DUCTWORK, AIR DISTRIBUTION

- DOUBLE
- RECTANGULAR DUCT — 12x6
- ROUND DUCT — 6Ø
- FLAT OVAL DUCT — 12/6
- DUCT WITH ACOUSTIC LINING
- SUPPLY GRILLE OR REGISTER
- RETURN/EXHAUST GRILLE OR REGISTER
- CEILING DIFFUSER - SQUARE (ROUND SIMILAR) FLOW ARROWS INDICATE DIRECTION OF THROW FOUR WAY FLOW IF NO ARROWS SHOWN)
- RETURN/EXHAUST GRILLE OR REGISTER
- SUPPLY DUCT UP
- SUPPLY DUCT DOWN
- RETURN DUCT UP
- RETURN DUCT DOWN
- EXHAUST DUCT UP
- EXHAUST DUCT DOWN
- CHANGE OF ELEVATION RISE (R) DROP (D) — R
- TRANSITION - RECTANGULAR OR ROUND
- TRANSITION - RECTANGULAR TO ROUND
- BRANCH DUCT - STANDARD (45º ENTRY)
- BRANCH DUCT WITH SPLITTER — SD
- BRANCH DUCT WITH AIR EXTRACTOR — AE
- BRANCH DUCT, STRAIGHT LATERAL, ROUND
- BRANCH DUCT, STRAIGHT TEE, ROUND
- BRANCH DUCT, LO-LOSS TEE, ROUND
- BRANCH DUCT, CONICAL TEE, ROUND
- BRANCH DUCT, CONICAL TEE, FLEX TAKE OFF, SPIN-IN COLLAR W/DAMPER
- FLEXIBLE DUCT
- WATERTIGHT DUCT
- CONTROL DAMPER (MOD OR MVD) — MOD
- SAFETY DAMPER (FDR OR SDR) — FDR
- SQUARE ELBOW WITH TURNING VANES
- FLEXIBLE DUCT CONNECTION

PIPING - GENERAL

- DIRECTION OF FLOW
- DIRECTION OFSLOPE DOWN
- PIPE TURNING UP
- PIPE TURNING DOWN
- BRANCH CONNECTION - TOP
- BRANCH CONNECTION - BOTTOM
- BRANCH CONNECTION - SIDE
- PIPE ANCHOR
- PIPE ALIGNMENT GUIDE
- SERVICE VALVE (GATE, BALL OR BUTTERFLY)
- GLOBE VALVE
- CHECK VALVE
- BALANCING COCK
- UNION
- VALVE IN RISER
- PIPE CAP OR BLIND FLANGE
- OUTLETS (G, A, V, OX, CW, HW)

- EXPANSION JOINT
- PRESSURE REDUCING VALVE
- PRESSURE RELIEF VALVE
- PRESSURE GAUGE
- THERMOMETER
- FLEXIBLE PIPE CONNECTION OR JOINT
- STRAINER
- CLEANOUT PLUG — CO OR CO
- FLOOR CLEANOUT — CO
- WALL CLEANOUT — CO
- FLOW SWITCH — FS
- PRESSURE SWITCH — PS

PIPING - HVAC

- STEAM (NUMBER DENOTES PRESSURE) — 10
- STEAM CONDENSATE RETURN (SCR) — 10
- BOILER BLOWDOWN — BBD
- PUMPED CONDENSATE — PC
- COLD WATER
- DRIP STATION — DS
- THERMOSTATIC TRAP — T
- FLOAT AND THERMOSTATIC TRAP — F
- BUCKET TRAP — B
- HEATING WATER SUPPLY — HWS
- HEATING WATER RETURN — HWR

- CHILLED WATER SUPPLY — CWS
- CHILLED WATER RETURN — CWR
- CONDENSER WATER SUPPLY — C
- CONDENSER WATER RETURN — CR
- CONDENSATE DRAIN — D
- CONTROL VALVE (2-WAY)
- CONTROL VALVE (3-WAY)
- AUTOMATIC FLOW CONTROL VALVE
- CALIBRATED BALANCING VALVE
- TRIPLE DUTY VALVE (PUMP DISCHARGE)
- PRESSURE/TEMPERATURE FITTING
- REFRIGERANT SUCTION — RS
- REFRIGERANT DISCHARGE — RD
- REFRIGERANT LIQUID — RL
- HEAT PUMP WATER SUPPLY — HPS
- HEAT PUMP WATER RETURN — HPR
- DUAL TEMP SUPPLY — DTS
- DUAL TEMP RETURN — DTR

PIPING - SPECIAL

- COMPRESSED AIR — A
- GAS — G
- FUEL OIL SUPPLY — FOS
- FUEL OIL RETURN — FOR
- GLYCOL SUPPLY — GS
- GLYCOL RETURN — GR

MISCELLANEOUS

- LIMIT OF DEMOLITION
- CONNECT NEW TO EXISTING
- ELECTRIC THERMOSTAT (OR SENSOR) — T
- PNEUMATIC THERMOSTAT — T
- DIAMETER — Ø
- HUMIDISTAT — H
- FAN SPEED SWITCH — S
- DUCT - MOUNTED SMOKE DETECTOR — SMD
- PIPE AND DUCT RISER REFERENCE — S - SUPPLYING DUCT, R - RETURN DUCT, E - EXHAUST DUCT, H - H/C WATER PIPING; H 1; RISER NO.
- AQUASTAT
- GAS COCK
- BACKFLOW PREVENTER — BFP
- NEW WORK
- EXISTING TO REMAIN
- EXISTING TO BE REMOVED

ABBREVIATIONS

AAV	AUTOMATIC AIR VENT
AD	ACCESS DOOR
AE	AIR EXTRACTOR
AFCV	AUTOMATIC FLOW CONTROL VALVE
APD	AIR PRESSURE DROP, IN. WG.
AQ	AQUASTAT
ATD	AIR TRANSFER DUCT
BG	BOTTOM GRILLE
BHP	BRAKE HORSEPOWER
BOD	BOTTOM OF DUCT
BR	BOTTOM REGISTER
BTU	BRITISH THERMAL UNIT
BTUH	BRITISH THERMAL UNIT/HOUR
CAD	CEILING ACCESS DOOR
CD	CEILING DIFFUSER, CONDENSATE DRAIN
CFM	CUBIC FEET PER MINUTE
CG	CEILING GRILLE
CO	CLEANOUT
CR	CEILING REGISTER
CRD	CEILING RADIATION DAMPER
CW	COLD WATER
CWR	CHILLED WATER RETURN
CWS	CHILLED WATER SUPPLY
DAD	DUCT ACCESS DOOR
DB	DRY BULB ºF, DECIBEL
DG	DOOR GRILLE
DWD	DOUBLE WALLED DUCT
EA	EXHAUST AIR
EAT	ENTERING AIR TEMPERATURE
ESA	EQUIPMENT SERVICE AREA
EWT	ENTERING WATER TEMPERATURE
FD	FLOOR DRAIN
FDR	FIRE DAMPER
FG	FLOOR GRILLE
FR	FROM
FSDR	FIRE/SMOKE DAMPER
GAL	GALLON
GPD	GALLONS PER DAY
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
HB	HOSE BIBB
HP	HORSEPOWER
HPR	HIGH PRESSURE STEAM RETURN
HPS	HIGH PRESSURE STEAM SUPPLY
HW	HOT WATER
HWR	HEATING/HOT WATER RETURN
HWS	HEATING WATER SUPPLY
HZ	FREQUENCY (CYCLES/SOUND)
KW	KILOWATT
KWH	KILOWATT HOUR
LAT	LEAVING AIR TEMPERATURE
LB/HR	POUNDS PER HOUR
LD	LINEAR DIFFUSER
LG	LINEAR GRILLE
LR	LINEAR RETURN
LWT	LEAVING WATER TEMPERATURE
MAV	MANUAL AIR VENT
MBH	BTU PER HOUR (THOUSANDS)
MOD	MOTOR OPERATED DAMPER
MPR	MEDIUM PRESSURE STEAM RETURN
MPS	MEDIUM PRESSURE STEAM SUPPLY
MVD	MANUAL VOLUME DAMPER
NC	NOISE CRITERIA
OED	OPEN END DUCT
OFD	OVERFLOW DRAIN
OA	OUTSIDE AIR
OBD	OPPOSED BLADE DAMPER
OT	OVERRIDE TIMER
OTCP	OPEN TO CEILING PLENUM
PIV	POST INDICATOR VALVE
PVR	PRESSURE REDUCING VALVE
PSI	POUNDS PER SQUARE INCH
RA	RETURN AIR
RC	RAIN CONDUCTOR
RD	ROOF DRAIN
RH	RELATIVE HUMIDITY
RPM	REVOLUTIONS PER MINUTE
SA	SUPPLY AIR
SD	SHOWER DRAIN, SPLITTER DAMPER, STORM DRAIN
SDR	SMOKE DAMPER
SMD	SMOKE DETECTOR
SP	STATIC PRESSURE
SS	SANITARY SEWER
S/S	STAINLESS STEEL
SV	SERVICE VALVE
SW	SWITCH
TC	TIME CLOCK
TEMP	TEMPERATURE
TD	TEMPERATURE DIFFERENTIAL
TG	TOP GRILLE, TRANSFER GRILLE
TR	TOP REGISTER, TONS OF REFRIGERATION
T'STAT	THERMOSTAT
UC	DOOR UNDERCUT
V	VOLT, VENT
VAC	VACUUM
VAV	VARIABLE AIR VOLUME
VTR	VENT THROUGH ROOF
W	WASTE, WATTS
WB	WET BULB, ºF
WG	WATER GAUGE (FEET OR INCHES)
WH	WALL HYDRANT
WHA	WATER HAMMER ARRESTOR
WPD	WATER PRESSURE DROP, FT. WG
WS	WATER STOP
WTD	WATER TEMPERATURE DROP, ºF
WTR	WATER TEMPERATURE RISE, ºF
WWM	WOVEN WIRE MESH
Z	ZONE

THESE SYMBOLS AND ABBREVIATIONS ARE MECHANICAL DEPARTMENT STANDARDS AND MAY NOT NECESSARILY BE APPLICABLE TO OR APPEAR ON THESE DRAWINGS. HOWEVER, WHEREVER THESE SYMBOLS DO OCCUR ON THE DRAWINGS, THE ITEM SHALL BE PROVIDED AND INSTALLED. SEE ARCHITECTURAL DRAWINGS FOR ADDITIONAL SYMBOLS AND ABBREVIATIONS.

