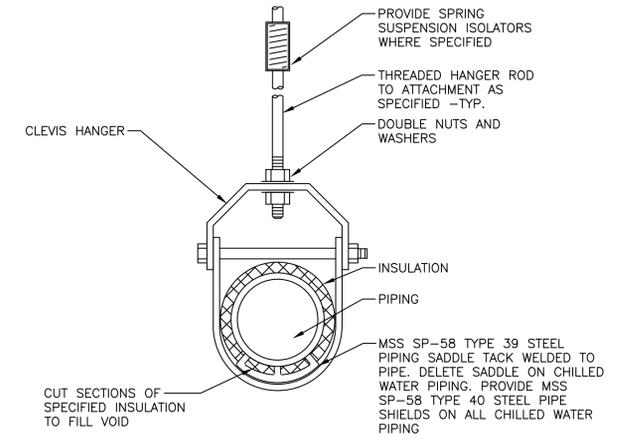
- HANGERS AND ANCHORS SHALL BE SECURELY ATTACHED TO THE BUILDING CONSTRUCTION AT SUFFICIENTLY CLOSE INTERVALS TO SUPPORT THE PIPING AND ITS CONTENTS.
- HORIZONTAL PIPING: HORIZONTAL PIPE OF THE FOLLOWING MATERIALS SHALL BE SUPPORTED ACCORDING TO THE MANUFACTURE'S RECOMMENDATION, BUT NO LESS THAN THE DISTANCE LISTED BELOW:
  - CAST IRON SOIL PIPE - MINIMUM OF ONE PIPE HANGER PER LENGTH LOCATED WITHIN 18" OF EACH JOINT (UP TO 10' MAXIMUM PIPE LENGTH) AT CHANGES OF DIRECTION AND AT BRANCH CONNECTIONS.
  - STEEL THREADED PIPE - 10' INTERVALS
  - COPPER TUBING (1 1/4" OR LESS) - 6' INTERVALS
  - COPPER PIPING (1 1/2" OR MORE) - 10' INTERVALS
  - PVC PIPING (1 1/4" OR LESS) - 6' INTERVALS
  - PVC PIPING (1 1/2" OR MORE) - 10' INTERVALS
- VERTICAL PIPING: VERTICAL PIPE OF THE FOLLOWING MATERIALS SHALL BE SUPPORTED ACCORDING TO THE MANUFACTURE'S RECOMMENDATION, BUT NO LESS THAN THE DISTANCE LISTED BELOW:
  - CAST IRON SOIL PIPE - AT BASE OF EACH STORY HEIGHT.
  - STEEL THREADED PIPE - AT EVERY OTHER STORY HEIGHT.
  - COPPER TUBE - AT EACH STORY HEIGHT, BUT NOT MORE THAN 10' INTERVALS.
  - PVC PIPE - AT EACH STORY HEIGHT, BUT NOT MORE THAN 10' INTERVALS.



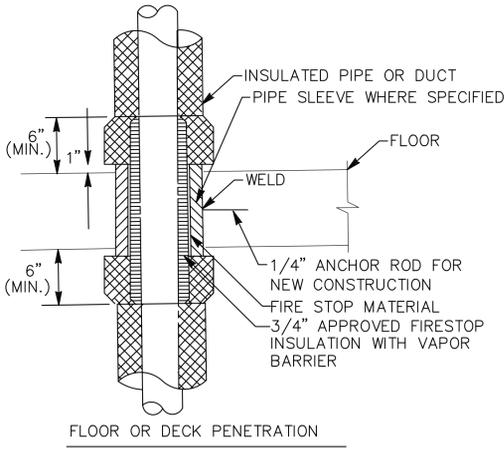
PIPE SIZE "A"	CAST IRON		DURIRON*		GLASS*		PLASTIC*	
	CO. SIZE "B"	TOP SIZE "C"						
2"	2"	4 1/2"	3"	5 1/2"	2"	4 1/2"	2"	4 1/2"
3"	3"	5 3/4"	4"	6 1/2"	3"	5 3/4"	3"	5 3/4"
4"	4"	6 3/4"	5"	8 1/2"	4"	6 3/4"	4"	6 3/4"
6"	4"	6 3/4"	5"	8 1/2"	4"	6 3/4"	4"	6 3/4"
8"	4"	6 3/4"	5"	8 1/2"	4"	6 3/4"	4"	6 3/4"
10"	4"	6 3/4"	5"	8 1/2"	4"	6 3/4"	4"	6 3/4"

\* NOTE: INTERIOR OF CLEANOUT AND PLUG TO BE DOUBLE COATED WITH EPOXY COATING.

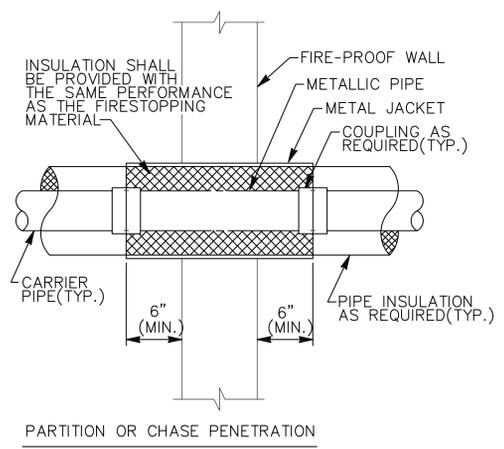
1 CLEANOUT TO FINISHED FLOOR  
P.O.2 SCALE: N.T.S.



