

MECHANICAL SYMBOLS AND ABBREVIATIONS

SYMBOL	ABBREV.	DESCRIPTION
	(D)	PIPING / EQUIPMENT TO BE REMOVED
	(N)	PIPING / EQUIPMENT TO BE PROVIDED
	(E)	PIPING / EQUIPMENT TO REMAIN
	(F)	FUTURE PIPING / EQUIPMENT
	W	SANITARY DRAIN (ABOVE GRADE DRAIN)
	W	SANITARY DRAIN (BELOW GRADE DRAIN)
	SD	STORM DRAIN (ABOVE GRADE DRAIN)
	SD	STORM DRAIN (BELOW GRADE DRAIN)
	V	VENT
	ACID	ACID DRAIN
	AV	ACID VENT
	CW	COLD WATER
	HW	HOT WATER
	HWR	HOT WATER RETURN
	G	NATURAL GAS
	A	COMPRESSED AIR
	P	PROPANE
	O ₂	OXYGEN
	F	FIRE PROTECTION
	S	STEAM (15 PSIG)
	C	CONDENSATE RETURN
	PC	CONDENSATE RETURN (PUMPED)
	HWS	HEATING WATER SUPPLY (LOW TEMP)
	HWR	HEATING WATER RETURN
	RL	REFRIGERANT LIQUID LINE
	RS	REFRIGERANT SUCTION LINE
	CHS	CHILLED WATER SUPPLY
	CHR	CHILLED WATER RETURN
	CWS	CONDENSING WATER SUPPLY
	CWR	CONDENSING WATER RETURN
	D	DRAIN (INDIRECT)
		TRIPLE DUTY VALVE
		BALL VALVE
		BUTTERFLY VALVE
		CHECK, SWING VALVE
		CHECK, SPRING VALVE
		BALANCING VALVE
		FLOW CONTROL VALVE
		FLOAT VALVE
		GATE VALVE
		GATE ANGLE VALVE
		GLOBE ANGLE VALVE
		PLUG VALVE
		SAFETY RELIEF VALVE
		GLOBE VALVE
		PRESSURE REDUCING VALVE
		SOLENOID VALVE
		2-WAY CONTROL VALVE
		3-WAY CONTROL VALVE
		HOSE BIB
	FD	FLOOR DRAIN
	FS	FLOOR SINK
	WCO	WALL CLEAN OUT
	CB	CATCH BASIN
		WALL HYDRANT / HOSE BIB
	FDC	FIRE DEPARTMENT CONNECTION
		FIRE HYDRANT
	WHA	WATER HAMMER ARRESTOR
	BFP	BACKFLOW PREVENTER, DOUBLE CHECK
	RPBP	REDUCED PRESSURE BACKFLOW PREVENTER
		CAP
		UNION
		EXPANSION JOINT
		FLEXIBLE JOINT
		CONCENTRIC REDUCER
		ECCENTRIC REDUCER STRAIGHT INVERT
		ECCENTRIC REDUCER STRAIGHT CROWN
		STRAINERS/FILTERS Y-PATTERN W/ PLUG
		STRAINERS/FILTERS Y-PATTERN W/ BLOWOFF
		ANCHOR
		GUIDE
	AAV	AUTOMATIC AIR VENT
		PETE'S PLUG
	MAV	MANUAL AIR VENT
		RISE
		TEE
		TEE, OUTLET UP
		TEE, OUTLET DOWN
		ELBOW
		ELBOW, OUTLET UP
		ELBOW, OUTLET DOWN
		AND/OR
		CENTER LINE
		DIAMETER/PHASE
		NUMBER/POUNDS

