

Plumbing Engineering Symbols

SYMBOLS:

— DE- DEIONIZED WATER
 - - - - - DOMESTIC COLD WATER
 - - - - - DOMESTIC HOT WATER
 - - - - - DOMESTIC RECIRCULATING HOT WATER
 - - - - - GAS PIPING
 - - - - - INDICATES DIRECTION OF FLOW
 - - - - - OXYGEN
 - - - - - SOFT- SOFTENED WATER
 - - - - - ST- STORM WATER
 - - - - - UNDERGROUND UTILITY SERVICE
 - - - - - VENT PIPING
 - - - - - WASTE PIPING
 - - - - - PROCESS WASTE PIPING
 - - - - - WASTE/STORM PIPING (UNDERGROUND)
 - - - - - BALANCING VALVE
 - - - - - BALL VALVE
 - - - - - BUTTERFLY VALVE
 - - - - - CHECK VALVE
 - - - - - CONNECT NEW TO EXISTING
 - - - - - BACK FLOW PREVENTER ± 2"
 - - - - - BACK FLOW PREVENTER ± 2"
 - - - - - GAS COCK
 - - - - - GATE VALVE
 - - - - - HYDRANT
 - - - - - METER
 - - - - - PIPE SLEEVE
 - - - - - PRESSURE GAUGE
 - - - - - PRESSURE REDUCING VALVE
 - - - - - PRESSURE RELIEF VALVE
 - - - - - RISER DOWN (ELBOW)
 - - - - - RISER DOWN (TEE)
 - - - - - RISER UP (ELBOW)
 - - - - - RISER UP (TEE)
 - - - - - WATER HAMMER ARRESTER
 - - - - - TEE
 - - - - - THERMOMETER
 - - - - - THERMOSTATIC MIXING VALVE
 - - - - - UNION

ABBREVIATIONS:

— "H FOLLOW ADA GUIDELINES
 BV- BALANCE VALVE
 CO- CLEAN OUT
 DRP- DOMESTIC WATER RECIRC. PUMP
 ESEW- EMERGENCY SHOWER & EYEWASH
 ESH- EMERGENCY DRENCH SHOWER
 EWC- ELECTRIC WATER COOLER
 EWH- ELECTRIC WATER HEATER
 EWS- EYE WASH STATION
 EX- EXISTING EQUIPMENT
 FD- FLOOR DRAIN
 GWH- GAS WATER HEATER
 H- HYDRANT
 HD- HUB DRAIN
 L- LAVATORY
 LD- LAUNDRY TUB
 MB- MOP BASIN
 MS- MOP SINK
 P- PUMP
 PRV- PRESSURE REDUCING VALVE
 PV- AUTOMATIC PLUMBING VENT
 RD- ROOF DRAIN
 S- SINK
 SE- SEWAGE EJECTOR
 SH- SHOWER
 SP- SUMP PUMP
 T- THERMOMETER
 TMV- THERMOSTATIC MIXING VALVE
 U- URINAL
 VTR- VENT THROUGH ROOF
 WC- WATER CLOSET
 WHA- WATER HAMMER ARRESTER

NOTE: SOME SYMBOLS MAY NOT BE USED

Fire Protection Notes

THIS CONTRACTOR SHALL MODIFY EXISTING SPRINKLER SYSTEM THROUGHOUT THE ENTIRE REMODELING AREA PER NFPA 13. FIRE PROTECTION CONTRACTOR SHALL DEVELOP DRAWINGS WITH LISTED EQUIPMENT AS REQUIRED, AND SUBMIT DRAWINGS TO THE STATE FOR APPROVAL. THIS CONTRACTOR MUST BE REGULARLY ENGAGED IN FIRE PROTECTION INSTALLATION.

SPRINKLER HEADS SHALL BE CONCEALED AS MANUFACTURED BY GRINNEL, VIKING, OR AUTOMATIC. RECESSED HEADS SHALL BE OF THE BEST QUALITY CHROME PLATED, AND SHALL BE CENTERED IN CEILING TILE.

SYSTEM SHALL COMPLY WITH ALL LOCAL, STATE AND NFPA CODES AND OWNER'S INSURANCE AGENCY.

ALL AREAS SHALL BE DESIGNED FOR LIGHT HAZARD UNLESS OTHERWISE NOTED.

General Demolition/ Renovation Notes

INCLUDE IN BID PROPOSAL ALL COSTS FOR CUTTING AND PATCHING REQUIRED TO INSTALL NEW OR REMOVE EXISTING WORK EQUIPMENT OR SYSTEMS IN THE BUILDING. IF NEW FINISHES ARE NOT INCLUDED BY OTHERS IN THIS PROJECT A RENOVATED PORTION OF THE FACILITY, THEN THIS CONTRACTOR MUST RESTORE FINISHES TO MATCH SURROUNDING UNDAUNAGED SURFACES.

DURING REMOVAL OF ITEMS SO INDICATED, CAUTION SHALL BE USED TO PREVENT DAMAGE TO ANY EQUIPMENT HAVING SALVAGE VALUE. ALL REUSABLE SALVAGED MATERIAL SHALL REMAIN PROPERTY OF THE OWNER AND BE RETAINED FOR HIS INSPECTION. ONLY ITEMS SO INSPECTED AND REJECTED BY THE OWNER SHALL BE DISPOSED OF BY THE CONTRACTOR. ALL OTHER ITEMS SHALL BE TURNED OVER AND DEPOSITED AS DIRECTED BY THE OWNER.

