

PLUMBING FIXTURE SPECIFICATIONS

REFER TO ARCHITECTURAL DRAWINGS FOR EXACT LOCATIONS AND MOUNTING HEIGHTS OF ALL FIXTURES. PROVIDE POLISHED CHROME PLATED, ADJUSTABLE CAST BRASS P-TRAPS AND WASTE ARMS WITH WALL ESCUTCHEONS AT ALL EXPOSED LOCATIONS. PROVIDE FIXTURE STOPS AND VALVES AHEAD OF ALL EQUIPMENT OR FIXTURES. AFTER FIXTURES ARE SET IN PLACE AND SECURED, CAULK ALL AROUND AND BETWEEN FIXTURES AND WALL/FLOOR WITH SILICONE CAULKING COMPOUND. ALL FIXTURES THAT ARE WHEELCHAIR ACCESSIBLE SHALL BE MOUNTED PER A.D.A. (AMERICAN DISABILITIES ACT) STANDARDS.

WC1 WATER CLOSET:

FIXTURE: AMERICAN STANDARD #3351.128 "AFWALL" FLOW-WISE, 1.28 GPF CONSUMPTION (HET), WALL HUNG, VITREOUS CHINA, SIPHON JET ACTION, ELONGATED BOWL, 1 1/2" TOP SPUD, WHITE.
FLUSH VALVE: SLOAN ROYAL # 111-1.28, 1.28 GPF (HET), MANUALLY OPERATED EXPOSED FLUSHVALVE.
SEAT: SOLID PLASTIC, WHITE OPEN FRONT SEAT WITH SELF-SUSTAINING CHECK HINGE AND WITHOUT COVER.
CONTRACTOR TO PROVIDE CARRIER AS REQUIRED.

WC2 WATER CLOSET: (ADA)

FIXTURE: AMERICAN STANDARD #3351.128 "AFWALL" FLOW-WISE, 1.28 GPF CONSUMPTION (HET), WALL HUNG, VITREOUS CHINA, SIPHON JET ACTION, ELONGATED BOWL, 1 1/2" TOP SPUD, WHITE. INSTALL TO MEET ALL ADA AND CODE REQUIREMENTS. REFER TO ARCHITECTURAL DRAWINGS FOR MOUNTING HEIGHTS.
FLUSH VALVE: SLOAN ROYAL # 111-1.28, 1.28 GPF (HET), MANUALLY OPERATED EXPOSED FLUSH VALVE.
SEAT: SOLID PLASTIC, WHITE OPEN FRONT SEAT WITH SELF-SUSTAINING CHECK HINGE AND WITHOUT COVER.
CONTRACTOR TO PROVIDE CARRIER AS REQUIRED.

UR1 URINAL: (ADA)

FIXTURE: SLOAN WES-1000 WATER-FREE, VITREOUS CHINA, WALL HUNG URINAL. (DO NOT USE DWV COPPER FOR DRAIN PIPING CONNECTIONS) AT HC ACCESSIBLE LOCATIONS, INSTALLATION HEIGHT TO MEET ADA REQUIREMENTS. REFER TO ARCHITECTURAL DRAWINGS FOR LOCATIONS AND MOUNTING HEIGHTS. PROVIDE CW ROUGH-IN CAPPED WITHIN WALL FOR FUTURE USE.

LAV1 LAVATORY WALL HUNG (ADA):

FIXTURE: AMERICAN STANDARD "LUCERNE" #356.421 (20% x 18%) WALL HUNG, VITREOUS CHINA, SINGLE CENTER FAUCET HOLE, FRONT OVERFLOW, WITH WALL HANGER, ADA COMPLIANT.
FAUCET: CHICAGO FAUCET #807-E2805-665SPHCP CHROME PLATED, DECK MOUNTED, SELF CLOSING, SINGLE SUPPLY, PUSH BUTTON METERING FAUCET, WITH VANDAL RESISTANT 0.5 GPM AERATOR.
SUPPLIES: 1/2" CHROME PLATED, QUARTER-TURN, BALL TYPE ANGLE STOPS WITH FLEXIBLE STAINLESS STEEL BRAIDED RISERS.
DRAIN: CHROME PLATED BRASS PERFORATED GRID STRAINER WITH 1 1/4" OUTLET TUBE.
TRAP: 1 1/4" X 1 1/2" ADJUSTABLE CAST BODY P-TRAP WITH CLEANOUT PLUG, ESCUTCHEON, CHROME FINISH.
INSULATION: ADA-COMFORMING, WHEELCHAIR ACCESSIBLE LAVATORY P-TRAP AND ANGLE VALVE ASSEMBLIES SHALL BE COVERED WITH MOLDED, ANTIMICROBIAL TRUEBRO, INC. LAV GUARD UNDERSINK PROTECTIVE PIPE COVER MODEL #103 (COLOR SELECTED BY ARCHITECT).

SK1 SINK (2-COMPARTMENT):

FIXTURE: ELKAY "AVADO" MODEL # EFRU3219, 18 GAUGE, TYPE 304 STAINLESS STEEL, UNDERMOUNT, DOUBLE BOWL, OVERALL DIMENSIONS - (32-1/4"L x 18-1/4"W) WITH SMALL BOWL DEPTH OF 6" AND LARGE BOWL DEPTH OF 8".
FAUCET: AMERICAN STANDARD "CONNOISSEUR" # 4400.641 DECK MOUNTED, SINGLE CONTROL, 9-1/2" CAST BRASS SPOUT, LESS ESCUTCHEON PLATE, WITH 1.5 GPM MAX FLOW RATE AERATOR.
SUPPLIES: 1/2" ALL BRASS, QUARTER TURN ANGLE STOPS WITH BRAIDED STAINLESS STEEL RISERS.
DRAIN: (2 REQUIRED) PERFORATED CHROME PLATED BRASS STRAINER WITH 1-1/2" OFFSET TAILPIECE.
TRAP: 1-1/2" X 1-1/2" ADJUSTABLE CAST BRASS P-TRAP WITH CLEANOUT PLUG, ESCUTCHEON, CHROME FINISH.

MS1 JANITOR MOP SINK:

FIXTURE: AMERICAN STANDARD "FLORWELL" (28" x 28" x 13") ENAMELED CAST IRON, CORNER STYLE MOP SINK BASIN WITH REMOVABLE VINYL RIM GUARD.
SUPPLY FITTING: CHICAGO FAUCET #540-LD8975WXPFC CHROME PLATED, WALL MOUNTED SERVICE SINK FAUCET WITH INTEGRAL ATMOSPHERIC VACUUM BREAKER, 3/4" HOSE THREAD OUTLET, PAIL HOOK, WALL BRACE, 8" CENTERS.
DRAIN: CHROME PLATED BRASS PERFORATED GRID STRAINER WITH 3" OUTLET.

LS1 LAB SINK:

FIXTURE AND FAUCET: SPECIFIED IN ANOTHER SECTION, MAKE FINAL CONNECTIONS.
SUPPLIES: 1/2" ALL BRASS, CHROME PLATED, 1/4 TURN, BALL TYPE ANGLE STOPS WITH BRAIDED STAINLESS STEEL RISERS.

TRAP: (2 REQUIRED)

J.R. SMITH #8710T SOLIDS INTERCEPTOR W/ REMOVABLE STAINLESS STEEL STRAINER. IF SOLIDS INTERCEPTOR IS DELETED BY OWNER, PROVIDE 1-1/2" X 1-1/2" ADJUSTABLE CAST BRASS P-TRAP WITH CLEANOUT PLUG, ESCUTCHEON, CHROME FINISH.
INSULATION: TRUEBRO INC. "LAV-GUARD" #103 UNDERSINK PROTECTIVE PIPE COVERS (COLOR AS SELECTED BY ARCHITECT).

EW1 EMERGENCY EYEWASH (DECK MOUNTED AT LAB SINKS):

FIXTURE: SPECIFIED IN ANOTHER SECTION.
CW SUPPLY: 1/2" CHROME PLATED QUARTER-TURN, BALL-TYPE ANGLE STOP WITH ADAPTER FITTING.

ES1 EMERGENCY SHOWER:

FIXTURE: HAWS #8164, BARRIER FREE DRENCH SHOWER WITH RECESSED STAINLESS STEEL WALL CABINET WITH PULL DOWN LEVER, 10-1/2" STAINLESS STEEL SHOWER HEAD, STAY-OPEN BRASS BALL VALVE, UNIVERSAL SIGN, 1" I.P.S. SUPPLY, PROVIDE WITH HAWS ALARM MODEL # 9001, 120 VAC EMERGENCY ALARM BUZZER AND LIGHT SYSTEM, ACTIVATED BY DOUBLE POLE, DOUBLE THROW FLOW SWITCH.

SH1 SHOWER:

FIXTURE: AMERICAN REINFORCED PLASTICS INC. MODEL S-3842-BF (NO HARDWARE), (38-1/2" X 41-1/2" X 80-1/2") ONE PIECE, BARRIER FREE, HEAVY DUTY FIBERGLASS REINFORCED POLYESTER, GEL-COATED, ADA COMPLIANT, WITH LEFT HAND SEAT, 1/2" INSIDE THRESHOLD, 1 1/2" OUTSIDE APRON, COLOR TO BE SELECTED BY ARCH.
DRAIN: SIOUX CHIEF # 827-2J "JACK RABBIT" 2" BRASS JACKING BOLT SHOWER DRAIN WITH STAINLESS STEEL STRAINER. INSTALL PER MFG'S RECOMMENDED INSTALLATION INSTRUCTIONS.
TRIM: SYMMONS "DIA" #3505-H321-V-CYL-X-1.5, PRESSURE BALANCING MIXING VALVE WITH ADA COMPLIANT LEVER HANDLE AND INTEGRAL SERVICE STOPS, DIVERTER WITH INTEGRAL VOLUME CONTROL, ADJUSTABLE SPRAY SHOWER HEAD WITH ARM AND FLANGE, WALL/HAND SHOWER WITH 5 FT. FLEXIBLE METAL HOSE, IN-LINE VACUUM BREAKER, WALL CONNECTION AND FLANGE, 30" SLIDE BAR, PROVIDE WITH 1.5 GPM FLOW RESTRICTOR. INSTALL COMPONENTS TO MEET ADA GUIDELINES AND PER MFR'S INSTRUCTIONS

EW1 ELECTRIC WATER COOLER: (ADA COMPLIANT)

FIXTURE: ELKAY # VRCHD85 - 8 GPH, 14 GAUGE STAINLESS STEEL SINGLE LEVEL, WALL MOUNTED, BARRIER FREE, ELECTRIC WATER COOLER WITH VANDAL RESISTANT FRONT PUSH BUTTON, SATIN FINISH. ELECTRICAL - 115V/60HZ 370 WATTS, 4 FLA.
SUPPLIES: 1/2" CHROME PLATED QUARTER-TURN, BALL-TYPE ANGLE STOP WITH FLEXIBLE STAINLESS STEEL BRAIDED RISER.
TRAP: 1 1/4" X 1 1/2" ADJUSTABLE CAST BODY P-TRAP WITH CLEANOUT PLUG, ESCUTCHEON, CHROME FINISH.

FD1 FLOOR DRAIN:

FIXTURE: J.R. SMITH #2005 FLOOR DRAIN WITH NICKEL BRONZE 5" DIAMETER STRAINER HEAD, AND VANDAL PROOF SCREWS. PROVIDE WITH PRO-VENT "TRAP GUARD" TRAP PROTECTION DEVICE IN LIEU OF TRAP PRIMER.

WHA1 WATER HAMMER ARRESTER:

FIXTURE: J.R. SMITH HYDROTROL WATER HAMMER ARRESTERS SIZED IN ACCORDANCE WITH PDI STANDARD WH-201. SEE PLANS FOR SIZES. PROVIDE ACCESS PANEL. PROVIDE AT EACH FLUSH VALVE FIXTURE OR GROUP OF FIXTURES.

