

NOT FOR CONSTRUCTION

911 Central Parkway N., Suite 425 San Antonio, TX 78233
501 North Broadway, St. Louis, Missouri 63102-2121

Revision: _____
Date: _____ By: _____ Description: _____

AIR FORCE CENTER FOR ENGINEERING AND THE ENVIRONMENT (AFCEE) FACILITIES DYNAMIC PROTOTYPES DESIGN FOR DORMITORIES

PLUMBING SYMBOLS (ALL SYMBOLS SHOWN ARE NOT NECESSARILY USED ON THE DRAWINGS)

PIPING SYMBOLS

	PITCH DOWN IN DIRECTION OF ARROW
	DIRECTION OF FLOW
	PIPE ANCHOR
	PIPE GUIDE
	CONCENTRIC REDUCER
	ECCENTRIC REDUCER
	BRANCH - SIDE CONNECTION
	BRANCH - TOP CONNECTION
	BRANCH - BOTTOM CONNECTION
	RISE OR DROP IN PIPE
	RISER DOWN (ELBOW)
	RISER UP (ELBOW)
	CAPPED PIPE
	BLIND FLANGE
	UNION (SCREWED)
	ORIFICE UNION
	FLANGED CONNECTION
	TEMPERATURE & PRESSURE PORT
	STRAINER WITH BLOWDOWN VALVE
	FLEX PIPE
	FLEX CONNECTION
	BELLOWS CONNECTION (DOUBLE SPHERE NEOPRENE TYPE)
	THERMOMETER
	PRESSURE GAGE WITH COCK
	FLOW SWITCH
	PRESSURE SWITCH
	MANUAL AIR VENT
	AUTOMATIC AIR VENT
	PUMP
	STEAM TRAP
	LINE/WALL CLEANOUT
	WATER METER
	AIR OUTLET VALVE
	WELDED CONNECTION
	FLANGED CONNECTION
	SOLDERED CONNECTION
	THREADED OR "PRESS" CONNECTION BELL & SPIGOT CONNECTION
	SOLVENT CONNECTION

VALVE SYMBOLS

	VALVE IN CENTER DROP
	VALVE IN RISE
	GATE VALVE W/ 3/4" HOSE THREAD ADAPTER
	SOLENOID VALVE
	TWO-WAY CONTROL VALVE
	THREE-WAY CONTROL VALVE
	SAFETY VALVE OR PRESSURE RELIEF VALVE
	MANUAL BALANCING VALVE
	AUTOMATIC BALANCING VALVE
	TEMPERATURE WELL
	ANGLE GATE VALVE
	ANGLE GLOBE VALVE
	DIAPHRAGM VALVE
	QUICK ACTION VALVE
	OS&Y VALVE
	OS&Y VALVE WITH SUPERVISORY SWITCH
	FLANGED VALVE (GATE VALVE SHOWN)
	FLOAT VALVE
	ORIFICE FLOW PLATE

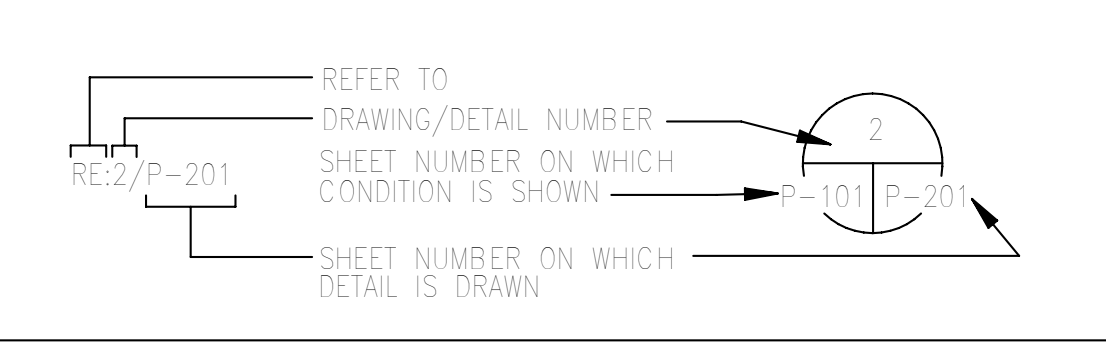
PIPING TYPES

	SANITARY SEWER
	SANITARY VENT
	DOMESTIC COLD WATER
	DOMESTIC HOT WATER (110°F)
	DOMESTIC HOT WATER RETURN
	DOMESTIC HOT WATER (140°F)
	DOMESTIC HOT WATER (140°F)
	NON POTABLE WATER
	TRAP PRIMER
	DRAIN (AHU CONDENSATE)
	NATURAL GAS
	CONDENSATE DRAIN
	COMPRESSED AIR
	DEBRIS VACUUM (CLEANING)
	VACUUM
	BREATHING AIR
	AIRCRAFT HOT WATER WASH WATER
	INDUSTRIAL WASTE
	RECYCLED WASH WATER
	PUMPED FLUID - "AAA" DENOTES TYPE
	DOUBLE WALL PIPING - "AAA" DENOTES TYPE
	EXISTING PIPE - "AAA" DENOTES TYPE
	EXISTING PIPE TO BE REMOVED - "AAA" DENOTES TYPE
	BELOW FLOOR PIPE - "AAA" DENOTES TYPE