EXISTING DUCT, PIPING, AND EQUIPMENT SHOWN IS BASED ON EXISTING DRAWINGS AND FIELD SURVEY. THIS CONTRACTOR SHALL FIELD VERIFY ALL CONDITIONS AFFECTED AND NOTIFY ENGINEER IF THEY ARE NOT AS INDICATED.

COORDINATE INSTALLATION OF NEW PIPES, DUCTS, ETC. WITH REMAINING EXISTING UTILITIES. EXISTING UTILITIES TO BE RENOVATED, IF NECESSARY, TO ALLOW NEW UTILITIES PASSAGE. DUCTWORK SHALL HAVE PRIORITY OF INSTALLATION. EXISTING VALVES AND OTHER DEVICES MADE ACCESSIBLE BY NEW EQUIPMENT, DUCT AND/OR PIPING SHALL BE RELOCATED AS REQUIRED FOR PROPER ACCESS WITH NO EXTRA COST TO THE OWNER.

CONNECTIONS TO, AND SHUTDOWNS OF, EXISTING SYSTEMS SHALL BE COORDINATED WITH OWNER TO ALLOW MINIMUM INTERFERENCE WITH OWNER'S OPERATION AND DOWNTIME OF EXISTING SERVICES. CONTRACTOR SHALL SUBMIT TO OWNER, FOR REVIEW AND APPROVAL, THE PROPOSED PHASING PLAN FOR CONNECTING NEW SERVICES TO EXISTING SERVICES.

WORK IN THIS AREA MUST BE CAREFULLY COORDINATED WITH OWNER. THIS SPACE WILL BE OCCUPIED DURING NORMAL BUSINESS HOURS THROUGHOUT CONSTRUCTION. WORK THAT CREATES EXCESSIVE NOISE AND DUST OR DISTURBS THE OCCUPANTS IN ANY WAY MUST BE PERFORMED ON WEEKENDS OR AFTER HOURS.

THE EQUIPMENT SHOWN ON THE DRAWINGS IS BELIEVED TO BE A REASONABLE INDICATION OF THE EXISTING LAYOUT. EXACT QUANTITY AND LOCATION SHALL BE DETERMINED BY THE CONTRACTOR AT THE JOB SITE. ALL MECHANICAL DEMOLITION THAT IS REQUIRED FOR THE INSTALLATION OF THE SYSTEMS SHOWN SHALL BE BY THIS CONTRACTOR.

General Plumbing Notes

ALL WORK SHALL CONFORM TO STATE AND LOCAL PLUMBING AND BACKFLOW PREVENTION CODES AND THE LOCAL WATER UTILITY.

VERIFY ALL DIMENSIONS FROM ARCHITECTURAL PLANS. REFER TO ARCHITECTURAL PLANS FOR WALL TYPES IN WHICH PLUMBING IS TO BE INSTALLED. COORDINATE PLUMBING INSTALLATION WITH OTHER WORK.

ALL MATERIALS INSTALLED IN A PLENUM SHALL HAVE FLAME SPREAD RATING OF NOT MORE THAN 25 AND A SMOKE DEVELOPED RATING NOT EXCEEDING 50 IN ACCORDANCE WITH STATE CODES.

THIS CONTRACTOR SHALL PROVIDE ALL EQUIPMENT, MATERIALS AND LABOR FOR CORE DRILLING AS REQUIRED FOR INSTALLATION OF PIPING PENETRATING BUILDING CONSTRUCTION.

COORDINATE PENETRATIONS WITH OTHER TRADES TO AVOID INTERFERENCES. SEAL PENETRATIONS AS NOTED AND/OR SPECIFIED.

EACH CONTRACTOR IS RESPONSIBLE FOR THE CUTTING, PATCHING AND FINISHING ASSOCIATED WITH THE INSTALLATION OF HIS WORK. PROVIDE CUTTING, PATCHING AND FINISHING IN A FIRST CLASS, WORKMANLIKE MANNER WITH METHODS AND MATERIALS TO MATCH EXISTING WORK.

PIPING INVERTS AND/OR ELEVATIONS INDICATED ARE PRELIMINARY IN NATURE AND ARE FOR COORDINATION ONLY. THE CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFYING AND ESTABLISHING FINAL INVERTS AND/OR ELEVATIONS. INDICATE FINAL INVERTS AND/OR ELEVATIONS ON RECORD DOCUMENTS.

ALL POTABLE WATER LINES SHALL BE TESTED TO 100 PSI AND DISINFECTED.

CONTRACTOR SHALL VERIFY DIMENSIONAL COMPATIBILITY OF FIXTURE WITH CASEWORK. IF A DIMENSIONAL CONFLICT EXISTS, THE CONTRACTOR SHALL SUBSTITUTE A DIMENSIONALLY COMPATIBLE FIXTURE OF EQUAL STYLE AND QUALITY. CONFIRM WITH ARCHITECT/ENGINEER PRIOR TO SUBSTITUTION.

CONNECT PLUMBING FIXTURES TO PIPING INDICATED PER THE PLUMBING FIXTURE/EQUIPMENT CONNECTION SCHEDULE AND/OR AS NOTED. REFER TO PIPING ISOMETRICS FOR ADDITIONAL PIPING REQUIREMENTS.

NOTE: PIPING TO INDIVIDUAL FIXTURES MAY NOT BE SHOWN FOR CLARITY.

ALL FIXTURES SHALL BE CAULKED WHERE MOUNTED AGAINST WALL WITH HIGH-QUALITY MILDEW-RESISTANT SEALANT.

ALL EXPOSED PIPING BELOW FIXTURES (ABOVE FLOOR) SHALL BE CHROME PLATED.