HVAC ABBREVIATIONS AND LEGEND

GRILLE, REGISTER AND DIFFUSER SCHEDULE

MARK	DESCRIPTION	FACE SIZE	NECK SIZE	AIR PATTERN	FRAME	C.F.M.	S.P. (WATER)	THROW (FEET)	MATERIAL	MAX NOISE LEVEL (NC)	BASIS OF DESIGN MANUF. AND MODEL	REMARKS
CD-1	SQUARE PLAQUE	24" X 24"	6" Ø	4-WAY	LAY-IN/SURFACE	0-120	0.07	3-4-7	ALUMINUM	≤20	PRICE: ASPD	1,2,3,4
CD-2	SQUARE PLAQUE	24" X 24"	8" Ø	4-WAY	LAY-IN/SURFACE	121-280	0.10	3-5-9	ALUMINUM	≤20	PRICE: ASPD	1,2,3,4
CD-3	SQUARE PLAQUE	24" X 24"	10" Ø	4-WAY	LAY-IN/SURFACE	281-430	0.10	4-6-11	ALUMINUM	25	PRICE: ASPD	1,2,3,4
CD-4	SQUARE PLAQUE	24" X 24"	12" Ø	4-WAY	LAY-IN/SURFACE	431-460	0.10	4-6-11	ALUMINUM	≤20	PRICE: ASPD	1,2,3,4
TR-1	DOUBLE DEFLECTION BLADES W/ 3/4" SPACING 22.5°	NECK + 1-3/4"	8" X 6"	2-WAY	SURFACE	0-180	0.09	10-14-19	ALUMINUM	≤20	PRICE: 620DAL	1,2,4,5
TR-2	DOUBLE DEFLECTION BLADES W/ 3/4" SPACING 22.5°	NECK + 1-3/4"	10" X 6"	2-WAY	SURFACE	181-240	0.09	10-15-21	ALUMINUM	≤20	PRICE: 620DAL	1,2,4,5
TR-3	DOUBLE DEFLECTION BLADES W/ 3/4" SPACING 22.5°	NECK + 1-3/4"	12" X 6"	2-WAY	SURFACE	241-280	0.09	12-18-24	ALUMINUM	≤20	PRICE: 620DAL	1,2,4,5
TR-4	DOUBLE DEFLECTION BLADES W/ 3/4" SPACING 22.5°	NECK + 1-3/4"	14" X 6"	2-WAY	SURFACE	281-320	0.09	13-18-26	ALUMINUM	≤20	PRICE: 620DAL	1,2,4,5
TR-5	DOUBLE DEFLECTION BLADES W/ 3/4" SPACING 22.5°	NECK + 1-3/4"	14" X 8"	2-WAY	SURFACE	321-460	0.09	17-23-32	ALUMINUM	≤20	PRICE: 620DAL	1,2,4,5
CR-1	SINGLE DEFLECTION BLADES W/ 3/4" SPACING 45°	NECK + 1-3/4"	6" X 6"	-	LAY-IN/SURFACE	0-80	0.1	-	ALUMINUM	≤20	PRICE: 630DAL	1,2,4,7
CR-2	SINGLE DEFLECTION BLADES W/ 3/4" SPACING 45°	NECK + 1-3/4"	8" X 8"	-	LAY-IN/SURFACE	81-145	0.1	-	ALUMINUM	≤20	PRICE: 630DAL	1,2,4,7
CR-3	SINGLE DEFLECTION BLADES W/ 3/4" SPACING 45°	NECK + 1-3/4"	10" X 10"	-	LAY-IN/SURFACE	146-300	0.07	-	ALUMINUM	≤25	PRICE: 630DAL	1,2,4,7
CR-4	SINGLE DEFLECTION BLADES W/ 3/4" SPACING 45°	NECK + 1-3/4"	12" X 12"	-	LAY-IN/SURFACE	301-500	0.1	-	ALUMINUM	≤20	PRICE: 630DAL	1,2,4,7
CR-5	SINGLE DEFLECTION BLADES W/ 3/4" SPACING 45°	NECK + 1-3/4"	14" X 14"	-	LAY-IN/SURFACE	501-680	0.1	-	ALUMINUM	≤20	PRICE: 630DAL	1,2,4,7
CR-6	SINGLE DEFLECTION BLADES W/ 3/4" SPACING 45°	NECK + 1-3/4"	22" X 22"	-	LAY-IN/SURFACE	681-1680	0.1	-	ALUMINUM	≤20	PRICE: 630DAL	1,2,4,7
RAG-1	SINGLE DEFLECTION BLADES W/ 3/4" SPACING 45°	NECK + 1-3/4"	8" X 6"	-	SURFACE	0-130	0.07	-	ALUMINUM	≤20	PRICE: 630	1
RAG-2	SINGLE DEFLECTION BLADES W/ 3/4" SPACING 45°	NECK + 1-3/4"	10" X 6"	-	SURFACE	131/170	0.07	-	ALUMINUM	≤20	PRICE: 630	1
RAG-3	SINGLE DEFLECTION BLADES W/ 3/4" SPACING 45°	NECK + 1-3/4"	18" X 6"	-	SURFACE	171-300	0.02	-	ALUMINUM	≤20	PRICE: 630	1
FG-1	SINGLE DEFLECTION BLADES W/ 3/4" SPACING 45° W/ FILTER	NECK + 1-3/4"	12" X 12"	-	LAY-IN/SURFACE	0-380	0.1	-	ALUMINUM	≤20	PRICE:630FF	1,2,6,7
FG-2	SINGLE DEFLECTION BLADES W/ 3/4" SPACING 45° W/ FILTER	NECK + 1-3/4"	18" X 18"	-	LAY-IN/SURFACE	381-830	0.1	-	ALUMINUM	≤20	PRICE:630FF	1,2,6,7
FG-3	SINGLE DEFLECTION BLADES W/ 3/4" SPACING 45° W/ FILTER	NECK + 1-3/4"	24" X 24"	-	LAY-IN/SURFACE	831-1200	0.1	-	ALUMINUM	≤20	PRICE:630FF	1,2,6,7

REMARKS:
1. ALL GRILLES AND DIFFUSERS SHALL NOT EXCEED NC-30 REGARDLESS OF SIZE LISTED UNLESS SPECIFIED OTHERWISE.
2. COORDINATE EXACT GRILLE/DIFFUSER LOCATIONS WITH ARCHITECTURAL REFLECTED CEILING PLANS.
3. DUCT MOUNTED BALANCING DAMPERS SHALL BE FURNISHED AND INSTALLED WHERE RUNOUT IS ABOVE AN ACCESSIBLE CEILING. IN LOCATIONS ABOVE HARD CEILINGS, DIFFUSERS SHALL BE FURNISHED WITH OPPOSED BLADE DAMPER OPERABLE THRU DIFFUSER FACE.
4. FIRST THROW VALUE IS 150 FPM TERMINAL VELOCITY, SECOND THROW VALUE IS 100 FPM TERMINAL VELOCITY, THIRD VALUE IS 50 FPM TERMINAL VELOCITY.
5. REGISTERS SHALL BE FURNISHED WITH OPPOSED BLADE DAMPER OPERABLE THRU REGISTER FACE
6. PROVIDE 1" MERV 13 FILTER.
7. WHERE LOCATED IN ACT CEILING, PROVIDE SURFACE MOUNTED GRILLE/ REGISTER MOUNTED INTO CENTER OF CUT CEILING TILE.

FAN SCHEDULE

MARK	AREA SERVED	TYPE	AIRFLOW (CFM)	ELECTRICAL V	ELECTRICAL P	ELECTRICAL HZ	ELECTRICAL MOTOR HP	BASIS OF DESIGN	MODEL
EF-1	GARAGE	INLINE AXIAL	5500	208	1	60	4	COOK	210SQN

VERTICAL AIR HANDLING UNIT (VAHU)

MARK	AREA SERVED	SUPPLY FAN CFM	SUPPLY FAN ESP IN. W.G.	COOLING CAPACITY TOTAL, MBH	COOLING CAPACITY SENS., MBH	HEATING CAPACITY INPUT, MBH	HEATING CAPACITY OUTPUT, MBH	ELECTRICAL (FURNACE POWERS COIL) VOLTAGE	PHASE	HZ	MCA	MOCP	BASIS OF DESIGN	COIL MODEL NO.
VAHU-1	UNIT D DELUXE	1520	0.5	48.0	38.0	80.0	76.8	115	1	60	10.6	15	DAIKIN	CXTQ48TASBLU
VAHU-2	UNIT A, B, C, D	1350	0.5	36.0	29.0	40.0	38.4	115	1	60	7.8	15	DAIKIN	CXTQ36TASBLU

DEDICATED OUTDOOR AIR SYSTEM (DOAS)

MARK	SUPPLY FAN TOTAL, CFM	SUPPLY FAN OA, CFM	ESP IN. W.G.	COOLING CAPACITY TOTAL, MBH	COOLING CAPACITY SENS., MBH	EER	HEATING CAPACITY INPUT, MBH	HEATING CAPACITY OUTPUT, MBH	ELECTRICAL VOLTAGE	PHASE	HZ	MCA	MOCP	BASIS OF DESIGN	OUTDOOR UNIT MODEL
DOAS-1	1500	1500	1.5	48.0	38.0	12.4	120.0	96.0	208	3	60	37.0	50	DAIKIN	REBEL DPS004

SPLIT SYSTEM CONDENSING UNIT (CU)

MARK	UNIT SERVED	COOLING CAPACITY NOMINAL, MBH	SEER	HEATING CAPACITY NOMINAL, MBH	HSPF	ELECTRICAL VOLTAGE	PHASE	HZ	MCA	MOCP	BASIS OF DESIGN	MODEL
CU-1	VAHU-1	46	17.0	46	10.0	208	1	60	34.5	35	DAIKIN	DZ17VSA481BA
CU-2	VAHU-2	34	17.0	34	10.0	208	1	60	22.7	25	DAIKIN	DZ17VSA361BA

DUCTLESS SPLIT SYSTEMS (DSS)

MARK	ROOM SERVED	SUPPLY FAN TOTAL, CFM	SUPPLY FAN OA, CFM	ESP IN. W.G.	COOLING CAPACITY TOTAL, MBH	SENS., MBH	SEER	HEATING CAPACITY TOTAL, MBH	HSPF	ELECTRICAL (INDOOR UNIT) VOLTAGE	PHASE	HZ	MCA	MOCP	ELECTRICAL (OUTDOOR UNIT) VOLTAGE	PHASE	HZ	MCA	MOCP	BASIS OF DESIGN	INDOOR UNIT MODEL	OUTDOOR UNIT MODEL
DSS-1	115 I.T.	500	0.0	0.0	18.0	13.7	17.0	20.0	8.2	208	1	60	0.5	15	208	1	60	16.5	20	DAIKIN	FAQ18TAVJU	RZR18TAVJUA

CONTRACTOR NOTE:

THE LISTED MANUFACTURER'S AND EQUIPMENT HAVE BEEN USED AS THE BASIS OF DESIGN OF THIS PROJECT AND ARE LISTED TO ESTABLISH A STANDARD OF QUALITY AND TO DEFINE CONNECTION AND CLEARANCE REQUIREMENTS. ALL OTHER MANUFACTURERS AND EQUIPMENT OF EQUAL OR BETTER QUALITY MAY BE ACCEPTED UPON REVIEW BY THE ENGINEER, HOWEVER, IF THESE SUBSTITUTIONS ARE MADE, THE CONTRACTOR IS REQUIRED TO COMPLY WITH ALL REQUIREMENTS OF DIVISION 1, ASSUME FULL RESPONSIBILITY FOR ALL COORDINATION ISSUES, AND SHALL SUBMIT WITH THE SHOP DRAWINGS A DETAILED DRAWING SHOWING ALL CHANGES IN THE EQUIPMENT SIZE AND LOCATION, DUCTWORK, PIPING, ELECTRICAL WIRING CONNECTIONS, CLEARANCES, ETC. IF ANY REQUIRED CHANGES INVOLVE OTHER TRADES, THE MECHANICAL SUBCONTRACTOR SHALL INCLUDE WITH THE SHOP DRAWINGS A LETTER INDICATING THAT THE OTHER TRADES HAVE BEEN ADVISED OF THE PROPOSED CHANGES AND SHALL ALSO INCLUDE A STATEMENT AS TO HOW, BY WHOM, AND THE ARRANGEMENT WHEREBY THESE CHANGES WILL BE ACCOMPLISHED. ALL ADDITIONAL COSTS AND PERFORMANCE ISSUES RESULTING FROM THE SUBSTITUTION WILL BE THE RESPONSIBILITY OF THE MECHANICAL SUBCONTRACTOR. THE SUBSTITUTED EQUIPMENT WILL NOT BE PERMITTED TO ADD ELECTRICAL LOAD TO THE PROJECT.

