AIR DISTRIBUTION
EQUIPMENT CONNECTIONS
General: Connect metal ductwork to equipment as indicated, provide flexible connection for each ductwork connection to equipment mounted on vibration isolators, and/or equipment containing rotating machinery. Provide access doors as indicated.

DESCRIPTION OF WORK
A. Mechanical contractor shall provide and install TYPE I Hood, exhaust fan and MUA Unit, ducts and grills, registers and diffusers as shown on the plans. Requirements for the air distribution system are as indicated herein.

MATERIALS
A. Sheet Metal: Except as otherwise indicated, fabricate ductwork from galvanized sheet steel complying with ASTM A 527, lockforming quality; with g 90 zinc coating in accordance with ASTM A 525; and mill phosphatized for exposed locations.
B. Type I exhaust duct shall be of weldable 16 ga galv or stainless steel. and shall conform to the requirements of NFPA–96. Products shall be ETL listed to UL–1978 and CAN/ULC–S662 for venting air and grease vapors from commercial cooking operations as described in NFPA–96.
C. All duct dimensions shown are clear area dimensions.

MISCELLANEOUS DUCTWORK MATERIALS
A. General: Provide miscellaneous material and products of types and sizes indicated and, where not otherwise indicated, provide type and size required to comply with ductwork system requirements including proper connection of ductwork and equipment.

B. Fittings: Provide radius type fitting fabricated of multiple sections with maximum 15–degree change of direction per section. Use 45–degree laterals and elbows for branch takeoff connections.

C. Low Pressure Flexible Ducts: Duct shall be factory pre–insulated with a solid inner liner formed by a reinforced aluminum laminate material mechanically locked or bonded together by a corrosive resistant galvanized steel helix covered with a minimum 1–1/2" thick fiberglass blanket and sheathed in a polyethylene vapor barrier.

D. Exterior Metal Duct Work: Duct runs on the exterior of the building shall be lined as indicated above but shall be clad with Flex–Clad 400 jacket system.

FABRICATION
A. Shop fabricates ductwork in 4, 8, 10 or 12–Ft. lengths.

B. Shop fabricates ductwork of gages and reinforcement complying with SMACNA HVAC Duct Construction Standards.

C. Fabricate duct fittings to match adjoining ducts, and to comply with duct requirements and applicable to fittings. Except as otherwise indicated, fabricate to include turning vanes
in elbows where shorter radius is necessary. Limit angular tapers to 30 degrees for contracting tapers and 20 degrees to expanding tapers.

D. Grease duct joints shall be continuously welded to provide an water–tight sealed construction.

FACTORY–FABRICATED LOW PRESSURE DUCTWORK
A. General: At installer's options, provide factory–fabricated duct and fittings, in lieu of shop–fabricated duct and fittings.

B. Material: Galvanized sheet steel complying with ASTM A 527, lock forming quality, with ASTM A 525, G90 zinc coating, mill phosphatized.

C. Gage: 28–gage minimum for round and oval ducts and fittings, 4" through 24" diameter.

D. Elbows: One piece construction for 90 degree and 45 degree elbows 14" and smaller. Provide multiple gore construction for larger diameters with standing seam circumferential joint.

TURNING VANES
A. Manufactured Turning Vanes: Provide turning vanes constructed of 1–1/2" wide curved blades set at 3/4" O.C. supported with bars perpendicular to blades set at 2" O.C. and set into side strips suitable for mounting in ductwork.

GRILLS, REGISTERS AND DIFFUSERS
A. Provide grills, registers and diffusers of manufactures standard air device where shown on the mechanical plans as require for complete installation.

B. Ceiling Compatibility: Provide air devices with border styles that are compatible with adjacent ceiling finish. Owner shall have approval prior to installation.

C. Types: Provide air device of type, capacity and with accessories and finishes as listed on grilles, register and diffuser schedule.

D. Acceptable Manufacturers:
Krueler Mfg. Co.
Metal Aire Co
Tituse Products Div.
Tuttle and Bailey.

Substitutions are allowed if configuration and free area remains the same and the substitution is agreed to by architect and owner.