W.C.O. WALL CLEANOUT:

FIXTURE: J. R. SMITH FIG. NO. 4532 CAST IRON BRANCH CLEANOUT TEE WITH BRONZE COUNTERSINK PLUG, ROUND STAINLESS STEEL ACCESS COVER. SAME SIZE AS PIPE IN WHICH INSTALLED, 4" MAXIMUM.

S.C.O. SURFACE CLEANOUT:

FIXTURE: J.R. SMITH FIG. NO. 4253, CAST IRON CLEANOUT WITH FLANGED HOUSING, HEAVY DUTY SECURED CAST IRON COVER WITH LIFTING DEVICE. SAME SIZE AS PIPE IN WHICH INSTALLED, 4" MAXIMUM.

RDI ROOF DRAIN:

J.R. SMITH #1010, CAST IRON WITH GRAVEL STOP, CAST-IRON DOME AND UNDER-DECK CLAMP. EXTENSION SLEEVE AND SUMP RECEIVER WHERE REQUIRED.

PLUMBING LEGEND

SYMBOL	ABBREVIATION	DESCRIPTION	SYMBOL	ABBREVIATION	DESCRIPTION
---	W	WASTE LINE	⊙	FD	FLOOR DRAIN
- - - -	V	VENT	⊠	FS	FLOOR SINK
----	CW	COLD WATER	— —	HB	HOSE BIBB
----	HW	HOT WATER	— —	U	UNION
----	HWR	HOT WATER	— —	TP	TRAP PRIMER
—G—	G	GAS PIPING	JL	VTR	VENT THRU ROOF
—RW—	RW	RAINWATER PIPING	•	WHA	WATER HAMMER ARRESTER
—○—	FCO/SCO	FLOOR CLEANOUT/SURFACE CLEANOUT	(TYP.)	TYP	TYPICAL
— —	WCO	WALL CLEANOUT	⊙	POC	POINT OF CONNECTION
—X—	SOV	SHUT OFF VALVE	— —	AFF	ABOVE FINISH FLOOR
— —	BV	BALL VALVE	— —	BFF	BELOW FINISH FLOOR
— —	CV	CHECK VALVE			
—>—	DN	PIPE DOWN			
—○—	UP	PIPE UP			

PLUMBING GENERAL NOTES

1. ALL MATERIALS AND SYSTEMS INSTALLED SHALL COMPLY WITH ALL CODES AND REGULATIONS OF AUTHORITIES HAVING JURISDICTION INCLUDING THE 2006 IPC.

2. CONSTRUCTION NOTES:

- THE PLUMBING CONTRACTOR SHALL COORDINATE HIS WORK WITH ADJACENT WORK AND COOPERATE WITH THE OTHER TRADES SO AS TO FACILITATE THE GENERAL PROGRESS OF THE WORK AND TO AVOID CONFLICT OF ALLOWABLE SPACE FOR OTHER TRADES (ELECTRICAL, ETC). REFER TO ARCHITECTURAL DRAWINGS FOR ALL FIXTURE LOCATIONS.
- DO NOT LOCATE ANY FLOOR CLEANOUTS UNDER OR BEHIND ANY FIXTURES, OR EQUIPMENT.
- CLEANOUTS SHALL BE PROVIDED AT LOCATIONS AS SHOWN, AND SHALL BE AS SPECIFIED. NO PLASTIC CLEANOUT COVERS WILL BE ALLOWED. CLEANOUT PLUGS SHALL BE BRONZE. ALL CLEANOUTS TO BE EQUAL TO THE SIZE OF LINE IN WHICH INSTALLED, UNLESS NOTED OTHERWISE. (4" MAXIMUM).
- EXACT LOCATION OF PLUMBING FIXTURES SHALL BE DETERMINED FROM THE ARCHITECTURAL DRAWINGS.
- PROVIDE ALL REQUIRED RISERS/DROPS TO INSTALL CONCEALED PIPING WITHIN BUILDING CONSTRUCTION. REFER TO THE REFLECTED CEILING PLANS, SECTIONS AND SCHEDULES ON THE ARCHITECTURAL DRAWINGS TO DETERMINE REQUIRED PLACEMENT OF PIPING. PIPING IN EXPOSED AREAS SHALL BE SUPPORTED AS HIGH AS POSSIBLE TO THE UNDERSIDE OF THE OVERHEAD STRUCTURE.
- PROVIDE STOP VALVES AT ALL FIXTURES.
- REFER TO THE ARCHITECTURAL DRAWINGS FOR LOCATIONS OF ALL AREA SEPARATION, FIRE AND SMOKE WALLS. PROVIDE UL LISTED FIRE STOPPING PER THE DETAILS ON THE ARCHITECTURAL DRAWINGS AND AS SPECIFIED IN THE ARCHITECTURAL AND MECHANICAL SPECIFICATIONS.
- THE CONTRACTOR HAS THE RESPONSIBILITY OF REVIEWING ALL OF THE CONTRACT DOCUMENTS CONCERNING THIS PROJECT AND SHALL INCLUDE ALL REQUIRED WORK IN HIS BID.
- PLUMBING CONTRACTOR SHALL VERIFY THE INVERT ELEVATION OF THE EXISTING DRAINS TO WHICH NEW WASTE LINES ARE TO BE CONNECTED PRIOR TO INSTALLING THE NEW WASTE SYSTEM. VERIFY THAT THE SYSTEM CAN BE INSTALLED AS SHOWN. IF AFTER INVESTIGATION THE PLUMBING CONTRACTOR DETERMINES THAT REQUIRED INVERTS AND SLOPES CANNOT BE MET, HE SHALL ADVISE THE ENGINEER IMMEDIATELY.
- CONTRACTOR SHALL VERIFY LOCATIONS OF EXISTING SEWER AND WATER LINES SHOWN ON PLANS, PRIOR TO INSTALLATION OF NEW WORK.

3. GENERAL PIPING INFORMATION (REFER TO SPECIFICATIONS FOR ALL REQUIREMENTS)

A. DOMESTIC WATER PIPING:

ABOVE FLOOR: TYPE "L" HARD TEMPER SEAMLESS COPPER TUBING WITH BRAZED JOINTS. BELOW GRADE/ OUTSIDE BUILDING: TYPE "K" HARD TEMPER SEAMLESS COPPER TUBE WITH BRAZED JOINTS.
INSIDE BUILDING, BELOW FLOOR SLAB ON GRADE: TYPE "K" SOFT COPPER WITH NO JOINTS (1-1/2" AND SMALLER, BRAZED JOINTS 2" AND LARGER).

4. SANITARY WASTE AND VENT AND RAINWATER PIPING:

ABOVE AND BELOW FLOOR - ALL SIZES:
CAST IRON SOIL PIPE AND FITTINGS, BEARING THE SEAL OF THE CAST IRON SOIL PIPE INSTITUTE, IN CONFORMANCE WITH CISPI 301-00 AND ASTM 888 STANDARDS FOR HUBLESS PIPE AND FITTINGS. COUPLINGS: STAINLESS STEEL COUPLINGS CONFORMING TO CISPI 310-97 WITH NEOPRENE SEALING GASKETS CONFORMING TO ASTM STANDARD C564.
SANITARY DRAIN PIPING SHALL SLOPE AT 1/4" PER FT.
RAINWATER PIPING SHALL SLOPE AT 1/8" PER FT. UNLESS NOTED OTHERWISE.
CLEANOUTS SHALL BE SAME SIZE AS PIPE INSTALLED IN, 4" MAXIMUM.

5. GAS PIPING

- ABOVE GROUND, INSIDE BUILDINGS: SCHEDULE 40 BLACK STEEL, ASTM A53, 2" AND SMALLER: 150# THREADED FITTINGS, 2-1/2" AND LARGER: BUTT WELDED WITH SOCKET FITTINGS.
- GAS SHUT-OFF VALVES: 1/2" THRU 2": MILWAUKEE BUTTERBALL #BB2-100 OR EQUAL. 2-1/2" AND LARGER: CLASS 125, STEEL PLUG VALVE, DEZURIK PERMA SEAL. UL LISTED FOR NATURAL GAS.
- TEST GAS PIPING AT 10 PSI FOR 15 MINUTES WITH COMPRESSED AIR.

FIRE PROTECTION NOTES

A. SCOPE OF WORK:

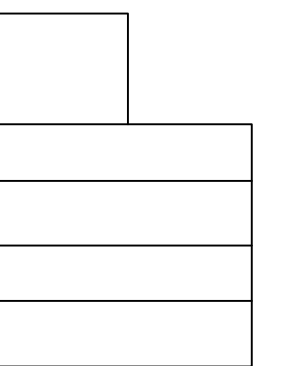
- PROVIDE A WET PIPE FIRE SPRINKLER SYSTEM THRU-OUT THE NEW AND EXISTING "MATH EAST" BUILDING.
- PROVIDE COMPLETE SYSTEM DESIGN AND INSTALLATION TO CONFORM WITH ALL LOCAL, STATE AND NATIONAL CODES.
- PROVIDE PIPING WITH ALL NECESSARY PIPING SUPPORTS, ANCHORS AND BRACING AND SUBMIT THE DESIGN TO THE ARCHITECT FOR REVIEW. COORDINATE NEW PIPING LOCATIONS WITH ALL BUILDING CONDITIONS.
- PREPARE COMPLETE FIRE PROTECTION SHOP DRAWINGS AND CALCULATIONS AND SUBMIT TO THE ARCHITECT AND AUTHORITIES HAVING JURISDICTION AND RECEIVE APPROVAL PRIOR TO BEGINNING ANY WORK.
- CONTRACTOR SHALL PROVIDE ALL PIPING, VALVES, SPRINKLER HEADS, HANGERS, SUPPORTS NECESSARY FOR A COMPLETE INSTALLATION.
- COORDINATE WORK WITH ALL OTHER TRADES INCLUDING ELECTRICAL. COORDINATE LOCATIONS OF FLOW AND TAMPER SWITCHES WITH THE FIRE ALARM CONTRACTOR.
- PROVIDE THE OWNER WITH VALVE DIAGRAMS, VALVE LABELS AND OPERATING INSTRUCTIONS.
- CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CUTTING AND PATCHING.
- CONTRACTOR SHALL INCLUDE MEETING TIME TO MEET WITH ARCHITECT AND PRESENT PRELIMINARY PLANS WITH PIPE ROUTING AND SPRINKLER LOCATIONS FOR ARCHITECT'S APPROVAL PRIOR TO SUBMITTING PLANS TO THE AHJ.

B. DESIGN:

- CONFORM TO THE REQUIREMENTS OF NFPA AND THE UNIVERSITY OF ARIZONA DEPARTMENT OF RISK MANAGEMENT.
- THE SYSTEM SHALL BE DESIGNED BY A LICENSED PROFESSIONAL ENGINEERING TECHNICIAN AND INSTALLED BY A FIRM LICENSED AND REGULARLY ENGAGED BY THE DESIGN AND INSTALLATION OF FIRE PROTECTION SYSTEMS IN ACCORDANCE WITH THE REQUIREMENTS OF THE NATIONAL FIRE PROTECTION ASSOCIATION. THE FIRM SHALL HAVE A MINIMUM OF FIVE YEARS OF EXPERIENCE IN FIRE PROTECTION DESIGN AND INSTALLATION ON PROJECTS OF SIMILAR NATURE AND SIZE OF THIS PROJECT.

C. SPRINKLER HEADS AND MATERIALS:

- SPRINKLERS SHALL BE OF THE LISTED AUTOMATIC PENDANT AND UPRIGHT TYPE.
- INSTALL HIGH TEMPERATURE SPRINKLERS OF PROPER DEGREE RATING WHEREVER NECESSARY TO MEET REQUIREMENTS OF NFPA 13.
- SPRINKLERS IN SUSPENDED CEILINGS SHALL BE FULLY RECESSED PENDANT TYPE WITH CHROME PLATED FINISH WITH CHROME ESCUTCHEONS.
- FOR EXPOSED OR UNFINISHED AREAS, PROVIDE STANDARD UPRIGHT TYPE WITH BRASS FINISH.
- FOR SIDEWALL APPLICATIONS, PROVIDE SIDEWALL TYPE WITH CHROME FINISH AND ESCUTCHEON.
- SPRINKLER SYSTEM PIPING OR TUBING AND COMPONENTS SHALL MEET THE REQUIREMENTS OF NFPA 13 AND BE UL LISTED OR FM APPROVED. ALL PIPING SHALL HAVE A MINIMUM CORROSION RESISTANCE RATIO (CRR) OF 1.00 PER UL LISTING.
- MINIMUM WALL THICKNESS FOR CUT-GROOVE OR THREADED PIPING SHALL BE SCHEDULE 40.
- USE OF COPPER OR CPVC PIPING AND FITTINGS IS PROHIBITED.