HVAC GENERAL NOTES

1. FOR GENERAL AND ARCHITECTURAL ABBREVIATIONS AND SYMBOLS, SEE SHEET A0.0
2. DUCT WORK INSTALLATION, CONNECTIONS AND CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST APPLICABLE SMACNA STANDARDS.
3. EQUIPMENT INSTALLATIONS SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS. COPY OF INSTRUCTIONS SHALL BE ON JOB SITE AT TIME OF BUILDING INSPECTIONS.
4. DUCT DIMENSIONS INDICATED ARE ACTUAL SHEET METAL SIZES. WHERE ACOUSTIC LINING IS INDICATED (IF SHOWN), THE DUCT SIZES WERE ADJUSTED TO COMPENSATE FOR THE LINING.
5. DUCTWORK AND PIPING LAYOUTS ARE SCHEMATIC. ALL DROPS, RISES, OR OFFSETS REQUIRED BUT NOT SHOWN SHALL BE PROVIDED AT NO ADDITIONAL COST TO THE OWNER.
6. DUCT CONNECTIONS TO SIDE WALL OR DUCT MOUNTED REGISTERS AND GRILLES SHALL BE MADE WITH RIGID DUCT. DUCT CONNECTIONS TO CEILING-MOUNTED DIFFUSERS, REGISTERS, AND GRILLES MAY BE WITH RIGID OR FLEXIBLE DUCT (CONTRACTOR OPTION). PROVIDE SMOOTH BENDS IN FLEXIBLE DUCT SECTIONS.
7. ALL TEMPERATURE AND HUMIDITY SENSORS (NON-SPACE ADJUSTABLE) IN PUBLIC AREAS SHALL BE MOUNTED AT 5'-0" AFF. THERMOSTATS FOR NON-PUBLIC, NON-RESIDENTIAL AREAS SHALL BE MOUNTED AT 5'-0" AFF WITH AN 18" LONG LOOP OF SURPLUS CONTROL WIRE IN WALL CAVITY TO PERMIT THE OWNER TO LOWER THE CONTROL DEVICE IN THE FUTURE IF REQUIRED FOR HANDICAP ACCESS. MOUNT THERMOSTATS AT 48" AFF IN ALL AREAS DESIGNATED AS "ADA-HANDICAP ACCESSIBLE".
8. ALL DUCTWORK SHALL BE SEALED ACCORDING TO SMACNA CLASS "A". DUCTWORK SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE FOLLOWING PRESSURE CLASSIFICATIONS:

   DEDICATED OUTSIDE AIR SYSTEM, MAKE-UP AND ROOFTOP AC UNITS: ±2", ALL OTHER SUPPLY, RETURN AND EXHAUST: ±1"
9. DUCT CONNECTIONS TO ALL AIR HANDLING UNITS, INCLUDING FAN COIL UNITS, INLINE FANS, ETC. SHALL BE MADE USING FLEXIBLE DUCT CONNECTION. ALSO, PROVIDE FLEXIBLE DUCT CONNECTIONS WHERE DUCTWORK CROSSES BUILDING EXPANSION JOINTS.
10. LOCATE CEILING AIR DIFFUSERS, REGISTERS AND GRILLES IN THE CENTER OF 2'x2' AND AT THE QUARTER POINT OF 2'x4' ACOUSTICAL TILE CEILING MODULES UNLESS SPECIFICALLY INDICTED OTHERWISE ON THE ARCHITECTURAL REFLECTED CEILING PLANS.
11. PIPING AND EQUIPMENT HANGERS SHALL BE SPACED IN A SYSTEMATIC RANDOM PATTERN AS REQUIRED TO ELIMINATE OVERLOADING INDIVIDUAL STRUCTURAL MEMBERS, THE ESTIMATED WEIGHT ASSIGNED TO PIPE AND EQUIPMENT HANGERS SHALL BE DETERMINED BY THE MECHANICAL CONTRACTOR AND SUBMITTED TO THE GENERAL CONTRACTOR FOR REVIEW, COORDINATION AND APPROVAL PRIOR TO INSTALLATION. THIS REQUIREMENT APPLIES TO ALL MECHANICAL WORK, INCLUDING PLUMBING AND FIRE PROTECTION.
12. HEATING/COOLING DESIGN CONDITIONS: ROANOKE, VIRGINIA
    WINTER - 6ºF OAT, 75ºF, 35% RH INDOORS (ADJUSTED HIGHER THAN ASHRAE TEMPERATURE TO ACCOMMODATE ELDERLY RESIDENTS.)
    SUMMER - 96ºF DB/73ºF WB OAT; 75ºF, 50% RH INDOORS
13. WHERE MORE THAN ONE TOP REGISTER IS INSTALLED IN A ROOM, THE CENTERLINE ELEVATION OF EACH REGISTER SHALL BE THE SAME DISTANCE FROM AND LEVEL TO THE PLANE OF THE CEILING.
14. MANY OF THE CEILING SPACES ARE EXTREMELY CONGESTED AND WILL REQUIRE SIGNIFICANT ON-SITE FIELD COORDINATION BETWEEN THE CONSTRUCTION TRADES. CONTRACTOR GENERATED COORDINATION DRAWINGS ARE REQUIRED FOR ALL SUCH AREAS AND SHOULD INDICATE STRUCTURE, CEILING FEATURES, LIGHT FIXTURES, PLUMBING AND FIRE SERVICE PIPING AND ALL MECHANICAL EQUIPMENT, PIPING AND DUCTWORK.
15. ALL PIPE AND DUCT PENETRATIONS THRU FIRE-RATED WALLS OR FLOOR ASSEMBLIES SHALL BE IN ACCORDANCE WITH AN APPROVED UL AND FIRESTOP SYSTEM FOR THE CONDITIONS ENCOUNTERED AS DEFINED IN THE UL BUILDING MATERIAL DIRECTORY.
16. THE ROUTING OF LARGER SIZE SUPPLY AIR DUCTS SHALL TAKE PRECEDENCE OVER SMALLER DUCTS, AND OVER RETURN AND EXHAUST AIR DUCTS. PROVIDE DUCT OFFSETS, RISES AND DROPS AS REQUIRED TO INSTALL DUCTWORK AS CLOSELY TO THE LAYOUT SHOWN ON THESE DOCUMENTS AS POSSIBLE.
17. SEE ARCHITECTURAL FIRE PROTECTION DRAWINGS FOR DETAILS OF FIRE AND SMOKE SEALING REQUIREMENTS AT PENETRATIONS OF ALL UL LISTED FIRE AND SMOKE RATED WALL, FLOOR AND ROOF/CEILING ASSEMBLIES.

GENERAL NOTES

100% DESIGN DEVELOPMENT

NOT FOR CONSTRUCTION

PROJECT TITLE

BRANDON OAKS
In the heart of it all
THE PINES EXPANSION

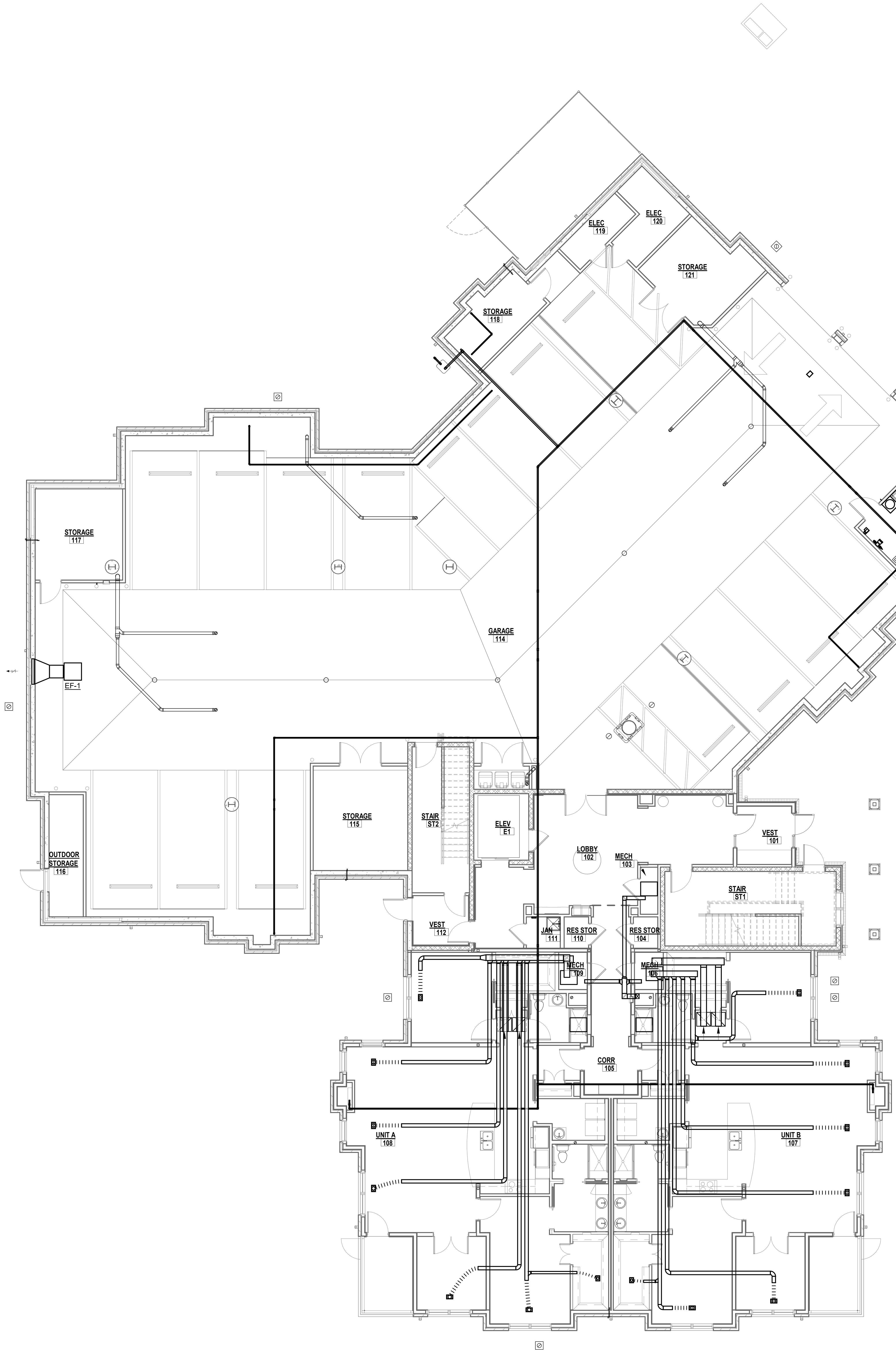
SFCS Architecture Engineering Planning Interiors
SFCS Inc. • 305 South Jefferson Street
Roanoke, Virginia 24011.2003
540.344.6664 • Fax 540.343.6925
www.sfcs.com