INSTALLATION OF METAL DUCTWORK
A. Assemble and install ductwork in accordance with recognized industry practices that will achieve airtight and noiseless systems, capable of performing each indicated service. Align ductwork accurately, supporting ducts rigidly and support vertical ducts at every floor.

B. Routing: Locate ductwork runs, vertically and horizontally and avoid diagonal runs whenever possible. Locate runs as indicated by diagrams, detail and notations or, if not otherwise indicated, run ductwork in shortest route, which does not obstruct usable space, or block access for servicing building and its equipment. Coordinate layout with suspended ceiling and lighting layout and similar finished work.

C. Install metal ductwork in accordance with SMACNA HVAC Duct Construction Standards.

D. Turning vanes shall be located in all 90 degrees turns and tees.

E. Use 45 degree laterals and elbows for branch takeoff connections.

F. Grease duct roof penetrations shall comply with listed clearance to combustibles.

G. The grease duct shall terminate at the fan adapter plate, shall be fully welded to the fan adapter plate and the fan adapter plate shall be fastened to the curb using a suitably sized fastener.

ADJUSTING AND CLEANING

Clean duct work internally, of dust and contractor. A balance report shall be furnished to the Project Manager and the Designer.

Start–up:
Operate installed system to demonstrate compliance with requirements. Check for leakage while system is operating and adjust or repair as necessary.

HVAC EQUIPMENT SCHEDULE

MARK	DESCRIPTION	MANUFACTURE & MODEL	HEAT CAPACITY (MBU)		CFM @ 0.25 SP (UON)	ELECTRICAL			REMARKS
			INPUT	OUTPUT		VAC	PHASE	AMPS	
MAU	TEMPERED MAKE UP AIR UNIT	NAKS T1–EVN–1600–208–1	134	123	3450	208	1	5.3	–
UH	UNIT HEATER	REZNOR UDAX–45	45	37.3	629	115	1	2.4	
EF–1	HOOD EXHAUST FAN	DAYTON 48C181 UPBLAST EXHAUST	–	–	1450	115	1	8.5	

N

PLAN NORTH

SCALE: ¼" = 1'–0"

0' 1' 2' 5' 10' 15'

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YAMPA VALLEY ENGINEERING, INC.

