

AC AC ADD ADDL AFMS AHU ALT AMP APD APPROX ARCH AS AVG	A AIR COMPRESSOR AIR CONDITIONING AIR DRAIN ADDENDUM ADDITIONAL ABOVE FINISH FLOOR AIRFLOW MEASURING STATION AIR HANDLING UNIT ALTERNATE AMPERE ACCESS PANEL AIR PRESSURE DROP APPROXIMATE(LY) ARCHITECTURAL AS SEPARATOR AVERAGE	L LAT LAV LB(S) LF LOC LVL LWR	L LONG LENGTH LEAVING AIR TEMPERATURE LABORATORY POUND(S) LINEAR FOOT, FEET LOCUS (W/OVW) LEVEL LEAVING WATER TEMPERATURE
		M MA MAT MATL MAU MAX MBH MCC MD MECH MED MEZ MFR(G) MISC MIN MNS	M MIXED AIR MIXED AIR TEMPERATURE MATERIAL MAINT AIR UNIT MAXIMUM MOP BASIN THOUSAND BTUH MOTOR CONTROL CENTER MOTORIZED DAMPER MECHANICAL MEDIUM MEZZANINE MANUFACTURE(ER) (ING) MISCELLANEOUS MINIMUM, MINUTE MOP SINK
B BFE BFP BFV BHP BLDG BM BMS BSMT BO BOT BOS BTU BTUH BV BWV	B BOLTER BOTTOM OF FOOTING ELEVATION BACKFLOW PREVENTER BUTTERFLY VALVE BREAK HORSEPOWER BUILDING BEAM BUILDING MANAGEMENT SYSTEM BASEMENT BOTTOM OF BOTTOM OF FOOTING BOTTOM OF STEEL BRITISH THERMAL UNIT BTUH THERMAL UNIT PER HOUR BALL VALVE BACKWATER VALVE	N NA NC NC N.O. NO NO NO NTS	N NOT APPLICABLE NOISE CRITERIA, NORMALLY CLOSED NOT IN CONTRACT NORMALLY OPEN NITRIC OXIDE NITROGEN OXIDE NITROGEN DIOXIDE NOT TO SCALE
CA CD CF CFH CFM CH CIRC CIRC CKV CO CO COMB CONC CONC CONN CONT CONT COORD CORR CT CTRL CUH CW	C COMBUSTION AIR CONDENSATE DRAIN CUBIC FEET CUBIC FEET PER HOUR CUBIC FEET PER MINUTE CONTROLLER FLOW ROOF DRAIN CHILLER CIRCULATING CIRCUIT CHECK VALVE CLEANOUT, CARBON MONOXIDE CLEANOUT, CARBON DIOXIDE COMBINATION CONCRETE CONDENSATE CONNECT(ED) (ION) CONTINU(ED) (OUS) (ATION) CONSTRUCTION COORDINATE CORROSION COOLING TOWER CONTROL CABINET UNIT HEATER COLD WATER	O O OA OC OCH OCV OF OFS OH OJ ORD OST	O OXYGEN OUTSIDE AIR ON CENTER ON CENTER HORIZONTAL ON CENTER VERTICAL OUTSIDE DIAMETER OVERFLOW SCUPPER OVERHEAD OPTION OVERFLOW ROOF DRAIN OVERFLOW STORM DRAINAGE
		P PACU PCC PC PD PERIM PH PIV PLBG PROJ PRV PSF PSI PSIG PTAC PVC	P PACKAGED AIR CONDITIONING UNIT PRECAST CONCRETE PUMPED CONDENSATE PUMPED DISCHARGE PERIMETER PISTON PRESSURE INDICATOR VALVE PLUMBING PROJECT PRESSURE REDUCING VALVE (PRV) POWER ROOF VENTILATOR (HVAC) POUNDS PER SQ FT POUNDS PER SQUARE INCH POUNDS PER SQUARE INCH, GAUGE PACKAGED TERMINAL AIR CONDITIONING POLYVINYL CHLORIDE
		Q QTY	Q QUANTITY
		R RA RAD RD REG REQ(D) REOM RET REV RH RM RMC RTU RNR	R RADIUS RETURN AIR RADIATOR(OR) (ION) ROOF DRAIN REGISTER REQUIRED REQUIREMENT RETURN REVISE(ED) (ION) RELATIVE HUMIDITY ROOM RADON REVOLUTIONS PER MINUTE REDUCED PRESSURE ZONE VALVE ROOFTOP UNIT REMOVE AND REPLACE
EA EAT ECM ELC ELEV EMER ENG ENGR EQ EQIP ESP ET EWC EWH EWT EXT EXT	E EACH EXHAUST AIR ENTERING AIR TEMPERATURE ELECTRICALLY COMMUTATED MOTOR ELECTRICAL ELEVATOR EMERGENCY EMERGENCY MANAGEMENT SYSTEM ENGINEER EQUAL EQUIPMENT EXTERNAL STATIC PRESSURE EXPRESSION TANK ELECTRIC WATER COOLER ELECTRIC WATER HEATER ENTERING WATER TEMPERATURE EXISTING EXTERIOR	S S SAT SCHED SCHED SD SDT SF SFD SIM SK SOG SP SPKLR SQ SS ST STD STRN STRUC SV	S SENSOR SUPPLY AIR SOUND ATTENUATOR SCHEDULE SCHEDULED COLD WATER SMOKE DAMPER SMOKE DETECTOR SQUARE FEET SMOKE FIRE DAMPER SIMILAR SPECIALTY SINK SLAB ON GRADE STATIC PRESSURE SPRINKLER SQUARE STAINLESS STEEL STORM DRAINAGE STANDARD STRAINER STRUCTURAL STACK VENT
		T T TCC TEMP TEMP TMV TOP TS TYP	T THERMOSTAT TEMPERATURE CONTROL TEMPERATURE CONTROL CONTRACTOR TEMPERATURE DIFFERENCE TEMPERATURE THERMOSTATIC MIXING VALVE TOP OF STEEL TAMPER SWITCH TYPICAL
		U U UNO	U URINAL UNIT HEATER UNLESS NOTED OTHERWISE
		V V VAC VAL VAV VB VF VIF VOL VTR	V VENT PIPE VACUUM VALVE VARIABLE AIR VOLUME VACUUM BREAKER VENTILATION FAN VARIABLE FREQUENCY DRIVE VERIFY IN FIELD VOLUME VARIABLE SPEED DRIVE VENT THRU ROOF
H HB HBP HPU HT HTG HTR HVAC HX HYD HZ	H HIGH, HUMIDIFIER, HUMIDISTAT HOSE BIB HORSEPOWER, HEAT PUMP HEAT PUMP UNIT HEATING HEATING HEATER HEATING, VENTILATION, AND AIR CONDITIONING HEAT EXCHANGER HYDRAULIC HERTZ	W WC WV YCO YH	W WATER CLOSET WALL HYDRANT, WATER HEATER YARD CLEANOUT YARD HYDRANT
ID IN (") INSUL INT INV	I INSIDE DIAMETER / DIMENSION (INCHES) INSULATE(ED) INTERIOR INVERT ELEVATION		
JT	J JOINT		
KW KWH KS	K KILOWATT KILOWATT HOUR KITCHEN SINK		

[illegible]

MECHANICAL AND PLUMBING SYMBOLS					MECHANICAL SHEET INDEX		
ABBR	SYMBOL	DESCRIPTION	ABBR	SYMBOL	DESCRIPTION	SHEET #	SHEET NAME
CWS		CHILLED WATER SUPPLY	CO		END OF PIPE CLEANOUT	M001	MECHANICAL COVERSHEET
CWR		CHILLED WATER RETURN	FCO		FLOOR CLEANOUT	M002	MECHANICAL NOTE SHEET
CD		CONDENSATE DRAINAGE	WCO		WALL CLEANOUT	M099	LEVEL P1 MECHANICAL PLAN
PCD		PUMPED CONDENSATE DRAINAGE	YCO		YARD CLEANOUT	M101	LEVEL 1 MECHANICAL PLAN
CS		CONDENSER WATER SUPPLY				M102	LEVEL 2 MECHANICAL PLAN
CR		CONDENSER WATER RETURN			PIPE ANCHOR	M103	LEVEL 3 MECHANICAL PLAN
HWS		HOT WATER HEATING SUPPLY			PIPE BREAK	M141	ROOF MECHANICAL PLAN
HWR		HOT WATER HEATING RETURN			PIPE DOWN	M151	ENLARGED MECHANICAL PLANS
SMS		SNOW MELTING SYSTEM SUPPLY			PIPE END CAP	M201	UNIT MECHANICAL PLANS
SMR		SNOW MELTING SYSTEM RETURN			PIPE GUIDE	M202	UNIT MECHANICAL PLANS
LPS		LOW PRESSURE STEAM SUPPLY			PIPE REDUCER	M651	NATURAL GAS RISER DIAGRAMS
LPR		LOW PRESSURE STEAM RETURN			PIPE TEE DOWN	M661	HVAC RISER DIAGRAMS
MPs		MEDIUM PRESSURE STEAM SUPPLY			PIPE TEE UP	M701	MECHANICAL DETAILS
MPR		MEDIUM PRESSURE STEAM RETURN			PIPE UNION	M702	MECHANICAL DETAILS
HPS		HIGH PRESSURE STEAM SUPPLY			PIPE UP	M801	MECHANICAL SCHEDULES
HPR		HIGH PRESSURE STEAM RETURN					
PC		PUMPED STEAM CONDENSATE			FLOW ARROW		
					CONNECT TO EXISTING		
RL		REFRIGERANT LIQUID LINE			POINT OF DISCONNECT		
RS		REFRIGERANT SUCTION LINE					
RG		REFRIGERANT HOT GAS LINE			BOILER DRAIN		
			HB		HOSE BIBB		
FO		FUEL OIL GENERAL PIPING	WH		WALL HYDRANT		
FOS		FUEL OIL SUPPLY	YH		YARD HYDRANT		
FOR		FUEL OIL RETURN					
FOV		FUEL OIL TANK VENT	AD		AREA DRAIN		
G		GAS PIPING	FD		FLOOR DRAIN		
LP		LIQUEFIED PROPANE	HD		HOPPER DRAIN		
		HUMIDISTAT	ORD		OVERFLOW ROOF DRAIN		
		PRESSURE SENSOR	RD		ROOF DRAIN		
		SENSOR					
		THERMOSTAT					
		CARBON MONOXIDE SENSOR					
		NITROGEN DIOXIDE SENSOR					
		CARBON DIOXIDE SENSOR					
		PRESSURE CONTROLLER					
		PRESSURE GAUGE					
		THERMOSTATIC CONTROLLER					
		THERMOMETER					
DPS		DIFFERENTIAL PRESSURE SENSOR					
BAL. V		BALANCING VALVE					
BFP		BACKFLOW PREVENTER					
BWV		BACK WATER VALVE					
BV		BALL VALVE					
BFV		BUTTERFLY VALVE					
CKV		CHECK VALVE					
		CIRCUIT SETTER - FLOW VENTURI					
		GAS COCK					
		GAS REGULATOR					
GV		GATE VALVE					
		METER					
PRV		PRESSURE REDUCING VALVE					
		PUMP					
RPZ		REDUCED PRESSURE ZONE VALVE					
		RELIEF VALVE					
		SHUTOFF VALVE					
		SOLENOID VALVE					
STRN		STRAINER & STRAINER W/ SHUTOFF					
		STEAM TRAP					
		THERMOSTATIC MIXING VALVE					
		VALVE IN VERTICAL PIPE					
		2-WAY, 2-POSITION CONTROL VALVE					
		3-WAY, 3-POSITION CONTROL VALVE					
		2-WAY, MODULATING CONTROL VALVE					
		3-WAY, MODULATING CONTROL VALVE					
					SHEET NOTES		
			A. THE PURPOSE OF THIS SHEET IS TO ILLUSTRATE AND DEFINE TYPICAL GRAPHICS SYMBOLS AND SYSTEMS OF GRAPHIC SYMBOLS WHICH MAY OCCUR ON THE MECHANICAL DRAWINGS. B. THE ILLUSTRATION OF A SYMBOL OR SYSTEM OF SYMBOLS ON THIS SHEET DOES NOT NECESSARILY INDICATE THAT THE BUILDING ITEM OR SYSTEM DESCRIBED BY THE SYMBOL IS USED AS PART OF THE WORK OF THIS PROJECT. REFER TO THE PLANS, ELEVATIONS, SECTIONS, SCHEDULES, DETAILS, AND SPECIFICATIONS TO DETERMINE THE SCOPE OF THE WORK. C. SYMBOLS ARE NOT DRAWN TO SCALE. TO DETERMINE ACTUAL SIZES OF ELEMENTS REPRESENTED BY SYMBOLS, REFER TO THE SPECIFICATIONS AND OTHER DRAWINGS AS MAY APPLY. D. FOR INFORMATION REGARDING SYMBOLS WHICH ARE USED AS ABBREVIATIONS, REFER TO THE MECHANICAL ABBREVIATIONS SHOWN ON THIS SHEET. E. CERTAIN SYMBOLS MAY INCORPORATE SPECIAL ABBREVIATIONS AS PART OF THE SYMBOL. SUCH ABBREVIATIONS ARE AS DEFINED ON THIS SHEET.				

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MECHANICAL GENERAL NOTES

- CONTRACTORS SHALL FAMILIARIZE THEMSELVES WITH THE MECHANICAL AND PLUMBING DRAWINGS AND SPECIFICATIONS. NEITHER THE DRAWINGS NOR THE SPECIFICATIONS SHALL BE COMPLETE WITHOUT THE OTHER.
- GENERAL NOTES, SYMBOLS LIST, AND DETAILS ARE APPLICABLE TO ALL DRAWINGS OF THIS SECTION.
- DRAWINGS ARE DIAGRAMMATIC AND INDICATE THE GENERAL ARRANGEMENT OF SYSTEMS AND WORK INCLUDED IN THE CONTRACT. IT IS NOT THE INTENT TO SPECIFY OR SHOW EVERY OFFSET, FITTING, OR COMPONENT NECESSARY; HOWEVER, CONTRACT DOCUMENTS REQUIRE COMPONENTS AND MATERIALS WHETHER OR NOT INDICATED OR SPECIFICALLY SPECIFIED TO COMPLETE THE SYSTEMS BEING INSTALLED, TESTED AND MADE OPERATIONAL.
- CONTRACTORS SHALL REFER TO ARCHITECTURAL AND ALL OTHER DISCIPLINES DRAWINGS FOR DIMENSIONS AND OTHER GENERAL INFORMATION NECESSARY TO COMPLETE THE WORK.
- THE DOCUMENTS AND SPECIFICATIONS SHALL GOVERN WHERE THEY EXCEED CODE REQUIREMENTS.
- PERFORM WORK, PROVIDE MATERIALS AND EQUIPMENT FOR COMPLETE AND FULLY FUNCTIONAL SYSTEMS SHOWN, SPECIFIED, AND DESCRIBED ON DRAWINGS. COMPLETELY COORDINATE WORK OF THIS CONTRACT WITH WORK OF OTHER CONTRACTORS. REMOVE ALL DEBRIS CAUSED BY THIS CONTRACTOR'S WORK DAILY.
- ALL MATERIALS, EQUIPMENT, AND METHODS OF INSTALLATION SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS, REGULATIONS, CODES, ORDINANCES, AND LAWS OF LOCAL, STATE, AND OTHER AUTHORITIES HAVING LAWFUL JURISDICTION.
- ADDRESS QUESTIONS REGARDING DRAWINGS TO ENGINEER IN WRITING BEFORE AWARD OF CONTRACT; OTHERWISE, ENGINEER'S INTERPRETATION OF MEANING AND INTENT OF DRAWINGS SHALL BE FINAL.
- EACH CONTRACTOR SHALL GIVE NOTICES, FILE PLANS, OBTAIN PERMITS AND LICENSES, PAY FEES AND BACK CHARGES, AND OBTAIN NECESSARY APPROVALS FROM AUTHORITIES HAVING JURISDICTION FOR THIS WORK.
- WORK SHALL BE EXECUTED IN A WORKMANLIKE MANNER AND SHALL PRESENT A NEAT, RECTILINEAR APPEARANCE WHEN COMPLETED. PIPES, DUCTWORK, EQUIPMENT, AND ACCESSORIES SHALL BE INSTALLED AS TIGHT TO STRUCTURE AS POSSIBLE. MAINTAIN MAXIMUM HEAD ROOM AT ALL TIMES. DO NOT RUN PIPES AND DUCTWORK EXPOSED UNLESS SHOWN AND NOTED TO BE EXPOSED ON DRAWINGS.
- EACH CONTRACTOR IS RESPONSIBLE FOR CUTTING AND PATCHING REQUIRED FOR THE INSTALLATION OF ITS NEW WORK. CUTTING AND PATCHING SHALL BE COMPLETED IN A NEAT AND WORKMANLIKE MANNER. PATCHING MATERIALS SHALL MATCH EXISTING MATERIALS TO THE GREATEST EXTENT POSSIBLE. PROVIDE TOUCH-UP TO MATCH EXISTING SURROUNDING AREAS OF CUTTING AND PATCHING WORK.
- PRIOR TO COMMENCING WORK, CONTRACTOR SHALL SUBMIT A COPY OF SHOP DRAWINGS AND EQUIPMENT DATA FOR MATERIALS AND EQUIPMENT TO THE ENGINEER FOR REVIEW AND APPROVAL. MATERIALS AND EQUIPMENT SHALL NOT BE INSTALLED BEFORE SHOP DRAWINGS ARE REVIEWED AND APPROVED. AT LEAST TEN WORKING DAYS, EXCLUSIVE OF TRANSMITTAL TIME, FOR SUBMITTAL REVIEW SHALL BE ALLOWED FOR ENGINEER'S REVIEW.
- DEVIATION FROM CONTRACT DOCUMENTS, OR PROPOSED SUBSTITUTION OF MATERIALS, OR EQUIPMENT FOR THOSE SPECIFIED SHALL BE REQUESTED IN A SEPARATE LETTER IN ACCORDANCE WITH SPECIFICATIONS PRIOR TO BID.
- MATERIALS AND EQUIPMENT SHALL BE LISTED BY UNDERWRITERS LABORATORIES (UL) AND APPROVED BY ASME AND AGA FOR INTENDED SERVICE.
- AS WORK PROGRESSES, MAINTAIN AND MARK-UP A COMPLETE SET OF PRINTS OF CONTRACT DRAWINGS AT JOB SITE FOR THE DURATION OF THE CONTRACT. WORK COMPLETED AND ALL CHANGES FROM ORIGINAL CONTRACT DRAWINGS SHALL BE RECORDED CLEARLY AND ACCURATELY, INCLUDING WORK INSTALLED AS A MODIFICATION OR ADDITION TO THE ORIGINAL DESIGN. TURN OVER THE FINAL SET OF "AS BUILT" DRAWINGS TO OWNER AT THE CONCLUSION OF CONSTRUCTION. PROVIDE A COPY OF THE "AS BUILT" DRAWINGS TO THE ENGINEER OF RECORD.
- GUARANTEE WORK OF THIS CONTRACTOR IN WRITING FOR ONE YEAR FROM THE DATE OF OWNER'S ACCEPTANCE OF CERTIFICATE OF SUBSTANTIAL COMPLETION. PROMPTLY, COMPLETELY REPAIR OR REPLACE DEFECTIVE MATERIALS, EQUIPMENT, WORKMANSHIP AND INSTALLATIONS THAT DEVELOP DEFECTS WITHIN THIS PERIOD. PROMPTLY AND TO OWNERS SATISFACTION, CORRECT DAMAGE CAUSED IN MAKING NECESSARY REPAIRS AND REPLACEMENT UNDER GUARANTEE AT NO ADDITIONAL COST TO OWNER. SUBMIT WRITTEN GUARANTEES TO ARCHITECT AND OWNER BEFORE FINAL PAYMENT. STATEMENT OF GUARANTEE REQUIREMENTS SHALL NOT BE INTERRUPTED TO LIMIT OWNER'S RIGHTS UNDER LAW AND THIS CONTRACT.
- EACH RESPECTIVE CONTRACTOR SHALL COORDINATE PROPER ACCESS TO EQUIPMENT THAT REQUIRES INSPECTION, REPLACEMENT, OR REPAIR. ACCESS PANELS SHALL BE A MINIMUM OF 12" x 12" AND SHALL BE SUPPLIED AND INSTALLED BY GENERAL CONTRACTOR. ALL LOCATIONS SHALL BE CONFIRMED WITH ARCHITECT.
- CONTRACTORS SHALL FIRE STOP ALL PENETRATIONS THROUGH HORIZONTAL ASSEMBLIES, FIRE RATED WALLS OR PARTITIONS WITH UL RATED ASSEMBLIES WITH AN EQUAL UL RATED FIRE STOP. CONTRACTORS SHALL COORDINATE WITH GENERAL CONTRACTOR TO MAINTAIN CONSISTENT PRODUCT USAGE.
- DO NOT SUPPORT EQUIPMENT FROM CEILINGS. ALL SUPPORT SHALL COME FROM BUILDING STRUCTURE.
- PRODUCTS SUBMITTED AND APPROVED FOR USE THAT NECESSITATE CHANGES TO THE WORK OF OTHER TRADES OF CONTRACT SHALL BE COORDINATED AND ARRANGED BY THE CONTRACTOR WITHOUT ADDITIONAL COST TO THE OWNER.
- CONTRACTOR SHALL COORDINATE ITS RESPECTIVE CEILING MOUNTED EQUIPMENT WITH OTHER TRADE CONTRACTORS PRIOR TO INSTALLATION TO AVOID CONFLICTS.
- PRIOR TO ACCEPTANCE OF THE FACILITY, EACH RESPECTIVE CONTRACTOR SHALL ASSURE THAT ALL SYSTEMS SHALL BE TESTED, BALANCED, AND ARE OPERATED AS A DEMONSTRATION TO THE OWNER, OR THE OWNER'S REPRESENTATIVE, THAT THE INSTALLATION AND PERFORMANCE OF THESE SYSTEMS AND/OR PARTS CONFORM TO THE DESIGN INTENT.

HVAC GENERAL NOTES

- DUCTWORK SHALL BE CONSTRUCTED AND INSTALLED IN ACCORDANCE WITH THE LATEST ISSUES OF SMACNA STANDARDS.
- SUPPORT EQUIPMENT, PIPING, AND DUCTWORK FROM BUILDING STRUCTURE TO PROVIDE A VIBRATION FREE INSTALLATION.
- PROVIDE PROPER ACCESS TO MATERIALS AND EQUIPMENT THAT REQUIRE INSPECTION, REPLACEMENT, REPAIR, OR SERVICE, SUCH AS, COILS, DAMPERS, HEATERS, VALVES, ETC. IF PROPER ACCESS CANNOT BE PROVIDED, CONFER WITH THE ENGINEER AS TO THE BEST METHOD OF APPROACH FOR MINIMIZING EFFECT OF REDUCED ACCESS WHICH MAY RESULT.
- MAINTAIN MAXIMUM HEADROOM AT ALL TIMES. DO NOT RUN PIPES EXPOSED UNLESS SHOWN EXPOSED ON DRAWINGS. RUN DUCTS AND PIPING CONCEALED, UNLESS SPECIFIED OTHERWISE. ALL DUCTWORK SHALL BE INSTALLED AS CLOSE AS POSSIBLE TO WALL AND UNDERSIDE OF JOISTS. COORDINATE ELEVATIONS AND LOCATIONS WITH WORK OF OTHER CONTRACTORS.
- WHEN SHOWN OR REQUIRED, RELOCATE EXISTING OBSTRUCTIONS TO INSTALL NEW EQUIPMENT OR MATERIALS.
- DIFFUSER SIZES SHOWN ARE NECK SIZES. REGISTER AND GRILLE SIZES ARE NOMINAL.
- THOROUGHLY CLEAN ALL NEW DUCTWORK AFTER INSTALLATION.
- INSULATION SHALL NOT BE INSTALLED UNTIL AFTER ALL DUCT AND PIPE TESTING PROCEDURES HAVE BEEN COMPLETED.
- PROVIDE NEOPRENE IMPREGNATED CANVAS FLEXIBLE CONNECTION BETWEEN DUCTWORK AND ANY RECIPROCATING OR ROTATING EQUIPMENT.
- PROVIDE AN OPERATION AND MAINTENANCE MANUAL TO THE BUILDING OWNER PRIOR TO BUILDING TURNOVER.
- ALL VARIABLE FREQUENCY DRIVES FURNISHED UNDER DIVISION 21-23 SHALL BE MANUFACTURED BY THE SAME MANUFACTURER; THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR ENSURING COMPLIANCE.
- THERMOSTATS SHALL BE MOUNTED AT 48" A.F.F. THERMOSTATIC SENSORS AND GAS SENSORS SHALL BE MOUNTED AT 60" A.F.F.