DESIGNER	KAD	DRAWN	JEB
ARCHITECT	NSD	CHECKED	Checker
ENGINEER	MAP	APPROVED	Approver

NO.	REVISION DESCRIPTION	DATE

DRAWING TITLE
ABBREVIATIONS, LEGENDS, NOTES AND SCHEDULES - HVAC

DATE: APRIL 29, 2025
COMM. NO. 22119.00
DRAWING M0.0

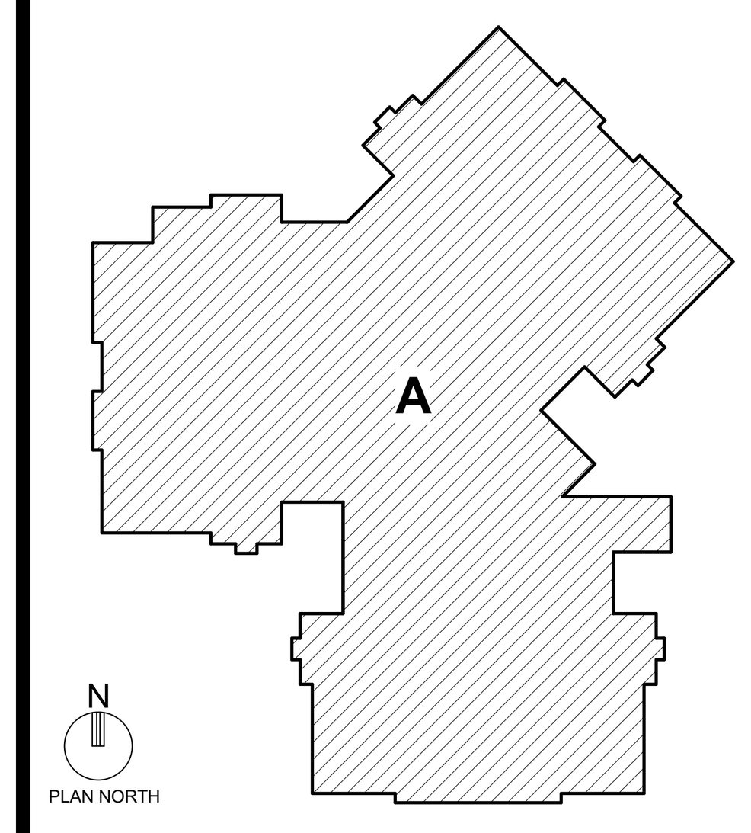


FIRST FLOOR - MTN LAUREL HVAC

1 / M1.0

1/8" = 1'-0"

KEYPLAN



GENERAL NOTES

100% DESIGN DEVELOPMENT

NOT FOR CONSTRUCTION

PROJECT TITLE

BRANDON OAKS

In the heart of it all

THE PINES EXPANSION

SFCS Architecture Engineering Planning Interiors

SFCS Inc. • 305 South Jefferson Street
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DESIGNER	KAD	DRAWN	JEB
ARCHITECT	NSD	CHECKED	Checker
ENGINEER	MAP	APPROVED	Approver

NO.	REVISION DESCRIPTION	DATE

DRAWING TITLE

FIRST FLOOR - MT LAUREL HVAC

N
PLAN NORTH

DATE: APRIL 29, 2025

COMM. NO. 22119.00

DRAWING M1.0

4/29/2025
12:01:13 PM

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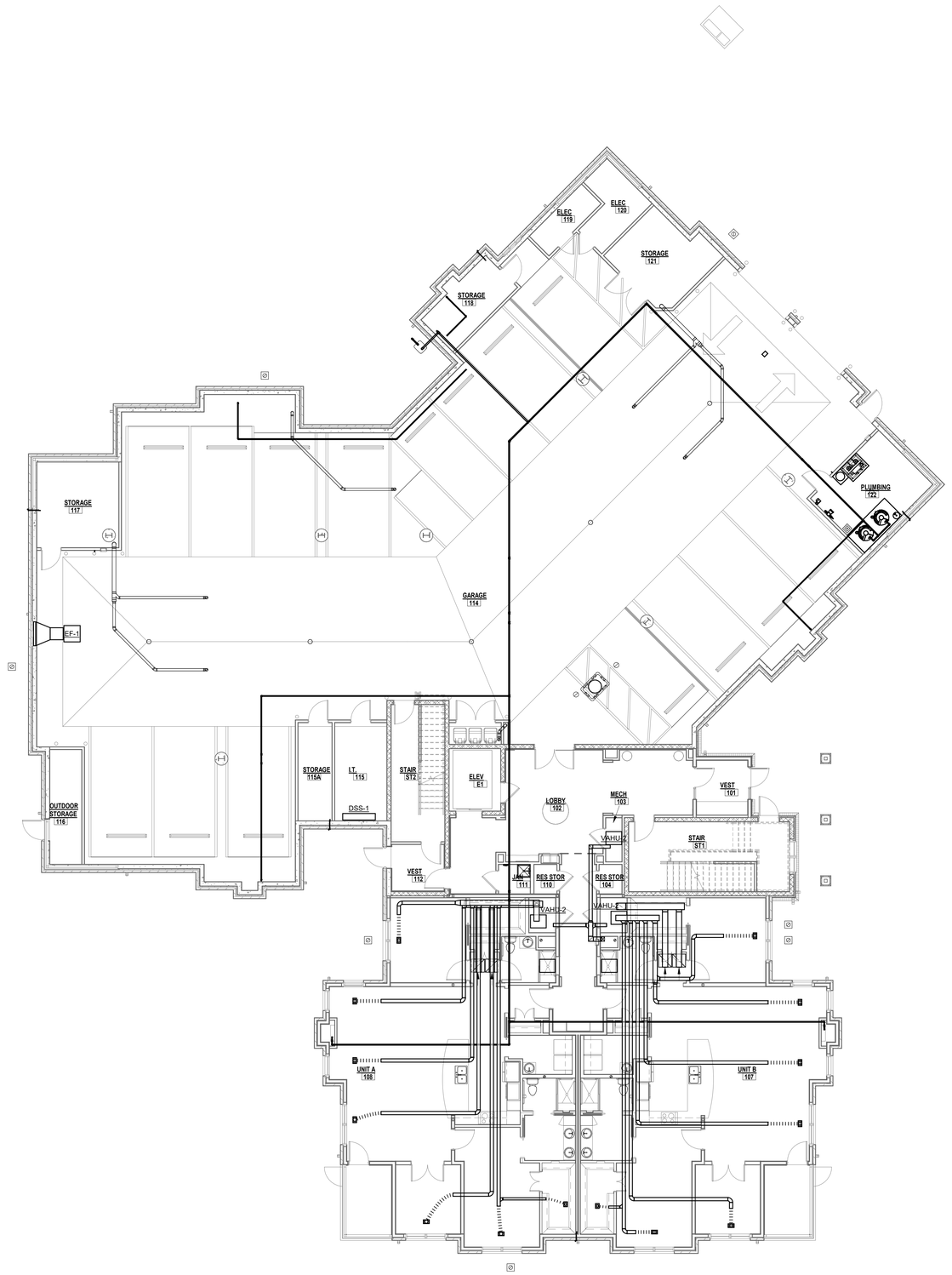
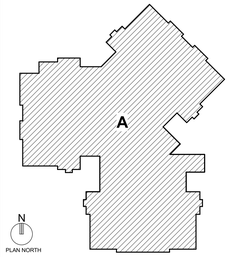


1 FIRST FLOOR - REDBUD HVAC
M1.1 1/8" = 1'-0"

KEYPLAN



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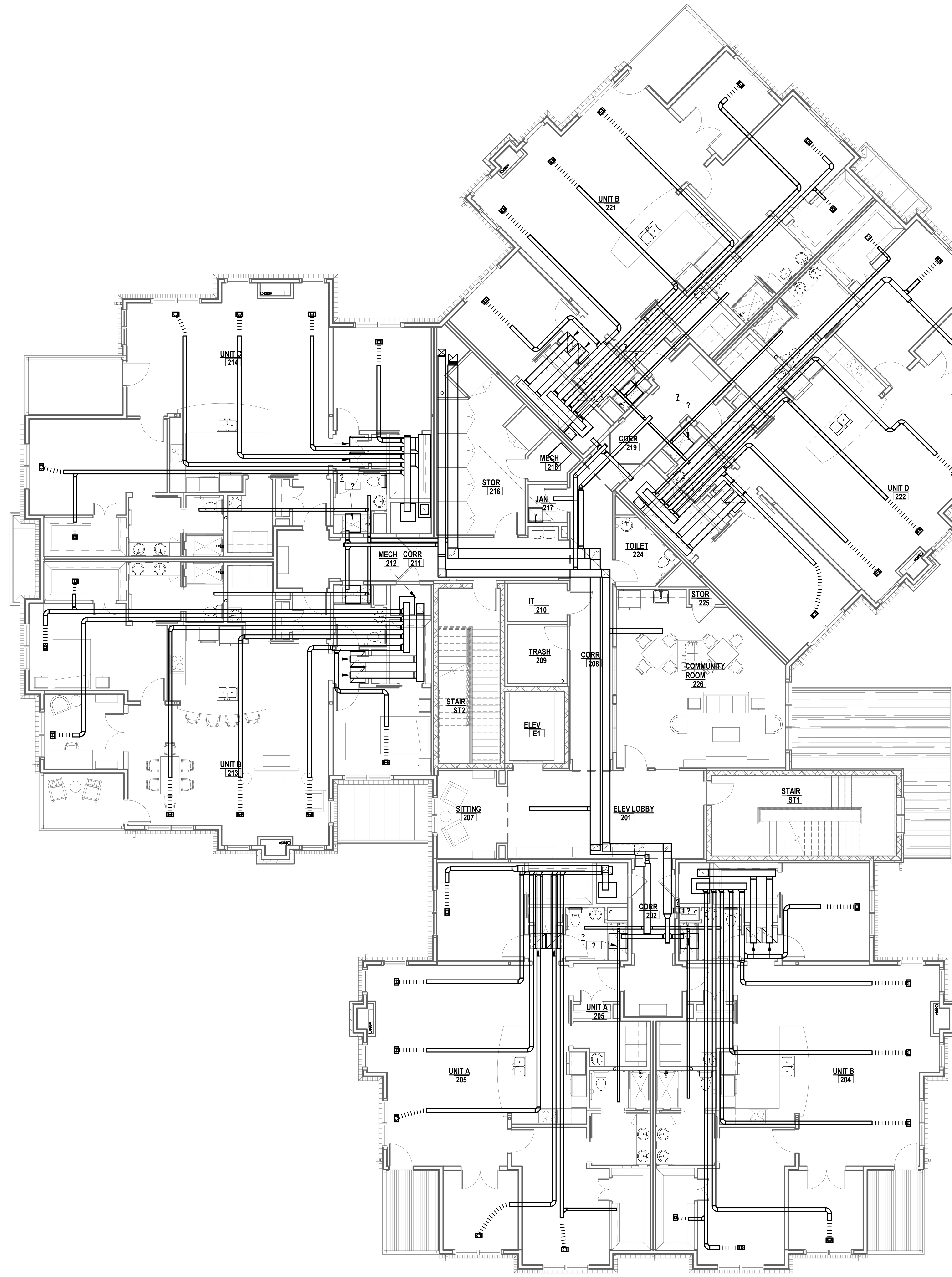
NO.	REVISION DESCRIPTION	DATE

