Р	LUMBIN	NG SYMBOLS SCHEDULE
SYMBOL	ABBREV	DESCRIPTION
	cw	COLD WATER
	HW	HOT WATER
	HWR	HOT WATER RECIRCULATION
тw	TW	TEMPERED WATER
	SAN	SANITARY SEWER
PSAN	PSAN	PUMPED SANITARY
CV	cv	CIRCUIT VENT
CW&V	CW&V	COMBINATION WASTE & VENT
o	v	SANITARY VENT
SD	SD	STORM DRAIN, RAINWATER DRAIN
PSD	PSD	PUMPED STORM DRAIN
——— OFD ———	OFD	OVERFLOW ROOF DRAINAGE
TP	TP	TRAP PRIMER PIPING
G	G	GAS
GV	GV	GAS VENT
A	A	COMPRESSED AIR
[XXX°]	[XXX°] <b>HW</b>	HOT WATER [XXX°]
[XXX°]	[XXX°] HWR	HOT WATER RETURN [XXX °]
LA		LABORATORY COMPRESSED AIR
LV	LA	
	LV	LABORATORY VACUUM
RO	RO	REVERSE OSMOSIS WATER
DI	DI	DISTILLED WATER
DE	DE	DEIONIZED WATER
AW	AW	ACID WASTE
AV	AV	ACID VENT
GW	GW	GREASE WASTE
ow	OW	OIL LADEN WASTE
MA	MA	MEDICAL COMPRESSED AIR
MV	MV	MEDICAL VACUUM
ox	ох	OXYGEN
ox		OXYGEN NITROGEN
OX N	ох	
ox	OX N	NITROGEN
OX N	OX N	NITROGEN NITROUS OXIDE
OX N NO	OX N	NITROGEN  NITROUS OXIDE  WASTE ANESTHESIA GAS DISPOSAL
OX N NO WAGD CO2	OX N NO	NITROGEN  NITROUS OXIDE  WASTE ANESTHESIA GAS DISPOSAL  CARBON DIOXIDE
OX	OX N NO	NITROGEN  NITROUS OXIDE  WASTE ANESTHESIA GAS DISPOSAL  CARBON DIOXIDE  FIRE PROTECTION WATER SUPPLY
OX N NO NO WAGD CO2 F SP	OX N NO F SP	NITROGEN  NITROUS OXIDE  WASTE ANESTHESIA GAS DISPOSAL  CARBON DIOXIDE  FIRE PROTECTION WATER SUPPLY  AUTOMATIC FIRE SPRINKLER
OX	OX N NO F SP	NITROGEN  NITROUS OXIDE  WASTE ANESTHESIA GAS DISPOSAL  CARBON DIOXIDE  FIRE PROTECTION WATER SUPPLY  AUTOMATIC FIRE SPRINKLER  AUTOMATIC FIRE SPRINKLER SYSTEM DRAIN
— OX — N — N — NO — NO — WAGD — CO2 — F — SP — ASD — OH	OX N NO F SP	NITROGEN  NITROUS OXIDE  WASTE ANESTHESIA GAS DISPOSAL  CARBON DIOXIDE  FIRE PROTECTION WATER SUPPLY  AUTOMATIC FIRE SPRINKLER  AUTOMATIC FIRE SPRINKLER SYSTEM DRAIN  ELBOW TURNED UP
— OX — N — N — NO — NO — WAGD — CO2 — F — SP — ASD — OH — CH	OX N NO F SP	NITROGEN  NITROUS OXIDE  WASTE ANESTHESIA GAS DISPOSAL  CARBON DIOXIDE  FIRE PROTECTION WATER SUPPLY  AUTOMATIC FIRE SPRINKLER  AUTOMATIC FIRE SPRINKLER SYSTEM DRAIN  ELBOW TURNED UP  ELBOW TURNED DOWN
— OX — N — NO — NO — WAGD — CO2 — F — SP — ASD — CH — HOH	OX N NO F SP	NITROGEN  NITROUS OXIDE  WASTE ANESTHESIA GAS DISPOSAL  CARBON DIOXIDE  FIRE PROTECTION WATER SUPPLY  AUTOMATIC FIRE SPRINKLER  AUTOMATIC FIRE SPRINKLER SYSTEM DRAIN  ELBOW TURNED UP  ELBOW TURNED DOWN  TEE TURNED UP
— OX — N — NO — NO — WAGD — CO2 — F — SP — ASD — CH — HOH —	OX N NO F SP	NITROGEN  NITROUS OXIDE  WASTE ANESTHESIA GAS DISPOSAL  CARBON DIOXIDE  FIRE PROTECTION WATER SUPPLY  AUTOMATIC FIRE SPRINKLER  AUTOMATIC FIRE SPRINKLER SYSTEM DRAIN  ELBOW TURNED UP  ELBOW TURNED DOWN  TEE TURNED DOWN
— OX — N — NO — NO — WAGD — CO2 — F — SP — ASD — GH — GH — H⊕l —	OX N NO F SP	NITROGEN  NITROUS OXIDE  WASTE ANESTHESIA GAS DISPOSAL  CARBON DIOXIDE  FIRE PROTECTION WATER SUPPLY  AUTOMATIC FIRE SPRINKLER  AUTOMATIC FIRE SPRINKLER SYSTEM DRAIN  ELBOW TURNED UP  ELBOW TURNED DOWN  TEE TURNED DOWN  PIPE UNION
— OX — N — NO — NO — WAGD — CO2 — F — SP — ASD — OH — CH — HOH —	OX N NO F SP	NITROGEN  NITROUS OXIDE  WASTE ANESTHESIA GAS DISPOSAL  CARBON DIOXIDE  FIRE PROTECTION WATER SUPPLY  AUTOMATIC FIRE SPRINKLER  AUTOMATIC FIRE SPRINKLER SYSTEM DRAIN  ELBOW TURNED UP  ELBOW TURNED DOWN  TEE TURNED UP  TEE TURNED DOWN  PIPE UNION  FLEXIBLE PIPE CONNECTION
— OX — N — NO — NO — WAGD — CO2 — F — SP — ASD — CH — CH — HOH —	OX N NO F SP	NITROGEN  NITROUS OXIDE  WASTE ANESTHESIA GAS DISPOSAL  CARBON DIOXIDE  FIRE PROTECTION WATER SUPPLY  AUTOMATIC FIRE SPRINKLER  AUTOMATIC FIRE SPRINKLER SYSTEM DRAIN  ELBOW TURNED UP  ELBOW TURNED DOWN  TEE TURNED UP  TEE TURNED DOWN  PIPE UNION  FLEXIBLE PIPE CONNECTION  PIPE ANCHOR
— OX — N — NO — NO — WAGD — CO2 — F — SP — ASD — OH — CH — HOH —	OX N NO F SP ASD	NITROGEN  NITROUS OXIDE  WASTE ANESTHESIA GAS DISPOSAL  CARBON DIOXIDE  FIRE PROTECTION WATER SUPPLY  AUTOMATIC FIRE SPRINKLER  AUTOMATIC FIRE SPRINKLER SYSTEM DRAIN  ELBOW TURNED UP  ELBOW TURNED DOWN  TEE TURNED UP  TEE TURNED DOWN  PIPE UNION  FLEXIBLE PIPE CONNECTION  PIPE ANCHOR
— OX — N — NO — NO — WAGD — CO2 — F — SP — ASD — OH — CH — HOH —	OX N NO F SP ASD	NITROGEN  NITROUS OXIDE  WASTE ANESTHESIA GAS DISPOSAL  CARBON DIOXIDE  FIRE PROTECTION WATER SUPPLY  AUTOMATIC FIRE SPRINKLER  AUTOMATIC FIRE SPRINKLER SYSTEM DRAIN  ELBOW TURNED UP  ELBOW TURNED DOWN  TEE TURNED UP  TEE TURNED DOWN  PIPE UNION  FLEXIBLE PIPE CONNECTION  PIPE ANCHOR  PIPE GUIDE  EXPANSION COMPENSATOR
— OX — N — NO — NO — WAGD — CO2 — F — SP — ASD — OH — CH — HOH —	OX N NO F SP ASD	NITROGEN  NITROUS OXIDE  WASTE ANESTHESIA GAS DISPOSAL  CARBON DIOXIDE  FIRE PROTECTION WATER SUPPLY  AUTOMATIC FIRE SPRINKLER  AUTOMATIC FIRE SPRINKLER SYSTEM DRAIN  ELBOW TURNED UP  ELBOW TURNED DOWN  TEE TURNED UP  TEE TURNED DOWN  PIPE UNION  FLEXIBLE PIPE CONNECTION  PIPE ANCHOR  PIPE GUIDE  EXPANSION COMPENSATOR  FLOW ARROW
— OX — N — NO — NO — WAGD — CO2 — F — SP — ASD — OH — CH — HOH — HOH — HOH — HOH — HOH — TIPL — MARKET — MARKE	OX N NO F SP ASD  EXC	NITROGEN  NITROUS OXIDE  WASTE ANESTHESIA GAS DISPOSAL  CARBON DIOXIDE  FIRE PROTECTION WATER SUPPLY  AUTOMATIC FIRE SPRINKLER  AUTOMATIC FIRE SPRINKLER SYSTEM DRAIN  ELBOW TURNED UP  ELBOW TURNED DOWN  TEE TURNED UP  TEE TURNED DOWN  PIPE UNION  FLEXIBLE PIPE CONNECTION  PIPE ANCHOR  PIPE GUIDE  EXPANSION COMPENSATOR  FLOW ARROW  GATE VALVE
— OX — N — NO — NO — WAGD — CO2 — F — SP — ASD — OH — HOH —	OX N NO F SP ASD  EXC GA BF	NITROGEN  NITROUS OXIDE  WASTE ANESTHESIA GAS DISPOSAL  CARBON DIOXIDE  FIRE PROTECTION WATER SUPPLY  AUTOMATIC FIRE SPRINKLER  AUTOMATIC FIRE SPRINKLER SYSTEM DRAIN  ELBOW TURNED UP  ELBOW TURNED DOWN  TEE TURNED UP  TEE TURNED DOWN  PIPE UNION  FLEXIBLE PIPE CONNECTION  PIPE ANCHOR  PIPE GUIDE  EXPANSION COMPENSATOR  FLOW ARROW  GATE VALVE  BUTTERFLY VALVE
— OX — N — NO — NO — WAGD — CO2 — F — SP — ASD — OH — O	OX N NO F SP ASD  EXC GA BF CK	NITROGEN  NITROUS OXIDE  WASTE ANESTHESIA GAS DISPOSAL  CARBON DIOXIDE  FIRE PROTECTION WATER SUPPLY  AUTOMATIC FIRE SPRINKLER  AUTOMATIC FIRE SPRINKLER SYSTEM DRAIN  ELBOW TURNED UP  ELBOW TURNED DOWN  TEE TURNED UP  TEE TURNED DOWN  PIPE UNION  FLEXIBLE PIPE CONNECTION  PIPE ANCHOR  PIPE GUIDE  EXPANSION COMPENSATOR  FLOW ARROW  GATE VALVE  BUTTERFLY VALVE  CHECK VALVE
— OX — N — NO — NO — WAGD — CO2 — F — SP — ASD — OH — CH	OX N NO F SP ASD  EXC GA BF CK CBL	NITROGEN  NITROUS OXIDE  WASTE ANESTHESIA GAS DISPOSAL  CARBON DIOXIDE  FIRE PROTECTION WATER SUPPLY  AUTOMATIC FIRE SPRINKLER  AUTOMATIC FIRE SPRINKLER SYSTEM DRAIN  ELBOW TURNED UP  ELBOW TURNED DOWN  TEE TURNED DOWN  PIPE UNION  FLEXIBLE PIPE CONNECTION  PIPE ANCHOR  PIPE GUIDE  EXPANSION COMPENSATOR  FLOW ARROW  GATE VALVE  BUTTERFLY VALVE  CHECK VALVE  CALIBRATED BALANCING VALVE
— OX — N — NO — NO — WAGD — CO2 — F — SP — ASD — OH — CH	OX N NO F SP ASD  EXC  GA BF CK CBL TCBV	NITROUS OXIDE  WASTE ANESTHESIA GAS DISPOSAL  CARBON DIOXIDE  FIRE PROTECTION WATER SUPPLY  AUTOMATIC FIRE SPRINKLER  AUTOMATIC FIRE SPRINKLER SYSTEM DRAIN  ELBOW TURNED UP  ELBOW TURNED DOWN  TEE TURNED DOWN  PIPE UNION  FLEXIBLE PIPE CONNECTION  PIPE ANCHOR  PIPE GUIDE  EXPANSION COMPENSATOR  FLOW ARROW  GATE VALVE  BUTTERFLY VALVE  CHECK VALVE  THERMOSTATICALLY CONTROLLED BALANCING VALVE
— OX — N — NO — NO — WAGD — CO2 — F — SP — ASD — OH — CH	OX N NO F SP ASD  EXC GA BF CK CBL TCBV BA	NITROGEN  NITROUS OXIDE  WASTE ANESTHESIA GAS DISPOSAL  CARBON DIOXIDE  FIRE PROTECTION WATER SUPPLY  AUTOMATIC FIRE SPRINKLER  AUTOMATIC FIRE SPRINKLER SYSTEM DRAIN  ELBOW TURNED UP  ELBOW TURNED DOWN  TEE TURNED DOWN  PIPE UNION  FLEXIBLE PIPE CONNECTION  PIPE ANCHOR  PIPE GUIDE  EXPANSION COMPENSATOR  FLOW ARROW  GATE VALVE  BUTTERFLY VALVE  CHECK VALVE  CALIBRATED BALANCING VALVE  THERMOSTATICALLY CONTROLLED BALANCING VALVE  BALL VALVE