MECHANICAL SYMBOLS AND ABBREVIATIONS

SYMBOL	ABBREV.	DESCRIPTION
	SA	SUPPLY DUCT TURN UP
	SA	SUPPLY DUCT TURN DOWN
	RA	RETURN AIR
	EXH	EXHAUST
	OSA	OUTSIDE AIR
	FSD	FIRE SMOKE DAMPER
	FD	FIRE DAMPER
	MVD	MANUAL VOLUME DAMPER
		MOTORIZED DAMPER
		BACKDRAFT DAMPER
		TEMPERATURE SENSOR
		WALL MOUNTED THERMOSTAT
		CEILING MOUNTED THERMOSTAT
		ACOUSTICAL LINER
		FLEXIBLE DUCT
		EQUIPMENT CONNECTION
		DUCT PRESSURE CLASS SYMBOL
		SUPPLY DIFFUSER/GRILLE
		RETURN DIFFUSER/GRILLE
		EXHAUST DIFFUSER/GRILLE
		LINEAR SLOT DIFFUSER
		SIDEWALL DIFFUSER/GRILLE
		DETAIL/SECTION NUMBER
		DETAIL/SECTION SYMBOL
		DRAWING WHERE DETAIL/SECTION APPEARS
		POINT OF CONNECTION TO (E)
		NEW EQUIPMENT IDENTIFICATION
		NEW EQUIPMENT MARK
		NEW EQUIPMENT NUMBER
		EXISTING EQUIPMENT IDENTIFICATION
		EXISTING EQUIPMENT MARK
		EXISTING EQUIPMENT NUMBER
		NECK SIZE (IN)
		DIFFUSER/GRILLE MARK
		CFM
	AD	ACCESS DOOR
	AF	AIR FOIL (FAN)
	AFF	ABOVE FINISHED FLOOR
	APD	AIR PRESSURE DROP
	AVG	AVERAGE
	BHP	BRAKE HORSEPOWER
	BI	BACKWARD INCLINED (FAN)
	BLDG	BUILDING
	BOD	BOTTOM OF DUCT
	BOP	BOTTOM OF PIPE
	BTU	BRITISH THERMAL UNIT
	BTUH	BTU PER HOUR
	CFM	CUBIC FEET PER MINUTE
	CI	CAST IRON
	CO	CLEAN OUT
	COTG	CLEAN OUT TO GRADE
	CONC	CONCRETE
	COND	CONDENS - (ER, ING, ATE)
	CONT	CONTINU - (E, ED, OUS, ATION)
	CU FT	CUBIC FEET
	dB	DECIBEL
	DB	DRY BULB
	DDC	DIRECT DIGITAL CONTROL(S)
	DEG	DEGREE
	DEMO	DEMOLISH(ED)
	DIA	DIAMETER
	DN	DOWN
	DS	DOWNSPOUT
	EA	EACH
	EAT	ENTERING AIR TEMPERATURE
	EFF	EFFICIENCY
	ELEV	ELEVATION
	ELEC	ELECTRIC(AL)
	ENT	ENTERING
	EQUIP	EQUIPMENT
	ESP	EXTERNAL STATIC PRESSURE
	EWT	ENTERING WATER TEMPERATURE
	EXH	EXHAUST (AIR)
	EXIST	EXISTING
	F	FAHRENHEIT

MECHANICAL ABBREVIATIONS

ABBREV.	DESCRIPTION
FC	FORWARD CURVED (FAN)
FCO	FLOOR CLEAN OUT
FF	FINISHED FLOOR
FPM	FEET PER MINUTE
FPS	FEET PER SECOND
FA	FREE AREA
FT	FOOT OR FEET
GA	GAUGE
GAL	GALLON(S)
GALV	GALVANIZED
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
HD	HEAD / HUB DRAIN
HG	MERCURY
HOA	HAND OFF AUTO
HP	HEAT PUMP / HORSEPOWER
HR	HOUR
HTG	HEATING
HZ	HERTZ (FREQUENCY)
IE	INVERT ELEVATION
IN	INCH(ES)
KW	KILOWATT
HWH	KILOWATT-HOUR
LAT	LEAVING AIR TEMPERATURE
LBS	POUNDS
LVG	LEAVING
LWT	LEAVING WATER TEMPERATURE
MAX	MAXIMUM
MBH	BTU PER HOUR (THOUSANDS)
MECH	MECHANICAL
MIN	MINIMUM
N/A	NOT APPLICABLE
NC	NOISE CRITERIA / NORMALLY CLOSED
NIC	NOT IN CONTRACT
NIM	NOT IN MECHANICAL
NO	NORMALLY OPEN / NUMBER
NTS	NOT TO SCALE
OBD	OPPOSED BLADE DAMPER
OD	OUTSIDE DIAMETER / OVERFLOW DRAIN
OFCI	OWNER FURNISHED CONTRACTOR INSTALLED
OSA	OUTSIDE AIR
PD	PRESSURE DROP/ DIFFERENCE
PH	PHASE
PPM	PARTS PER MILLION
PRV	PRESSURE REDUCING VALVE
PSI	POUNDS PER SQUARE INCH
PSIA	PSI, ABSOLUTE
PSIG	PSI, GAUGE
P&T	PRESSURE & TEMPERATURE RELIEF VALVE
(R)	RELOCATE(D)
R	RADIUS
RA	RETURN (AIR)
RD	ROOF DRAIN
RECIRC	RECIRCULATE - (E, ING, OR)
REQ	REQUIRED
RH	RELATIVE HUMIDITY
RPM	REVOLUTIONS PER MINUTE
SA	SUPPLY (AIR)
SAT	SATURATION
SCFM	CFM, STANDARD CONDITIONS
SD	SMOKE DAMPER / STORM DRAIN
SEC	SECOND
SF	SQUARE FEET
SM	SHEET METAL
SP	STATIC PRESSURE
SPEC	SPECIFICATION(S)
SQ FT	SQUARE FEET
SS	STAINLESS STEEL
STD	STANDARD
STRUCT	STRUCTURAL
SYS	SYSTEM
TEMP	TEMPERATURE
TONS	TONS OF REFRIGERATION
TSP	TOTAL STATIC PRESSURE
TSTAT	THERMOSTAT
TYP	TYPICAL
VAC	VACUUM
VAV	VARIABLE AIR VOLUME (BOX/UNIT/SYSTEM)
VD	VOLUME DAMPER
VEL	VELOCITY
VENT	VENTILATION
VFD	VARIABLE FREQUENCY DRIVE
VOL	VOLUME
VTR	VENT THROUGH ROOF
VVT	VARIABLE VOLUME AND TEMPERATURE
W/	WITH
W	WASTE/WATT
WB	WET BULB
WPD	WATER PRESSURE DROP
WT	WEIGHT
ZD	ZONE DAMPER

