PROVIDE FIBERGLASS INSULATION WITH ALL-SERVICE JACKET WITH VAPOR BARRIER ON ALL COLD/HOT WATER PIPING AND CONDENSATE DRAIN PIPE. REFER TO SPECIFICATIONS FOR FURTHER INFORMATION REGARDING INSULATION. INSTALL ALL ITEMS PER SPECIFICATIONS AND MANUFACTURERS INSTRUCTIONS. MAINTAIN VAPOR BARRIER ON COLD PIPING BY MEANS OF SEALANT AND TAPE. FLAME-SPREAD AND SMOKE-DEVELOPED INDEXES SHALL NOT EXCEED 25/50. SEAL EXPOSED ENDS OF FIBERGLASS INSULATION WITH ADHESIVE MASTIC.

1 PIPE INSULATION
NO SCALE

PROVIDE UPPER ATTACHMENT AS REQUIRED FOR CASES NOT SHOWN HERE. DO NOT INSTALL HANGER INSIDE INSULATION OR OTHERWISE PENETRATE VAPOR BARRIER. DO NOT HANG ONE PIPE FROM ANOTHER EXCEPT IN CHASES. TRAPEZE HANGERS MAY BE USED FOR MULTIPLE PARALLEL PIPES. HANGER SPACING FOR PIPE SIZE: COPPER: 4"=12'; 3"=11'; 2-1/2"=10'; 2"=9' 1-1/2"=8'; 1-1/4"=7'; 1"=6'; 3/4"=6'; 1/2"=5'. CAST IRON: 10' AND ONE NEAR ALL JOINTS. STEEL: 4"=14'; 3"=12'; 2-1/2"=11'; 2"=10'; 1-1/2"=9'; 1"=7'; 3/4"=6'; 1/2"=5'. LOCATE HANGERS AS CLOSE AS POSSIBLE TO TURNS AND TEES OF PIPE. PROVIDE SUPPLEMENTARY STEEL STRUTS BETWEEN JOISTS IF REQUIRED. LOCATE HANGERS TO TAKE LOAD OFF OF EQUIPMENT CONNECTIONS. ANCHOR WATER PIPE AGAINST SWAYING DUE TO CHANGES IN WATER VELOCITY. PROVIDE SEISMIC BRACING IF/AS REQUIRED BY LOCAL AUTHORITIES. CHAINS OR PERFORATED STRAP IRON OR STEEL IS NOT ACCEPTABLE. REFER TO CODES FOR FURTHER INFORMATION.

2 PIPE HANGERS
NO SCALE

PDI SIZE	PIPE SIZE	FIXTURE UNIT LOAD
A	½"	1-11
B	¾"	12-32
C	1"	33-60
D	1¼"	61-113
E	1½"	114-154

FIXTURE UNIT TABULATION		
FIXTURE	COLD	HOT
WATER CLOSET (TANK)	2.5	--
LAVATORY	.75	.75
JANITOR'S SINK	2.5	2.5
DRINKING FOUNTAIN	0.5	--
SINK	1.5	1.5

PC TO PROVIDE WATER HAMMER ARRESTERS BY SIOUX CHIEF, PRECISION PLUMBING PRODUCTS, WATTS OR APPROVED EQUIVALENT WITH PISTON AND O-RING CONSTRUCTION, HAVING PDI #WH-201, ASSE #1010 AND ANSI #A112.26.1M CERTIFICATION. INSTALL IN HORIZONTAL OR VERTICAL POSITION, BUT NEVER UPSIDE DOWN. INSTALL IN LINE WITH WATER FLOW DIRECTION IF POSSIBLE. SIZE THE UNITS AS SHOWN ON THE DRAWINGS AND/OR PER THE TABLES SHOWN ABOVE.

3 WATER HAMMER ARRESTERS
NO SCALE

PROVIDE ROUND SECURED NICKEL BRONZE ADJUSTABLE TOP WITH "CO" CAST IN COVER. PROVIDE CLEANOUT TOP WITH VARIATIONS SUITABLE FOR FLOOR COVERING (CARPET MARKER, RECESSED FOR TILE, SCORIATED FOR UNFINISHED FLOORS). PROVIDE BRONZE PLUG IN CAST IRON BODY.