E	IIIMRII	NG SYMBOLS SCHEDULE	GENER	AL NOTI	ES (APPLY TO ALL DRAWINGS):
	LONDII	40 01 MIDOLO GOTTLEGEL	1.	COMP	LY WITH LOCAL, STATE, AND NATIONAL CODES AND REGULATIONS.
SYMBOL	ABBREV	DESCRIPTION	2.		DOCUMENTS ARE SCHEMATIC TO CONVEY THE DESIGN INTENT. DO NOT SCALE DRAWIN T PLACEMENT OF EQUIPMENT AND DISTRIBUTION SYSTEMS.
<u> </u>		GAS COCK	3. COORDINATION BETWEEN DISCIPLINES IS THE RESPONSIBILITY OF THE INST AND/OR CONSTRUCTION MANAGER PRIOR TO INSTALLATION.		DINATION BETWEEN DISCIPLINES IS THE RESPONSIBILITY OF THE INSTALLING CONTRACTOR CONSTRUCTION MANAGER PRIOR TO INSTALLATION.
		BACKFLOW PREVENTER	4.		RAWINGS AND SPECIFICATIONS ARE COMPLEMENTARY. IN A CASE OF A CONFLICT BET
<del>V</del> 00	СО	CLEANOUT FLUSH IN FLOOR	_		RAWINGS AND SPECIFICATIONS, REQUEST A DOCUMENTED INTERPRETATION FROM THI ITECT / ENGINEER.
wco	WCO	WALL CLEANOUT FLUSH IN WALL	5.		ILL EQUIPMENT PER MANUFACTURER'S INSTALLATION INSTRUCTIONS AND INSURANCE RWRITER REQUIREMENTS.
<u> </u>	WHA-()	WATER HAMMER ARRESTER (PDI TYPE)	6.		INE-TYPE AND SYMBOLS LEGENDS SHOW ITEMS TYPICALLY INCLUDED WITH THE SPECII
——∯———— □	PRV	PRESSURE REDUCING VALVE	_		EMS. NOT ALL SYMBOLS AND/OR LINE TYPES ARE UTILIZED.
<u> </u>	PS	PRESSURE SWITCH	7.		IDE DETAILS IN THE SCOPE OF WORK FOR EVERY SITUATION TO WHICH THAT DETAIL AP PT WHERE A SPECIFIC DETAIL REFERENCE IS DESIGNATED TO INDICATE OTHERWISE.
± TS ± FS	TS FS	VALVE WITH TAMPER SWITCH  VALVE WITH FLOW SWITCH	8.	EXIST	ING PLUMBING EQUIPMENT, PIPING, AND FIXTURES SHALL REMAIN UNLESS NOTED OTH
<b>→</b>	F3	UPRIGHT FIRE SPRINKLER HEADS	9.		DULE SYSTEM MODIFICATIONS TO MINIMIZE DISRUPTIONS TO EXISTING BUILDING SERVI DINATE SHUTDOWN REQUESTS PER SPECIFICATIONS AND OWNER REQUIREMENTS.
		PENDANT FIRE SPRINKLER HEADS	10.		TE PIPING AS HIGH AS POSSIBLE, UNLESS NOTED OTHERWISE.
∇		SIDEWALL FIRE SPRINKLER HEADS	11.		PENETRATIONS THROUGH FIRE AND/OR SMOKE BARRIERS WITH AN APPROVED SYSTEM
	FHR	FIRE HOSE RACK	1		TAIN THE INTEGRITY OF THE BARRIER AND SHALL BE MARKED APPROPRIATELY IN ACCO SPECIFICATIONS.
	FHC	FIRE HOSE CABINET (SURFACE MTD.)	12.		ILL EXTERIOR FUEL GAS REGULATORS AND METERS AT LEAST 10 FT FROM DOORS, OPE DWS, FRESH AIR OPENINGS, ETC.
<del></del>	FHC	FIRE HOSE CABINET (RECESSED)	13.		DINATE ROOF PENETRATIONS WITH THE ROOFING CONTRACTOR OR ROOF WARRANTY RWRITER TO MAINTAIN ROOFING SYSTEM INTEGRITY.
	FVC	FIRE VALVE CABINET	14.		UM PLUMBING PIPING SIZE SHALL BE 1/2" UNLESS NOTED OTHERWISE.
⋖	FH	FIRE HYDRANT	15.		LL FLEXIBLE CONNECTIONS BETWEEN ALL MOTORIZED EQUIPMENT AND THE CONNECT
×	FDC	FIRE DEPARTMENT CONNECTION	16.		EM. REFER TO SPECIFICATIONS FOR CONNECTION TYPE AND APPLICATION.  IDE ALL FUEL GAS PIPING WITH A SHUT OFF VALVE, UNION, AND DRIP LEG AT EACH
<b>e</b> -◀		MEDICAL GAS OUTLET	] 10.		ECTION TO GAS FIRE EQUIPMENT.
I VS	VS	MEDICAL VACUUM SLIDE BRACKET	17.	SANIT DIAME	ARY PIPING UNDERGROUND AND BENEATH SLAB ON GRADE SHALL BE NO LESS THAN 2 ETER.
<del> </del>		THERMOMETER	18.		DINATE INSPECTION AND TESTING REQUIREMENTS OF PIPING ENCLOSED IN CMU WALLS
φ		PRESSURE GAGE		INTO (	RIOR TO CONSTRUCTION. DURING CONSTRUCTION, DO NOT ENCLOSE, COVER, OR PUT F OPERATION UNTIL IT HAS BEEN INSPECTED AND APPROVED BY AUTHORITIES HAVING DICTION.
<del>- &gt; </del>		'Y' STRAINER WITH BLOWDOWN VALVE		JUNIO	DICTION.
•——	WH	WALL HYDRANT			
<b>←</b> +	НВ	HOSE BIBB			PLUMBING LINETYPE KEY
0	FD	FLOOR DRAIN			(APPLIES TO ALL PLUMBING SERVICES OR SYMBOLS)
×	FS	FLOOR SINK	SYM	BOL	DESCRIPTION
<u>©</u>	RD	ROOF DRAIN			HEAVY LINEWEIGHT INDICATES PIPING AND EQUIPMENT TO BE FURNISHED UNDER T PROJECT
0	OFD	OVERFLOW ROOF DRAIN, EMERGENCY ROOF DRAIN			THIN LINEWEIGHT INDICATES PIPING AND EQUIPMENT THAT ARE EXISTING TO REMAUNLESS NOTED OTHERWISE
	OFDN	OVERFLOW DRAIN NOZZLE	]		DASHED LINETYPE INDICATES PIPING AND EQUIPMENT THAT ARE EXISTING TO BE
C		CIRCULATOR	_		REMOVED, UNLESS NOTED OTHERWISE
[AP]	AP	ACCESS PANEL			
	AD	ACCESS DOOR		AD CL	PLUMBING ABBREVIATIONS  ABOVE CEILING HC HEATING/HVAC CONTRACTOR
0'-0"		DISTANCE FROM FLOOR TO BOTTOM OF OBJECT		AT ST	ABOVE CEILING HC HEATING/HVAC CONTRACTOR AT STRUCTURE HP HORSEPOWER BELOW GRADE KW KILOWATT
$\oplus$		CONNECT TO EXISTING		AFF AB	OVE FINISHED FLOOR MC MECHANICAL CONTRACTOR OVE FINISHED GRADE PC PLUMBING CONTRACTOR
$\Theta$		POINT OF DEMOLITION			TWEEN JOIST PSIG POUNDS PER SQUARE INCH GAGE IBIC FEET PER MINUTE RPM REVOLUTIONS PER MINUTE
T	TXFR	AUTOMATIC FIXTURE TRANSFORMER		Dia. DIA	
	RISER T	YPE DW 1 RISER NUMBER		ECH EX EX EX	ECTRICAL CONTRACTOR TJ THRU JOIST TENDED COVERAGE HEAD TR THROUGH ROOF UN FL UNDER FLOOR ET PER MINUTE US S UNDERSIDE STEEL
REF	ERENCE NUMB	ER SHEET CROSS REFERENCE		FT HD I GC GE	FEET OF HEAD UNO UNLESS NOTED OTHERWISE ENERAL CONTRACTOR VTR VENT THRU ROOF EALLONS PER MINUTE WS WASTE STACK
SECTION R	EFERENCE LE	DIRECTION OF VIEW SHEET CROSS REFERENCE			

### **GENERAL NOTES (APPLY TO ALL DRAWINGS):**

- 1. COMPLY WITH LOCAL, STATE, AND NATIONAL CODES AND REGULATIONS.
- PLAN DOCUMENTS ARE SCHEMATIC TO CONVEY THE DESIGN INTENT. DO NOT SCALE DRAWINGS FOR
- EXACT PLACEMENT OF EQUIPMENT AND DISTRIBUTION SYSTEMS.
- COORDINATION BETWEEN DISCIPLINES IS THE RESPONSIBILITY OF THE INSTALLING CONTRACTOR AND/OR CONSTRUCTION MANAGER PRIOR TO INSTALLATION. THE DRAWINGS AND SPECIFICATIONS ARE COMPLEMENTARY. IN A CASE OF A CONFLICT BETWEEN

- 5. INSTALL EQUIPMENT PER MANUFACTURER'S INSTALLATION INSTRUCTIONS AND INSURANCE
- UNDERWRITER REQUIREMENTS.
- 6. THE LINE-TYPE AND SYMBOLS LEGENDS SHOW ITEMS TYPICALLY INCLUDED WITH THE SPECIFIED SYSTEMS. NOT ALL SYMBOLS AND/OR LINE TYPES ARE UTILIZED.
- INCLUDE DETAILS IN THE SCOPE OF WORK FOR EVERY SITUATION TO WHICH THAT DETAIL APPLIES EXCEPT WHERE A SPECIFIC DETAIL REFERENCE IS DESIGNATED TO INDICATE OTHERWISE.
- 8. EXISTING PLUMBING EQUIPMENT, PIPING, AND FIXTURES SHALL REMAIN UNLESS NOTED OTHERWISE.
- SCHEDULE SYSTEM MODIFICATIONS TO MINIMIZE DISRUPTIONS TO EXISTING BUILDING SERVICES. COORDINATE SHUTDOWN REQUESTS PER SPECIFICATIONS AND OWNER REQUIREMENTS.
- SEAL PENETRATIONS THROUGH FIRE AND/OR SMOKE BARRIERS WITH AN APPROVED SYSTEM TO MAINTAIN THE INTEGRITY OF THE BARRIER AND SHALL BE MARKED APPROPRIATELY IN ACCORDANCE
- INSTALL EXTERIOR FUEL GAS REGULATORS AND METERS AT LEAST 10 FT FROM DOORS, OPERABLE WINDOWS, FRESH AIR OPENINGS, ETC.
- 13. COORDINATE ROOF PENETRATIONS WITH THE ROOFING CONTRACTOR OR ROOF WARRANTY UNDERWRITER TO MAINTAIN ROOFING SYSTEM INTEGRITY.
- 14. MINIMUM PLUMBING PIPING SIZE SHALL BE 1/2" UNLESS NOTED OTHERWISE.
- 15. INSTALL FLEXIBLE CONNECTIONS BETWEEN ALL MOTORIZED EQUIPMENT AND THE CONNECTED
- SYSTEM. REFER TO SPECIFICATIONS FOR CONNECTION TYPE AND APPLICATION.
- CONNECTION TO GAS FIRE EQUIPMENT. 17. SANITARY PIPING UNDERGROUND AND BENEATH SLAB ON GRADE SHALL BE NO LESS THAN 2" IN
- 18. COORDINATE INSPECTION AND TESTING REQUIREMENTS OF PIPING ENCLOSED IN CMU WALLS WITH AHJ PRIOR TO CONSTRUCTION. DURING CONSTRUCTION, DO NOT ENCLOSE, COVER, OR PUT PIPING INTO OPERATION UNTIL IT HAS BEEN INSPECTED AND APPROVED BY AUTHORITIES HAVING

