

PLUMBING NOTES

1.

PROVIDE ALL MATERIALS AND EQUIPMENT AND PERFORM ALL LABOR REQUIRED TO INSTALL COMPLETE AND OPERABLE PLUMBING SYSTEMS AS INDICATED ON THE DRAWINGS, AS SPECIFIED, AND AS REQUIRED BY STATE AND LOCAL CODES.
2.

ANY EXISTING CONDITIONS SHOWN ON DRAWINGS REFLECT INFORMATION FURNISHED BY THE OWNER AND ARE ACCURATE TO THE BEST KNOWLEDGE OF THE ENGINEER. FIELD CONDITIONS MAY VARY FROM THOSE SHOWN ON DRAWINGS. THE CONTRACTOR IS TO MAKE ARCHTECT/OWNER'S REPRESENTATIVE AWARE OF ANY DISCREPANCIES BETWEEN DRAWINGS AND ACTUAL FIELD CONDITIONS PRIOR TO COMMENCING WORK.
3.

PRIOR TO COMMENCING WORK, PLUMBING CONTRACTOR SHALL FIELD VERIFY EXACT LOCATION OF SERVICES, INVERT ELEVATIONS OF UNDERFLOOR SANITARY LINES, AND SIZES OF PIPING TO BE RE-USED.
4.

CONTRACT DOCUMENT DRAWINGS FOR PLUMBING WORK ARE DIAGRAMMATIC AND ARE INTENDED TO CONVEY SCOPE AND GENERAL ARRANGEMENT ONLY.
5.

INSTALL ALL PLUMBING FIXTURES, EQUIPMENT, AND APPURTENANCES IN ACCORDANCE WITH MANUFACTURERS' RECOMMENDATIONS, CONTRACT DOCUMENTS, AND APPLICABLE CODES AND REGULATIONS.
6.

THE LOCATIONS OF ALL ITEMS SHOWN ON THE DRAWINGS OR CALLED FOR IN THE SPECIFICATIONS THAT ARE NOT DEFINITELY FIXED BY DIMENSIONS ARE APPROXIMATE ONLY. THE EXACT LOCATIONS NECESSARY TO SECURE THE BEST CONDITIONS AND RESULTS MUST BE DETERMINED BY THE PROJECT SITE CONDITIONS AND SHALL HAVE THE APPROVAL OF THE ENGINEER BEFORE BEING INSTALLED. DO NOT SCALE DRAWINGS.
7.

COORDINATE CONSTRUCTION OF ALL PLUMBING WORK WITH ARCHITECTURAL, STRUCTURAL, CIVIL, ELECTRICAL, ETC., SHOWN ON OTHER CONTRACT DOCUMENT DRAWINGS.
8.

COORDINATE EXACT LOCATIONS OF ALL GAS CONNECTIONS TO HVAC EQUIPMENT AND EXACT LOCATIONS OF FLOOR AND HUB DRAINS FOR HVAC EQUIPMENT WITH THE HVAC CONTRACTOR PRIOR TO INSTALLATION.
9.

ALL PLUMBING WORK SHALL BE COORDINATED WITH ALL TRADES INVOLVED. OFFSETS IIN PIPING AROUND OBSTRUCTIONS SHALL BE PROVIDED AT NO ADDITIONAL COST TO OWNER.
10.

VERIFY EXACT LOCATIONS OF ALL FLOOR DRAINS WITH ARCHITECTURAL AND STRUCTURAL DRAWINGS FOR PROPER PLACEMENT WITH RESPECT TO SLOPES. COORDINATE THE INSTALLATION WITH THE APPROPRIATE CONTRACTOR.
11.

UNLESS OTHERWISE INDICATED, PLUMBING WORK STOPS AT A POINT 5'-0" OUTSIDE THE BUILDING. COORDINATE EXACT LOCATION INCLUDING INVERT ELEVATION WITH SITE UTILITY CONTRACTOR.
12.

MAINTAIN A MINIMUM OF 6'-8" CLEARANCE TO UNDERSIDE OF PIPES AND SUSPENDED EQUIPMENT THROUGHOUT ACCESS ROUTES IN MECHANICAL ROOMS.
13.

ALL TESTS SHALL BE COMPLETED BEFORE ANY PLUMBING EQUIPMENT OR PIPING INSULATION IS APPLIED.
14.

WHERE TWO OR MORE ITEMS OF THE SAME TYPE OF EQUIPMENT ARE REQUIRED, THE PRODUCT OF ONE MANUFACTURER SHALL BE USED.
15.

ALL MISCELLANEOUS STEEL REQUIRED TO ENSURE PROPER INSTALLATION SHALL BE FURNISHED AND INSTALLED BY THE PLUMBING CONTRACTOR.
16.

PROVIDE ACCESS PANELS FOR INSTALLATION IN WALLS AND CEILINGS, WHERE REQUIRED, TO SERVICE VALVES AND OTHER CONCEALED PLUMBING EQUIPMENT. ACCESS PANELS SHALL BE TURNED OVER TO GENERAL CONTRACTOR FOR INSTALLATION.
17.

ALL EQUIPMENT, PIPING, ETC. SHALL BE SUPPORTED AS REQUIRED TO PROVIDE A VIBRATION FREE INSTALLATION.
18.

PROVIDE FLEXIBLE CONNECTIONS IN ALL PIPING SYSTEMS CONNECTED TO EQUIPMENT WHICH REQUIRE VIBRATION ISOLATION. FLEXIBLE CONNECTIONS SHALL BE PROVIDED AS CLOSE TO THE EQUIPMENT AS POSSIBLE OR AS INDICATED ON THE DRAWINGS.
19.

ALL PIPING AND EQUIPMENT SUPPORTED FROM STRUCTURAL STEEL SHALL BE COORDINATED WITH GENERAL CONTRACTOR. ALL ATTACHMENTS TO STEEL BAR JOISTS, TRUSSES, OR JOIST GIRDERS SHALL BE AT PANEL POINTS. SEE STRUCTURAL NOTES AND SHEET SF-001 AND SPECIFICATION SECTION 22 05 29 FOR REQUIRED PRODUCTS AND INSTALLATION OF HANGERS AND SUPPORTS. PLUMBING EQUIPMENT AND PIPING SHALL NOT BE SUPPORTED FROM METAL DECK.
20.

CONTRACTOR TO INFORM THE STRUCTURAL ENGINEER IN WRITING OF ANY SINGLE SUSPENDED LOAD IN EXCESS OF 400 LBS.
21.

RUN ALL SANITARY PIPING WITH 1% MINIMUM GRADE UNLESS OTHERWISE NOTED. HORIZONTAL VENT PIPING SHALL BE GRADED TO DRIP BACK TO SOIL OR WASTE PIPE BY GRAVITY. 2" PIPING SHALL BE RUN AT 2% MINIMUM SLOPE.
22.

ADJUST SEWER INVERTS TO KEEP TOPS OF PIPE IN LINE WHERE PIPE SIZE CHANGES.
23.

MAINTAIN A MINIMUM OF 4'-6" OF GROUND COVER OVER ALL UNDERGROUND WATER MAINS AND A MINIMUM OF 3'-0" OF GROUND COVER OVER ALL UNDERGROUND SEWERS AND DRAINS OUTSIDE OF BUILDING.
24.

PROVIDE SHUTOFF VALVES IN ALL DOMESTIC HOT AND COLD WATER PIPING SYSTEM BRANCHES.
25.

INSTALL PIPING SO THAT ALL VALVES, STRAINERS, UNIONS, TRAPS, FLANGES, AND OTHER APPURTENANCES REQUIRING ACCESS ARE ACCESSIBLE.
26.

WHERE DOMESTIC COLD AND HOT WATER PIPING DROPS INTO A CHASE, THE SIZE SHOWN FOR THE PIPE DROPS SHALL BE USED TO THE LAST FIXTURE.
27.

INSTALL ALL PIPING WITHOUT FORCING OR SPRINGING AND CLEAR OF DOORS AND WINDOWS.
28.

ALL ABOVE GROUND PIPING SHALL GRADE TO LOW POINTS. PROVIDE HOSE END DRAIN VALVES AT THE BOTTOM OF ALL RISERS AND LOW POINTS.
29.

ALL VALVES (EXCEPT CONTROL VALVES) AND STRAINERS SHALL BE FULL SIZE (FULL PORT) OF PIPE BEFORE REDUCING SIZE TO MAKE CONNECTIONS TO EQUIPMENT AND CONTROLS AND SHALL BE ADJUSTED FOR SMOOTH AND EASY OPERATION.
30.

PROVIDE ALL PLUMBING FIXTURES AND EQUIPMENT WITH ACCESSIBLE STOPS.
31.

PROVIDE CLEANOUTS IN SANITARY DRAINAGE SYSTEMS AT ENDS OF RUNS, AT CHANGES IN DIRECTION, NEAR THE BASE OF STACKS, EVERY 100 FEET IN HORIZONTAL RUNS AND ELSEWHERE AS INDICATED. ALL CLEANOUTS SHALL BE FULL SIZE OF PIPE FOR PIPE SIZES 4 INCHES AND SMALLER AND SHALL BE 4 INCHES FOR PIPE SIZES LARGER THAN 4 INCHES.
32.

ALL BALANCING VALVES SHALL BE PROVIDED WITH POSITION INDICATORS AND MAXIMUM ADJUSTABLE STOPS (MEMORY STOPS).
33.

ALL FLOOR DRAINS AND FLOOR SINKS SHALL BE TRAP SEALED. MIFAB MI-GARD OR EQUAL.
34.

WATER AND DRAIN PIPING SHALL NOT BE RUN THROUGH OR ABOVE ELECTRICAL SWITCH GEAR OR ROOMS, OR TELEPHONE ROOMS.
35.

THE PLUMBING CONTRACTOR SHALL BE RESPONSIBLE FOR ALL COMPONENTS, ADAPTERS, AND FITTINGS TO MAKE FINAL CONNECTIONS TO ALL PLUMBING FIXTURES AS WELL AS FIXTURES PROVIDED BY OTHER CONTRACTORS.
36.

THE DRAWINGS AND SPECIFICATIONS ARE COMPLEMENTARY; WHATEVER IS CALLED FOR IN ONE SHALL BE REQUIRED AS IF CALLED FOR IN BOTH. WHERE CONFLICTS BETWEEN THE SPECIFICATIONS AND DRAWINGS MAY OCCUR, THE MOST COSTLY OF THE TWO OPTIONS SHALL TAKE PRECEDENCE.

PLUMBING ABBREVIATIONS			
AAV	AIR ADMITTANCE VALVE	IE	INVERT ELEVATION
AD	AREA DRAIN	IW	INDIRECT WASTE
AFF	ABOVE FINISHED FLOOR	L	LAVATORY
AFG	ABOVE FINISHED GRADE	LF	LAVATORY FAUCET
AG	AIR GAP	MB	MOP BASIN
BFF	BELOW FINISHED FLOOR	NO	NORMALLY OPEN
BFG	BELOW FINISHED GRADE	NC	NORMALLY CLOSED
BFP	BACKFLOW PREVENTER	NPS	NOMINAL PIPE SIZE
BOP	BOTTOM OF PIPE	PC	PLUMBING CONTRACTOR
CO	CLEANOUT	PRV	PRESSURE REDUCING VALVE
CW	COLD WATER (DOMESTIC)	PSIG	POUNDS PER SQUARE INCH
DCDA	DOUBLE CHECK DETECTOR ASSEMBLY	PVC	POLYVINYL CHLORIDE
DN	DOWN	RPBFP	REDUCED PRESSURE BACKFLOW PREVENTER
DWH	DOMESTIC WATER HEATER	RPDA	REDUCED PRESSURE DETECTOR ASSEMBLY
DWG(S)	DRAWING(S)	RP	HOT WATER RECIRCULATION PUMP
DWV	DRAIN, WASTE, AND VENT	SAN	SANITARY
EWC	ELECTRIC WATER COOLER	SS	SERVICE SINK
FCO	FLOOR CLEANOUT	TD	TRENCH DRAIN
FCW	FILTERED COLD WATER	TMV	THERMOSTATIC MIXING VALVE
FD	FLOOR DRAIN	TP	TRAP PRIMER
FF	FINISHED FLOOR	TW	TEMPERED WATER
FFD	FUNNEL FLOOR DRAIN	TYP	TYPICAL
FG	FINISHED GRADE	UG	UNDERGROUND
FHW	FILTERED HOT WATER	UR	URINAL
FS	FLOOR SINK	V	VENT
G	NATURAL GAS	VTR	VENT THROUGH ROOF
GC	GENERAL CONTRACTOR	W	WASTE
GW	GREASE WASTE	WC	WATER CLOSET
HB	HOSE BIBB	WCO	WALL CLEANOUT
HD	HUB DRAIN	WH	WALL HYDRANT (FREEZEPROOF)
HW	HOT WATER (DOMESTIC)		
HWR	HOT WATER RECIRCULATION		

* CERTAIN ABBREVIATIONS LISTED ABOVE MAY NOT APPLY TO THIS PROJECT.

PIPING & VALVE LEGEND	
	GATE VALVE
	BALL VALVE
	CHECK VALVE
	WYE STRAINER
	PRESSURE REGULATING VALVE
	PRESSURE REDUCING VALVE
	PRESSURE RELIEF VALVE
	BACKFLOW PREVENTER
	UNION
	CAP OR PLUG
	ELBOW - TURNED DOWN
	ELBOW - TURNED UP
	TEE - DOWN
	TEE - UP
	TOP CONNECTION
	BOTTOM CONNECTION
	REDUCER
	FLOOR DRAIN WITH TRAP
	FLOOR SINK WITH TRAP
	VENT THRU ROOF
	PIPE BREAK
	WATER OR NATURAL GAS METER
	CONNECT TO EXISTING

* CERTAIN ABBREVIATIONS LISTED ABOVE MAY NOT APPLY TO THIS PROJECT.

PLUMBING PIPING LEGEND

SYMBOL	DESCRIPTION
	SANITARY UNDERGROUND
	SANITARY ABOVEGROUND
	SANITARY VENT
	DOMESTIC COLD WATER
	DOMESTIC HOT WATER (°F AS NOTED)
	DOMESTIC HOT WATER RECIRC
	NATURAL GAS

* CERTAIN ITEMS IN THE LEGEND ABOVE MAY NOT APPLY TO THIS PROJECT. DARK PIPING INDICATES NEW PIPING AND LIGHT INDICATES EXISTING.

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Plumbing Legends and Notes

PLUMBING SPECIFICATIONS

A. SELECT REFERENCES DEFINITIONS

- AHRI - AIR-CONDITIONING, HEATING AND REFRIGERATION INSTITUTE
- ANSI - AMERICAN NATIONAL STANDARDS INSTITUTE INTERNATIONAL
- ASHRAE - AMERICAN SOCIETY OF HEATING, REFRIGERATING AND AIR-CONDITIONING ENGINEERS
- ASSE - AMERICAN SOCIETY OF SANITARY ENGINEERING
- ASME - AMERICAN SOCIETY OF MECHANICAL ENGINEERS INTERNATIONAL
- ASTM - AMERICAN SOCIETY FOR TESTING AND MATERIALS INTERNATIONAL
- AWWA - AMERICAN WATER WORKS ASSOCIATION
- EPA - U.S. ENVIRONMENTAL PROTECTION AGENCY
- ICC IPC - INTERNATIONAL CODE COUNCIL INTERNATIONAL PLUMBING CODE
- MSS - MANUFACTURERS STANDARDIZATION SOCIETY OF THE VALVE AND FITTINGS INDUSTRY
- MSS SP-58 (2009) - PIPE HANGERS AND SUPPORTS - MATERIALS, DESIGN AND MANUFACTURE, SELECTION, APPLICATION, AND INSTALLATION
- MSS SP-69 (2003 - NOTICE 2012) PIPE HANGERS AND SUPPORTS - SELECTION AND APPLICATION (ANSI APPROVED AMERICAN NATIONAL STANDARD)
- NFPA - NATIONAL FIRE PROTECTION ASSOCIATION
- NSF-61 - NSF/ANSI STANDARD 61: DRINKING WATER SYSTEM COMPONENTS - HEALTH EFFECTS
- PDI - PLUMBING AND DRAINAGE INSTITUTE
- UL - UNDERWRITERS LABORATORIES

B. SUBMITTALS

- PRODUCT DATA -ALL EQUIPMENT, FIXTURES, PIPING, PIPING ACCESSORIES AND PIPING INSULATION.
- TEST REPORTS - PRESSURE TESTS, FLUSHING AND DISINFECTION, TEST OF BACKFLOW PREVENTION ASSEMBLIES.
- OPERATION AND MAINTENANCE DATA - INSTALLATION, OPERATION AND MAINTENANCE MANUALS OF ALL SPECIFIED EQUIPMENT, FIXTURES, PIPING, PIPING ACCESSORIES AND PIPING INSULATION. FURNISH 2 BOOKS AND 2 CD'S OF BOOK.