NOTE:
LOCATE AT BUILDING EXIT, AT ENDS OF RUNS, AT TURNS OF PIPE GREATER THAN 45 DEGREES, AT 50' INTERVALS ON STRAIGHT RUNS, AND WHERE SHOWN ON PLANS. PROVIDE BACKFILL PER ARCHITECTURAL SPECIFICATIONS. LOCATE CLEANOUTS WHERE THERE IS 18" CLEAR AROUND. CONSULT LOCAL CODES FOR OTHER FCO REQUIREMENTS.

4 FLOOR CLEANOUT
NO SCALE

TRAP PRIMER MAY BE LOCATED ABOVE CEILING WHERE ACCESSIBLE.

5 TRAP PRIMER
NO SCALE

NOTES:
1. ALL ITEMS NOT TERMED BY LANDLORD ARE BY TENANT.
2. ALL FLOOR PENETRATIONS MUST BE SLEEVED AND SEALED LIQUID TIGHT WITH FIREPROOF MATERIAL.
3. COORDINATE WITH LANDLORD PRIOR TO CORE DRILLING DUE TO POST TENSION CONCRETE SLAB.

6 TYPICAL CORE AND SLEEVE FOR PIPING DETAIL
NO SCALE

NOTES:
A. SET MOUNTING HEIGHT AS HIGH AS POSSIBLE.
B. SHELF SHALL BE CONSTRUCTED TO SUPPORT THE WATER HEATER CAPACITY INDICATED. SEE FLOOR PLANS FOR LOCATION.
C. PROVIDE SEISMIC STRAPS AS REQUIRED BY LOCAL JURISDICTION.

7 WATER HEATER SUPPORT DETAIL
NO SCALE

PIPING ARRANGEMENT SHOWN IS SCHEMATIC. ADJUST TO SUIT FIELD CONDITIONS. REFER TO FLOOR PLAN FOR PIPE SIZES. SET WATER HEATER THERMOSTAT AT 120° FAHRENHEIT.

8 WATER HEATER
NO SCALE

9 THERMOSTATIC TEMPERING VALVE DETAIL
NO SCALE

ELECTRIC WATER HEATER SCHEDULE

WH #

UNIT NO.	MANUFACTURER	MODEL	KW	CAPACITY (GAL.)	STAGES	VOLTAGE	OUTPUT (GPH @ 90° RISE)	REMARKS
EWH-1	A.O. SMITH	DEL-20	3.0	20	1	208/3/60	11	-