### PLUMBING LINETYPE KEY (APPLIES TO ALL PLUMBING SERVICES OR SYMBOLS)

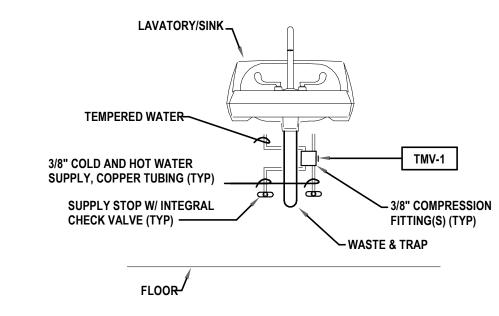
SYMBOL	DESCRIPTION
	HEAVY LINEWEIGHT INDICATES PIPING AND EQUIPMENT TO BE FURNISHED UNDER THIS PROJECT
	THIN LINEWEIGHT INDICATES PIPING AND EQUIPMENT THAT ARE EXISTING TO REMAIN, UNLESS NOTED OTHERWISE
	DASHED LINETYPE INDICATES PIPING AND EQUIPMENT THAT ARE EXISTING TO BE REMOVED, UNLESS NOTED OTHERWISE

PLUMBING	ABBREVIATIONS
AB CL ABOVE CEILING AT ST AT STRUCTURE BL GD BELOW GRADE AFF ABOVE FINISHED FLOOR AFG ABOVE FINISHED GRADE BJ BETWEEN JOIST CFM CUBIC FEET PER MINUTE CIP CAST IRON PIPE Dia. DIAMETER EC ELECTRICAL CONTRACTOR ECH EXTENDED COVERAGE HEAD EX EXISTING FPM FEET PER MINUTE FT HD FEET OF HEAD GC GENERAL CONTRACTOR	HC HEATING/HVAC CONTRACTOR HP HORSEPOWER KW KILOWATT MC MECHANICAL CONTRACTOR PC PLUMBING CONTRACTOR PSIG POUNDS PER SQUARE INCH GAGE RPM REVOLUTIONS PER MINUTE S & WS SOIL & WASTE STACK SV STACK VENT TJ THRU JOIST TR THROUGH ROOF UN FL UNDER FLOOR US S UNDERSIDE STEEL UNO UNLESS NOTED OTHERWISE VTR VENT THRU ROOF
GPM GALLONS PER MINUTE	WS WASTE STACK

PLUMBING FIXTURE SCHEDULE VOL 1						
DESCRIPTION	CW	HW	TW	SAN	VENT	
LAVATORY: ADA, OVAL UNDERMOUNT, MANUAL FAUCET.	1/2"	1/2"	3/8"	1-1/4"	1-1/4"	
SINK: ADA, STAINLESS STEEL, DROP-IN.	1/2"	1/2"	3/8"	1-1/2"	1-1/2"	
WATER CLOSET: ADA, MANUAL FLUSH VALVE, FLOOR SET.	1"	-	-	4"	2"	

\* WITH TMV-1

	PLUMBING EQUIPMENT SCHEDULE
SYMBOL	DESCRIPTION
TMV-1	THERMOSTATIC MIXING VALVE: 1.0 GPM @ 15 PSI PRESSURE DROP ACROSS VALVE (FLOW RANGE 0.25-2.25 GPM). SET OUTLET TEMPERATURE @ 110° F



NO SCALE
THERMOSTATIC MIXING VALVE AT
LAVATORY/SINK

MICHAEL A. JACOBS 5 Lic. No. 044644

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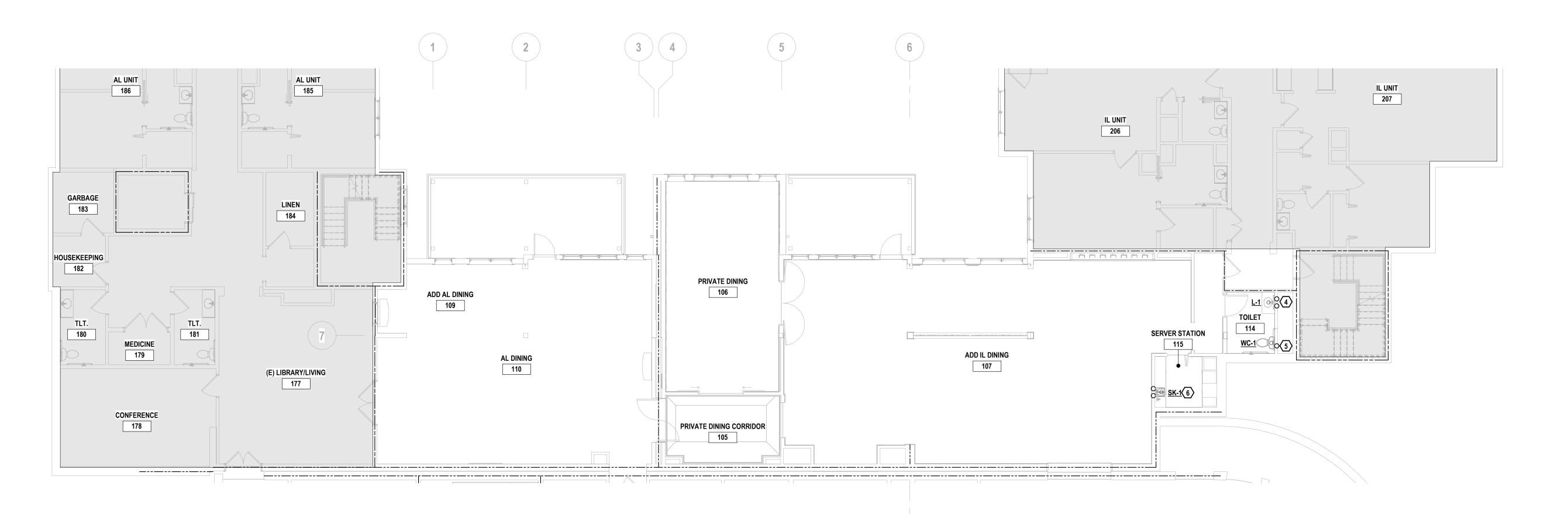
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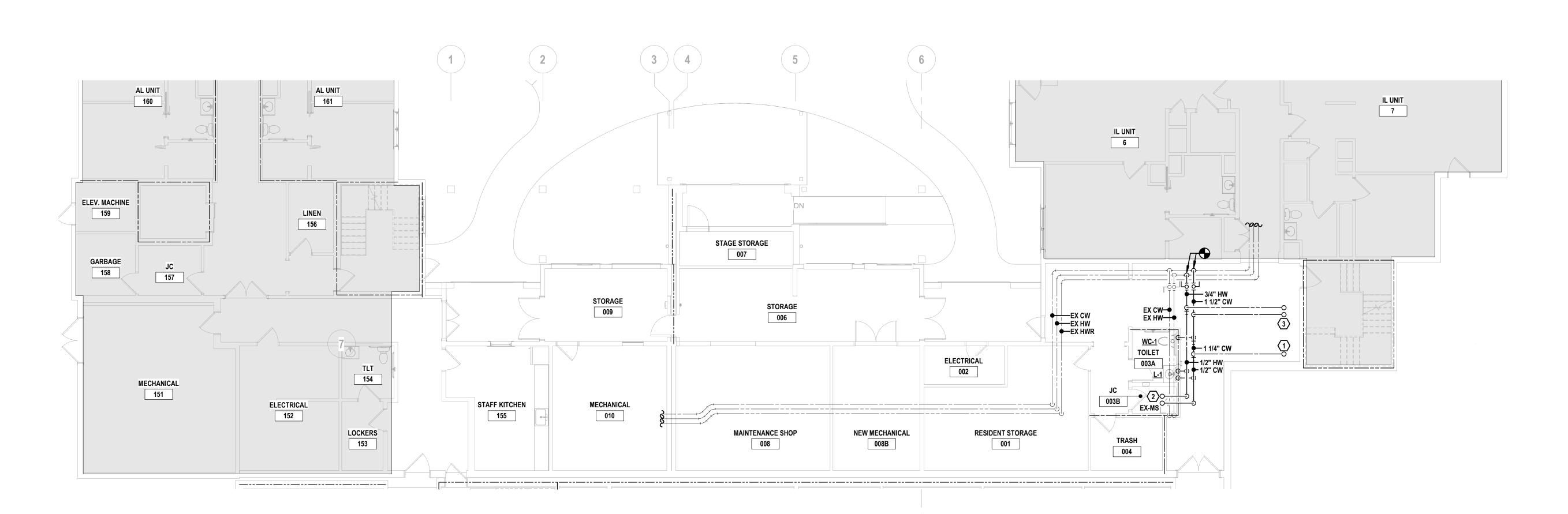
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- 1/2"DCW & 1/2"DHW PIPING TO SERVE SINK ABOVE.
- 1/2"DCW & 1/2"DHW PIPING TO SERVE LAVATORY ABOVE.
- 1/2"DCW & 1/2"DHW PIPING TO LAVATORY SERVED FROM BELOW.
- 1"DCW PIPING TO WATER CLOSET SERVED FROM BELOW.
- 6 1/2"DCW & 1/2"DHW PIPING TO SINK SERVED FROM BELOW.

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PROJECT ADDRESS:

3804 BRANDON AVENUE, ROANOKE, VA 24018 REVISIONS NO. DATE DESCRIPTION

DRAWING TITLE:

LOWER AND FIRST FLOOR PLANS -DOMESTIC WATER

SCALE: AS NOTED DRAWN BY:

COORDINATED BY: CHECKED BY:

APPROVED BY: VOLUME I

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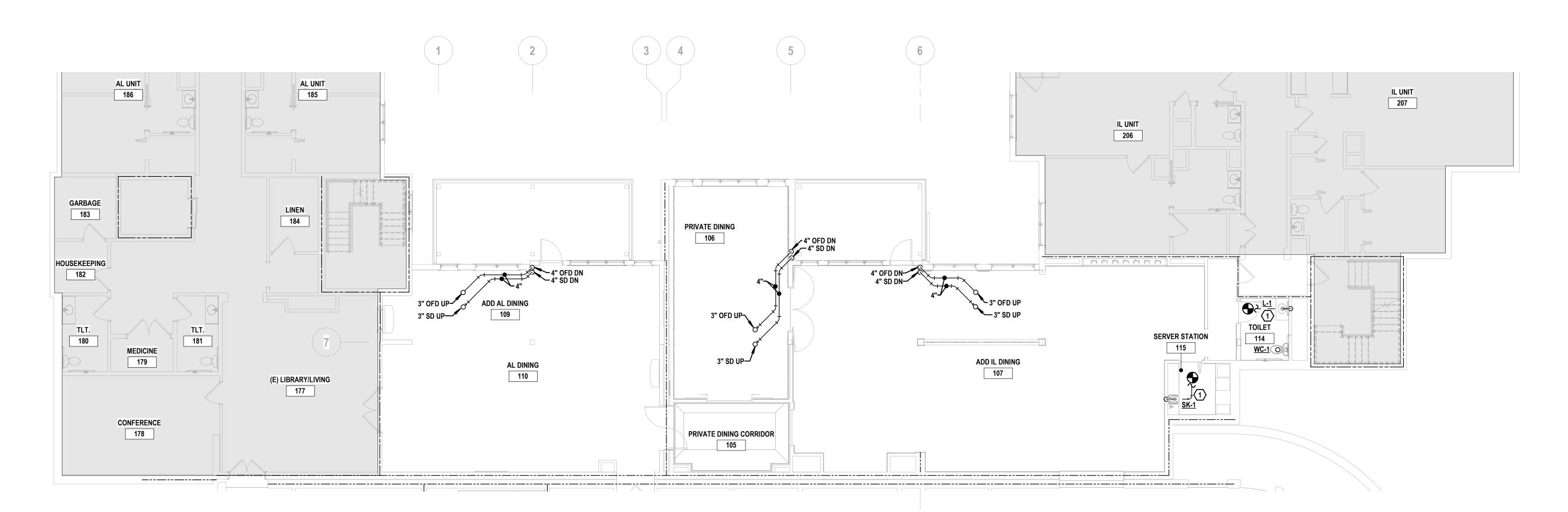
WALL FIRE RATINGS KEY \_\_\_\_\_ 1-HOUR RATED FIRE PARTITION 1-HOUR RATED FIRE BARRIER / SHAFT WALL -----