C. PIPE AND FITTINGS

- ALL PIPES, FITTINGS, ACCESSORIES UTILIZED TO CONVEY POTABLE WATER SHALL COMPLY WITH NSF-61.
- DOMESTIC WATER
 - INSIDE BUILDING 6 INCH AND SMALLER - TYPE "L" HARD DRAWN SEAMLESS COPPER TUBE (ASTM 888)
- NATURAL GAS
 - INSIDE BUILDING - SCHEDULE 40 BLACK STEEL (ASTM A53, TYPE E, GRADE B).
 - OUTSIDE BUILDING ABOVE GROUND - SCHEDULE 40 BLACK STEEL (ASTM A53, TYPE E, GRADE B) FIELD PAINTED YELLOW.
- BUILDING SEWERS AND DRAINS "UNDERGROUND" (SANITARY SEWERS TO 5'-0" OUTSIDE BUILDING WALLS)- SERVICE WEIGHT CAST IRON, BELL AND SPIGOT, SOIL PIPE, AND FITTINGS (ASTM A74), WITH TYLER "TY-SEAL" OR EQUAL, NEOPRENE PIPE GASKETS (ASTM C564).
- SOIL, WASTE, VENT AND DRAIN PIPING "ABOVE GROUND INTERIOR" - NO HUB CAST IRON PIPE AND FITTINGS (ASTM A888, CISPI-301), AS MANUFACTURED BY CHARLOTTE, TYLER, OR AB + I, OR (VENT ONLY) COPPER DRAINAGE TUBE DWV, ASTM B306.
- NO PVC PIPING SHALL BE INSTALLED IN A CEILING PLENUM SPACE.
- TRAP PRIMER FEED PIPING - TYPE "K" SOFT COPPER WITHOUT JOINTS (ASTM B88) FOR ELEVATED FLOORS WITH DRAINS AND CROSS-LINKED POLYETHYLENE (PEX) PLASTIC TUBING (ASTM F 877) FOR SLAB ON GRADE WITH DRAINS.
- FITTINGS FOR GALVANIZED STEEL PIPE - 150 PSIG STEAM WORKING PRESSURE, GALVANIZED MALLEABLE IRON SCREWED FITTINGS.
- FITTINGS FOR NATURAL GAS PIPING - 150 PSIG, STEAM WORKING PRESSURE MALLEABLE IRON SCREWED FITTINGS ON SIZES THROUGH 2 INCHES AND STANDARD FACTORY FORMED WELDING FITTINGS ON SIZES OVER 2 INCHES.
- FITTINGS FOR COPPER PIPE - WROUGHT COPPER SOLDER JOINT TYPE ASTM B16.22. WHERE SILVER BRAZING ALLOY IS USED TO JOIN PIPE AND FITTINGS, FITTINGS TO BE SUITABLE FOR BRAZING.
- FITTINGS FOR WATER SERVICE PIPING "UNDERGROUND EXTERIOR"- PUSH ON JOINTS WITH RUBBER GASKET MEETING ANSI A21.11/AWWA C111.
- COPPER PRESS SYSTEM: AT THE CONTRACTOR'S OPTION, THE FOLLOWING PRESS SYSTEM MAY BE USED FOR DOMESTIC HOT AND COLD WATER SYSTEMS (SIZES 1/2" TO 4") IN LIEU OF THE PIPE MATERIALS / JOINTS SPECIFIED ABOVE.
 - PRESS FITTINGS: COPPER PRESS FITTINGS SHALL CONFORM TO THE MATERIAL AND SIZING REQUIREMENTS OF ASME B16.18 OR ASME B16.22. O-RINGS FOR COPPER PRESS FITTINGS SHALL BE EPDM.
 - MANUFACTURER: VIEGA PRO-PRESS OR ENGINEER APPROVED EQUAL.
- VALVES
 - PROVIDE ALL VALVES OF THE SAME MANUFACTURER WHERE POSSIBLE. MANUFACTURERS: APOLLO, MILWAUKEE, NIBCO, HAMMOND, OR WATTS. ALL VALVES TO BE OF DOMESTIC MANUFACTURE.
 - VALVES IN WATER PIPING 2 INCHES AND SMALLER: TWO-PIECE BALL VALVES WITH CAST BRONZE BODY, TEFLON SEATS, CONVENTIONAL PORT, BLOW-OUT PROOF STEM, ADJUSTABLE PACKING GLAND, CHROME PLATED SOLID BRONZE BALL, SOLDERED OR THREADED ENDS, MINIMUM 150 WSP, 600 WOG. MILWAUKEE BA-150.
 - VALVES IN WATER PIPING SYSTEMS WITH PRESSURE-SEAL-JOINT FITTINGS (PROPRESS), PRESS-END VALVES BY VIEGA OR ENGINEER APPROVED EQUAL WITH THE SAME CHARACTERISTICS AS THE STANDARD VALVES LISTED ABOVE SHALL BE UTILIZED.
 - NATURAL GAS AUTOMATIC EMERGENCY SHUT-OFF VALVES SHALL BE U.L. LISTED F.M. APPROVED FOR NATURAL GAS SERVICE, 2-WAY ELECTRICALLY TRIPPED SOLENOID TYPE; FAIL SAFE CLOSED; MANUAL RESET; TYPE 1 SOLENOID ENCLOSURE; NBR SEALS AND DISC; STAINLESS STEEL CORE TUBE AND SPRINGS; COPPER COIL; MANUFACTURED BY ASCO RED HAT SERIES 8044 OR EQUAL BY HONEYWELL OR JEFFERSON.
 - NATURAL GAS LINE PRESSURE REGULATORS SHALL BE SPRING LOADED, SELF-OPERATED REGULATOR WITH AND INTERNAL MONITORING DEVICE AS WELL AS A BACK-UP INTERNAL RELIEF VALVE PROVIDING AN ADDED LEVEL OF OVERPRESSURE PROTECTION. VALVE BODY SHALL BE OF HIGH TENSILE STRENGTH CAST IRON (ASTM A-126, CLASS A) WITH BRASS ORIFICE, BUNA-N VALVE SEAT, ALUMINUM VALVE STEM, AND BUNA-N AND

- NYLON REINFORCING FABRIC DIAPHRAGM. VENT LINES SHALL BE ROUTED OUTDOORS, BE AS SHORT AS POSSIBLE, AND TERMINATE WITH A TURNDOWN AND INSECT SCREEN.
- OPERATORS: ON-OFF THROTTLING LEVER HANDLES ON SIZES 2-1/2 INCHES TO 6 INCHES, TOTALLY ENCLOSED WORM GEAR OR ACME SCREW OPERATORS WITH HAND WHEEL ON SIZES 8 INCHES TO 12 INCHES. EQUIP VALVES USED FOR BALANCING WITH MEMORY STOP. MILWAUKEE CL123 SERIES. INSTALL CHAINWHEELS ON OPERATORS FOR GATE VALVES NPS 4 AND LARGER AND MORE THAN 96 INCHES ABOVE FLOOR. EXTEND CHAINS TO 60 INCHES ABOVE FINISHED FLOOR.
 - HORIZONTAL CHECK VALVES 2 INCHES AND SMALLER: SWING TYPE DESIGN, CLASS 125, 200 WOG, WITH BRONZE BODY AND CAP WITH THREADED OR SOLDERED ENDS. CONFORM TO ASTM B62. MILWAUKEE 509 OR 1509.
 - VERTICAL CHECK VALVES 2 INCHES AND SMALLER: 250 WOG. CENTER GUIDER, SILENT, NON-SLAM TYPE. BRONZE BODY, SPRING, AND DISC HOLDER, THREADED ENDS. METRAFLEX 700.
 - SHUTOFF VALVES FOR NATURAL GAS PIPING: 2 INCHES AND SMALLER, U.L. LISTED BALL VALVE, 175 PSI WORKING PRESSURE. CAST BRONZE BODY, VITON SEALS, FULL PORT, THREADED ENDS, STAINLESS STEEL TRIM, AGA CERTIFIED AND UL LISTED FOR FLAMMABLE LIQUIDS AND LP GAS. MILWAUKEE VALVE BB2-100, NIBCO T-585-70-UL OR T-580-70-UL.
 - SHUTOFF VALVES FOR NATURAL GAS PIPING: 2-1/2 INCHES AND LARGER, ASME/ANSI COMPLIANT API APPROVED BALL VALVE. CLASS 150 CARBON STEEL FIRE SAFE SPLIT BODY, STAINLESS STEEL VENTED FULL PORT BALL VALVE WITH BLOW OUT PROOF STEM, STAINLESS STEEL TRIM, FLANGED ENDS. MILWAUKEE F20CS150F, OR NIBCO F-515CSF66FS.
- STRAINERS
 - 2 INCHES AND SMALLER, "Y" TYPE PIPE LINE STRAINER, BRASS OR BRONZE BODY, THREADED ENDS, 304 STAINLESS STEEL SCREEN WITH 20 MESH OPENINGS, 400 PSIG AT 210 DEGREE F. COMPLETE WITH SOLID RETAINER CAP AND GASKET. WATTS SERIES 777 OR EQUIVALENT BY CLA-VAL, CONBRACO, FEBCO, OR WILKINS.
 - UNIONS
 - UNIONS IN STEEL PIPING 2 INCHES AND SMALLER, MALLEABLE IRON, GROUND JOINT BRASS TO IRON SEAT SUITABLE FOR 175 PSI WORKING PRESSURES.
 - UNIONS IN COPPER PIPING 2 INCHES AND SMALLER, CAST BRASS SOLDER FITTINGS WITH MACHINED AND LAPPED SEATS SUITABLE FOR 175 PSI WORKING PRESSURES.
 - WATER HAMMER ARRESTORS -BELLOW TYPE, WITH STAINLESS STEEL CASING AND BELLOW, TESTED AND CERTIFIED IN ACCORDANCE WITH PDI STANDARD WH-201. PROVIDE A PRESSURE REDUCING VALVE ON THE INLET TO THE DEVICE WHERE SYSTEM PRESSURES ARE ABOVE 80PSI. MANUFACTURER: JAY R. SMITH, OTHER ACCEPTABLE MANUFACTURERS ARE: JOSAM, WADE, AND ZURN.
 - PIPE HANGERS (SUPPORTS) - PROVIDE MSS SP-58 AND MSS SP-69, TYPE 1 WITH ADJUSTABLE TYPE STEEL SUPPORT RODS, EXCEPT AS SPECIFIED OR INDICATED OTHERWISE. ATTACH TO STEEL JOISTS WITH TYPE 19 OR 23 CLAMPS AND RETAINING STRAPS. ATTACH TO STEEL W OR S BEAMS WITH TYPE 21, 28, OR 30 CLAMPS. ATTACH TO STEEL ANGLES AND VERTICAL WEB STEEL CHANNELS WITH TYPE 20 CLAMP WITH BEAM CLAMP CHANNEL ADAPTER. ATTACH TO HORIZONTAL WEB STEEL CHANNEL AND WOOD WITH DRILLED HOLE ON CENTERLINE AND DOUBLE NUT AND WASHER. ATTACH TO CONCRETE WITH TYPE 18 INSERT OR DRILLED EXPANSION ANCHOR. PROVIDE TYPE 40 INSULATION PROTECTION SHIELD FOR INSULATED PIPING.
- D. GAUGES
- PRESSURE AND VACUUM INDICATING DIAL TYPE - ELASTIC ELEMENT: ASME B40.100.
- E. THERMOMETERS
- DIRECT-MOUNTED, METAL CASE, VAPOR ACTUATED THERMOMETERS: ASME B40.200. MERCURY SHALL NOT BE USED IN THERMOMETERS.
- F. PIPE INSULATION MATERIAL
- ACCEPTABLE MANUFACTURERS: OWENS-CORNING, KNAUF, CERTAINTED, PITTSBURG-CORNING DOMESTIC HOT, HOT WATER RECIRC, & COLD WATER SHALL BE INSULATED WITH 1" GLASS FIBER NON-COMBUSTABLE PREFORMED INSULATION, ASTM C547 WITH A "K" VALUE OF .23" AT 75°F AND FACTORY APPLIED VAPOR BARRIER JACKET. VAPOR BARRIER JACKETS SHALL BE KRAFT REINFORCED WHITE VAPOR BARRIER WITH SELF-SEALING ADHESIVE JOINTS.
- EXPOSED SANITARY DRAINS, DOMESTIC WATER, DOMESTIC HOT WATER, AND STOPS AT LAVATORIES SHALL BE INSTALLED AND FINISHED WITH TRUEBRO MODEL NO. 102 "LAV-GUARD" OR BROCAR "TRAP-WRAP" WHITE INSULATION KIT.
- G. FLOOR, CEILING, AND WALL PLATES
- FIT ALL PIPE PASSING EXPOSED THROUGH WALLS, FLOORS, OR CEILINGS IN FINISHED ROOMS WITH STEEL OR BRASS ESCUTCHEONS. WHERE SURFACE IS TO RECEIVE A PAINT FINISH MAKE ESCUTCHEONS PRIME PAINTED; OTHERWISE MAKE ESCUTCHEONS NICKEL OR CHROME PLATED. WHERE PIPING IS INSULATED, FIT ESCUTCHEONS OUTSIDE INSULATION.
- H. SLEEVES
- SLEEVES IN PARTITIONS OTHER THAN MASONRY OR CONCRETE WHERE FIRESTOPPING IS REQUIRED: 28 GAGE GALVANIZED STEEL SHEET. WHERE PIPES PASS THROUGH FLOORS, SET SCHEDULE 40 GALVANIZED STEEL PIPE SLEEVES 1 INCH LARGER THAN THE OUTSIDE DIAMETER OF THE PIPE. TOP OF SLEEVE TO BE 4 INCHES ABOVE FINISHED FLOOR IN MACHINE ROOMS AND WET FLOOR LOCATIONS. WHERE PIPES ARE INSULATED, PROVIDE SLEEVES LARGE ENOUGH TO ALLOW INSULATION TO PASS THROUGH SLEEVE. CENTER PIPES IN SLEEVES. PROVIDE FIRE STOPPING BETWEEN PIPE AND SLEEVE OR OPENING AS REQUIRED TO MAINTAIN THE INTEGRITY OF THE FIRE RATING OF ALL WALLS AND FLOORS. FIRE STOPPING PRODUCTS SHALL BE MANUFACTURED BY SPECIFIED TECHNOLOGIES, INC. (STI) AND INSTALLED BY A UL QUALIFIED FIRESTOP CONTRACTOR THAT HAS ALSO COMPLETED THE "CLEVELAND CLINIC FIRESTOP TRAINING CLASS". WHERE PIPES PASS THROUGH EXTERIOR WALLS BELOW GRADE, SET SCHEDULE 40 STEEL PIPE OR MANUFACTURED CASTINGS OR SLEEVES 1-1/2 INCH LARGER THAN THE OUTSIDE DIAMETER OF THE PIPE. MAKE THE PIPE TO WALL PENETRATION CLOSURE WITH "LINK-SEAL" AS MANUFACTURED BY THE THUNDERLITE CORP. OR METRASEAL.
- I. ESCUTCHEON PLATES
- PROVIDE ONE PIECE OR SPLIT HINGE METAL PLATES FOR PIPING ENTERING FLOORS, WALLS, AND CEILINGS IN EXPOSED SPACES. PROVIDE CHROMIUM-PLATED ON COPPER ALLOY PLATES OR POLISHED STAINLESS STEEL FINISH IN FINISHED SPACES. PROVIDE PAINT FINISH ON PLATES IN UNFINISHED SPACES.
- J. PLUMBING IDENTIFICATION
- NAMEPLATES- PROVIDE 0.125 INCH THICK MELAMINE LAMINATED PLASTIC NAMEPLATES, BLACK MATTE FINISH WITH WHITE CENTER CORE. FOR EQUIPMENT, GAGES, THERMOMETERS, AND VALVES. VALVES IN SUPPLIES TO FAUCETS WILL NOT REQUIRE NAMEPLATES. KEY NAMEPLATES TO A CHART AND SCHEDULE FOR EACH SYSTEM. FRAME CHARTS AND SCHEDULES UNDER GLASS AND PLACE WHERE DIRECTED NEAR EACH SYSTEM. FURNISH TWO COPIES OF EACH CHART AND SCHEDULE.
 - SELF-ADHESIVE PIPE LABELS: PRINTED PLASTIC WITH CONTACT-TYPE, PERMANENT-ADHESIVE BACKING, PIPE LABEL CONTENTS: INCLUDE IDENTIFICATION OF PIPING SERVICE USING SAME DESIGNATIONS OR ABBREVIATIONS AS USED ON DRAWINGS, PIPE SIZE, AND AN ARROW INDICATING FLOW DIRECTION.
 - INSTALL WARNING LABELS STATING "CAUTION: NON-POTABLE WATER. DO