2 TYPICAL CLEVIS PIPE HANGER  
P.O.2 SCALE: N.T.S.



FLOOR OR DECK PENETRATION



PARTITION OR CHASE PENETRATION

3 PIPING PENETRATION OF FIRE/SMOKE BARRIERS  
P.O.2 SCALE: N.T.S.

# UNITAS

## ENGINEERING

UNITAS ENGINEERING  
220 CECIL B MOORE AVE.  
PHILADELPHIA PA 19122  
T: (609) 703-9095  
UNITASENGINEERING.COM

SEAL

PROJECT NAME AND ADDRESS

PINE ISLAND FIRE STATION  
5015 STRINGFELLOW RD, PINE ISLAND, FL 33956

ISSUES/REVISIONS		
NO.	DESCRIPTION	DATE
-	DESIGN DEVELOPMENT	09/06/24
-	PERMIT/BID SET	03/28/25
1	REVISION 1	07/18/25
2	REVIEW COMMENTS	10/16/25

TITLE  
PLUMBING SPECIFICATIONS

PROJECT  
24026

SCALE  
NONE

SHEET  
P.O.2

SEAL



PROJECT NAME AND ADDRESS

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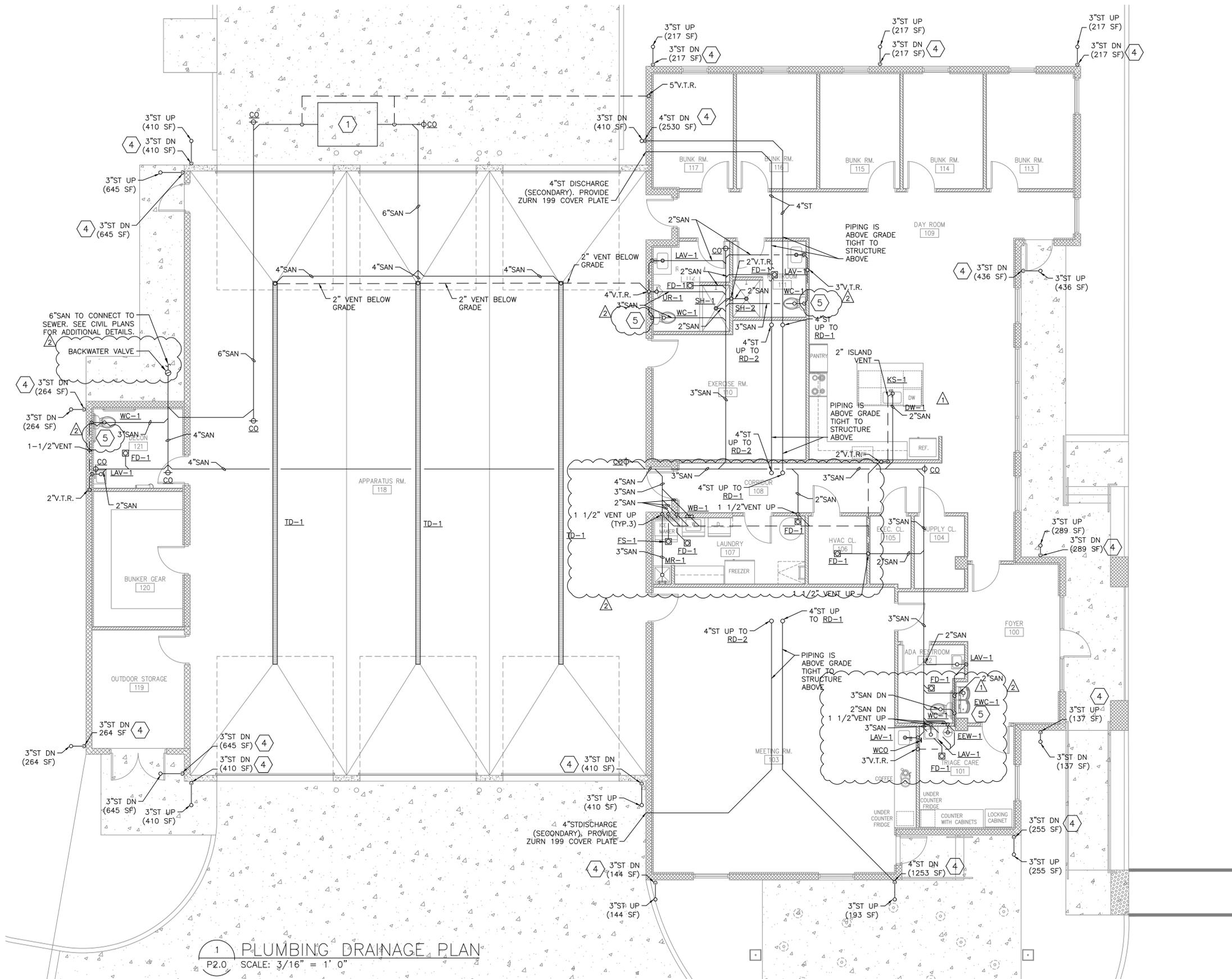
TITLE PLUMBING FLOOR PLAN - DRAINAGE	
PROJECT 24026	SHEET P2.0
SCALE AS SHOWN	