DRAWING INDEX

DWG.	DESCRIPTION
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PD2.1	ENLARGED FLOOR PLAN DEMOLITION - PLUMBING
P2.1	ENLARGED FLOOR PLAN - PLUMBING
P8.0	DETAILS - PLUMBING
M1.0	SCHEDULES - HVAC
MD2.1	ENLARGED FLOOR PLAN DEMOLITION - HVAC
M2.1	ENLARGED FLOOR PLAN - HVAC
M8.0	DETAILS - HVAC

NOTE:
NOT ALL SYMBOLS AND ABBREVIATIONS MAY BE USED.



SENIOR CENTER KITCHEN
REHABILITATION
PROJECT - CDBG #8209

FOR:
FOREST GROVE SENIOR
CENTER
2037 DOUGLAS STREET
FOREST GROVE, OR 97116

Mark	Description	Date
DATE	03-13-18	
PROJECT NO.		
CAD DWG FILE		
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SHEET TITLE		

TITLE SHEET -
MECHANICAL

SCALE: NOTED ON DRAWINGS
MTO.1
SHEET

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PLUMBING CONNECTION SCHEDULE						
SYMBOL MARK	DESCRIPTION	W	V	CW	HW	COMMENTS
FD-1	FLOOR DRAIN - TRIM SET FLOOR	2	2	-	-	PROVIDE PRIMER
FS-1	FLOOR SINK	3	2	-	-	PROVIDE PRIMER, HALF GRATE
FS-2	FLOOR SINK	3	2	-	-	PROVIDE PRIMER, NO GRATE
CO-1	CLEAN OUT	-	-	-	-	
CO-2	CLEAN OUT	-	-	-	-	
CO-3	CLEAN OUT	-	-	-	-	
WB-1	WALL BOX	3	1 1/2	1/2	1/2	
NOTES:						

GAS LOAD SUMMARY				
SYMBOL MARK	DESCRIPTION	SERVICE	MBH	COMMENTS
	COOKING EQUIPMENT	GRIDDLE	160	
	COOKING EQUIPMENT	RANGE	198	
	(E) DRYER	DRYER	22	
DH-1	DUCT HEATER	MAKE-UP AIR UNIT	225	
TOTAL MBH			605	
DEVELOPED LENGTH (FT)			120	
PRESSURE (PSIG)			2	
MAIN (IN)			1	
NOTES:				

HYDROMECHANICAL GREASE INTERCEPTOR								
SYMBOL MARK	DESCRIPTION	SERVICE	FLOW (GPM)	CAPACITY (GAL)	INLET SIZE (IN)	OUTLET SIZE (IN)	EXTENSION	COMMENTS
HGI-1	HYDROMECHANICAL	KITCHEN	75	45	4	4	YES	1, 2, 3
NOTES:								
1 VENT GREASE INTERCEPTOR SEPARATELY. COORDINATE WITH FINISHED GRADE ELEVATION.								
2 A) SIZE IN ACCORDANCE WITH 2014 OREGON PLUMBING SPECIALTY CODE, TABLE 10-2. BASED ON 14 DFU. B) 4 INCH WASTE MAIN. MINIMUM SIZE = 75 GPM.								
3 DESIGN BASIS: ENDURA XL GREASE INTERCEPTOR MODEL XL75.								