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03-02-22

Reviewed for Code Compliance

03/03/2022

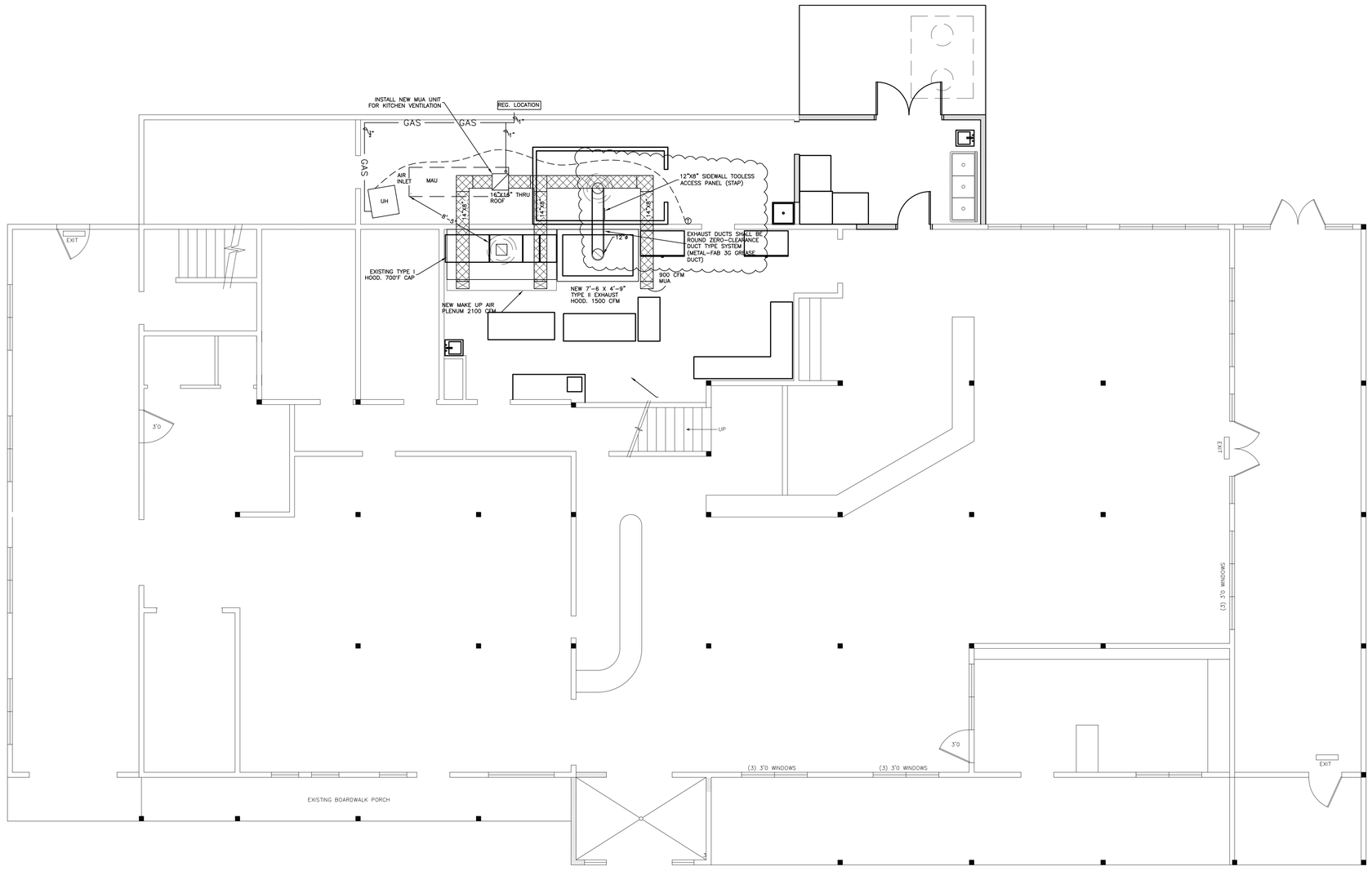
PLANS FOR:
VISTA VERDE RANCH OUTPOST
60880 COUNTY ROAD 129
CLARK, COLORADO

JOB NO: 21-074
DRAWN: JAS
DATE: 01-06-22

REVISIONS

NO.	DATE	DRAWN
1	2-1-22	JAS
2	2-11-22	JAS

SHEET NUMBER
M–1



1 KITCHEN HVAC PLAN

SCALE: 3/16" = 1'-0"

N

PLAN NORTH

SCALE: ¼" = 1'-0"

0' 1' 2' 5' 10' 15'