PLUMBING FIXTURE SCHEDULE

P# F#

FIXTURE NO.	FIXTURE TYPE	MANUFACTURER	TYPE & MODEL NO.	TRIM/FAUCET NO.	SUPPORT	PIPE SIZES TRAP	WASTE	VENT	CW	HW	REMARKS
P1	WATER CLOSET	AMERICAN STANDARD OR EQUAL	CADET (WHITE) 2467.100	CHICAGO FAUCET 1016	FLOOR MOUNT	-	4"	2"	1/2"	-	1.1 GPF, ELONGATED, SIPHON ACTION JETTED BOWL, ADA COMPLIANT 16-1/2" RIM HEIGHT. PROVIDE BEMIS 1955SSSC OPEN FRONT SEAT & LOOSE KEY ANGLE STOP.
P2	LAVATORY	AMERICAN STANDARD OR EQUAL	DECLYN (WHITE) 0321.075	AMERICAN STAND. 7385.003	WALL HUNG	1-1/4"	1-1/2"	1-1/2"	1/2"	1/2"	PROVIDE CHROME PLATED CAST BRASS P-TRAP W/CLEANOUT, CONCEALED ARMS SUPPORT, 0.5 GPM FLOW CONTROL, (2) CHICAGO FAUCET 1016 ANGLE VALVES, TRUEBRO 102E-Z HANDICAP INSULATION KIT
P3	MOP BASIN	FIAT OR EQUAL	MOLDED STONE MSB-3624	T&S BRASS B-0129-VB	FLOOR MOUNT	3"	3"	1-1/2"	3/4"	3/4"	WITH ANGLE SPRAY VALVE, HAND CONTROL VACUUM RELIEF VALVE, AND 68" STAINLESS STEEL HOSE. G.C. TO PROVIDE FRP WALL FINISHES - REFER TO ARCH. PLANS.
P4	HI-LO WATER COOLER	ELKAY OR EQUAL	BARRIER-FREE EZSTL8C	- -	WALL MOUNT	1-1/2"	1-1/2"	1-1/2"	1/2"	-	STAINLESS STEEL WITH SIENNA BRONZE FINISH CABINET. UNIT TO BE INSTALLED WITH ACCESSORY APRON LKAPREZL FOR ADA COMPLIANCE IF MOUNTED ON EXPOSED WALL.
P5	RECESSED WALL BOX	GUY GRAY ~~OR EQUAL~~	BIM875	-	WALL MOUNT	-	-	-	1/2"	-	INSTALL CENTERLINE OF BOX 12" ABOVE FINISHED FLOOR.
1 P6	URINAL	AMERICAN STANDARD OR EQUAL	WASHBROOK (WHITE) 6590.001	SLOAN ROYAL 186-1	WALL MOUNT	-	2"	1-1/2"	3/4"	-	1.0 GPF, TOP SPUD. MOUNT AT A.D.A. HEIGHT.
~~F1~~	~~FLOOR DRAIN~~	~~JOSAM OR EQUAL~~	~~30000-6A~~	-	-	~~3"~~	~~3"~~	~~1-1/2"~~	-	-	~~PROVIDE 1/2" TRAP PRIMER CONNECTION WHERE INDICATED ON PLANS~~

PLUMBING SPECIFICATIONS

THE WORK INCLUDES MODIFICATION TO THE EXISTING PLUMBING SYSTEM AND PROVIDING NEW MATERIALS, FITTINGS AND ACCESSORIES NECESSARY FOR A COMPLETE FUNCTIONING PLUMBING SYSTEM. ALL WORK SHALL BE IN ACCORDANCE WITH LOCAL CODES AND/OR ORDINANCES AND IS SUBJECT TO INSPECTION.

HOOK-UP CHARGES, PERMITS AND ALL OTHER EXPENSES RELATED TO A COMPLETE AND FUNCTIONING PLUMBING SYSTEM ARE INCLUDED AS A PART OF THIS SECTION.

THE INTENT OF THE DRAWINGS IS TO INDICATE THE GENERAL EXTENT OF WORK REQUIRED FOR THE PROJECT. THE DRAWINGS FOR PLUMBING WORK ARE DIAGRAMMATIC, SHOWING THE GENERAL LOCATION, TYPE, FIXTURES AND EQUIPMENT REQUIRED. THE DRAWINGS SHALL NOT BE SCALED FOR EXACT MEASUREMENTS. REFER TO MANUFACTURER'S STANDARD ROUGH-IN DRAWINGS FOR PLUMBING FIXTURE INSTALLATION REQUIREMENTS. COMPLY WITH ALL APPLICABLE ADA INSTALLATION REQUIREMENTS.

COORDINATE WITH THE WORK OF OTHER SECTIONS, EQUIPMENT FURNISHED BY OTHERS, AND WITH THE CONSTRAINTS OF THE EXISTING CONDITIONS OF THE PROJECT SITE.

PIPING SYSTEMS - GENERAL: ALL PIPING SHALL BE RUN PARALLEL TO BUILDING LINES AND SUPPORTED AND ANCHORED AS REQUIRED TO FACILITATE EXPANSION AND CONTRACTION. ALL PIPING SHALL BE CONCEALED EXCEPT IN UNFINISHED SPACES. INSTALL AS REQUIRED TO MEET ALL CONSTRUCTION CONDITIONS AND TO ALLOW FOR INSTALLATION OF OTHER WORK SUCH AS DUCTS AND ELECTRICAL CONDUIT. AT ALL CONNECTIONS BETWEEN FERROUS PIPING AND NONFERROUS PIPING, PROVIDE AN ISOLATING DIALECTIC UNION. ALL HANGERS SHALL BE COMPATIBLE WITH PIPING MATERIAL TO PREVENT CORROSION.