MISCELLANEOUS

	RECESSED FLOOR CLEANOUT
	HOSE BIBB/WALL HYDRANT
	FLOOR DRAIN
	FLOOR DRAIN WITH P-TRAP
	P-TRAP
	PLUMBING FIXTURES
	GAS METER
	DOUBLE CHECK BACKFLOW PREVENTER
	REDUCED PRESSURE BACKFLOW PREVENTER
	RISER DESIGNATION "P": DENOTES SANITARY WASTE AND VENT RISER DIAGRAM OR DOMESTIC COLD AND HOT WATER RISER DIAGRAM
	PROCESS VACUUM CONNECTION
	BREATHING AIR CONNECTION
	PROCESS COMPRESSED AIR CONNECTION
	DEBRIS VACUUM CONNECTION
	DRAWING NOTE REFERENCE
	POINT OF CONNECTION TO EXISTING
	WATER SHOCK ABSORBER

DRAWING/DETAIL REFERENCE KEY



GENERAL NOTES

- REFER TO SPECIFICATIONS FOR MATERIALS AND METHODS FOR CONSTRUCTION.
- COORDINATE THE EXACT LOCATION OF FLOOR DRAINS WITH THE ARCHITECTURAL DRAWINGS AND MECHANICAL EQUIPMENT LOCATIONS PRIOR TO INSTALLATION OF DRAINS. PROVIDE A RADIUS AROUND THE FLOOR DRAIN THAT SLOPES TOWARD THE FLOOR DRAIN FROM THE FINISHED FLOOR ELEVATION TO A TOP OF DRAIN ELEVATION BETWEEN 1/2" AND 3/4" BELOW FINISHED FLOOR. THE RADIUS AND RATE OF SLOPE IS TO BE FIELD COORDINATED.
- COORDINATE ALL SLAB PENETRATIONS AND SLEEVES PRIOR TO EACH CONCRETE POUR.
- FURNISH ACCESS DOORS FOR INSTALLATION IN WALLS AND CEILINGS WHERE ACCESS IS REQUIRED TO CONCEALED PLUMBING EQUIPMENT, VALVES, CONTROLS, AND OTHER DEVICES.
- PERFORM WORK IN ACCORDANCE WITH THE LATEST EDITIONS, REVISIONS, AMENDMENTS OR SUPPLEMENTS OF APPLICABLE STATUTES, ORDINANCES, CODES, OR REGULATIONS OF FEDERAL, STATE AND LOCAL AUTHORITIES HAVING JURISDICTION IN EFFECT ON THE DATE BIDS ARE RECEIVED.
- WHERE APPROVAL CODES HAVE BEEN ESTABLISHED BY OSHA, UNDERWRITERS LABORATORY, AMERICAN CODES, ANSI, ASME, ASA, ASHRAE, ASTM, ARI, NEC, NFPA, SMACNA, OR THE STATE FIRE INSURANCE REGULATORY BODY, FOLLOW THESE STANDARDS WHETHER OR NOT INDICATED ON THE DRAWINGS.
- ARRANGE WITH AUTHORITIES AND UTILITY COMPANIES FOR PERMITS, FEES, AND SERVICE CONNECTIONS. VERIFYING LOCATIONS AND ARRANGEMENTS AND PAYING ALL CHARGES, INCLUDING INSPECTIONS.
- COORDINATE WORK WITH ARCHITECTURAL FEATURES AND COORDINATE WORK SUCH THAT INTERFERENCES BETWEEN PIPING, DUCTWORK, EQUIPMENT, PLUMBING WORK, ELECTRICAL WORK, AND BUILDING STRUCTURE WILL BE AVOIDED.
- PROVIDE THE ENTIRE SYSTEM AND ITS COMPONENT ITEMS OF EQUIPMENT IN OPERATING CONDITION WITHOUT OBJECTIONABLE VIBRATION OR NOISE.
- PROVIDE ALL WIRING AND ELECTRICAL CONTROLS IN ACCORDANCE WITH NFPA 70 (NEC).
- VERIFY AND DOCUMENT EXISTING CONDITIONS AND DIMENSIONS ON THE JOB SITE PRIOR TO STARTING ANY WORK.
- DO NOT SCALE THESE DRAWINGS FOR CONSTRUCTION PURPOSES.
- INSTALL PIPING TO PROVIDE THE MAXIMUM POSSIBLE CLEAR HEIGHT UNDERNEATH. MAINTAIN A MINIMUM OF 6 INCHES ABOVE FINISHED CEILING TO PROVIDE CLEARANCE FOR LIGHTING FIXTURES.
- CONTRACTOR TO MAKE ALL FINAL CONNECTIONS TO EQUIPMENT.
- VENT TERMINALS SHALL EXTEND A MINIMUM OF 6" ABOVE THE FINISHED ROOF AND SHALL BE LOCATED A MINIMUM OF 10 FEET HORIZONTALLY FROM ANY DOOR, OPERABLE WINDOW, OR OTHER AIR INTAKE OF THE BUILDING OR ADJACENT BUILDING UNLESS THE VENT TERMINAL IS AT LEAST 2 FEET ABOVE THE TOP OF SUCH OPENING.
- PROVIDE SYSTEM IN ACCORDANCE WITH 2006 ICC INTERNATIONAL PLUMBING CODE.
- ALL VENT LINES ARE TO RISE VERTICALLY (45° ANGLE OR GREATER FROM HORIZONTAL) TO A MINIMUM OF 6" ABOVE THE HIGHEST FLOOD RIM OF THE HIGHEST FIXTURE SERVED BY THE VENT.
- SLOPE SANITARY SEWER PIPE SMALLER THAN 3" AT 1/4" PER FOOT AND PIPE 3" AND LARGER AT 1/8" PER FOOT. ALL SLOPES ARE IN THE DIRECTION OF FLOW.
- PROVIDE BRACING FOR ALL PIPING AND EQUIPMENT AS REQUIRED BY UFC 4-010-01.