**GENERAL NOTES:**

- REFER TO P-0.1 FOR PLUMBING NOTES, LEGENDS AND ABBREVIATIONS.
- REFER TO SCHEDULES AND PLUMBING DETAILS PERTAINING TO THIS PROJECT.
- CONTRACTOR SHALL PROVIDE ALL REQUIRED PIPING, VALVES, & APPURTENANCES TO PROVIDE A COMPLETE WORKING SYSTEM.
- ALL EQUIPMENT SHALL BE INSTALLED IN STRICT ACCORDANCE WITH THE MANUFACTURER'S WRITTEN INSTRUCTIONS AND SHALL MAINTAIN ALL CLEARANCES (INSTALLATION AND MAINTENANCE) AS NOTED WITHIN THE WRITTEN INSTRUCTIONS.
- ALL PENETRATIONS OF FIRE RATED CONSTRUCTION SHALL MAINTAIN THE FIRE RATING OF THE ASSEMBLY AS PER THE FLORIDA BUILDING CODE.
- COORDINATE ELECTRICAL INSTALLATION WITH ELECTRICAL DESIGN DRAWINGS.
- ALL SANITARY AND STORM PIPING OF 2-1/2" OR LESS SHALL BE PITCHED AT 1/4" SLOPE PER 1'-0" OR AS OR AS DEFINED IN RISER DIAGRAM.
- ALL SANITARY AND STORM PIPING OF 3" OR GREATER SHALL BE PITCHED AT 1/8" SLOPE PER 1'-0" OR AS OR AS DEFINED IN RISER DIAGRAM.
- ALL VALVES AND CLEANOUTS SHALL BE INSTALLED AS ACCESSIBLE WITH ADEQUATELY SIZED ACCESS DOORS. PROVIDE SURESEAL #97042 OR EQUAL TRAP PRIMER FOR FLOOR DRAINS.
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- VENTS SHALL BE LOCATED AT LEAST 10' FROM OUTSIDE AIR INTAKES AS PER FLORIDA PLUMBING CODE SECTION 903.5.

**PLUMBING KEYNOTES:**

- PLUMBING CONTRACTOR TO FURNISH AND INSTALL OIL INTERCEPTOR RECESSED BELOW GRADE WITH TRAFFIC RATED COVER. MODEL SHALL BE Z1188-300-HD, 300 GPM OIL INTERCEPTOR OR APPROVED EQUAL. THE OUTLET OF THE OIL INTERCEPTOR SHALL NOT HAVE LESS THAN AN 18 INCH WATER SEAL.
- CONTRACTOR SHALL INSTALL THERMOSTATIC MIXING VALVE (MV-1) FOR ALL FIXTURES WITH HOT WATER CONNECTIONS SET TO 105 DEG F. PROVIDE COMPRESSED AIR DROP WITH CORD REAL AND ACCESSIBLE VALVE IN VERTICAL.
- CONNECT STORM LINE TO ON SITE STORM DRAINAGE SYSTEM. SEE DETAIL 4 ON P3.1 AND CIVIL PLANS FOR MORE DETAILS.
- VENT CONNECTIONS SHALL CREATE MINIMUM 45 DEGREE ANGLE WITH HORIZONTAL. NO HORIZONTAL OR FLAT VENTING SHALL TAKE PLACE. EVERY DRY VENT CONNECTION TO A HORIZONTAL DRAIN SHALL BE VERTICAL AND RISE 6" ABOVE FLOOR RIM LEVEL OF THE FIXTURE SERVED BEFORE OFFSETTING HORIZONTALLY.



**1 PLUMBING DRAINAGE PLAN**  
 P2.0 SCALE: 3/16" = 1' 0"

SEAL



PROJECT NAME AND ADDRESS

PINE ISLAND FIRE STATION  
 5015 STRINGFELLOW RD, PINE ISLAND, FL 33956

ISSUES/REVISIONS

NO.	DESCRIPTION	DATE
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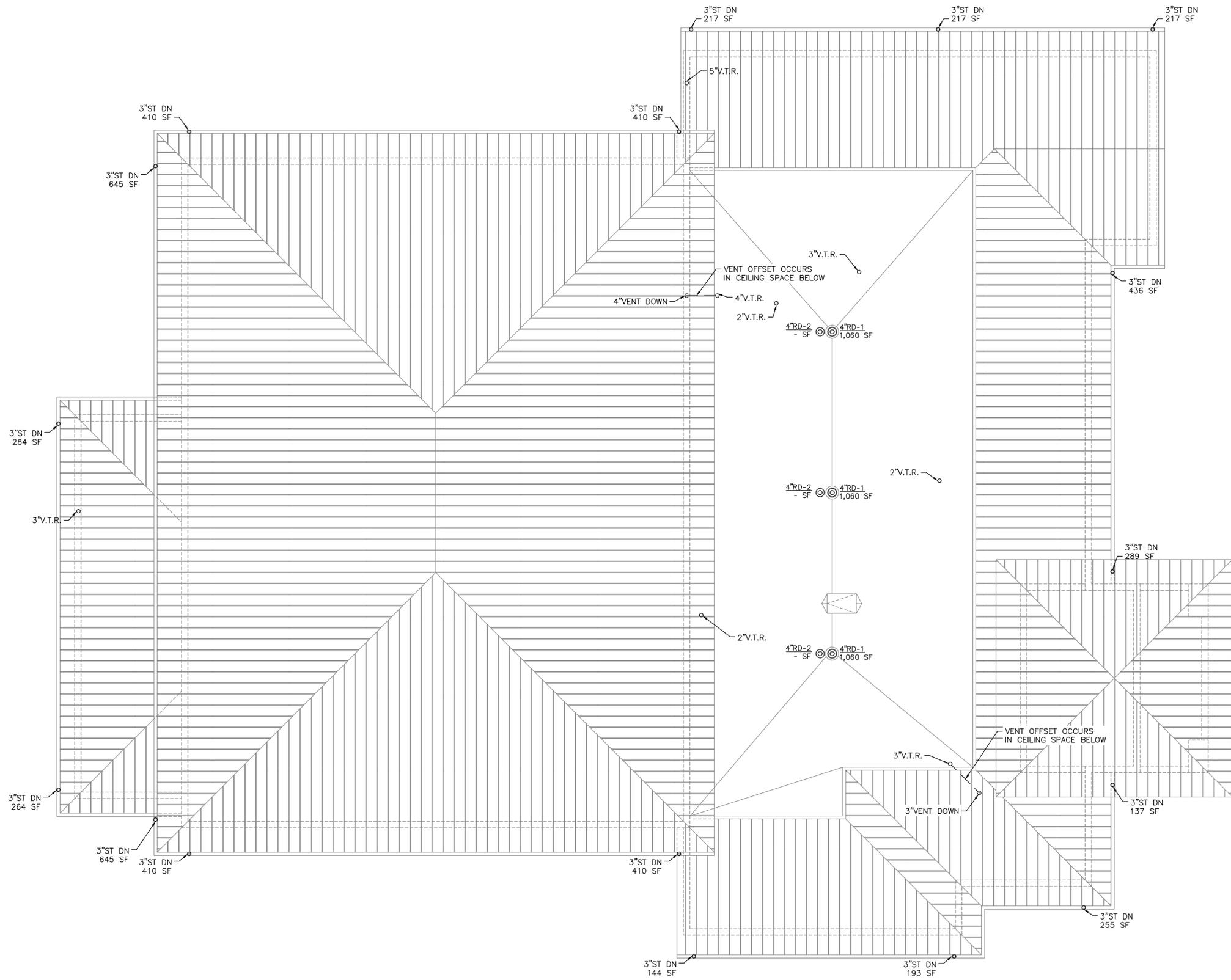
TITLE PLUMBING DRAINAGE ROOF PLAN	
PROJECT 24026	SHEET P2.1
SCALE AS SHOWN	