ELECTRIC WATER HEATER SCHEDULE									
MARK	MAKE	MODEL	STORAGE CAPACITY IN GALS.	ELEC. DATA		GALLON PER HR. REC. @ 100°F T.R.	PIPE SIZE		REMARKS
				kW	V/ø/Hz		CW	HW	
EW-1	RHEEM	ELD52	50	6	208/1/60	24	1 1/2"	1 1/2"	LOCATE IN JANITORS CLOSET RM. 411

PUMP SCHEDULE										
MARK	SERVICE	GPM	HEAD (FEET)	RPM	ELECTRICAL DATA					MAKE AND MODEL
					WATTS	VOLTS	PH	HZ	AMPS	
CP-1	DOMESTIC HOT WATER	5	5	2800	55	115	1	60	0.46	BELL AND GOSSETT NBF-10S (3/4") FURNISH WITH B&G AQUASTAT AQ-3/4 AND TIME CLOCK #TC-1

SUMP PUMP SCHEDULE							
EQUIP NO	SERVICE/LOCATION	GPM EACH	T.D.H. (FEET)	RPM	HP	VOLTAGE/PHASE	MANUFACTURER AND MODEL NO
SP-1	ELEVATOR SUMP PIT	50	20	3450	6/10	115/1	LIBERTY PUMPS MODEL # FL61A

FIXTURE ROUGH-IN SCHEDULE						CALCULATION				NOTES	
MARK	DESCRIPTION	TRAP SIZE	W	V	CW	HW	F.U. EACH		TOTAL F.U.		
							WATER	WASTE	WATER		WASTE
WC1	WATER CLOSET	-	4"	2"	1"	-	2	10	4	20	8
WC2	WATER CLOSET (ADA)	-	4"	2"	1"	-	6	10	4	60	24
UR1	URINAL (WATERLESS)	-	2"	1 1/2"	(3/4")	-	2	5	2	10	4
LV1	LAVATORY (ADA)	1 1/2"	2"	1 1/2"	-	1/2"	6	2	1	12	6
SK1	SINK (2-COMPARTMENT)	1 1/2"	2"	1 1/2"	1/2"	1/2"	2	3	2	6	4
SH1	SHOWER	1 1/2"	2"	1 1/2"	1/2"	1/2"	2	4	2	8	4
EW-1	ELECTRIC WATER COOLER	1 1/2"	2"	1 1/2"	1/2"	-	2	25	0.5	0.5	1
MS1	MOP SINK	3"	3"	2"	3/4"	3/4"	2	3	3	6	6
LS1	LAB SINK	-	2"	1 1/2"	1/2"	1/2"	8	2	2	16	16
EW1	EYE WASH (DECK MOUNTED AT LAB SINKS)	-	-	-	1/2"	-	8	-	-	-	-
ESE1	EMERGENCY SHOWER	-	-	-	1"	-	1	-	-	-	-
FD1	FLOOR DRAIN	2"	2"	1 1/2"	-	-	7	-	2	-	14
								TOTAL FU		138.5	87
								GPM		77	

- ① WATERLESS URINAL; PROVIDE WATER PIPING CAPPED IN WALL AT URINAL FOR POSSIBLE FUTURE USE.
- ② TEMPERED WATER SUPPLY.
- ③ PROVIDE WASTE PIPING CONNECTION TO SEDIMENT TRAP IN LIEU OF P-TRAP WHERE REQUIRED

BLDG. WATER CALCULATION	
PRESSURE IN UTILITY TUNNEL	70 PSI
BACKFLOW PREVENTER	-10 PSI
PRESSURE AVAIL. AT BUILDING (AT GRADE)	60 PSI
STATIC HEAD LOSS: (50' x 0.433)	21.6 PSI
FIXTURE (MINIMUM REQUIRED)	25 PSI
REQUIRED PRESSURE	46.6 PSI
PIPING FRICTION LOSS	
PIPING DEVELOPED LENGTH	250 FT
EQUIV. LENGTH FOR FITTINGS (33%)	88 FT
TOTAL EQUIVALENT LENGTH	338 FT
$\frac{13.4 \text{ P.S.I. DIFFERENCE}}{338 \text{ FT. TOTAL LENGTH}} \times 100 = 3.96$	MAX. PSI DROP ALLOWABLE/100 FT. OF PIPE
PIPING SIZED FOR 3 PSI/100 FT. LOSS	

WATER PIPE SIZING FIXTURE UNITS VERSUS 2008 IPC												
PSI/100 FT. TYPE "L" COPPER TUBING												
A, in psi/100'	Pipe size (in inches)											
	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"	2 1/2"	3"	4"	5"	6"	8"
FLUSH VALVE	-	-	-	6	12	78	250	625	1600	3185	5000	8000
FLUSH TANK	0	2	6	16	50	180	395	700	1600	3185	5000	8000
GPM	1.5	5	10	18	28	60	100	160	280	450	600	1100
FPS	2.0	3.3	3.9	5.0	5.4	6.2	6.7	7.5	7.4	7.7	7.2	7.5



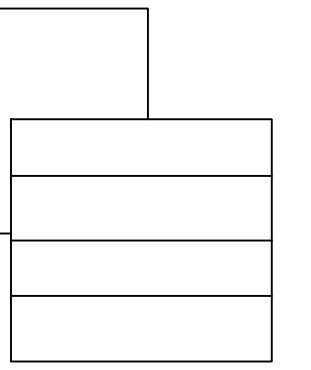
1545 W. THOMAS ROAD
PHOENIX ARIZONA 85015
PHN 602.264.1955
FAX 602.264.9234



EXPIRES 6-30-2013
GMP-ADDENDUM 1
05/13/11
OWNER REVIEW
07/15/11
July 15, 2011
Construction Documents
r+b job # 0209
U.A. # 08-8826

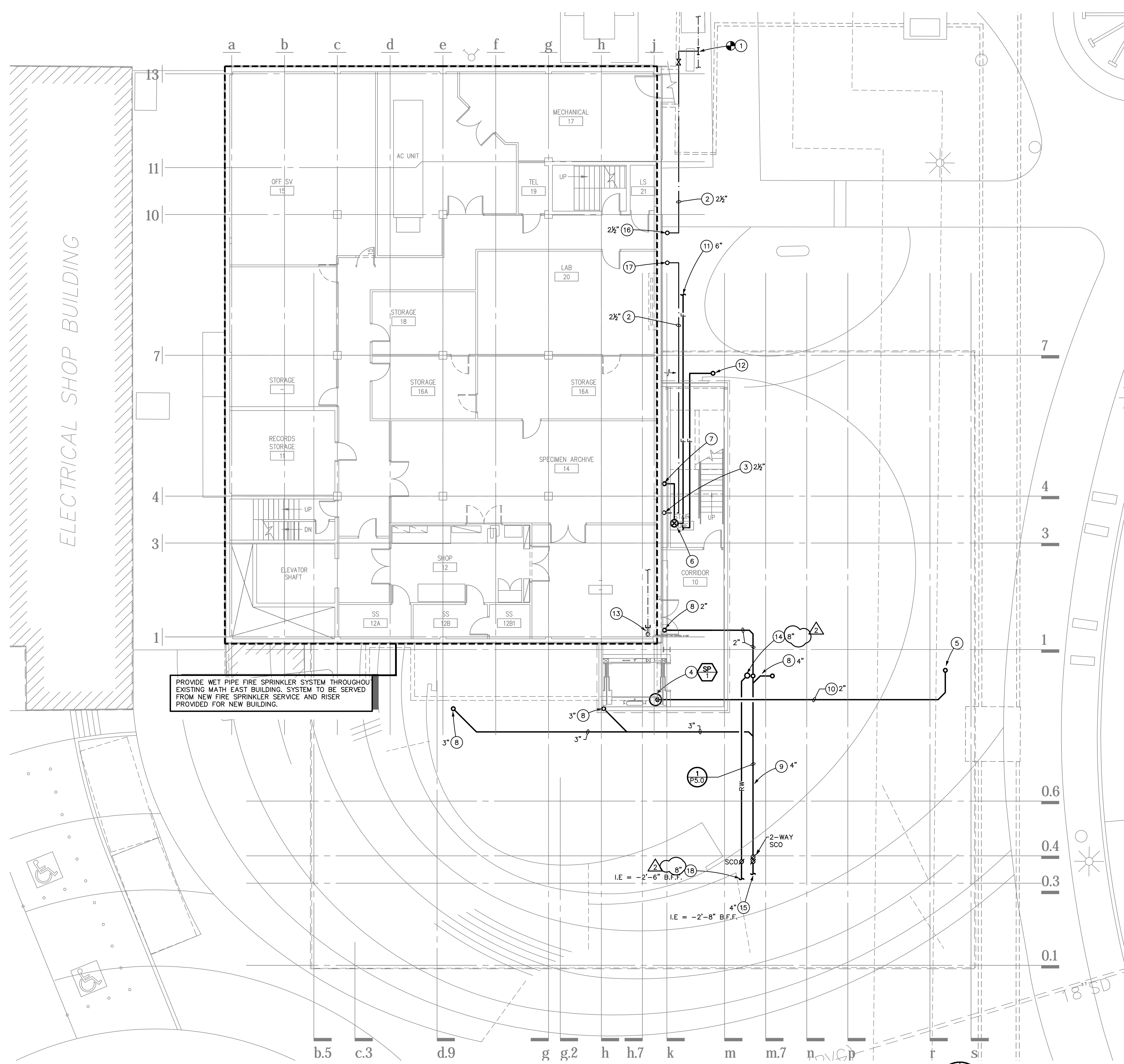
LABORATORY OF TREE-RING RESEARCH
BRYANT BANNISTER TREE-RING BUILDING
The University of Arizona - Tucson, Arizona

KEYPLAN



ENERGY SYSTEMS DESIGN
7135 East Camelback Road
Suite 275
Scottsdale AZ 85251
P: 480.481.4900
F: 480.481.4903
PROJECT #
081093.100
DESIGN CONTACT
MATT KLEM

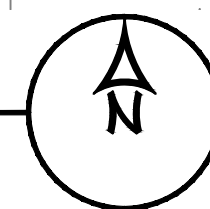
PLUMBING SCHEDULES
P1.1
NONE



PROVIDE WET PIPE FIRE SPRINKLER SYSTEM THROUGHOUT EXISTING MATH EAST BUILDING. SYSTEM TO BE SERVED FROM NEW FIRE SPRINKLER SERVICE AND RISER PROVIDED FOR NEW BUILDING.