ENERGY CODE COMPLIANCE

THE MECHANICAL AND PLUMBING EQUIPMENT IN THESE DRAWINGS ARE IN COMPLIANCE WITH ASHRAE 90.1-2004 AND THE FEDERAL ENERGY MANAGEMENT PROGRAM (FEMP).

VALVE SYMBOLS

	GATE VALVE
	GLOBE VALVE
	CHECK VALVE (NON SLAM)
	PLUG VALVE
	PRESSURE REDUCING VALVE (PRV)
	BUTTERFLY VALVE
	BALL VALVE
	NEEDLE VALVE
	VALVE IN DROP

EQUIPMENT SYMBOLS

	EXISTING EQUIPMENT TO BE REMOVED
	EXISTING EQUIPMENT TO REMAIN
	NEW EQUIPMENT

Scales: 12" = 1'-0"

Jacobs Project No.: FDWD1301
Drawing Title:

PLUMBING LEGEND & NOTES

Date: 11 MAY 2009
Designed By: Designer Drawing No.:
Drawn By: Author
Checked By: Checker **P00**

Revision:
Date: By: Description:

AIR FORCE CENTER FOR ENGINEERING AND THE
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Scales: 1/4" = 1'-0"

Jacobs Project No.: FDWD1301

Drawing Title:

PLUMBING FLOOR
PLANS

Date: 11 MAY 2009

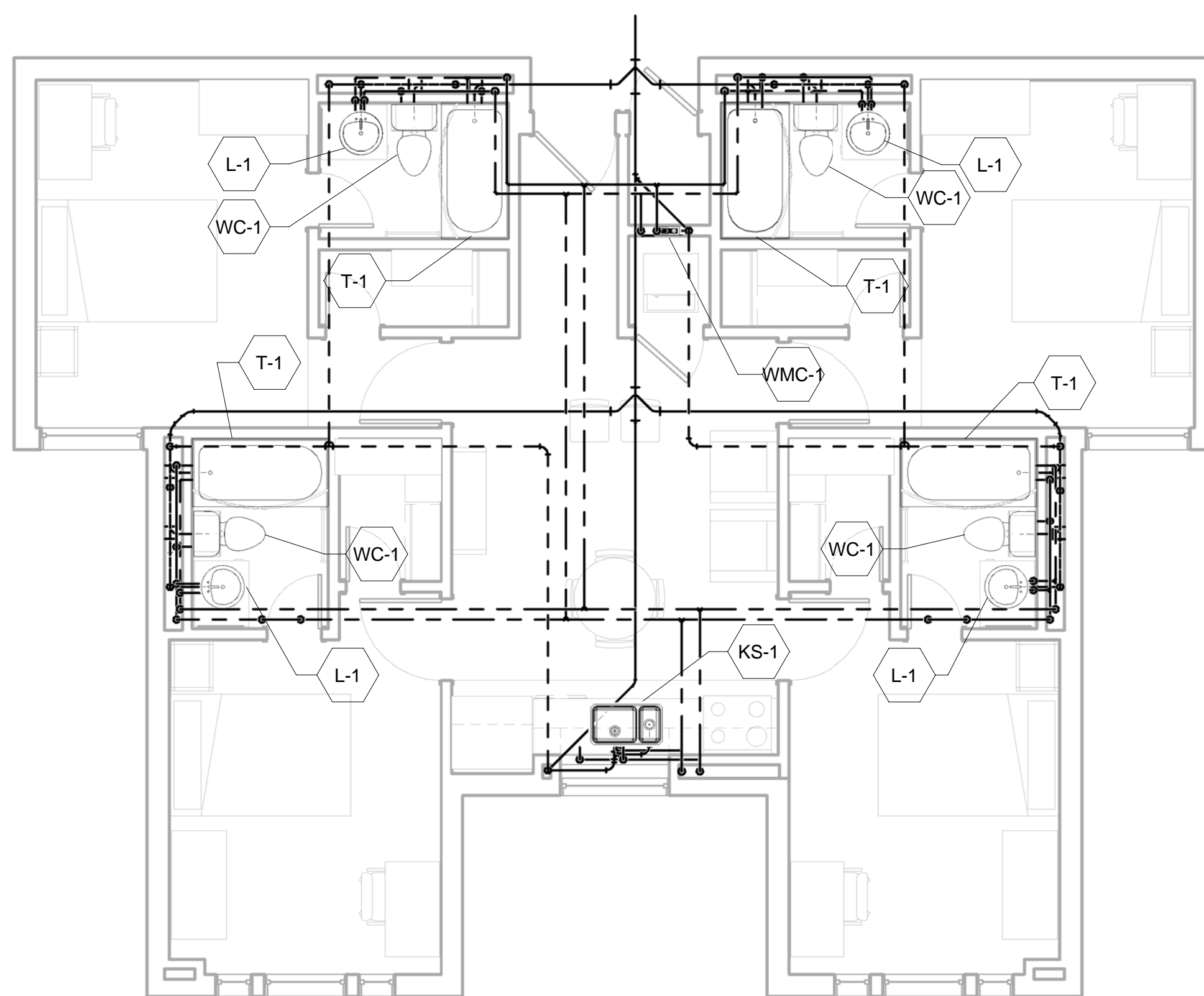
Designed By: Designer

Drawn By: Author