CHROME PLATED ESCUTCHEONS SHALL BE PROVIDED FOR ALL PIPING PASSING THROUGH WALLS AND FLOORS IN FINISHED SPACES.

ALL POTABLE WATER LINES SHALL BE HARD TYPE "L" COPPER WITH WROUGHT FITTINGS WITH "STAYSAFE" LEAD FREE SOLDER EXCEPT AS NOTED.

WATER HAMMER ARRESTORS SHALL BE INSTALLED AT ALL LAVATORIES AND SINKS WHERE "QUARTER TURN" VALVES ARE INSTALLED AND WHERE FIXTURES/DEVICES UTILIZE QUICK CLOSING VALVES.

ALL CONNECTIONS BETWEEN DISSIMILAR METAL PIPING MATERIALS SHALL BE MADE WITH DIELECTRIC OR BRASS FITTINGS TO PREVENT GALVANIC ACTION.

ALL INSULATED LINES SHALL HAVE SADDLES INSTALLED WITH UL OR FM APPROVED HANGING DEVICES.

ALL POTABLE HOT AND COLD WATER LINES AND HOT WATER RECIRCULATION PIPING SHALL BE COVERED WITH FLEXIBLE ELASTOMERIC CELLULAR OR GLASS FIBER INSULATION. USE 3/4" THICKNESS FOR UP TO 1/4" LINE SIZE, 1" THICKNESS FOR 1/2" LINE SIZE OR ABOVE.

CARRIERS SHALL INCLUDE DRAINAGE FITTINGS OF REQUIRED PATTERN, RECTANGULAR UPRIGHTS, CONCEALED ARMS, FEET, AND BEARING PLATES.

ALL HORIZONTAL SANITARY DRAINS SHALL BE GIVEN A GRADE OF 1/4" PER FOOT WHERE POSSIBLE AND NOT LESS THAN 1/8" PER FOOT.

INSTALL DRAINAGE AND VENT PIPES AS INDICATED IN ACCORDANCE WITH STATE AND LOCAL PLUMBING CODES, AND THE SPECIFICATIONS OF THE LOCAL MUNICIPALITY WATER UTILITY.

ALL FLOOR DRAINS SHALL HAVE DEEP SEAL TRAPS.

THE CONTRACTOR SHALL PROVIDE CLEANOUTS IN SEWER LINE, AS REQUIRED BY APPLICABLE CODES AS MINIMUM AND, IN ADDITION, SHALL PROVIDE CLEANOUTS AS INDICATED ON DRAWINGS.

SANITARY AND VENT DRAINAGE: USE NO-HUB CAST IRON OR PVC ABOVE GRADE. USE CAST IRON OR PVC BELOW GRADE. USE CAST IRON ABOVE GRADE WHEN THERE ARE NOISE CONCERNS (AS NOTED ON THE DRAWINGS), OR WHERE EXPOSED TO POTENTIAL DAMAGE (E.G. MECHANICAL ROOMS, JANITOR CLOSETS, ETC.). WHERE PIPING RUNS THROUGH AIR PLenums, USE CAST IRON OR PVC COMPLETELY COVERED BY MINERAL FIBER OR ELASTOMERIC INSULATION, MAINTAINING FLAME AND SMOKE RATINGS IN ACCORDANCE WITH IMC 675 IAC 18-1 SECTION 102A.

INSULATE ALL ABOVE GRADE PLUMBING VENTS WITHIN 6 LINEAL FEET OF ROOF OUTLET. USE 1/2" FLEXIBLE ELASTOMERIC CELLULAR, OR 1" GLASS FIBER INSULATION. INSTALLED INSULATION SYSTEM TO INCLUDE FULL VAPOR RETARDATION BARRIER.

ACCEPTABLE MANUFACTURERS FOR PLUMBING FIXTURES SHALL BE AS INDICATED BELOW.

CLEANOUTS, FLOOR DRAINS, ROOF DRAINS, FIXTURE CARRIERS: ZURN IND., LLC.; JOSAM CO.; J.R. SMITH CO.

WATER CLOSETS: AMERICAN STANDARD, INC.; BRIGGS INDUSTRIES, INC.; CRANE PLUMBING; KOHLER CO.; US INDUSTRIES; ELIER PLUMBINGWARE DIV.

URINALS: AMERICAN STANDARD, INC.; BRIGGS INDUSTRIES, INC.; CRANE PLUMBING; KOHLER CO.; US INDUSTRIES; ELIER PLUMBINGWARE DIV.

FLUSH VALVES: SLOAN CO.; TOTO CO.; AMERICAN STANDARD, INC.; ZURN IND., LLC.

VITREOUS-CHINA LAVATORIES: AMERICAN STANDARD, INC.; BRIGGS INDUSTRIES, INC.; CRANE PLUMBING; KOHLER CO.; US INDUSTRIES; ELIER PLUMBINGWARE DIV.

STAINLESS STEEL SINKS: DAYTON PRODUCTS, INC.; ELKAY MFG CO.; JUST MFG CO.; KOHLER CO.; MOEN, INC.; STERLING PLUMBING GROUP, INC.; US INDUSTRIES; ELIER PLUMBINGWARE DIV.

FAUCETS: AMERICAN STANDARD, INC.; CHICAGO FAUCET; DELTA FAUCET CO.; ELKAY MFG CO.; ELIER PLUMBINGWARE DIV.; ACORN ENGINEERING CO.; MOEN.