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STATE OF COLORADO REGISTERED 21255 PROFESSIONAL ENGINEER

03-02-22

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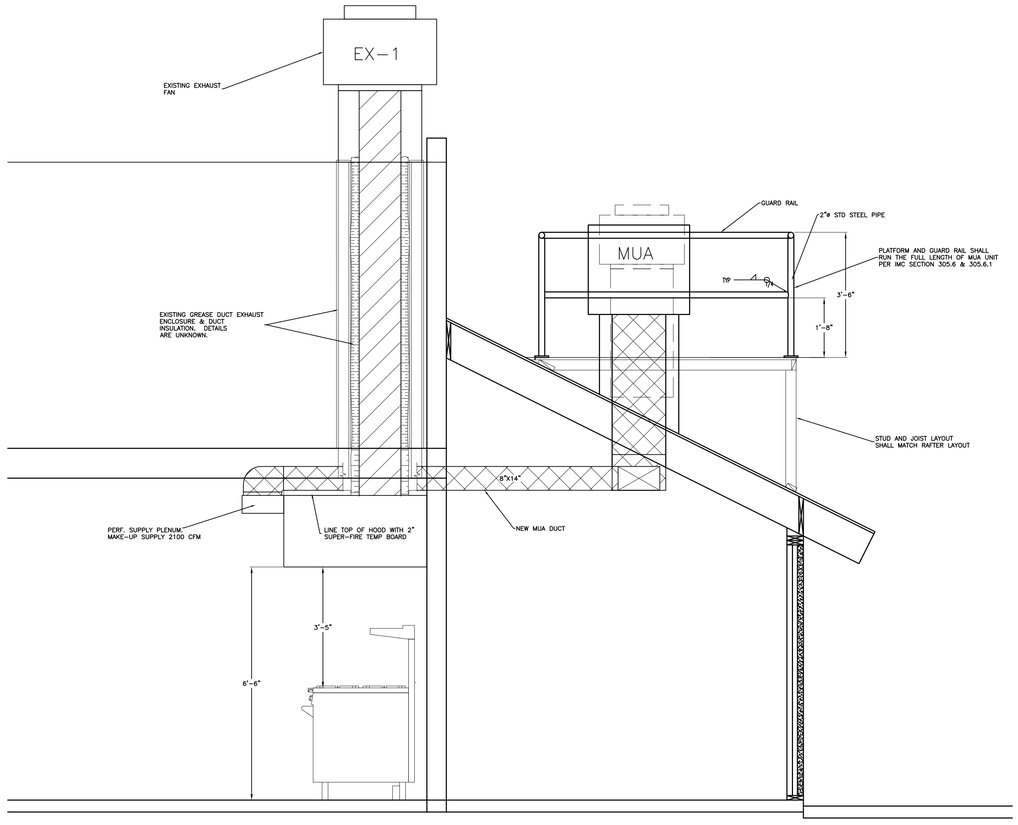
2	2-11-22	JAS
3	3-2-22	JAS