DRAWING TITLE
FIRST FLOOR - REDBUD HVAC

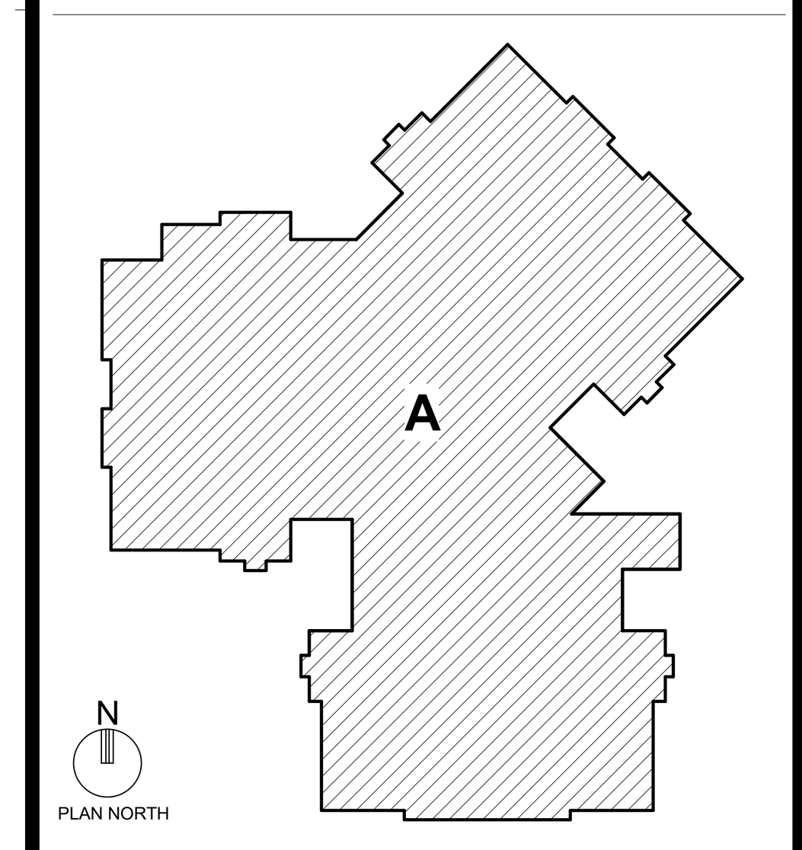
N
PLAN NORTH

DATE: APRIL 29, 2025
COMM. NO. 22119.00
DRAWING M1.1



1 SECOND FLOOR PLAN - HVAC
M1.2 1/8" = 1'-0"

KEYPLAN



GENERAL NOTES

N
PLAN NORTH

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ENGINEER	: MAP	APPROVED	: Approver

NO.	REVISION DESCRIPTION	DATE

DRAWING TITLE
SECOND FLOOR - HVAC

DATE: APRIL 29, 2025
COMM. NO. 22119.00
DRAWING M1.2

4/29/2025
12:01:19 PM

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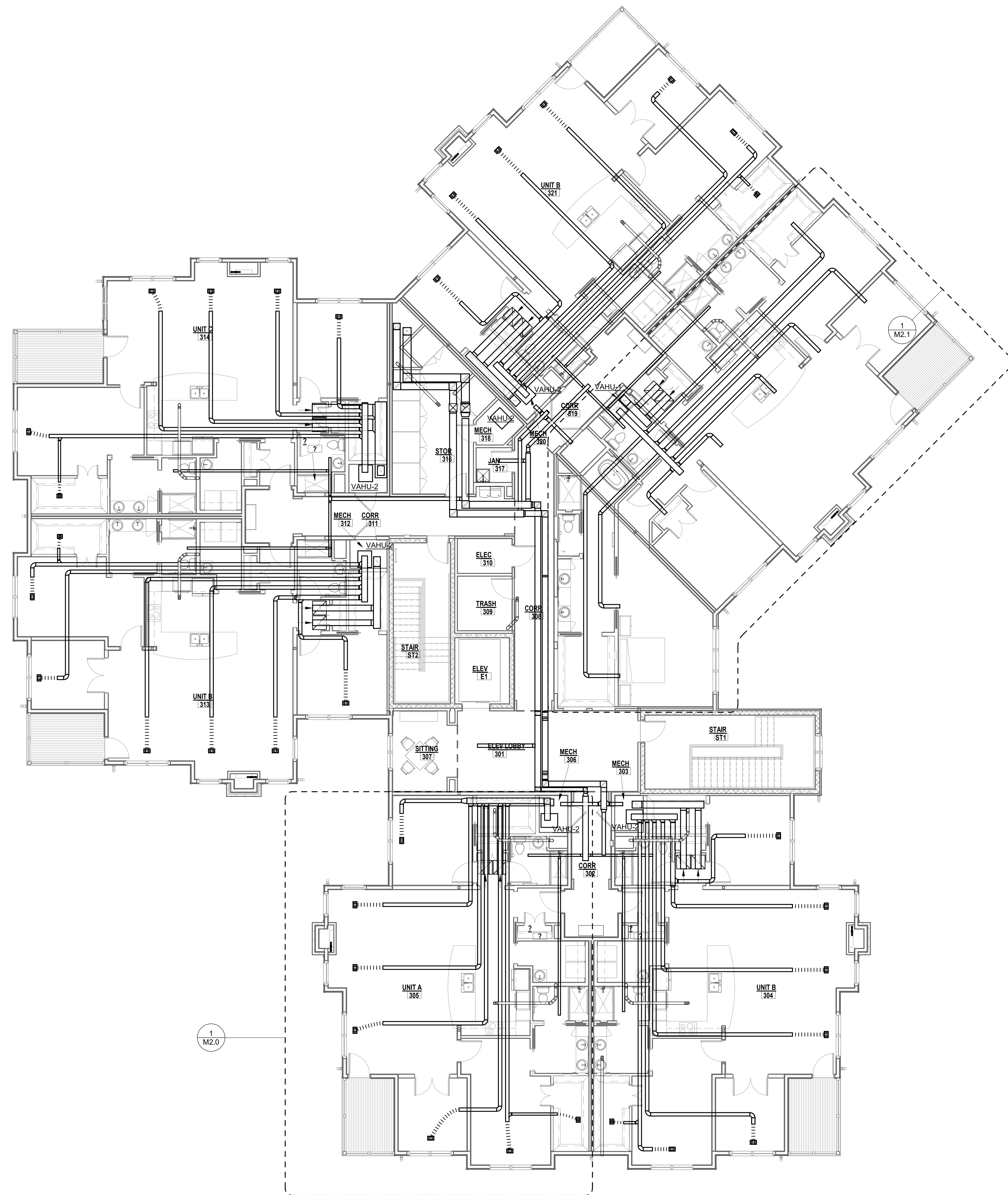
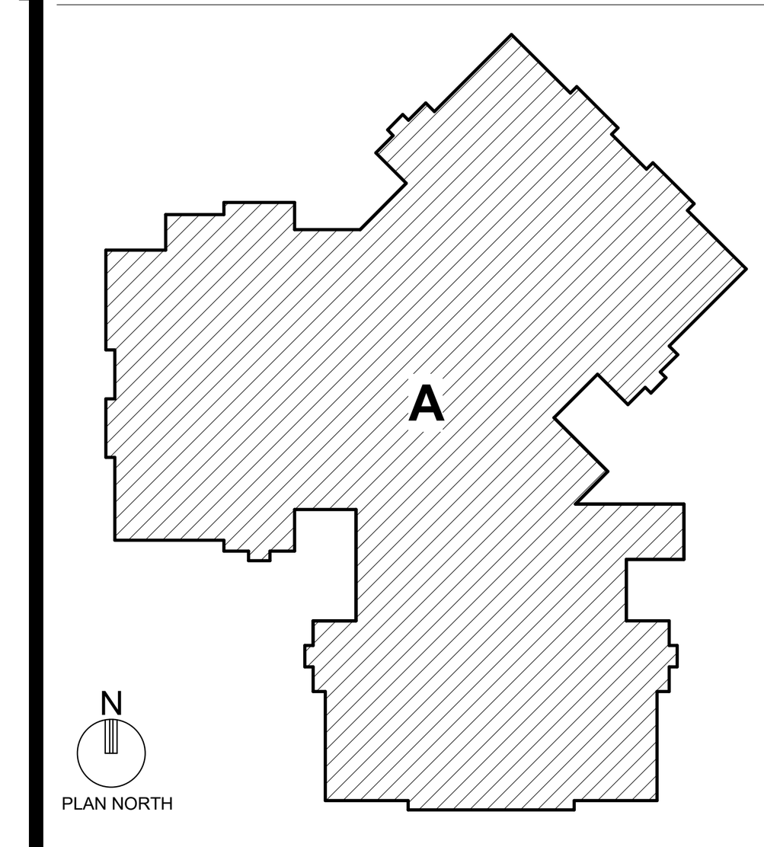


1 M1.3 THIRD FLOOR - MTN LAUREL HVAC

1/8" = 1'-0"

PLAN NORTH

KEYPLAN



GENERAL NOTES

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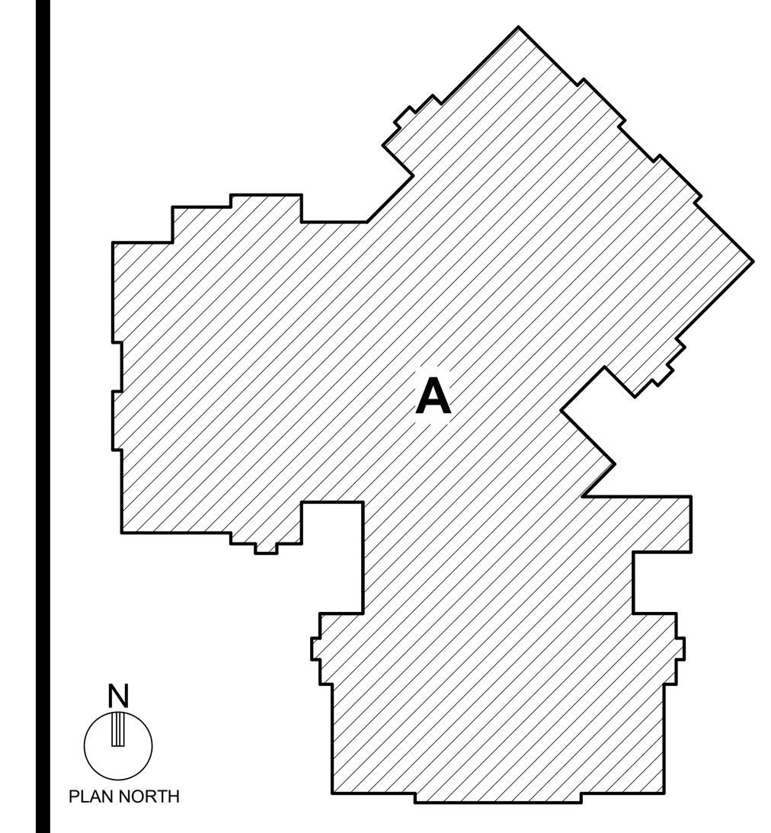
NO.	REVISION DESCRIPTION	DATE