2-HOUR RATED FIRE BARRIER / SHAFT WALL ——————— 2-HOUR FIRE WALL

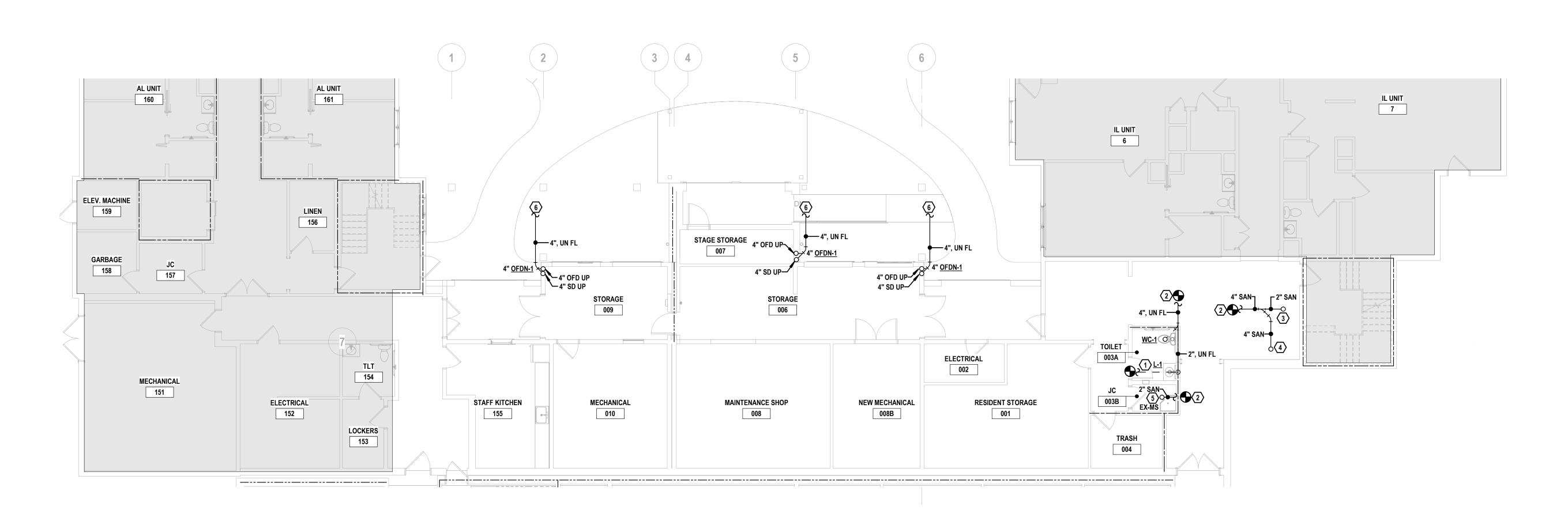
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Consulting engineers

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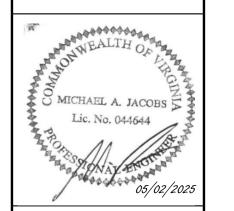




- CONTRACTOR TO TRACE AND ROUTE TO NEAREST EXISTING SANITARY WASTE PIPE AND
- 2"SAN PIPING TO SERVE LAVATORY ABOVE.
- 4"SAN PIPING TO SERVE WATER CLOSET ABOVE.
- 2"SAN PIPING TO SERVE SINK ABOVE.
- COORDINATE EXACT TIE IN TO EXISTING STORM DRAIN WITH CIVIL IN THIS VICINITY AND MAKE FINAL CONNECTION.

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DRAWING TITLE:

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1-HOUR RATED FIRE PARTITION 1-HOUR RATED FIRE BARRIER / SHAFT WALL ------

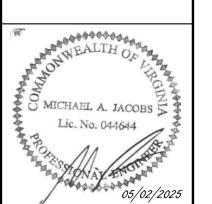
2-HOUR FIRE WALL

2-HOUR RATED FIRE BARRIER / SHAFT WALL -----

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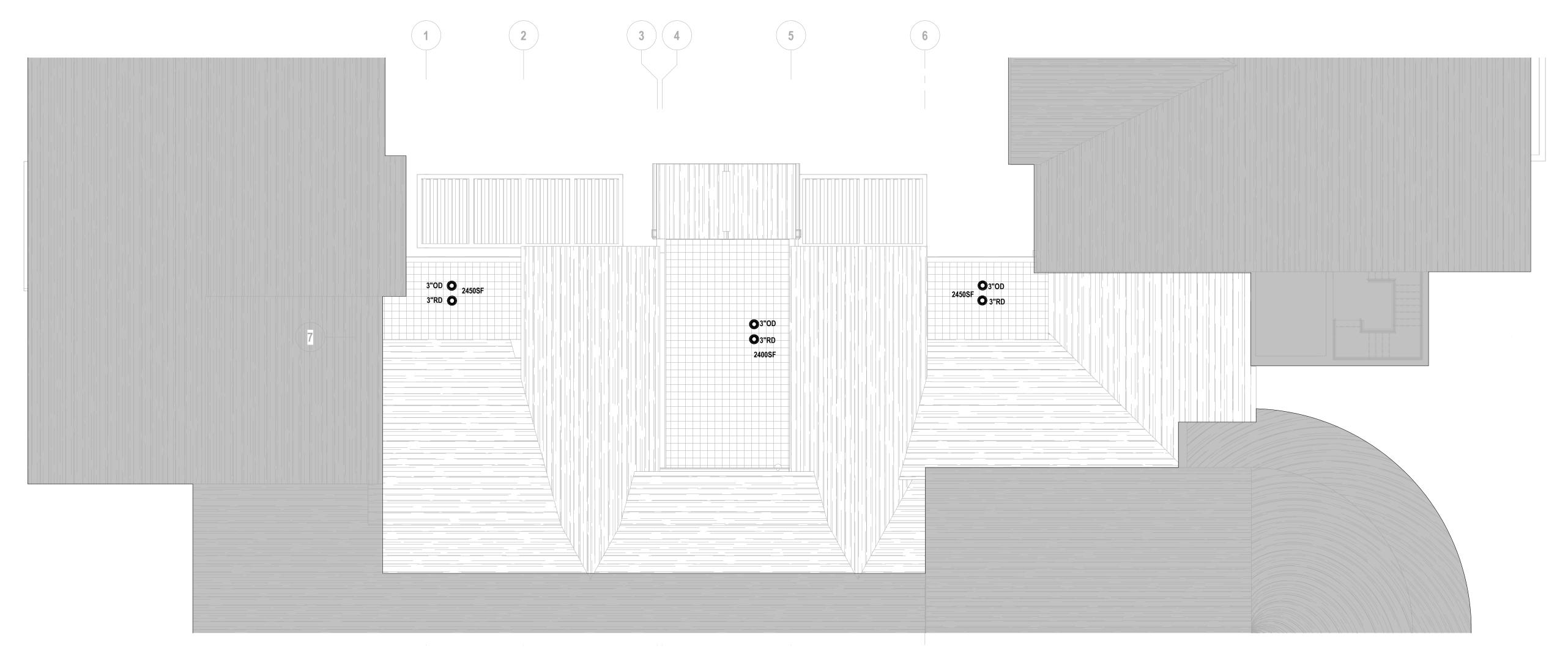
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DRAWING NO: COMMISSION NO: 2024109 2 MAY 2025





	HVAC	SYMBOLS SCHEDULE
SYMBOL	ABBREV	DESCRIPTION
HWS —	HWS	HOT WATER SUPPLY
HWR	HWR	HOT WATER RETURN
CHWS	CHWS	CHILLED WATER SUPPLY
CHWR	CHWR	CHILLED WATER RETURN
ST-#	ST	STEAM SUPPLY LINE - # PSIG
C-#	С	CONDENSATE RETURN LINE - # PSIG
CP	СР	CONDENSATE PUMPED RETURN
CD	CD	CONDENSATE DRAINAGE
MU	MU	MAKE-UP WATER
RL	RL	REFRIGERANT LIQUID
RS	RS	REFRIGERANT SUCTION
RG	RG	REFRIGERANT HOT GAS
FOS	FOS	FUEL OIL SUPPLY
FOR	FOR	FUEL OIL RETURN
FOV	FOV	FUEL OIL VENT
FOG	FOG	FUEL OIL GAGE
cs	cs	CONDENSER WATER SUPPLY
CS	CR	CONDENSER WATER SUPPLY CONDENSER WATER RETURN
<u> </u>	UN.	ELBOW TURNED UP
G <del> </del>		ELBOW TURNED DOWN
<del></del>		TEE TURNED UP
<del></del>		TEE TURNED DOWN
<u> </u>		PIPE UNION
		FLEXIBLE PIPE CONNECTION
×		PIPE ANCHOR
		PIPE GUIDE
	EXC	EXPANSION COMPENSATOR
		FLOW ARROW
T	GA, BF	GATE OR BUTTERFLY VALVE (SEE SPEC)
<del>—</del> Б—	GL, BF	GLOBE OR BUTTERFLY VALVE (SEE SPEC)
<u> </u>	СК	CHECK VALVE
<u>Ö</u>	BL	BALANCING VALVE
—-Б-	ВА	BALL VALVE
<b>──────</b>	CBL	CALIBRATED BALANCING VALVE
——Ā——	PRV	PRESSURE REDUCING VALVE
TO ROOF	s	SAFETY VALVE (STEAM)
了 TO DRAIN	R	SAFETY RELIEF VALVE (WATER)
- IO BRAIN	VFS	VENTURI FLOW STATION
		BACKFLOW PREVENTER
<del></del>		CAP ON END OF PIPE
		TWO WAY CONTROL VALVE
		THREE WAY CONTROL VALVE
₩ <u></u>		SHUT-OFF VALVE (SEE SPEC)
		THERMOSTAT
		PRESSURE GAGE
<u></u>		
<u> </u>	F 0 T	"Y" STRAINER WITH BLOWDOWN VALVE
	F&T	FLOAT & THERMOSTATIC STEAM TRAP
	TD	THERMO-DYNAMIC STEAM TRAP
→ co	со	CLEANOUT IN HORIZONTAL RUN
<u> </u>	T'STAT	THERMOSTAT
$\oplus$	H'STAT	HUMIDISTAT
Û	DT	DUCT TEMPERATURE SENSOR
Ĥ	DH	DUCT HUMIDITY SENSOR
⊕s	TH	COMBINATION TEMPERATURE & HUMIDITY SENSOR
		TEMPERATURE SENSOR
$\mathbb{T}_{\$}$		1
① <sub>\$</sub>		HUMIDITY SENSOR
	CO <sub>2</sub>	HUMIDITY SENSOR  CARBON DIOXIDE SENSOR