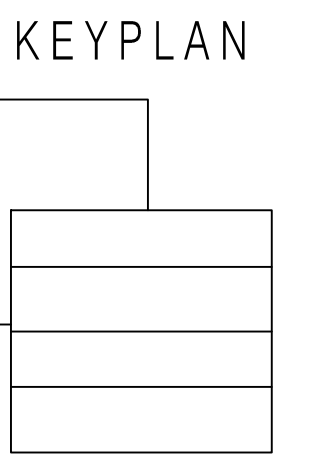
- KEYED NOTES**
- ① CONNECT NEW 2½" CW TO EXISTING 3" CW IN TUNNEL. PROVIDE WITH ULTRASONIC CLAMP-ON FLOW METER PER SPECIFICATIONS AND UA DESIGN STANDARDS.
 - ② NEW CW PIPING BELOW GRADE. COORDINATE ROUTING WITH MECHANICAL CHILLED WATER PIPING AND FIRE LINE THIS AREA.
 - ③ CW RISER UP.
 - ④ ELEVATOR SUMP PUMP.
 - ⑤ SUMP PUMP DISCHARGE UP TO GROUND LEVEL LANDSCAPING.
 - ⑥ FIRE SPRINKLER RISER.
 - ⑦ FIRE SPRINKLER PIPING UP.
 - ⑧ SANITARY WASTE FROM FIXTURES ABOVE.
 - ⑨ SANITARY WASTE PIPING BELOW SLAB.
 - ⑩ ELEVATOR SUMP PUMP DISCHARGE PIPING BELOW GRADE.
 - ⑪ DOMESTIC CW AND FIRE SPRINKLER SERVICES BELOW GRADE.
 - ⑫ FIRE PROTECTION PIPING UP TO FDC AT GRADE LEVEL.
 - ⑬ EXISTING ½" CW UP TO HOSE BIB TO BE REMOVED. DEMO AND CAP CW BACK TO MAIN.
 - ⑭ RAINWATER PIPING FROM ABOVE.
 - ⑮ SANITARY WASTE PIPING BELOW GRADE. DROP PIPING AT CLEANOUT AS REQUIRED TO MEET CIVIL INVERT. REFER TO CIVIL FOR CONTINUATION.
 - ⑯ CW UP TO BACKFLOW PREVENTER ASSEMBLY AT GRADE.
 - ⑰ CW FROM ABOVE TO BELOW GRADE.
 - ⑱ RAINWATER PIPING BELOW GRADE. DROP PIPING AT CLEANOUT AS REQUIRED TO MEET CIVIL INVERT. REFER TO CIVIL FOR CONT.

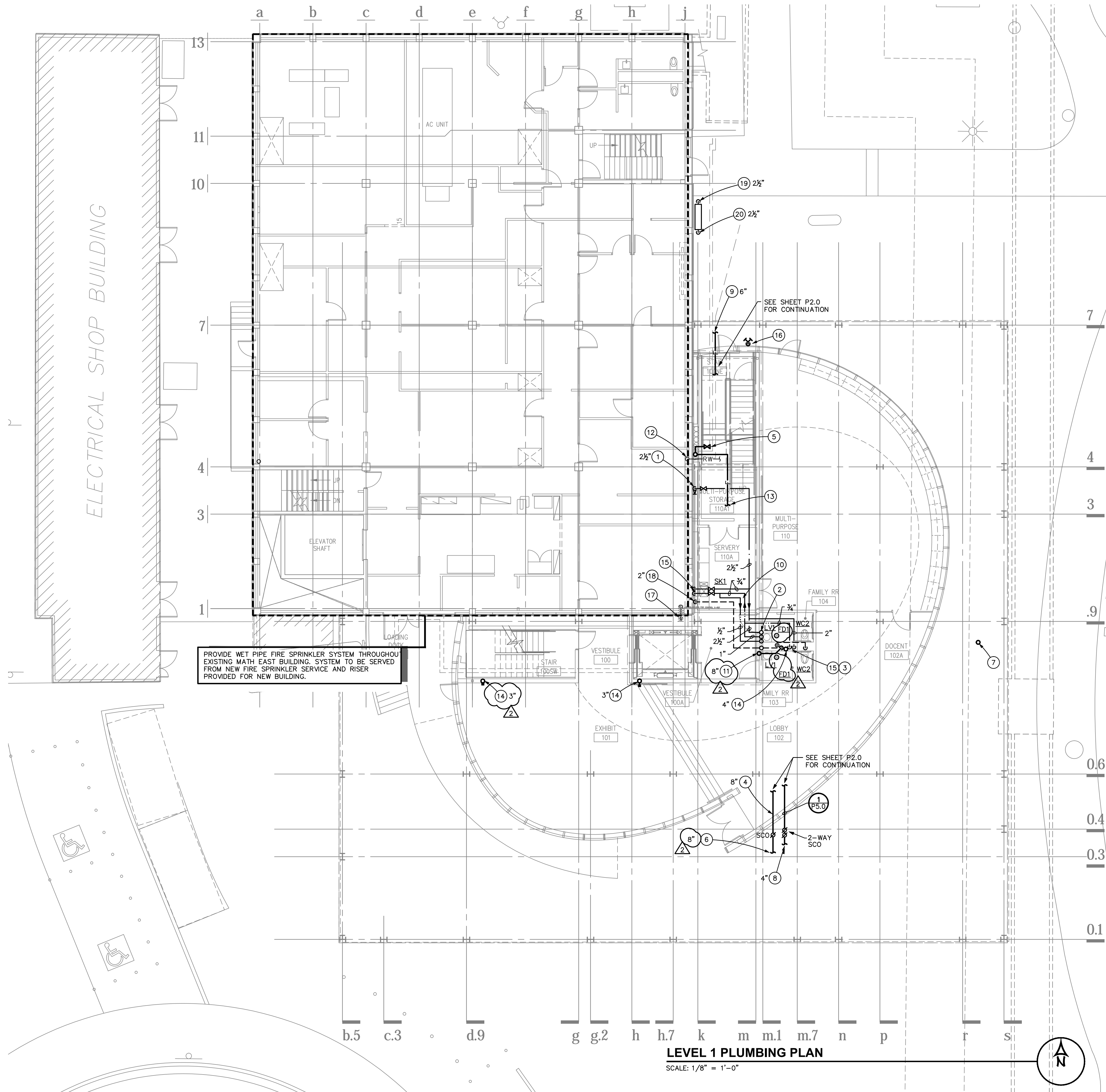
BASEMENT PLUMBING PLAN
SCALE: 1/8" = 1'-0"



GMP-ADDENDUM 1
05/13/11
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07/15/11
July 15, 2011
Construction Documents
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KEYED NOTES

- 1 CW RISER FROM BELOW WITH ACCESSIBLE SHUT-OFF VALVE.
- 2 2½" CW, ½" HWR, AND 4" VENT PIPING UP AND 1" HW PIPING FROM ABOVE.
- 3 EXTEND ¾" HOT AND COLD WATER TO MIXING VALVE (SYMMONS # 5-225-CK-B - SET FOR 110° F WITH ACCESS PANEL) BELOW LAVATORY. PROVIDE HW CONNECTION TO LAV.
- 4 SANITARY WASTE PIPING BELOW FLOOR.
- 5 FIRE SPRINKLER RISER AND FIRE HOSE VALVE.
- 6 RAINWATER PIPING BELOW GRADE. DROP PIPING AT CLEANOUT AS REQUIRED TO MEET CIVIL INVERT. REFER TO CIVIL FOR CONT.
- 7 ELEVATOR SUMP PUMP DISCHARGE TO LANDSCAPING.
- 8 SANITARY DRAIN PIPING BELOW GRADE. DROP PIPING AT CLEANOUT AS REQUIRED TO MEET CIVIL INVERT. REFER TO CIVIL FOR CONT.
- 9 FIRE SPRINKLER SERVICE BELOW GRADE. REFER TO CIVIL FOR CONT.
- 10 PIPING ABOVE CEILING.
- 11 RAINWATER PIPING FROM ABOVE. OFFSET ABOVE CEILING AND EXTEND DOWN IN PLUMBING CHASE TO BELOW FLOOR. COORDINATE WITH MECHANICAL DUCTWORK THIS AREA.
- 12 EXISTING RAINWATER PIPING FROM ABOVE TO BE REMOVED/ABANDONED.
- 13 FIRE SPRINKLER PIPING SERVING THIS LEVEL.
- 14 SANITARY WASTE PIPING FROM ABOVE TO BELOW FLOOR WITH WCO.
- 15 HOT AND CW DROPS IN WALL TO FIXTURES
- 16 FIRE DEPARTMENT CONNECTION.
- 17 EXISTING HOSE BIBB TO BE REMOVED.
- 18 SANITARY VENT UP TO ABOVE CEILING.
- 19 CW UP FROM BELOW GRADE TO 2½" REDUCED PRESSURE BACKFLOW PREVENTER. (WATTS MODEL LF009-OSY OR EQUAL)
- 20 CW DOWN TO BELOW GRADE. REFER TO SHEET P2.0 FOR CONTINUATION.

PROVIDE WET PIPE FIRE SPRINKLER SYSTEM THROUGHOUT EXISTING MATH EAST BUILDING. SYSTEM TO BE SERVED FROM NEW FIRE SPRINKLER SERVICE AND RISER PROVIDED FOR NEW BUILDING.

LEVEL 1 PLUMBING PLAN
SCALE: 1/8" = 1'-0"

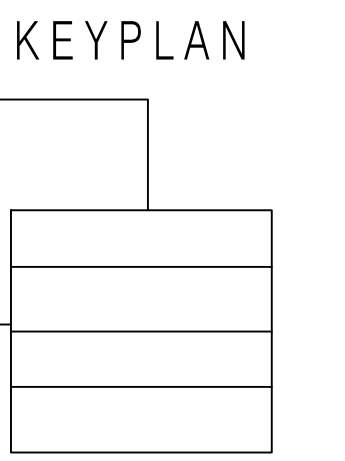


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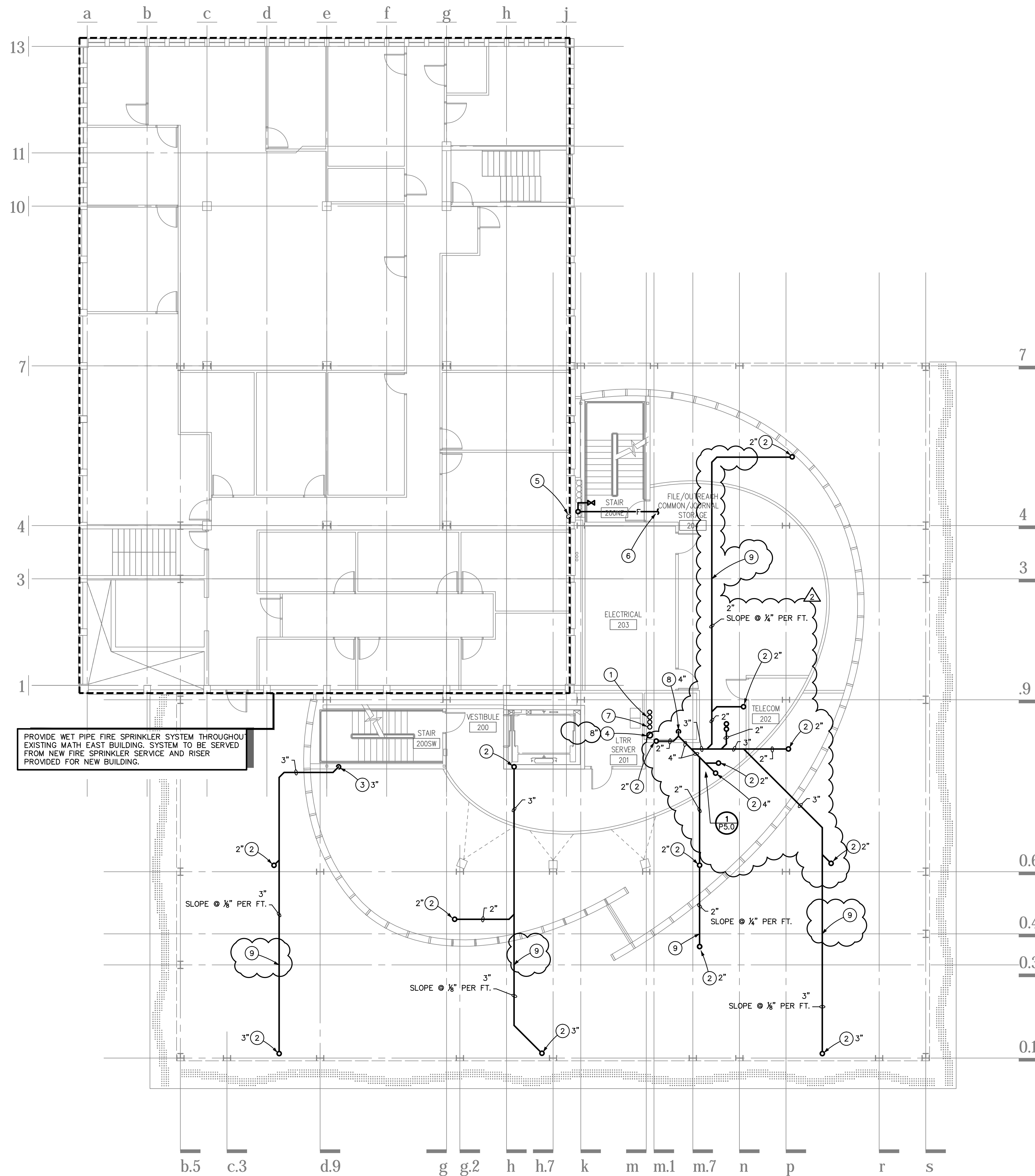
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PROJECT # 081093.100
DESIGN CONTACT MATT KLEM

LEVEL 1
PLUMBING PLAN
P2.1
AS NOTED



PROVIDE WET PIPE FIRE SPRINKLER SYSTEM THROUGHOUT EXISTING MATH EAST BUILDING. SYSTEM TO BE SERVED FROM NEW FIRE SPRINKLER SERVICE AND RISER PROVIDED FOR NEW BUILDING.