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 SHEET TITLE
SCHEDULES - PLUMBING

SCALE: NOTED ON DRAWINGS
P1.0
 SHEET

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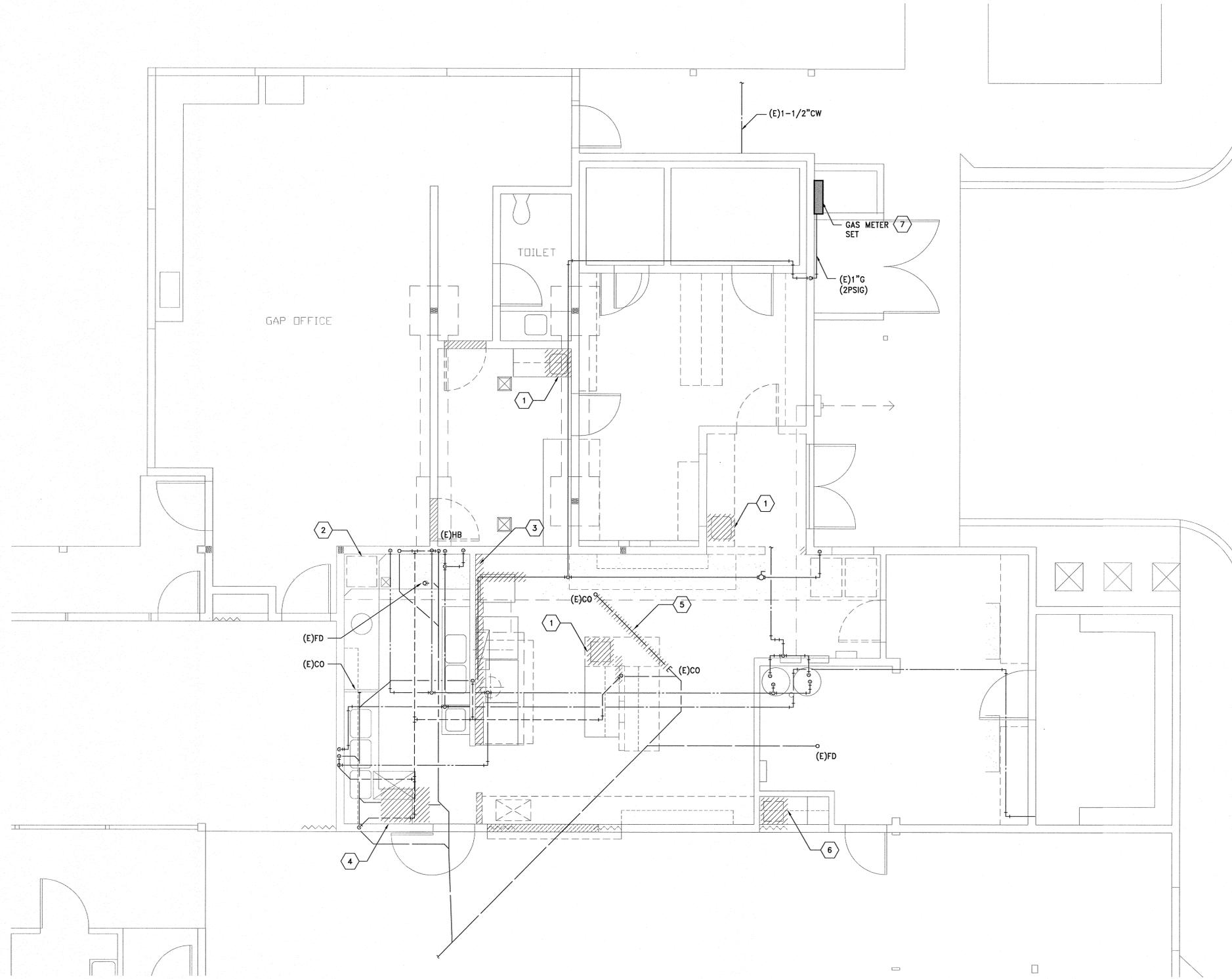


GENERAL NOTES:

- A. INFORMATION PERTAINING TO EXISTING PLUMBING PIPING, FIXTURES, ITEMS, ETC., SHOWN ON THESE DRAWINGS HAS BEEN TAKEN FROM VARIOUS RECORD DRAWINGS WITH LIMITED INVESTIGATION. SOME, BUT NOT ALL, INFORMATION HAS BEEN VERIFIED AT THE SITE. CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS RELATIVE TO SCOPE OF WORK. SOME PIPING AND OTHER ITEMS HAVE BEEN SHOWN IN ASSUMED LOCATION, BUT NOT VERIFIED. CONTRACTOR SHALL VERIFY.
- B. REMOVE EXISTING EQUIPMENT, PIPING, FITTINGS AND APPURTENANCES WHERE INDICATED AND AS REQUIRED. CAP SERVICE PIPING IN A CONCEALED LOCATION. EXISTING MECHANICAL EQUIPMENT, AND APPURTENANCES WHICH ARE REMOVED AND NOT RELOADED OR REINSTALLED SHALL BE DISPOSED OF AS SPECIFIED.
- C. EXISTING PIPING ENCOUNTERED DURING CONSTRUCTION WHICH ARE NO LONGER REQUIRED SHALL BE REMOVED AND BE DISPOSED OF AS SPECIFIED. CAP PIPING IN A CONCEALED LOCATION AND AS CLOSE TO SERVING MAIN AS POSSIBLE TO LIMIT CAPPED DEAD END RUNS TO 2'-0" MAXIMUM FOR ALL SERVICES, EXCEPT AS NOTED.
- D. CUT AND PATCH (E) WALL, FLOOR, ETC., SURFACE TO MATCH (E) OR (N) ARCHITECTURAL FINISHES FOR ALL ITEMS REMOVED INCLUDING, BUT NOT LIMITED TO: EQUIPMENT, PIPING, FIXTURES.
- E. MOST WASTE AND VENT PIPING IS NOT SHOWN FOR CLARITY. FIELD VERIFY LOCATIONS ON SITE PRIOR TO CONSTRUCTION.

KEYED NOTES:

- 1. DISCONNECT AND REMOVE (E) HW, CW, W, V AND APPURTENANCES.
- 2. AT (E) DISHWASHER DISCONNECT AND REMOVE (E) HW AND APPURTENANCES.
- 3. DISCONNECT AND REMOVE (E) GAS PIPING TO COOKING APPLIANCES.
- 4. DISCONNECT AND REMOVE (E) IN-GROUND/FLOOR GREASE INTERCEPTOR.
- 5. DISCONNECT AND CAP (E)W. FLOOR DRAIN TO REMAIN.
- 6. DISCONNECT AND CAP CW, HW, W AND V. REMOVE SINK.
- 7. (E)GAS METER SET TO BE REPLACED. COORDINATE WITH NW NATURAL.



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SHEET TITLE

ENLARGED FLOOR PLAN DEMOLITION - PLUMBING

SCALE: NOTED ON DRAWINGS

PD2.1
 SHEET

1 ENLARGED FLOOR PLAN DEMOLITION - PLUMBING
 PD2.1 SCALE: 1/4" = 1'-0"

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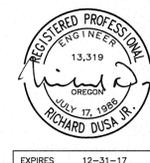


ROOF HOOD									
SYMBOL MARK	DESCRIPTION	SERVICE	CFM	THROAT SIZE		THROAT VELOCITY (FPM)	WEIGHT (LBS)	COMMENTS	
				WIDTH (IN)	LENGTH (IN)				
RH-1	OUTSIDE AIR HOOD	DH-1	3,200	36	18	711	100	1, 2	
NOTES:									
1 PROVIDE CLASS 1A MOTORIZED DAMPER. INTERLOCK WITH IHP-1.									
2 PROVIDE COMPOUND SLOPE ROOF CURB.									

SUPPLY FAN																		
SYMBOL MARK	DESCRIPTION	SERVICE	CFM	ESP (IN WC)	VOLTAGE	PH.	HP	MCA	FLA	DRIVE	RPM	TIP SPEED (FPM)	INTERLOCK	WHEEL TYPE	DISCHARGE	SONES	WEIGHT (LBS)	COMMENTS
NOTES:																		
1 PROVIDE CLASS 1A MOTORIZED DAMPER. INTERLOCK WITH FAN.																		

KITCHEN EXHAUST FAN																		
SYMBOL MARK	DESCRIPTION	SERVICE	CFM	ESP (IN WC)	VOLTAGE	PH.	HP	MCA	FLA	DRIVE	RPM	TIP SPEED (FPM)	INTERLOCK	WHEEL TYPE	DISCHARGE	SONES	WEIGHT (LBS)	COMMENTS
NOTES:																		
1 PROVIDE COMPOUND SLOPE ROOF CURB.																		