SUBMIT PRODUCT DATA FOR ALL EQUIPMENT LISTED ON THE PLUMBING SCHEDULE SHEET. INCLUDE SELECTED FIXTURE AND TRIM FITTINGS, ACCESSORIES, APPLIANCES, APPURTENANCES EQUIPMENT, AND SUPPORTS. INDICATE MATERIALS AND FINISHES, DIMENSIONS, CONSTRUCTION DETAILS, AND FLOW-CONTROL RATES FOR EACH TYPE OF FIXTURE INDICATED.

Drain Schedule

Tag	Mfr.	Model	Body Type	Deep Seal	Cover Size (In.)	Description	Notes
FD-1	ZURN	Z415B	DURA-COATED CAST IRON	YES	6"	RESTROOM	1

NOTES:
 1. FLOOR DRAIN, BOTTOM OUTLET, COMBINATION INVERTIBLE MEMBRANE CLAMP AND ADJUSTABLE COLLAR WITH SEEPAGE SLOTS AND TYPE B' ROUND, POLISHED NICKEL BRONZE STRAINER.

Lavatory & Sink Schedule

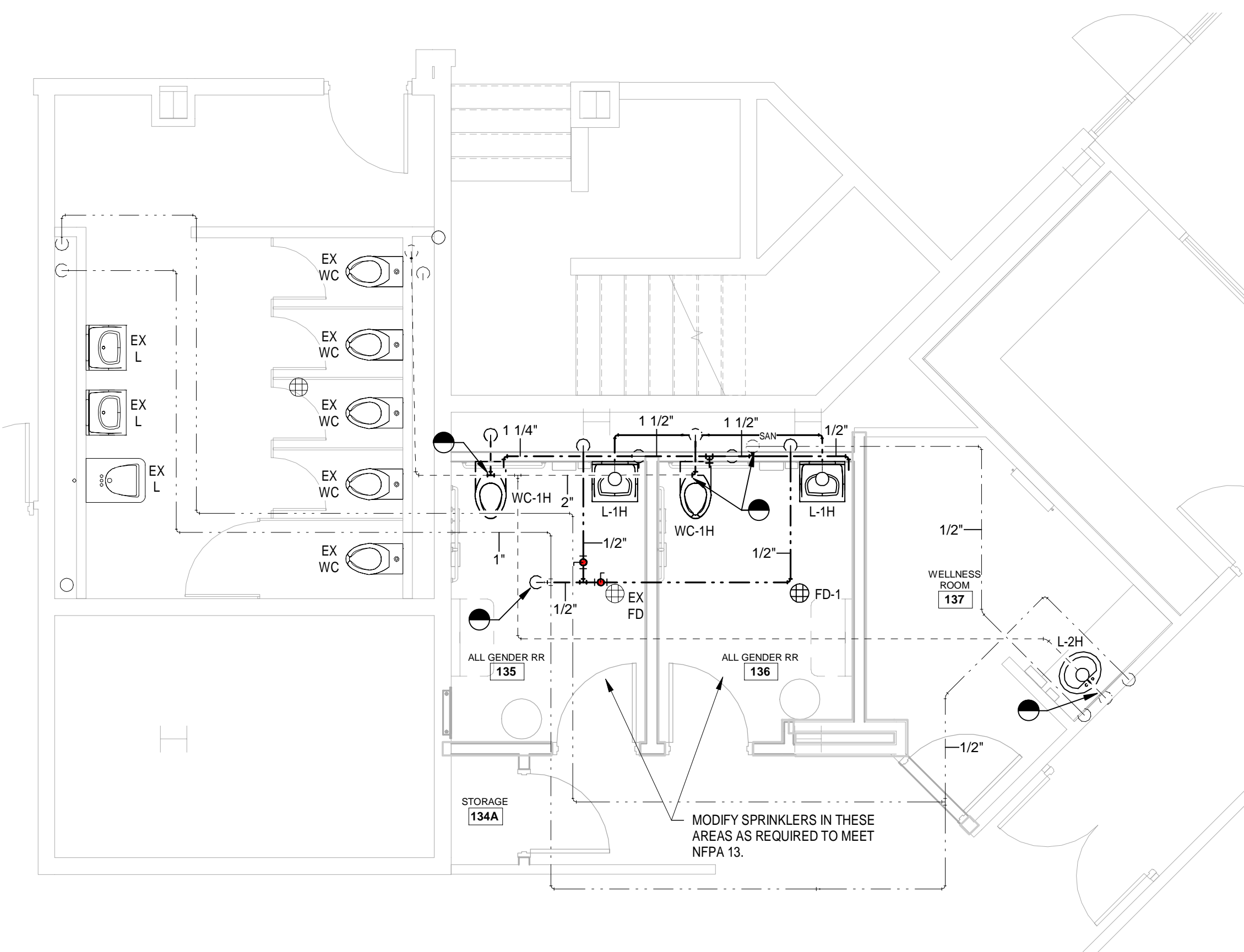
Tag	Mfr.	Model	Fixture			Mounting Height	Mfr.	Model	Faucet	Flow (GPM)	Handles	Finish	Drain Type	Notes		
			Hole Qty	Hole Spacing (In.)	Color										Mounting Type	
L-1H	AMERICAN STANDARD	0355.012	3	4"	WHITE	WALL	34"	AMERICAN STANDARD	2175.506	4"	CAST BRASS	0.5	SINGLE LEVER	CHROME	GRID	1,2,3,4,5,6
L-2H	AMERICAN STANDARD	0485.221	-	-	WHITE	UNDER-MOUNT	-	AMERICAN STANDARD	2175.506	4"	CAST BRASS	0.5	SINGLE LEVER	CHROME	GRID	1,2,3,4,5

NOTES:
 1. 1 1/4" CHROME, CAST BRASS, ADJUSTABLE 1" TRAP, CLEANOUT PLUG, TAPPED OUTLET FOR I.P.
 2. 3/8" I.P.S. ANGLE SUPPLIES WITH LOOSE KEY STOPS AND ANNEALED VERTICAL TUBES.
 3. OFFSET DRAIN FOR WHEELCHAIRS
 4. TRUEBRO LAV GUARD2 FAST FIT UNDERSINK PIPING COVERS.
 5. LAV FAUCET SHALL HAVE HOT LIMIT SAFETY STOP, BRAIDED FLEXIBLE SUPPLY HOSES AND VANDAL RESISTANT AERATOR.
 6. WALL MOUNTED LAV CARRIER - JOSAM 17500 SERIES.