PROVIDE ALL FITTINGS, ACCESSORIES, OFFSETS, AND MATERIALS NECESSARY TO FACILITATE THE PLUMBING SYSTEM'S FUNCTIONING AS INDICATED BY THE DESIGN AND THE EQUIPMENT INDICATED.

FIXTURES/EQUIPMENT FURNISHED BY OTHERS: PLUMBING CONTRACTOR SHALL PROVIDE UTILITY CONNECTIONS REQUIRED SUCH AS WATER, GAS, AIR, SUPPLIES, WASTE OUTLET, TRAPS, ETCETERAS AT ALL PLUMBING TYPE FIXTURES OR EQUIPMENT FURNISHED BY OWNER, GENERAL CONTRACTOR, ETCETERA. INCLUDED ARE STOP VALVES, ESCUTCHEONS, AND CHROME PLATED BRASS TUBING WITH COMPRESSION FITTINGS.

SEWER AND WASTE PIPING: PROVIDE ALL DRAINS AND SEWERS WITHIN THE LEASED SPACE WITH CONNECTION TO THE LANDLORD'S EXISTING DRAINAGE SYSTEMS ON-SITE. SANITARY DRAINAGE PIPING ABOVE FLOOR SHALL BE HUBLESS CAST-IRON PIPE, FITTINGS AND CONNECTIONS. SANITARY DRAINAGE PIPING BELOW GRADE SHALL BE SERVICE-WEIGHT HUB AND SPIGOT TYPE CAST-IRON WITH NEOPRENE GASKET JOINTS. ALL DRAINAGE PIPING SHALL BE UNIFORMLY PITCHED, 1/4" PER FOOT FOR PIPE SIZES 3" AND SMALLER, 1/8" PER FOOT FOR PIPE SIZES 4" AND LARGER, UNLESS OTHERWISE REQUIRED BY EXISTING CONDITIONS, OR INDICATED ON THE DRAWINGS.

VENTS: PROVIDE A COMPLETE SYSTEM OF STANDARD WEIGHT CAST IRON NO-HUB VENT RISERS WHERE THE CEILING SPACE IS USED AS A RETURN AIR PLENUM OR USE DWV PLASTIC (WHERE PERMITTED BY CODE/LOCAL AUTHORITIES). WHERE THERE IS A DUCTED RETURN AIR SYSTEM, DO NOT USE DWV PLASTIC IN RETURN AIR PLENUM SPACES. THE VENT SYSTEM SHALL BE CARRIED THROUGH THE ROOF WITH APPROPRIATE FLASHING.

CONDENSATE AND INDIRECT DRAIN PIPING: EXTERIOR CONDENSATE DRAIN PIPING SHALL BE SCHEDULE 40 PVC, INTERIOR CONDENSATE DRAIN PIPING SHALL BE TYPE M COPPER TUBING UP TO 1" ID, TYPE DWV TUBING AND FITTINGS FOR 1-1/4" AND LARGER SIZES.

STORM WATER PIPING: PROVIDE ALL STORM DRAINS AND PIPING WITHIN THE PROJECT SPACE WITH CONNECTION TO THE EXISTING STORM DRAINAGE SYSTEMS ON-SITE. SANITARY DRAINAGE PIPING ABOVE FLOOR SHALL BE HUBLESS CAST IRON PIPE, FITTINGS, AND CONNECTIONS. SANITARY DRAINAGE PIPING BELOW GRADE SHALL BE SERVICE-WEIGHT HUB AND SPIGOT TYPE CAST IRON WITH NEOPRENE GASKET JOINTS. ALL DRAINAGE PIPING SHALL BE UNIFORMLY PITCHED MINIMUM 1/8" PER FOOT UNLESS OTHERWISE REQUIRED BY EXISTING CONDITIONS, AHJ, OR INDICATED ON THE DRAWINGS.

CLEANOUTS: PROVIDE CLEANOUTS AT THE END OF EACH HORIZONTAL RUN, AND AT THE BASE OF ALL VERTICAL WASTE AND DRAIN PIPES. CLEANOUTS SHALL BE OF THE SAME SIZE AS THE PIPES THEY SERVE, CONFORMING TO CODE REQUIREMENTS. PROVIDE SUITABLE WALL OR FLOOR CLEANOUTS WITH ACCESSORIES TO OBSCURE FROM VIEW.