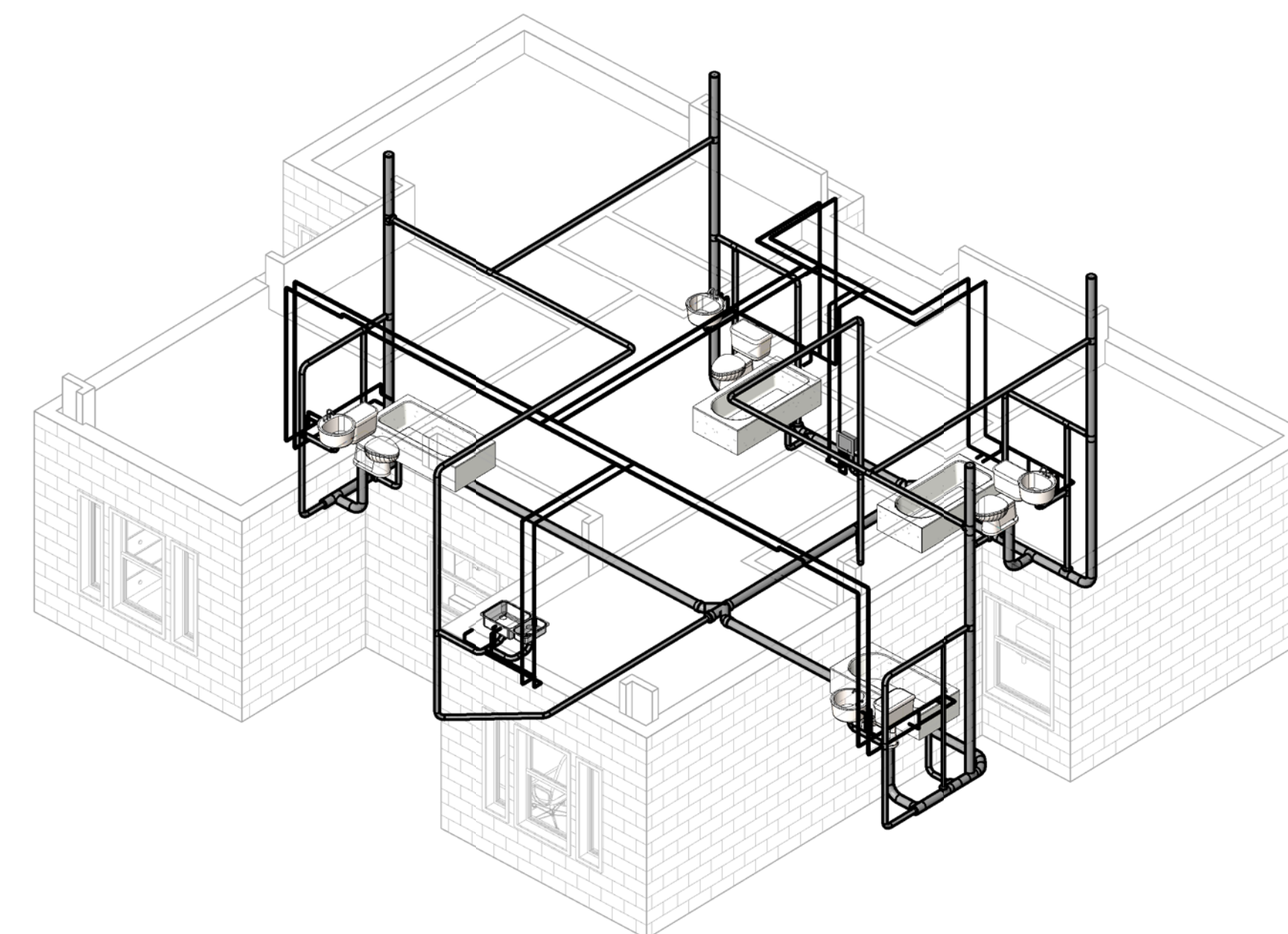
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Drawing No.:

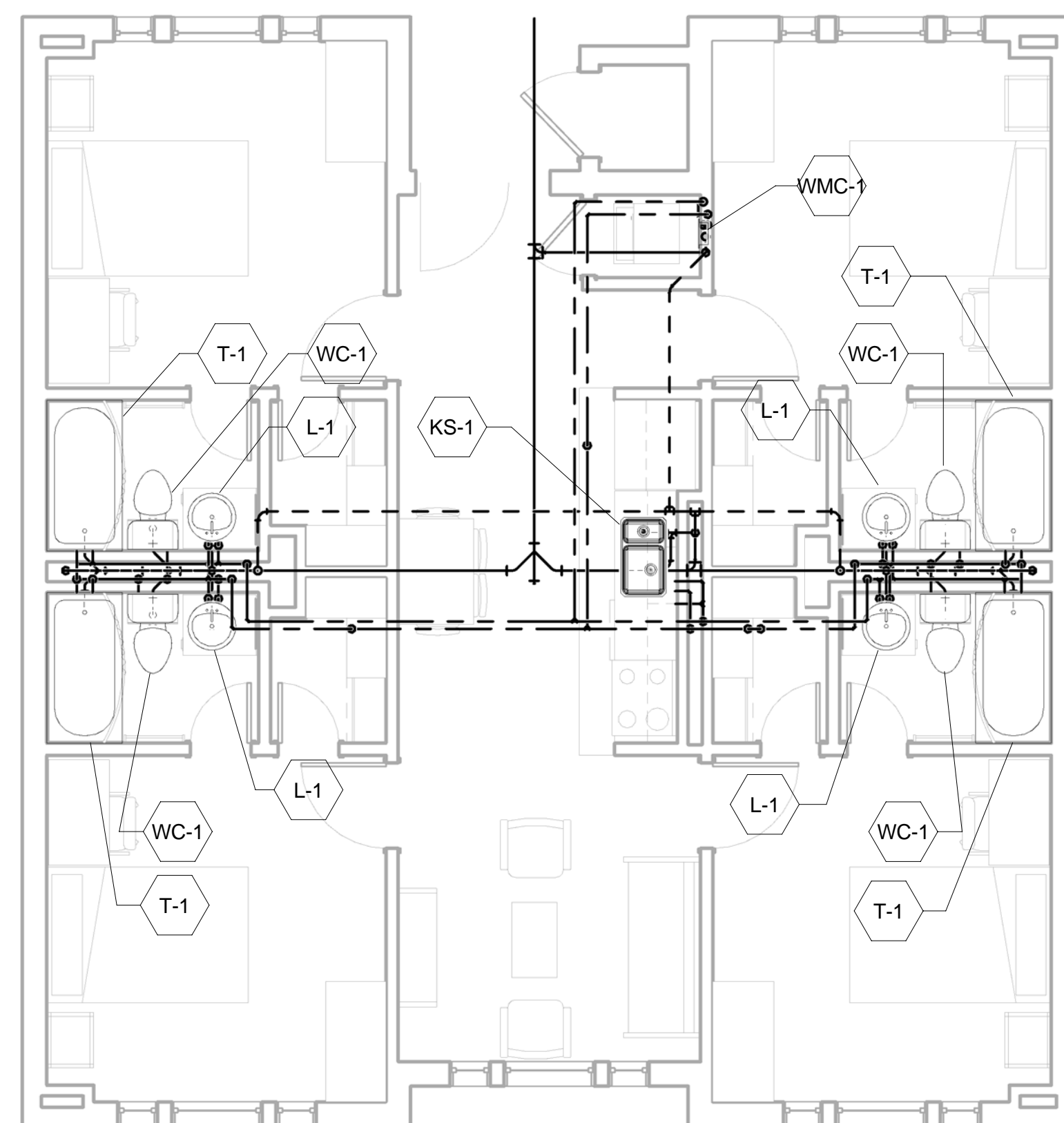
P01



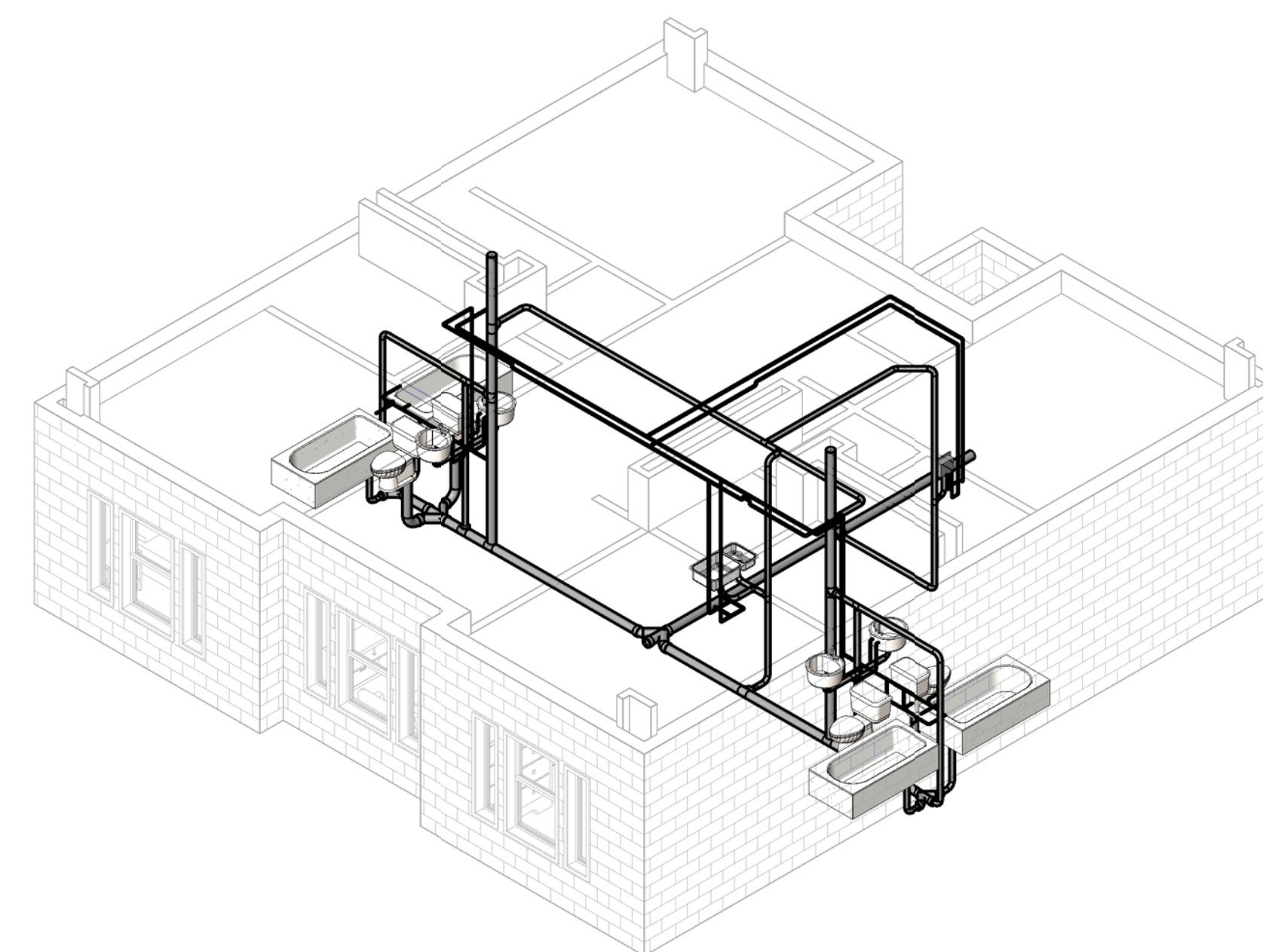
1 - Plumbing - A
1/4" = 1'-0"