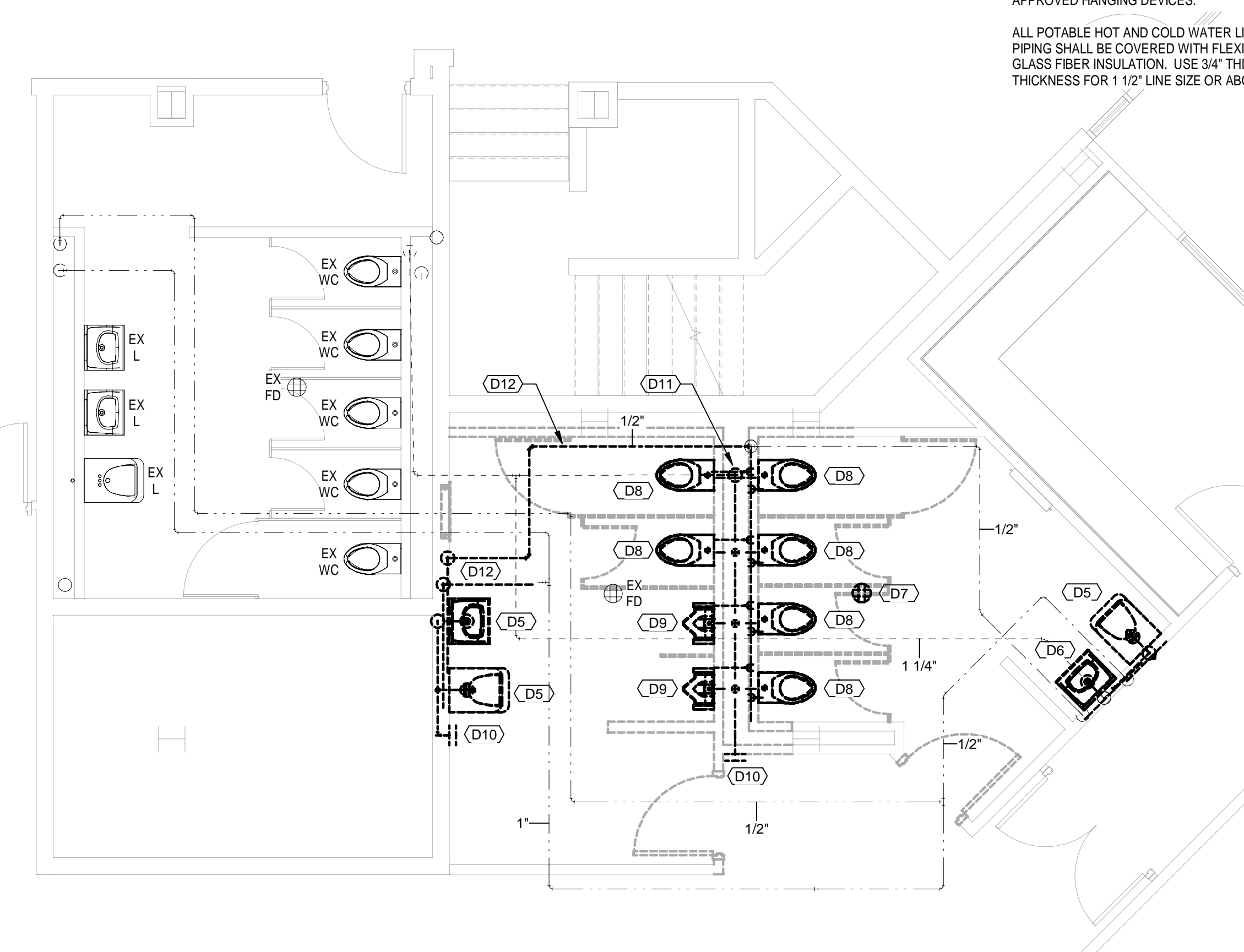
Water Closet & Urinal Schedule

Tag	Description	Fixture					Flush Valve					Carrier	Notes			
		Mfr.	Model	Mount	Rim Height	Spud Size	GPF	Action Type	Mfr.	Model	Power			Piston Type	GPF	
WC-1H	FLUSH VALVE	AMERICAN STANDARD	3351.101	WALL HUNG	17"	1 1/2"	1.28	SIPHON JET	SLOAN	111-1.28	DFB ESS TMO	120/90/1	DIAPHRAGM	1.28	JOSAM 12600 SERIES	1,2,3