DRAWING TITLE

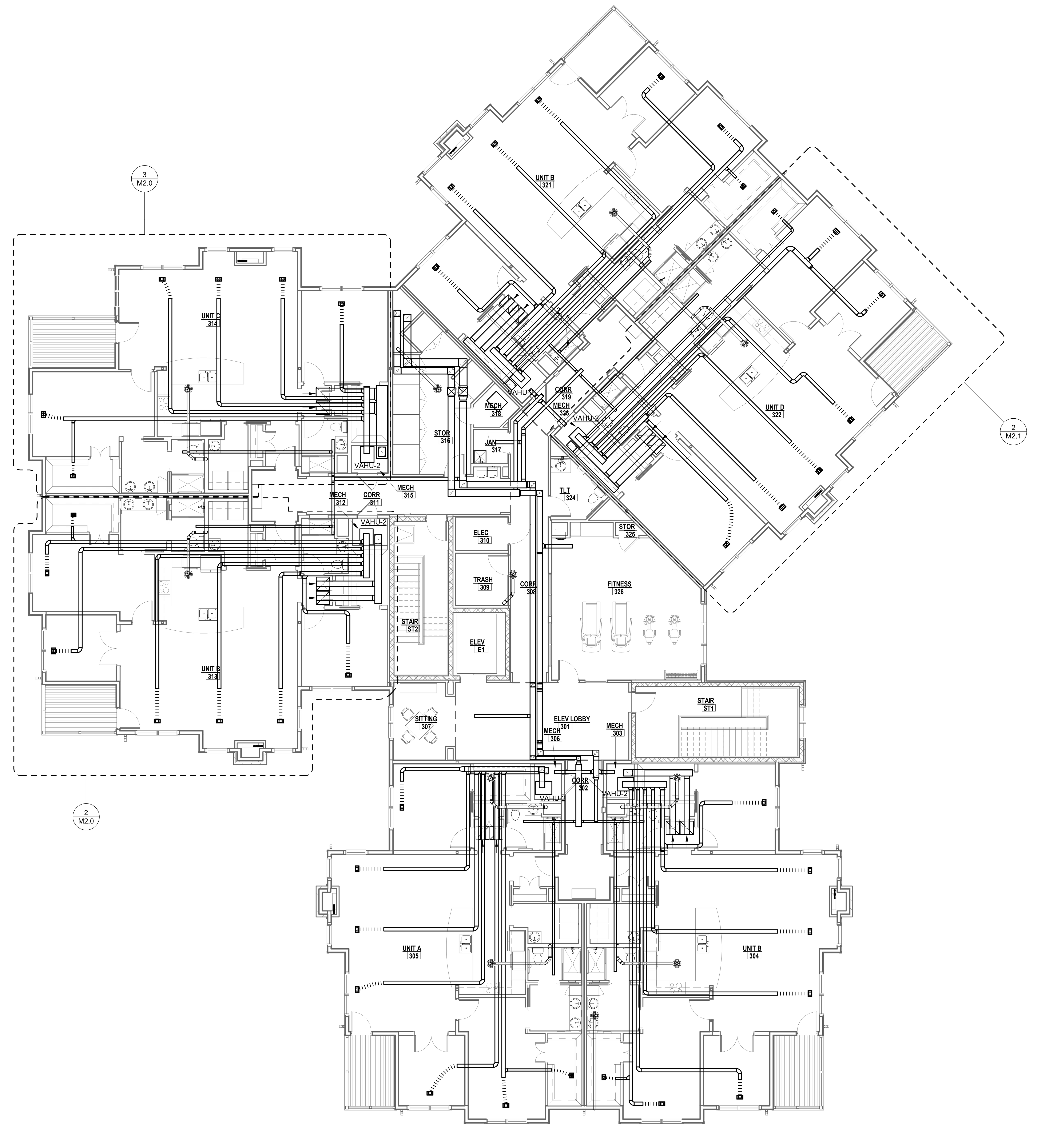
THIRD FLOOR - MT LAUREL HVAC

DATE:	APRIL 29, 2025	DRAWING	M1.3
COMM. NO.	22119.00		

KEYPLAN



GENERAL NOTES



1 THIRD FLOOR - REDBUD HVAC

M1.4 1/8" = 1'-0"

N
PLAN NORTH

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ARCHITECT : NSD		CHECKED : Checker	
ENGINEER : Designer		APPROVED : Approver	