GENERAL NOTES:

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1 PLUMBING DRAINAGE ROOF PLAN  
 P2.1 SCALE: 3/16" = 1' 0"

SEAL



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 5015 STRINGFELLOW RD, PINE ISLAND, FL 33956

ISSUES/REVISIONS

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-	PERMIT/BID SET	03/28/25
1	REVISION 1	07/18/25
2	REVIEW COMMENTS	10/16/25

TITLE  
 PLUMBING FLOOR PLAN - SUPPLY

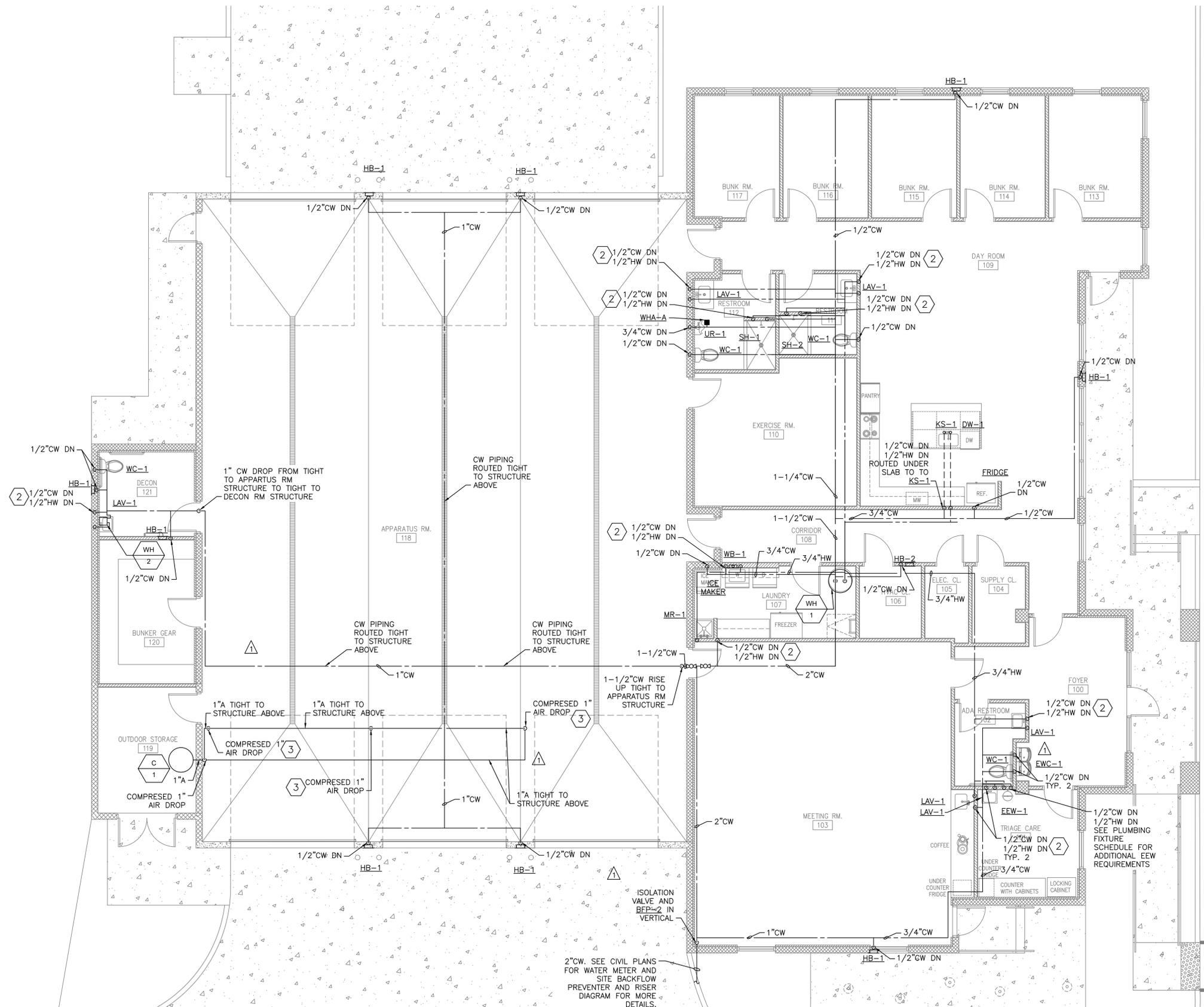
PROJECT 24026	SHEET P2.2
SCALE AS SHOWN	

GENERAL NOTES:

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- VENTS SHALL BE LOCATED AT LEAST 10' FROM OUTSIDE AIR INTAKES AS PER FLORIDA PLUMBING CODE SECTION 903.5.

PLUMBING KEYNOTES:

- PLUMBING CONTRACTOR TO FURNISH AND INSTALL OIL INTERCEPTOR RECESSED BELOW GRADE WITH TRAFFIC RATED COVER. MODEL SHALL BE Z1188-300-HD, 300 GPM OIL INTERCEPTOR OR APPROVED EQUAL. THE OUTLET OF THE OIL INTERCEPTOR SHALL NOT HAVE LESS THAN AN 18 INCH WATER SEAL.
- CONTRACTOR SHALL INSTALL THERMOSTATIC MIXING VALVE (MV-1) FOR ALL FIXTURES WITH HOT WATER CONNECTIONS SET TO 105 DEG F.
- PROVIDE COMPRESSED AIR DROP WITH CORD REAL AND ACCESSIBLE VALVE IN VERTICAL.
- CONNECT STORM LINE TO ON SITE STORM DRAINAGE SYSTEM. SEE DETAIL 4 ON P3.1 AND CIVIL PLANS FOR MORE DETAILS.
- VENT CONNECTIONS SHALL CREATE MINIMUM 45 DEGREE ANGLE WITH HORIZONTAL. NO HORIZONTAL OR FLAT VENTING SHALL TAKE PLACE. EVERY DRY VENT CONNECTION TO A HORIZONTAL DRAIN SHALL BE VERTICAL AND RISE 6" ABOVE FLOOR RIM LEVEL OF THE FIXTURE SERVED BEFORE OFFSETTING HORIZONTALLY.



1 PLUMBING SUPPLY PLAN  
 P2.2 SCALE: 3/16" = 1' 0"

2\"CW. SEE CIVIL PLANS FOR WATER METER AND SITE BACKFLOW PREVENTER AND RISER DIAGRAM FOR MORE DETAILS.

SEAL

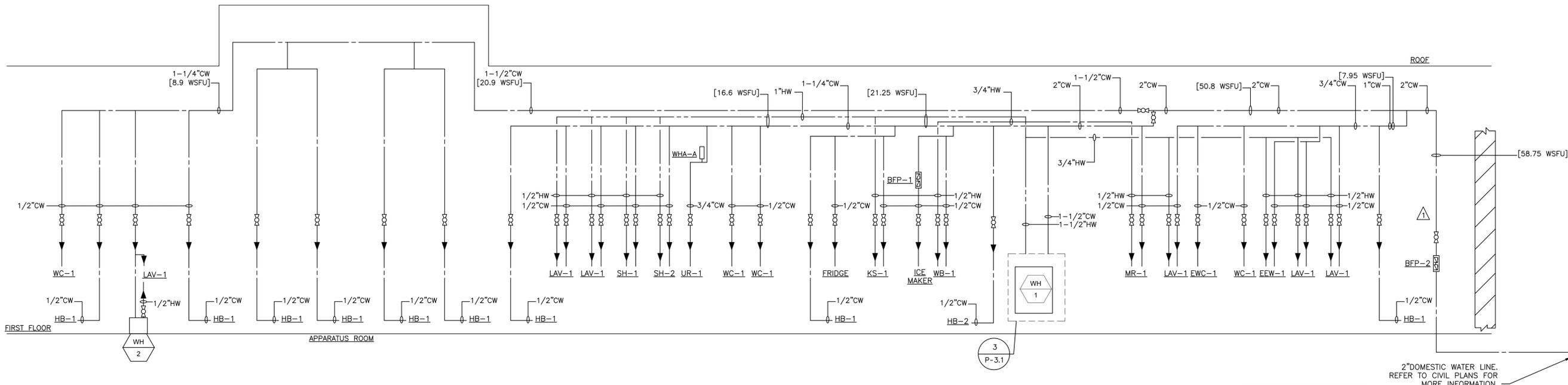


PROJECT NAME AND ADDRESS

PINE ISLAND FIRE STATION  
5015 STRINGFELLOW RD, PINE ISLAND, FL 33956

ISSUES/REVISIONS		
NO.	DESCRIPTION	DATE
-	DESIGN DEVELOPMENT	09/06/24
-	PERMIT/BID SET	03/28/25
1	REVISION 1	07/18/25
2	REVIEW COMMENTS	10/16/25