BKV
GROUP

Architecture
Interior Design
Landscape Architecture
Engineering

222 North Second Street
Long & Kees Bldg
Suite 101
Minneapolis, MN
55401
612.339.3752

www.bkvgroup.com

CONSULTANTS

PROJECT TITLE

SUPERIOR
MECHANICAL -
4TH LANE FLATS
KASSON, MN

ISSUE #	DATE	DESCRIPTION
	07/17/2025	PERMIT SET

CERTIFICATION

I hereby certify that this plan, specification or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the state of Minnesota

	
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COMMISSION NUMBER	1803.28

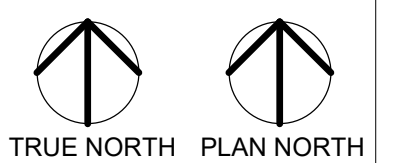
SHEET TITLE

MECHANICAL
NOTE SHEET

SHEET NUMBER

M002

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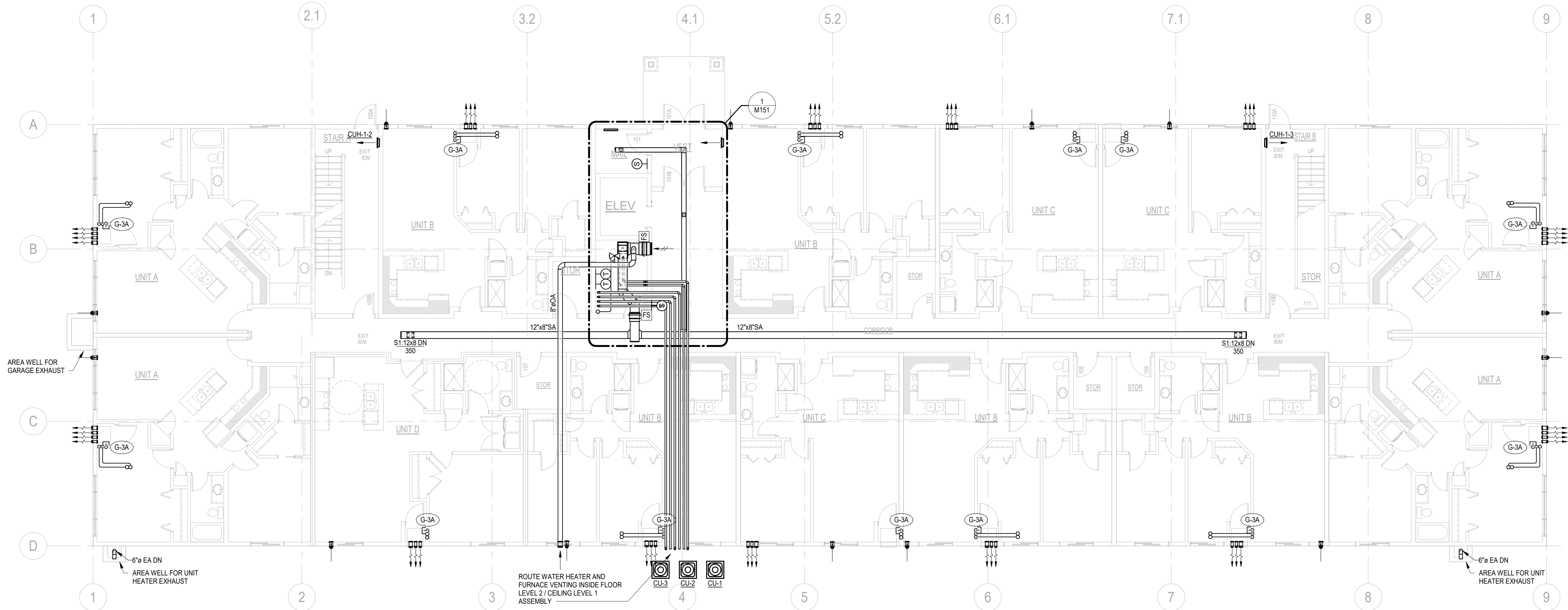

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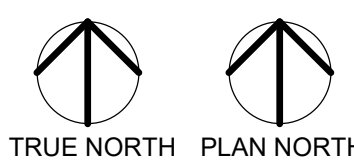
LEVEL 1
MECHANICAL
PLAN

SHEET NUMBER

M101



2 LEVEL 1 MECHANICAL PLAN
M101 1/8" = 1'-0"



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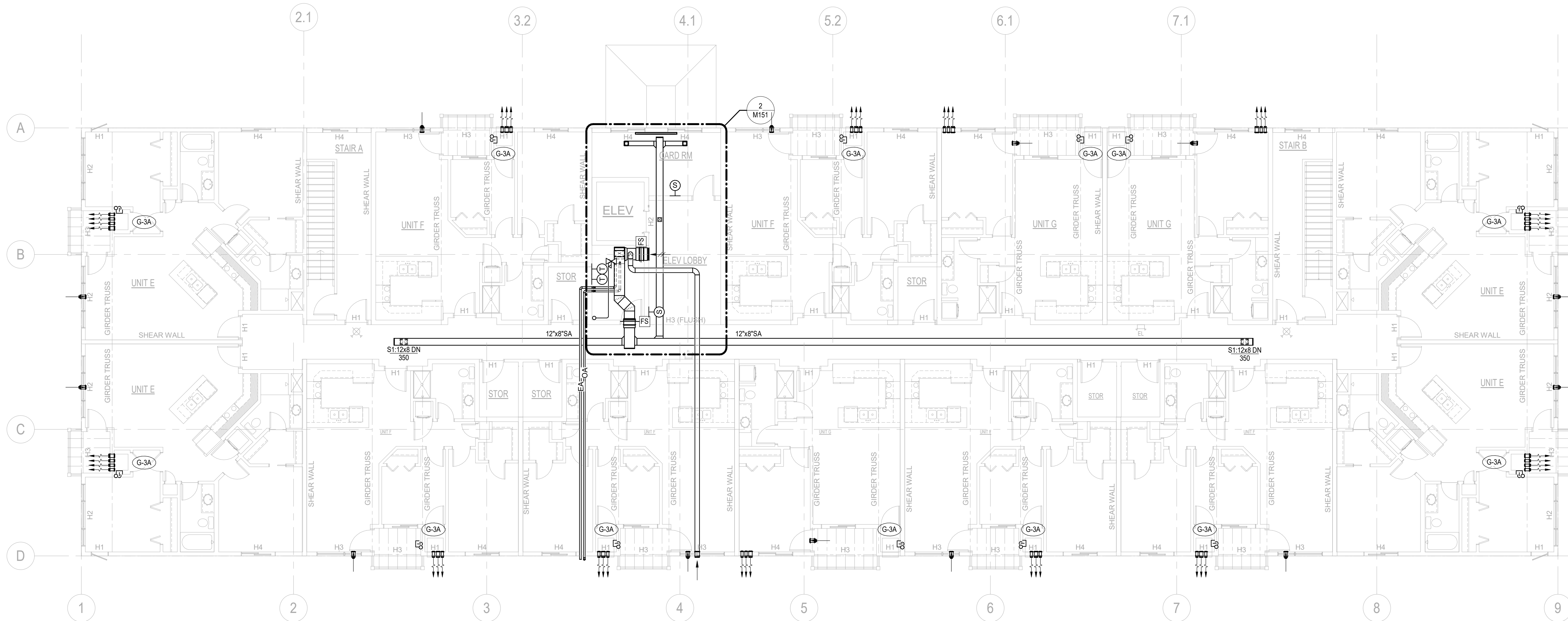

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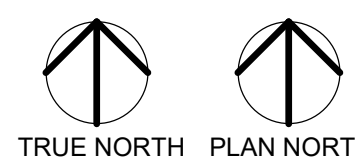
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MECHANICAL
PLAN

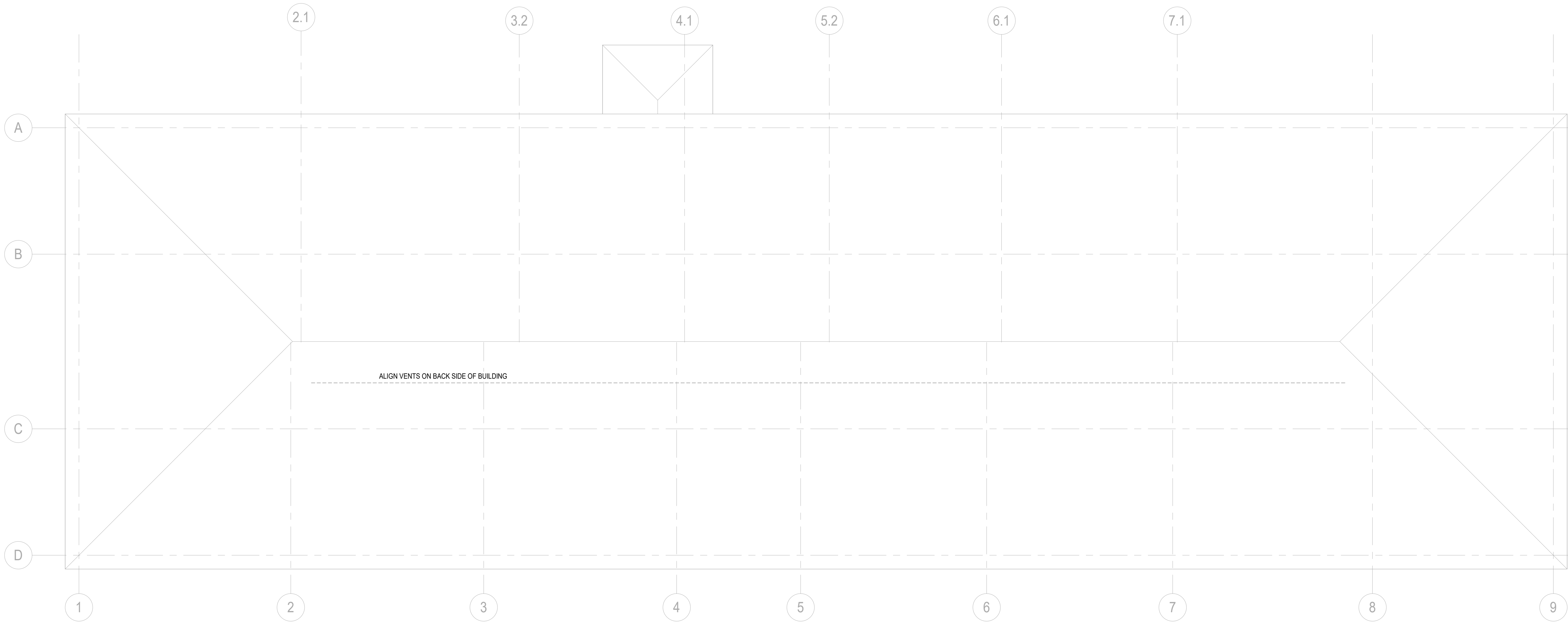
SHEET NUMBER

M102



2 LEVEL 2 MECHANICAL PLAN
M102 1/8" = 1'-0"





2 ROOF MECHANICAL PLAN
M141 1/8" = 1'-0"

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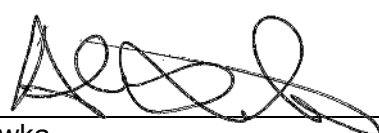
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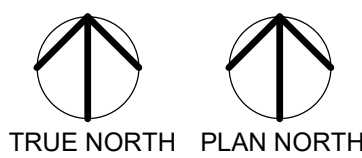
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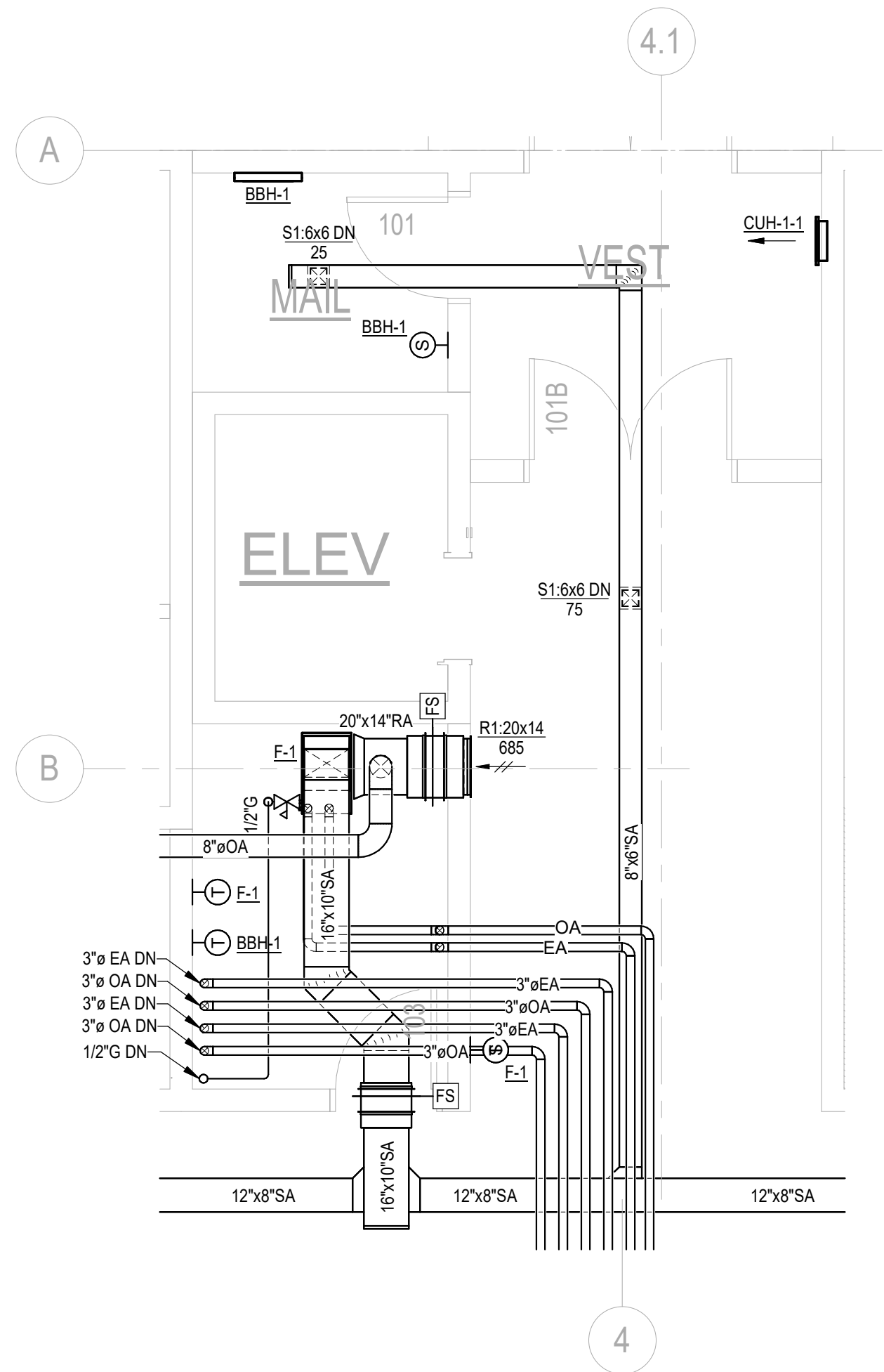
SHEET TITLE

ROOF
MECHANICAL
PLAN

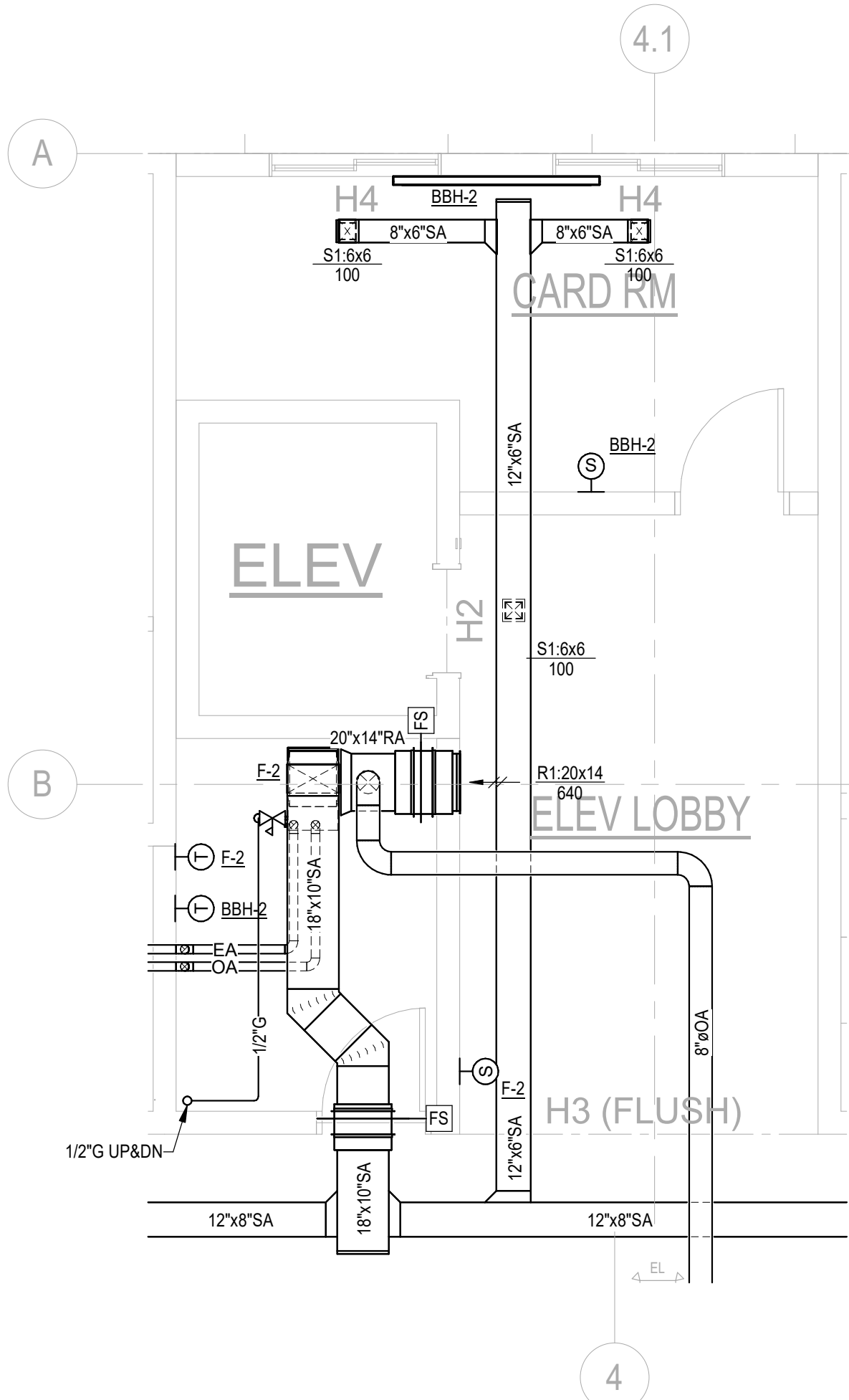
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M141

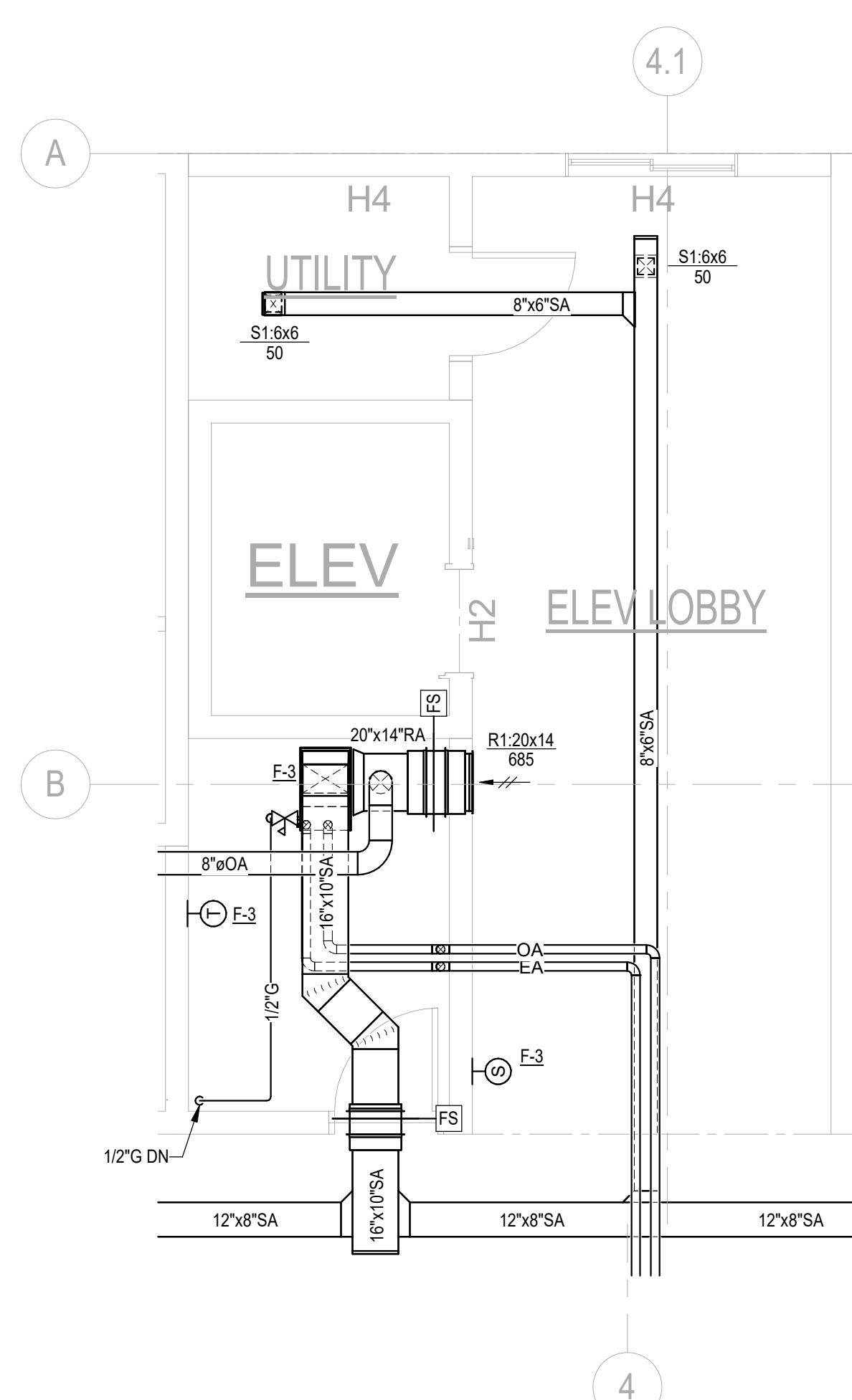




1
M151
LEVEL 1 ENLARGED MECHANICAL ROOM
1/4" = 1'-0"



2
M151
LEVEL 2 ENLARGED MECHANICAL ROOM
1/4" = 1'-0"



3
M151
LEVEL 3 ENLARGED MECHANICAL ROOM
1/4" = 1'-0"

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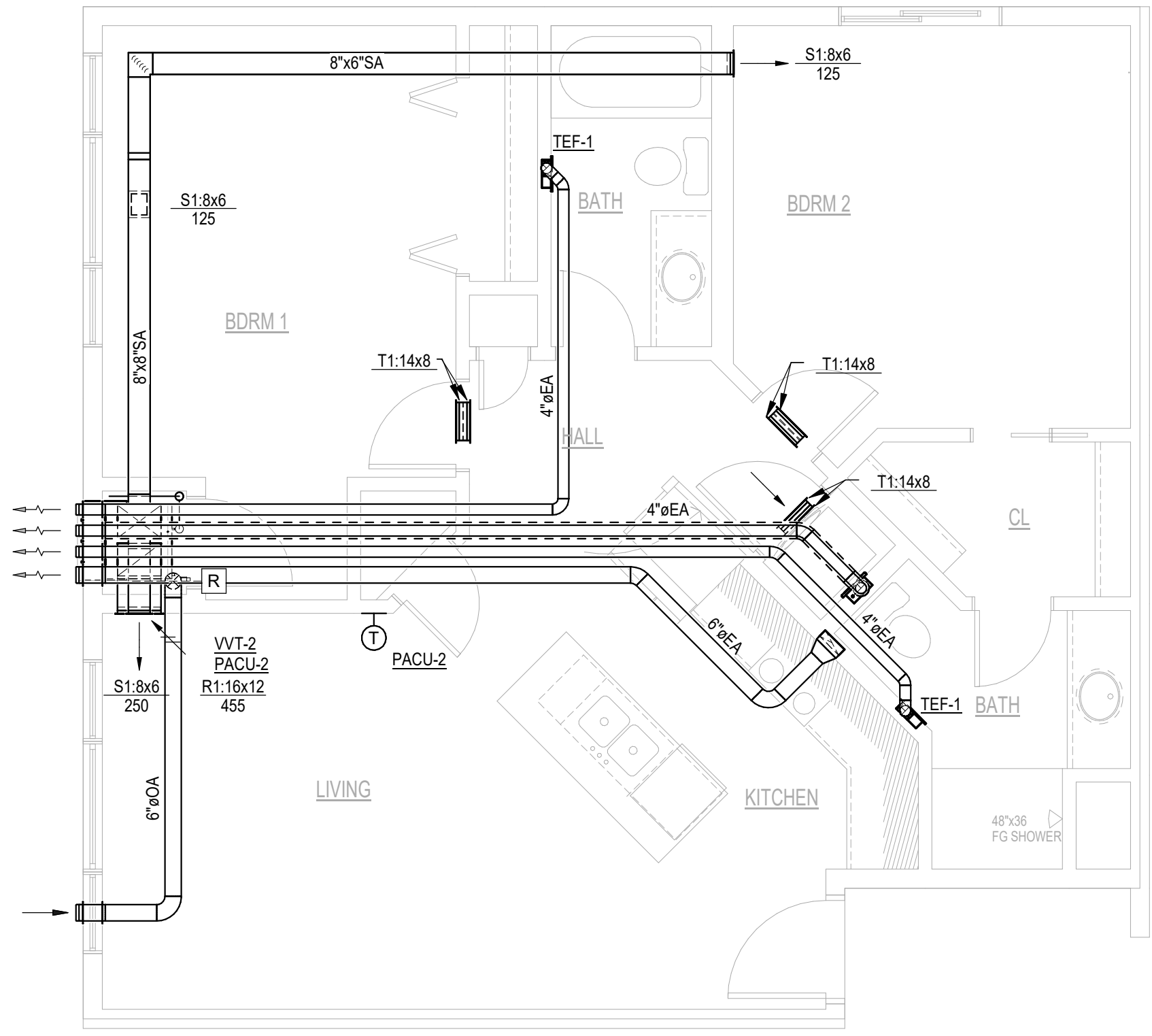
SHEET TITLE