NO.	REVISION DESCRIPTION	DATE

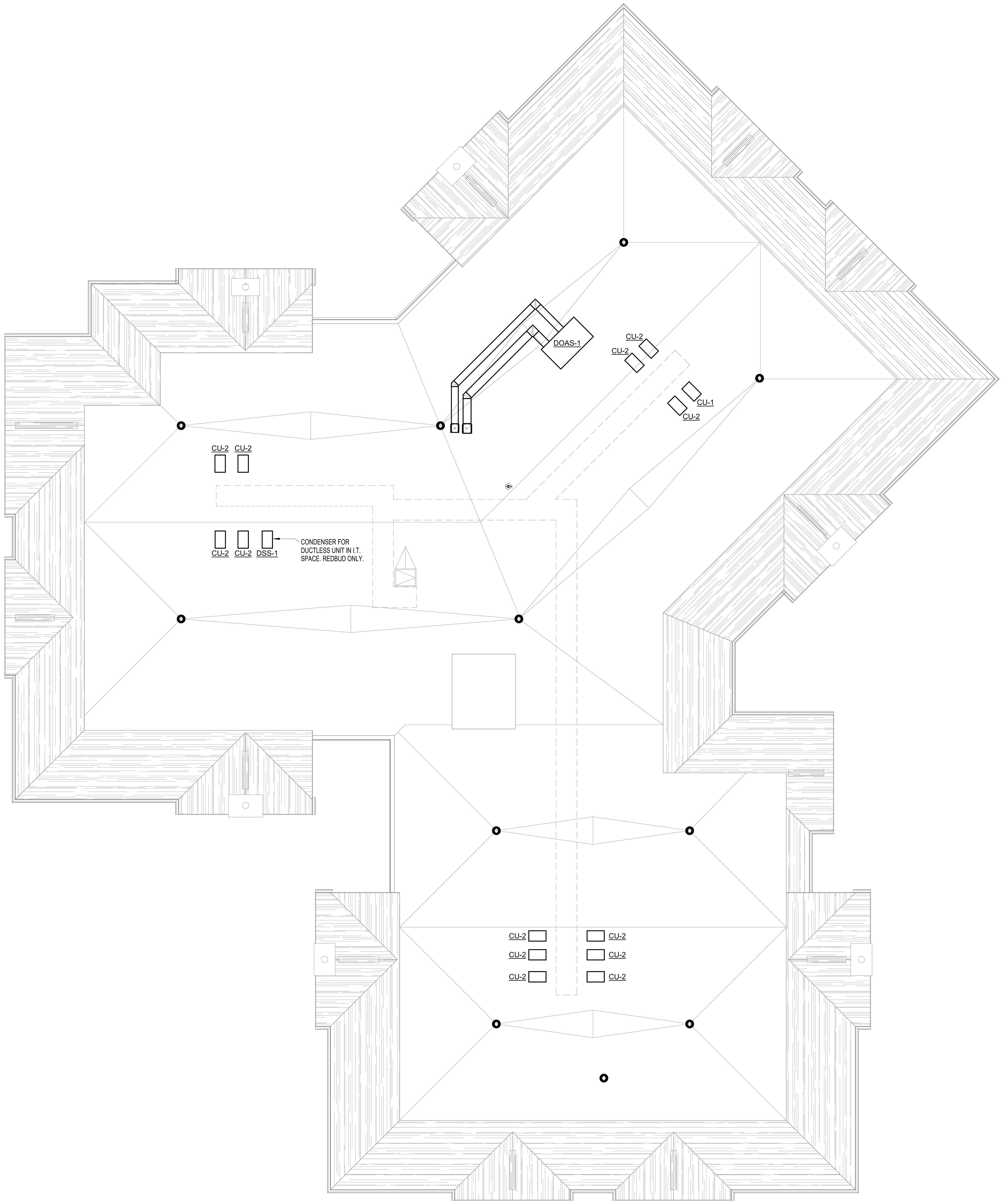
DRAWING TITLE

THIRD FLOOR - REDBUD HVAC

DATE: APRIL 29, 2025

DRAWING M1.4

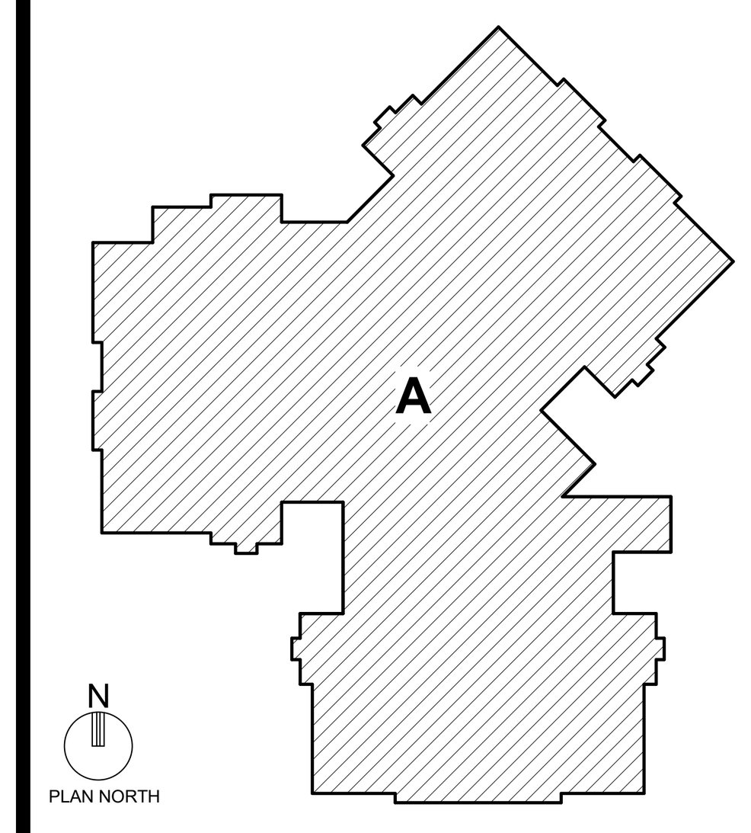
COMM. NO. 22119.00



1
M1.5
ROOF
1/8" = 1'-0"

N
PLAN NORTH

KEYPLAN



GENERAL NOTES

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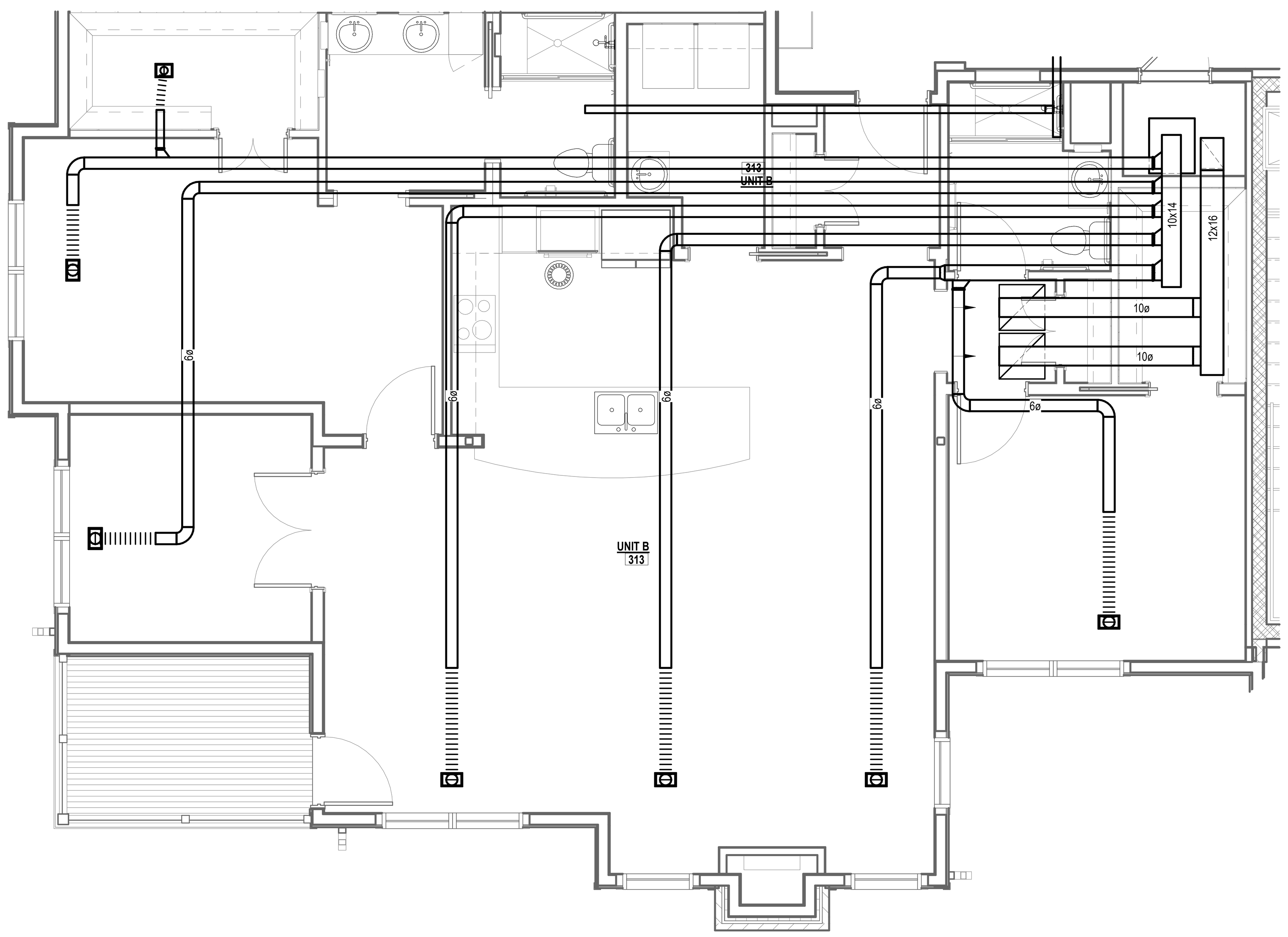
ARCHITECT	: NSD	CHECKED	: Checker
ENGINEER	: Designer	APPROVED	: Approver

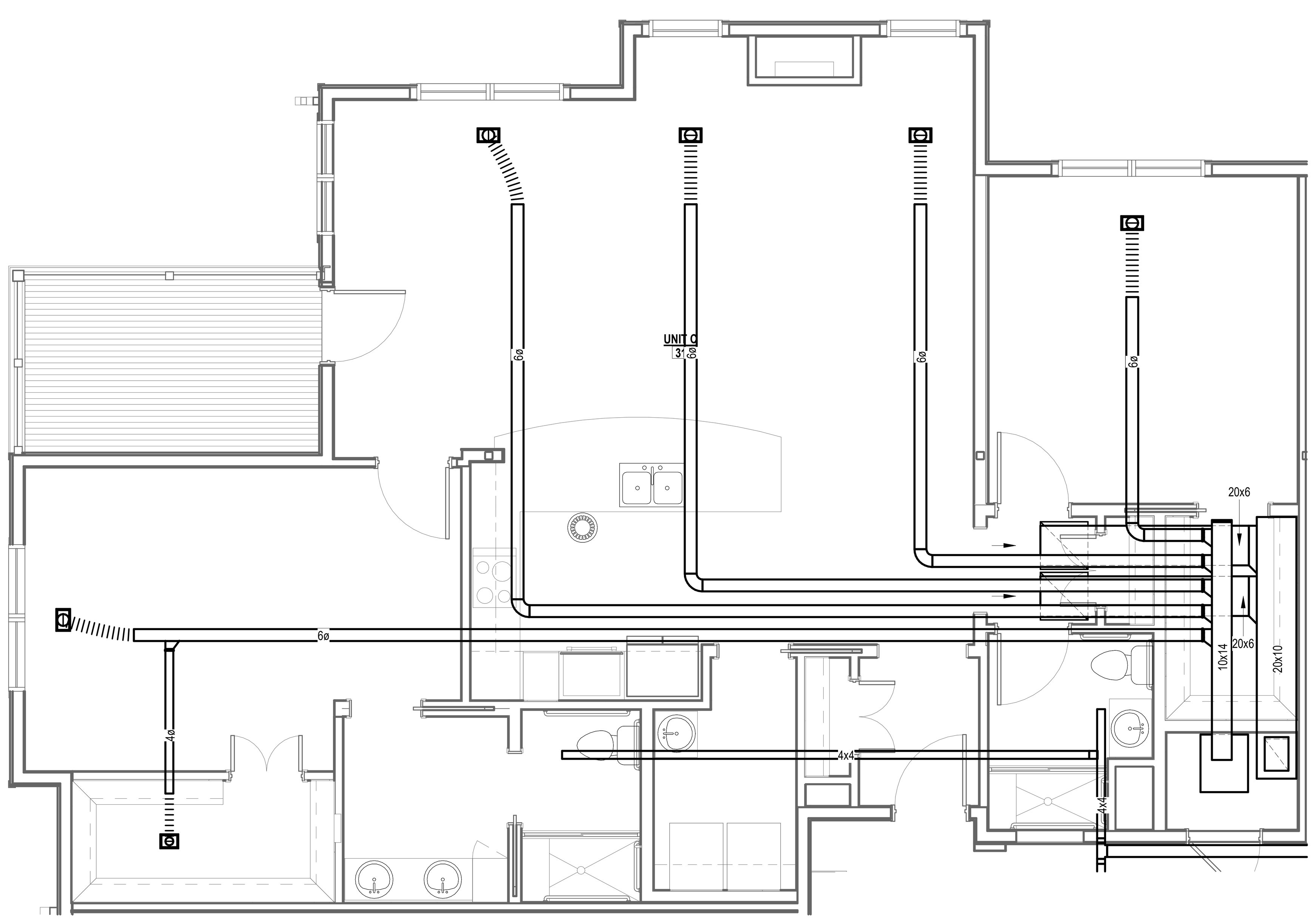
NO.	REVISION DESCRIPTION	DATE

DRAWING TITLE
ROOF PLAN - HVAC

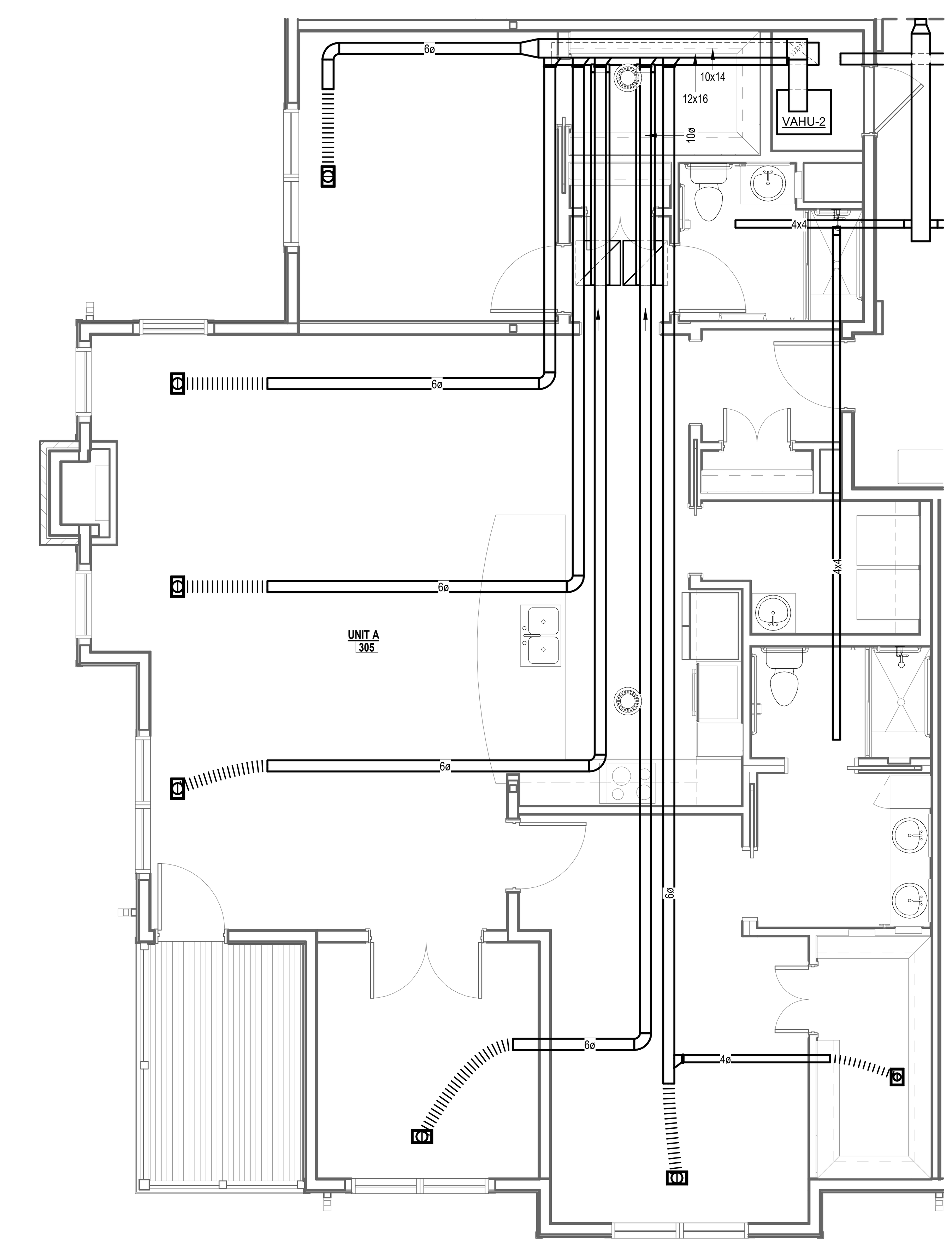
DATE:	APRIL 29, 2025	DRAWING	M1.5
COMM. NO.	22119.00		