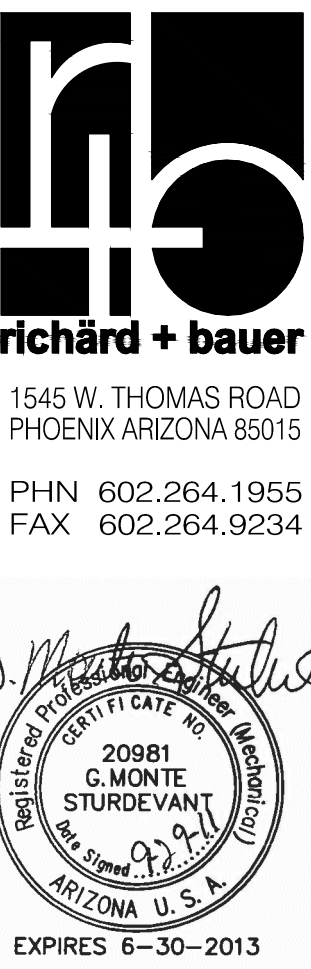
LEVEL 2 PLUMBING PLAN
SCALE: 1/8" = 1'-0"

KEYED NOTES

- ① 2½" CW, ½" HWR, AND 4" VENT UP FROM BELOW, AND 1" HW PIPING FROM ABOVE.
- ② SANITARY WASTE PIPING FROM FIXTURE(S) AT FLOORS ABOVE.
- ③ SANITARY WASTE PIPING DOWN.
- ④ RAINWATER PIPING FROM ABOVE.
- ⑤ EXISTING RAINWATER PIPING FROM ABOVE TO BE REMOVED/ABANDONED.
- ⑥ FIRE SPRINKLER PIPING SERVING THIS LEVEL.
- ⑦ SANITARY VENT UP
- ⑧ SANITARY WASTE PIPING DOWN IN CHASE
- ⑨ WASTE PIPING ABOVE CEILING TO ROUTE THRU STRUCTURAL BEAMS. COORDINATE REQUIRED LOCATIONS OF PENETRATIONS WITH STRUCTURAL ENGINEER PRIOR TO INSTALLATION.

GENERAL NOTES

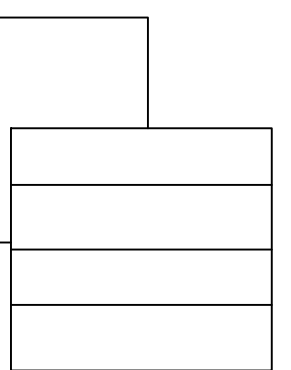
1. ALL PIPING PENETRATIONS THROUGH STRUCTURAL BEAMS SHALL BE COORDINATED WITH STRUCTURAL ENGINEER PRIOR TO INSTALLATION.



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05/13/11
OWNER REVIEW
07/15/11
July 15, 2011
Construction Documents
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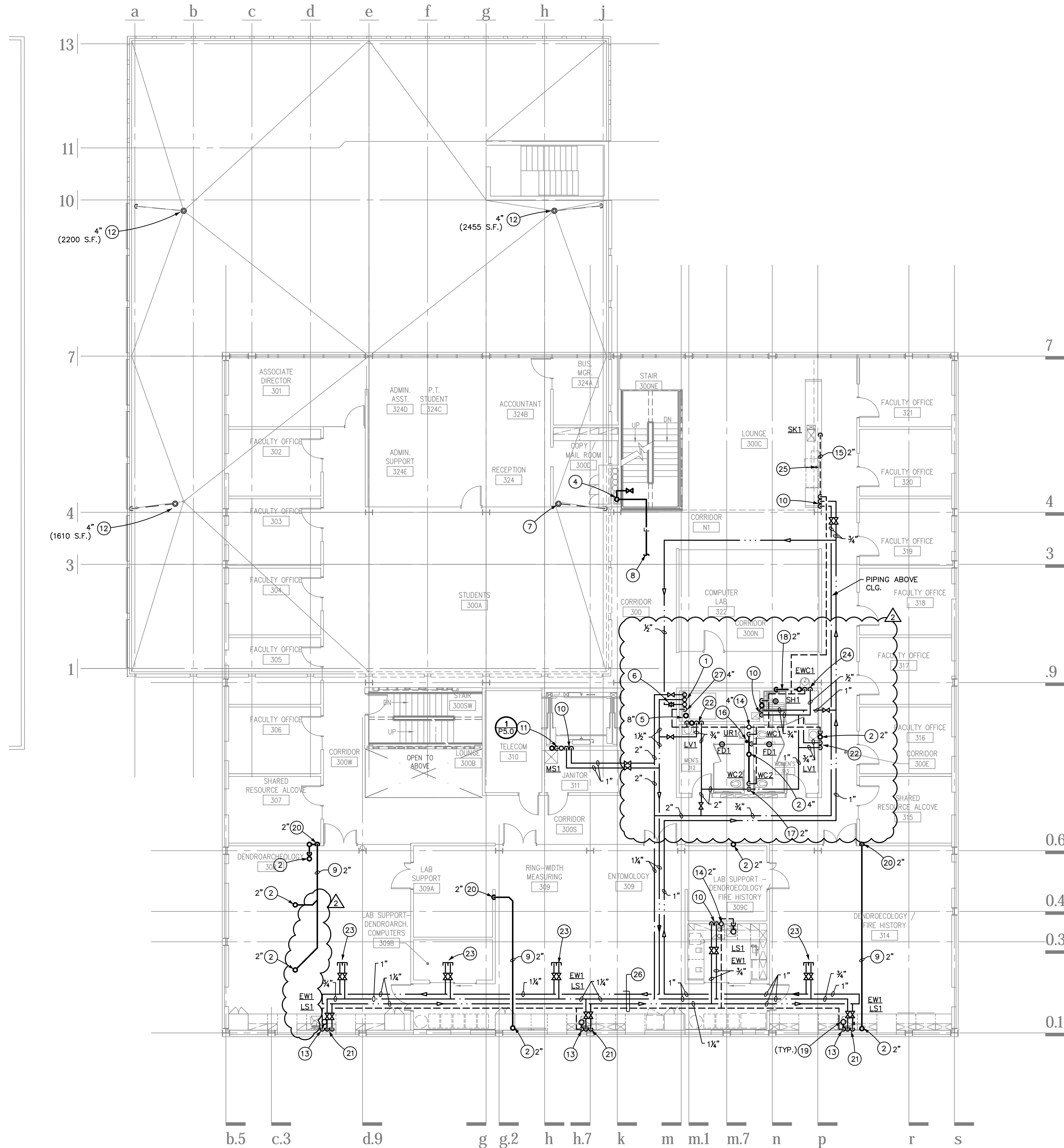
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LEVEL 2
PLUMBING PLAN
P2.2
AS NOTED

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PLOTTED BY: matthew.klem

PLOTTED: 09.29.2011 - 5:09pm



LEVEL 3 PLUMBING PLAN

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

KEYED NOTES

- 1 2 1/2" CW, AND 1/2" HWR UP FROM BELOW AND 1" HW DOWN.
- 2 SANITARY WASTE FROM FIXTURES AT FLOOR ABOVE.
- 3 (NOT USED)
- 4 FIRE SPRINKLER RISER.
- 5 RW PIPING FROM ABOVE.
- 6 BALANCING VALVE SET FOR 1 GPM.
- 7 EXISTING ROOF DRAIN AND RELATED PIPING TO BE REMOVED.
- 8 FIRE SPRINKLER PIPING SERVING THIS LEVEL.
- 9 PIPING OVERHEAD.
- 10 HOT AND CW DROPS TO FIXTURE.
- 11 SANITARY WASTE STACK. REFER TO WASTE AND VENT DIAGRAM.
- 12 EXISTING ROOF DRAIN AND RELATED PIPING TO REMAIN.
- 13 EXTEND WASTE OUTLET FROM SEDIMENT TRAP DOWN THRU FLOOR BELOW CASEWORK TO AVOID STRUCTURAL BEAM BELOW. EXTEND VENT PIPING UP IN PIPE CHASE TO OVERHEAD AND EXTEND AS SHOWN.
- 14 VENT PIPING UP TO LEVEL ABOVE.
- 15 VENT PIPING IN WALL.
- 16 PROVIDE WIA (P.D.I. SIZE "C") ON CW LINE WITH ACCESS PANEL IN RESTROOM.
- 17 CW DROP IN CHASE TO FULL SIZE HEADER FOR CONNECTION TO FIXTURES.
- 18 OFFSET WASTE PIPING FROM ABOVE IN WALL AND EXTEND DOWN THRU FLOOR TO AVOID TELECOM ROOM BELOW.
- 19 SEDIMENT TRAP BELOW LAB FIXTURE.
- 20 WASTE PIPING DOWN IN WALL TO CEILING SPACE AT LEVEL BELOW.
- 21 3/4" HOT AND CW DROPS IN PIPE CHASE TO FIXTURE.
- 22 HOT AND COLD WATER DROPS IN WALL TO MIXING VALVE (SYMMONS # 5-225-CK-B - SET FOR 110° F WITH ACCESS PANEL) BELOW LAVATORY. PROVIDE HW CONNECTION TO LAV.
- 23 3/4" HOT AND COLD WATER PIPING VALVED AND CAPPED FOR FUTURE USE.
- 24 CW DROP IN WALL TO FIXTURE.
- 25 EXTEND 1/2" CW TO STOP VALVE BELOW CASE WORK FOR FUTURE USE.
- 26 PIPING PACKED OVERHEAD. REFER TO ARCH DETAILS.
- 27 VENT PIPING UP FROM BELOW.