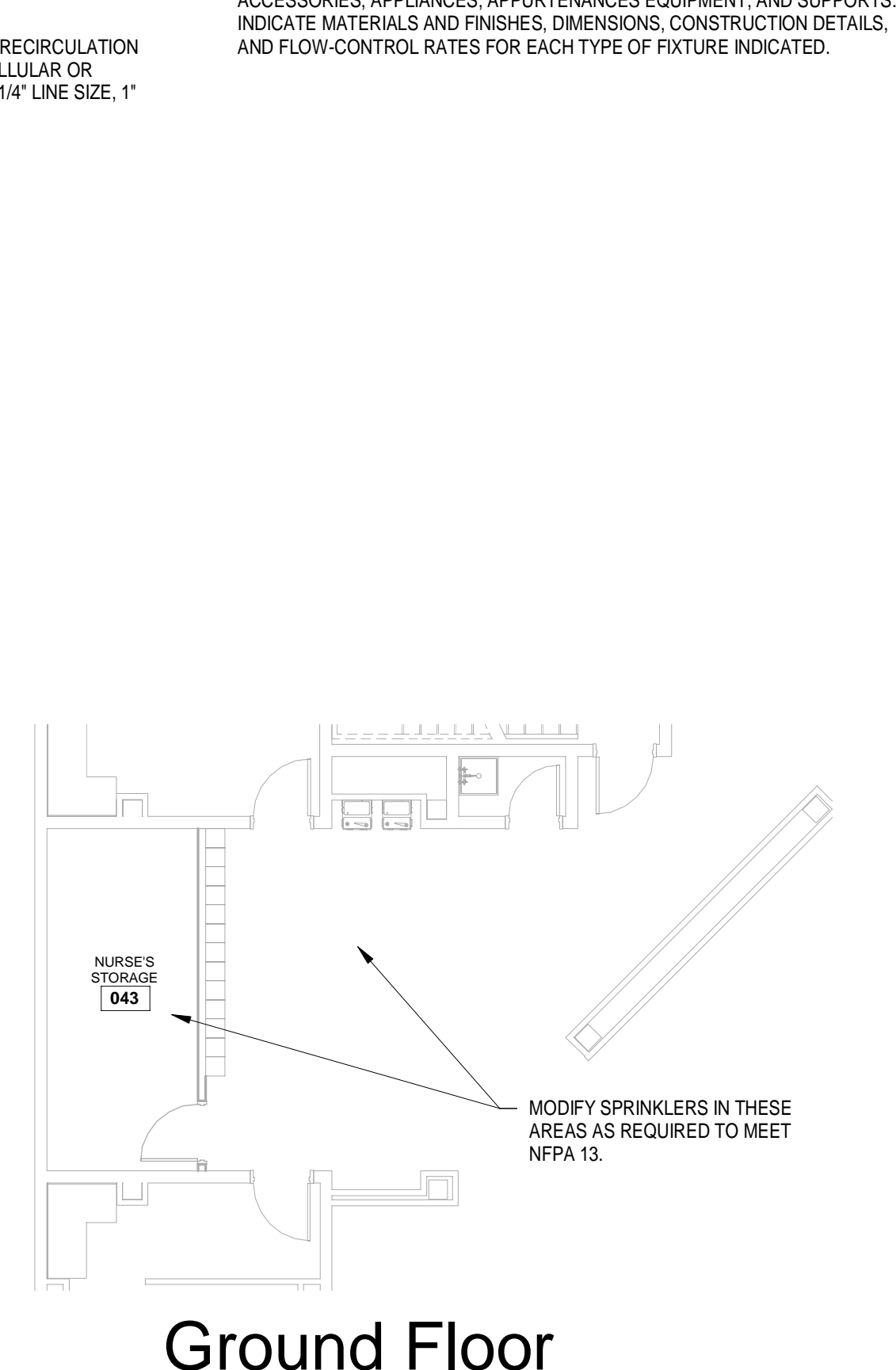
NOTES:
 1. AC FLUSH VALVE, QUIET, EXPOSED DIAPHRAGM TYPE, AC POWERED INFRARED SENSOR MOUNTED IN WALL, MECHANICAL OVERRIDE FLUSH BUTTON.
 2. WATER CLOSET CARRIER: 4" WC HUB OUTLET, 2" VENT, ADJUSTABLE BODY, ADJUSTABLE FLOOR MOUNTED FOOT SUPPORTS, PLATED HARDWARE AND NEOPRENE GASKET.
 3. SEAT: CHURCH MODEL #2555SC ELONGATED, OPEN FRONT, STAINLESS STEEL POSTS, CHECK HINGE.