ENLARGED
MECHANICAL
PLANS

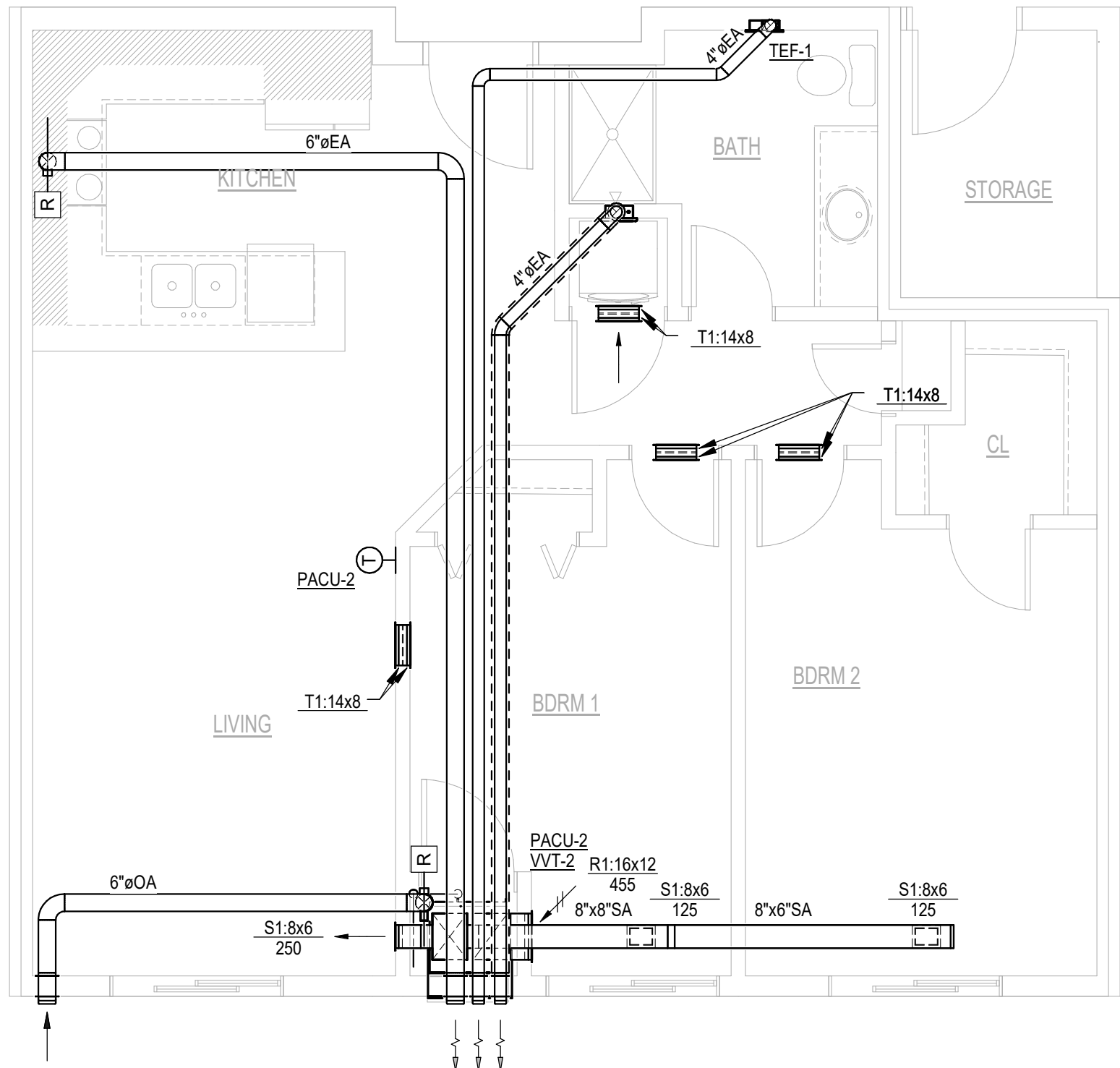
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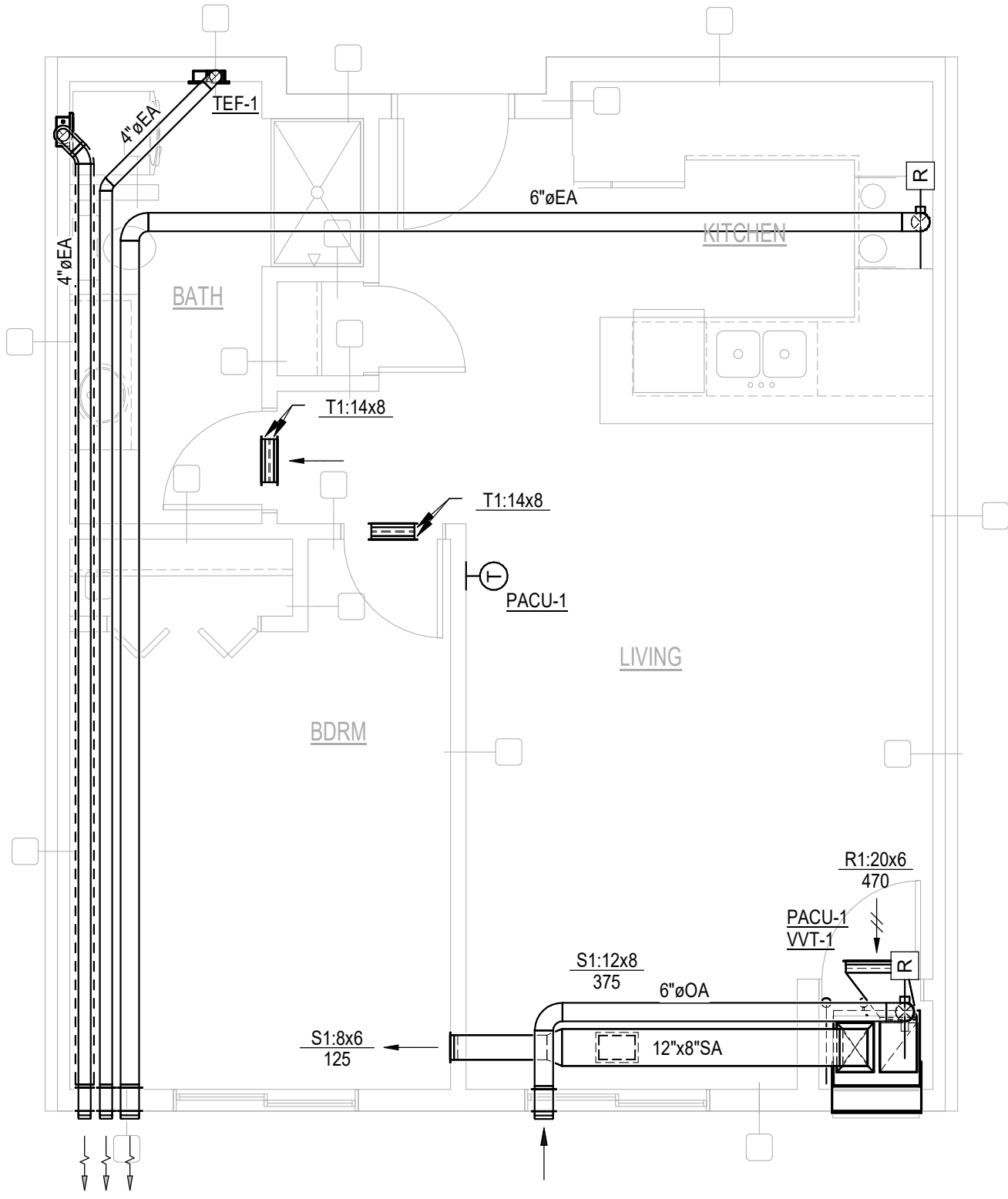
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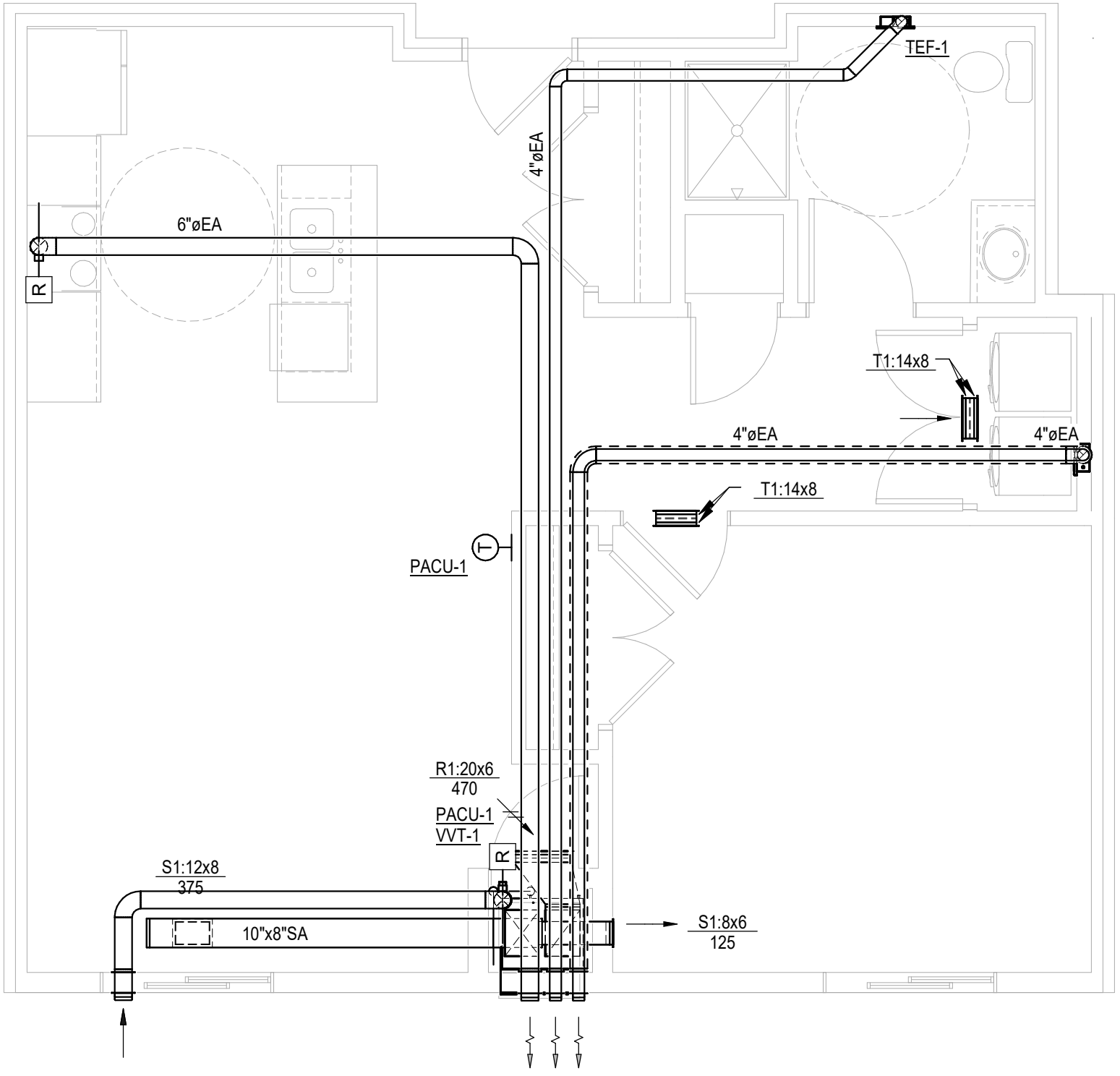
1
M201
UNIT A MECHANICAL PLAN
1/4" = 1'-0"



2
M201
UNIT B MECHANICAL PLAN
1/4" = 1'-0"



3
M201
UNIT C MECHANICAL PLAN
1/4" = 1'-0"



4
M201
UNIT D MECHANICAL PLAN
1/4" = 1'-0"

PLAN NOTES

- OUTSIDE AIR CONTROLLER SHALL BE THE HONEYWELL Y8150A OUTSIDE AIR THERMOSTAT FOR LIVING UNITS.
- WHEN DRYER EXHAUST DUCTS ARE ROUTED THROUGH THE FIRE-RESISTANCE RATED FLOOR/CEILING ASSEMBLY, IT IS REQUIRED BY CODE TO MAINTAIN THE FIRE-RESISTANCE RATING OF THE FLOOR/CEILING ASSEMBLY FROM THE MEMBRANE PENETRATION OF THE FLOOR/CEILING ASSEMBLY TO THE WALL CAP AT THE EXTERIOR WALL. MECHANICAL CONTRACTOR SHALL FURNISH AND INSTALL 3M FIRE BARRIER DRYER VENTILATION WRAP OR EQUIVALENT. WRAP SHALL BE TESTED TO ASTM E2816 CONDITION B.

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GROUP

Architecture
Interior Design
Landscape Architecture
Engineering

222 North Second Street
Long & Kees Bldg
Suite 101
Minneapolis, MN
55401
612.339.3752

www.bkvgroup.com

CONSULTANTS

PROJECT TITLE

SUPERIOR
MECHANICAL -
4TH LANE FLATS
KASSON, MN

ISSUE #	DATE	DESCRIPTION
	07/17/2025	PERMIT SET

CERTIFICATION

I hereby certify that this plan, specification or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the state of Minnesota

Alex Sawka	07/17/2025
53200	Date
License Number	
DRAWN BY	MRR
CHECKED BY	AMS
COMMISSION NUMBER	1803.28

SHEET TITLE

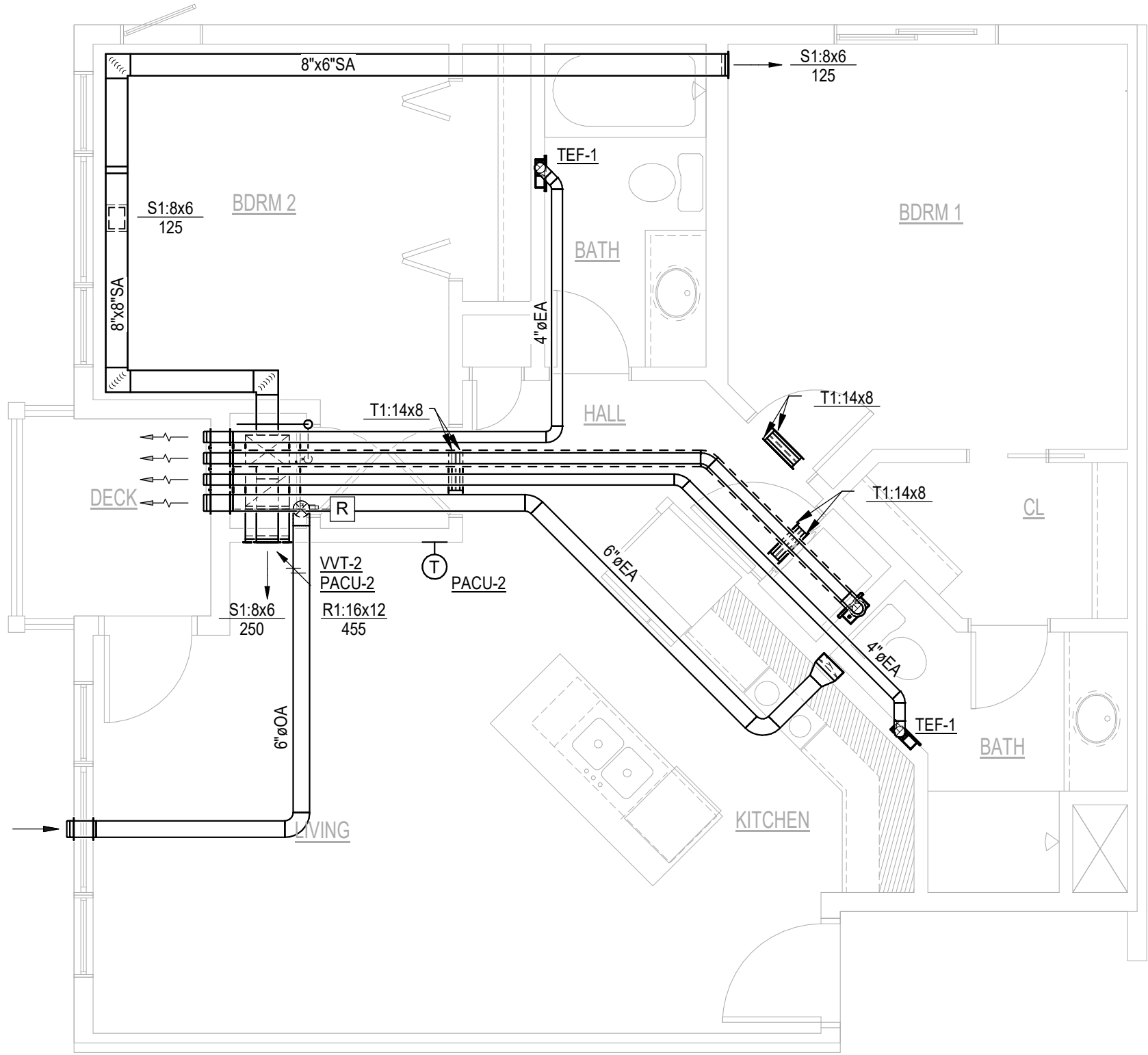
UNIT
MECHANICAL
PLANS

SHEET NUMBER

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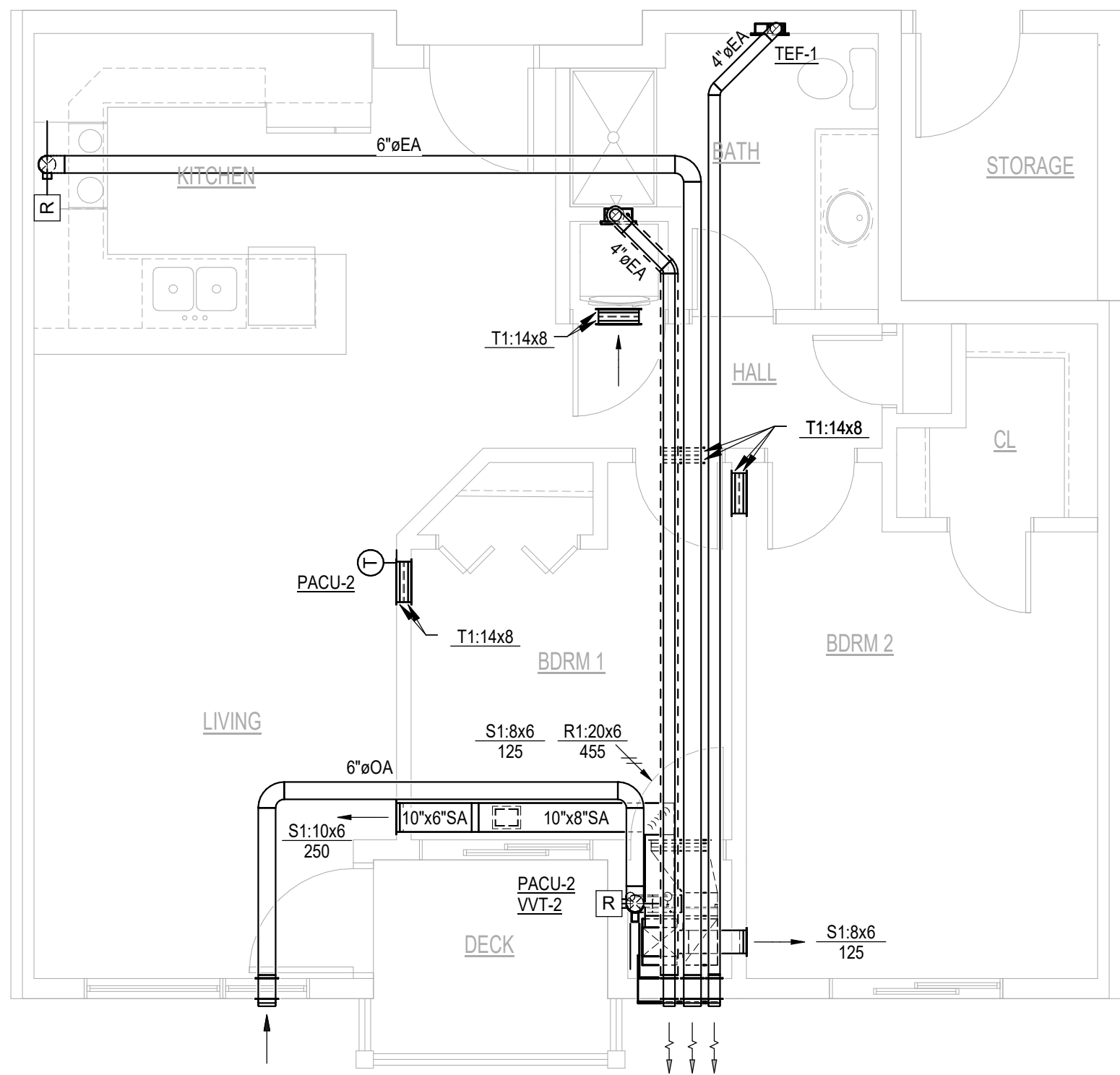
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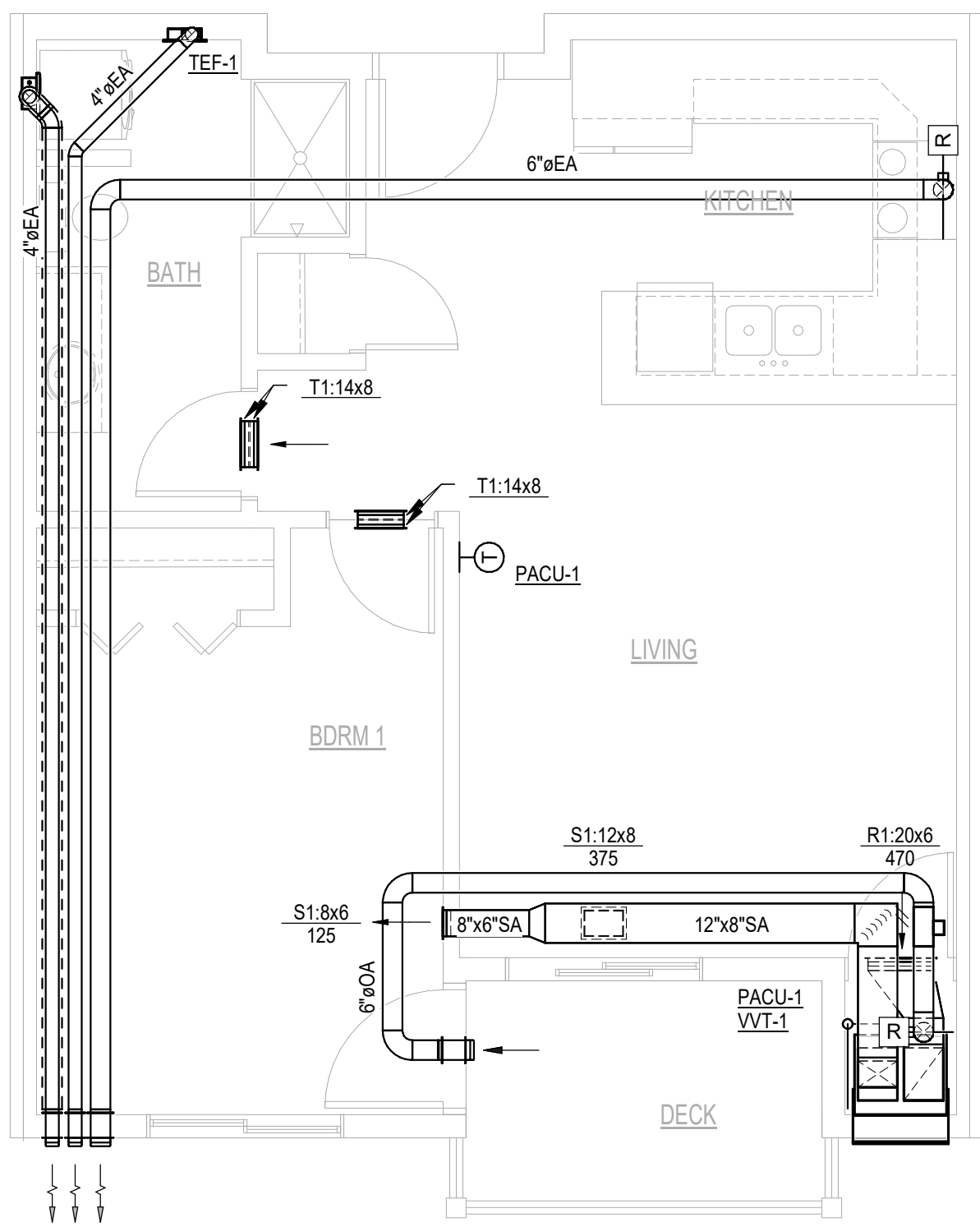
1
M202 1/4" = 1'-0"