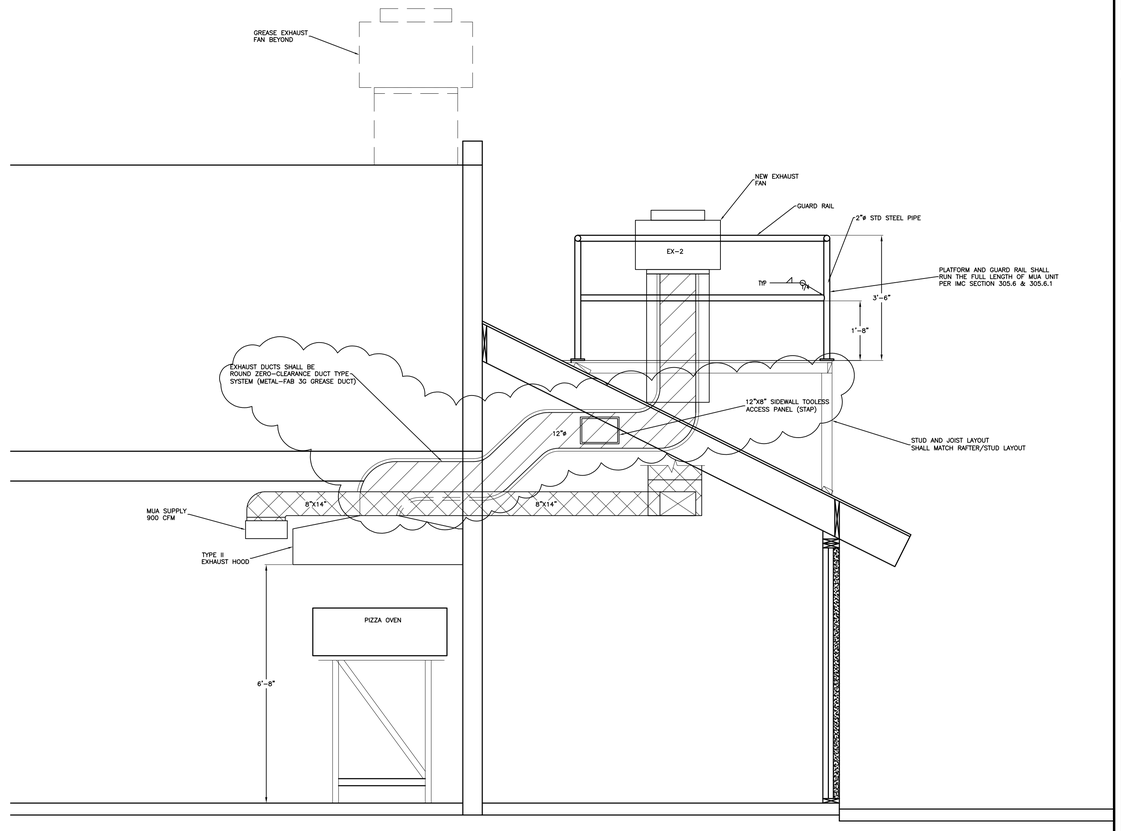
SHEET NUMBER

M-2



1 TYPE I EXHAUST HOOD/DUCT MUA SECTION

SCALE: 1/4" = 1'-0"



1 TYPE II EXHAUST HOOD/DUCT MUA SECTION

SCALE: 1/4" = 1'-0"

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REVISIONS

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1	3-2-22	JAS

SHEET NUMBER

M-3

Plumbing System
A. Plumbing contractor shall provide all labor, materials and equipment to install water, sewer piping and gas piping where indicated. All work shall be in accordance with the current IBC, IPC and all state and local codes and regulations. Only licensed plumbing contractors shall install water, sewer or gas piping.

B. All appropriate plumbing permits shall be issued prior to work commencing in those areas.

D. Coordinate work with other trades to eliminate conflicts. Verify dimensions and sizes and report errors, conflicts and inconsistencies to the Designer before starting work. Execute work in accordance with best current standard practices to contribute to the efficiency of operation, accessibility, slightliness and minimal maintenance. Conform and accommodate systems to building structure, equipment and usage so that they do not interfere with the operation of other systems or operational parts of the building.

PIPE AND FITTINGS
A. Domestic Water: All above slab DW piping shall be Type M copper or approved poly piping. All piping products shall comply with ASTM B42–87 and ASTM B 88–86.
Joints shall be up of 95–5 tin–antimony solder metal per ASTM B 32–70, alloy Grade 95TA.

B. Drain and Waste Piping – Above and Underground
Sewer pipe shall be PVC. PVC pipe and fittings shall comply with ASTM D2665–85. PVC fittings shall correspond to pipe in material, class and ASTM designation

Joints: Solvent cement shall be as specified in ASTM D2564–80 and primer shall be as specified in ASTM F656–80.

D. Natural Gas Piping
All gas pipe shall be black steel pipe and comply with ASTM A 53–83. Ferrous metals in exposed exterior location shall be protected from corrosion with a rust inhibiting coating such as enamel paint. All joints in the piping system shall have screwed joints, having approved standard threads. Such screwed joints shall be made up with approved pipe joint material, insoluble in the presence of natural gas and applied to the male threads only. Fittings 1/2" and less shall be 300 lb. Class per ANSI B16.3. Fittings greater than 1/2" shall be 150 lb. Class per ANSI B16.3.

MISCELLANEOUS PIPING MATERIALS/PRODUCTS

A. Soldering Materials: Provide soldering materials as determined by installer to comply with installation requirements.

B. Piping Connectors for Dissimilar Non–Pressure Pipe: Elastomeric annular ring insert or elastomeric flexible coupling minimizes flexible duct lengths and sharp bends.

VALVES
A. General: Provide valves of types and pressure ratings indicated by application and comply with all state and local codes.

PIPING SYSTEM JOINTS
A. Thread natural gas pipe in accordance with ANSI B2.1. Cut threads full and clean using sharp dies. Ream threaded ends to remove burrs and restore full inside diameter. Apply pipe joint or pipe joint tape where recommended by pipe/fitting manufacturer.

B. Solder copper tube–and–fitting joints where indicated, in accordance with recognized industry practice. Cut tube ends squarely, ream to full inside diameter, and clean outside of tube ends and inside of fittings. Use only flux with no lead content.

C. DWV pipe and fittings shall be cleaned using approved primer and glued with approved glue. If outside temperatures are 30 degrees or below, cold weather glues shall be used.

INSTALLATION OF HANGERS AND SUPPORTS
A. All suspended domestic pipe shall be suitable braced to prevent horizontal movement.