WATER DISTRIBUTION PIPING: LAYOUT WATER PIPING SO THAT THE ENTIRE SYSTEM CAN BE DRAINED. ABOVE GRADE HOT AND COLD WATER PIPING SHALL BE 1/2" MINIMUM TYPE L COPPER TUBING WITH WROUGHT COPPER FITTINGS AND SWEAT CONNECTIONS. BELOW GRADE HOT AND COLD WATER PIPING SHALL BE 1/2" MINIMUM TYPE K COPPER TUBING WITH WROUGHT COPPER FITTINGS, AND SWEAT CONNECTIONS. PROVIDE WATER HAMMER ARRESTERS AT EACH FIXTURE OR GROUP OF FIXTURES AS REQUIRED. INSTALL CHROME PLATED BRASS ESCUTCHEON PLATES AT ALL PENETRATIONS THROUGH FINISHED SURFACES (INCLUDING CABINET INTERIORS). USE TIN-ANTIMONY SOLDER, 95/5 FOR ALL SWEAT FITTINGS OF COPPER PIPING.

PIPE INSULATION: RIDGE ONE-PIECE FIBERGLASS PIPE INSULATION WITH REQUIREMENTS COMPLYING WITH ASTM C 547, SELF-SEALING ADHESIVE LAP LONGITUDINAL JOINTS AND BUTT STRIPS FOR TRANSVERSE JOINTS. JACKETING SHALL CONFORM TO ASTM C 1136, TYPE I, MAXIMUM VAPOR TRANSMISSION RATING OF 0.02 PERM WHEN TESTED ACCORDING TO ASTM E 96, PROCEDURE A. (K VALVE) 0.25 BTU * IN. / HR. * FT2 * °F AT 75°F MEAN TEMPERATURE. PROVIDE INSULATION THICKNESS AS INDICATED.

DOMESTIC COLD WATER PIPING 1" AND SMALLER: 1/2" THICKNESS
DOMESTIC COLD WATER PIPING 1-1/4" - 2": 3/4" THICKNESS
PLUMBING VENT PIPING WITHIN 6 FEET OF ROOF OUTLET: 1" THICKNESS
STORM WATER PIPING: 1" THICKNESS
CONDENSATE PIPING: 1/2" THICKNESS

DOMESTIC HOT WATER PIPING 2" AND SMALLER: 1" THICKNESS

HOT WATER AND WASTE PIPING BELOW HANDICAP LAVATORIES/SINKS:
PIPE INSULATION: FLEXIBLE, ONE PIECE, EXPANDED CLOSED-CELL ELASTOMERIC PIPE INSULATION WITH REQUIREMENTS COMPLYING WITH ASTM C 518, SELF-SEALING, WITH A MAXIMUM VAPOR TRANSMISSION RATING OF 0.20 PERM WHEN TESTED ACCORDING TO ASTM E 96. THERMAL CONDUCTIVITY (K VALVE) SHALL NOT EXCEED 0.27 BTU * IN. / HR. * FT2 * °F AT 75°F MEAN TEMPERATURE, AND INSULATION AND JACKET SHALL BE RATED FOR OPERATING TEMPERATURES FROM 40°F TO 180°F. PROVIDE INSULATION THICKNESS AS INDICATED.

DOMESTIC COLD WATER PIPING 1" AND SMALLER: 1/2" THICKNESS
DOMESTIC COLD WATER PIPING 1-1/4" - 2": 3/4" THICKNESS

PLUMBING VENT PIPING WITHIN 6 FEET OF ROOF OUTLET: 1" THICKNESS

STORM WATER PIPING: 1" THICKNESS

CONDENSATE PIPING: 1/2" THICKNESS

DOMESTIC HOT WATER PIPING 2" AND SMALLER: 1" THICKNESS

PROVIDE HANDICAP INSULATION KITS FOR ALL HOT WATER AND WASTE PIPING BELOW HANDICAP LAVATORIES/SINKS.