UNIT E MECHANICAL PLAN



2
M202 1/4" = 1'-0"

UNIT F MECHANICAL PLAN



3
M202 1/4" = 1'-0"

UNIT G MECHANICAL PLAN

PLAN NOTES

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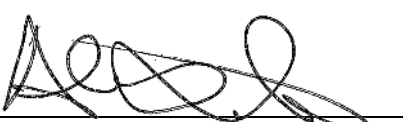
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KASSON, MN

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Alex Sawka
S3200 07/17/2025
License Number Date
DRAWN BY MMR
CHECKED BY AMS
COMMISSION NUMBER 1803.28

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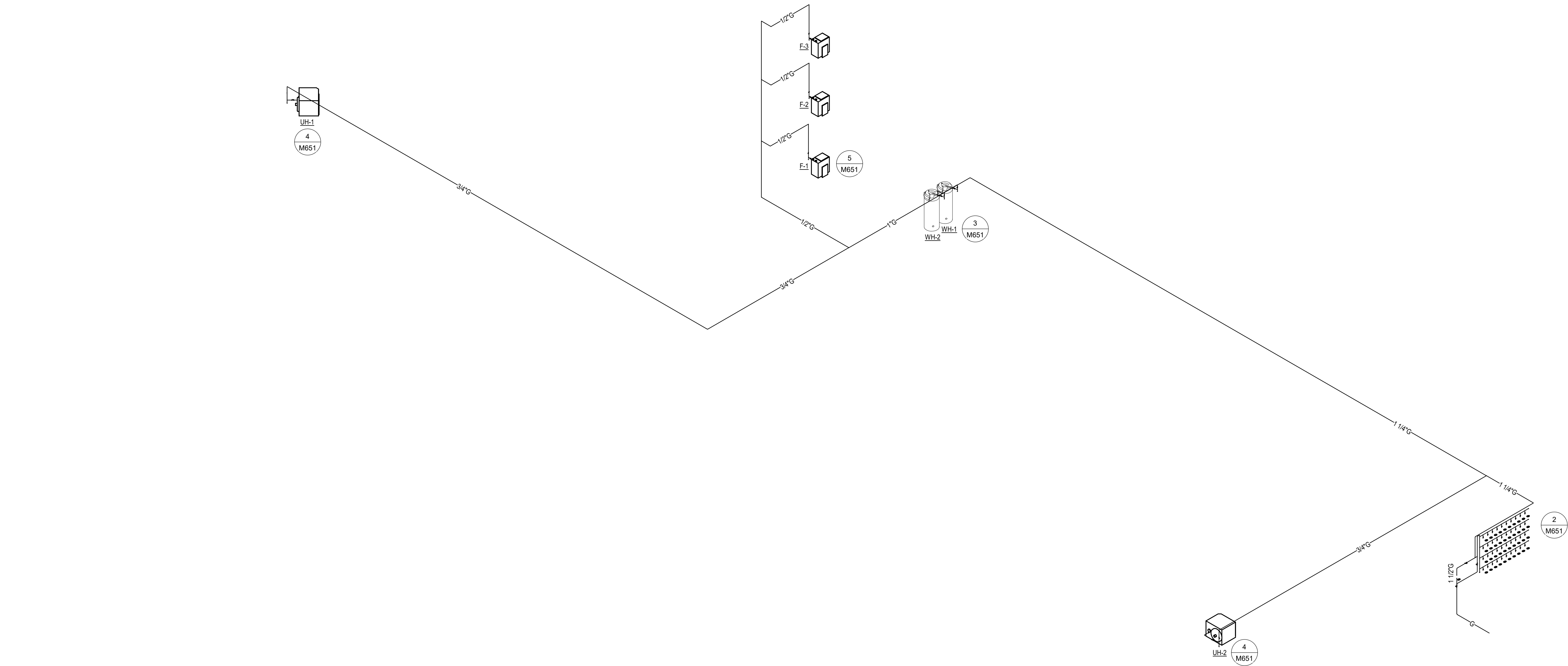
UNIT
MECHANICAL
PLANS

SHEET NUMBER

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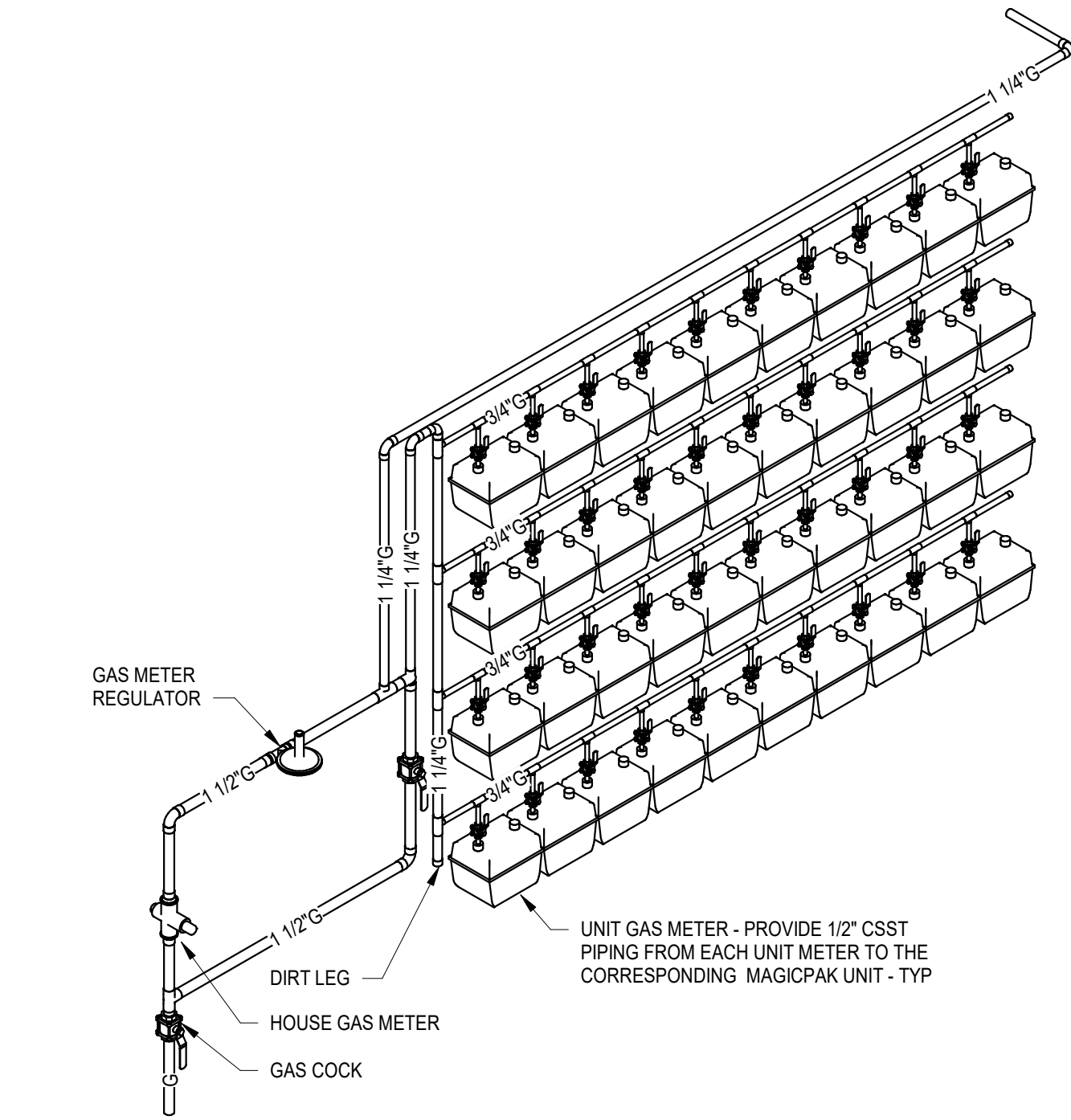
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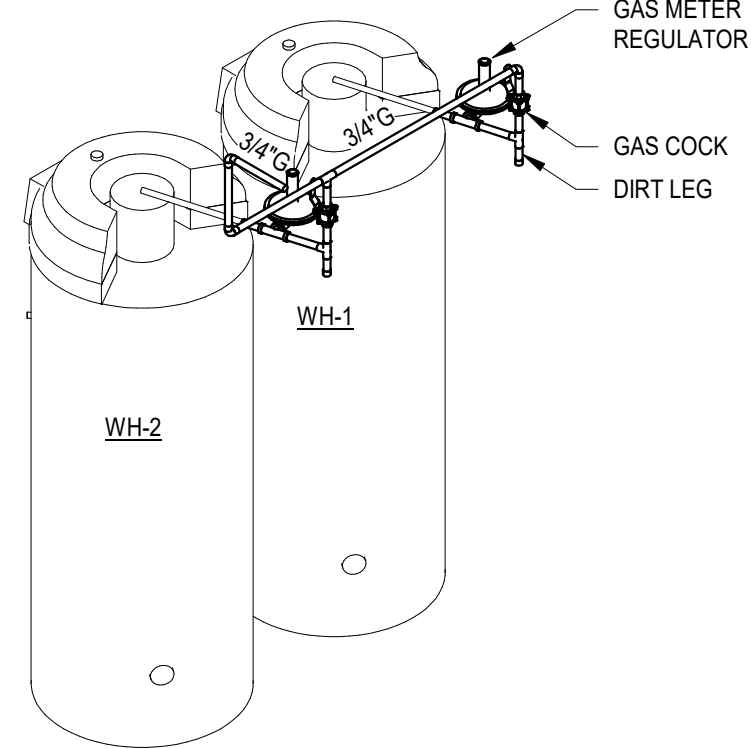


GAS SERVICE SIZE: 1-1/2"
GAS SIZING CRITERIA:
TOTAL DEMAND: 2164 CFH
INITIAL PRESSURE: 2.0 PSI
PRESSURE DROP: 1.0 PSI
ELEVATION: 800'
SPECIFIC GRAVITY: 0.60
PIPING MATERIAL: STEEL SCHED. 40
LONGEST RUN: 220'

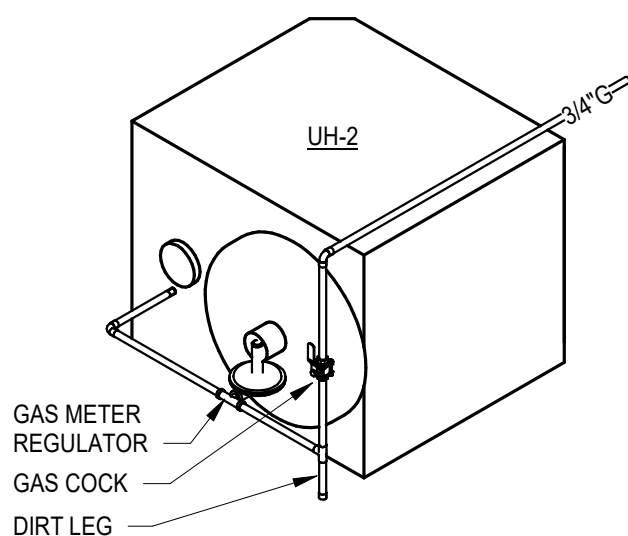
1 M651 NATURAL GAS RISER DIAGRAM - OVERALL



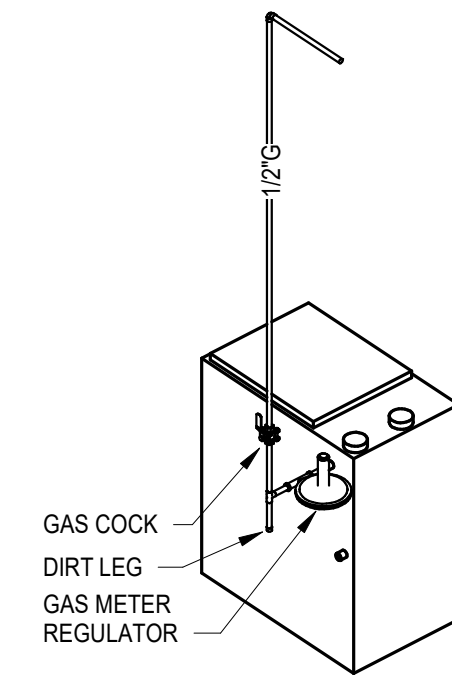
2 M651 NATURAL GAS RISER DIAGRAM - METER BANK



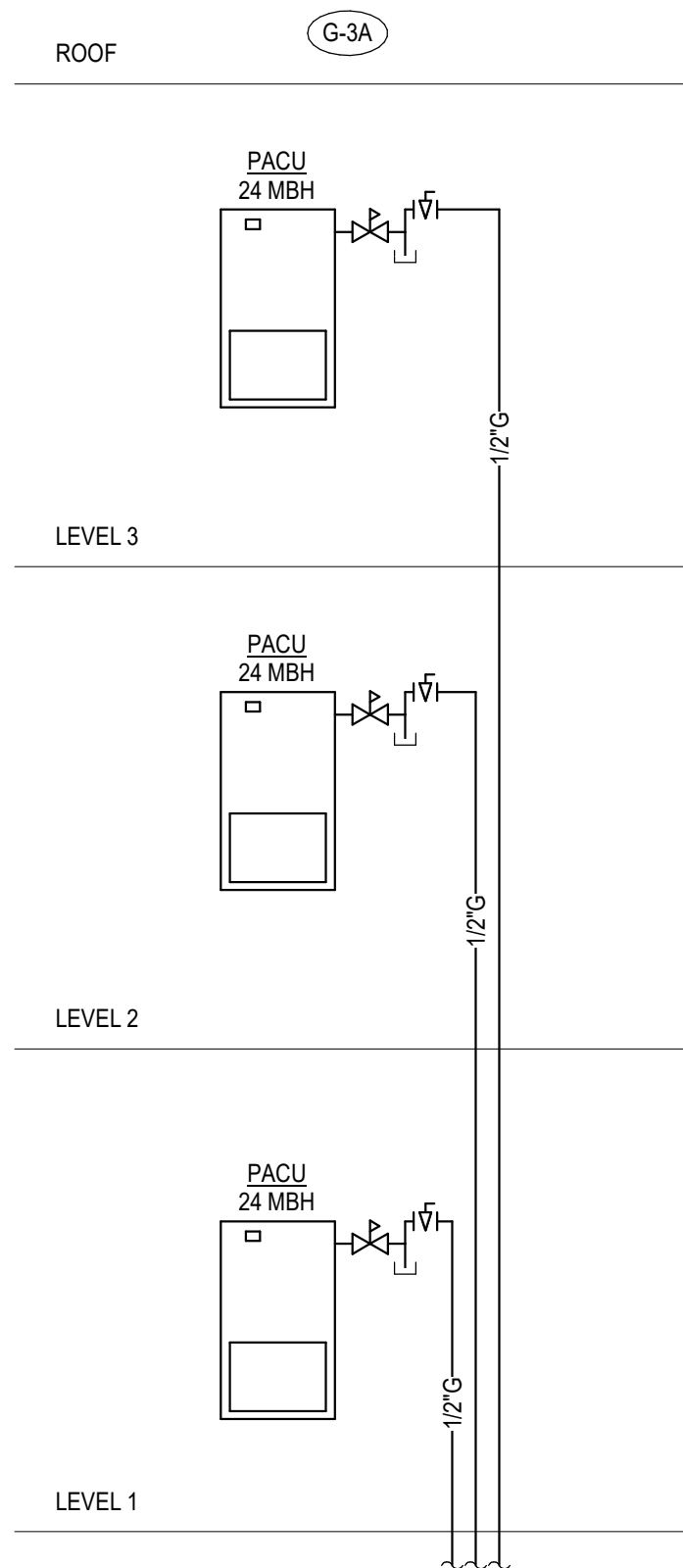
3 M651 NATURAL GAS RISER DIAGRAM - WATER HEATERS



4 M651 NATURAL GAS RISER DIAGRAM - UNIT HEATER



5 M651 NATURAL GAS RISER DIAGRAM - FURNACE



6 M651 NATURAL GAS RISER DIAGRAM
NOT TO SCALE

ISSUE #	DATE	DESCRIPTION
1	07/17/2025	PERMIT SET

CERTIFICATION

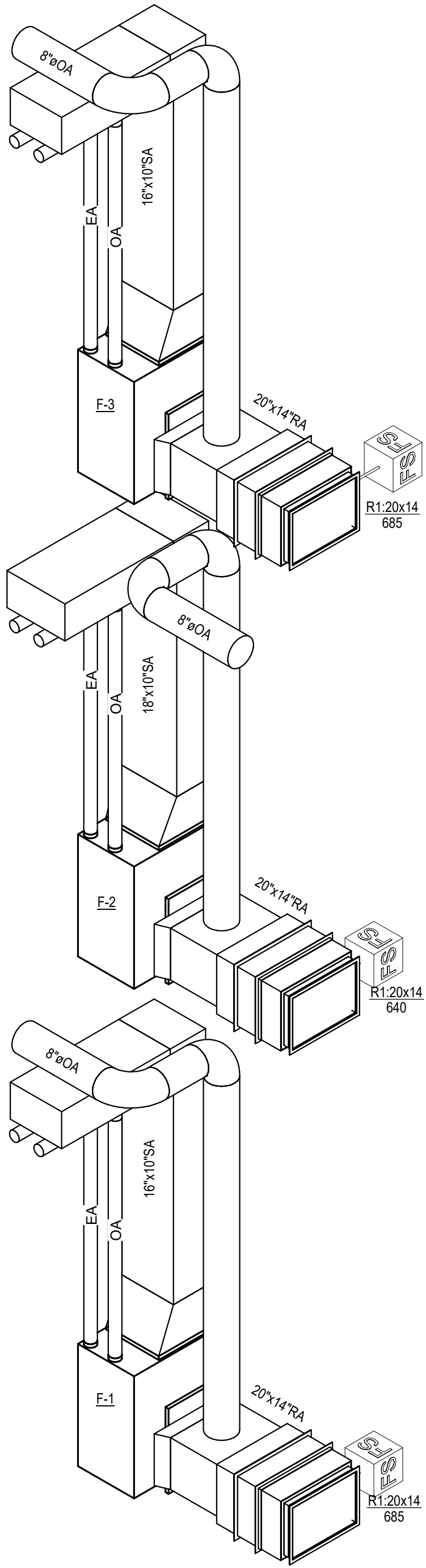
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Alex Sawka
53200
License Number
Date
DRAWN BY: MMR
CHECKED BY: AMS
COMMISSION NUMBER: 1803-28

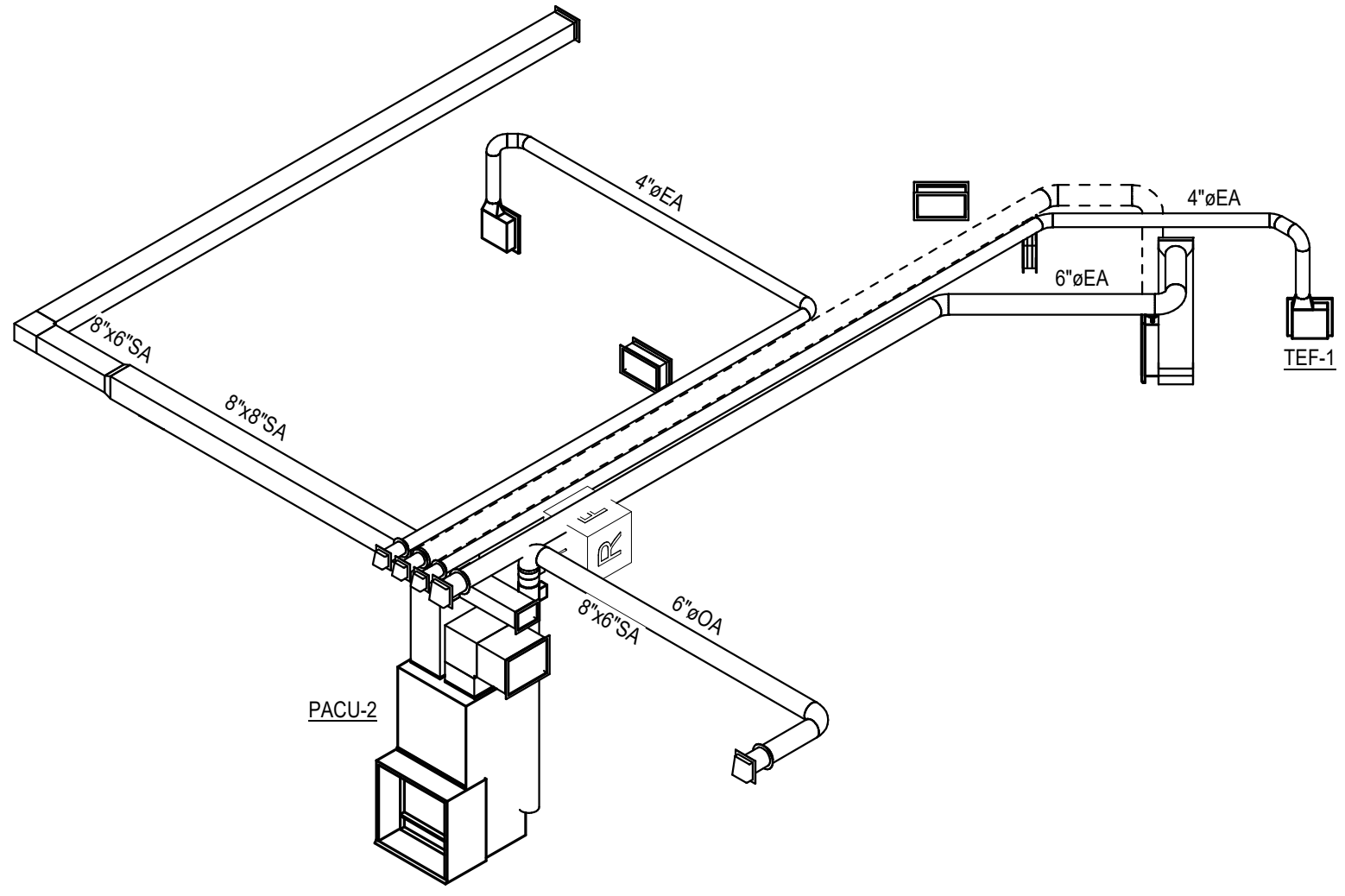
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NATURAL GAS
RISER DIAGRAMS