SYMBOL	ABBREV	DESCRIPTION
	SA	SUPPLY AIR DUCT SECTION
	RA	RETURN AIR DUCT SECTION
	EA	EXHAUST AIR DUCT SECTION
	DEA	DISHWASHER, DISHWASHER HOOD, AND HIGH HUMIDITY EXHAUS
	FEA	AIR DUCT SECTION  FUME HOOD, LABORATORY AND PROCESS EXHAUST AIR DUCT
	KEA	SECTION  KITCHEN HOOD EXHAUST AIR DUCT SECTION
	OA	OUTSIDE AIR DUCT SECTION
	Rel A	RELIEF AIR DUCT SECTION
	TA	TRANSFER AIR
<u> </u>	SA	SUPPLY AIR
#	RA, EA	RETURN, EXHAUST OR RELIEF AIR
	Rel A OA	OUTSIDE AIR
X/Y	UA	
	+	SQUARE OR RECTANGULAR DUCT SIZE
X"Ø X/Y- <del>↔</del>		ROUND DUCT SIZE  EL AT OVAL DUCT SIZE MA IOD AVIS/MINOR AVIS
	- DI	FLAT OVAL DUCT SIZE - MAJOR AXIS/MINOR AXIS
DL **-	DL	DOOR LOUVER
UC *-	UC	UNDER CUT
	VD	VOLUME DAMPER
	TV	TURNING VANES
FC +	FC	FLEXIBLE CONNECTION
— □ MOD	MOD	MOTOR OPERATED DAMPER
		CHANGE OF ELEVATION: RISE - R, DROP - D
FRD -	FR D	FIRE DAMPER (HORIZ. RUN)
<b>⊠</b> • FR D	FR D	FIRE DAMPER (VERT. RISE)
◆ SFD	SFD	SECONDARY FIRE DAMPER
F/S D	F/S D	COMBINATION FIRE/SMOKE DAMPER (HORIZ RUN)
✓ F/S D	F/S D	COMBINATION FIRE/SMOKE DAMPER (VERT RISE)
-   SKD	SK D	SMOKE DAMPER
RD D	RD D	RADIATION DAMPER
(D)	DD	DUCT SMOKE DETECTOR
[AP]	AP	ACCESS PANEL
	AD	ACCESS DOOR
0'-0"		DISTANCE FROM FLOOR TO BOTTOM OF OBJECT
$egin{array}{c} egin{array}{c} \egin{array}{c} \egin{array}$		CONNECT TO EXISTING
$\overline{\hspace{1cm}}$	1	POINT OF DISCONNECT
	REFERENCE NU	_
		SHEET WHERE DRAWN
SECTION	REFERENCE L	DIRECTION OF VIEW SHEET WHERE DRAWN
SYMI		IDENTIFICATION OF GRILLES, ISTERS, & DIFFUSERS
		IDENTIFICATION
ri ENOTU	OR] NECK SIZE	12/12 CD-200-5.2-1 NO. OF SLOTS (LD ONLY)  [DEGREE OF DEFLECTION  STYLE (SR ONLY)]

## DESCRIPTION **RG - RETURN GRILLE** SR - SUPPLY REGISTER **CD - CEILING DIFFUSER** RR - RETURN REGISTER **EG - EXHAUST GRILLE** LD - LINEAR DIFFUSER **ER - EXHAUST REGISTER** LFD - LAMINAR FLOW DIFFUSER TG - TRANSFER GRILLE **RLR - RELIEF REGISTER** STYLE SQUARE DIFFUSER (HATCHED SECTOR INDICATES DIRECTION WITHOUT

ROUND DIFFUSER W/ ADJUSTABLE PATTERN

SIDEWALL REGISTER OR GRILLE

CEILING REGISTER OR GRILLE

LINEAR DIFFUSER W/ 1 WAY PATTERN

LINEAR DIFFUSER W/ 2 WAY PATTERN

LINEAR DIFFUSER FOR RETURN AIR

 $\odot$ 

STYLE 5.1

STYLE 5.2

STYLE 5.3

### **GENERAL NOTES (APPLY TO ALL DRAWINGS):**

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- 1. COMPLY WITH LOCAL, STATE, AND NATIONAL CODES AND REGULATIONS.
- 2. PLAN DOCUMENTS ARE SCHEMATIC TO CONVEY THE DESIGN INTENT. DO NOT SCALE DRAWINGS FOR EXACT PLACEMENT OF EQUIPMENT AND DISTRIBUTION SYSTEMS.
- COORDINATION BETWEEN DISCIPLINES IS THE RESPONSIBILITY OF THE INSTALLING CONTRACTOR AND/OR CONSTRUCTION MANAGER PRIOR TO INSTALLATION.
- 4. THE DRAWINGS AND SPECIFICATIONS ARE COMPLEMENTARY. IN A CASE OF A CONFLICT BETWEEN THE DRAWINGS AND SPECIFICATIONS, REQUEST A DOCUMENTED INTERPRETATION FROM THE
- INSTALL EQUIPMENT PER MANUFACTURER'S INSTALLATION AND INSURANCE UNDERWRITER
- 6. THE LINE-TYPE AND SYMBOLS LEGENDS SHOW ITEMS TYPICALLY INCLUDED WITH THE SPECIFIED SYSTEMS. NOT ALL SYMBOLS AND/OR LINETYPES ARE UTILIZED.
- INCLUDE DETAILS IN THE SCOPE OF WORK FOR EVERY SITUATION TO WHICH THAT DETAIL APPLIES EXCEPT WHERE A SPECIFIC DETAIL REFERENCE IS DESIGNATED TO INDICATE OTHERWISE.
- 8. EXISTING HVAC EQUIPMENT, PIPING AND DUCTWORK SHALL REMAIN UNLESS NOTED OTHERWISE. SCHEDULE SYSTEM MODIFICATIONS TO MINIMIZE DISRUPTIONS TO EXISTING BUILDING SERVICES. COORDINATE SHUTDOWN REQUESTS PER SPECIFICATION AND OWNER REQUIREMENTS.
- 10. LOCATE DUCTWORK AND PIPING AS HIGH AS POSSIBLE, UNLESS NOTED OTHERWISE.

DEVIATIONS WITH THE ENGINEER OF RECORD.

CEILING PLAN BEFORE ROUGH-IN.

- 11. SEAL PENETRATIONS THROUGH FIRE AND/OR SMOKE BARRIERS WITH AN APPROVED SYSTEM TO MAINTAIN THE INTEGRITY OF THE BARRIER.
- 12. INSTALL FIRE DAMPERS, FIRE/SMOKE DAMPERS AND SMOKE DAMPERS TO MAINTAIN THE INTEGRITY OF THE STRUCTURE PER NFPA REQUIREMENTS.
- 13. MAINTAIN DISTANCE, CONFIGURATION AND NUMBER OF ELBOWS FROM UNIT OR VAV BOXES TO FIRST DIFFUSER AS SHOWN ON PLANS FOR SOUND ATTENUATION. CONTRACTOR SHALL COORDINATE
- 14. PROVIDE TRANSITIONS REQUIRED FROM DUCT SIZE INDICATED ON PLANS TO HVAC EQUIPMENT CONNECTION SIZE. MAINTAIN 30 DEGREE MAXIMUM ANGLE FOR TRANSITION. CONTRACTOR SHALL
- COORDINATE DEVIATIONS WITH THE ENGINEER OF RECORD. 15. COORDINATE EXACT GRILLE/REGISTER/DIFFUSER LOCATIONS WITH THE ARCHITECTURAL REFLECTED
- 16. COORDINATE ROOF PENETRATIONS WITH THE ROOFING CONTRACTOR OR ROOF WARRANTY
- UNDERWRITER TO MAINTAIN ROOFING SYSTEM INTEGRITY. 17. MINIMUM MECHANICAL PIPING SIZE SHALL BE 3/4" UNLESS NOTED OTHERWISE.
- 18. INSTALL FLEXIBLE CONNECTIONS BETWEEN ALL MOTORIZED EQUIPMENT AND THE CONNECTED SYSTEM. REFER TO SPECIFICATIONS FOR CONNECTION TYPE AND APPLICATION.

MICHAEL A. JACOBS 5 Lic. No. 044644

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MECHANICAL LINETYPE KEY (APPLIES TO ALL MECHANICAL SERVICES OR SYMBOLS)

	(AFFEIES TO ALL MILOTIANICAL SERVICES OR STMIDGES)
SYMBOL	DESCRIPTION
	HEAVY LINEWEIGHT INDICATES DUCTWORK, PIPING AND EQUIPMENT TO BE FURNISHED UNDER THIS PROJECT
	THIN LINEWEIGHT INDICATES DUCTWORK, PIPING AND EQUIPMENT THAT ARE EXISTING TO REMAIN, UNLESS NOTED OTHERWISE
	DASHED LINETYPE INDICATES DUCTWORK, PIPING AND EQUIPMENT THAT ARE EXISTING TO BE REMOVED, UNLESS NOTED OTHERWISE

## MECHANICAL ABBREVIATIONS

AB CL ABOVE CEILING AFF ABOVE FINISHED FLOOR AFG ABOVE FINISHED GRADE APD AIR PRESSURE DROP ATC AUTOMATIC TEMPERATURE CONTROL BJ BETWEEN JOIST BL GD BELOW GRADE CFM CUBIC FEET PER MINUTE DB DRY BULB DIA DIAMETER DIFF DIFFUSER EAT ENTERING AIR TEMP EC ELECTRICAL CONTRACTOR ESP EXTERNAL STATIC PRESSURE EWT ENTERING WATER TEMPERATURE EX EXISTING FPM FEET PER MINUTE FRP FIBERGLASS REINFORCED PLASTIC FV FACE VELOCITY GC GENERAL CONTRACTOR GPM GALLONS PER MINUTE

HC HEATING/HVAC CONTRACTOR

FT HD FEET OF HEAD HP HORSEPOWER

HZ HERTZ

KW KILOWATT LAT LEAVING AIR TEMPERATURE LF LINEAL FEET LWT LEAVING WATER TEMPERATURE MC MECHANICAL CONTRACTOR PC PLUMBING CONTRACTOR PSIG POUNDS PER SQUARE INCH GAGE RPM REVOLUTIONS PER MINUTE TJ THRU JOIST TR THROUGH ROOF TP TOTAL PRESSURE

IN WG INCHES WATER GAGE WPD WATER PRESSURE DROP V VOLTS S & WS SOIL & WASTE STACK SV STACK VENT UNO UNLESS NOTED OTHERWISE US S UNDERSIDE STEEL