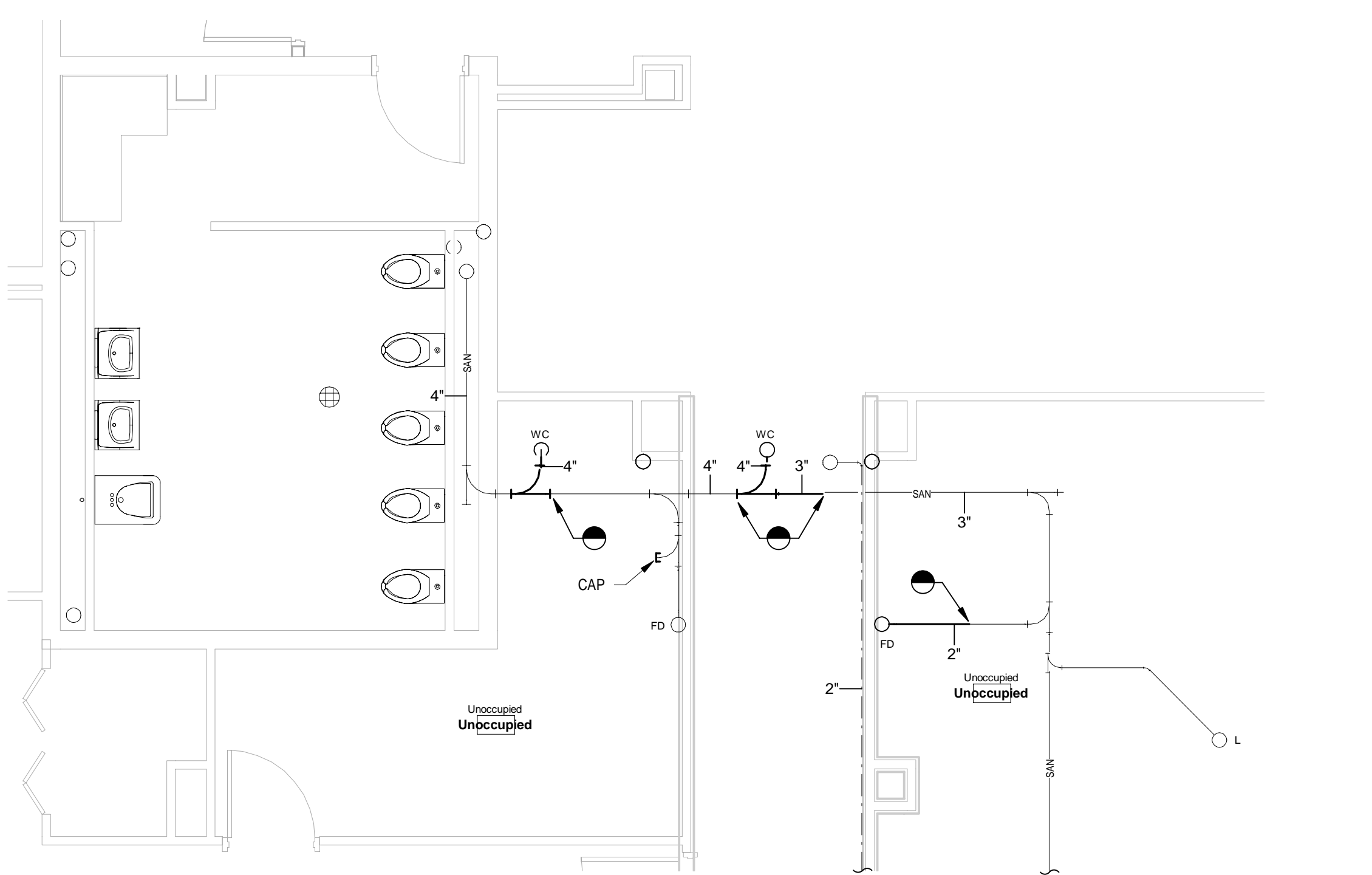
First Floor Plumbing Plan



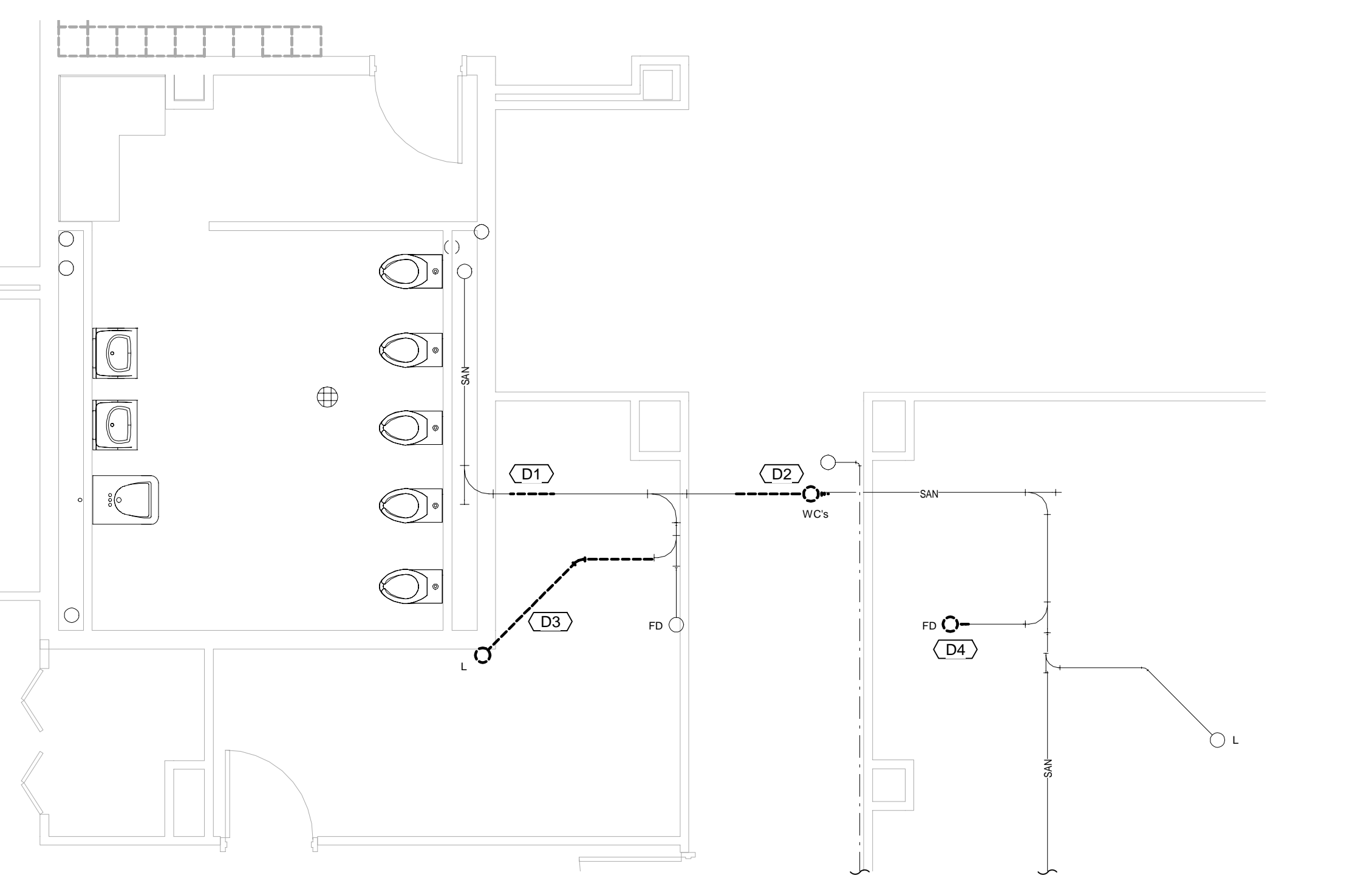
First Floor Plumbing Demolition Plan



Ground Floor Fire Protection Plan



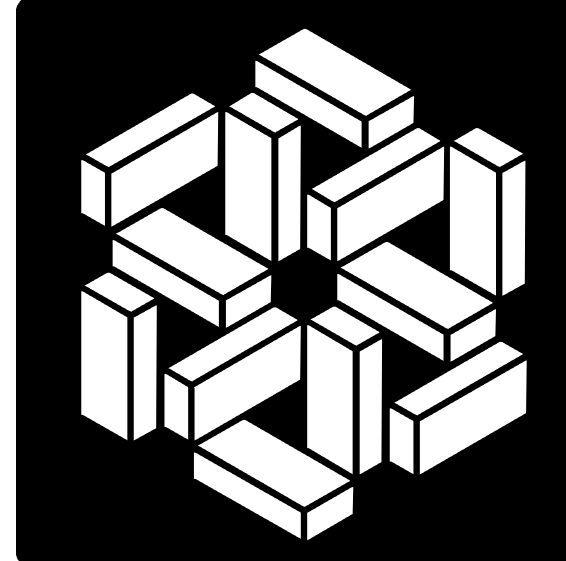
Ground Floor Plumbing Plan



Ground Floor Plumbing Demolition Plan

Demolition Plan Notes

D1	DISCONNECT AND REMOVE PORTION OF SANITARY PIPE FOR NEW TIE-IN.
D2	DISCONNECT AND REMOVE PORTION OF SANITARY RISER INTO CHASE ABOVE. SEE CONTINUATION OF FIRST FLOOR DEMOLITION PLAN ON THIS SHEET.
D3	DISCONNECT AND REMOVE PORTION OF SANITARY PIPE SERVING LAVATORIES ON FLOOR ABOVE. CAP SANITARY AT TIE-IN POINT.
D4	DISCONNECT AND REMOVE PORTION OF PIPE AS INDICATED. PREPARE PIPE FOR CONNECTION TO NEW FLOOR DRAIN.
D5	DISCONNECT AND REMOVE LAVATORY, ACCESSORIES AND ASSOCIATED PIPING.
D6	DISCONNECT AND REMOVE LAVATORY, CARRIER, ARMS AND P TRAP. PREPARE HOT, COLD AND DRAIN FOR NEW CONNECTIONS TO NEW LAVATORY IN SIMILAR LOCATION.