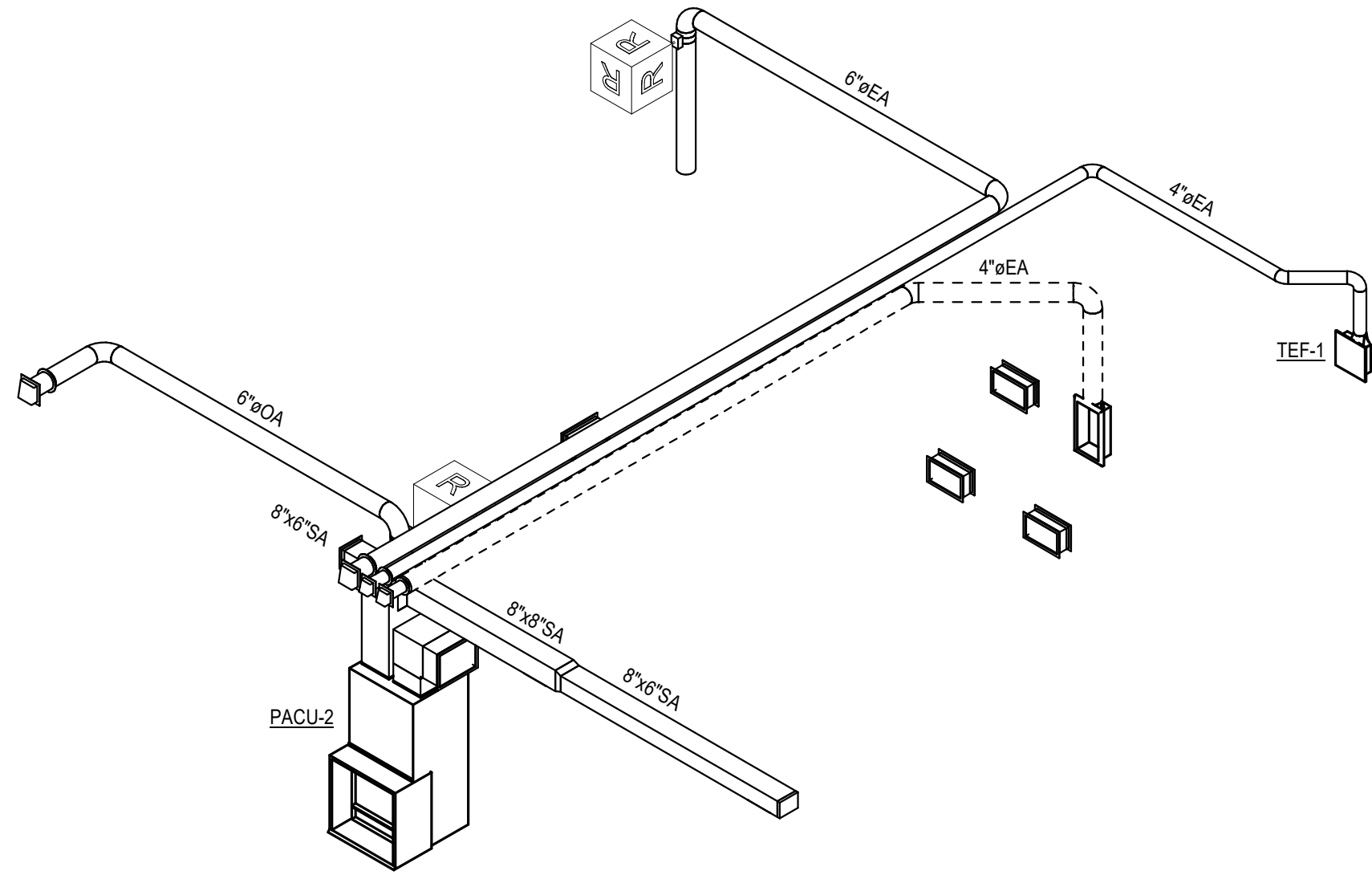
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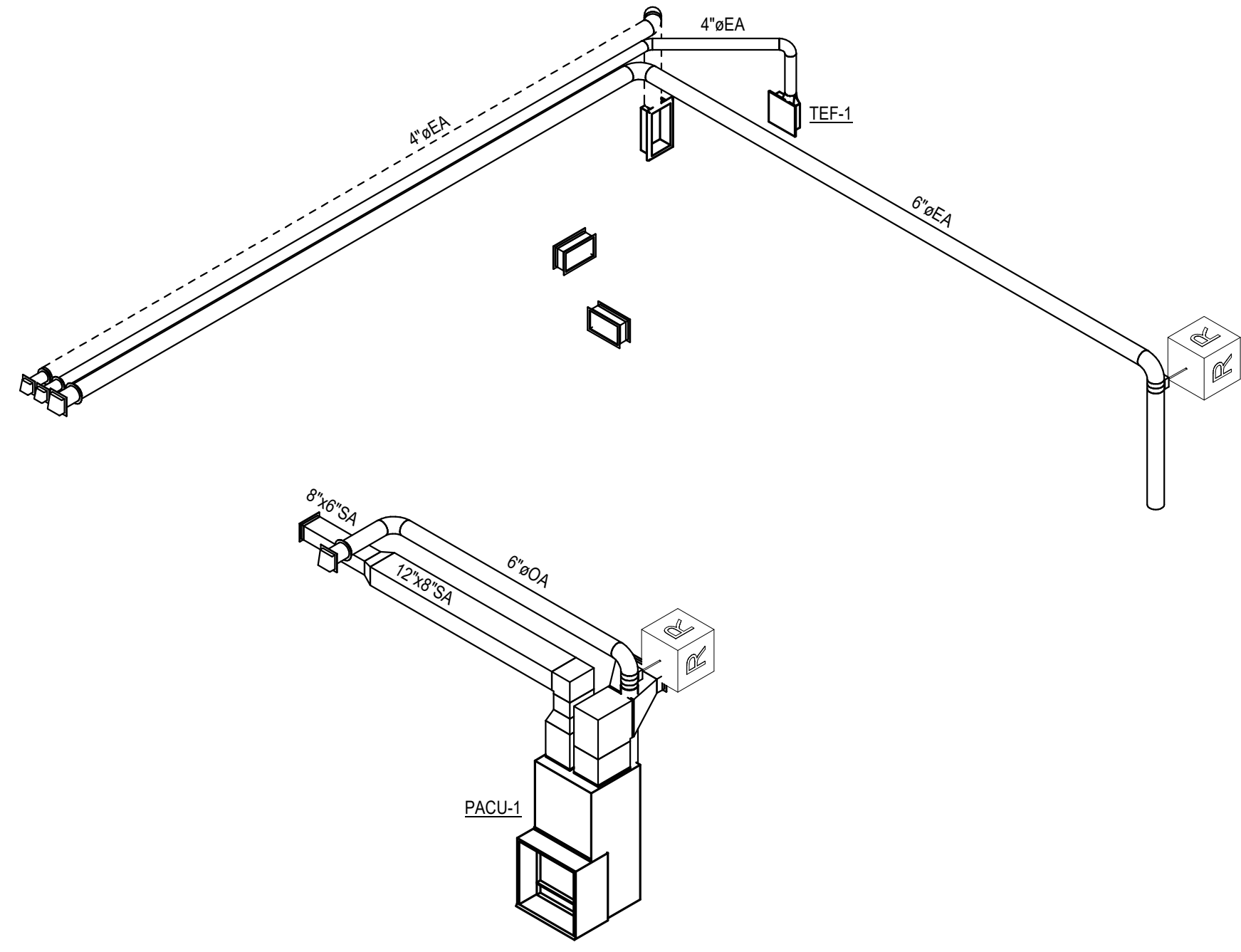
1 FURNACE DUCT RISER DIAGRAM



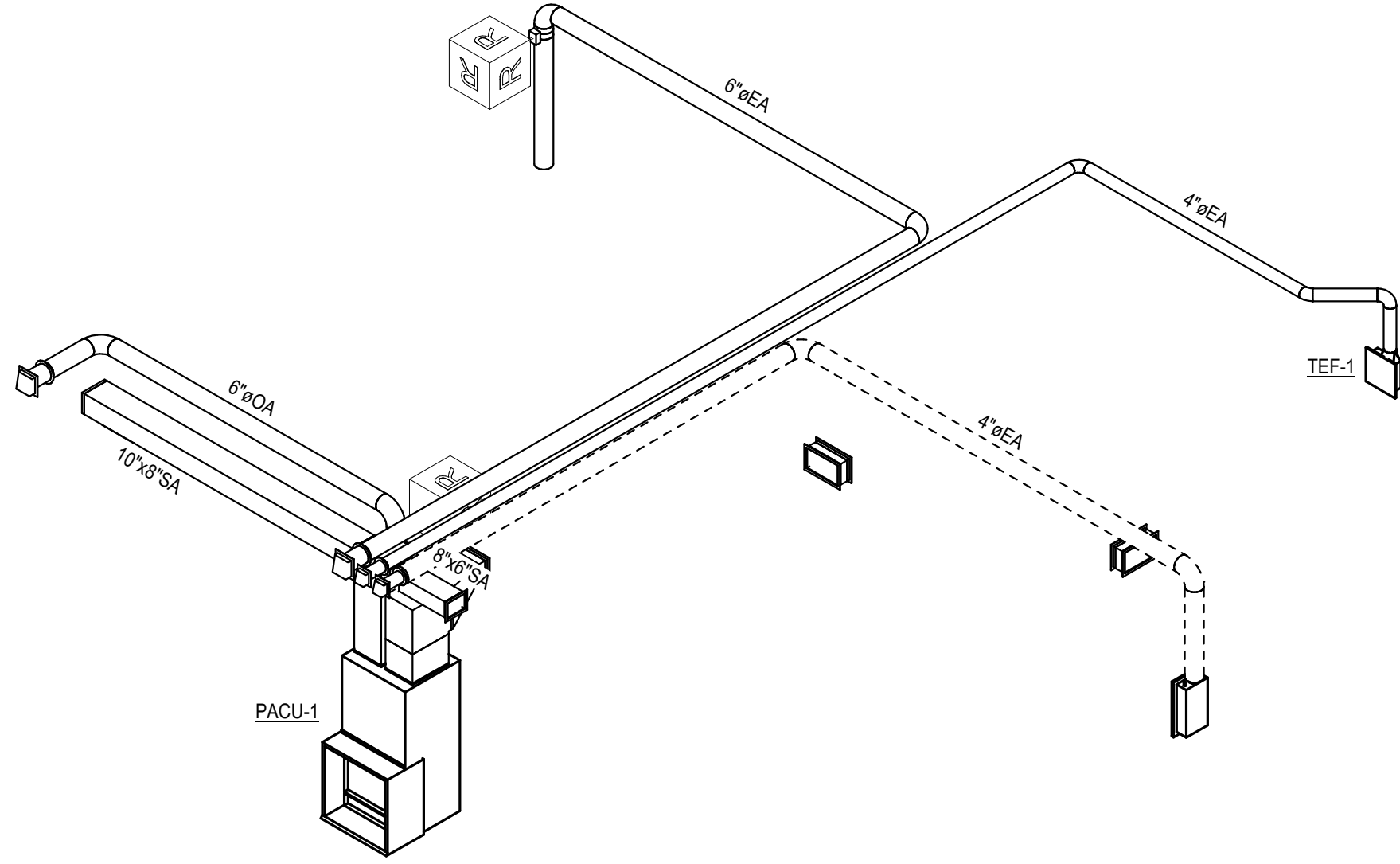
2 UNIT A DUCT RISER DIAGRAM



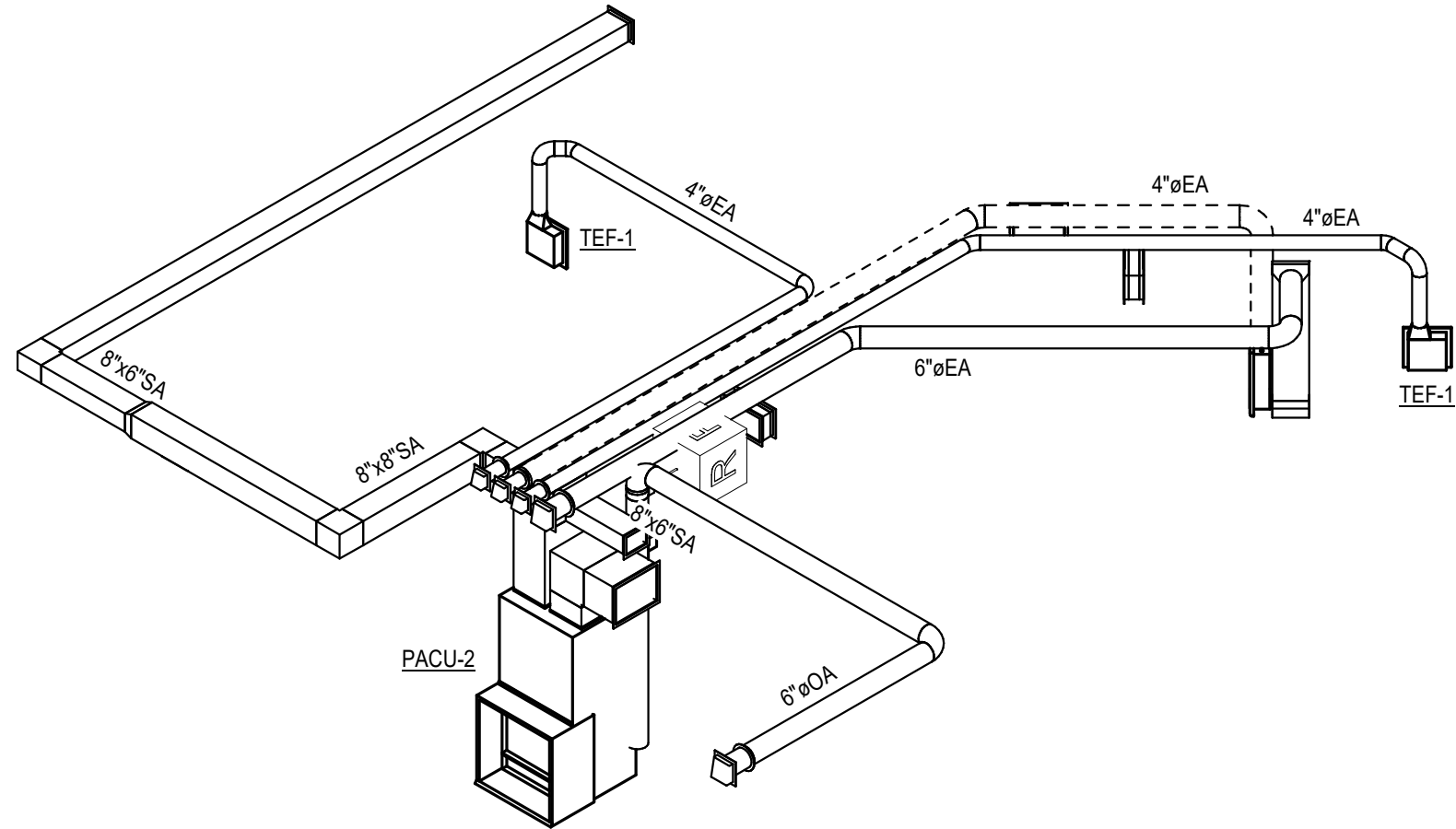
3 UNIT B DUCT RISER DIAGRAM



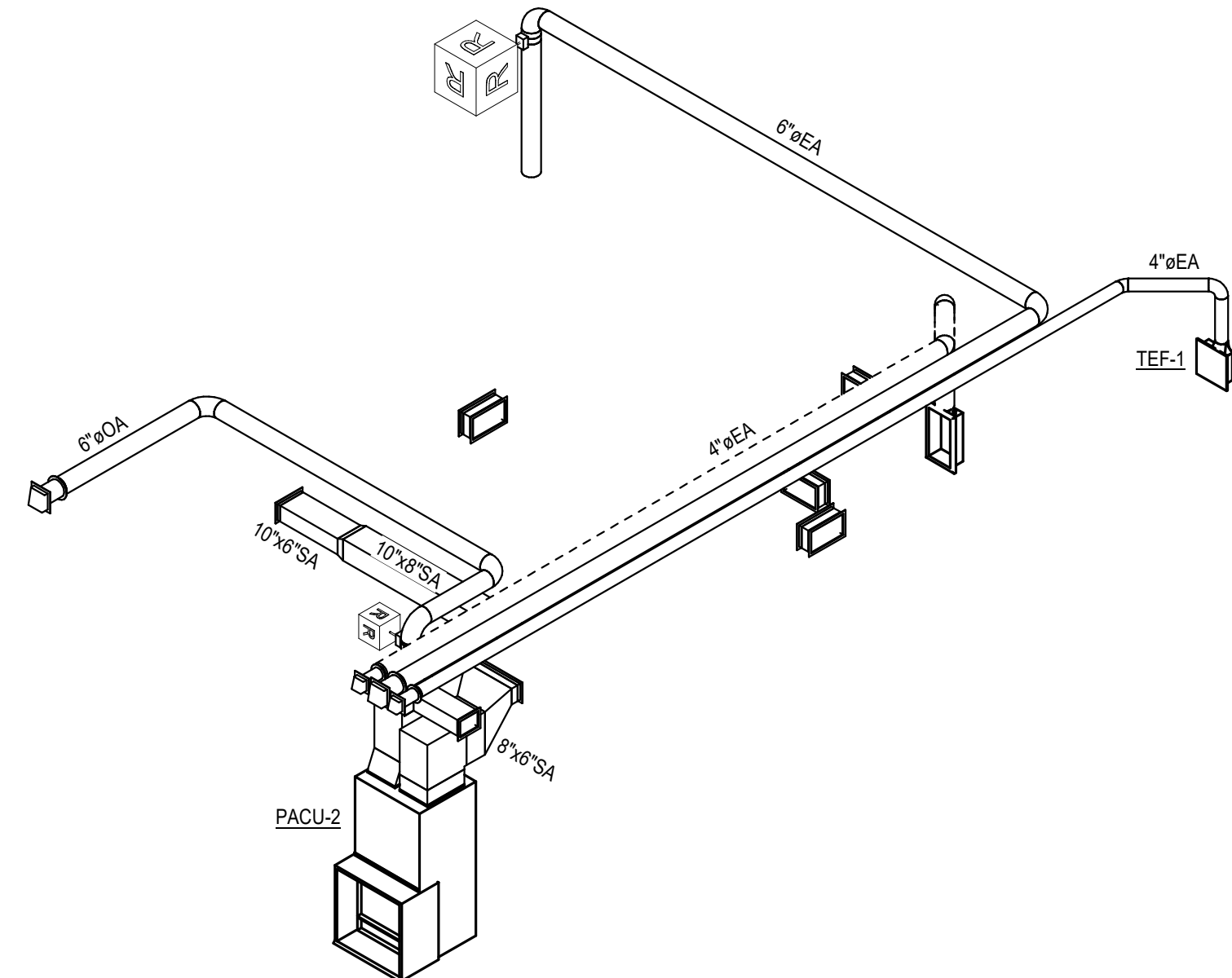
4 UNIT C DUCT RISER DIAGRAM



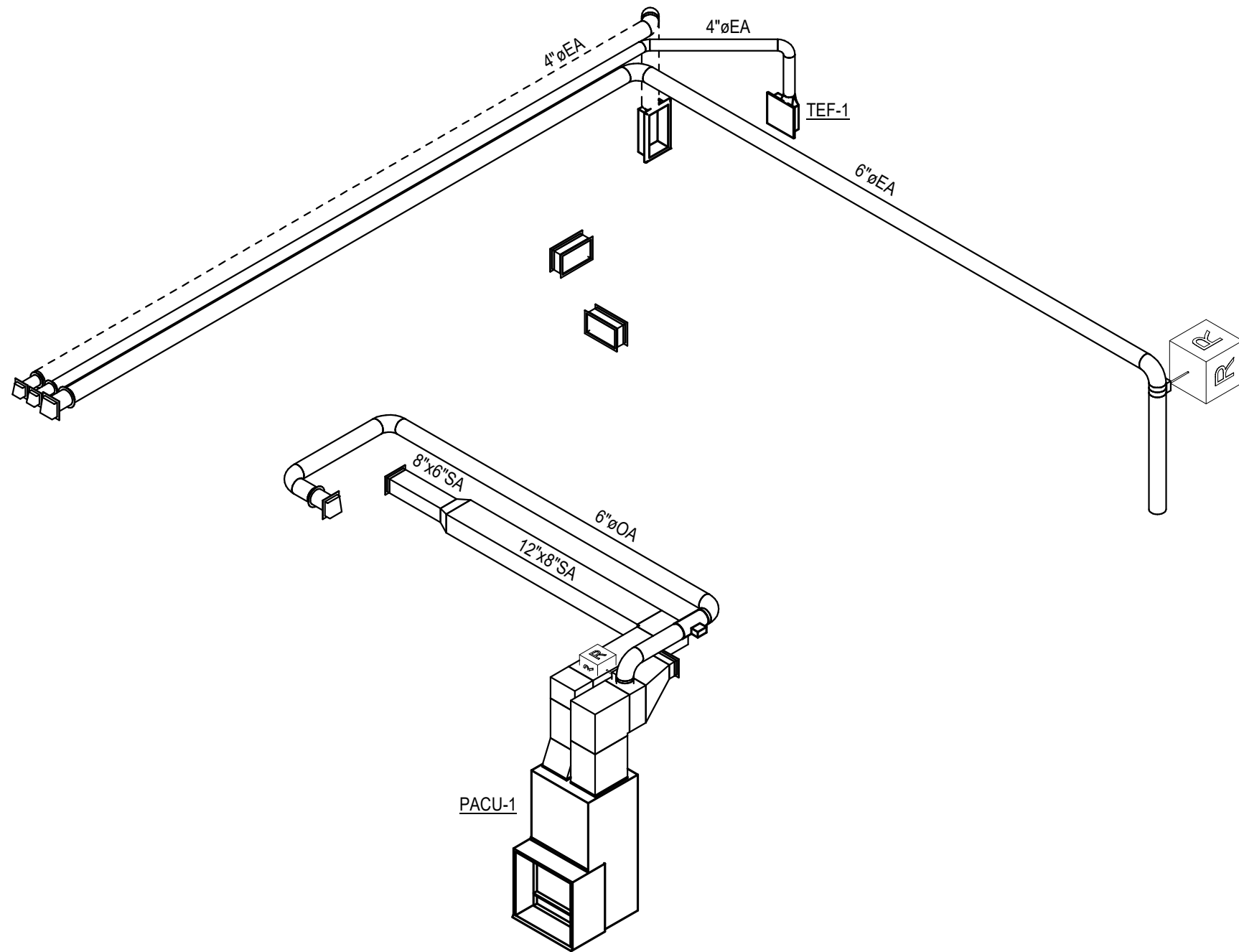
5 UNIT D DUCT RISER DIAGRAM



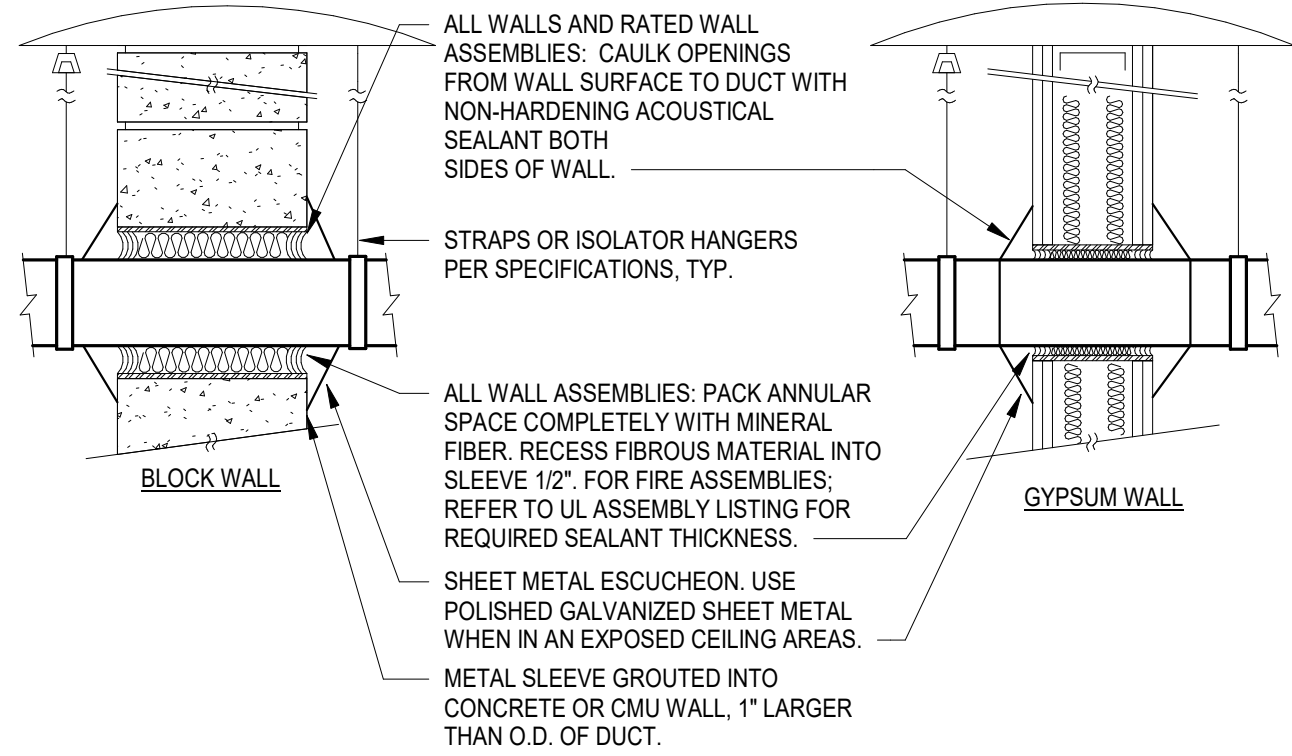
6 UNIT E DUCT RISER DIAGRAM



7 UNIT F DUCT RISER DIAGRAM



8 UNIT G DUCT RISER DIAGRAM

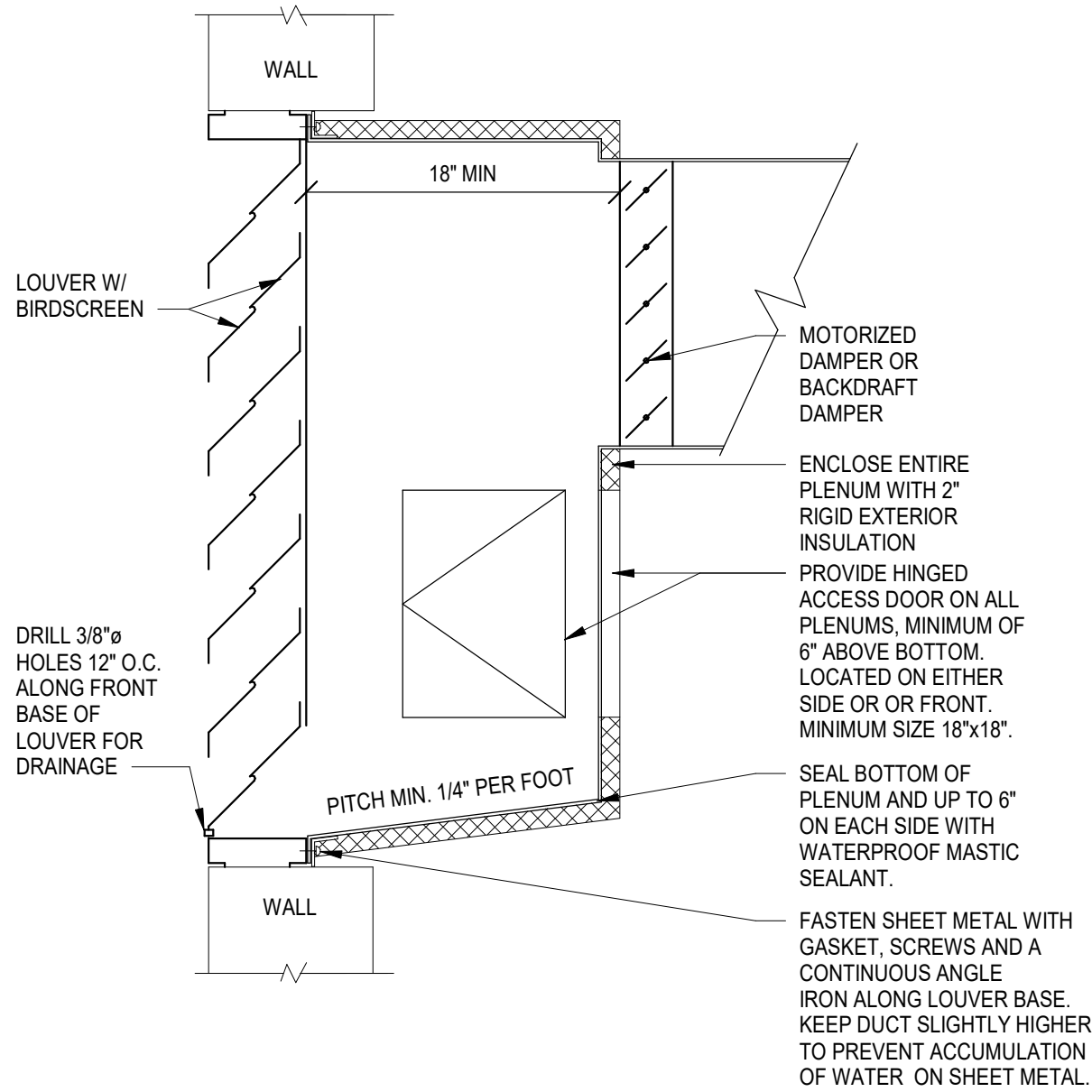


NOTE:

1. WALL PENETRATION REQUIREMENTS APPLY FOR ALL NON-RATED WALLS AND PARTITIONS AND FIRE/SMOKE RATED ASSEMBLIES. REFER TO CODE PLAN FOR FIRE AND SMOKE ASSEMBLIES.
2. NO MULTIPLE DUCT PENETRATIONS ALLOWED. PACK AND CAULK EVERY DUCT INDIVIDUALLY.
3. PROVIDE SEPARATE METAL SLEEVES AT DOUBLE STUD CONSTRUCTION OR WHERE ACOUSTIC STUD WALLS ARE CONSTRUCTED ADJACENT TO CMU WALLS. METAL SLEEVE IS NOT PERMITTED TO BRIDGE LINE OF ACOUSTIC ISOLATION.
4. WHERE THE WALL ASSEMBLY IS FIRE AND OR SMOKE RATED, THE FILL MATERIAL, CAULK, AND INSTALLATION SHALL COMPLY WITH THE ASSOCIATED ASSEMBLY UL LISTING.