B. Prevent electrolysis in support of copper tubing by use of hangers and supports that are copper plated, or by other recognized industry methods or by plastic coated hangers.

C. All gas piping shall be adequately supported per the table below:

Pipe Size (In)	Maximum distance between supports (Ft)
1/2	6
3/4 – 1–1/2	8
2–3	10

PLUMBING FIXTURES
A. Provide factory fabricated fixtures of type, style and material indicated. Where more than one is indicated, selection is installer's option when approved by owner. All fixtures of the type specified on the mechanical plans, unless approved by the engineer and/or owner.

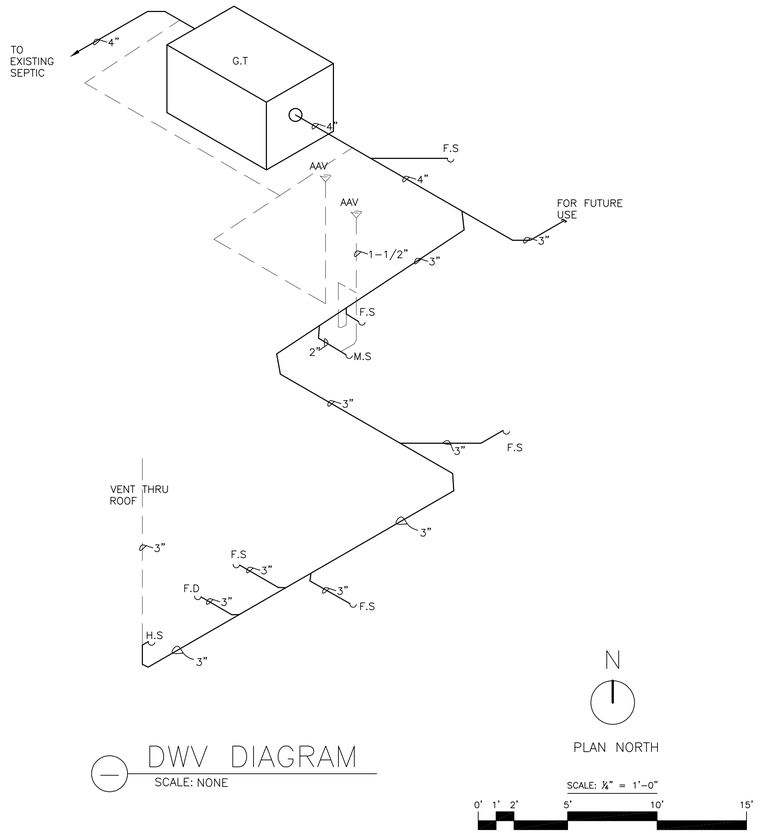
fixtures, inlet and outlet shall have easy disconnects so interceptor may be move for ease of cleaning.

INSTALLATION OF NATURAL GAS PIPING
A. All exposed gas piping shall be kept at least six– (6) in. above grade or structure.

B. All gas appliances unit shall have an accessible main gas shut–off located at unit. Shut–offs shall be AGA approved gas ball valve type, Nibco or equal. Gas piping sizes indicated assume gas meter is located directly in front of building and adjacent to corresponding units.

PLUMBING EQUIPMENT SCHEDULE

MARK	DESCRIPTION	MANUFACTURE & MODEL	FAUCET & ACCESSORIES	FINISH	REMARKS
F.S	FLOOR SINK 12"	ZURN Z1901–2	–	WHITE	–
H.S	HAND SINK	REGENCY–SEHS17	INTEGRAL	WHITE	25" x 21"
3–COMP SK	3 COMPARTMENT SINK	REGENCY–600S32028224	T&S B–0265	SS	115" x 35"
M.S	MOP SINK	REGENCY–600SM16206	REGENCY 600FMS86	SS	20" x16"
F.D	BELL TRAP FLOOR DRAIN	SIOUX CHIEF 866–34PPK	–	WHITE	6" X 6"
GI	GREASE INTERCEPTOR	SCHIER GB–1000	–	–	1000 GAL