- NOT DRINK" ON ALL NON-POTABLE WATER PIPING AFTER IT HAS BEEN INSULATED.
- K. INSTALLATION
- THE PIPING SHALL BE EXTENDED TO FIXTURES, OUTLETS, AND EQUIPMENT. THE HOT-WATER AND COLD-WATER PIPING SYSTEM SHALL BE ARRANGED AND INSTALLED TO PERMIT DRAINING. THE SUPPLY LINE TO EACH ITEM OF EQUIPMENT OR FIXTURE, EXCEPT FAUCETS, FLUSH VALVES, OR OTHER CONTROL VALVES WHICH ARE SUPPLIED WITH INTEGRAL STOPS, SHALL BE EQUIPPED WITH A SHUTOFF VALVE TO ENABLE ISOLATION OF THE ITEM FOR REPAIR AND MAINTENANCE WITHOUT INTERFERING WITH OPERATION OF OTHER EQUIPMENT OR FIXTURES. SUPPLY PIPING TO FIXTURES, FAUCETS, HYDRANTS, SHOWER HEADS, AND FLUSHING DEVICES SHALL BE ANCHORED TO PREVENT MOVEMENT.
 - THE WORK SHALL BE CAREFULLY LAID OUT IN ADVANCE, AND UNNECESSARY CUTTING OF CONSTRUCTION SHALL BE AVOIDED. DAMAGE TO BUILDING, PIPING, WIRING, OR EQUIPMENT AS A RESULT OF CUTTING SHALL BE REPAIRED BY MECHANICS SKILLED IN THE TRADE INVOLVED.
 - PIPE OPENINGS SHALL BE CLOSED WITH CAPS OR PLUGS DURING INSTALLATION. FIXTURES AND EQUIPMENT SHALL BE TIGHTLY COVERED AND PROTECTED AGAINST DIRT, WATER, CHEMICALS, AND MECHANICAL INJURY. UPON COMPLETION OF THE WORK, THE FIXTURES, MATERIALS, AND EQUIPMENT SHALL BE THOROUGHLY CLEANED, ADJUSTED, AND OPERATED. SAFETY GUARDS SHALL BE PROVIDED FOR EXPOSED ROTATING EQUIPMENT.
 - PIPING SHALL BE INSTALLED AS INDICATED. PIPE SHALL BE ACCURATELY CUT AND WORKED INTO PLACE WITHOUT SPRINGING OR FORCING. STRUCTURAL PORTIONS OF THE BUILDING SHALL NOT BE WEAKENED. ABOVEGROUND PIPING SHALL RUN PARALLEL WITH THE LINES OF THE BUILDING, UNLESS OTHERWISE INDICATED. BRANCH PIPES FROM SERVICE LINES MAY BE TAKEN FROM TOP, BOTTOM, OR SIDE OF MAIN, USING CROSSOVER FITTINGS REQUIRED BY STRUCTURAL OR INSTALLATION CONDITIONS.
 - SUPPLY PIPES, VALVES, AND FITTINGS SHALL BE KEPT A SUFFICIENT DISTANCE FROM OTHER WORK AND OTHER SERVICES TO PERMIT NOT LESS THAN 1/2 INCH BETWEEN FINISHED COVERING ON THE DIFFERENT SERVICES. BARE AND INSULATED WATER LINES SHALL NOT BEAR DIRECTLY AGAINST BUILDING STRUCTURAL ELEMENTS SO AS TO TRANSMIT SHOCK TO THE STRUCTURE OR TO PREVENT FLEXIBLE MOVEMENT OF THE LINES. WATER PIPE SHALL NOT BE BURIED IN OR UNDER FLOORS UNLESS SPECIFICALLY INDICATED OR APPROVED. CHANGES IN PIPE SIZES SHALL BE MADE WITH REDUCING FITTINGS. USE OF BUSHINGS WILL NOT BE PERMITTED EXCEPT FOR USE IN SITUATIONS IN WHICH STANDARD FACTORY FABRICATED COMPONENTS ARE FURNISHED TO ACCOMMODATE SPECIFIC ACCEPTED INSTALLATION PRACTICE. CHANGE IN DIRECTION SHALL BE MADE WITH FITTINGS.
 - PIPE DRAINS INDICATED SHALL CONSIST OF 3/4 INCH HOSE BIBB WITH RENEWABLE SEAT AND BALL VALVE AHEAD OF HOSE BIBB. AT OTHER LOW POINTS, 3/4 INCH BRASS PLUGS OR CAPS SHALL BE PROVIDED. DISCONNECTION OF THE SUPPLY PIPING AT THE FIXTURE IS AN ACCEPTABLE DRAIN.
 - ALLOWANCE SHALL BE MADE THROUGHOUT FOR EXPANSION AND CONTRACTION OF WATER PIPE. BRANCH CONNECTIONS FROM RISERS SHALL BE MADE WITH AMPLE SWING OR OFFSET TO AVOID UNDUE STRAIN ON FITTINGS OR SHORT PIPE LENGTHS. HORIZONTAL RUNS OF PIPE OVER 50 FEET IN LENGTH SHALL BE ANCHORED TO THE WALL OR THE SUPPORTING CONSTRUCTION ABOUT MIDWAY ON THE RUN. SUFFICIENT FLEXIBILITY SHALL BE PROVIDED ON BRANCH RUNOUTS FROM MAINS AND RISERS TO PROVIDE FOR EXPANSION AND CONTRACTION OF PIPING. FLEXIBILITY SHALL BE PROVIDED BY INSTALLING ONE OR MORE TURNS IN THE LINE.
 - COMMERCIAL-TYPE WATER HAMMER ARRESTERS SHALL BE PROVIDED ON HOT- AND COLD-WATER SUPPLIES AND PRECISE LOCATION AND SIZING TO BE IN ACCORDANCE WITH PDI WH 201. WATER HAMMER ARRESTERS, WHERE CONCEALED, SHALL BE ACCESSIBLE BY MEANS OF ACCESS DOORS OR REMOVABLE PANELS. COMMERCIAL-TYPE WATER HAMMER ARRESTERS SHALL CONFORM TO ASSE 1010. VERTICAL CAPPED PIPE COLUMNS WILL NOT BE PERMITTED.
 - FIRE SEAL - WHERE PIPES PASS THROUGH FIRE WALLS, FIRE-PARTITIONS, FIRE-RATED PIPE CHASE WALLS OR FLOORS ABOVE GRADE, A FIRE SEAL SHALL BE PROVIDED.
 - INSTALL AIR ADMITTANCE VALVES IN ACCORDANCE WITH CODE AND MANUFACTURER'S INSTRUCTIONS. INSTALL AIR ADMITTANCE VALVES AFTER DRAINAGE AND WASTE SYSTEM HAS BEEN ROUGHED IN. LOCATE VALVES MINIMUM 4 INCHES ABOVE HORIZONTAL BRANCH DRAIN OR FIXTURE DRAIN BEING VENTED. INSTALL VALVES IN ACCESSIBLE LOCATIONS. CONNECT VALVES TO PIPING IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS. INSTALL VALVES IN UPRIGHT POSITION, WITHIN 15 DEGREES OF TRUE VERTICAL. EXTEND MINIMUM OF ONE VENT TO OPEN ATMOSPHERE FOR EACH BUILDING DRAINAGE SYSTEM. DO NOT INSTALL VALVES IN SUPPLY AND RETURN AIR PLENUMS.
 - INSTALL AIR-GAP FITTINGS ON DRAINING-TYPE BACKFLOW PREVENTERS AND ON INDIRECT-WASTE PIPING DISCHARGE INTO SANITARY DRAINAGE SYSTEM.
 - HANGERS USED TO SUPPORT PIPING 2 INCHES AND LARGER SHALL BE FABRICATED TO PERMIT ADEQUATE ADJUSTMENT AFTER ERECTION WHILE STILL SUPPORTING THE LOAD. PIPE GUIDES AND ANCHORS SHALL BE INSTALLED TO KEEP PIPES IN ACCURATE ALIGNMENT, TO DIRECT THE EXPANSION MOVEMENT, AND TO PREVENT BUCKLING, SWAYING, AND UNDUE STRAIN. PIPING SUBJECTED TO VERTICAL MOVEMENT WHEN OPERATING TEMPERATURES EXCEED AMBIENT TEMPERATURES SHALL BE SUPPORTED BY VARIABLE SPRING HANGERS AND SUPPORTS OR BY CONSTANT SUPPORT HANGERS IN THE SUPPORT OF MULTIPLE PIPE RUNS ON A COMMON BASE MEMBER. A CLIP OR CLAMP SHALL BE USED WHERE EACH PIPE CROSSES THE BASE SUPPORT MEMBER. SPACING OF THE BASE SUPPORT MEMBERS SHALL NOT EXCEED THE HANGER AND SUPPORT SPACING REQUIRED FOR AN INDIVIDUAL PIPE IN THE MULTIPLE PIPE RUN. THREADED SECTIONS OF RODS SHALL NOT BE FORMED OR BENT.
 - PIPE HANGERS, INSERTS, AND SUPPORTS
 - AN INSTALLATION OF PIPE HANGERS, INSERTS AND SUPPORTS SHALL CONFORM TO MSS SP-58 AND MSS SP-69, EXCEPT AS MODIFIED HEREIN.
 - TYPES 5, 12, AND 26 SHALL NOT BE USED.
 - TYPE 3 SHALL NOT BE USED ON INSULATED PIPE.
 - TYPE 18 INSERTS SHALL BE SECURED TO CONCRETE FORMS BEFORE CONCRETE IS PLACED. CONTINUOUS INSERTS WHICH ALLOW MORE ADJUSTMENT MAY BE USED IF THEY OTHERWISE MEET THE REQUIREMENTS FOR TYPE 18 INSERTS.
 - TYPE 19 AND 23 C-CLAMPS SHALL BE TORQUED PER MSS SP-69 AND SHALL HAVE BOTH LOCKNUTS AND RETAINING DEVICES FURNISHED BY THE MANUFACTURER.
 - FIELD-FABRICATED C-CLAMP BODIES OR RETAINING DEVICES ARE NOT ACCEPTABLE.
 - TYPE 20 ATTACHMENTS USED ON ANGLES AND CHANNELS SHALL BE FURNISHED WITH AN ADDED MALLEABLE-IRON HEEL PLATE OR ADAPTER.
 - TYPE 24 MAY BE USED ONLY ON TRAPEZE HANGER SYSTEMS OR ON FABRICATED FRAMES.
 - TYPE 39 SADDLES SHALL BE USED ON INSULATED PIPE 4 INCHES AND

- LARGER WHEN THE TEMPERATURE OF THE MEDIUM IS 80 DEGREES F OR HIGHER. TYPE 39 SADDLES SHALL BE WELDED TO THE PIPE.
- TYPE 40 SHIELDS SHALL:
 - BE USED ON INSULATED PIPE LESS THAN 4 INCHES.
 - BE USED ON INSULATED PIPE 4 INCHES AND LARGER WHEN THE TEMPERATURE OF THE MEDIUM IS 60 DEGREES F OR LESS.
 - HAVE A HIGH DENSITY INSERT FOR ALL PIPE SIZES. HIGH DENSITY INSERTS SHALL HAVE A DENSITY OF 8 PCF OR GREATER.
 - HORIZONTAL PIPE SUPPORTS SHALL BE SPACED AS SPECIFIED IN MSS SP-69 AND A SUPPORT SHALL BE INSTALLED NOT OVER 1 FOOT FROM THE PIPE FITTING JOINT AT EACH CHANGE IN DIRECTION OF THE PIPING. PIPE SUPPORTS SHALL BE SPACED NOT OVER 5 FEET APART AT VALVES. HORIZONTAL PIPE RUNS SHALL INCLUDE ALLOWANCES FOR EXPANSION AND CONTRACTION.
 - VERTICAL PIPE SHALL BE SUPPORTED AT EACH FLOOR, EXCEPT AT SLAB-ON-GRADE, AT INTERVALS OF NOT MORE THAN 15 FEET (FOR STEEL PIPING, 10-FEET MAXIMUM FOR COPPER SYSTEMS) NOR MORE THAN 8 FEET FROM END OF RISERS, AND AT VENT TERMINATIONS. VERTICAL PIPE RISERS SHALL INCLUDE ALLOWANCES FOR EXPANSION AND CONTRACTION.
 - PIPE HANGERS ON HORIZONTAL INSULATED PIPE SHALL BE THE SIZE OF THE OUTSIDE DIAMETER OF THE INSULATION. THE INSULATION SHALL BE CONTINUOUS THROUGH THE HANGER ON ALL PIPE SIZES AND APPLICATIONS.
 - HANGERS AND SUPPORTS FOR PLASTIC PIPE SHALL NOT COMPRESS, DISTORT, CUT OR ABRASE THE PIPING, AND SHALL ALLOW FREE MOVEMENT OF PIPE EXCEPT WHERE OTHERWISE REQUIRED IN THE CONTROL OF EXPANSION/CONTRACTION.
 - STRUCTURAL ATTACHMENTS - ATTACHMENT TO BUILDING STRUCTURE CONCRETE AND MASONRY SHALL BE BY CAST-IN CONCRETE INSERTS, BUILT-IN ANCHORS, OR MASONRY ANCHOR DEVICES. INSERTS AND ANCHORS SHALL BE APPLIED WITH A SAFETY FACTOR NOT LESS THAN 5. SUPPORTS SHALL NOT BE ATTACHED TO METAL DECKING. SUPPORTS SHALL NOT BE ATTACHED TO THE UNDERSIDE OF CONCRETE FILLED FLOOR OR CONCRETE ROOF DECKS UNLESS APPROVED BY THE STRUCTURAL ENGINEER. MASONRY ANCHORS FOR OVERHEAD APPLICATIONS SHALL BE CONSTRUCTED OF FERROUS MATERIALS ONLY.
 - PIPE CLEANOUTS -PIPE CLEANOUTS SHALL BE THE SAME SIZE AS THE PIPE EXCEPT THAT CLEANOUT PLUGS LARGER THAN 4 INCHES WILL NOT BE REQUIRED. A CLEANOUT INSTALLED IN CONNECTION WITH CAST-IRON SOIL PIPE SHALL CONSIST OF A LONG-SWEEP 1/4 BEND OR ONE OR TWO 1/8 BENDS EXTENDED TO THE PLACE SHOWN. AN EXTRA-HEAVY CAST-BRASS OR CAST-IRON FERRULE WITH COUNTERSUNK CAST-BRASS HEAD SCREW PLUG SHALL BE CAULKED INTO THE HUB OF THE FITTING AND SHALL BE FLUSH WITH THE FLOOR. CLEANOUTS IN CONNECTION WITH OTHER PIPE, WHERE INDICATED, SHALL BE T-PATTERN, 90-DEGREE BRANCH DRAINAGE FITTINGS WITH CAST-BRASS SCREW PLUGS, EXCEPT PLASTIC PLUGS SHALL BE INSTALLED IN PLASTIC PIPE. CLEANOUT TEE BRANCHES WITH SCREW PLUG SHALL BE INSTALLED AT THE FOOT OF SOIL AND WASTE STACKS, AT THE FOOT OF INTERIOR DOWNSPOUTS, ON EACH CONNECTION TO BUILDING STORM DRAIN WHERE INTERIOR DOWNSPOUTS ARE INDICATED, AND ON EACH BUILDING DRAIN OUTSIDE THE BUILDING. CLEANOUTS ON PIPE CONCEALED IN PARTITIONS SHALL BE PROVIDED WITH CHROMIUM PLATED BRONZE, NICKEL BRONZE FLUSH TYPE ACCESS COVER PLATES. ROUND ACCESS COVERS SHALL BE PROVIDED AND SECURED TO PLUGS WITH SECURING SCREW. CLEANOUTS IN FINISHED WALLS SHALL HAVE ACCESS COVERS AND FRAMES INSTALLED FLUSH WITH THE FINISHED WALL. CLEANOUTS INSTALLED IN FINISHED FLOORS SUBJECT TO FOOT TRAFFIC SHALL BE PROVIDED WITH A NICKEL BRONZE COVER SECURED TO THE PLUG OR COVER FRAME AND SET FLUSH WITH THE FINISHED FLOOR. HEADS OF FASTENING SCREWS SHALL NOT PROJECT ABOVE THE COVER SURFACE.
- L. TESTS, FLUSHING AND DISINFECTION
- PRESSURE TESTS SHALL BE PERFORMED ON THE PLUMBING SYSTEM IN ACCORDANCE WITH 2016 CALIFORNIA PLUMBING CODE.
 - ROUGH IN DRAINAGE AND VENT SYSTEMS TEST SHALL INCLUDE CLOSING ALL OPENINGS IN SYSTEM AND FILLING TO THE POINT OF OVERFLOW, BUT NOT LESS THAN 10-FOOT HEAD OF WATER FOR A PERIOD OF 15 MINUTES. DURING TEST WATER LEVEL MUST NOT DROP. FINISHED PLUMBING SANITARY AND VENT TEST SHALL BE PERFORMED AFTER ALL FIXTURES ARE SET, TRAPS ARE FILLED WITH WATER AND VENT OPENINGS SEALED. INTRODUCE 1-INCH WG AIR PRESSURE INTO SYSTEM AND MAINTAIN DURING VISUAL INSPECTION OF SYSTEM FOR AND GAS OR WATER LEAKS. AIR PRESSURE MUST REMAIN CONSTANT WITHOUT INTRODUCTION OF ANY ADDITIONAL AIR DURING TEST INSPECTION.
 - TEST OF BACKFLOW PREVENTION ASSEMBLIES - BACKFLOW PREVENTION ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH THE REQUIREMENTS OF STATE OR LOCAL REGULATORY AGENCIES.
 - DEFECTIVE WORK - IF INSPECTION OR TEST SHOWS DEFECTS, SUCH DEFECTIVE WORK OR MATERIAL SHALL BE REPLACED OR REPAIRED AS NECESSARY AND INSPECTION AND TESTS SHALL BE REPEATED. REPAIRS TO PIPING SHALL BE MADE WITH NEW MATERIALS. CAULKING OF SCREWED JOINTS OR HOLES WILL NOT BE ACCEPTABLE.
 - ALL PLUMBING AND NATURAL GAS TESTING IS REQUIRED TO BE WITNESSED BY THE PLUMBING INSPECTOR FOR THE AUTHORITY HAVING JURISDICTION.
- M. SYSTEM FLUSHING
- BEFORE OPERATIONAL TESTS OR DISINFECTION, POTABLE WATER PIPING SYSTEM SHALL BE FLUSHED WITH POTABLE WATER. SUFFICIENT WATER SHALL BE USED TO PRODUCE A WATER VELOCITY THAT IS CAPABLE OF ENTRAINING AND REMOVING DEBRIS IN ALL PORTIONS OF THE PIPING SYSTEM. THIS REQUIRES SIMULTANEOUS OPERATION OF ALL FIXTURES ON A COMMON BRANCH OR MAIN IN ORDER TO PRODUCE A FLUSHING VELOCITY OF APPROXIMATELY 4 FPS THROUGH ALL PORTIONS OF THE PIPING SYSTEM. CONTRACTOR SHALL PROVIDE ADEQUATE PERSONNEL TO MONITOR THE FLUSHING OPERATION AND TO ENSURE THAT DRAIN LINES ARE UNOBSTRUCTED IN ORDER TO PREVENT FLOODING OF THE FACILITY. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY FLOOD DAMAGE RESULTING FROM FLUSHING OF THE SYSTEM. FLUSHING SHALL BE CONTINUED UNTIL ENTRAINED DIRT AND OTHER FOREIGN MATERIALS HAVE BEEN REMOVED AND UNTIL DISCHARGE WATER SHOWS NO DISCOLORATION. ALL FAUCETS AND DRINKING WATER FOUNTAINS, TO INCLUDE ANY DEVICE CONSIDERED AS AN END POINT DEVICE BY NSF/ANSI 61, SECTION 9, SHALL BE FLUSHED A MINIMUM OF 0.25 GALLONS PER 24 HOUR PERIOD, TEN TIMES OVER A 14 DAY PERIOD.
 - AFTER FLUSHING - SYSTEM SHALL BE DRAINED AT LOW POINTS. STRAINER SCREENS SHALL BE REMOVED, CLEANED, AND REPLACED. AFTER FLUSHING AND CLEANING, SYSTEMS SHALL BE PREPARED FOR TESTING BY IMMEDIATELY FILLING WATER PIPING WITH CLEAN, FRESH POTABLE WATER. ANY STOPPAGE, DISCOLORATION, OR OTHER DAMAGE TO THE FINISH, FURNISHINGS, OR PARTS OF THE BUILDING DUE TO THE CONTRACTOR'S FAILURE TO PROPERLY CLEAN THE PIPING SYSTEM SHALL BE REPAIRED BY THE CONTRACTOR. WHEN THE SYSTEM FLUSHING IS COMPLETE, THE HOT-WATER SYSTEM SHALL BE ADJUSTED FOR UNIFORM CIRCULATION.
 - FLUSHING DEVICES AND AUTOMATIC CONTROL SYSTEMS SHALL BE ADJUSTED FOR PROPER OPERATION ACCORDING TO MANUFACTURER'S INSTRUCTIONS. COMPLY WITH ASHRAE 90.1 - IP FOR MINIMUM EFFICIENCY REQUIREMENTS. UNLESS MORE STRINGENT LOCAL REQUIREMENTS EXIST, LEAD LEVELS SHALL NOT EXCEED LIMITS ESTABLISHED BY 40 CFR 141.80 (C)(1). THE WATER SUPPLY TO THE BUILDING SHALL BE TESTED SEPARATELY TO ENSURE THAT ANY LEAD CONTAMINATION FOUND DURING POTABLE WATER SYSTEM TESTING IS DUE TO WORK BEING PERFORMED.