GAS FIRED DUCT HEATER													
SYMBOL MARK	DESCRIPTION	SERVICE	INPUT (MBH)	OUTPUT (MBH)	AFUE (%)	EAT (°F)	VENT SIZE (IN)	COMB. SIZE (IN)	CFM	WEIGHT (LBS)	COMMENTS		
												DH-1	INDOOR SEPARATED COMBUSTION
NOTES:													
1 PROVIDE MANUFACTURER'S VERTICAL COMBUSTION AIR / VENT KIT. CONCENTRIC ADAPTER AND VENT TERMINAL.													
2 PROVIDE DUCT HEATER WITHOUT FINGER BAFFLES.													



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SHEET TITLE
 SCHEDULES - HVAC

SCALE: NOTED ON DRAWINGS

M1.0
 SHEET

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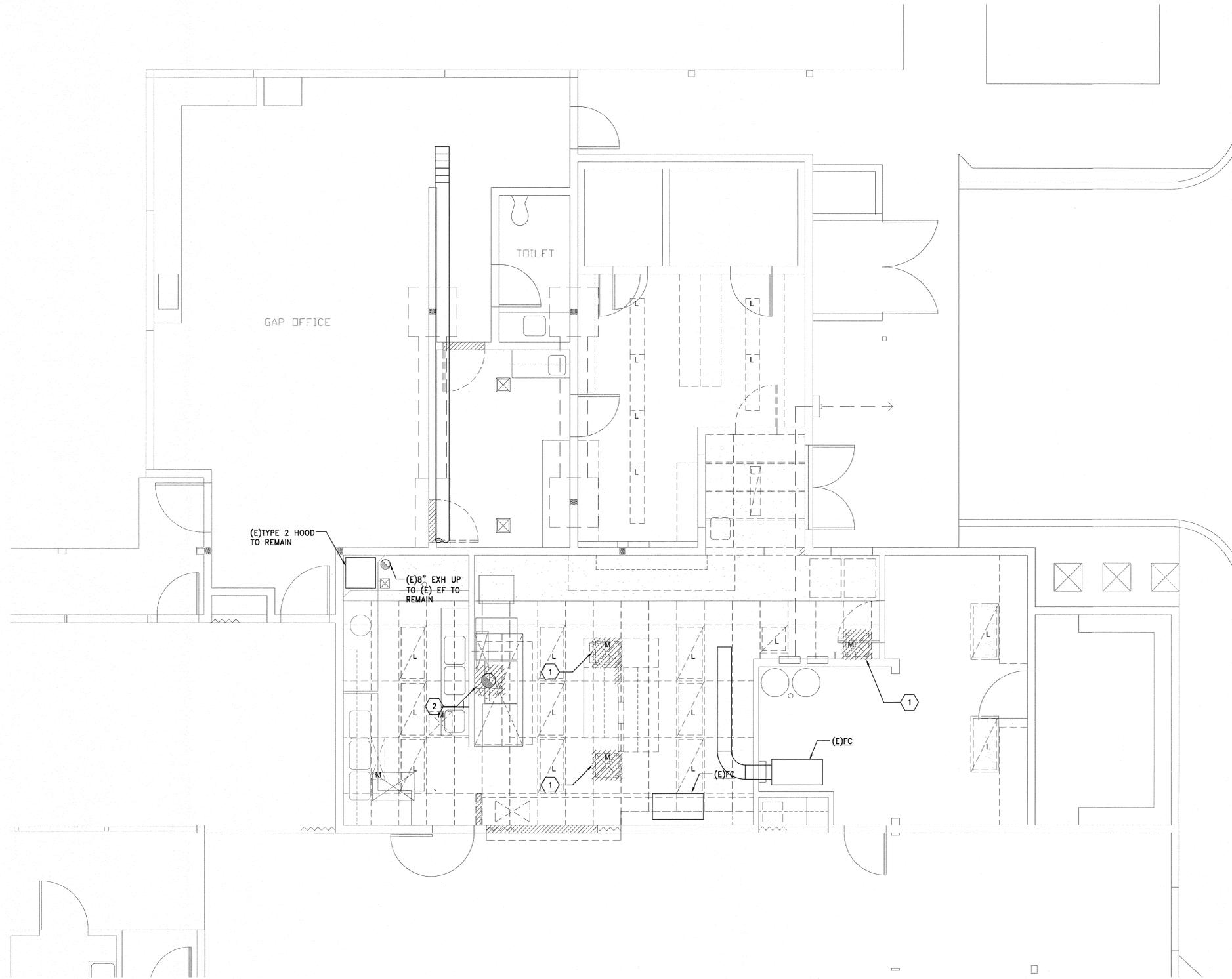