D7	DISCONNECT AND REMOVE FLOOR DRAIN AND PORTION OF PIPING ON FLOOR BELOW.
D8	DISCONNECT AND REMOVE WATER CLOSET, ASSOCIATED ACCESSORIES AND PIPING COMPLETELY.
D9	DISCONNECT AND REMOVE URINAL, ASSOCIATED ACCESSORIES AND PIPING COMPLETELY.
D10	DISCONNECT AND REMOVE CLEANOUT AND ASSOCIATED SANITARY PIPE.
D11	DISCONNECT AND REMOVE SANITARY AND VENT PIPING IN CHASE AND PORTION OF PIPING DOWN THROUGH FLOOR.
D12	DISCONNECT AND REMOVE PORTION OF DOMESTIC WATER PIPING AS INDICATED.



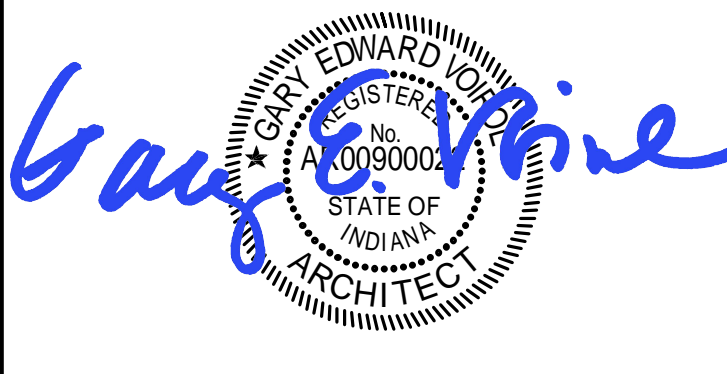
MSKTD & Associates

Architecture | Engineering | Interior Design

1715 Magnavox Way
Fort Wayne, IN 46804
260.432.8337

930 North Meridian
Indianapolis, IN 46204
317.917.1190

www.msktd.com



A Project for:
Indiana University East
 Brice E. Hayes Hall
 Renovations to Rooms 099, 135, 137, & 140
 IU Project Number: 20165126

PROJECT NO.	DATE
7327	10-05-18
REV.	DATE

SET DESCRIPTION
Construction Set

SHEET TITLE
Plumbing Plans

SHEET NUMBER
P2-1