- INSIDE THE BUILDING.
- N. OPERATIONAL TEST
- UPON COMPLETION OF FLUSHING AND PRIOR TO DISINFECTION PROCEDURES, THE CONTRACTOR SHALL SUBJECT THE PLUMBING SYSTEM TO OPERATING TESTS TO DEMONSTRATE SATISFACTORY INSTALLATION, CONNECTIONS, ADJUSTMENTS, AND FUNCTIONAL AND OPERATIONAL EFFICIENCY. SUCH OPERATING TESTS SHALL COVER A PERIOD OF NOT LESS THAN 8 HOURS FOR EACH SYSTEM AND SHALL INCLUDE THE FOLLOWING INFORMATION IN A REPORT WITH CONCLUSION AS TO THE ADEQUACY OF THE SYSTEM:
 - TIME, DATE, AND DURATION OF TEST.
 - WATER PRESSURES AT THE MOST REMOTE AND THE HIGHEST FIXTURES.
 - OPERATION OF EACH FIXTURE AND FIXTURE TRIM.
 - OPERATION OF EACH VALVE, HYDRANT, AND FAUCET.
 - PUMP SUCTION AND DISCHARGE PRESSURES.
 - TEMPERATURE OF EACH DOMESTIC HOT-WATER SUPPLY.
 - OPERATION OF EACH FLOOR AND ROOF DRAIN BY FLOODING WITH WATER.
 - OPERATION OF EACH VACUUM BREAKER AND BACKFLOW PREVENTER.
 - COMPLETE OPERATION OF EACH WATER PRESSURE BOOSTER SYSTEM, INCLUDING PUMP START PRESSURE AND STOP PRESSURE.
 - DISINFECTION
 - AFTER ALL SYSTEM COMPONENTS ARE PROVIDED AND OPERATIONAL TESTS ARE COMPLETE, THE ENTIRE DOMESTIC HOT- AND COLD-WATER DISTRIBUTION SYSTEM SHALL BE DISINFECTED. BEFORE INTRODUCING DISINFECTING CHLORINATION MATERIAL, ENTIRE SYSTEM SHALL BE FLUSHED WITH POTABLE WATER UNTIL ANY ENTRAINED DIRT AND OTHER FOREIGN MATERIALS HAVE BEEN REMOVED.
 - WATER CHLORINATION PROCEDURE SHALL BE IN ACCORDANCE WITH AWWA C651 AND AWWA C652 AS MODIFIED AND SUPPLEMENTED BY THIS SPECIFICATION. THE CHLORINATING MATERIAL SHALL BE HYPOCHLORITES OR LIQUID CHLORINE. THE CHLORINATING MATERIAL SHALL BE FED INTO THE WATER PIPING SYSTEM AT A CONSTANT RATE AT A CONCENTRATION OF AT LEAST 50 PARTS PER MILLION (PPM). ISOLATE AND ALLOW SYSTEM TO STAND FOR A MINIMUM OF 24 HOURS OR FILL SYSTEM WITH A CHLORINE/WATER SOLUTION AT A CONCENTRATION OF AT LEAST 200 PPM AND ALLOW TO STAND FOR A MINIMUM OF 3 HOURS.
 - FLUSH WITH CLEAN POTABLE WATER UNTIL NO CHLORINE IS PRESENT AND TEST SYSTEM FOR BIOLOGICAL CONTAMINATION. REPEAT ABOVE PROCEDURES SHOULD ANY BIOLOGICAL CONTAMINATION BE DETECTED. SUBMIT WATER SAMPLES IN STERILE BOTTLES TO THE AUTHORITY HAVING JURISDICTION.
 - SEISMIC DESIGN REQUIREMENTS
 - DESIGN PARAMETERS:
 - SEISMIC DESIGN CATEGORY: D
 - BUILDING RISK CATEGORY: 2
 - PER 2016 CALIFORNIA BUILDING CODE, CHAPTER 16, AND ASCE 7-10, THE FOLLOWING MECHANICAL/ELECTRICAL COMPONENTS ARE SUBJECT TO THE SEISMIC RESTRAINT REQUIREMENTS DESCRIBED THEREIN:
 - ANY COMPONENT WEIGHING 400 LBS OR MORE;
 - SUSPENDED COMPONENTS WEIGHING 20 LBS OR MORE;
 - DISTRIBUTED COMPONENTS (I.E., DUCTWORK, PIPING, ETC.) WEIGHING MORE THAN 5 LBS/FT.
 - SEISMIC GAS SHUTOFF VALVE
 - FURNISH AND INSTALL SEISMIC GAS SHUT-OFF VALVES WHERE INDICATED ON THE DRAWINGS. THE VALVE SHALL NOT USE ANY SOURCE OF INTERNAL OR EXTERNAL ELECTRICAL POWER, AND SHALL REMAIN CLOSED UNTIL MANUALLY RESET. THE VALVE SHALL BE MOUNTED IN THE GAS LINE UPSTREAM OR DOWNSTREAM OF THE GAS-LINE PRESSURE REGULATOR AND GAS METER OUTSIDE THE STRUCTURE. THIS VALVE DOES NOT REPLACE THE MANUAL UPSTREAM SHUT-OFF VALVES PROVIDED IN THE GAS SERVICE LINE.
 - THE VALVE CONSISTS OF A SWING CHECK VALVE ARRANGEMENT WITH AN ACCELERATION-SENSITIVE TRIGGERING MECHANISM. THE TRIP MECHANISM CONSISTS OF A STEEL BALL RESTING ON A TAPERED CUP-SHAPED SUPPORT. THE HORIZONTAL MOTION OF AN EARTHQUAKE CAUSES THE BALL TO MOVE FROM THE CENTER OF THE SUPPORT, ALLOWING THE BALLS MASS TO ACT UPON THE MOVABLE PIPE OF THE TRIP MECHANISM, ACTIVATING THE VALVE AND INITIATING CLOSURE. SPRINGS ASSIST THE VALVE- FLAPPER TO CLOSE AND GAS PRESSURE ASSISTS IN HOLDING THE VALVE DISC IN THE CLOSED POSITION. THE TRIP MECHANISM IS FACTORY SET AND SEALED. A SIGHT GLASS IS PROVIDED SO THAT THE OPEN OR CLOSED INDICATOR CAN BE SEEN, AND THE TRIP MECHANISM STATUS OF THE VALVE CAN BE EASILY DETERMINED. VALVE SHALL BE AS MANUFACTURER BY PACIFIC SEISMIC/CALIFORNIA VALVES OR APPROVED EQUAL.
 - REFER TO SEISMIC DETAILS ON SHEET P5.00 FOR SPECIFIC RESTRAINTS.



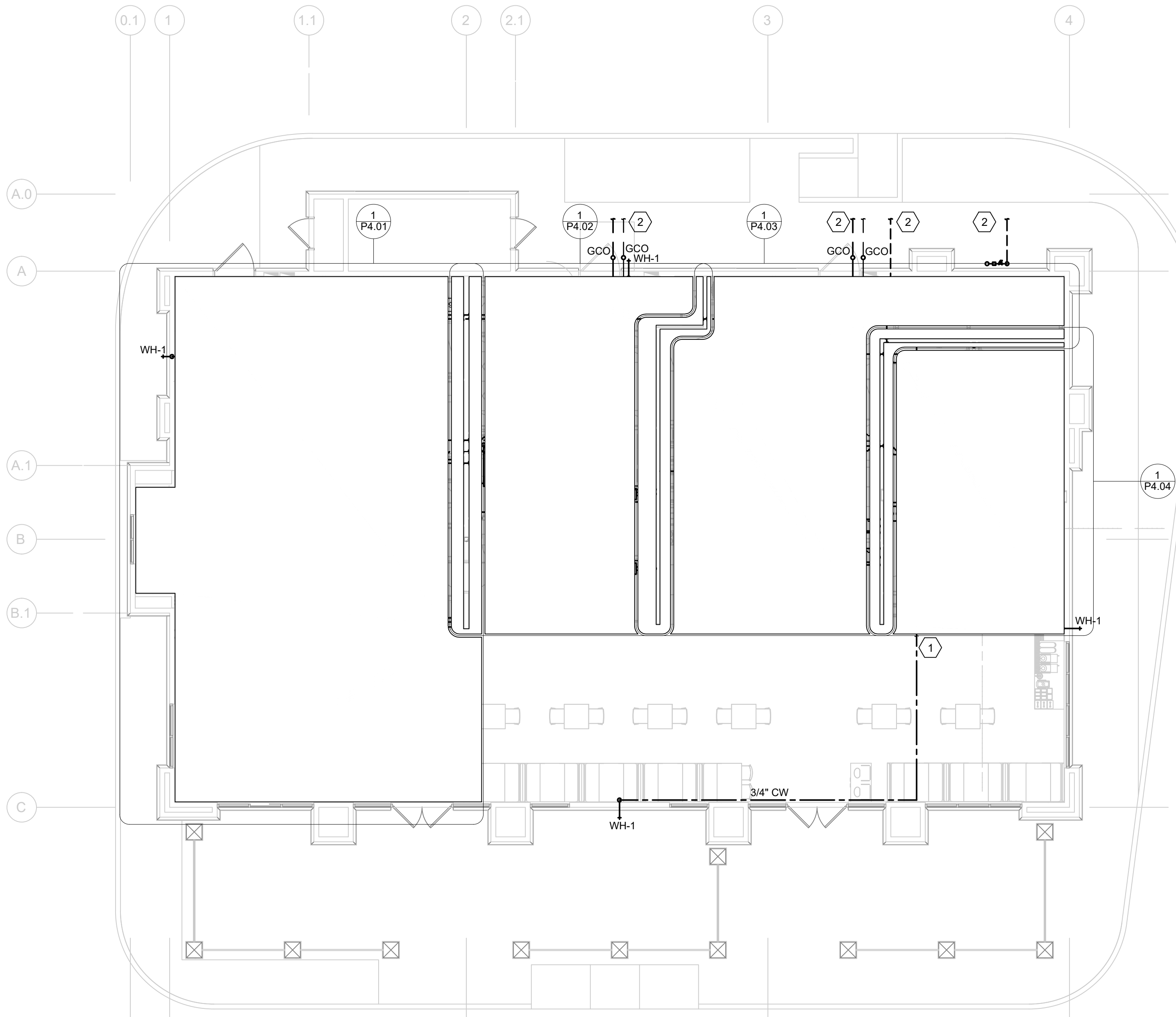
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5621 Outlets at Tejon Parkway
Wheeler Ridge, CA 93203

Issue Description: ISSUED FOR PERMIT		
Revision Schedule		
#	DATE	DESCRIPTION
Project #:		
Issue Date:		
19027		
08/21/2019		

P0.10



1 Overall Plumbing Plan
1/8" = 1'-0"

GENERAL NOTES

- SEE PLUMBING FIXTURE SCHEDULE FOR BRANCH FIXTURE SIZES.
- PLUMBING CONTRACTOR SHALL PROVIDE ISOLATION VALVES FOR EACH PLUMBING FIXTURE BRANCH LINE. IN ADDITION TO LOOSE KEY STOPS.
- ALL PLUMBING PIPING INSTALLED WITHIN OPEN CEILING AREA SHALL BE PAINTED P5. REFER TO ARCHITECTURAL REFLECTIVE CEILING PLAN FOR ADDITIONAL INFORMATION.
- PROVIDE A TRAP PRIMER FOR EACH FLOOR DRAIN. REFER TO PLUMBING DETAILS.
- PLUMBING PIPING SHALL NOT BE ROUTED ABOVE ELECTRICAL PANELS. COORDINATE WITH ELECTRICAL CONTRACTOR.
- PRIOR TO INSTALLATION, VERIFY PRECISE LOCATION OF NEW WALL-MOUNTED DEVICES WITH OWNER AND ARCHITECT.
- WHERE CEILING SPACE IS TO BE USED AS A RETURN AIR PLENUM, PIPE SHALL NOT BE PVC PLASTIC AND ALL WIRING INSTALLED IN CONDUIT OR SHALL BE PLENUM RATED.
- SEE KITCHEN EQUIPMENT SCHEDULES FOR PLUMBING CONNECTIONS AND SIZES.

SHEET KEYNOTES

- SEE SHEET P4.04 FOR CONTINUATION.
- SEE CIVIL DWGS FOR CONTINUATION OF PLUMBING UTILITIES. SITE CONTRACTOR TO CONTINUE WORK FROM 5'-0" OUTSIDE BUILDING ENVELOPE.



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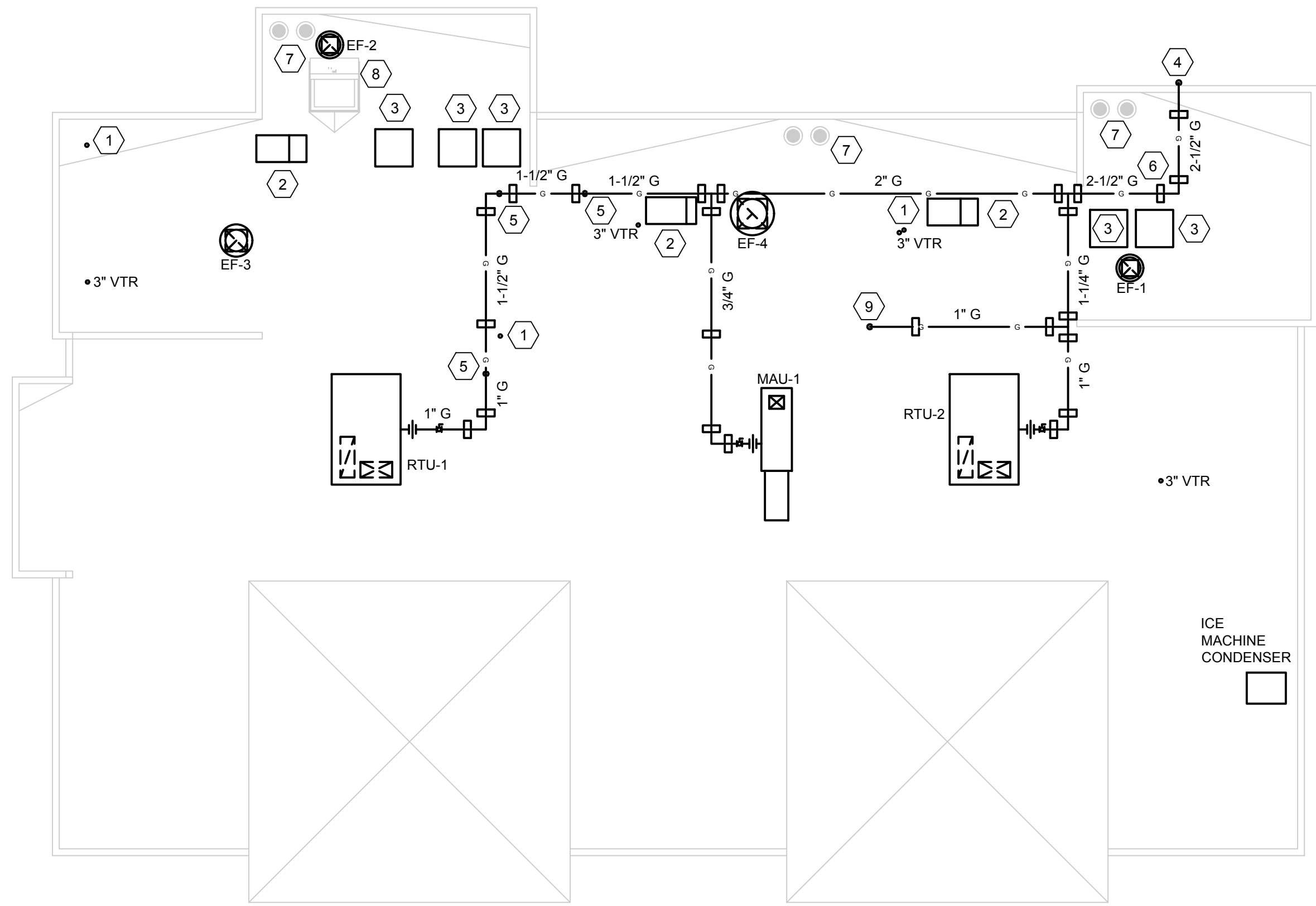
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P1.00

Overall Plumbing Plan



1 Overall Plumbing Roof Plan
1/8" = 1'-0"

GENERAL NOTES

1. SEE PLUMBING FIXTURE SCHEDULE FOR BRANCH FIXTURE SIZES.
2. PLUMBING CONTRACTOR SHALL PROVIDE ISOLATION VALVES FOR EACH PLUMBING FIXTURE BRANCH LINE, IN ADDITION TO LOOSE KEY STOPS.
3. ALL PLUMBING PIPING INSTALLED WITHIN OPEN CEILING AREA SHALL BE PAINTED P5. REFER TO ARCHITECTURAL REFLECTIVE CEILING PLAN FOR ADDITIONAL INFORMATION.
4. PROVIDE A TRAP PRIMER FOR EACH FLOOR DRAIN. REFER TO PLUMBING DETAILS.
5. PLUMBING PIPING SHALL NOT BE ROUTED ABOVE ELECTRICAL PANELS. COORDINATE WITH ELECTRICAL CONTRACTOR.
6. PRIOR TO INSTALLATION, VERIFY PRECISE LOCATION OF NEW WALL-MOUNTED DEVICES WITH OWNER AND ARCHITECT.
7. WHERE CEILING SPACE IS TO BE USED AS A RETURN AIR PLENUM, PIPE SHALL NOT BE PVC PLASTIC AND ALL WIRING INSTALLED IN CONDUIT OR SHALL BE PLENUM RATED.
8. SEE KITCHEN EQUIPMENT SCHEDULES FOR PLUMBING CONNECTIONS AND SIZES.

SHEET KEYNOTES

1. CONCENTRIC VENT TERMINATION FROM GAS DOMESTIC WATER HEATER UP THRU ROOF.
2. REMOTE CONDENSER FOR ICE MACHINE ON ROOF TO BE FURNISHED AND INSTALLED BY OTHERS.
3. WALK-IN COOLER REFRIGERATION UNIT ON ROOF TO BE FURNISHED AND INSTALLED BY OTHERS.
4. 2" G DN TO GAS METER.
5. 3/4" G DN THRU ROOF.
6. ROOF SUPPORTS FOR GAS PIPING, TYPICAL.
7. EXISTING ROOF DRAINS.
8. EXISTING ROOF ACCESS HATCH.
9. 1" G DN THRU ROOF.



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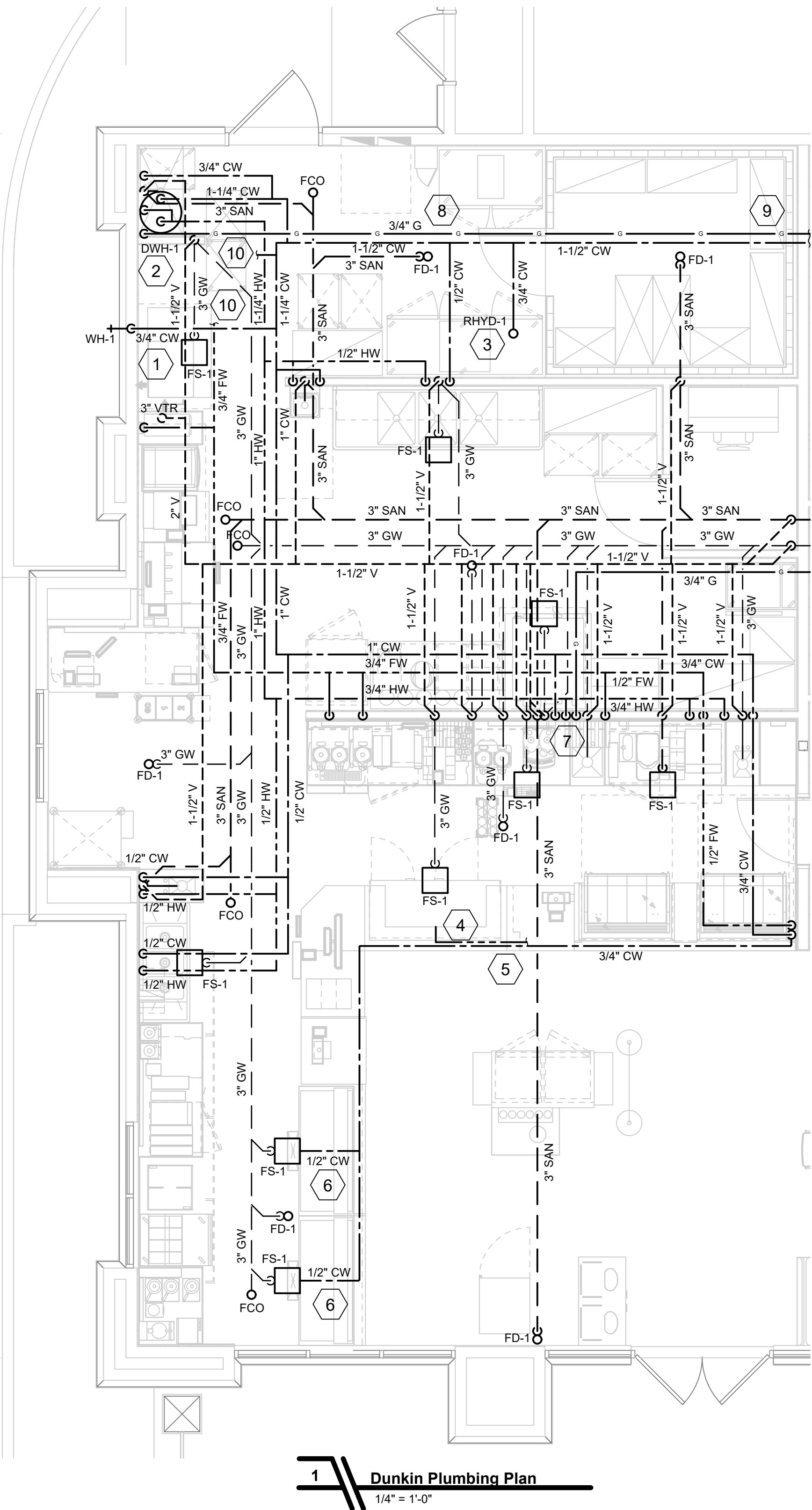
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P1.10

Overall Plumbing Roof
Plan



GENERAL NOTES

- 1. SEE PLUMBING FIXTURE SCHEDULE FOR BRANCH FIXTURE SIZES.
- 2. PLUMBING CONTRACTOR SHALL PROVIDE ISOLATION VALVES FOR EACH PLUMBING FIXTURE BRANCH LINE. IN ADDITION TO LOOSE KEY STOPS.
- 3. ALL PLUMBING PIPING INSTALLED WITHIN OPEN CEILING AREA SHALL BE PAINTED P5. REFER TO ARCHITECTURAL REFLECTIVE CEILING PLAN FOR ADDITIONAL INFORMATION.
- 4. PROVIDE A TRAP PRIMER FOR EACH FLOOR DRAIN. REFER TO PLUMBING DETAILS.
- 5. PLUMBING PIPING SHALL NOT BE ROUTED ABOVE ELECTRICAL PANELS. COORDINATE WITH ELECTRICAL CONTRACTOR.
- 6. PRIOR TO INSTALLATION, VERIFY PRECISE LOCATION OF NEW WALL-MOUNTED DEVICES WITH OWNER AND ARCHITECT.
- 7. WHERE CEILING SPACE IS TO BE USED AS A RETURN AIR PLENUM, PIPE SHALL NOT BE PVC PLASTIC AND ALL WIRING INSTALLED IN CONDUIT OR SHALL BE PLENUM RATED.
- 8. SEE KITCHEN EQUIPMENT SCHEDULES FOR PLUMBING CONNECTIONS AND SIZES.