GENERAL NOTES:

- A. INFORMATION PERTAINING TO EXISTING HVAC DUCTWORK, ITEMS, ETC., SHOWN ON THIS DRAWINGS HAS BEEN TAKEN FROM VARIOUS RECORD DRAWINGS WITH LIMITED INVESTIGATION. SOME, BUT NOT ALL, INFORMATION HAS BEEN VERIFIED AT THE SITE. CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS RELATIVE TO SCOPE IN AN ASSUMED LOCATION, BUT NOT VERIFIED. CONTRACTOR SHALL VERIFY.
- B. REMOVE EXISTING DUCTWORK AND APPURTENANCES WHERE INDICATED AND AS REQUIRED. CAP SERVICE PIPING IN A CONCEALED LOCATION. EXISTING MECHANICAL EQUIPMENT AND APPURTENANCES WHICH ARE REMOVED AND NOT RELOCATED OR REINSTALLED SHALL BE DISPOSED OF AS SPECIFIED.
- C. EXISTING DUCTWORK ENCOUNTERED DURING CONSTRUCTION WHICH ARE NO LONGER REQUIRED SHALL BE REMOVED AND BE DISPOSED OF AS SPECIFIED. CAP PIPING IN A CONCEALED LOCATION AND AS CLOSE TO SERVING MAIN AS POSSIBLE TO LIMIT DEAD END RUNS TO 2'-0" MAXIMUM FOR ALL SERVICES, EXCEPT AS NOTED.
- D. CUT AND PATCH (E) WALL, FLOOR, ETC., SURFACE TO MATCH (E) OR (N) ARCHITECTURAL FINISHES FOR ALL ITEMS REMOVED.

KEYED NOTES:

- 1. DISCONNECT AND REMOVE (E) DIFFUSER/GRILLE, DUCTWORK AND APPURTENANCES.
- 2. DISCONNECT AND REMOVE (E) GREASE EXH, EXH FAN AND APPURTENANCES.



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 SHEET TITLE
 ENLARGED FLOOR PLAN DEMOLITION - HVAC

SCALE: NOTED ON DRAWINGS
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GENERAL NOTES:

- A. DUCT RUN OUT SIZES ARE SAME AS DIFFUSER OR GRILLE NECK SIZES, UNLESS OTHERWISE NOTED.
- B. COORDINATE DUCTWORK ROUTING WITH OTHER TRADES. REFER TO ARCHITECTURAL REFLECTED CEILING PLANS AND INTERIOR AND EXTERIOR ELEVATIONS FOR EXACT LOCATION OF GRILLES, REGISTERS, DIFFUSERS AND LOUVERS. COORDINATE LOCATIONS WITH OTHER TRADES.
- C. PROVIDE MINIMUM 15 FEET CLEARANCE BETWEEN OSA INTAKES AND ALL PLUMBING VENTS AND ROOF EXHAUSTS.
- D. ALL CEILING DIFFUSERS ARE FOUR-WAY WITH AIR PATTERN CONTROL, UNLESS OTHERWISE NOTED.
- E. DURING CONSTRUCTION, INSTALL TEMPORARY CLOSURES OF METAL OR TAPED POLYETHYLENE ON OPEN DUCTWORK TO PREVENT CONSTRUCTION DUCT FROM ENTERING DUCTWORK SYSTEM. REFER TO SPECIFICATIONS.
- F. DUCTWORK JOINTS AND SEAMS SHALL BE SEALED TO SMACNA SEAL CLASS A STANDARDS.
- G. PROVIDE REMOTE DUCT VOLUME DAMPER OPERATORS AT ALL HARD CEILINGS.
- H. PROVIDE TRANSITION UP TO ROOF HOODS TO MATCH THROAT SIZES.
- I. ROUTE EXPOSED PIPING AND DUCTWORK TIGHT TO STRUCTURE UNLESS OTHERWISE NOTED.

KEYED NOTES:

- 1. PROVIDE 4"Ø COMBUSTION AIR AND 4"Ø FLUE UP THROUGH ROOF. PROVIDE MANUFACTURER'S CONCENTRIC VENT TERMINATION KIT.
- 2. PROVIDE CAPTIVE AIR DROP-IN PERFORATED SUPPLY PLENUM, MODEL DI-PSP.
- 3. (N) DISHWASHER RECONNECT TO (E)EXHAUST SYSTEM.