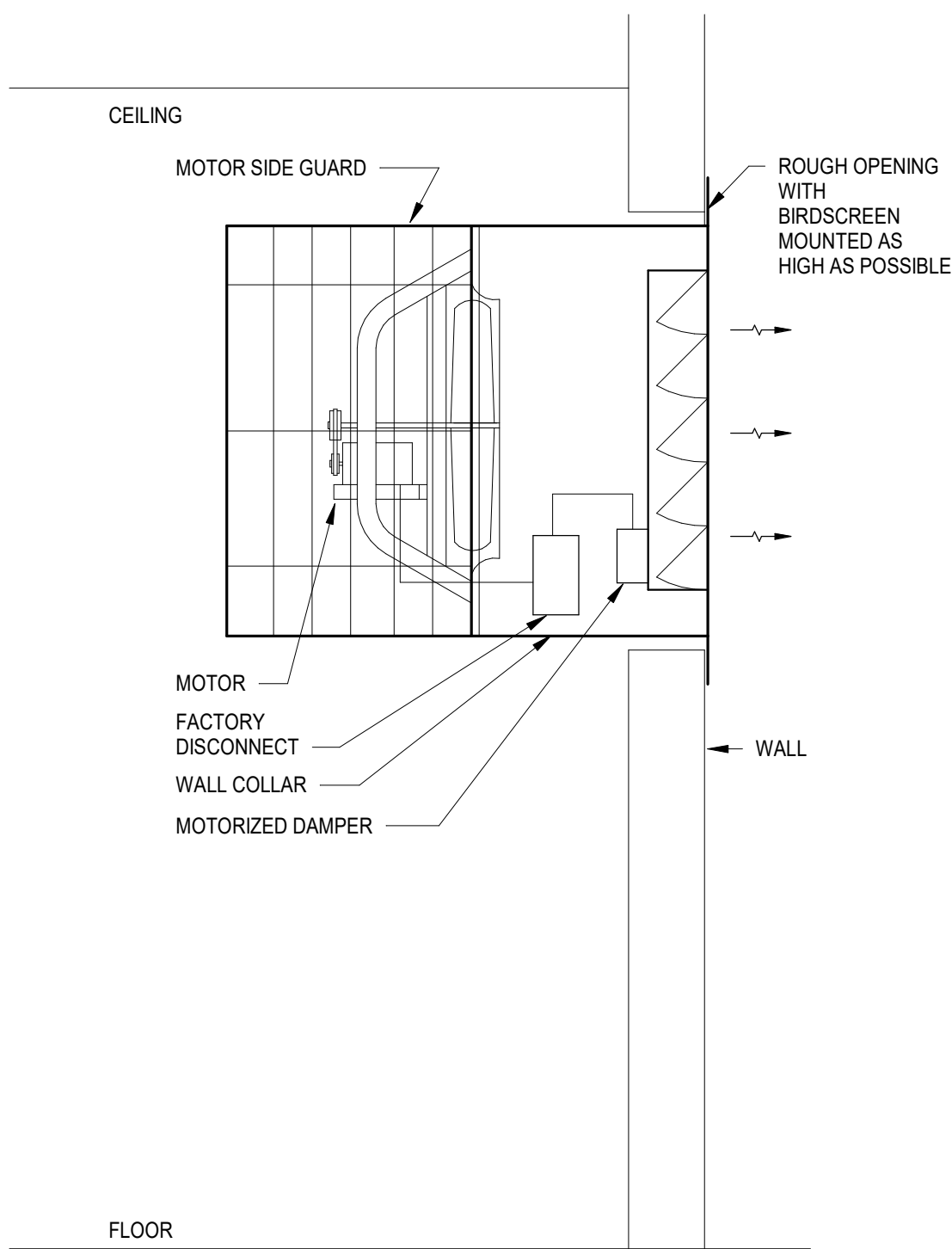
1 DUCT WALL PENETRATION DETAIL (ALL WALL PENETRATIONS)

M701 / NOT TO SCALE



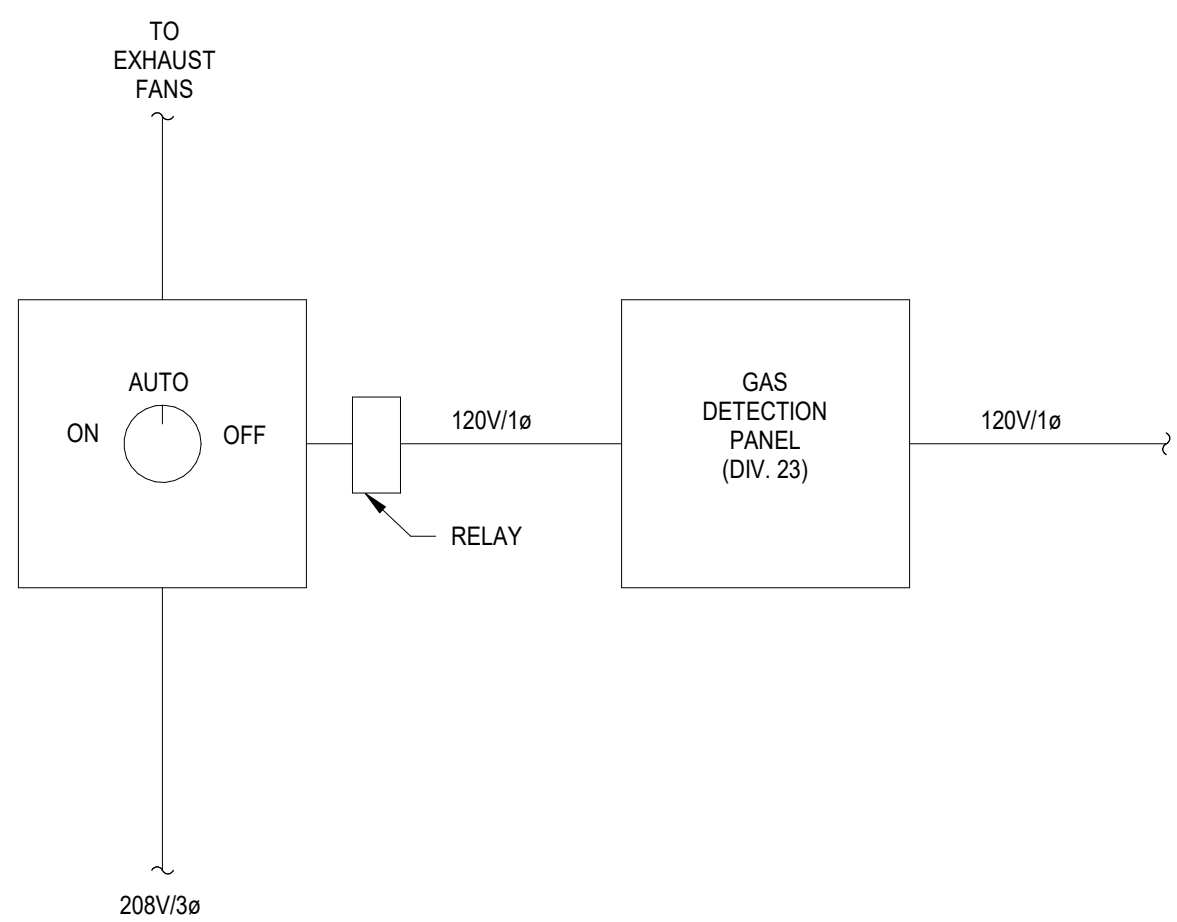
2 OUTSIDE AIR INTAKE DETAIL

M701 / NOT TO SCALE



3 SIDE WALL EXHAUST FAN DETAIL

M701 / NOT TO SCALE

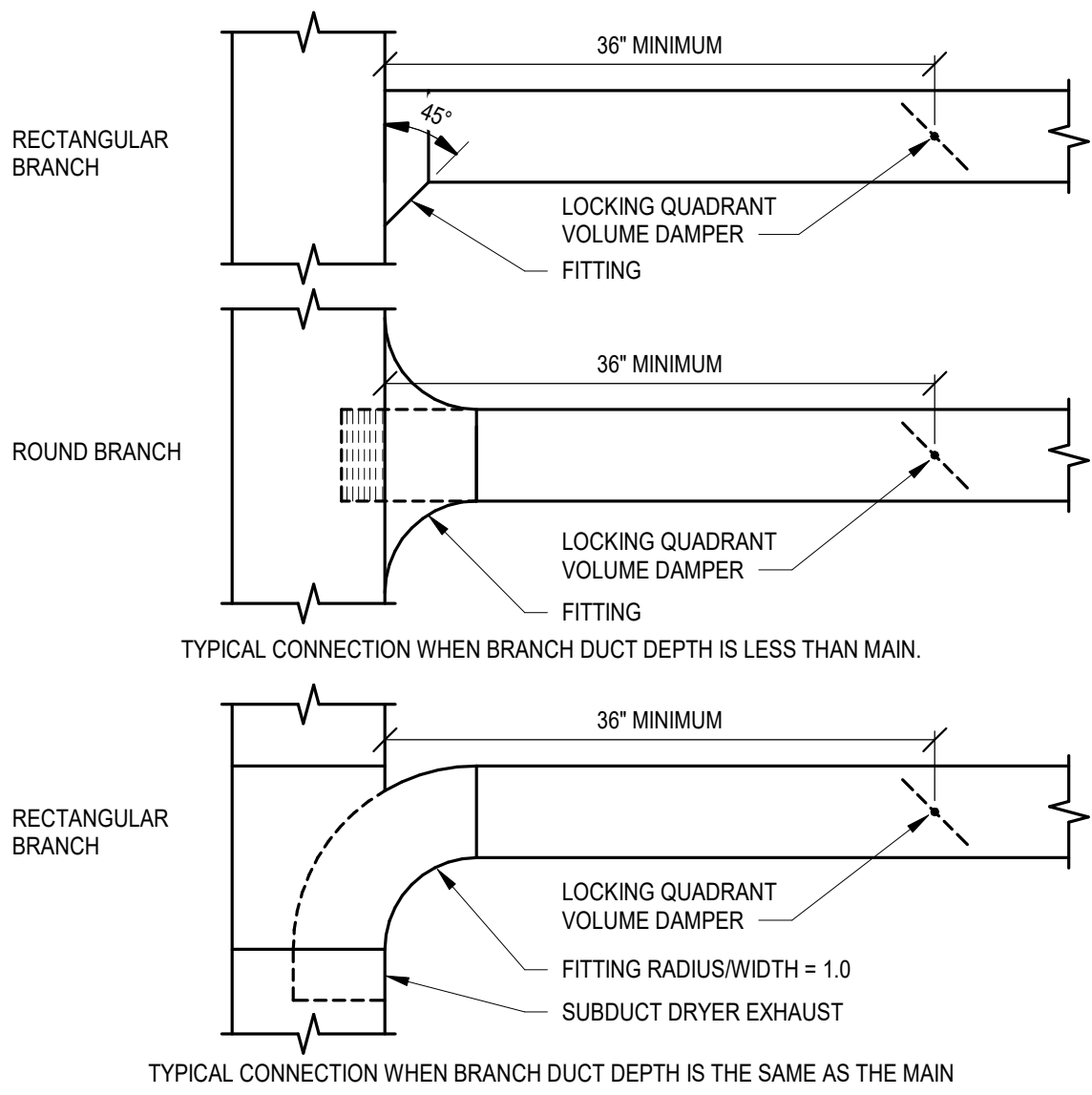


Modes of Operation

- "ON" ALL GARAGE EXHAUST FANS SHALL BE ENERGIZED
- "AUTO" UPON A SIGNAL FROM THE GAS DETECTION PANEL, ALL ASSOCIATED EXHAUST FANS SHALL BE ENERGIZED.