2 - 3D Plumbing - A



3 - Plumbing - B
1/4" = 1'-0"



4 - 3D Plumbing - B

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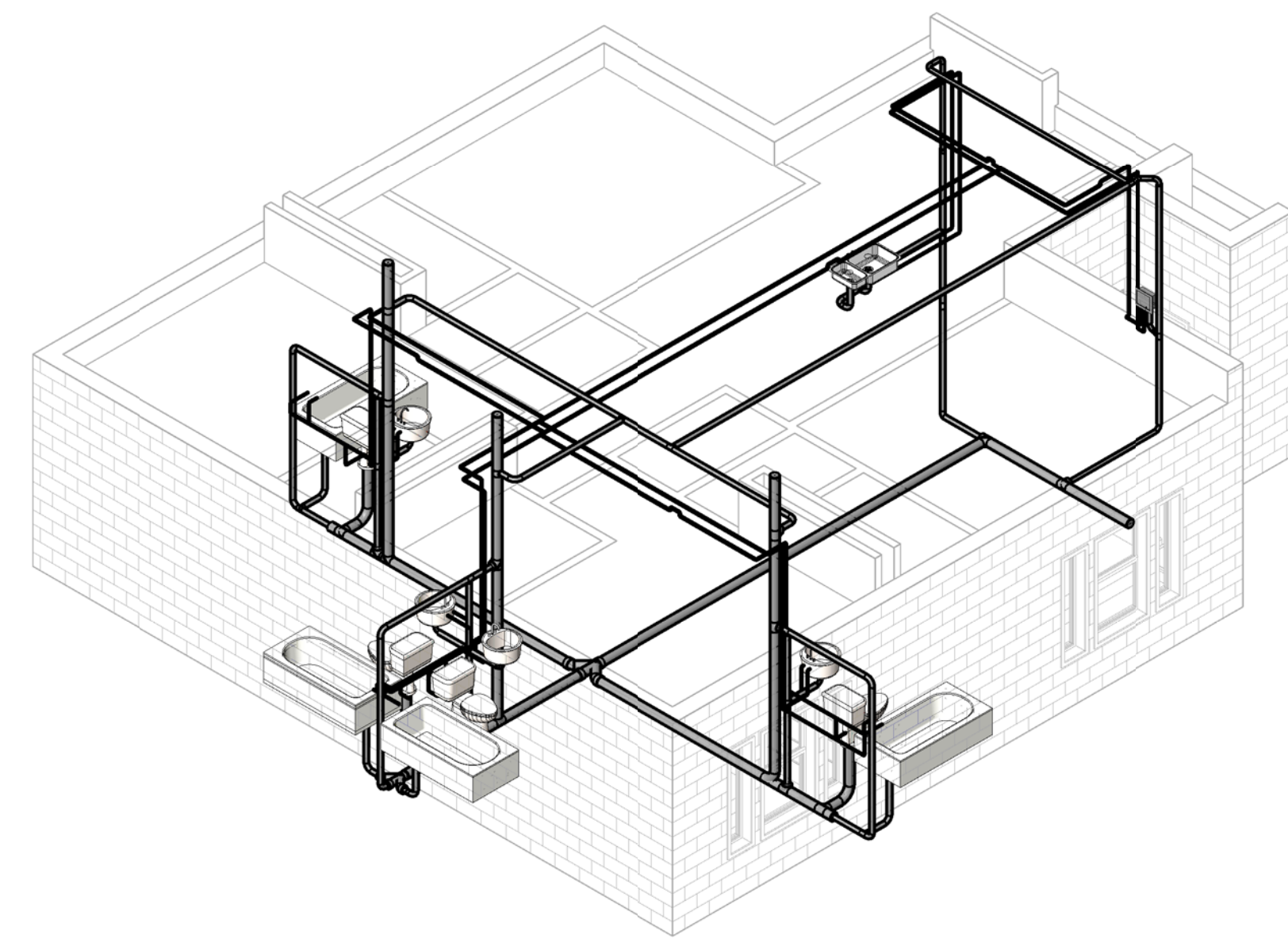
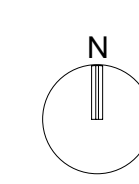
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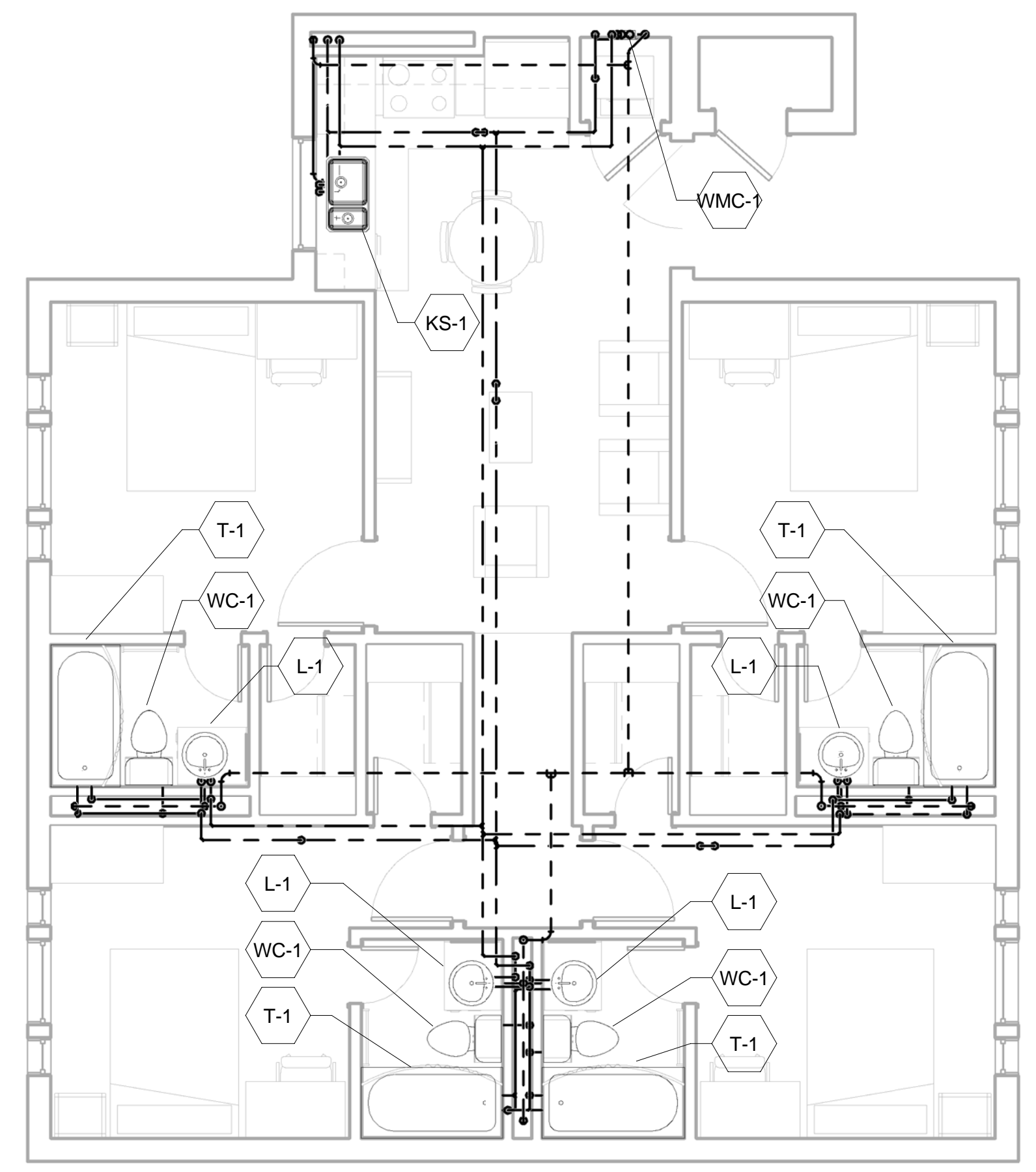
Jacobs Project No.: FDWD1301
Drawing Title:

**PLUMBING FLOOR
PLANS**

Date: 11 MAY 2009
Designed By: Designer Drawing No.:
Drawn By: Author
Checked By: Checker **P02**



② 3D Plumbing - C



① 1 - Plumbing - C
1/4" = 1'-0"

PLUMBING FIXTURE ROUGH-IN SCHEDULE					
MARK	DESCRIPTION	CONNECTION SIZE			
		CW	HW	SAN	VENT
KS-1		1/2"	1/2"	2"	0"
L-1		1/2"	1/2"	1 1/4"	0"
T-1		1/2"	1/2"	2"	0"
WC-1		1/2"		4"	0"
WMC-1		1/2"	1/2"	2"	0"