SHEET NOTES

1. NO TREATMENT OR NEUTRALIZING TANKS ARE REQUIRED FOR LAB SINKS. ANY CHEMICAL WASTE WILL BE COLLECTED IN PORTABLE CONTAINERS AT POINT OF USE.
2. PROVIDE SEDIMENT TRAPS AT LAB SINKS. CONFIRM WITH UA PRIOR TO FINAL ORDERING.
3. REFER TO ARCH DWG'S FOR FINAL CONNECTION REQUIREMENTS TO LAB EQUIPMENT AND FIXTURES.
4. RAINWATER PIPING SIZED BASED ON 3" PER HOUR RAINFALL RATE PER IPC SECTION 1106.1



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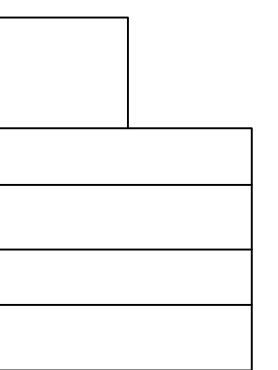
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07/15/11

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KEYPLAN



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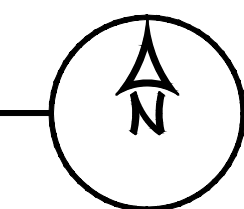
PROJECT #
081093.100

DESIGN CONTACT
MATT KLEM

LEVEL 3
PLUMBING PLAN

P2.3

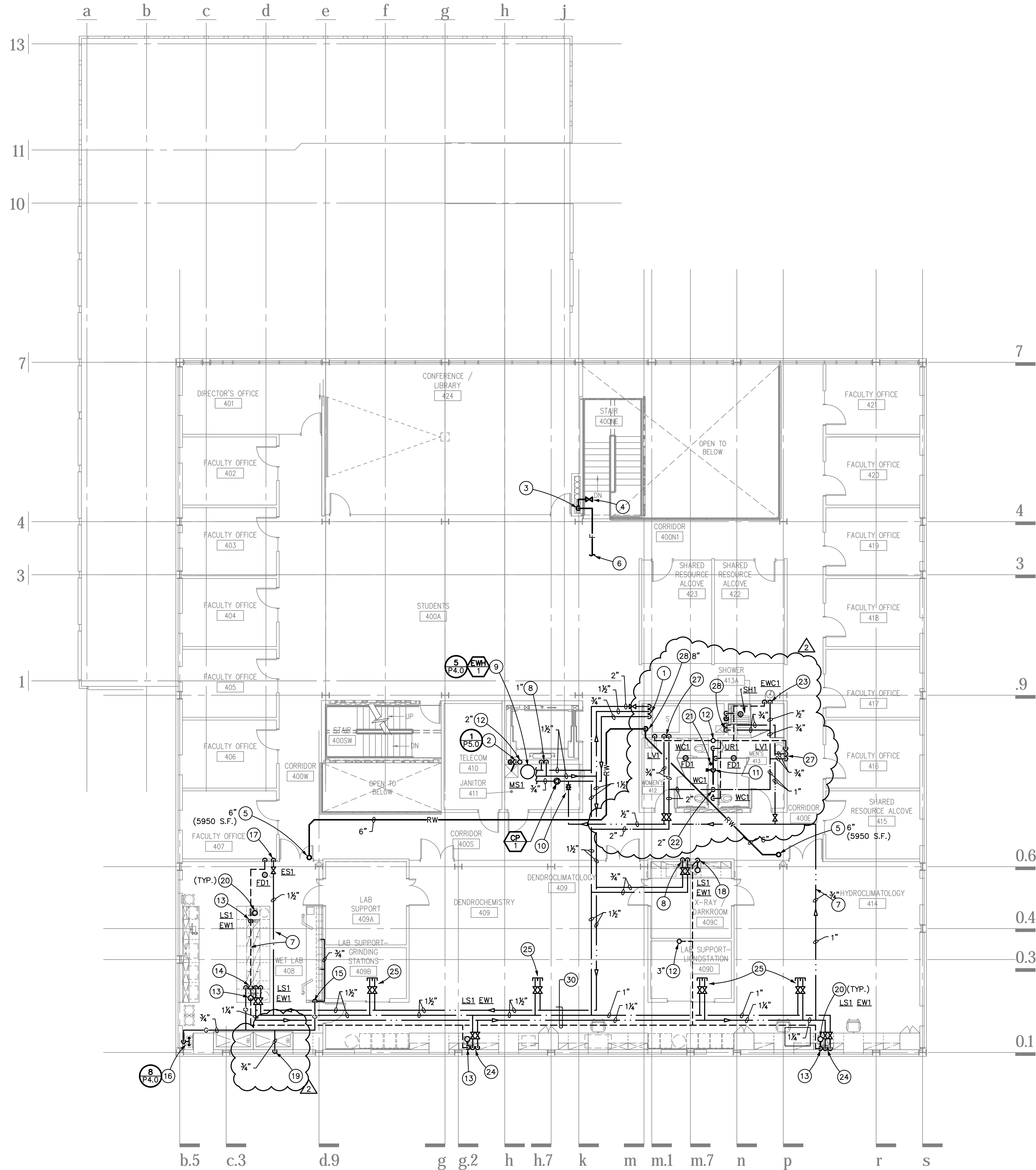
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PLOTTED BY: matthew.klem

PLOTTED: 09/29/2011 - 5:08pm



KEYED NOTES

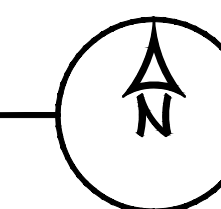
- 1 2" CW, AND 3/4" HWR UP FROM BELOW AND 1 1/2" HW PIPING DOWN.
- 2 SANITARY WASTE AND VENT STACK. REFER TO DIAGRAMS.
- 3 FIRE SPRINKLER RISER.
- 4 FIRE HOSE VALVE.
- 5 RAINWATER PIPING FROM ROOF DRAIN (RD1) ABOVE.
- 6 FIRE SPRINKLER PIPING SERVING THIS LEVEL.
- 7 PIPING OVERHEAD.
- 8 HOT AND CW DROPS IN WALL TO FIXTURE.
- 9 ELECTRIC WATER HEATER, CIRC PUMP AND MIXING VALVE. REFER TO DETAIL.
- 10 BALANCING VALVE SET FOR 1 GPM.
- 11 SANITARY WASTE PIPING DOWN THRU FLOOR.
- 12 4" VENT THRU ROOF.
- 13 EXTEND WASTE OUTLET FROM SEDIMENT TRAP DOWN THRU FLOOR TO AVOID STRUCTURAL BEAM BELOW. EXTEND VENT PIPING UP IN PIPE CHASE TO OVERHEAD AND EXTEND AS SHOWN.
- 14 1" HW, CW, AND 3/4" GAS PIPING DROPS IN PIPE CHASE. EXTEND PIPING BELOW WORKTABLE IN PIPE CHASE AND PROVIDE CONNECTIONS TO LAB FIXTURES.
- 15 3/4" GAS PIPING DROP IN PIPE CHASE. EXTEND AND PROVIDE CONNECTIONS TO GAS OUTLETS.
- 16 PROVIDE MANIFOLD CONNECTION TO GAS CYLINDERS (OWNER FURNISHED). EXTEND GAS PIPING UP IN PIPE CHASE AND ROUTE OVERHEAD AS SHOWN.
- 17 CW DROP IN WALL TO EMERGENCY EYEWASH FIXTURE.
- 18 (NOT USED)
- 19 GAS PIPING DROP TO FUME HOODS.
- 20 SEDIMENT TRAP BELOW LAB FIXTURE.
- 21 PROVIDE WATER HAMMER ARRESTOR WHA (P.D.I. SIZE "C") ON CW LINE WITH ACCESS PANEL.
- 22 CW DROP IN CHASE TO FULL SIZE HEADER FOR CONNECTION TO FIXTURES.
- 23 CW DROP IN WALL TO FIXTURE.
- 24 3/4" HOT AND COLD WATER DROPS IN PIPE CHASE TO LAB FIXTURES.
- 25 3/4" HOT AND COLD WATER VALVED AND CAPPED OVERHEAD FOR FUTURE USE.
- 26 (NOT USED)
- 27 HOT AND COLD WATER DROPS IN WALL TO MIXING VALVE (SYMMONS # 5-225-CK-B - SET FOR 110° F WITH ACCESS PANEL) BELOW LAVATORY. EXTEND 3/4" HW TO LAV.
- 28 RW PIPING DOWN IN SHAFT.
- 29 VENT PIPING UP FROM BELOW.
- 30 PIPING RACKED OVERHEAD. REFER TO ARCH DETAILS

SHEET NOTES

- 1. NO TREATMENT OR NEUTRALIZING TANKS ARE REQUIRED FOR LAB SINKS. ANY CHEMICAL WASTE WILL BE COLLECTED IN PORTABLE CONTAINERS AT POINT OF USE.
- 2. PROVIDE SEDIMENT TRAPS AT LAB SINKS. CONFIRM WITH UA PRIOR TO FINAL ORDERING.
- 3. REFER TO ARCH DWG'S FOR FINAL CONNECTION REQUIREMENTS TO LAB EQUIPMENT AND FIXTURES.
- 4. RAINWATER PIPING SIZED BASED ON 3" PER HOUR RAINFALL RATE PER IPC SECTION 1106.1
- 5. SECONDARY ROOF DRAINAGE IS PROVIDED BY SCUPPERS. (REFER TO ARCH DWG'S)

LEVEL 4 PLUMBING PLAN

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



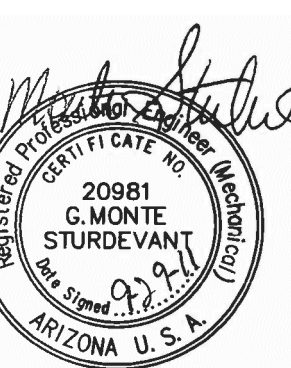
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PROJECT #
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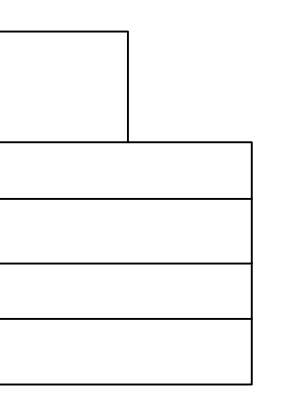
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LEVEL 4
PLUMBING PLAN

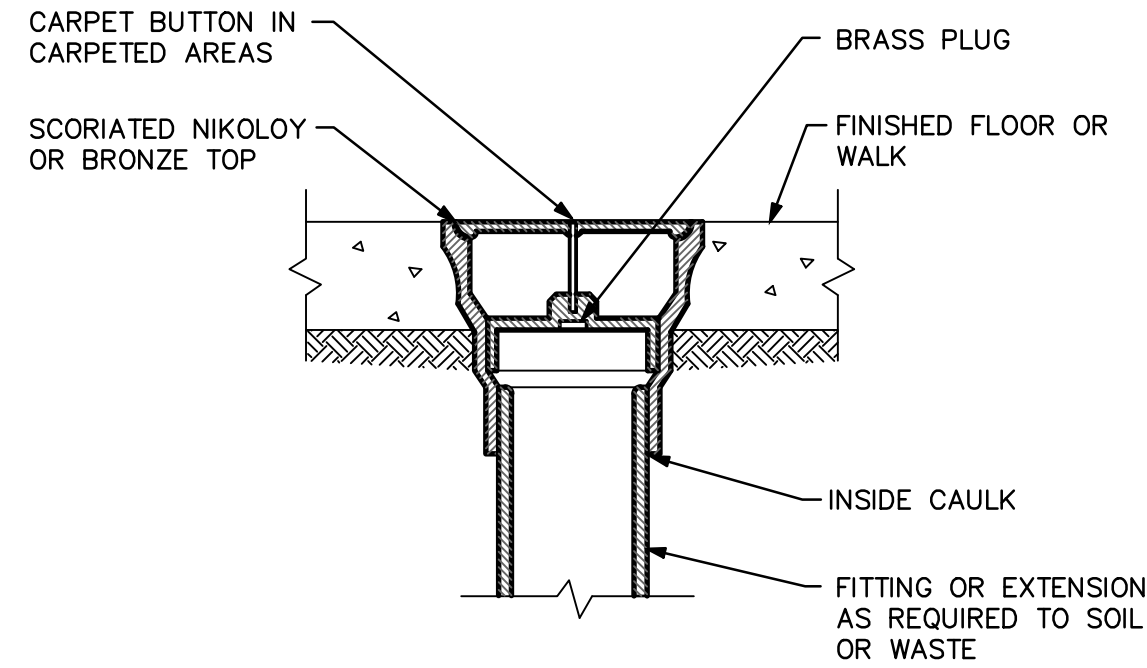
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PLOTTED BY: matthew.klem