TITLE SANITARY RISER DIAGRAM	
PROJECT 24026	SHEET P3.0
SCALE NONE	



1 SUPPLY RISER DIAGRAM  
P3.0 SCALE: N.T.S.

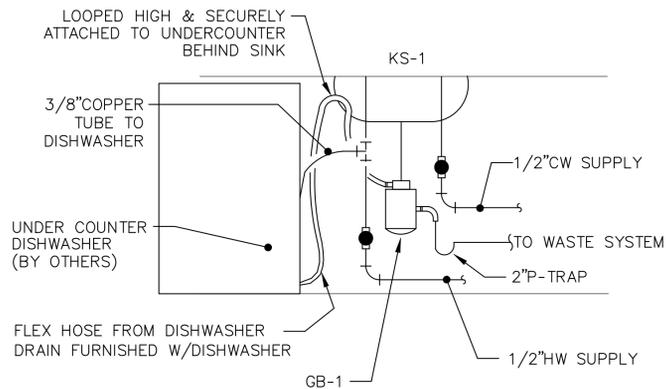
NAME	DFU	MIN TRAP SIZE (IN)
BC	5.0	-
SH	2.0	1-1/2
WC	3.0	3
LAV	1.0	1-1/4
WB	3.0	2
KS-1/DW COMBO	2.0	1-1/2
FD	2.0	2
EWC	0.5	1-1/4
EEW	1.0	1-1/4
UR	4.0	2
TD	6.0	4
MR	2.0	1-1/2
FS	2.0	2

**DRAINAGE RISER DIAGRAM - SANITARY NOTES:**

- SANITARY PIPING 2-1/2" DIAMETER OR LESS SHALL BE SLOPED AT MINIMUM 1/4" PER FOOT. SANITARY PIPING 3" DIAMETER OR GREATER SHALL BE SLOPED AT MINIMUM 1/8" PER FOOT.
- ALL INDIVIDUAL FIXTURE CONNECTIONS SHALL BE COORDINATED WITH MIN TRAP SIZE IN TABLE.

**DRAINAGE RISER DIAGRAM - SANITARY KEYNOTES:**

- VENT CONNECTIONS SHALL CREATE MINIMUM 45 DEGREE ANGLE WITH HORIZONTAL. NO HORIZONTAL OR FLAT VENTING SHALL TAKE PLACE. EVERY DRY VENT CONNECTION TO A HORIZONTAL DRAIN SHALL BE VERTICAL AND RISE 6" ABOVE FLOOR RIM LEVEL OF THE FIXTURE SERVED BEFORE OFFSETTING HORIZONTALLY.

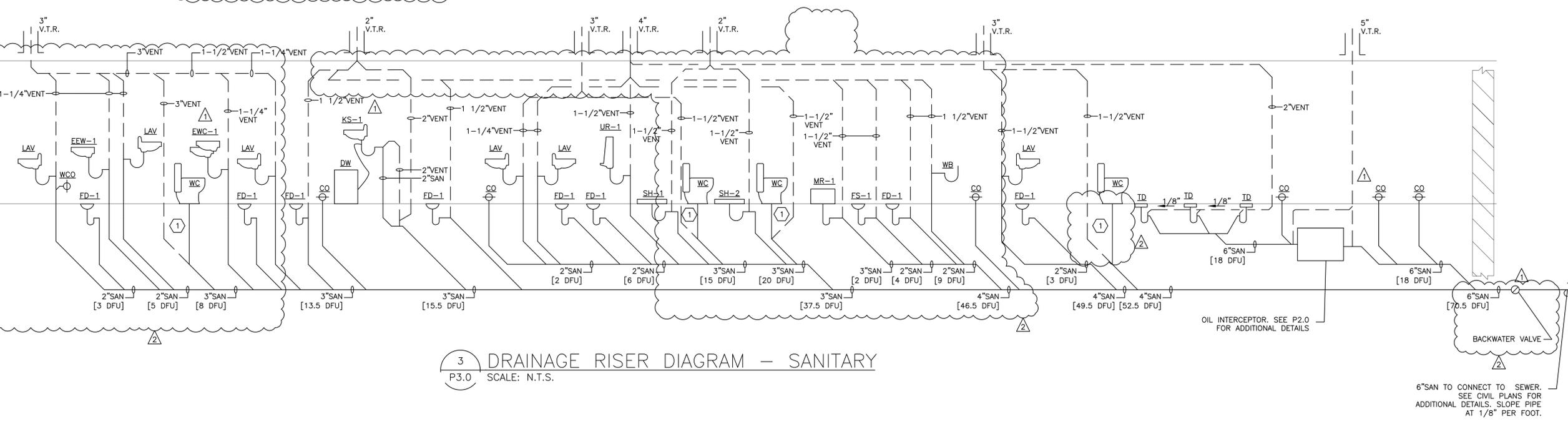


2 DISHWASHER DRAIN HOOKUP  
P3.0 SCALE: N.T.S.

NAME	WFSU		
	COLD	HOT	TOTAL
KS	1.0	1.0	1.4
LAV	0.5	0.5	0.7
UR	5.0	-	5.0
WC	2.2	-	2.2
SH	1.0	1.0	1.4
MR	2.25	2.25	3.0
EEW	1.0	1.0	1.4
EWC	0.25	-	0.25
WB	1.0	1.0	1.4
HB	3.0	-	3.0
FRIDGE	0.25	-	0.25
ICE MAKER	0.25	-	0.25