SHEET KEYNOTES

- 1. 3/4" CW TO SUPPLY ICE MACHINE AND WALL HYDRANT. ROUTE PIPING WITHIN WARM SIDE OF BUILDING EXTERIOR.
- 2. DWH-1 TO BE SUPPORTED FROM SHELF ABOVE MOP SINK WITH SEISMIC BRACING. ROUTE CONDENSATE TO MOP SINK AND DRAIN VIA AIR GAP. SEE P5.00 FOR MORE INFORMATION.
- 3. 3/4" CW UP TO ROOF HYDRANT.
- 4. 1/2" FW TO 8 TAP SYSTEM.
- 5. ROUTE 3/4" CW WITHIN CASEWORK TO SUPPLY 8 TAP SYSTEM AND DIPPERWELLS.
- 6. 1/2" CW TO DIPPERWELL.
- 7. ROUTE 3/4" G FROM ROOF TO HYDROVECTION GAS OVEN.
- 8. ROUTE 3/4" G TO DWH-1.
- 9. SEE SHEET P4.02 FOR CONTINUATION.
- 10. ROUTE PIPING TO WATER FILTRATION SYSTEM. MOUNT WATER FILTRATION SYSTEM AT 48" AFF. SEE ARCH DWGS FOR EXACT LOCATION.

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TravelCenters of America LLC

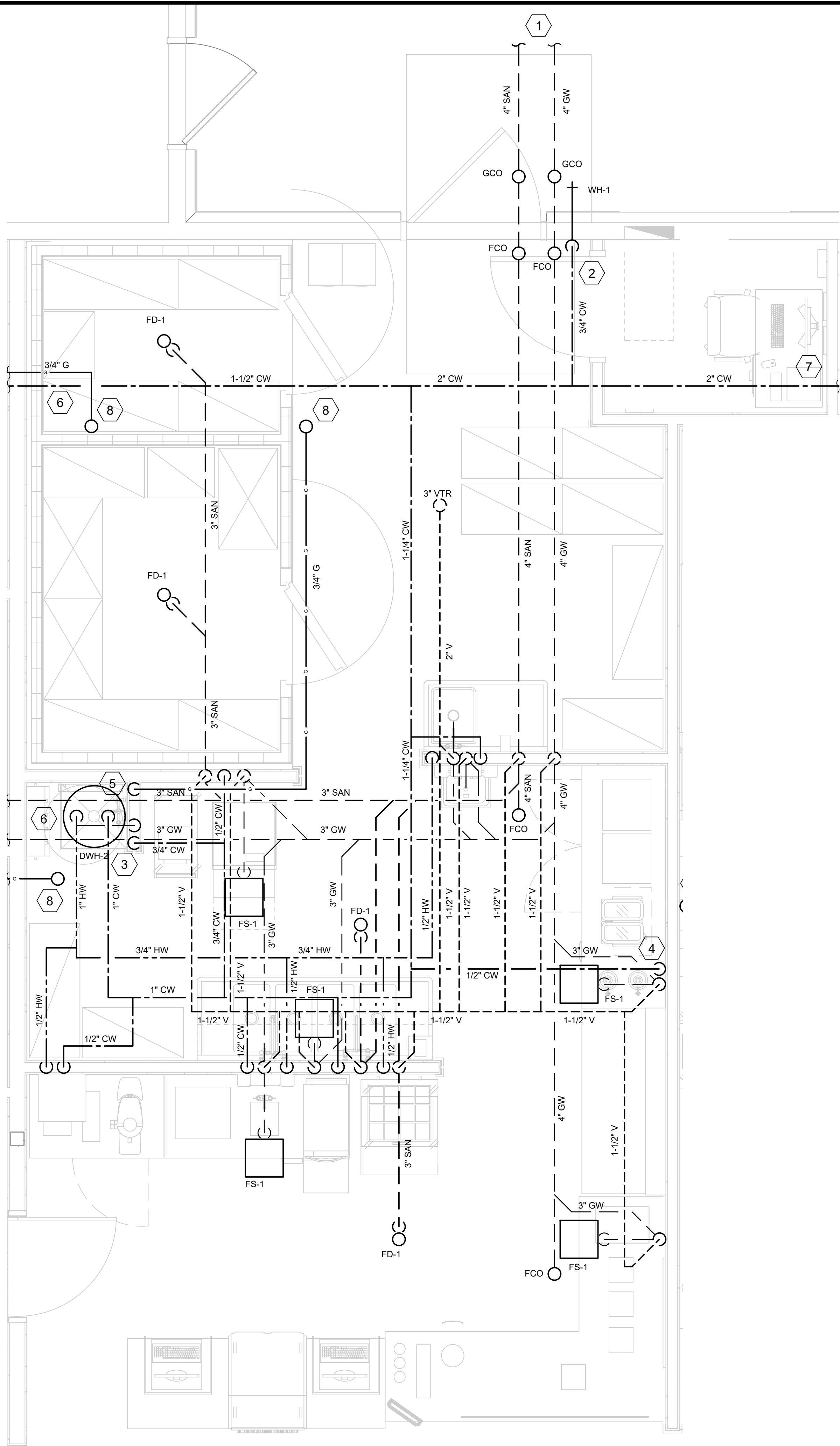
Tejon TravelCenter of America

5621 Outlets at Tejon Parkway
Wheeler Ridge, CA 93203

Issue Description: ISSUED FOR PERMIT		
Revision Schedule		
#	DATE	DESCRIPTION

Project #:	19027
Issue Date:	08/21/2019

P4.01



1 Jamba Juice Plumbing Plan
1/2" = 1'-0"

GENERAL NOTES

- 1. SEE PLUMBING FIXTURE SCHEDULE FOR BRANCH FIXTURE SIZES.
- 2. PLUMBING CONTRACTOR SHALL PROVIDE ISOLATION VALVES FOR EACH PLUMBING FIXTURE BRANCH LINE. IN ADDITION TO LOOSE KEY STOPS.
- 3. ALL PLUMBING PIPING INSTALLED WITHIN OPEN CEILING AREA SHALL BE PAINTED P5. REFER TO ARCHITECTURAL REFLECTIVE CEILING PLAN FOR ADDITIONAL INFORMATION.
- 4. PROVIDE A TRAP PRIMER FOR EACH FLOOR DRAIN. REFER TO PLUMBING DETAILS.
- 5. PLUMBING PIPING SHALL NOT BE ROUTED ABOVE ELECTRICAL PANELS. COORDINATE WITH ELECTRICAL CONTRACTOR.
- 6. PRIOR TO INSTALLATION, VERIFY PRECISE LOCATION OF NEW WALL-MOUNTED DEVICES WITH OWNER AND ARCHITECT.
- 7. WHERE CEILING SPACE IS TO BE USED AS A RETURN AIR PLENUM, PIPE SHALL NOT BE PVC PLASTIC AND ALL WIRING INSTALLED IN CONDUIT OR SHALL BE PLENUM RATED.
- 8. SEE KITCHEN EQUIPMENT SCHEDULES FOR PLUMBING CONNECTIONS AND SIZES.

SHEET KEYNOTES

- 1. 4" SANITARY AND GREASE WASTE MAINS. GREASE WASTE TO CONTINUE TO GREASE INTERCEPTORS ON SITE. SEE CIVIL DWGS FOR CONTINUATION.
- 2. ROUTE 3/4" CW TO WALL HYDRANT WITHIN WARM SIDE OF BUILDING EXTERIOR.
- 3. DWH-2 TO BE SUPPORTED FROM SHELF ABOVE MOP SINK WITH SEISMIC BRACING. ROUTE CONDENSATE TO MOP SINK AND DRAIN VIA AIR GAP. SEE P5.00 FOR MORE INFORMATION.
- 4. 1/2" CW TO DIPPERWELL.
- 5. ROUTE 3/4" G FROM ROOF TO DWH-2.
- 6. SEE SHEET P4.01 FOR CONTINUATION.
- 7. SEE SHEET P4.03 FOR CONTINUATION.
- 8. ROUTE 3/4" G UP TO ROOF.

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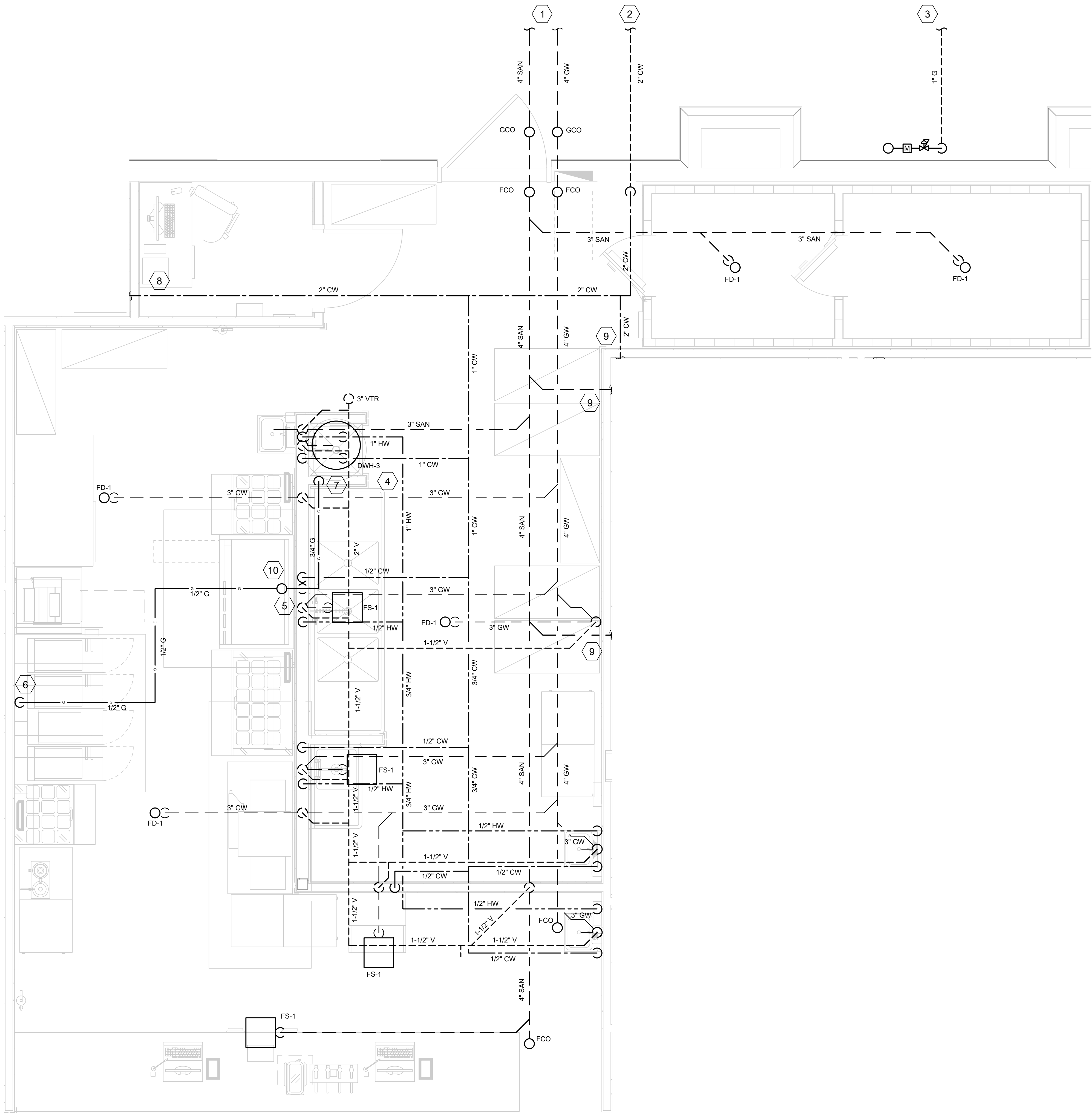
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Tejon TravelCenter of America

5621 Outlets at Tejon Parkway
Wheeler Ridge, CA 93203

Issue Description: ISSUED FOR PERMIT		
Revision Schedule		
#	DATE	DESCRIPTION

Project #:	19027
Issue Date:	08/21/2019

P4.02



GENERAL NOTES

1. SEE PLUMBING FIXTURE SCHEDULE FOR BRANCH FIXTURE SIZES.
2. PLUMBING CONTRACTOR SHALL PROVIDE ISOLATION VALVES FOR EACH PLUMBING FIXTURE BRANCH LINE. IN ADDITION TO LOOSE KEY STOPS.
3. ALL PLUMBING PIPING INSTALLED WITHIN OPEN CEILING AREA SHALL BE PAINTED P5. REFER TO ARCHITECTURAL REFLECTIVE CEILING PLAN FOR ADDITIONAL INFORMATION.
4. PROVIDE A TRAP PRIMER FOR EACH FLOOR DRAIN. REFER TO PLUMBING DETAILS.
5. PLUMBING PIPING SHALL NOT BE ROUTED ABOVE ELECTRICAL PANELS. COORDINATE WITH ELECTRICAL CONTRACTOR.
6. PRIOR TO INSTALLATION, VERIFY PRECISE LOCATION OF NEW WALL-MOUNTED DEVICES WITH OWNER AND ARCHITECT.
7. WHERE CEILING SPACE IS TO BE USED AS A RETURN AIR PLENUM, PIPE SHALL NOT BE PVC PLASTIC AND ALL WIRING INSTALLED IN CONDUIT OR SHALL BE PLENUM RATED.
8. SEE KITCHEN EQUIPMENT SCHEDULES FOR PLUMBING CONNECTIONS AND SIZES.

SHEET KEYNOTES

1. 4" SANITARY AND GREASE WASTE MAINS. GREASE WASTE TO CONTINUE TO GREASE INTERCEPTORS ON SITE. SEE CIVIL DWGS FOR CONTINUATION.
2. 2" CW FROM BACKFLOW PREVENTER ON SITE. SEE CIVIL DWGS FOR CONTINUATION.
3. MEDIUM PRESSURE 1" G FROM SITE. GAS SERVICE TO INCLUDE PRESSURE REGULATING VALVE UPSTREAM OF GAS METER. SEE CIVIL DWGS FOR CONTINUATION.
4. DWH-3 TO BE SUPPORTED ON SHELF ABOVE MOP SINK WITH SEISMIC BRACING. ROUTE CONDENSATE TO MOP SINK AND DRAIN VIA AIR GAP. SEE P5.00 FOR MORE INFORMATION.
5. ROUTE 3/4" G TO GAS GRILL.
6. ROUTE 1/2" G TO GAS FRYER.
7. ROUTE 3/4" G TO DWH-3.
8. SEE SHEET P4.02 FOR CONTINUATION.
9. SEE SHEET P4.04 FOR CONTINUATION.
10. ROUTE 1" G UP TO ROOF.

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Kirk A. Fry

M 34163

EXP 6-30-20

MECHANICAL

STATE OF CALIFORNIA

8-21-19

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Wheeler Ridge, CA 93203

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Revision Schedule		
#	DATE	DESCRIPTION

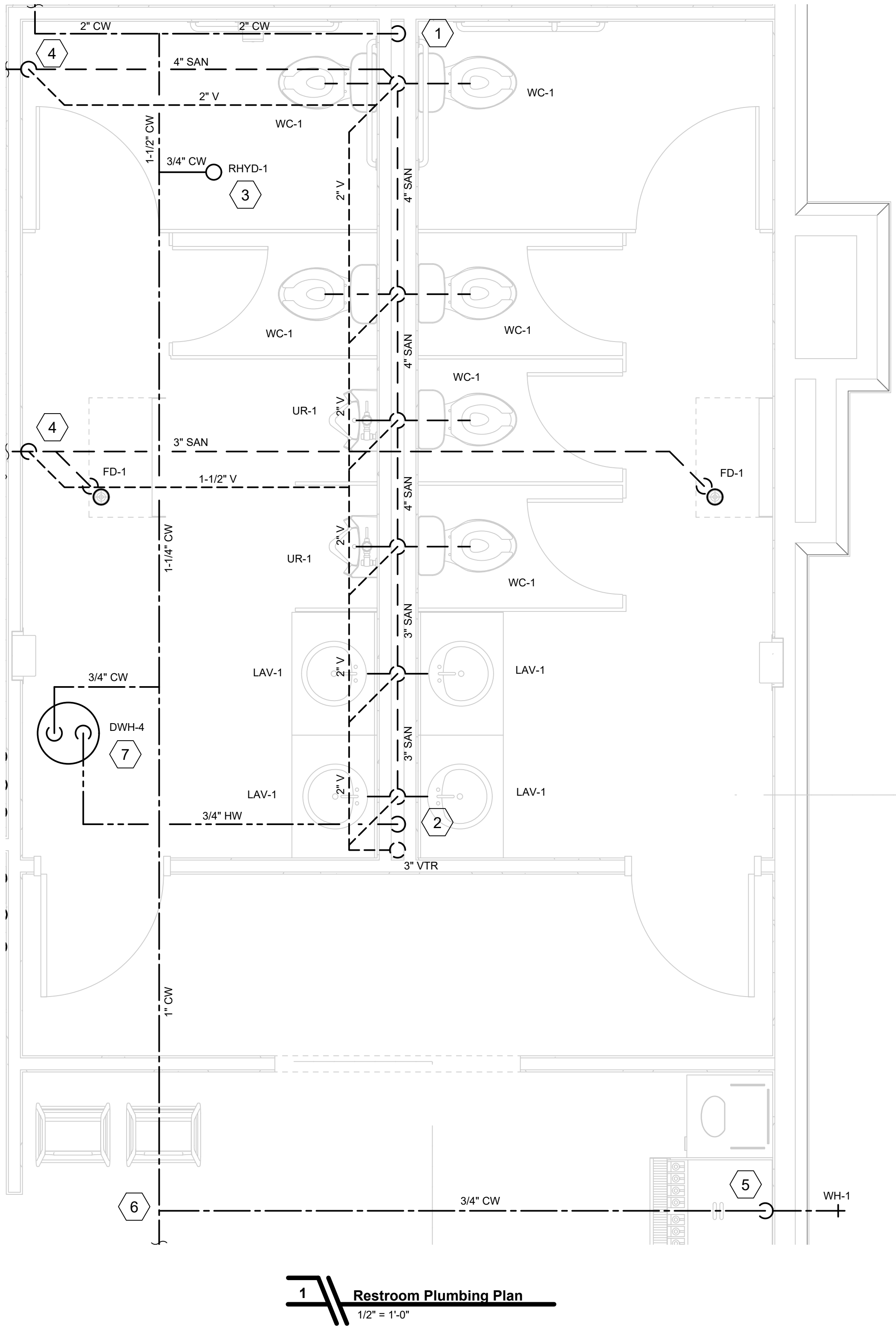
Project #:	19027
Issue Date:	08/21/2019

P4.03

Charley's Plumbing Plan

1 Charley's Plumbing Plan
1/2" = 1'-0"

7/23/2019 9:08:37 AM



GENERAL NOTES

- 1. SEE PLUMBING FIXTURE SCHEDULE FOR BRANCH FIXTURE SIZES.
- 2. PLUMBING CONTRACTOR SHALL PROVIDE ISOLATION VALVES FOR EACH PLUMBING FIXTURE BRANCH LINE. IN ADDITION TO LOOSE KEY STOPS.
- 3. ALL PLUMBING PIPING INSTALLED WITHIN OPEN CEILING AREA SHALL BE PAINTED P5. REFER TO ARCHITECTURAL REFLECTIVE CEILING PLAN FOR ADDITIONAL INFORMATION.
- 4. PROVIDE A TRAP PRIMER FOR EACH FLOOR DRAIN. REFER TO PLUMBING DETAILS.
- 5. PLUMBING PIPING SHALL NOT BE ROUTED ABOVE ELECTRICAL PANELS. COORDINATE WITH ELECTRICAL CONTRACTOR.
- 6. PRIOR TO INSTALLATION, VERIFY PRECISE LOCATION OF NEW WALL-MOUNTED DEVICES WITH OWNER AND ARCHITECT.
- 7. WHERE CEILING SPACE IS TO BE USED AS A RETURN AIR PLENUM, PIPE SHALL NOT BE PVC PLASTIC AND ALL WIRING INSTALLED IN CONDUIT OR SHALL BE PLENUM RATED.
- 8. SEE KITCHEN EQUIPMENT SCHEDULES FOR PLUMBING CONNECTIONS AND SIZES.