EXPIRES 12-31-17

SENIOR CENTER KITCHEN REHABILITATION

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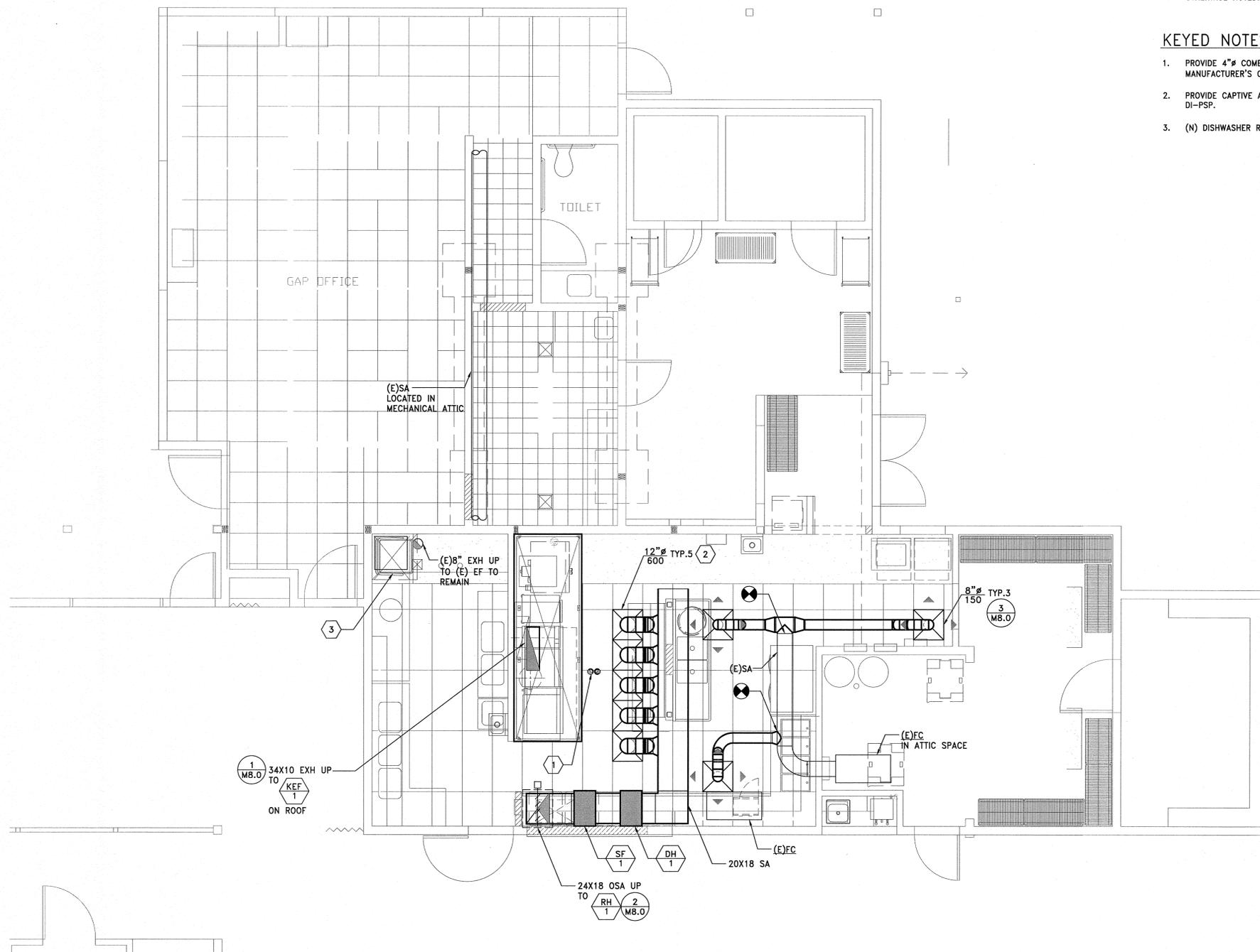
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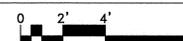
SHEET TITLE
 ENLARGED FLOOR PLAN - HVAC

SCALE: NOTED ON DRAWINGS

M2.1
 SHEET



1 ENLARGED FLOOR PLAN - HVAC
 M2.1 SCALE: 1/4" = 1'-0"



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