DWV DIAGRAM
SCALE: NONE

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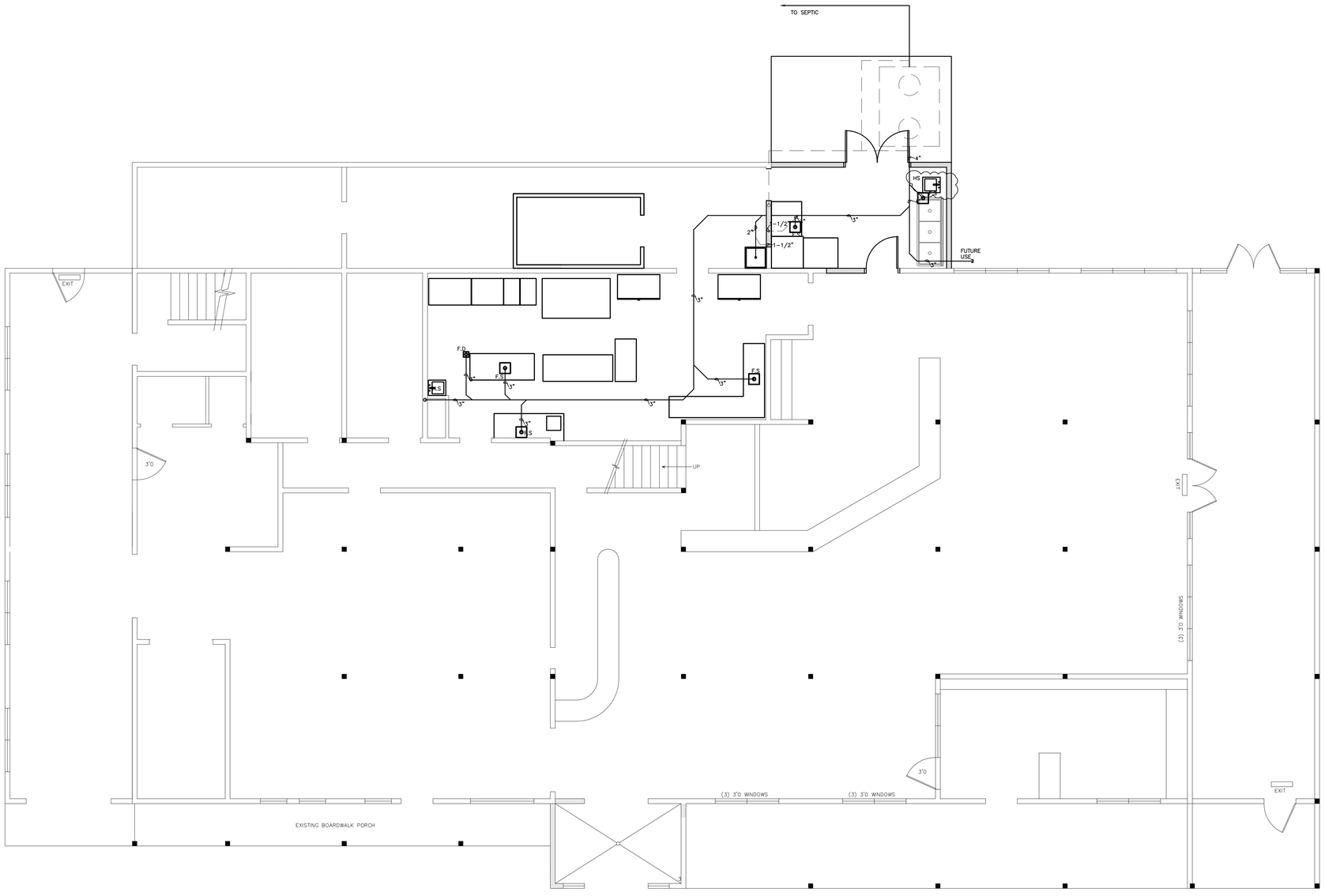

1 KITCHEN PLUMBING PLAN

SCALE: 3/16" = 1'-0"

N

PLAN NORTH

SCALE: ¼" = 1'-0"

0' 1' 2' 5' 10' 15'

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