SHEET KEYNOTES

- 1. ROUTE 2" CW INTO PIPING CHASE. ROUTE CW TO EACH FIXTURE. SEE P7.00 FOR CONNECTION SIZES.
- 2. ROUTE 3/4" HW INTO PIPING CHASE FROM DWH-4. ROUTE HW TO EACH LAVATORY. SEE P7.00 FOR CONNECTION SIZES.
- 3. ROUTE 3/4" CW TO ROOF HYDRANT.
- 4. SEE SHEET P4.03 FOR CONTINUATION.
- 5. ROUTE 3/4" CW TO WALL HYDRANT. ROUTE PIPING WITHIN WARM SIDE OF BUILDING EXTERIOR.
- 6. SEE SHEET P1.00 FOR CONTINUATION.
- 7. DWH-4 TO BE SUPPORTED ON SHELF ABOVE CEILING WITH SEISMIC BRACING. ROUTE CONDENSATE TO NEAREST LAVATORY AND DRAIN VIA AIR GAP. SEE P5.00 FOR MORE INFORMATION.



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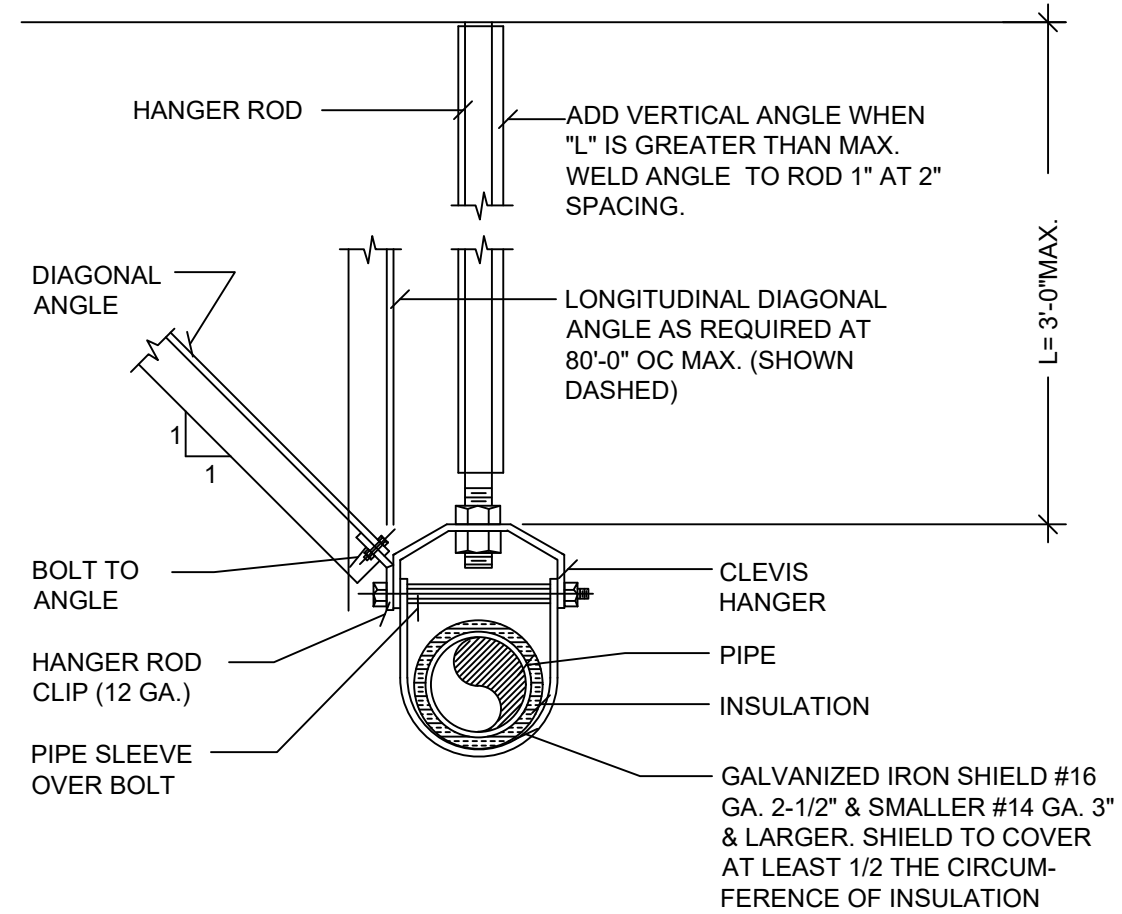
5621 Outlets at Tejon Parkway
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Issue Description: ISSUED FOR PERMIT		
Revision Schedule		
#	DATE	DESCRIPTION

Project #:	19027
Issue Date:	08/21/2019

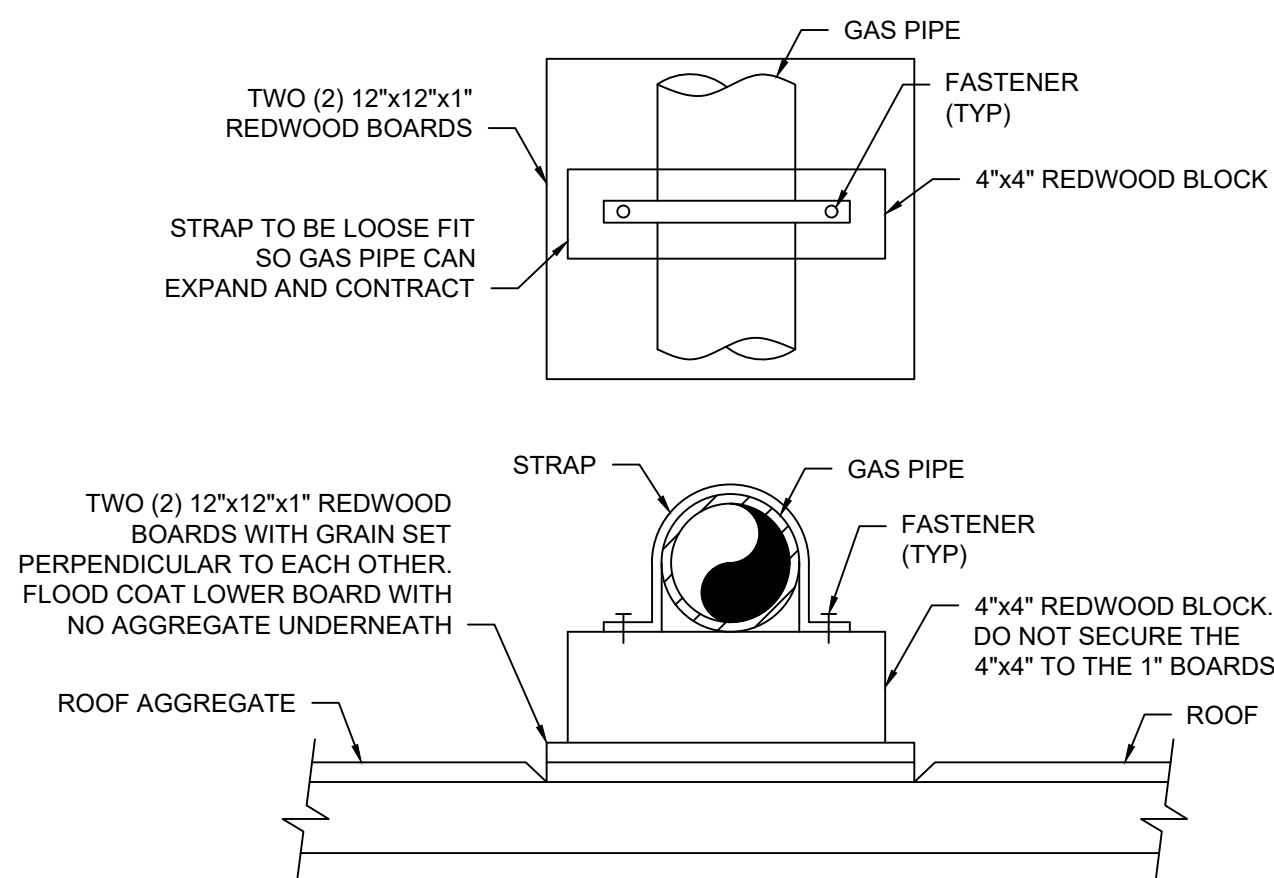
P4.04

Restroom Plumbing Plan

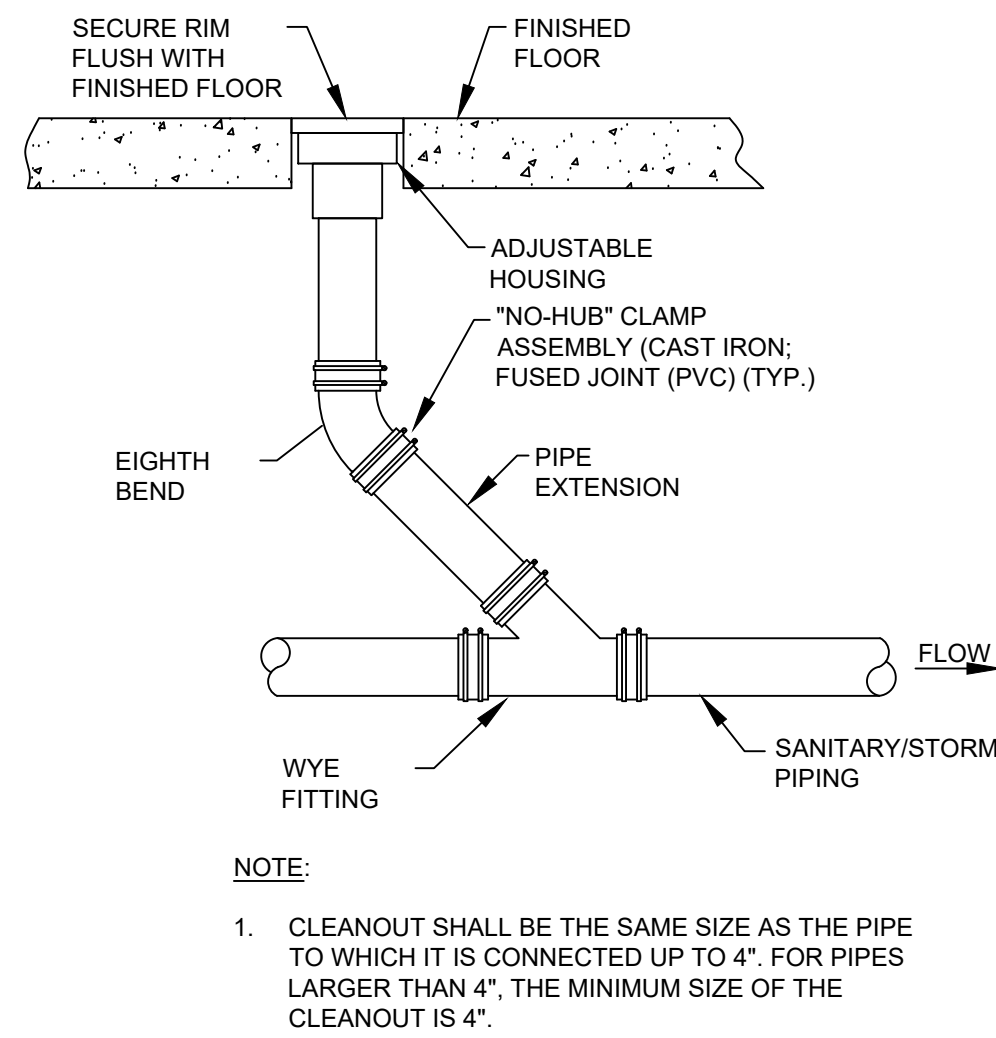


1 SEISMIC PIPE BRACING AND SCHEDULE
NOT TO SCALE

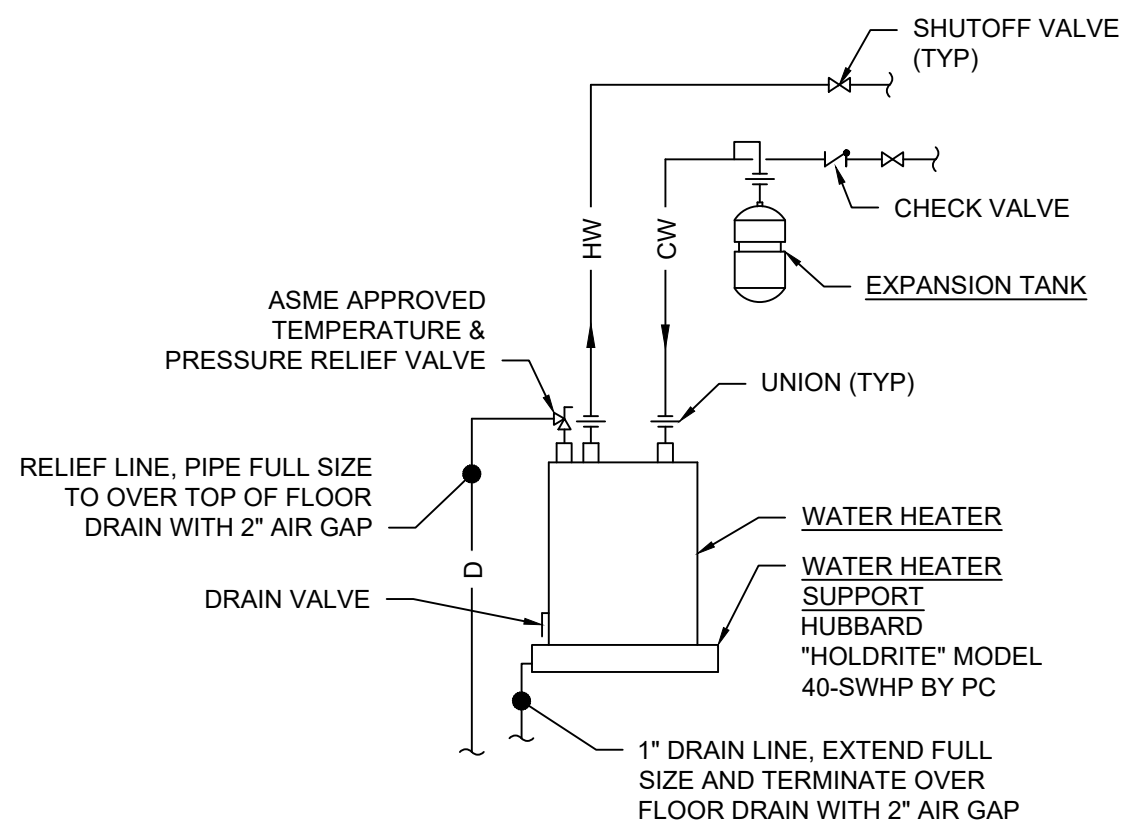
PIPE SIZE	VERTICAL ANGLES	DIAGONAL ANGLES	LONGITUDINAL ANGLES	ROD SIZE	BOLTS TO ANGLES
2 1/2"	2x2x16 GA.	2x2x16 GA.	2 1/2x2 1/2x16 GA.	1/2"Ø	3/8"Ø
3" THRU 4"	2 1/2x2 1/2x 16 GA.	2 1/2x2 1/2x 16 GA.	2 1/2x2 1/2x16 GA.	5/8"Ø	3/8"Ø
5" & 6"	2 1/2x2 1/2x 16 GA.	2 1/2x2 1/2x 16 GA.	2 1/2x2 1/2x16 GA.	3/4"Ø	1/2"Ø
8"	3x3x12 GA.	3x3x12 GA.	3x3x12 GA.	7/8"Ø	5/8"Ø
10"	3x3x12 GA.	3x3x12 GA.	3x3x12 GA.	7/8"Ø	3/4"Ø