VTR VENT THRU ROOF

WS WASTE STACK

TSP TOTAL STATIC PRESSURE

UNO UNLESS NOTED OTHERWISE

TYP TYPICAL

WB WET BULB

DRAWING TITLE: SYMBOLS & **GENERAL** NOTES - HVAC

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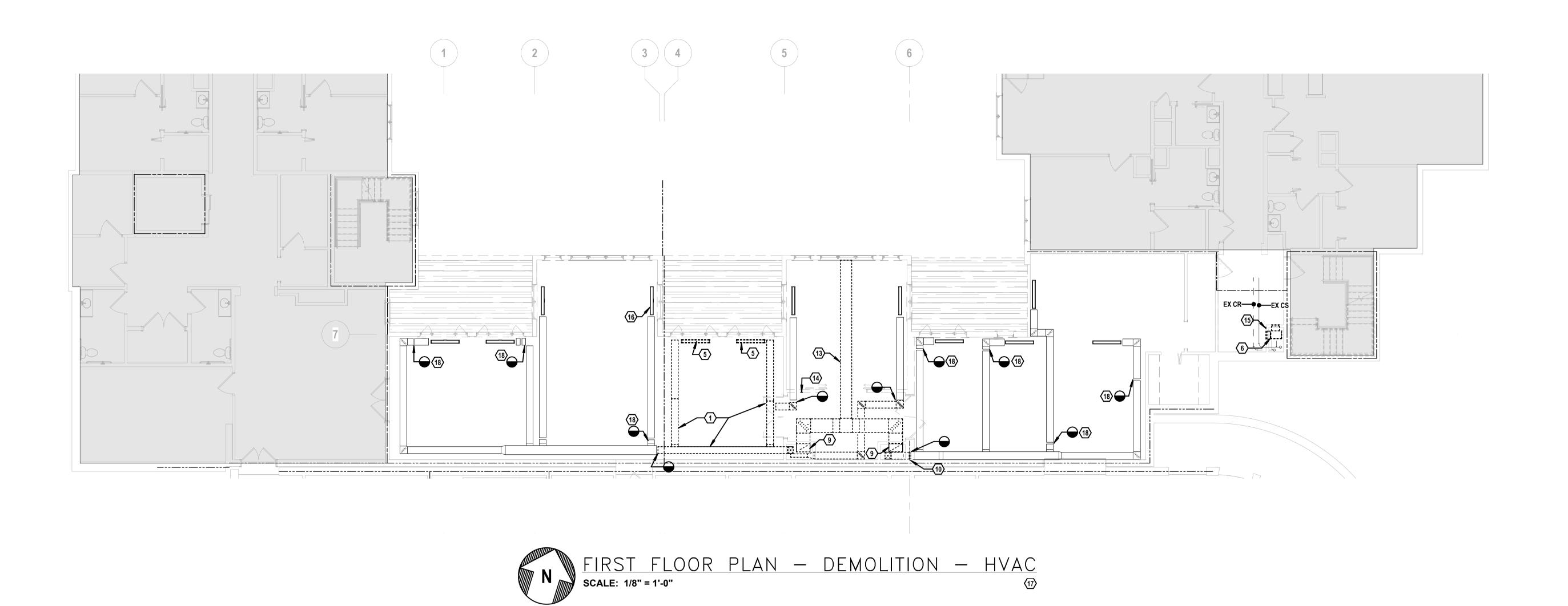
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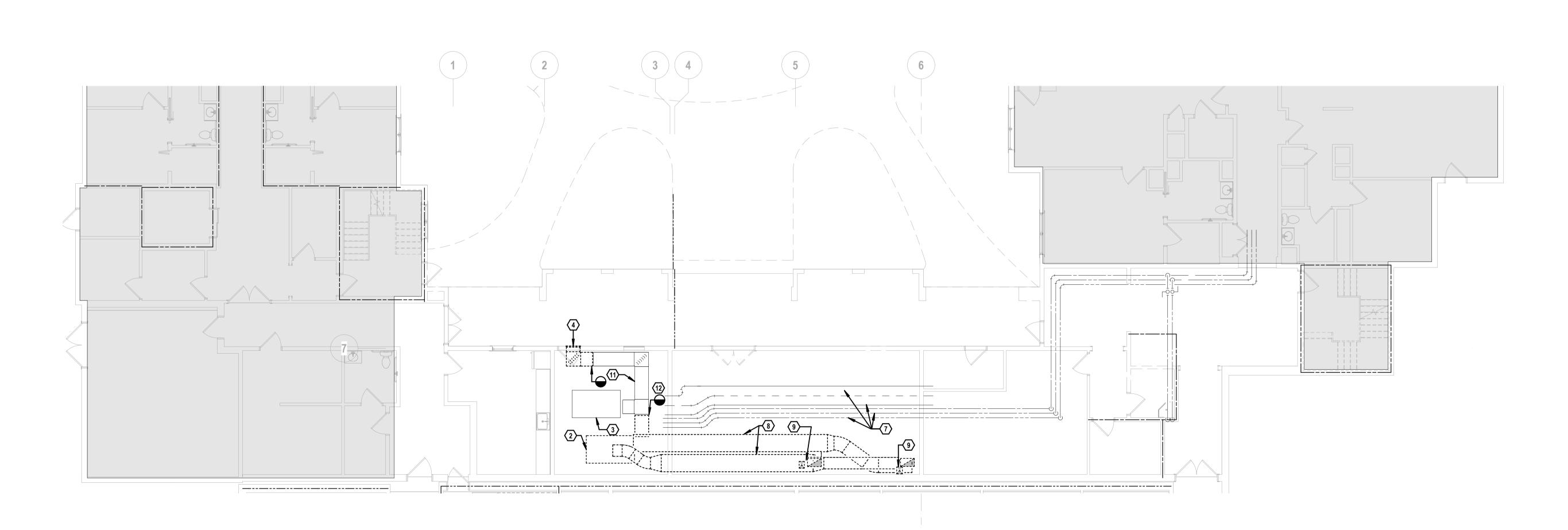
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- REMOVE SUPPLY DUCTWORK AND ASSOCIATED SUPPORTS, DAMPERS AND APPURTENANCES TO POINT INDICATED.
  - REMOVE WATER SOURCE HEAT PUMP AND ASSOCIATED DUCTWORK, PIPING, SUPPORTS, CONTROLS AND APPURTENANCES. UNIT REQUIRES PARTIAL REMOVAL WITHIN CLOSET PRIOR
- WATER SOURCE HEAT PUMP SERVING OUT OF SCOPE AREAS SHALL REMAIN.
- REMOVE OUTSIDE AIR GRILLE. COORDINATE WALL REPAIR WITH ARCHITECT AND G.C.

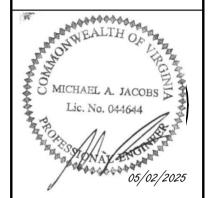
TO FULL REMOVAL. REMOVE PIPING BACK TO MAIN AND CAP.

- REMOVE SUPPLY GRILLE AND ASSOCIATED DUCTWORK AND APPURTENANCES.
- RELOCATE VERTICAL WATER SOURCE HEAT PUMP, PIPING, ATTACHED DUCT PLENUMS, AND SUPPLY AND RETURN GRILLES PLAN NORTH FOR ADJUSTED LOCATION IN EXTENDED
  - OVERHEAD DOMESTIC WATER, CONDENSER WATER, NATURAL GAS AND FIRE PROTECTION
- REMOVE SUPPLY AND RETURN DUCT HIGH IN MAINTENANCE SHOP. AND ASSOCIATED SUPPORTS, DAMPERS AND APPURTENANCES TO POINT INDICATED.
- REMOVE DUCTWORK WITHIN CHASE. REMOVE FIRE DAMPERS AT FLOOR/CEILING PENETRATION.
- 10 REMOVE FIRE DAMPER IN SUPPLY DUCT. REMOVE DUCTWORK TO POINT SHOWN.
- 11 OUTSIDE AIR DUCTWORK SHALL REMAIN.
- 12 REMOVE OUTSIDE AIR DUCTWORK BETWEEN POINT AS SHOWN AND THE WSHP TO BE REMOVED. CAP EXISTING DUCTWORK TO REMAIN AT POINT OF DISCONNECTION.
- 13 REMOVE DUCTWORK IN ATTIC. REMOVE EXTERIOR LOUVER. BUILDING EXTERIOR WALL TO BE RE-DONE AS PART OF SCOPE. COORDINATE WALL PATCHING WITH G.C.
- 14 REMOVE THERMOSTAT AND CONTROL WIRING.
- THERMOSTAT SHALL BE RELOCATED. REFER TO NEW PLAN.
- 16 LINEAR SUPPLY GRILLE SHALL REMAIN. TYPICAL UNLESS NOTED OTHERWISE.
- 17 CLEAN ALL EXISTING DUCTWORK TO REMAIN FOLLOWING DEMOLITION AND PRIOR TO NEW
- 18 SECTION OF DUCTWORK SHALL BE FITTED WITH VOLUME DAMPER. REFER TO NEW PLAN.

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**LOWER AND** FIRST FLOOR PLANS -DEMOLITION -HVAC

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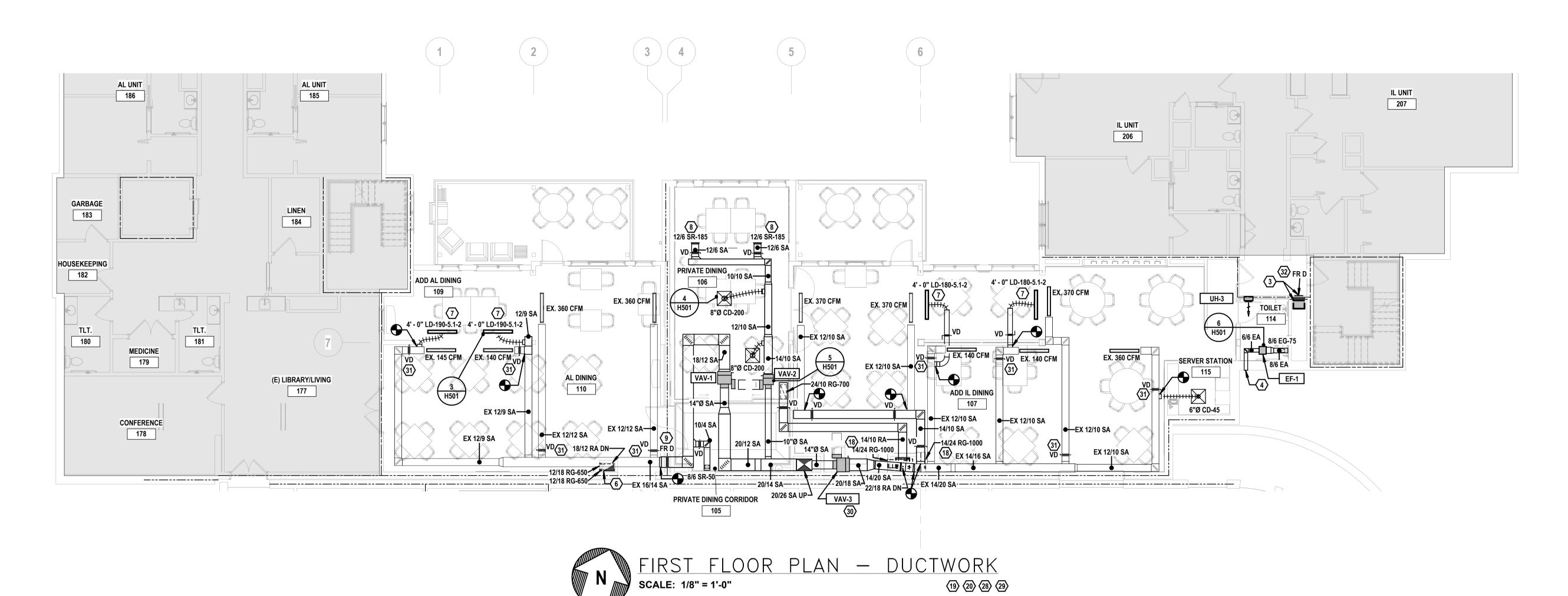
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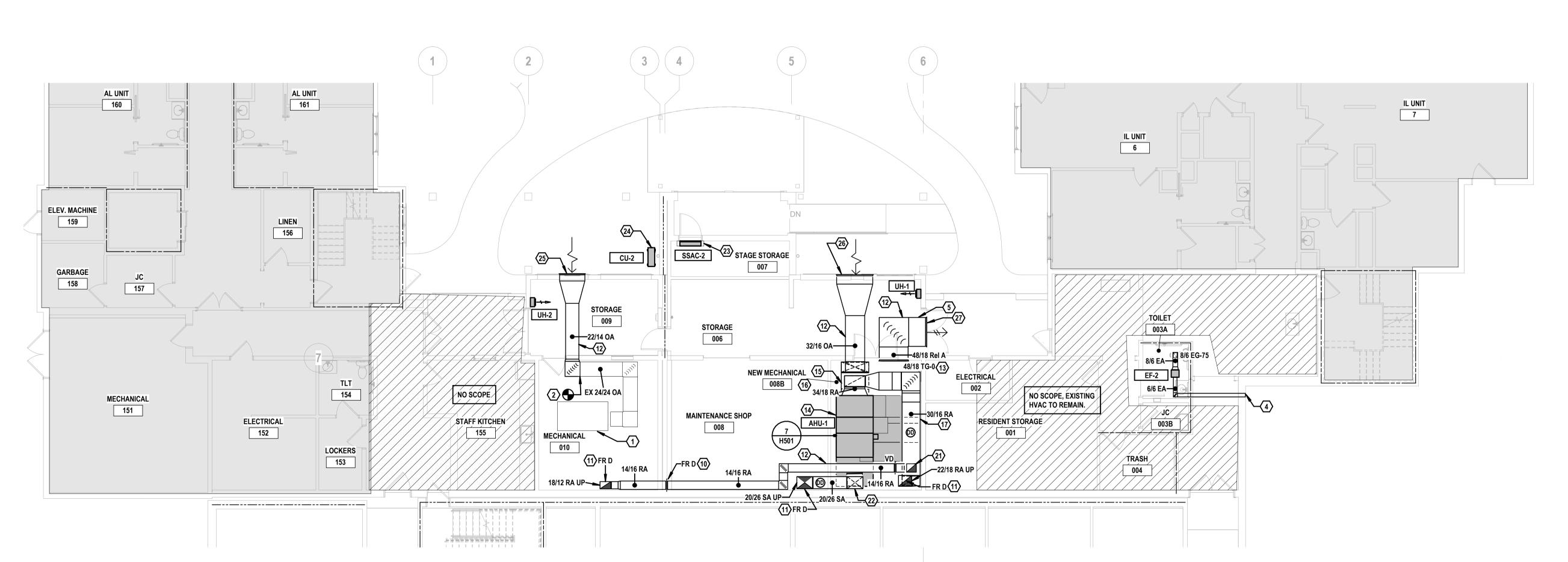
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- WATER SOURCE HEAT PUMP TO REMAIN.
- CONNECT OUTSIDE AIR DUCTWORK TO EXISTING DUCTWORK. EXTEND TO LOUVER HIGH ON WALL OF STORAGE 009.
- RELOCATE VERTICAL WATER SOURCE HEAT PUMP AND PIPING IN EXISTING MECHANICAL CHASE. RELOCATE SUPPLY AND RETURN GRILLES TO BE STACKED ON WALL. RETURN GRILLE IS INTEGRATED WITH FRONT ACCESS PANEL. SUPPLY AND RETURN DUCTS ATTACHED TO UNIT
- INSTALL EXHAUST DUCT TO WALL CAP WITH INSECT SCREEN. BACKDRAFT DAMPER AT FAN.