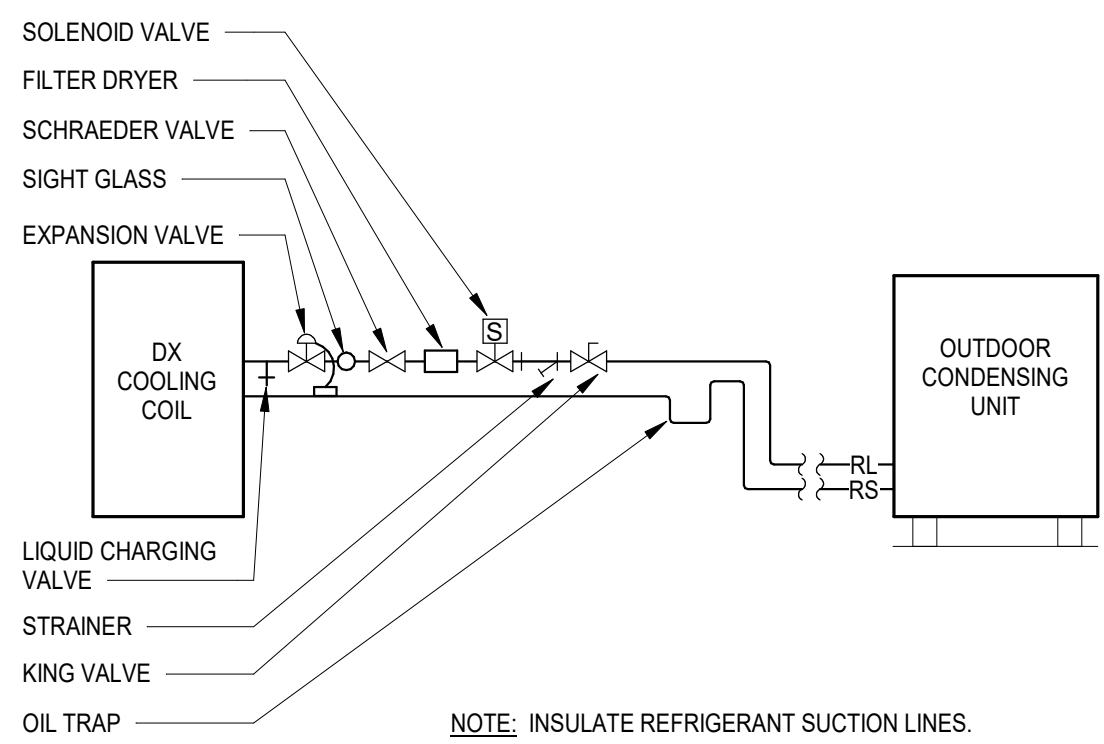
4 GARAGE EXHAUST SCHEMATIC DIAGRAM

M701 / NOT TO SCALE



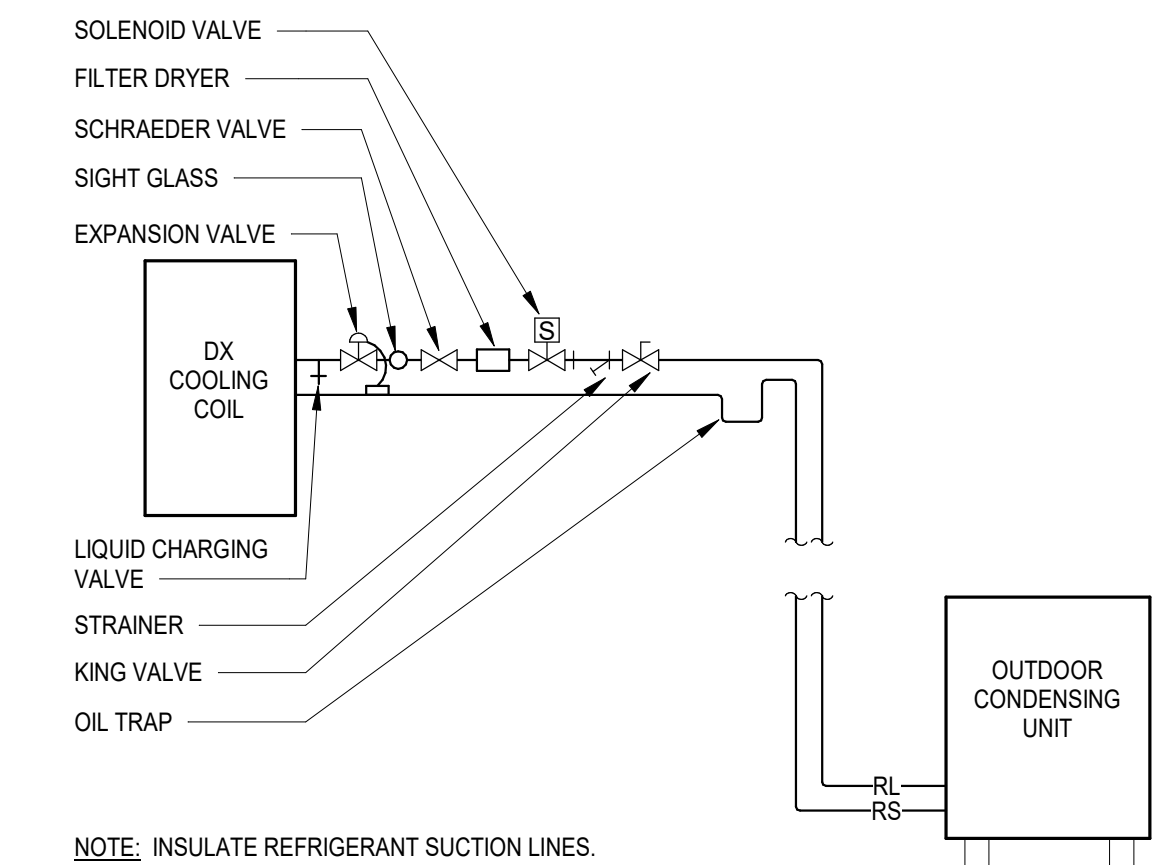
5 TYPICAL BRANCH DUCT TAKE-OFF DETAILS

M701 / NOT TO SCALE



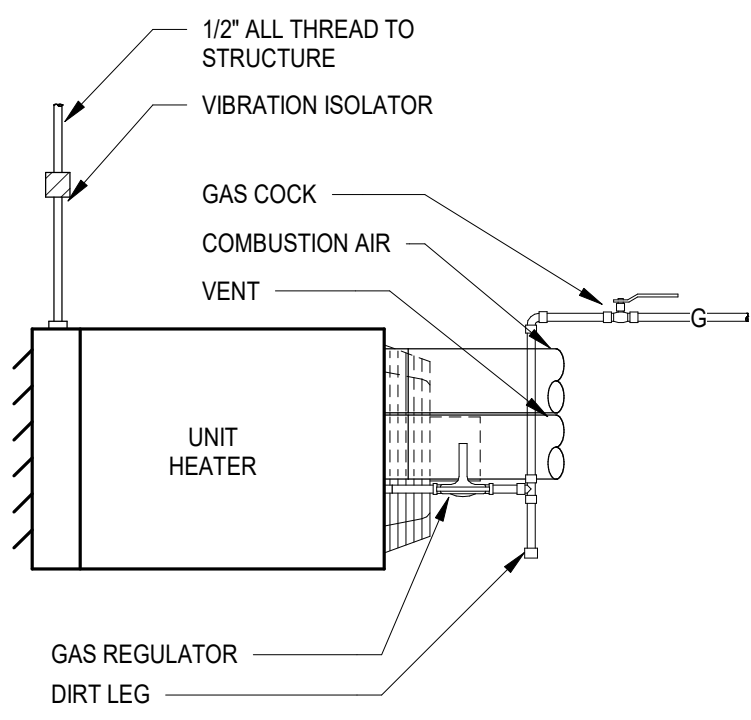
6 REFRIGERATION PIPING DIAGRAM

M701 / NOT TO SCALE



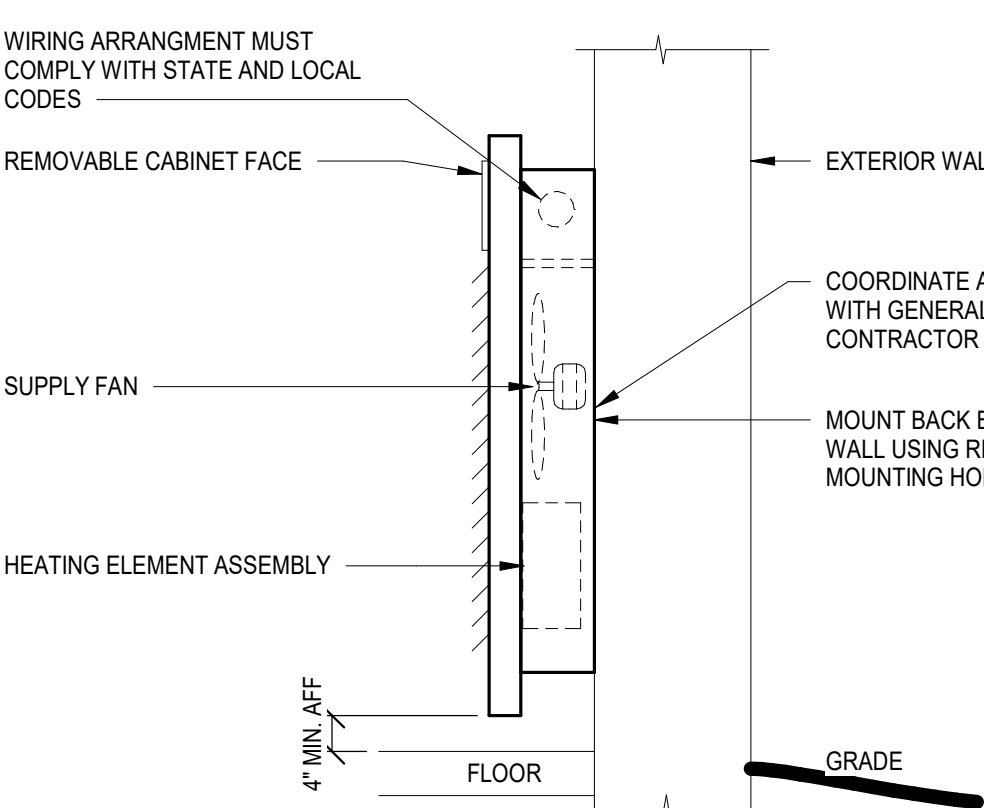
7 REFRIGERATION PIPING DIAGRAM

M701 / NOT TO SCALE



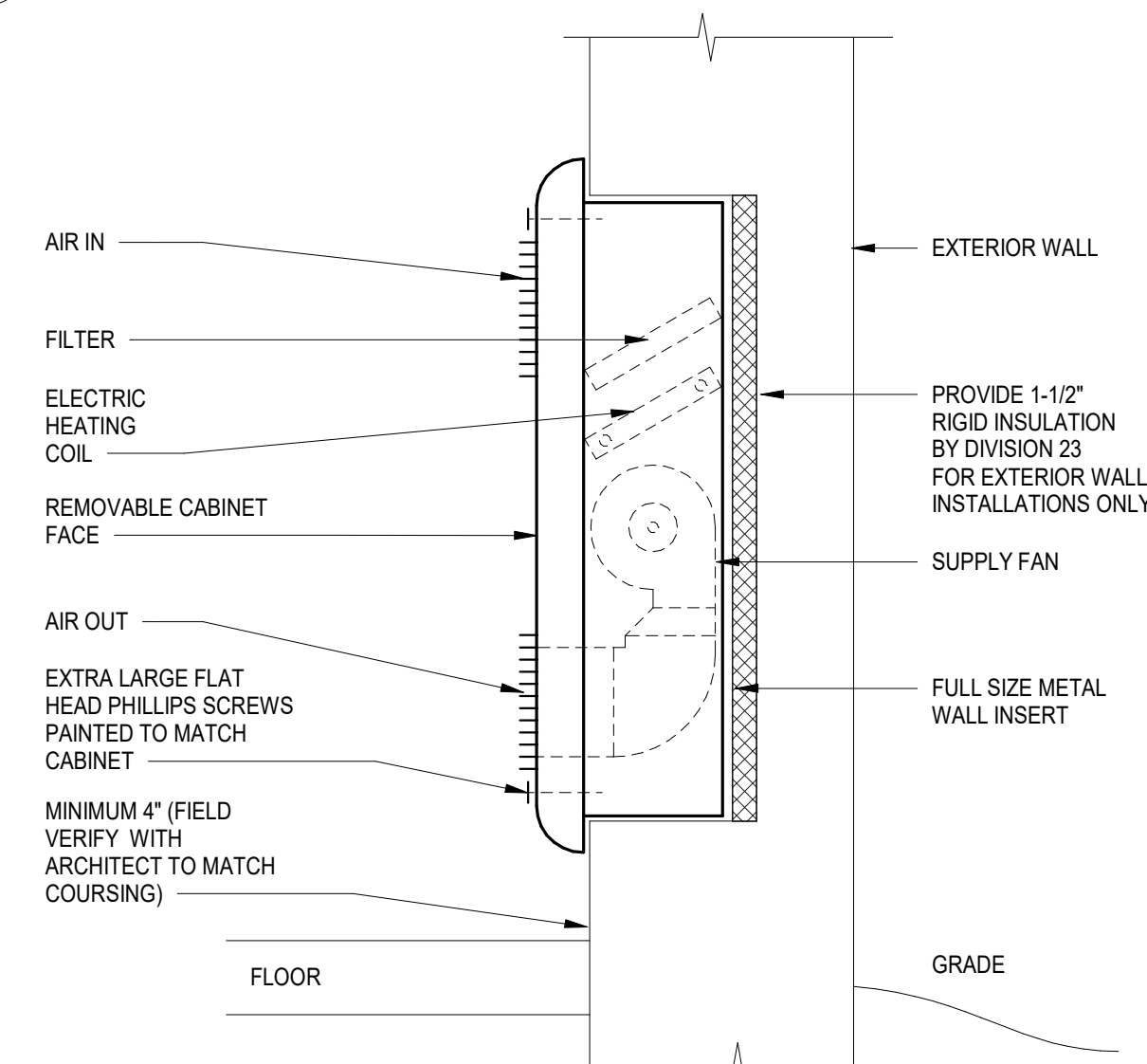
8 HORIZONTAL GAS UNIT HEATER DETAIL

M701 / NOT TO SCALE



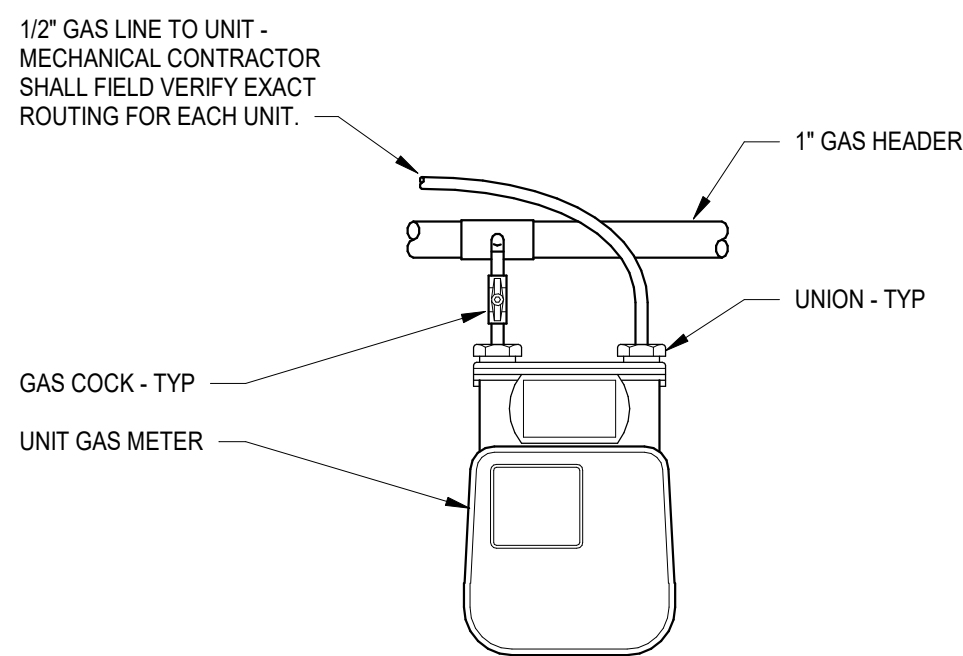
9 SURFACE MOUNT CABINET UNIT HEATER DETAIL

M701 / NOT TO SCALE



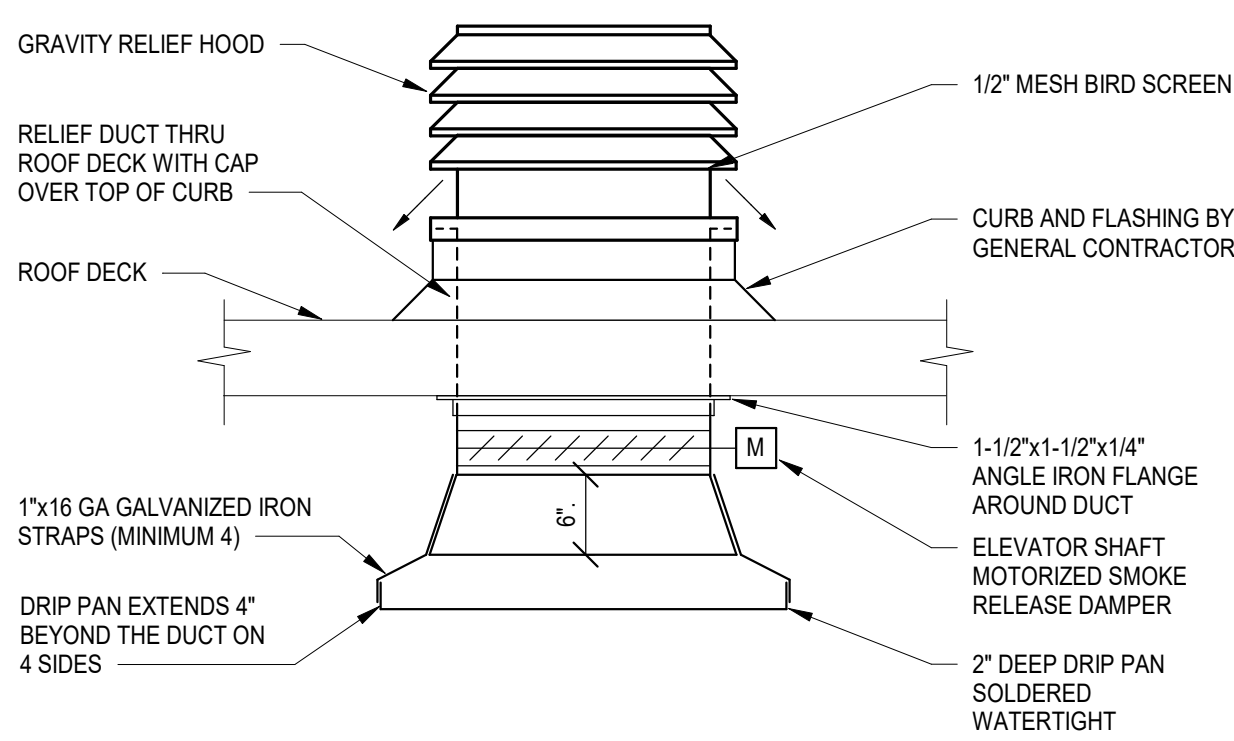
10 CABINET UNIT HEATER INSTALLATION DETAIL

M701 / NOT TO SCALE



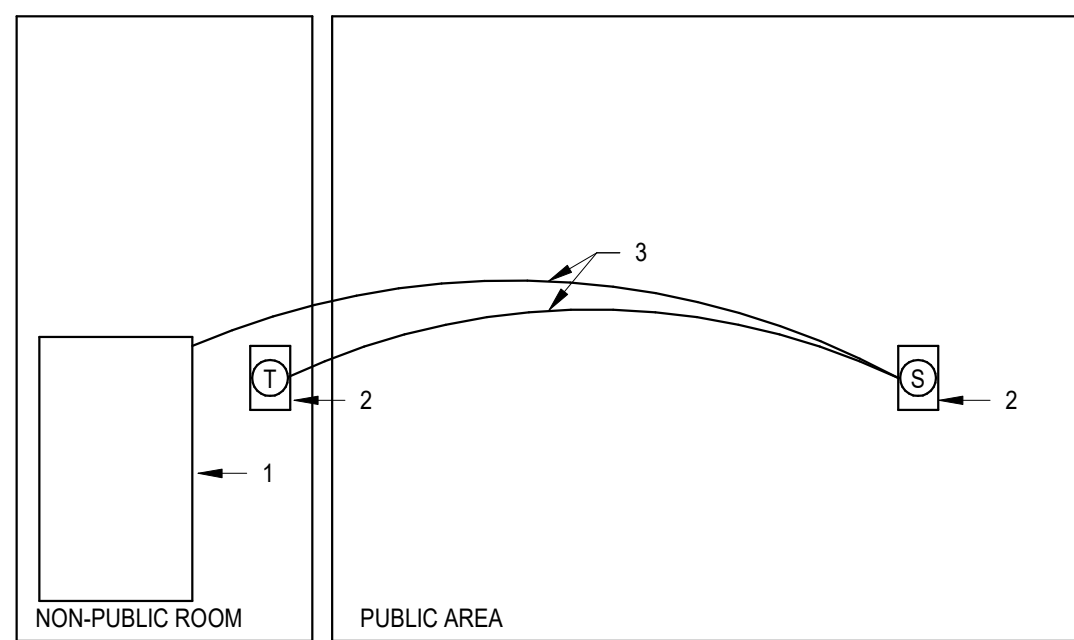
19 GAS METER DETAIL

M701 / NOT TO SCALE



11 ELEVATOR GRAVITY RELIEF HOOD DETAIL

M701 / NOT TO SCALE

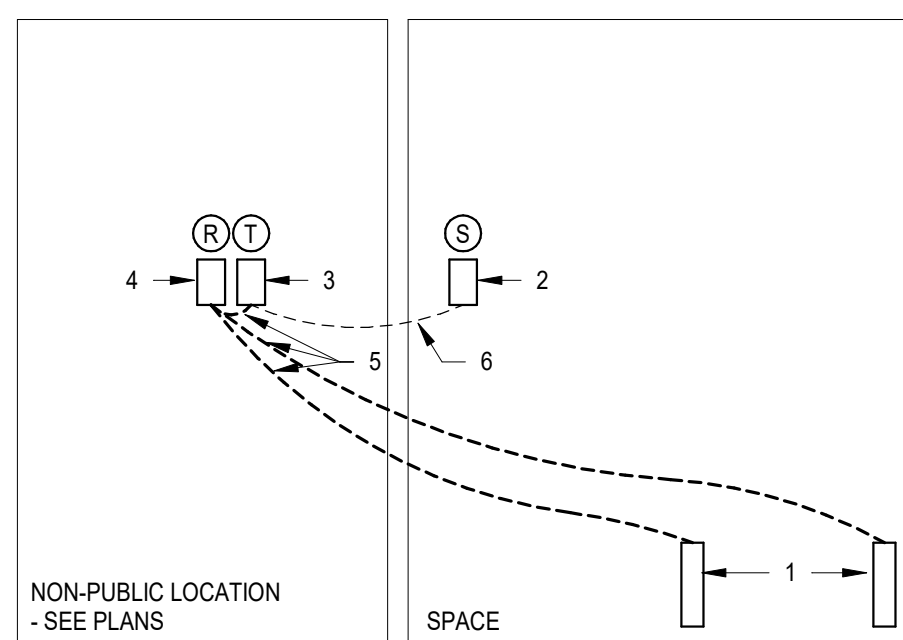


NOTES:

1. TYPICAL ELECTRIC OR GAS HEATING/COOLING UNIT.
2. 24V THERMOSTAT PROVIDED BY DIV 23. PROVIDE TEMPERATURE SENSOR IN "PUBLIC" AREA.
3. 24V CONTROL WIRING PROVIDED BY DIV 23 CONTRACTOR.

17 HEATING/COOLING UNIT CONTROL SCHEMATIC

M701 / NOT TO SCALE



NOTES:

1. ELECTRIC BASEBOARD HEATER.
2. 24V SENSOR PROVIDED BY DIV 23.
3. 24V THERMOSTAT PROVIDED BY DIV 23.
4. 24V TO 120V RELAY FURNISHED BY DIV 23 AND INSTALLED BY DIV 26.
5. 120V CONTROL WIRING PROVIDED BY DIV 26.
6. 24V CONTROL WIRING PROVIDED BY DIV 23.

12 ELECTRIC BASEBOARD HEAT CONTROL SCHEMATIC

M701 / NOT TO SCALE

CONSULTANTS

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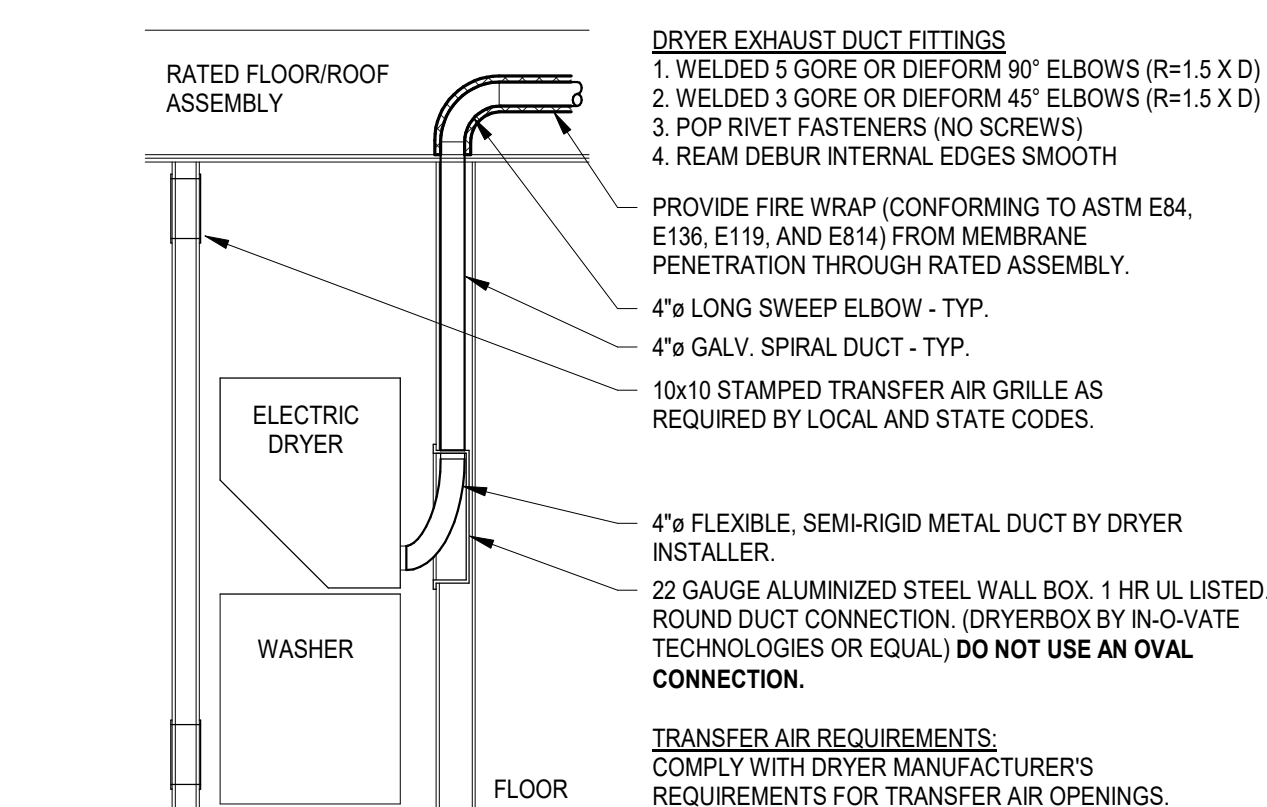
Alex Sawka	
SS200	07/17/2025
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CHECKED BY	AMS
COMMISSION NUMBER	1803.28

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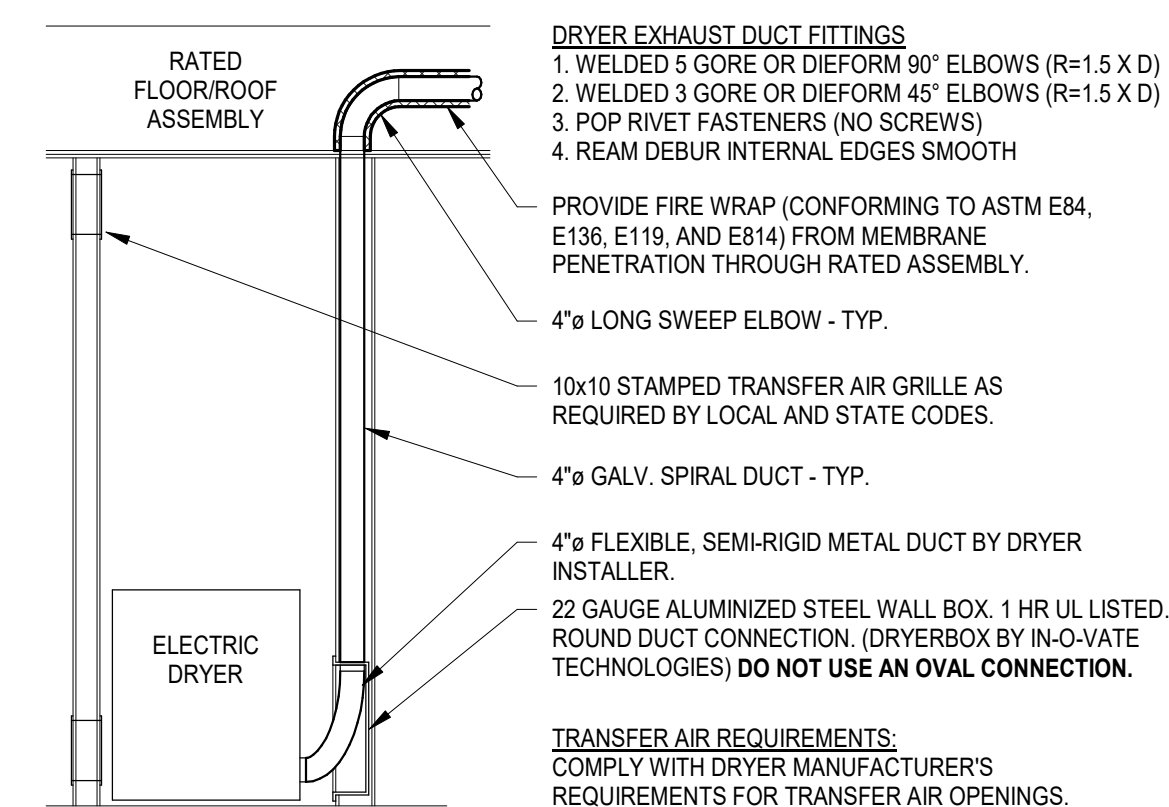
MECHANICAL
DETAILS

SHEET NUMBER

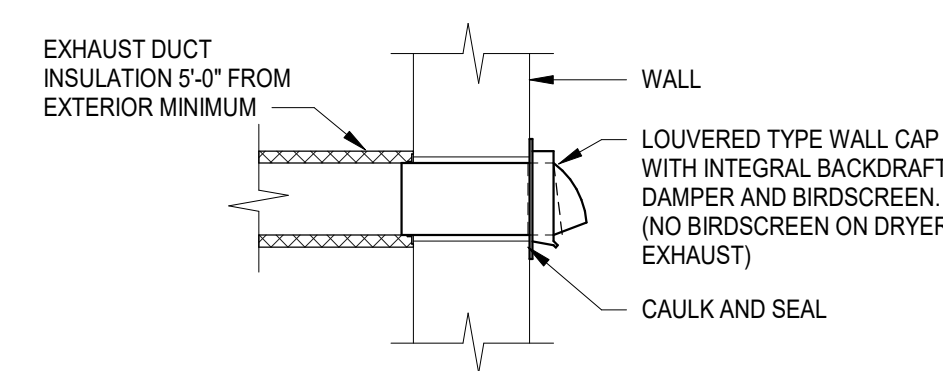
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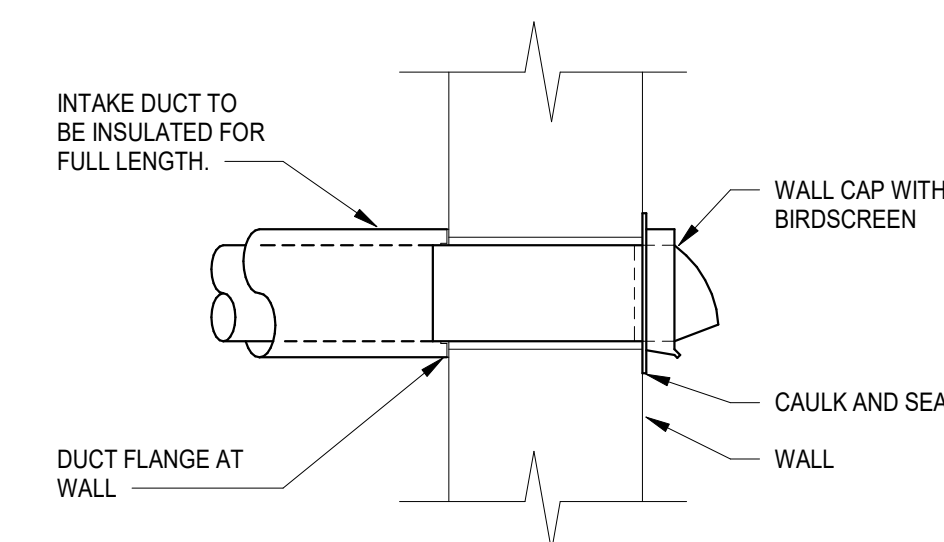
1a STACKED WASHER/DRYER ROUGH-IN DETAIL
M702 NOT TO SCALE



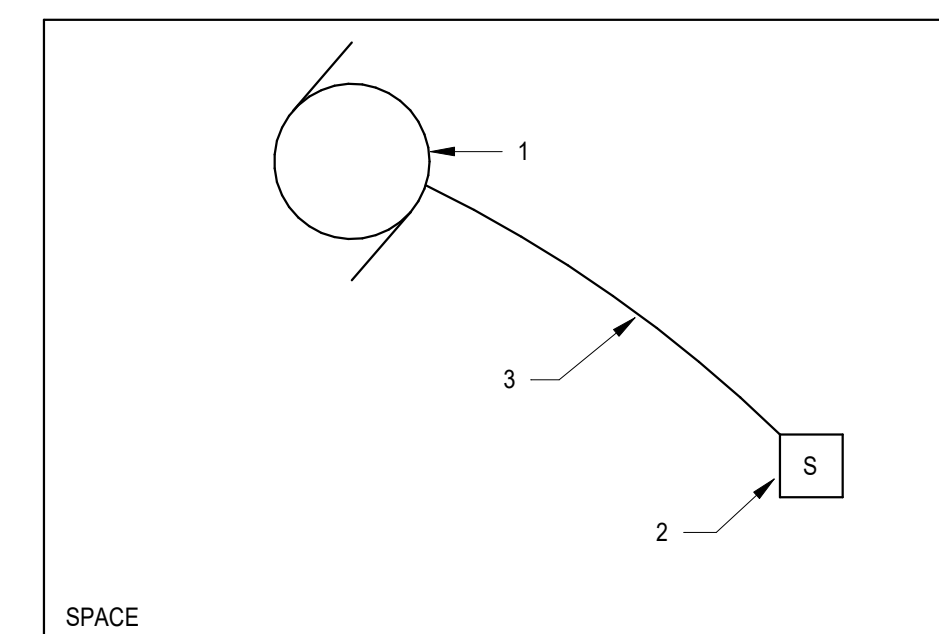
2a WASHER/DRYER ROUGH-IN DETAIL
M702 NOT TO SCALE