SHUTOFF VALVES, WITH UNIONS SHALL BE PROVIDED FOR SERVICE TO EACH PLUMBING FIXTURE, FOOD SERVICE EQUIPMENT ITEM OR OTHER EQUIPMENT ITEM, TO FACILITATE ISOLATION FOR REPAIR OR REPLACEMENT. VALVES SHALL BE EQUAL TO CRANE #9302-9322 BALL VALVE. CONSTRUCTION - TWO PIECE, BRONZE BODY, FULL PORTED, CHROME PLATED BRASS BALL, REPLACEABLE "TEFLON OR TFE" SEATS AND SEALS. RATING - 150 PSI WSP, 600 PSI WOG. CONNECTIONS - SOLDER OR THREADED ENDS TO MATCH PIPING. STANDARDS COMPLIANCE - BRONZE OR BRASS VALVES: MSS-SP-110.

ACCESS PANELS SHALL BE PROVIDED WHERE CONCEALED CONTROL DEVICES, VALVES, ETCETERA ARE CONCEALED WITHIN WALLS. WHERE ACCESS FOR ADJUSTMENT AND MAINTENANCE IS POSSIBLE THROUGH LAY-IN SUSPENDED CEILINGS, ACCESS PANELS ARE NOT REQUIRED.

INSTALLATION: THOROUGHLY CLEAN ITEMS BEFORE INSTALLATION. CAP PIPE OPENINGS TO EXCLUDE DIRT UNTIL FIXTURES ARE INSTALLED AND FINAL CONNECTIONS HAVE BEEN MADE. PROCEED AS RAPIDLY AS CONSTRUCTION WILL PERMIT. SET FIXTURES LEVEL AND IN PROPER ALIGNMENT. INSTALL SUPPLIES IN PROPER ALIGNMENT WITH FIXTURES. INSTALL SILICONE SEALANT BETWEEN FIXTURES AND ADJACENT MATERIAL, FOR SANITARY JOINT, AND OMIT ESCUTCHEONS.

REPAIR EXISTING PLUMBING SYSTEM COMPONENTS DAMAGED BY CONSTRUCTION OPERATIONS AND RESTORE TO ORIGINAL CONDITIONS.

TEST WATER SYSTEM UNDER 150 PSIG HYDROSTATIC PRESSURE, FOR FOUR (4) HOURS MINIMUM. WHEN TESTING INDICATES MATERIALS OR WORKMANSHIP IS DEFICIENT, REPLACE OR REPAIR AS REQUIRED, AND REPEAT TEST UNTIL STANDARDS ARE ACHIEVED.

TEST SANITARY DRAINAGE AND VENT SYSTEM BY FILLING WITH WATER, WITH ALL POINTS IN THE SYSTEM BEING SUBJECT TO PRESSURE OF AT LEAST 10' OF WATER. WATER LEVEL SHALL REMAIN STATIONARY FOR A PERIOD OF ONE HOUR, WITHOUT ANY PIPE OR JOINT LEAKAGE. IF TESTING INDICATES DEFICIENTS REPLACE OR REPAIR AS REQUIRED, AND REPEAT TEST UNTIL STANDARDS ARE ACHIEVED.

INSULATE ROOF DRAIN BODIES, INDIVIDUAL RAIN WATER LEADERS, AND HORIZONTAL RAIN WATER PIPING WITH 1-IN. HEAVY DENSITY FIBERGLASS PIPE INSULATION HAVING A FACTORY-APPLIED ALL-SERVICE JACKET WITH DOUBLE SELF-SEALING LAP, OWENS-CORNING FIBERGLASS ASJ/SSL-II, OR EQUAL.

ROOF DRAINS: JOSAM SERIES 21500, OR APPROVED EQUAL. COATED CAST IRON WITH LARGE POLYPROPYLENE LOCKING DOME, NON-PUNCTURING CLAMP RING WITH INTEGRAL GRAVEL STOP, LARGE SUMP WITH WIDE FLANGE AND BOTTOM OUTLET, AND PIPE OUTLET SIZE SHOWN ON DRAWINGS.

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PLUMB. DETAILS, SCHEDULES & SPECIFICATIONS

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