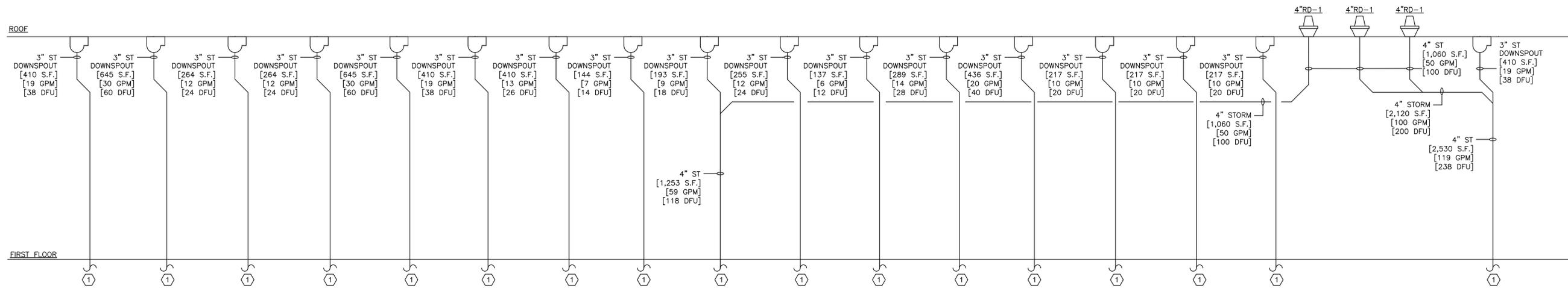
NOTE:  
ALL DOMESTIC WATER PIPING SHALL BE INSTALLED INSIDE OF THE THERMAL ENVELOPE.

2" DOMESTIC WATER LINE. REFER TO CIVIL PLANS FOR MORE INFORMATION.



3 DRAINAGE RISER DIAGRAM - SANITARY  
P3.0 SCALE: N.T.S.

6" SAN TO CONNECT TO SEWER. SEE CIVIL PLANS FOR ADDITIONAL DETAILS. SLOPE PIPE AT 1/8" PER FOOT.



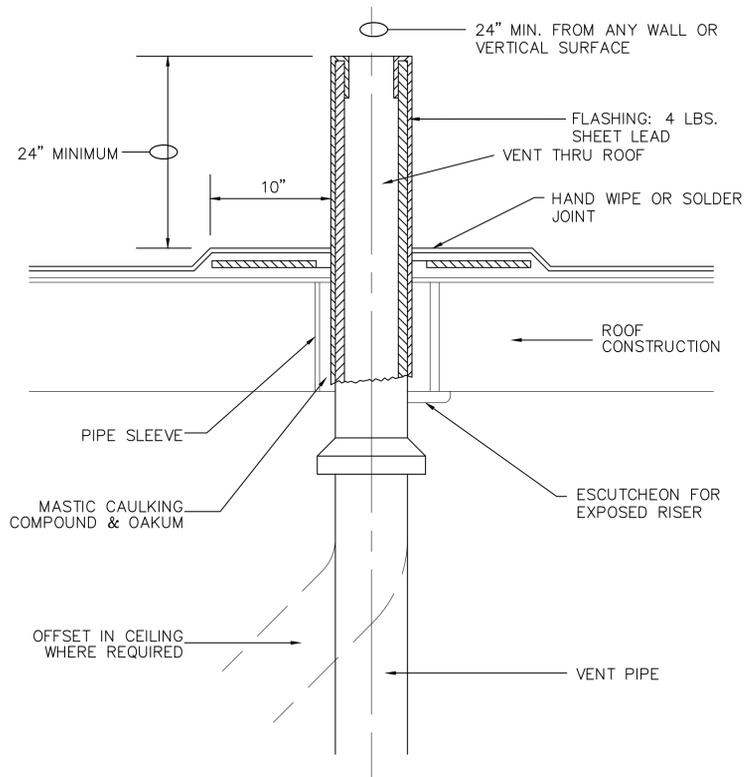
1 DRAINAGE RISER DIAGRAM - STORM  
P3.1 SCALE: NONE

DRAINAGE RISER DIAGRAM - STORM NOTES:

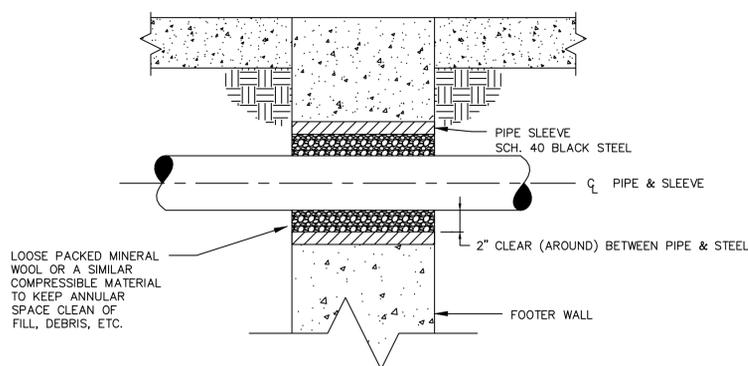
1. THE STORM WATER FLOW RATE (GPM) IS CONVERTED FROM DRAINAGE AREA BASED ON 4.5 INCHES/S.F.  
"GPM" = "SQ.FT." \* .0463
2. STORM WATER PIPING 3" DIAMETER OR LESS SHALL BE SLOPED AT MINIMUM 1/4" PER FOOT. STORM WATER PIPING 4" DIAMETER OR GREATER SHALL BE SLOPED AT MINIMUM 1/8" PER FOOT.