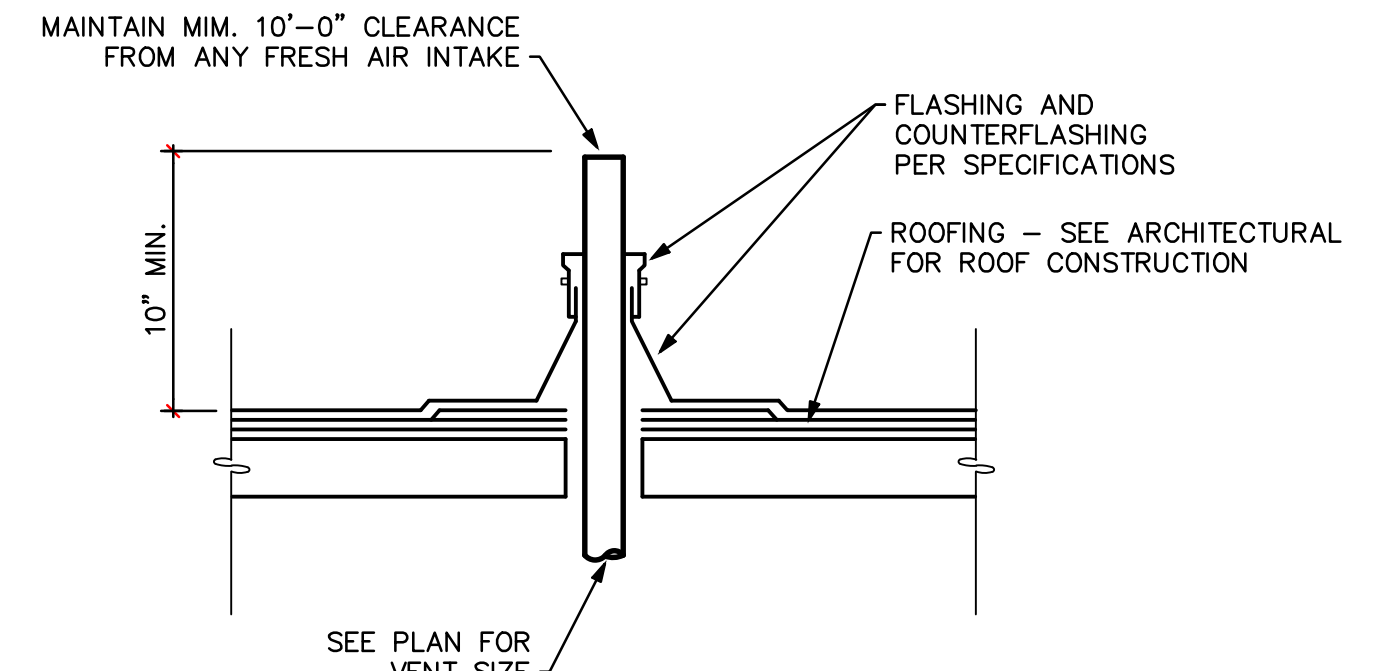
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FLOOR CLEANOUT DETAIL

SCALE: NOT TO SCALE

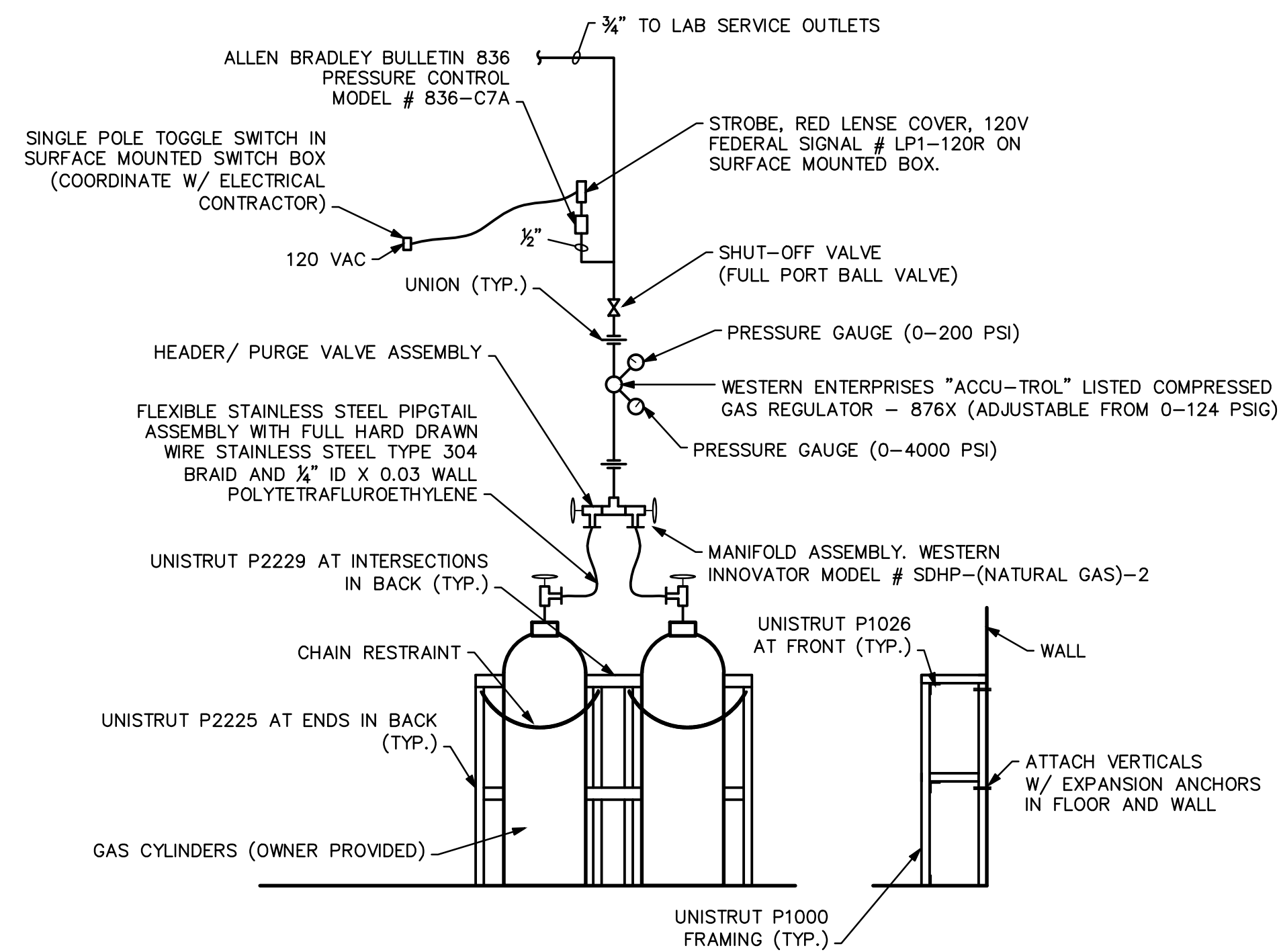
4
P4.0



VENT THRU ROOF DETAIL

SCALE: NOT TO SCALE

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P4.0



NOTE: RACK PIPING MANIFOLD/ HEADER ASSEMBLY AND COMPONENTS ON WALL WITH UNISTRUT.

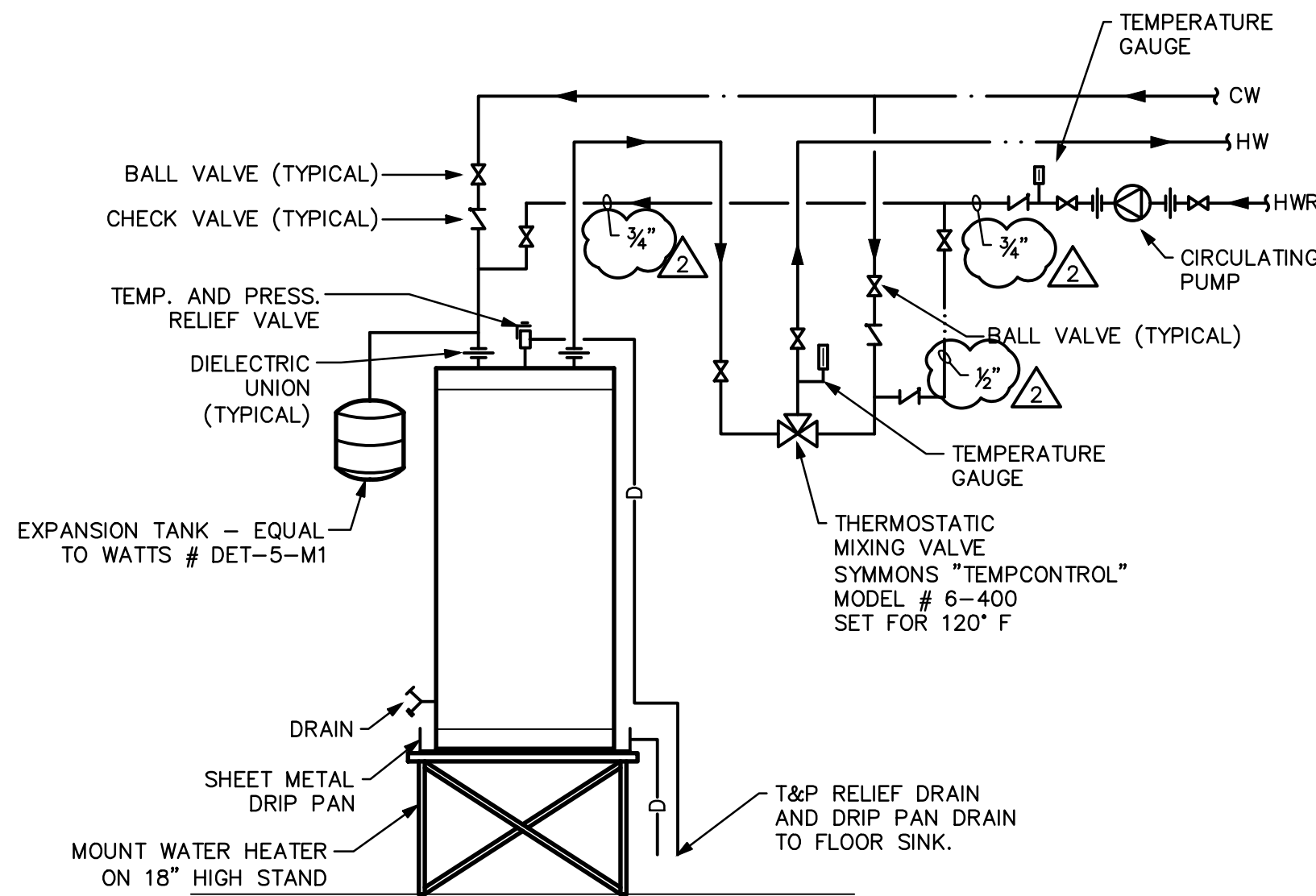
NOTE: PRESSURE SWITCH / CONTROL SHALL ENERGIZE STROBE WHEN MAIN LINE PRESSURE IS 15 PSIG LESS THAN SYSTEM DISCHARGE (SETTING) AT PRESSURE REGULATOR

GAS MANIFOLD DIGRAM

SCALE: NOT TO SCALE

DETAIL PER UA DESIGN SPECIFICATION DESIGN STANDARD REF: DETAIL NUMBER 15480-01

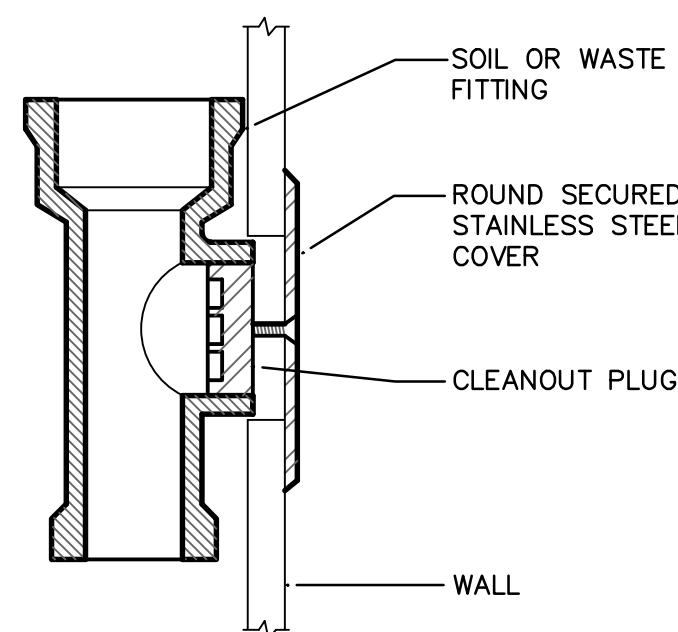
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P4.0