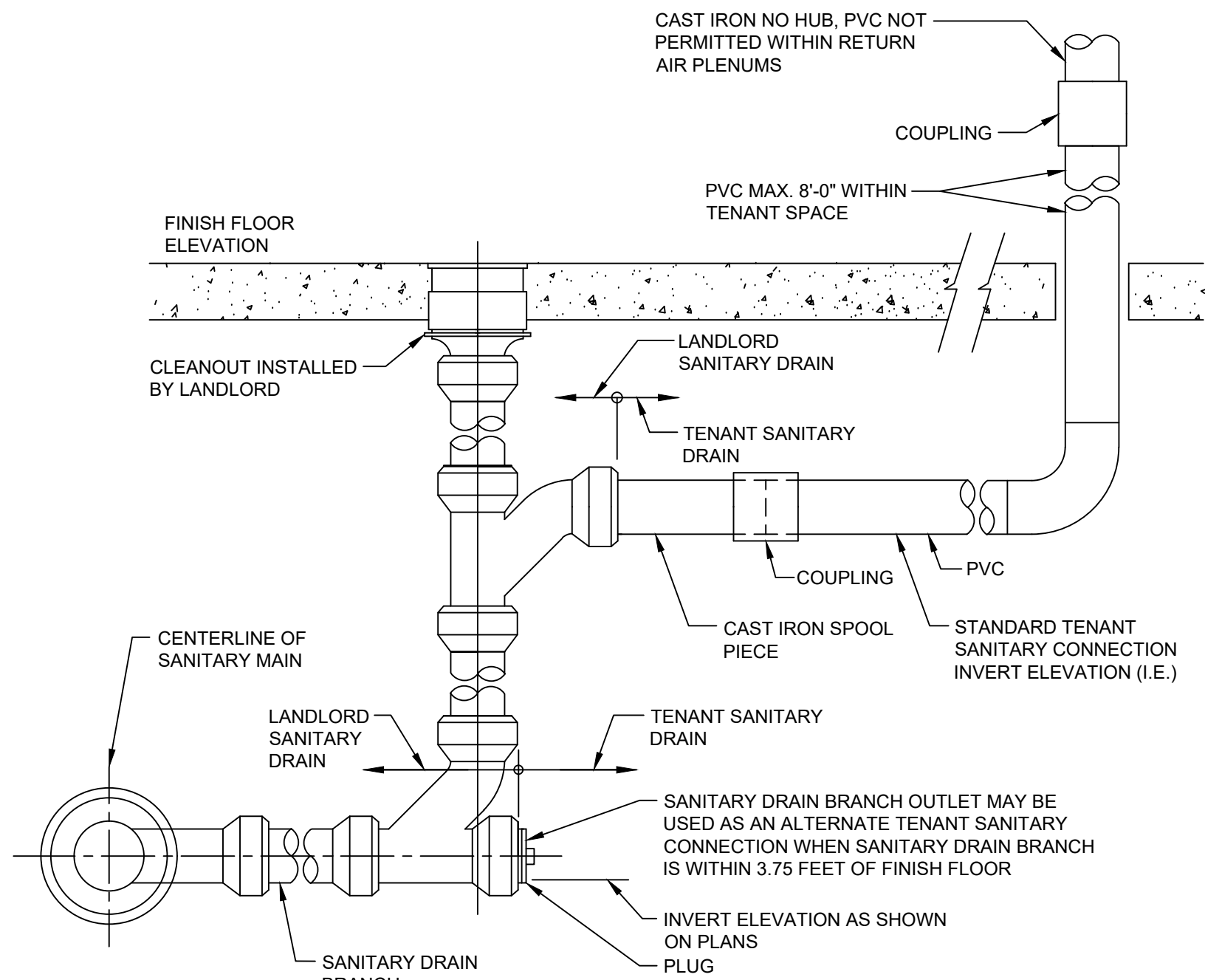
4 GAS PIPE ROOF SUPPORT DETAIL
NOT TO SCALE



5 FLOOR CLEANOUT DETAIL
NOT TO SCALE

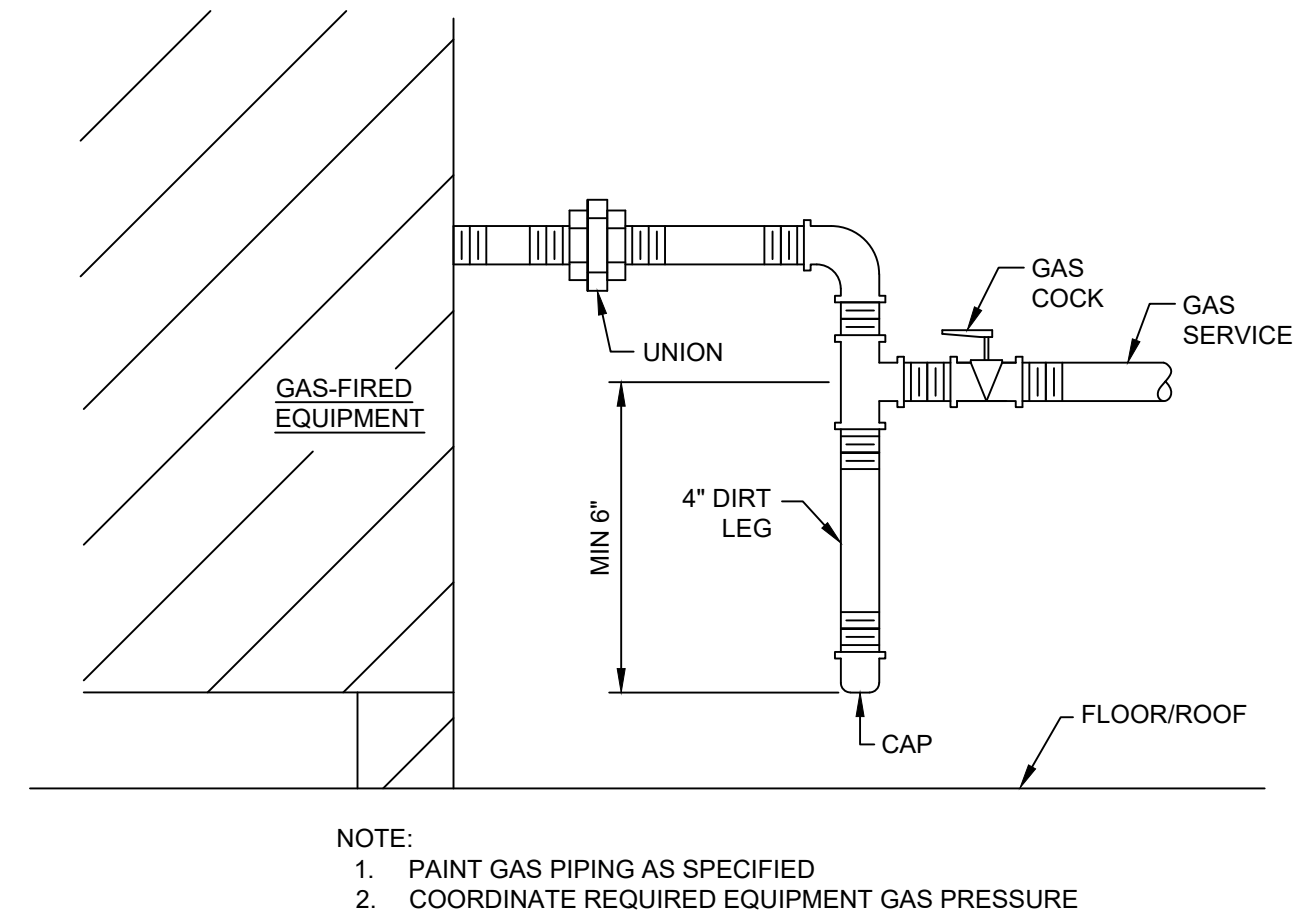


2 SHELF-MOUNTED WATER HEATER DETAIL
NOT TO SCALE

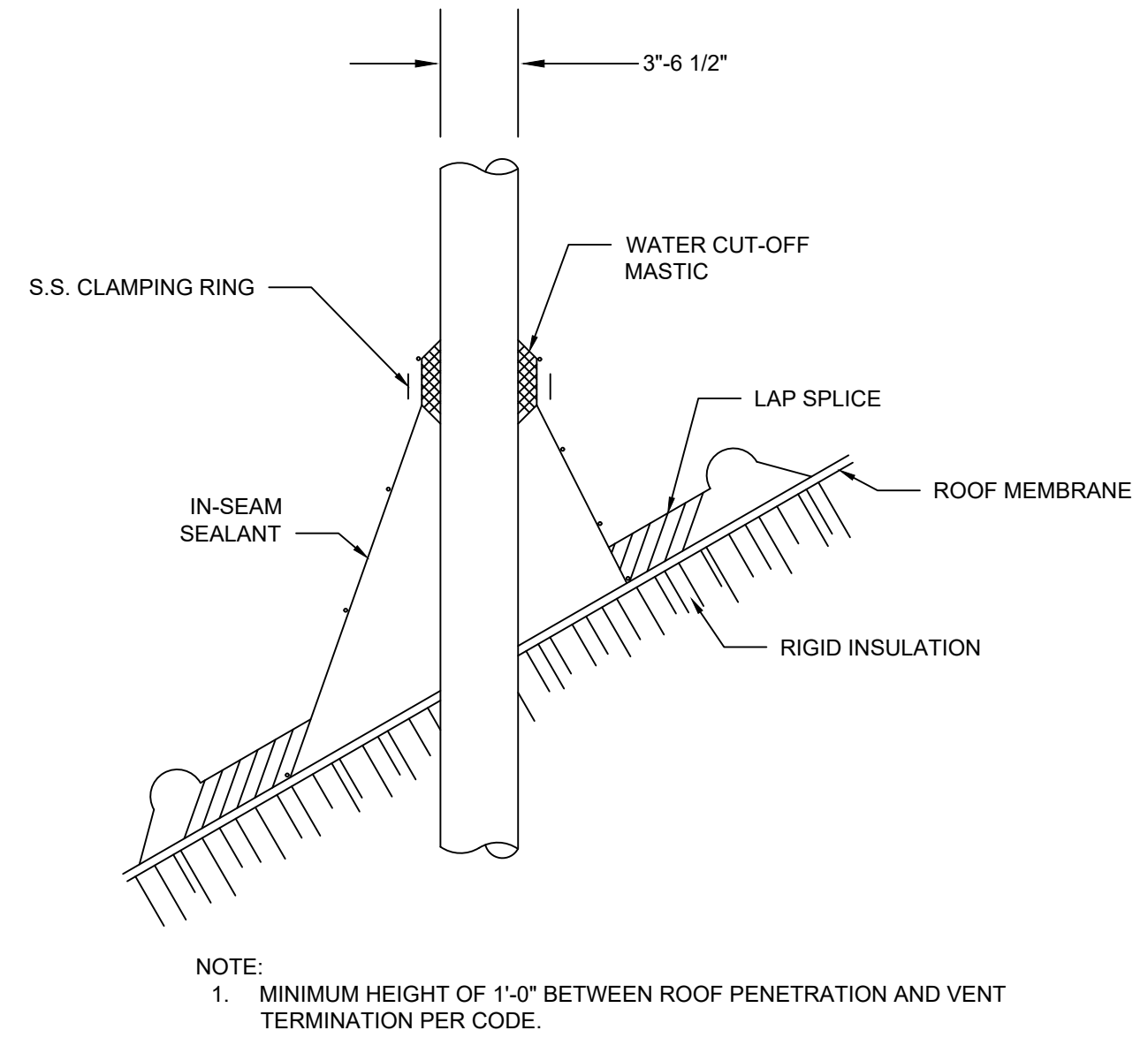


- NOTES:**
- TENANT SHALL CONNECT SANITARY DRAIN TO CONNECTIONS PROVIDED BY LANDLORD.
 - TENANT SHALL NOT MODIFY LANDLORD'S DRAIN OR MAKE CONNECTIONS TO SANITARY MAIN.
 - ABOVE AND UNDERGROUND COUPLINGS EQUAL TO "CLAMP-ALL" DRAIN COUPLING MODEL-HI-TORQ 125.

6 TENANT SANITARY CONNECTION DETAIL
NOT TO SCALE



3 GAS PIPING CONNECTION DETAIL
NOT TO SCALE



7 VENT THRU SLOPED ROOF DETAIL
NOT TO SCALE

PLUMBING FIXTURE SCHEDULE									
MARK	DESCRIPTION	MANUFACTURER	MODEL	CW	HW	TRAP	DRAIN	VENT	DESCRIPTION
LAV-1	LAVATORY	KOHLER	K-2609	1/2"	1/2"	1-1/2"	2"	1-1/2"	20 GA STAINLESS STEEL, 19-7/8" X 16-11/16" OVAL UNDER-MOUNT TYPE, COUNTER-MOUNTED 3-HOLE ON 4" CENTERS WITH 1.2 GPM BATTERY-POWERED FAUCET, THERMOSTATIC MIXING VALVE, KOHLER # K-8998 P-TRAP, & KOHLER # K-7114-A DRAIN. FAUCET TO BE MOEN # 8413F12.
MF	MOP SINK FAUCET	AMERICAN STANDARD	8344.012	3/4"	3/4"	-	-	-	WALL MOUNTED ROUGH CHROME-PLATED CAST BRASS 8" SINK FAUCET WITH INTEGRAL SERVICE STOPS, 8" CAST BRASS SPOUT WITH INTEGRAL VACUUM BREAKER, 3/4" HOSE THREADED OUTLET, AND PAIL HOOK. FAUCET TO BE AMERICAN STANDARD MODEL 8344.012
MS	MOP SINK	AMERICAN STANDARD	-	-	-	-	3"	1-1/2"	28X28X13 CORNER TYPE ENAMELED CAST IRON SERVICE SINK WITH 3" OUTLET, REMOVABLE VINYL RIM GUARD, AND FLAT GRID DRAIN." MOP SINK FAUCET (MS)
UR-1	URINAL	AMERICAN STANDARD	6501.010	3/4"	-	INTEGRAL	2"	1-1/2"	WALL-HUNG, 1.0 GPF, VITREOUS CHINA, WASHOUT TYPE URINAL WITH 3/4" TOP SPUD INLET. COMPLETE WITH ADJUSTABLE FLOOR SUPPORTED CARRIER AND TOTO # TEU1GNC POLISHED CHROME BATTERY-POWERED FLUSH VALVE.
WC-1	WATER CLOSET	AMERICAN STANDARD	3451.528	1"	-	INTEGRAL	4"	2"	FLOOR-MOUNTED, 1.28 GPF, ELONGATED BOWL, VITREOUS CHINA, TANK-TYPE WATER CLOSET. COMPLETE WITH BEMIS # 1955SSC WHITE OPEN FRONT SEAT AND AMERICAN STANDARD # 6065.121 POLISHED CHROME BATTERY-POWERED FLUSH VALVE.
NOTE: SEE ARCHITECTURAL DRAWINGS FOR ADA WATER CLOSET AND ADA URINAL LOCATIONS AND MOUNTING HEIGHTS									

NATURAL GAS DOMESTIC WATER HEATER SCHEDULE										
MARK	SERVICE	LOCATION	MAX INPUT	STORAGE CAPACITY	RECOVERY GPH @ TEMP RISE 90°	MIN GAS PRESSURE IN. W.C.	MAX GAS PRESSURE IN. W.C.	V/PH/Hz	SELECTION BASED ON	NOTES
DWH-1	DOMESTIC HOT WATER	DUNKIN/BR	100 MBH	50 GALLONS	129	3.5	14	120/1/60	A.O. SMITH BTX-100	1,2
DWH-2	DOMESTIC HOT WATER	JAMBA JUICE	100 MBH	50 GALLONS	129	3.5	14	120/1/60	A.O. SMITH BTX-100	1,2
DWH-3	DOMESTIC HOT WATER	CHARLEY'S	100 MBH	50 GALLONS	129	3.5	14	120/1/60	A.O. SMITH BTX-100	1,2
NOTES:										
1. PROVIDE AMTROL ST-5 EXPANSION TANK. SET TEMPERATURE OF WATER HEATER TO 140°F.										
2. REFER TO MECHANICAL DRAWINGS FOR VENTING AND COMBUSTION AIR ROUTING AND DETAILS										

ELECTRIC DOMESTIC WATER HEATER SCHEDULE									
MARK	SERVICE	LOCATION	MAX INPUT	STORAGE CAPACITY	RECOVERY GPH @ TEMP RISE 100°	NUMBER OF ELEMENTS	FLA	V/PH/Hz	SELECTION BASED ON
DWH-4	DOMESTIC HOT WATER	RESTROOMS	2.5 KW	20 GALLONS	11	1	20.8	120/1/60	A.O. SMITH EJCS-20

PLUMBING EQUIPMENT SCHEDULE				
MARK	COMPONENT	MFR.	MODEL	DESCRIPTION
BFP-1	BACKFLOW PREVENTER	WATTS	007	DUAL CHECK VALVE BACKFLOW PREVENTER FOR KITCHEN EQUIPMENT WITH STAINLESS STEEL BODY AND ALL RUBBER INTERNAL COMPONENTS. SHALL BE RATED FOR CONTINUOUS OR INTERMITTENT PRESSURE.
BFP-2	BACKFLOW PREVENTER	WATTS	SD-3	ASSE 1022 DUAL CHECK VALVE BACKFLOW PREVENTER WITH ATMOSPHERIC PORT AND STRAINER FOR KITCHEN EQUIPMENT WITH STAINLESS STEEL BODY AND ALL RUBBER INTERNAL COMPONENTS. SHALL BE RATED FOR CONTINUOUS OR INTERMITTENT PRESSURE. 150 PSI MAX WORKING PRESSURE.
RHYD-1	NON-FREEZE ROOF HYDRANT	ZURN	Z1388	3/4" EXPOSED, NON-FREEZE ROOF HYDRANT WITH COATED, CAST IRON HEAD AND LIFT HANDLE WITH LOCK OPTION, BRONZE INTERIOR PARTS, GLAVANIZED STEEL CASING, AND BRONZE VALVE HOUSING WITH ½ IP DRAIN PORT ROUTED TO NEAREST FLOOR SINK.
ET-1	EXPANSION TANK	AMTROL	ST-5-C	50 GALLON, 150 PSIG WORKING PRESSURE ASME EXPANSION TANK, 200°F MAXIMUM OPERATING TEMP. WITH HEAVY DUTY BUTYL DIAPHRAGM, POLYPROPYLENE LINES, STEEL SHELL, AND RED OXIDE PRIMER FINISH
TMV-1	THERMOSTATIC MIXING VALVE	POWERS	LFLM495	POINT OF USE THERMOSTATIC MIXING VALVE MEETING ASSE 1070 STANDARD. 4 GPM @ 5 PSI PRESSURE DROP. SET TO 105° UNLESS OTHERWISE NOTED
WH-1	NON-FREEZE WALL HYDRANT	ZURN	Z1320-C	3/4" SELF-DRAINING, NON-FREEZE, ANTI-SIPHON WALL HYDRANT WITH VACUUM BREAKER, LOCKING WALL BOX, LOOSE TEE KEY, AND 3/4" HOSE THREAD OUTLET
FD-1	FLOOR DRAIN	ZURN	Z415B	COATED CAST IRON WITH BOTTOM OUTLET, POLISHED 6" DIA. NICKEL BRONZE STRAINER, FLASHING CLAMP, & 1/2" TRAP PRIMER
FS-1	FLOOR SINK	ZURN	Z1910	8"x8"x6" DEEP CAST IRON BODY WITH SQUARE VANDAL PROOF SECURED 3/4" GRATE. WHITE ACID RESISTING PORCELAIN ENAMEL INTERIOR AND TOP WITH BOTTOM DOME STRAINER.
FCO	FLOOR CLEANOUT	ZURN	Z1400	CAST IRON FLOOR CLEANOUT GAS AND WATERTIGHT ABS TAPERED THREAD PLUG AND ADJUSTABLE ROUND SCORIATED COATED CAST IRON HEAVY-DUTY TOP.
GCO	GRADE CLEANOUT	ZURN	Z1400	CAST IRON FLOOR CLEANOUT GAS AND WATERTIGHT ABS TAPERED THREAD PLUG AND ADJUSTABLE ROUND SCORIATED COATED CAST IRON HEAVY-DUTY TOP.
TP-1	TRAP PRIMER	PPP INC.	LTP-1500	1½" P-TRAP AND TAIL PIECE WITH ½" BRAIDED STAINLESS STEEL PRIMING MAKE-UP WATER LINE AND CHROME PLATE ESCUTCHEONS. MINIMUM DISCHARGE @ 0.5 GPM IS 2.5 OZ.
WHA-1	WATER HAMMER ARRESTOR	PPP INC.	SC-1250D	TYPE L COPPER FULLY MECHANICAL WATER HAMMER ARRESTOR. 250 MAX STATIC PRESSURE, 400 PSI MAX SPIKE PRESSURE.