TO REMAIN. THERMOSTAT SHALL BE RELOCATED. REFER TO PIPING PLANS.

- PROVIDE BACKDRAFT DAMPER IN RELIEF AIR DUCTWORK. AIR TO TRAVEL FROM MECHANICAL ROOM TO EXTERIOR.
- RETURN DUCT UP FROM BELOW. PROVIDE RETURN GRILLES STACKED IN HIGH AND LOW COMBINATION. ONE WITHIN 12" OF FLOOR, ONE WITHIN 12" OF CEILING. TURN BLADES DOWN TOWARDS FLOOR AND UP TOWARDS CEILING.
- LINEAR GRILLE TO BE INSTALLED WITH PLENUM ABOVE CEILING. AIRFLOW TO BE HORIZONTAL ALONG CEILING.
- SUPPLY GRILLE INSTALLED ON BULKHEAD, AS LOW AS POSSIBLE. BLADE SPREAD TO BE 45 DEGREES.
- INSTALL FIRE DAMPER AT DUCT PENETRATION THROUGH FIRE WALL. CONNECT TO EXISTING DUCTWORK ABOVE CEILING. COORDINATE WITH ARCHITECT TO PROVIDE CEILING ACCESS PANEL FOR FIRE DAMPER.
- 10 INSTALL FIRE DAMPER IN DUCT THROUGH FIREWALL.
- INSTALL FIRE DAMPER IN DUCT AT RATED FLOOR/CEILING PENETRATION. DUCT CONTINUES THROUGH VERTICAL CHASE AT FLOOR ABOVE.
- 12 INSTALL DUCT TIGHT TO BOTTOM OF CEILING.

TO ELBOW TO HORIZONTAL.

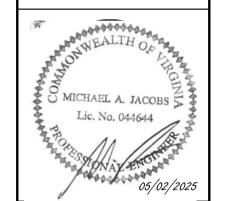
- 13 INSTALL TRANSFER GRILLE HIGH ON WALL ABOVE DOOR.
- 14 INSTALL STACKED AIR HANDLER ON 6" THICK EQUIPMENT MOUNTING PAD. MINIMUM 4" LARGER ON EACH SIDE OF UNIT.
- 15 42X16 OUTSIDE AIR DUCT LOW FROM AIR HANDLER TO BE ROUTED NEAR FLOOR. INSTALL VERTICAL RISER AFTER CLEARING RETURN AIR DUCT ABOVE. TRANSITION DUCT SIZE PRIOR
- 16 INSTALL RETURN AIR DUCT STACKED ABOVE OUTSIDE AIR DUCT.
- 17 INSTALL RETURN DUCT JUST BELOW OVERHEAD PIPING IN AREA.
- 18 INSTALL RETURN GRILLE LOW ON WALL. TURN BLADES DOWN TOWARDS FLOOR.
- DUCTWORK SHALL BE INSTALLED ON FIRST FLOOR ABOVE HARD GYPSUM CEILING AND BELOW RATED LAYER AT ATTIC TRUSSES.
- 20 EXISTING GRILLES SHALL BE RE-BALANCED TO SUPPLY CFM'S AS INDICATED.
- 21 RETURN TAP TO BE ON TOP OF DUCT.
- 22 SUPPLY DUCT UP FROM TOP DISCHARGE AT AIR HANDLER. ROUTE TOWARDS WALL IN VERTICAL RISE AND ELBOW OVER TO LINE UP WITH BOTTOM OF CHASE. TRANSITION DUCT
- 23 INSTALL DUCTLESS AIR HANDLER HIGH ON WALL. BOTTOM ON UNIT TO BE 6" ABOVE DOOR.
- 24 INSTALL CONDENSER AT GRADE ON EQUIPMENT PAD.
- 25 INSTALL OUTSIDE AIR LOUVER HIGH ON WALL. LOUVER TO BE 40" WIDE AND 24" HIGH. GREENHECK ESD-635. COORDINATE FINISH WITH ARCHITECT.
- 26 INSTALL OUTSIDE AIR LOUVER HIGH ON WALL. LOUVER TO BE 52" WIDE AND 32" HIGH.
- GREENHECK ESD-635. COORDINATE FINISH WITH ARCHITECT. INSTALL OUTSIDE AIR LOUVER HIGH ON WALL. LOUVER TO BE 48" WIDE AND 26" HIGH.
- GREENHECK ESD-635. COORDINATE FINISH WITH ARCHITECT. 28 FLEX DUCT SHALL BE SAME SIZE AS DIFFUSER NECK, UNLESS NOTED OTHERWISE, FLEX DUCT
- TO LINEAR DIFFUSERS SHALL BE 8" DIAMETER UNLESS NOTED OTHERWISE. 29 CLEAN ALL EXISTING DUCTWORK TO REMAIN FOLLOWING DEMOLITION AND PRIOR TO NEW
- ACCESS PANEL AT CEILING TO BE PROVIDED BY ARCHITECT TO ALLOW SERVICING OF VAV-3.
- INSTALL VOLUME DAMPER IN EXISTING DUCTWORK. VOLUME DAMPER TO INCLUDE CONTROL CABLE FOR REMOTE BALANCING. INSTALL CONTROLLER ON WALL OR ON CEILING WITH COVER. SIMILAR TO OR EQUAL TO 830ACC2 BY YOUNG REGULATOR.
- FIRE DAMPERS AT SUPPLY AND RETURN GRILLE TO BE ACCESSIBLE THROUGH FRONT OF GRILLES.

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PROJECT ADDRESS:

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**ROANOKE, VA 24018** 

HOMES, INC

REVISIONS O. DATE DESCRIPTION

**LOWER AND FIRST FLOOR** PLANS -

**DUCTWORK** 

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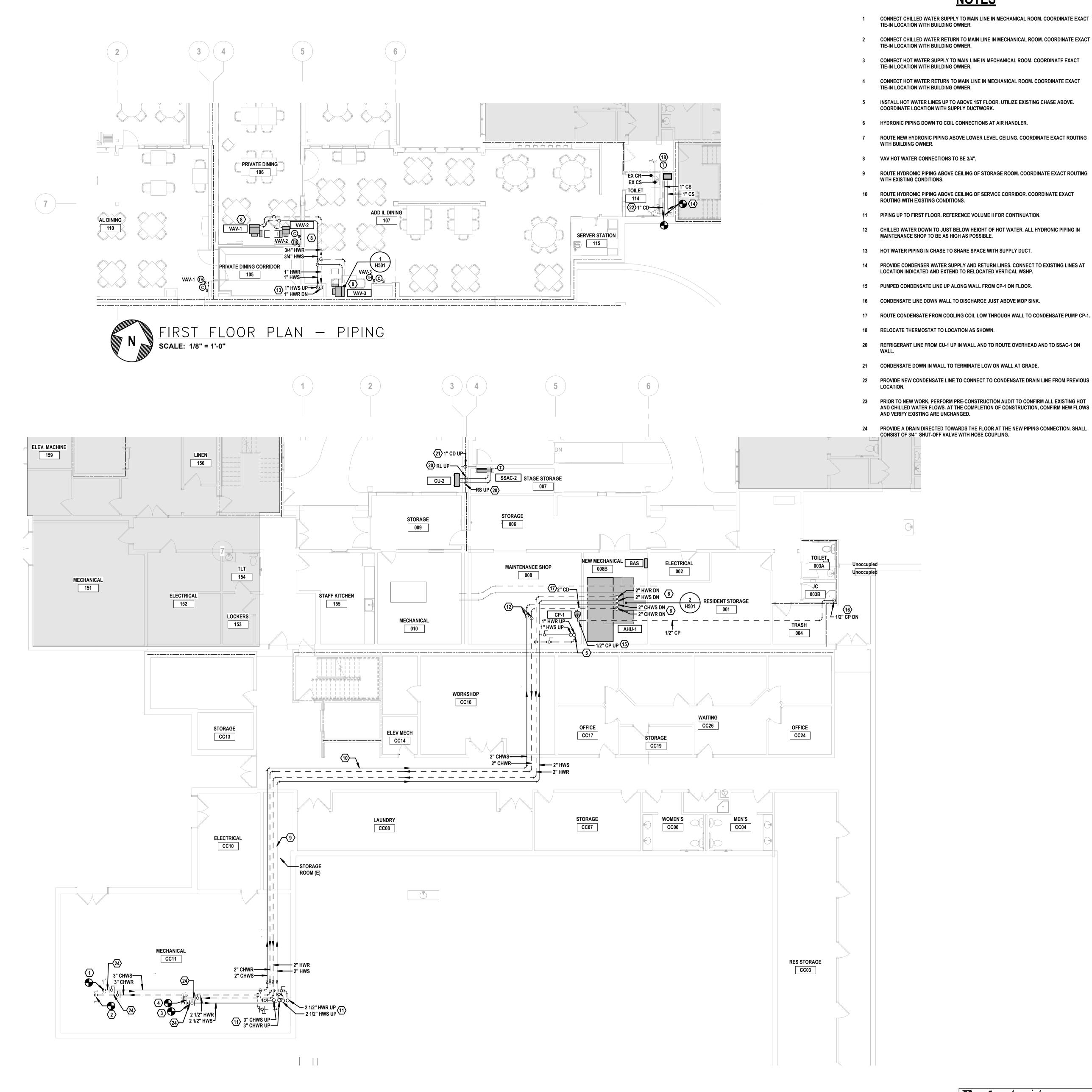
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 DRAWN BY:
 DESIGNED BY:
 CHECKED BY:

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 DMM
 DMM
 DCB

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WALL FIRE RATINGS KEY

1-HOUR RATED FIRE PARTITION



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MICHAEL A. JACOBS 5

Lic. No. 044644

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RLPS ARCHITECTS, LLP

250 VALLEYBROOK DRIVE LANCASTER, PA 17601

PHONE: 717-560-9501

www.rlps.com

PROJECT NAME:
BRANDON OAKS

CENTER/DINING

RENOVATIONS

**VIRGINIA** 

**LUTHERAN** 

HOMES, INC

PROJECT ADDRESS:

3804 BRANDON AVENUE, ROANOKE, VA 24018

NO. DATE DESCRIPTION

COMMUNITY

Barton Associates

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VOLUME I

SCALE: AS NOTED

COORDINATED BY:

CHECKED BY: APPROVED BY:

**LOWER AND** 

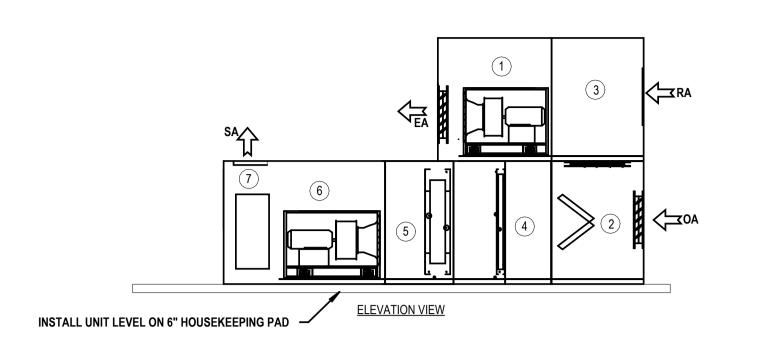
FIRST FLOOR

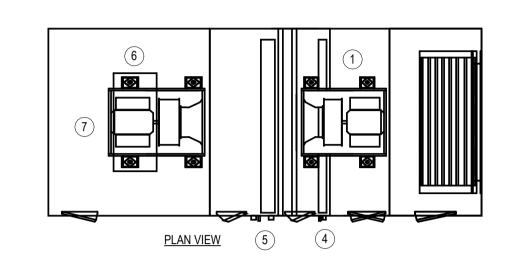
PLANS - PIPING

N LOWER LEVEL — PIPING

SCALE: 1/8" = 1'-0"

7/23 WALL FIRE RATINGS KEY





### POSITION MODULE 1 EXHAUST FAN WITH FRONT TOP OUTLET (NON-DUCTED)

CHILLED WATER COIL

SUPPLY FAN [PLENUM]

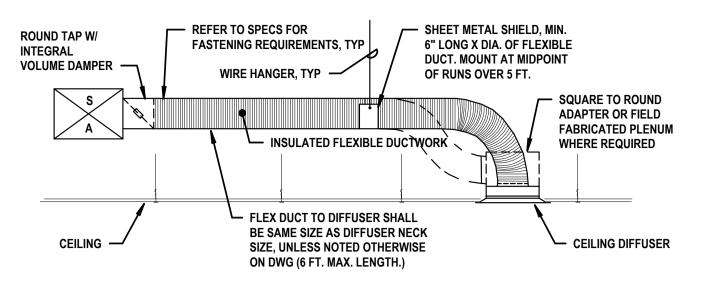
WITH TOP DISCHARGE

PRESSURIZED SUPPLY PLENUM

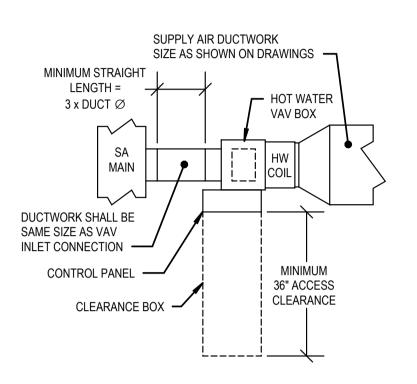
WITH ACCESS

- AND INTEGRATED DAMPER FILTER/MIXING SECTION W/ OUTSIDE AIR & RETURN DAMPER AIR MIXING SECTION WITH RETURN
- AIR CONNECTION 4 PREHEAT COIL WITH ACCESS

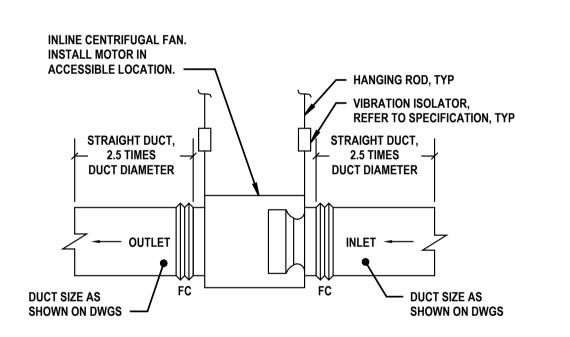




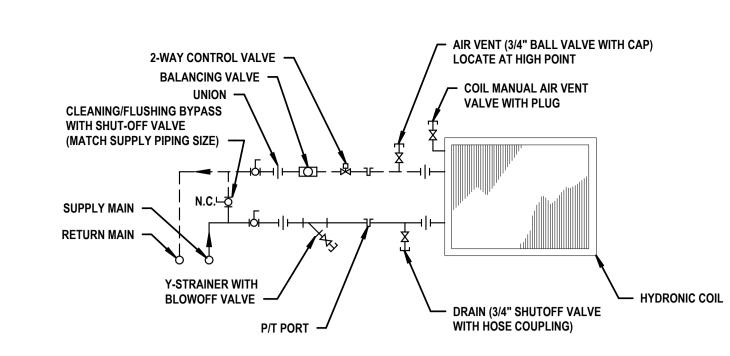
NO SCALE FLEXIBLE DUCT TO SQUARE DIFFUSER



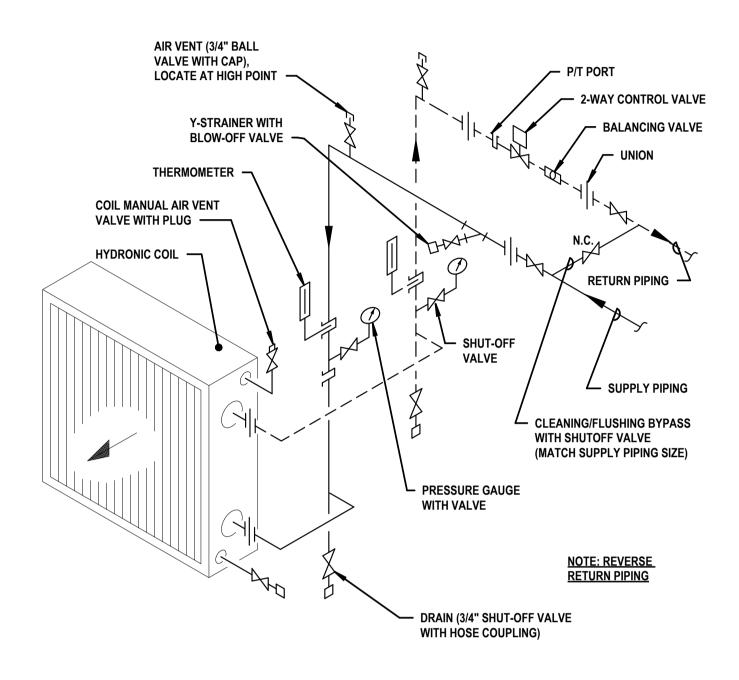
HOT WATER VAV BOX DUCTWORK INLET CONNECTIONS



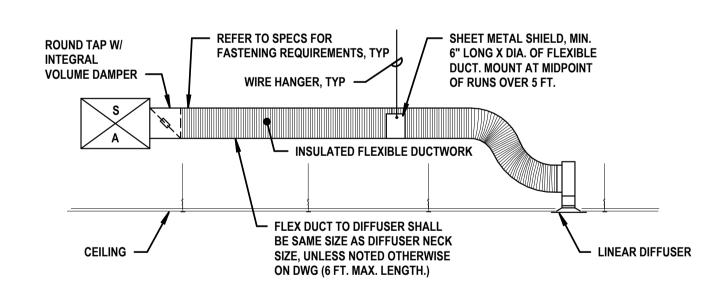




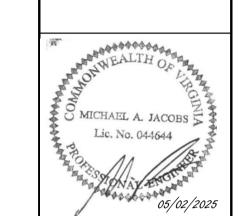
NO SCALE COIL CONNECTION, VAV, 2-WAY



NO SCALE COIL CONNECTION, SINGLE,, AHU, 2-WAY



NO SCALE FLEXIBLE DUCT TO LINEAR DIFFUSER



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www.rlps.com

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PROJECT ADDRESS:

**LUTHERAN** 

HOMES, INC

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	REVISIONS													
NO.	DATE	DESCRIPTION												

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 COMMISSION NO: 2024109 2 MAY 2025

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								SUPPL	Y FAN DA	ATA										EX	HAUST FA	N DATA												COOLING O	OIL, WATE	R													PREH	EAT COIL, V	VATER					
DESIG	DESCRIPTION AN		CFM				FAN						ELECTRIC	<b>AL</b>		TOTA			F	AN				ELEC1	RICAL		COLLE	4 COII E\	v	FIN	ie.	MBH		EAT (°F)		LAT (°F)	)	EWE	LVA/T	ADD	WDD		COIL E	COLLE			TIME	TUBE		EAT	LAT	EWE	LVA/T	ADD	WDD	
DEGIO	AREA SERVED	тот	ГОА	MIN (	ESP N WG)	RPM	TYPE	DIA.	DRIN	<b>VE</b>	НР	ВНР	VOLT	PHASI	SCCF (kA)	CFM	L ES	G) RPM	יד	(PE	DIA.	DRIVE	НР	ВНР	VOLT	PHASE	(SQ FT	(FPM)	ROW	VS PER II	INCH TO	TAL SE	NS E	OB W	В	OB	WB	(°F)	(°F)	(IN WG)	(FT HD	GPM	(SQ FT)	(FPM)	) ROV	WS PER	R INCH VE	(FPS)	MBH	(°F)	(°F)	(°F)	(°F)	(IN WG)	(FT HD)	GPM
AHU-1	DINING VAV AHU	J 4360	0 1635	360	1.75	2269	PLENUM	18.25	DIRE	CT	5	3.90	480	3	5	4360	3.0	1844	PLE	NUM	18.25	DIRECT	3	1.90	480	3	9.98	437	6	9	,	69 12	6 8	1.3 67	'.1 5	5.0	54.5	45	55	0.56	3.75	33.78	9.72	448	1		7	4.41	143	47	75	180	165	0.06	4.6	19.1

	UNIT	HEA	TER S	CHED	ULE, E	LECTR	IC		VARIA	ABLE AIF	R VOLU	IME L	INIT S	CHED	ULE, I	HOT W	ATE	R HEA	T	
ESIG	KW	CFM	ELEC1	RICAL	TYPE	SPEED	RECESS			CFM			APD			HE	EATING CO	)IL		
JESIG	LVV	CFIVI	VOLT	PHASE	TTPE	SPEED	RECESS	DESIG		MINIMUM		INLET	DESIGN			WPD	EWT		EAT	LAT
UH-1	1.5	175	120	1	VERT	SINGLE	SURFACE		DESIGN COOLING	COOLING	HEATING	SIZE	FLOW	MBH	GPM	(FT HD)	(°F)	ROWS	(°F)	(°F)
JH-2	1.5	175	120	1	VERT	SINGLE	SURFACE	V437.4	4405	400	700	4.4	(IN WG)	20.0	4.07	0.54		4	57	, ,
JH-3	1.5	175	120	1	VERT	SINGLE	SURFACE	VAV-1	1435	430	720	14	0.12	28.9	1.27	0.51	180	1	31	94
			1	-		0.110	0011102	VAV-2	770	230	385	10	0.14	13.8	0.80	1.50	180	1	57	90
								VAV-3	2155	645	1080	14	0.22	41.0	2.49	1.71	180	1	57	92

SPLIT SYSTEM CONDENSER-COMPRESSOR Vol 1

 DESIG
 NOMINAL TONS
 AIR ON COND (°F)
 SEER
 EER
 MCA
 MOCP
 VOLT
 PHASE
 SCCR (kA)

 CU-2
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 10
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 208
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 5

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2.49	1.71	180	1	57	92	WEALTH OA	Tall and the same of the same
						and AOIC	分品
						341	GI
CDI	IT CV	STEM E	=\/			MICHAEL A. JACOE	S
SPL	11 313		EVAP	JKAI	UK	Lic. No. 044644	1
	*F	owered the	rough CU	-2		11 /s	N.
		N	ЛВН		CIATED	Ban Stown AV ZENS	MAN
DESIG	CFM	TOTAL	SENS		DENSING JNIT	05/0	12/20
SSAC-2	300	12	9	(	CU-2		

		F.A	AN SCI	HEDU	LE		
DESIG	CFM	ESP (IN WG)	HP (WATTS)	VOLT	PHASE	TYPE	DRIVE
EF-1	75	0.3	1/6	120	1	INLINE	DIREC
EF-2	75	0.3	1/6	120	1	INLINE	DIREC

CONDENSATE PUMP SCHEDULE\*

DESIG GPM PUMP HEAD MOTOR
HP VOLTAGE PHASE
CP-1 4 5.00 psi 1/18 120 1

\*CONDENSATE PUMP TO INCLUDE 1-GALLON RECEIVER TANK.

CLOS

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PROJECT ADDRESS:

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2 MAY 2025