DRAINAGE RISER DIAGRAM - STORM KEYNOTES:

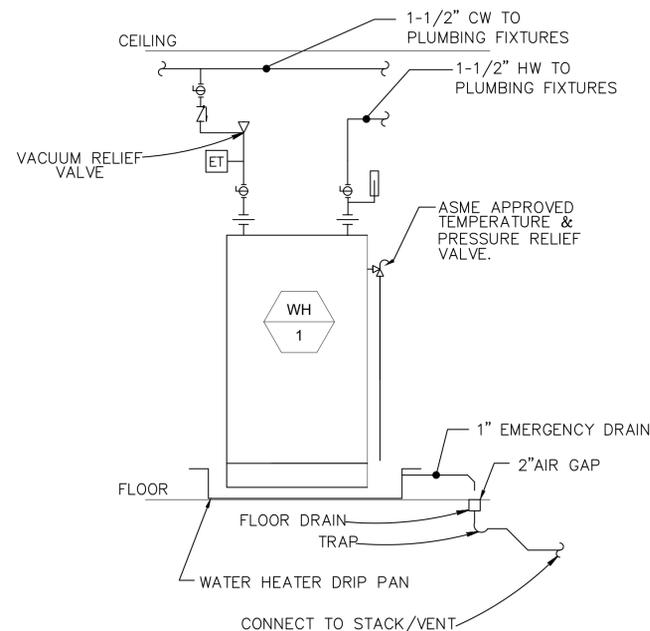
1. CONNECT INDIVIDUAL STORM LINE INTO SITE DRAINAGE SYSTEM. SEE CIVIL PLANS AND DETAIL 4 ON P-3.1 FOR ADDITIONAL DETAILS.



2 VENT THROUGH ROOF  
P3.1 SCALE: N.T.S.



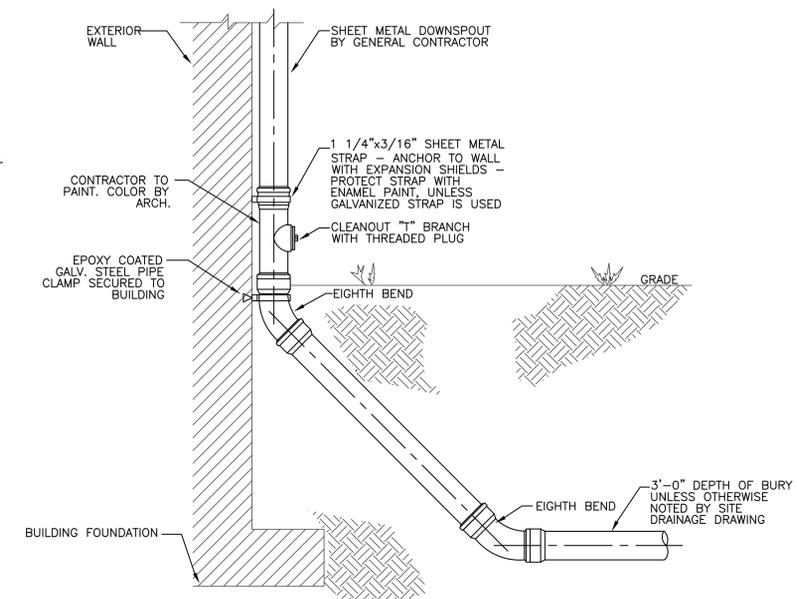
3 FOUNDATION SLEEVE DETAIL  
P3.1 SCALE: N.T.S.



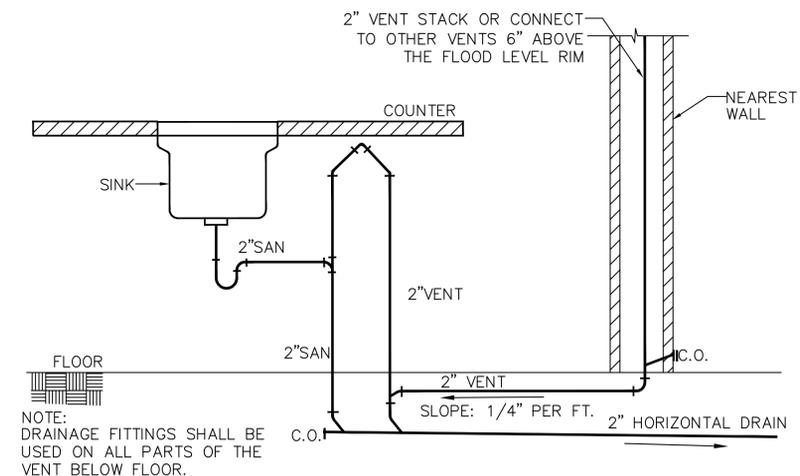
NOTE:

1. DRIP PAN SHALL BE INSTALLED UNDER WATER HEATER AT LEAST 1.5 INCHES DEEP AND SHALL BE OF SUFFICIENT SIZE AND SHAPE TO RECEIVE ALL DRIPPINGS OR CONDENSATE FROM THE TANK OR WATER HEATER. DRAIN PAN SHALL BE MADE OF A MINIMUM 24 GAGE GALVANIZED STEEL. INDIRECT CONNECT DRIP TO FLOOR DRAIN
2. WATER HEATERS SHALL BE PROTECTED FROM THERMAL EXPANSION BY INSTALLING AN EXPANSION TANK.
3. ALL CONNECTIONS TO WATER HEATER SHALL HAVE A DEVELOPED LENGTH OF MINIMUM 5 FEET OF COPPER PIPE FROM WATER HEATER INLET/OUTLET CONNECTION TO UNION OR AS SPECIFIED IN THE MANUFACTURER'S WRITTEN INSTRUCTIONS.

4 ELECTRIC WATER HEATER  
P3.1 SCALE: N.T.S.



5 DOWNSPOUT DETAIL  
P3.1 SCALE: N.T.S.



NOTE:  
DRAINAGE FITTINGS SHALL BE USED ON ALL PARTS OF THE VENT BELOW FLOOR.

6 KITCHEN SINK ISLAND VENTING DETAIL  
P3.1 SCALE: N.T.S.

SEAL



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PROJECT 24026	SHEET P3.1
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