NATURAL GAS CONNECTED LOADS SCHEDULE					
QUANTITY	MARK	DESCRIPTION	GAS PRESSURE	INPUT (MBH)	TOTAL DEMAND (CFH)
1	RTU-1	ROOFTOP UNIT	5" W.C. - 10" W.C.	210	210
1	RTU-2	ROOFTOP UNIT	5" W.C. - 10" W.C.	210	210
1	MAU-1	MAKEUP AIR UNIT	7" W.C. - 14" W.C.	84	84
1	DWH-1	DOMESTIC WATER HEATER	3.5" W.C. - 14" W.C.	100	100
1	DWH-2	DOMESTIC WATER HEATER	3.5" W.C. - 14" W.C.	100	100
1	DWH-3	DOMESTIC WATER HEATER	3.5" W.C. - 14" W.C.	100	100
1	GRILL	GRILL - CHARLEY'S	7" W.C. - 14" W.C.	120	120
1	FRYER	FRYER - CHARLEY'S	7" W.C. - 10" W.C.	80	80
1	OVEN	OVEN - DUNKIN/BR	7" W.C. - 14" W.C.	120	120
TOTAL CONNECTED DEMAND					1124 CFH
GAS SIZED PER 2016 CALIFORNIA PLUMBING CODE, TABLE 1216.2(1) AT LESS THAN 2.0 PSI INLET PRESSURE, 0.3 PSI PRESSURE DROP, AND 150'-0" OF TOTAL DEVELOPED LENGTH.					



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Tejon TravelCenter of America

5621 Outlets at Tejon Parkway
Wheeler Ridge, CA 93203

Issue Description: ISSUED FOR PERMIT		
Revision Schedule		
#	DATE	DESCRIPTION

Project #:	19027
Issue Date:	08/21/2019

P7.00

STATE OF CALIFORNIA WATER HEATING SYSTEM GENERAL INFORMATION CEC-NRCC-PLB-01-E (Revised 01/16)		CALIFORNIA ENERGY COMMISSION NRCC-PLB-01-E (Page 1 of 2)
CERTIFICATE OF COMPLIANCE Water Heating System General Information		
Project Name:	Tejon Travel Center of America Wheeler Park, CA 93203	
Date Prepared:	August 20, 2019	

A. GENERAL INFORMATION/SYSTEM INFORMATION		
01	Water Heater System Name:	DWH-1 / DWH-2 / DWH-3
02	Water Heater System Configuration:	Central System
03	Water Heater System Type:	Domestic Hot Water
04	Building Type:	Nonresidential
05	Total Number of Water Heaters in Systems:	3
06	Central DHW Distribution Type:	Other
07	Dwelling Unit DHW Distribution Type:	

B. WATER HEATER INFORMATION		
Each water heater type requires a separate compliance document.		
01	Water Heater Type:	Small Storage - Gas
02	Fuel Type:	Gas
03	Manufacture Name:	A.O. Smith
04	Model Number:	BTX-100
05	Number of Identical Water Heaters:	3
06	Installed Water Heater System Efficiency:	96%
07	Required Minimum Efficiency:	80%
08	Standby Loss Percent or Standby Loss Total:	430 Btu/h
09	Rated Input:	100,000 Btu/h
10	Pilot Energy:	N/A
11	Water Heater Tank Storage Volume:	50 Gallon
12	Exterior Insulation on Water Heater:	N/A
13	Volume of Supplemental Storage:	N/A
14	Internal Insulation on Supplemental Storage:	N/A
15	Exterior Insulation on Supplemental Storage:	N/A

C. PLUMBING COMPLIANCE FORMS & WORKSHEETS			
Check box if worksheet is included.			
For detailed instructions on the use of this and all Energy Standards compliance documents, refer to the 2016 Nonresidential Manual Note: The Enforcement Agency may require all compliance documents to be incorporated onto the building plans.			
YES	NO	Doc/Worksheet #	Title
<input checked="" type="radio"/>	<input type="radio"/>	NRCC-PLB-01-E	Certificate of Compliance, Declaration. Required on plans for all submittals.
<input type="radio"/>	<input type="radio"/>	NRCC-PLB-01-E	Certificate of Installation. Required on plans for all submittals.
<input type="radio"/>	<input checked="" type="radio"/>	NRCC-PLB-02-E	Certificate of Installation, required on central systems in high-rise residential, hotel/motel application.
<input type="radio"/>	<input checked="" type="radio"/>	NRCC-PLB-03-E	Certificate of Installation, required on high-rise dwelling unit systems in high-rise residential, hotel/motel application.
<input type="radio"/>	<input checked="" type="radio"/>	NRCC-PLB-21-H	Certificate of Installation, required on HERS verified central systems in high-rise residential, hotel/motel application.
<input type="radio"/>	<input checked="" type="radio"/>	NRCC-PLB-22-H	Certificate of Installation, required on HERS verified single dwelling unit systems in high-rise residential, hotel/motel application.
<input type="radio"/>	<input checked="" type="radio"/>	NRCC-STH-01-E	Certificate of Installation, required on any solar water heating

CA Building Energy Efficiency Standards - 2016 Nonresidential Compliance


January 2020

STATE OF CALIFORNIA PLUMBING CEC-NRCH-PLB-01-E (Revised 01/16)		CALIFORNIA ENERGY COMMISSION NRCH-PLB-01-E		
CERTIFICATE OF INSTALLATION				
Page 1 of 4				
Plumbing				
Project Name: Tejon Travel Center of America		Enforcement Agency:		Permit Number:
Project Address: 5621 Outlets at Tejon Parkway		City: Wheeler Park, CA		Zip Code: 93203
A. GENERAL INFORMATION				
DATE OF PERMIT:				
BUILDING TYPE: <input type="checkbox"/> Nonresidential <input type="checkbox"/> High-Rise Residential <input type="checkbox"/> Hotel/Motel				
PHASE OF CONSTRUCTION: <input type="checkbox"/> New Construction <input type="checkbox"/> Addition <input type="checkbox"/> Alteration				
<i>If more than one person has responsibility for building construction, each person shall prepare and sign an Installation Certificate document applicable to the portion of construction for which they are responsible; alternatively, the person with chief responsibility for construction shall prepare and sign the Installation Certificate document(s) for the entire construction.</i>				
B. SCOPE OF RESPONSIBILITY				
Enter the date of approval by enforcement agency of the Certificate of Compliance that provides the specifications for the energy efficiency measures for the scope of responsibility for this Installation Certificate.				Date:
<i>In the table below identify all applicable construction documents that specify the features, materials, components, manufactured devices, or system performance diagnostic results required for the scope of responsibility for this Installation Certificate (continued).</i>				
Document Title or Description		Applicable Sheets or Pages, Tables, Schedules, etc.		Date Approved by Enforcement Agency
Add Row		Remove Last		

STATE OF CALIFORNIA PLUMBING CEC-NRRI-PLB-01-E (Revised 01/16)		CALIFORNIA ENERGY COMMISSION NRRI-PLB-01-E	
CERTIFICATE OF INSTALLATION			
Page 3 of 4			
Project Name: Tejon Travel Center of America		Enforcement Agency:	
Project Address: 5621 Outlets at Tejon Parkway		Permit Number:	
		Zip Code: 93203	
D. MANDATORY MEASURES FOR ALL SINGLE DWELLING HOT WATER DISTRIBUTION SYSTEMS			
01	Equipment shall meet the applicable requirements of the Appliance Efficiency Regulations (Section 110.3(b)(1)).		
02	Unfired Storage Tanks are insulated with an external R-12 or combination of R-16 internal and external insulation. (Section 110.3(c)(4)).		
03	<p>The following pipes are insulated, to the thicknesses required by Table 120.3A, except for those sections of pipe that are subject to one of the exceptions below: (RA4.4.1)</p> <ul style="list-style-type: none"> • The first 5 feet (1.5 meters) of hot and cold water pipes from the storage tank. • All piping with a nominal diameter of 3/4 inch (19 millimeter) or larger. • All piping associated with a domestic hot water recirculation system regardless of the pipe diameter, except when cold water return is used in a demand system. • Piping from the heating source to storage tank or between tanks. • Piping buried below grade. • All hot water pipes from the heating source to the kitchen fixtures. <p>The following sections of pipe do not have to be insulated: (RA4.4.1)</p> <ul style="list-style-type: none"> • Piping installed in interior or exterior walls that is surrounded on all sides by at least 1 inch of insulation. • Piping installed in attics with a minimum of 4 inches (10 cm) of attic insulation on top • Piping that penetrates framing members shall not be required to have pipe insulation for the distance of the framing penetration. Metal piping that penetrates metal framing shall use grommets, plugs, wrapping or other insulating material to assure that no contact is made with the metal framing. Insulation shall butt securely against all framing members. 		
04	Piping buried below grade must be installed in a water proof and non-crushable casing or sleeve that allows for installation, removal, and replacement of the enclosed pipe and insulation. (Section 150.0(j))		
05	All elbows and tees shall be fully insulated. (RA4.4.1)		
06	Where insulation is required, no piping shall be visible due to insulation voids, and all insulation shall fit tightly to the pipe. (RA4.4.1)		
07	<p>For Gas or Propane Water Heaters: Ensure the following are installed (Section 150.0(n))</p> <ol style="list-style-type: none"> 1. A 120V electrical receptacle is within 3 feet from the water heater and accessible with no obstructions 2. A Category III or IV vent, or a Type B vent with straight pipe between outside and water heater 3. A condensate drain no more than 2 inches higher than the base on water heater for natural draining 4. A gas supply line with capacity of at least 200,000 Btu/hr 		
The responsible person's signature on this compliance document affirms that all applicable requirements in this table have been met.			

CA Building Energy Efficiency Standards - 2016 Nonresidential Compliance

January 2016

STATE OF CALIFORNIA WATER HEATING SYSTEM GENERAL INFORMATION CEC-NRCC-PLB-01-E (Revised 01/11/16)		 CALIFORNIA ENERGY COMMISSION
CERTIFICATE OF COMPLIANCE Water Heating System General Information		NRCC-PLB-01-E (Page 2 of 2)
Project Name: Tejon Travel Center of America Wheeler Park, CA 93203	Date Prepared: August 20, 2019	
DOCUMENTATION AUTHOR'S DECLARATION STATEMENT I, _____, certify that this Certificate of Compliance documentation is accurate and complete. Documentation Author Name: Kirk A. Fry, PE, CEM, LEED AP Documentation Author Signature: <u>Kirk A. Fry</u> <small>Digitally signed by Kirk A. Fry Date: 2019.08.20 14:41:20 -0400</small>		
Company: Osborn Engineering Company	Signature Date: _____	
Address: 1100 Superior Avenue Suite 300	CEJ/HERS Certification Identification (if applicable): _____	
City/State/Zip: Cleveland, OH 44114	Phone: 216-861-2020 X3202	
RESPONSIBLE PERSON'S DECLARATION STATEMENT I certify the following under penalty of perjury, under the laws of the State of California:		
1. The information provided on this Certificate of Compliance is true and correct. 2. I am eligible under Division 3 of the Business and Professions Code to accept responsibility for the building design or system design identified on this Certificate of Compliance (responsible designer). 3. The energy features and performance specifications, materials, components, and manufactured devices for the building design or system design identified on this Certificate of Compliance conform to the requirements of Title 24, Part 1 and Part 6 of the California Code of Regulations. 4. The building design features or system design features identified on this Certificate of Compliance are consistent with the information provided on other applicable compliance documents, worksheets, calculations, plans and specifications submitted to the enforcement agency for approval with this building permit application. 5. I will ensure that a completed signed copy of this Certificate of Compliance shall be made available with the building permit(s) issued for the building, and made available to the enforcement agency for all applicable inspections. I understand that a completed signed copy of this Certificate of Compliance is required to be included with the documentation the building provider submits to the building owner at occupancy.		
Responsible Designer Name: Kirk A. Fry, PE, CEM, LEED AP		Responsible Designer Signature: <u>Kirk A. Fry</u> <small>Digitally signed by Kirk A. Fry Date: 2019.08.20 14:41:20 -0400</small>
Company: Osborn Engineering Company	Date Signed: _____	
Address: 1100 Superior Avenue Suite 300	License: M 34163	
City/State/Zip: Cleveland, OH 44114	Phone: 216-861-2020 X3202	

STATE OF CALIFORNIA PLUMBING CEC-NRCP-PLB-01-E (Revised 01/16) CERTIFICATE OF INSTALLATION		CALIFORNIA ENERGY COMMISSION NRCI-PLB-01-E Page 2 of 4	
Plumbing			
Project Name: Tejon Travel Center of America	Enforcement Agency:	Permit Number:	
Project Address: 5621 Outlets at Tejon Parkway	City: Wheeler Park, CA	Zip Code: 93203	
C. MANDATORY REQUIREMENTS FOR ALL CENTRAL DOMESTIC HOT WATER RECIRCULATION SYSTEMS			
01	On systems that have a total capacity greater than 167,000 Btu/hr, outlets that require higher than service water temperatures as listed in the ASHRAE Handbook have separate remote heaters, heat exchangers, or boosters to supply the outlet with the higher temperature. (Section 110.3(c)(1))		
	Systems with circulating pumps or with electrical heat trace systems shall be capable of automatically turning off the system. (Section 110.3(c)(2)).		
	For public lavatories, the control system shall limit the outlet temperature to 110° F. (Section 110.3(c)(3)).		
04	Unfired storage tanks are insulated with an external R-12 or combination of R-16 internal and external insulation. Alternatively, the heat loss of the tank surface based on an 80° F water-air temperature difference shall be less than 6.5 Btu per hour per square foot. (Section 110.3(c)(4)).		
	All sections of the recirculation loop, and the first 5 feet of all branches off the loop are insulated, to the thicknesses required by Table 120.3A, except for the following: (RA4.4.1) <ul style="list-style-type: none"> • Piping installed in interior or exterior walls that is surrounded on all sides by at least 1 inch of insulation. • Piping installed in attics with a minimum of 4 inches (10 cm) of attic insulation and • Piping that penetrates framing members shall not be required to have pipe insulation for the distance of the framing penetration. Metal piping that penetrates metal framing shall use grommets, plugs, wrapping or other insulating material to assure that no contact is made with the metal framing. Insulation shall butt securely against all framing members. • Insulation is not required on the cold water line when it is used as the return 		
06	Hot water pipes that are buried below grade are installed in a water proof and non-crushable casing or sleeve that allows for installation, removal, and replacement of the enclosed pipe and insulation. (RA4.4.1)		
07	Insulation outside conditioned space is protected from damage, including that due to sunlight, moisture, equipment maintenance, and wind. (RA4.4.1)		
08	Pipe insulation fits tightly to the pipe. (RA4.4.1)		
09	On insulated sections of pipe, no piping is visible due to insulation voids, and all elbows and tees are fully insulated. (RA4.4.1)		
	The recirculation pump is mounted on a vertical section of the return line, OR an automatic air release valve is installed on a riser at least 12 inches in length, on the inlet side of the recirculation pump, no more than 4 feet from the pump. (Section 110.3(c)(5A)).		
11	A check valve is located between the recirculation pump and the water heater. (Section 110.3(c)(5B)).		
	A hose bibb is installed between the pump and the water heating equipment with an isolation valve between the hose bibb and the water heating equipment. (Section 110.3(c)(5C)).		
13	Isolation valves are installed on both sides of the pump. One of the isolation valves may be the same isolation valve as in item 12 above. (Section 110.3(c)(5D)).		
14	The cold water supply piping and the recirculation loop piping is not connected to the hot water storage tank drain port. (Section 110.3(c)(5E)).		
15	A check valve is installed on the cold water supply line between the hot water system and the next closest tee on the cold water supply. (Section 110.3(c)(5F)).		
16	The hot water distribution system piping from the water heater(s) to the fixtures and appliances takes the most direct path. (RA 4.4.7.1)		
17	Installation and operation instructions that provide details of the operation of the pump and controls are available at the jobsite for inspection. (RA 4.4.7.1)		
18	More than one circulation loop may be installed. Each loop shall have its own pump and controls. (RA4.4.8, RA 4.4.9, RA 4.4.10)		
The responsible person's signature on this compliance document affirms that all applicable requirements in this table have been met.			

STATE OF CALIFORNIA PLUMBING CEC-NRCI-PLB-01-E (Revised 01/18)		CALIFORNIA ENERGY COMMISSION NRCI-PLB-01-E	
CERTIFICATE OF INSTALLATION			
Page 4 of 4			
Plumbing			
Project Name: Tejon Travel Center of California	Enforcement Agency:	Permit Number:	
Project Address: 5621 Outlets at Tejon Parkway	City: Wheeler Park, CA	Zip Code: 93203	

DOCUMENTATION AUTHOR'S DECLARATION STATEMENT	
I, _____, certify that this Certificate of Installation documentation is accurate and complete.	
Documentation Author Name:	Documentation Author Signature:
Documentation Author Company Name:	Date Signed:
Address:	CEA Certification Identification (if applicable):
City/State/Zip:	Phone:

RESPONSIBLE PERSON'S DECLARATION STATEMENT	
I certify the following under penalty of perjury, under the laws of the State of California:	
1. The information provided on this Certificate of Installation is true and correct.	
2. I am eligible under Division 3 of the Business and Professions Code in the applicable classification to accept responsibility for the system design, construction, or installation of features, materials, components, or manufactured devices for the scope of work identified on this Certificate of Installation and attest to the declarations in this statement (responsible builder/installer), otherwise I am an authorized representative of the responsible builder/installer.	
3. The constructed or installed features, materials, components or manufactured devices (the installation) identified on this Certificate of Installation conforms to all applicable codes and regulations, and the installation conforms to the requirements given on the plans and specifications approved by the enforcement agency.	
4. I reviewed a copy of the Certificate of Compliance approved by the enforcement agency that identifies the specific requirements for the scope of construction or installation identified on this Certificate of Installation, and I have ensured that the requirements that apply to the construction or installation have been met.	
5. I will ensure that a completed signed copy of this Certificate of Installation shall be posted, or made available with the building permit(s) issued for the building, and made available to the enforcement agency for all applicable inspections. I understand that a completed signed copy of this Certificate of Installation is required to be included with the documentation the builder provides to the building owner at occupancy.	
Responsible Builder/Installer Name:	Responsible Builder/Installer Signature:
Company Name: (Installing Subcontractor or General Contractor or Builder/Owner)	Position With Company (Title):
Address:	CSLB License:
City/State/Zip:	Phone: _____ Date Signed: _____



TravelCenters of America LLC
Tejon TravelCenter of America

5621 Outlets at Tejon Parkway
Wheeler Ridge, CA 93203

Issue Description:
ISSUED FOR PERMIT

Revision Schedule

Project #: 19027
Issue Date: 08/21/2019

P7.01

Plumbing Title 24 Forms