3 TOILET/DRYER EXHAUST VENT SIDE WALL DETAIL
M702 NOT TO SCALE

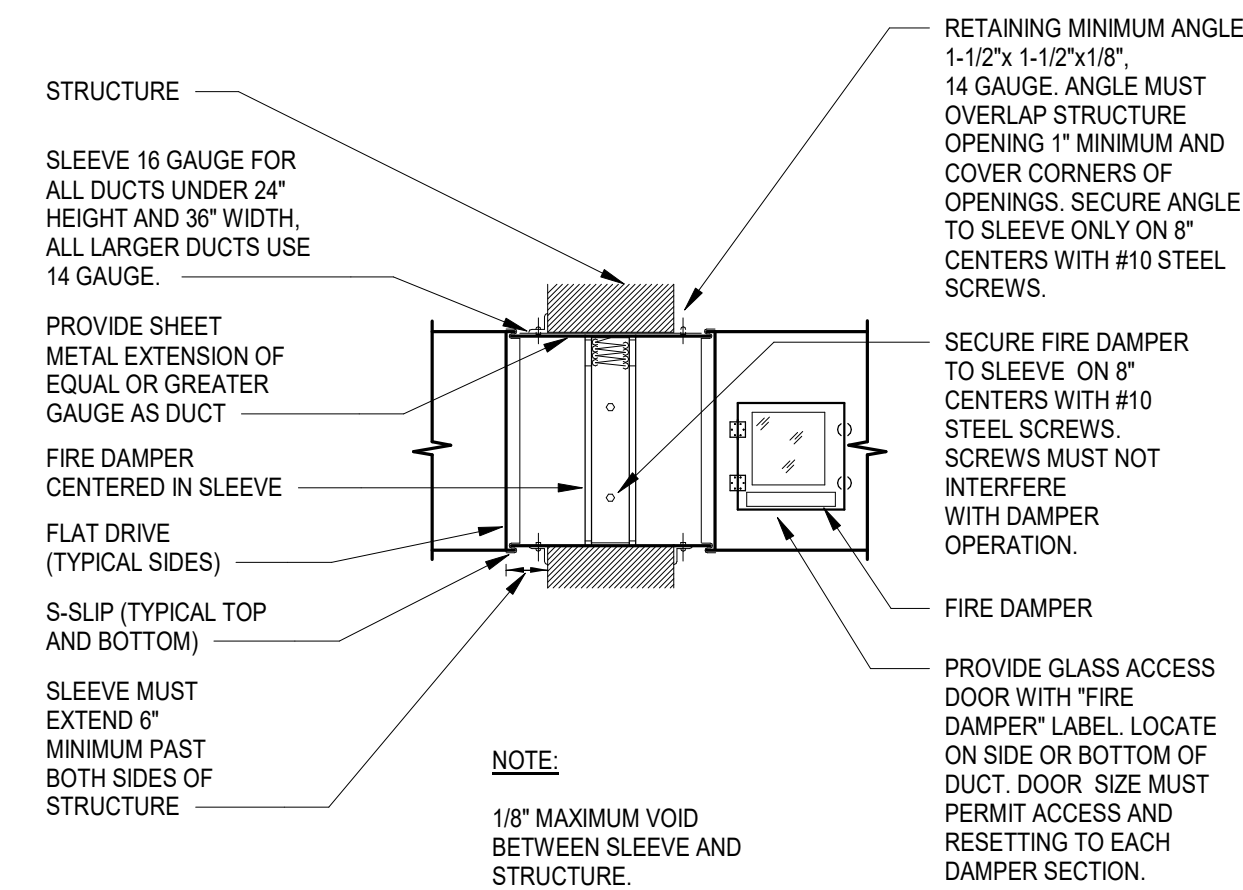
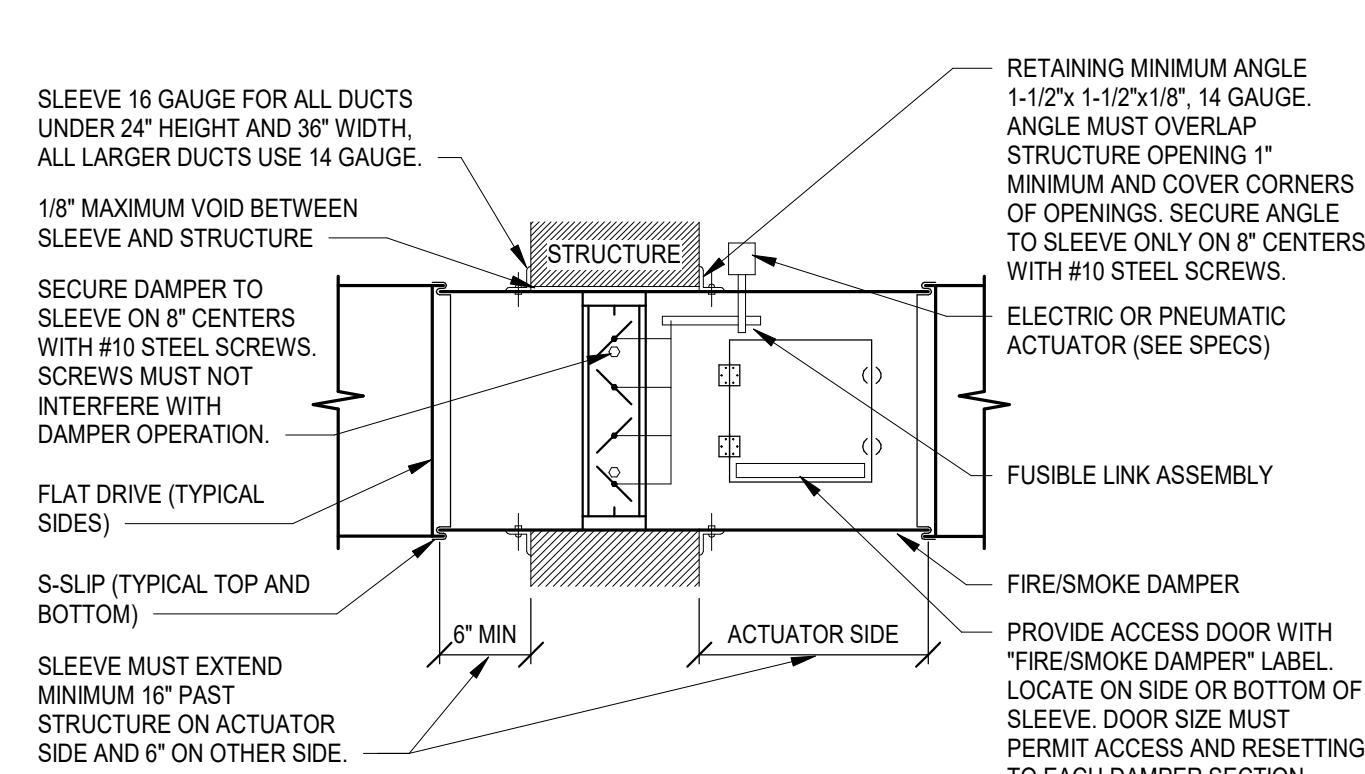


4 PACU OUTSIDE AIR INTAKE VENT SIDE WALL DETAIL
M702 NOT TO SCALE



- NOTES:
1. BATHROOM EXHAUST FAN PROVIDED BY DIV 23.
 2. TOGGLE SWITCH TO CONTROL LIGHT AND FAN BY DIV 26. FAN SHALL RUN FOR 10 MINUTES (5-60 MINUTE ADJUSTABLE) AFTER SWITCH HAS BEEN TURNED "OFF."
 3. 120V POWER WIRE BY DIV 26.

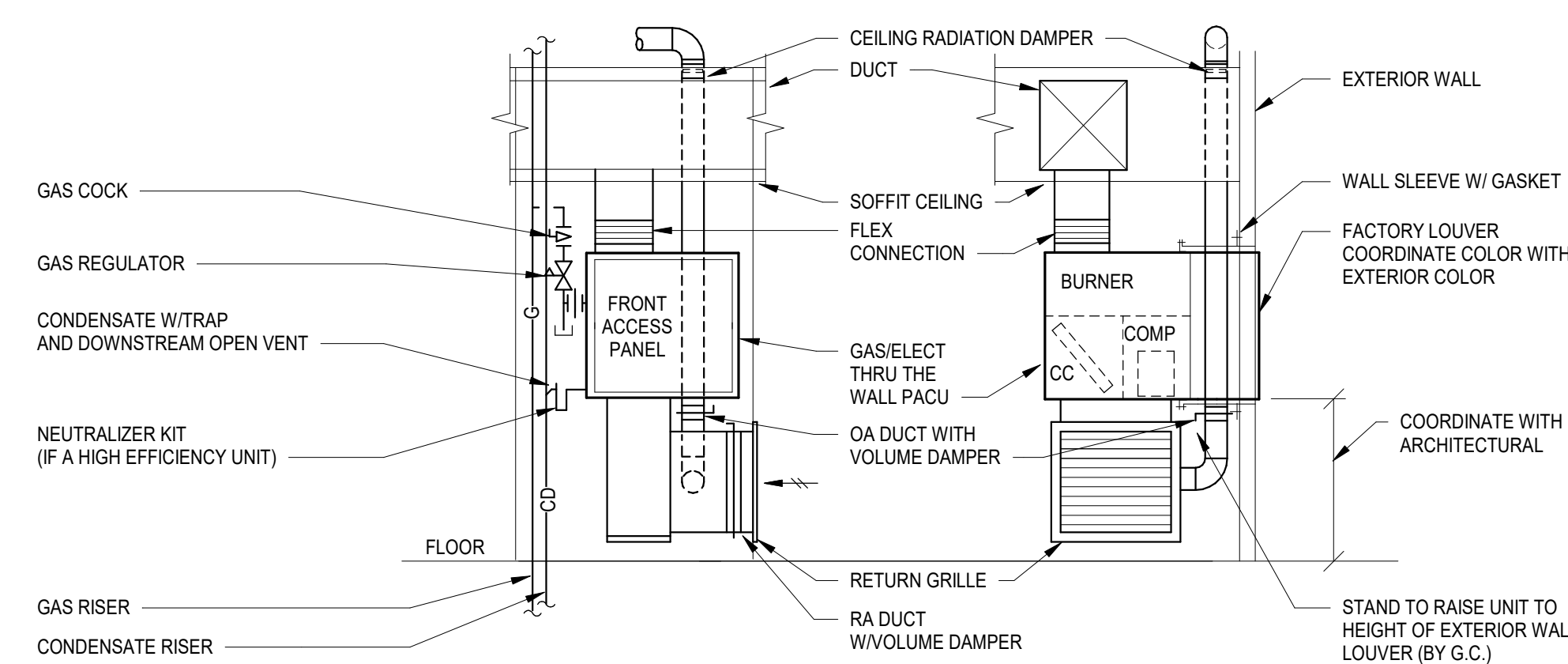
5 BATHROOM EXHAUST FAN CONTROL SCHEMATIC
M702 NOT TO SCALE



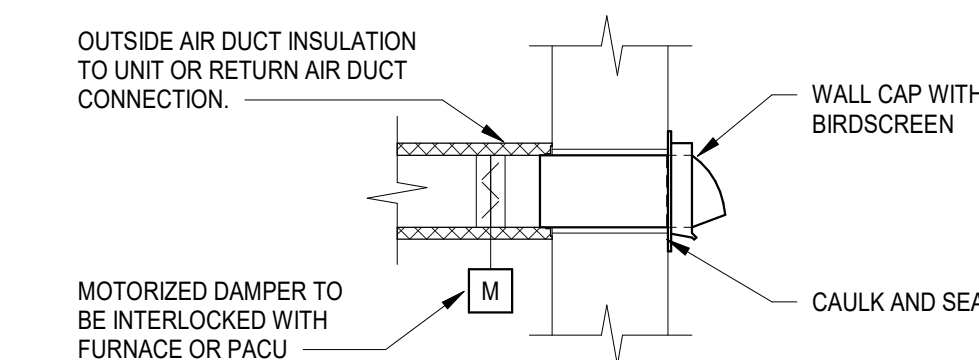
7 FIRE/SMOKE DAMPER DETAIL
M702 NOT TO SCALE



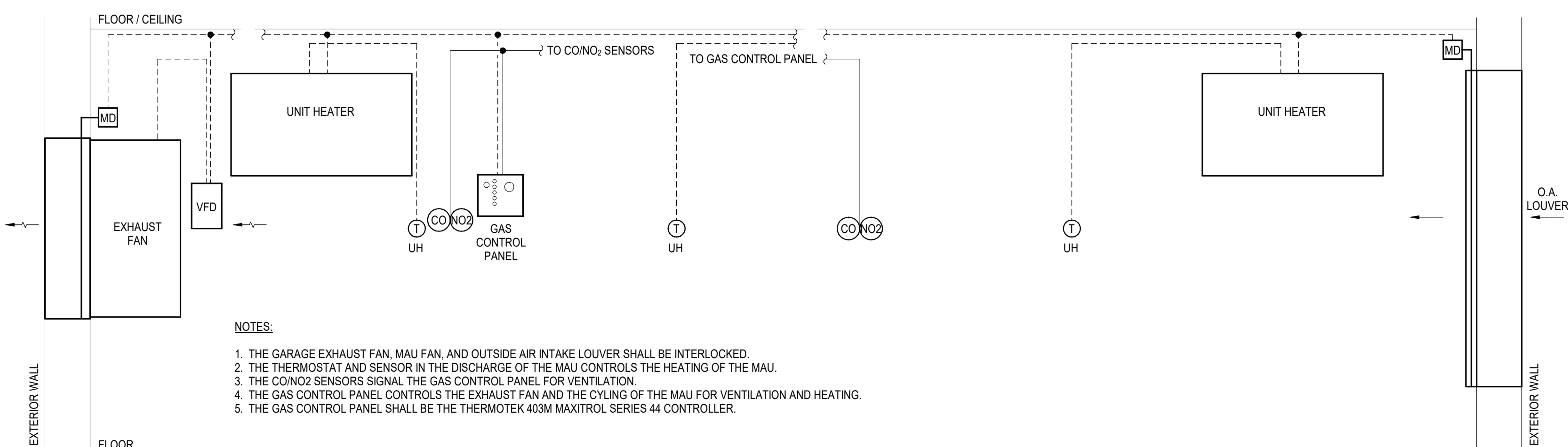
10 FIRE DAMPER DETAIL
M702 NOT TO SCALE



15B THROUGH WALL FURNACE/AIR CONDITIONER UNIT DETAIL
M702 NOT TO SCALE



20 FURNACE OUTSIDE AIR INLET SIDE WALL DETAIL
M702 NOT TO SCALE



1 GARAGE VENTILATION SCHEMATIC DIAGRAM
M702 NOT TO SCALE

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COMMISSION NUMBER	1803.28

SHEET TITLE

MECHANICAL DETAILS

SHEET NUMBER

M702

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LOUVER SCHEDULE										
TAG	NO.	LOCATION	SERVES	MANUFACTURER	MODEL	CFM	AIR PD (IN W.C.)	WIDTH	HEIGHT	NOTES
LO	1	GARAGE	GARAGE	GREENHECK	ESD-635	9950	0.10	48"	60"	

VVT SCHEDULE										
TAG	NO.	LOCATION	SERVES	MANUFACTURER	MODEL	WIDTH	HEIGHT	CFM		NOTES
VVT	1	1 BED UNITS	1 BED UNITS	PANASONIC	Y8150A	6"	6"	30		
VVT	2	2 BED UNITS	2 BED UNITS	PANASONIC	Y8150A	6"	6"	45		

GRILLES, REGISTERS, AND DIFFUSERS SCHEDULE										
TAG	TYPE	MANUFACTURER	MODEL	MATERIAL	FINISH	FACE SIZE		THROW PATTERN	NOTES	
R1	RETURN GRILLE	TITUS	350RL	STEEL	WHITE	8"	20"	35° FIXED DEFLECTION		
R1	RETURN GRILLE	TITUS	350RL	STEEL	WHITE	12"	16"	35° FIXED DEFLECTION		
R1	RETURN GRILLE	TITUS	350RL	STEEL	WHITE	14"	20"	35° FIXED DEFLECTION		
S1	SUPPLY REGISTER	TITUS	300RL	STEEL	WHITE	6"	6"	DOUBLE DEFLECTION		
S1	SUPPLY REGISTER	TITUS	300RL	STEEL	WHITE	6"	8"	DOUBLE DEFLECTION		
S1	SUPPLY REGISTER	TITUS	300RL	STEEL	WHITE	6"	10"	DOUBLE DEFLECTION		
S1	SUPPLY REGISTER	TITUS	300RL	STEEL	WHITE	8"	12"	DOUBLE DEFLECTION		
T1	TRANSFER GRILLE	TITUS	350RL	STEEL	WHITE	8"	14"	35° FIXED DEFLECTION		

FAN SCHEDULE																	
TAG	NO.	LOCATION	SERVES	MANUFACTURER	MODEL	FAN DATA							ELECTRICAL				NOTES
						TYPE	MOUNTING	CFM	ESP	SONES	BHP	RPM	HP	WATTS	MOCP	VOLTS	
EF	1	EXTERIOR WALL	GARAGE	GREENHECK	SBE-2L20-10	PROPELLER FAN	WALL MOUNTED	9950	0.13	17.1	0.89	672	1	0	15	208	3
TEF	1	1&2 BED UNITS	TOILET EXHAUST	PANASONIC	FV-0510VS1 & PC-RD05CS	CEILING FAN	WALL MOUNTED	50	0.25	0.5	0	1025	0	8	15	120	1

FURNACE SCHEDULE																													
TAG	NO.	LOCATION	SERVES	MANUFACTURER	MODEL	MOUNTING	AIRFLOW (CFM)			ESP	TOTAL (BTUH)		SENSIBLE (BTUH)	MANUFACTURER	MODEL	COOLING COIL				HEATING COIL				ELECTRICAL				NOTES	
							SUPPLY AIR	OUTSIDE AIR	ESP		DB (BTUH)	WB (BTUH)				ENTERING AIR	WB	DB	WB	REFRIGERANT	EER	SEER	TYPE	GAS INPUT (BTUH)	CAPACITY (BTUH)	EAT	LAT		AFUE
F	1	MECH RM	LEVEL 1 CORRIDORS	LENNOX	ML196UH04SXE36BX	FLOOR MOUNTED	800	115	0.4	15756	8277	77.3	64.0	57.3	56.3	R-454B	0.0	0.0	NATURAL GAS	44000	42240	57.8	87.8	96.0	6.8	15	120	1	
F	2	MECH RM	LEVEL 2 CORRIDORS	LENNOX	ML196UH04SXE36BX	FLOOR MOUNTED	1000	160	0.4	22554	11941	77.6	64.2	57.6	56.6	R-454B	0.0	0.0	NATURAL GAS	44000	42240	56.4	86.4	96.0	6.8	15	120	1	
F	3	MECH RM	LEVEL 3 CORRIDORS	LENNOX	ML196UH04SXE36BX	FLOOR MOUNTED	800	115	0.4	19365	11438	77.3	64.0	57.3	56.3	R-454B	0.0	0.0	NATURAL GAS	44000	42240	57.8	87.8	96.0	6.8	15	120	1	

CONDENSING UNIT SCHEDULE														
TAG	NO.	LOCATION	SERVES	MANUFACTURER	MODEL	COOLING DATA				ELECTRICAL				NOTES
						CAPACITY (BTUH)	EER2	SEER2	SUMMER DB	MCA	MOCP	VOLTS	PHASE	
CU	1	AT GRADE	F-1	LENNOX	ML13KC1-018-230A01	18000	0.0	0.0	95.0	11.1	15	208	1	
CU	2	AT GRADE	F-2	LENNOX	ML13KC1-024-230A01	24000	0.0	0.0	95.0	13.5	20	208	1	
CU	3	AT GRADE	F-3	LENNOX	ML13KC1-018-230A01	18000	0.0	0.0	95.0	11.1	15	208	1	

PACKAGED AIR CONDITIONER UNIT (PACU)																																		
TAG	NO.	LOCATION	SERVES	MANUFACTURER	MODEL	AIR FLOW DATA			HEATING COIL DATA						COOLING COIL DATA										FILTER DATA				ELECTRIC				NOTES	
						SA	OA	ESP	TYPE	GAS INPUT (BTUH)	CAPACITY (BTUH)	EAT	LAT	AFUE %	TYPE	TOTAL (BTUH)	SENSIBLE (BTUH)	EAOB	EAWB	REF TYPE	EFFICIENCY		COMPRESSOR		SUMMER AMBIENT AIR	TYPE	THICKNESS	WIDTH	HEIGHT	MCA	MOCP	VOLTS		PHASE
																					EER2	SEER2	RLA	LRA	91.0									
PACU	1	1 BED UNITS	1 BED UNITS	MAGICPAK	MGE815-7-11-09NP-01A	300	30	0.30	GAS	15000	12000	61.5	91.5	80.00	DX COIL	8600	6794	76.6	63.6	R-454B	9.1	11.7	3.8	21.8	91.0	THROW-AWAY	1"	24"	12"	6.2	15	208	1	
PACU	2	2 BED UNITS	2 BED UNITS	MAGICPAK	MGE824-7-11-12NP-01A	400	45	0.30	GAS	24000	19200	60.4	90.4	80.00	DX COIL	12000	9000	76.6	63.7	R-454B	10.5	11.7	5.4	26.4	91.0	THROW-AWAY	1"	24"	12"	8.3	15	208	1	

UNIT HEATER SCHEDULE																				
TAG	NO.	LOCATION	SERVES	MANUFACTURER	MODEL	TYPE	MOUNTING	FUEL	CFM	HEATING COIL DATA			MOTOR RPM	ELECTRICAL				NOTES		
										INPUT BTUH	OUTPUT BTUH	CONTROL		HP	WATTS	FLA	MOCP		VOLTS	PHASE
CUH	1-1	VESTIBULE	VESTIBULE	MARKEL	HF332TD-RP	CABINET UNIT HEATER	WALL MOUNTED	ELECTRIC	175	0	7763		600	0	2250	10.8	20	208	1	BUILT-IN THERMOSTAT AND CONCEALED CONTROLS
CUH	1-2	STAIR A LEVEL 1	STAIR A LEVELS 1-3	MARKEL	HF332TD-RP	CABINET UNIT HEATER	WALL MOUNTED	ELECTRIC	175	0	7763		600	0	2250	10.8	20	208	1	BUILT-IN THERMOSTAT AND CONCEALED CONTROLS
CUH	1-3	STAIR A LEVEL 1	STAIR A LEVELS 1-3	MARKEL	HF332TD-RP	CABINET UNIT HEATER	WALL MOUNTED	ELECTRIC	175	0	7763		600	0	2250	10.8	20	208	1	BUILT-IN THERMOSTAT AND CONCEALED CONTROLS
CUH	B-1	MECH B2	MECH B2	MARKEL	HF332TD-RP	CABINET UNIT HEATER	WALL MOUNTED	ELECTRIC	175	0	7763		600	0	2250	10.8	20	208	1	BUILT-IN THERMOSTAT AND CONCEALED CONTROLS
CUH	B-2	STAIR A LEVEL B	STAIR A LEVEL B	MARKEL	HF332TD-RP	CABINET UNIT HEATER	WALL MOUNTED	ELECTRIC	175	0	7763		600	0	2250	10.8	20	208	1	BUILT-IN THERMOSTAT AND CONCEALED CONTROLS
UH	1	GARAGE	GARAGE	REZNOR	UDAP 400	UNIT HEATER	CEILING HUNG	NATURAL GAS	5123	400000	332000	GAS HEATER	1050	0.5	0	11.0	20	120	1	
UH	2	ENTRY	GARAGE	REZNOR	UDAP 400	UNIT HEATER	CEILING HUNG	NATURAL GAS	5123	400000	332000	GAS HEATER	1050	0.5	0	11.0	20	120	1	

BASEBOARD SCHEDULE													
TAG	NO.	LOCATION	SERVES	MANUFACTURER	MODEL	STYLE	LENGTH (IN)	MOUNTING	HEAT (BTUH)	ELECTRICAL			NOTES
										WATTS	VOLTS	PHASE	
BBH	1	MAIL	MAIL	QMARK	2512W	WHITE BASEBOARD	24"	BASEBOARD	1365	400	120	1	
BBH	2	CARDS	CARDS	QMARK	2516W	WHITE BASEBOARD	72"	BASEBOARD	5118	1500	120	1	

MOTORIZED DAMPER SCHEDULE							
TYPE	DESCRIPTION	SERVES	LOCATION	WATTS	MOCP	VOLTS	PHASE
FS	FIRE/SMOKE DAMPER	F-1 RETURN AIR	LEVEL 1	35	20	120	1
FS	FIRE/SMOKE DAMPER	F-1 SUPPLY AIR	LEVEL 1	35	20	120	1
FS	FIRE/SMOKE DAMPER	F-2 RETURN AIR	LEVEL 2	35	20	120	1
FS	FIRE/SMOKE DAMPER	F-2 SUPPLY AIR	LEVEL 2	35	20	120	1
FS	FIRE/SMOKE DAMPER	F-3 RETURN AIR	LEVEL 3	35	20	120	1
FS	FIRE/SMOKE DAMPER	F-3 SUPPLY AIR	LEVEL 3	35	20	120	1

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GROUP

Architecture
Interior Design
Landscape Architecture
Engineering

222 North Second Street
Long & Kees Bldg
Suite 101
Minneapolis, MN
55401
612.339.3752

www.bkvgroup.com

CONSULTANTS

PROJECT TITLE

SUPERIOR
MECHANICAL -
4TH LANE FLATS
KASSON, MN

ISSUE #	DATE	DESCRIPTION
	07/17/2025	PERMIT SET

CERTIFICATION

I hereby certify that this plan, specification or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the state of Minnesota

	
Alex Sawka	
S3200	07/17/2025
License Number	Date
DRAWN BY	MRR
CHECKED BY	AMS
COMMISSION NUMBER	1803.28

SHEET TITLE

MECHANICAL
SCHEDULES

SHEET NUMBER

M801

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