SHELF MOUNTED ELECTRIC WATER HEATER WITH CIRCULATING PUMP AND MIXING VALVE

SCALE: NOT TO SCALE

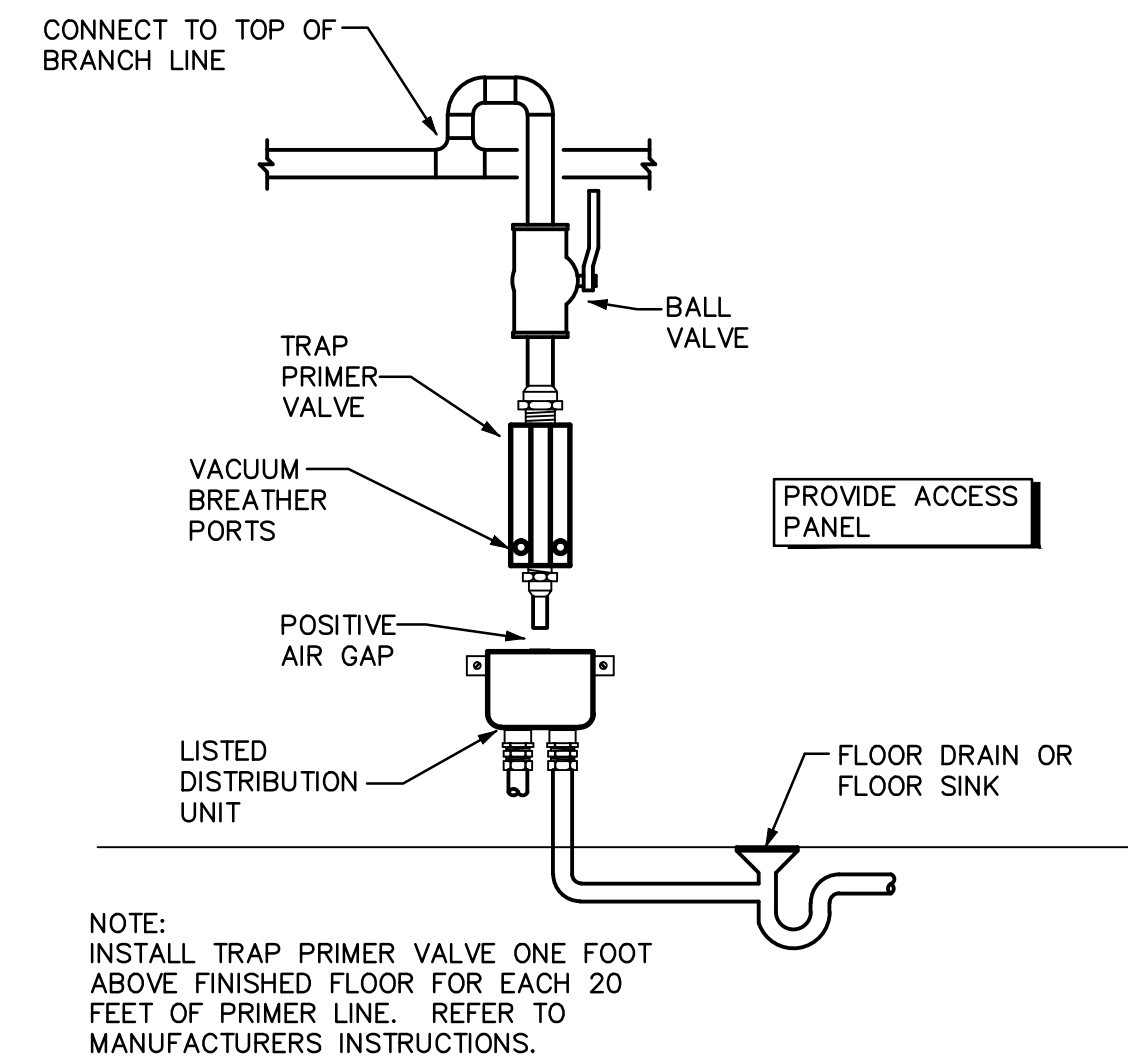
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P4.0



WALL CLEANOUT DETAIL

SCALE: NOT TO SCALE

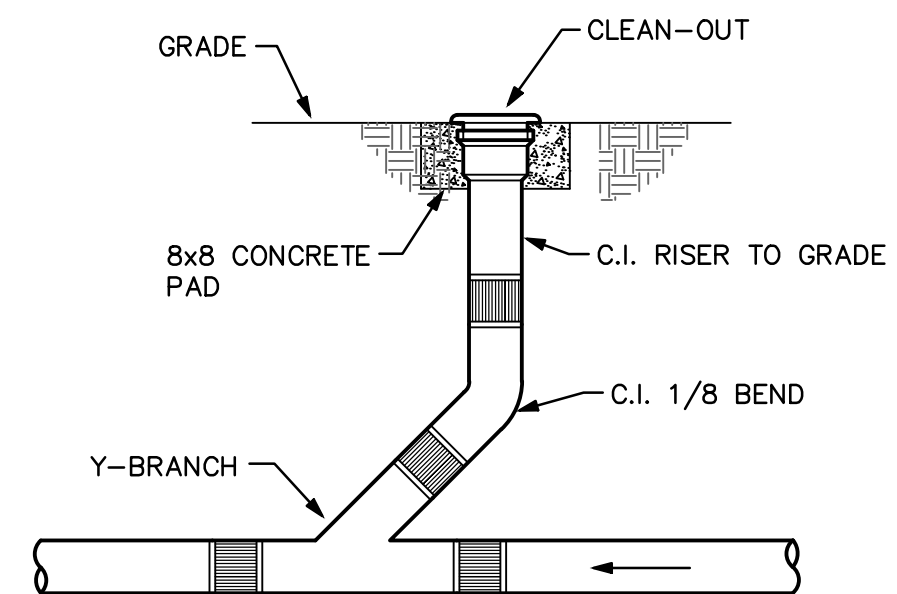
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P4.0



TRAP PRIMER DETAIL (TP-1)

SCALE: NOT TO SCALE

2
P4.0



SURFACE CLEANOUT DETAIL

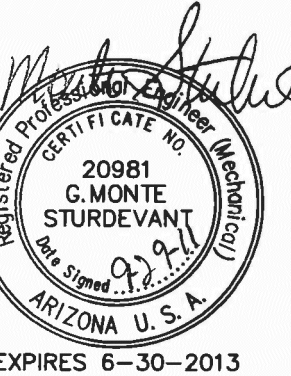
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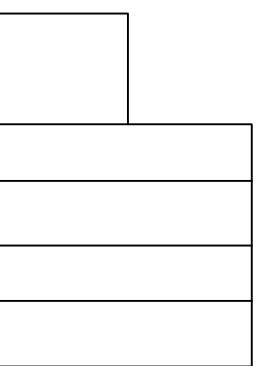


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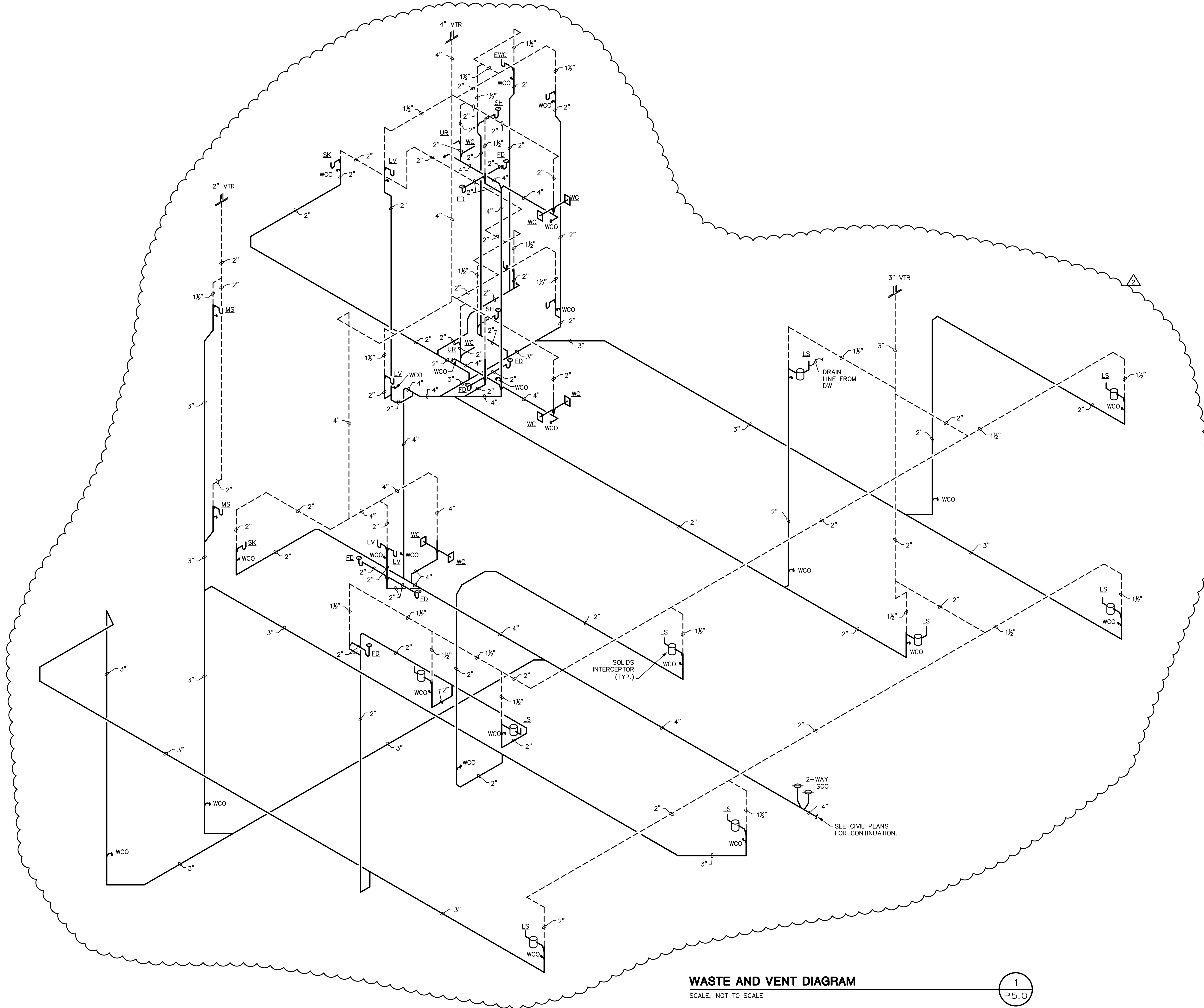
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WASTE AND VENT DIAGRAM

SCALE: NOT TO SCALE

1
P5.0

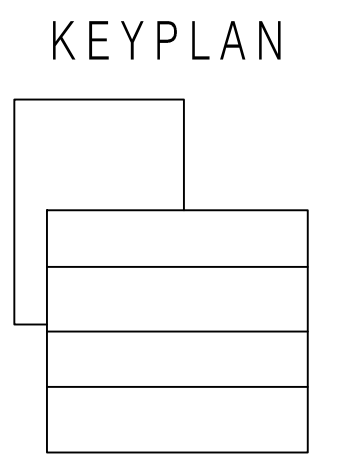
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Professional Engineer Seal for G. Monte Sturdevant, License No. 20981, State of Arizona, U.S.A. Expires 6-30-2013.

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PLUMBING
 DIAGRAMS
P5.0
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