2 UNIT B
M2.0 1/4" = 1'-0"

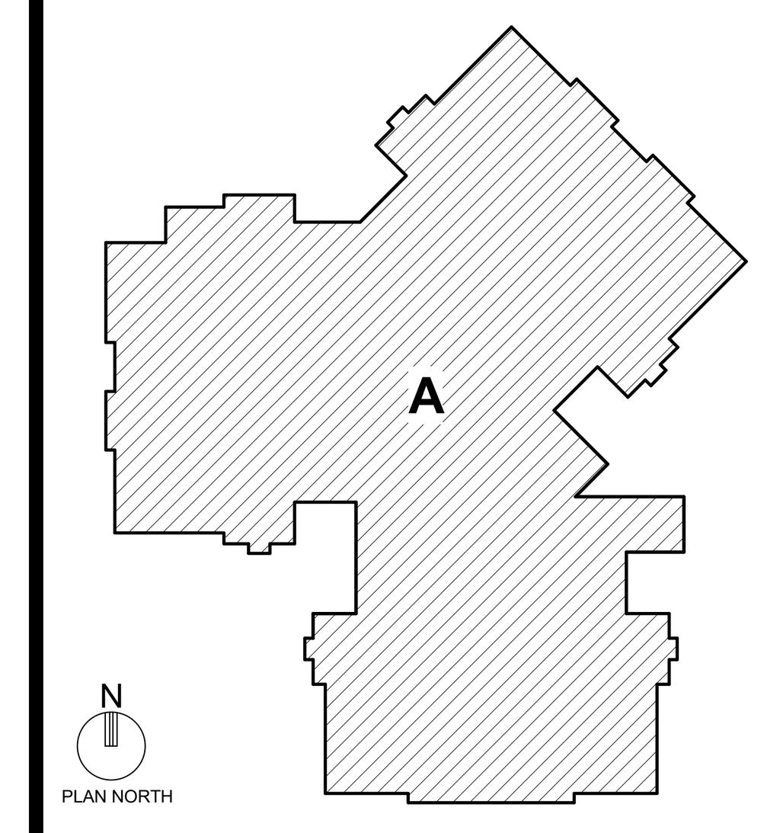


3 UNIT C
M2.0 1/4" = 1'-0"



1 UNIT A
M2.0 1/4" = 1'-0"

KEYPLAN



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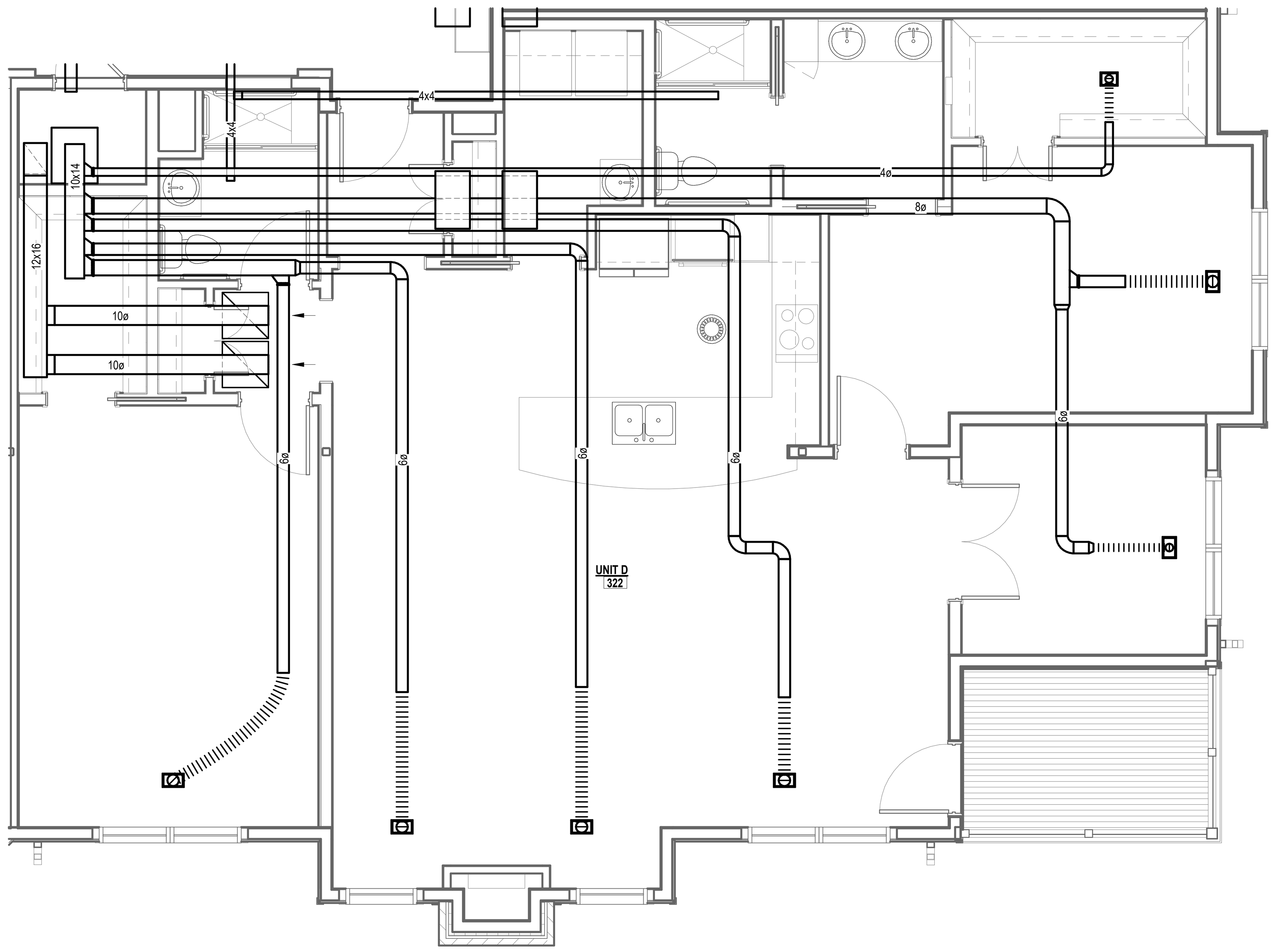
ENGINEER	Designer	APPROVED	Approver

NO.	REVISION DESCRIPTION	DATE

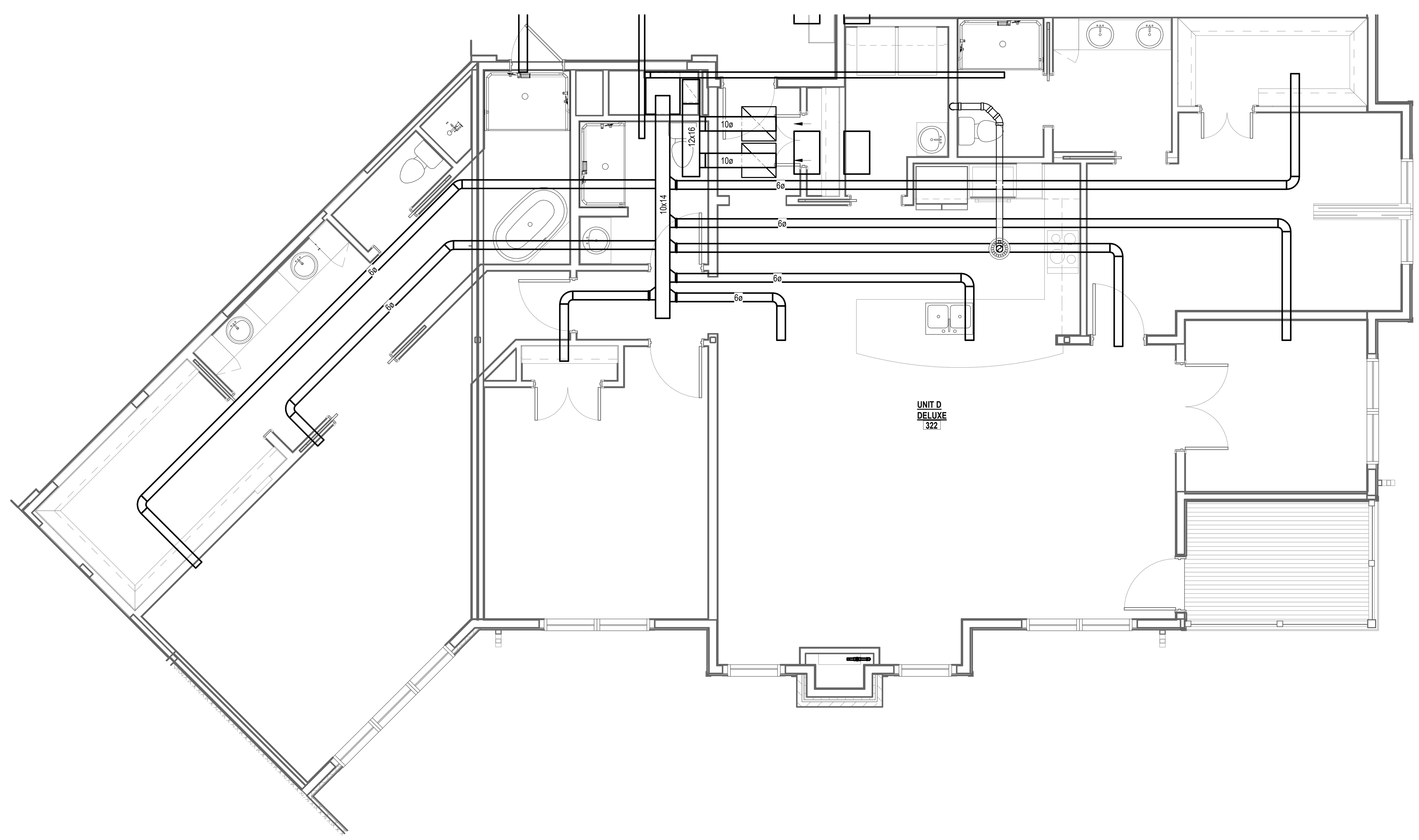
DRAWING TITLE
ENLARGED PLANS - HVAC

N
PLAN NORTH

DATE: APRIL 29, 2025
COMM. NO. 22119.00
DRAWING M2.0



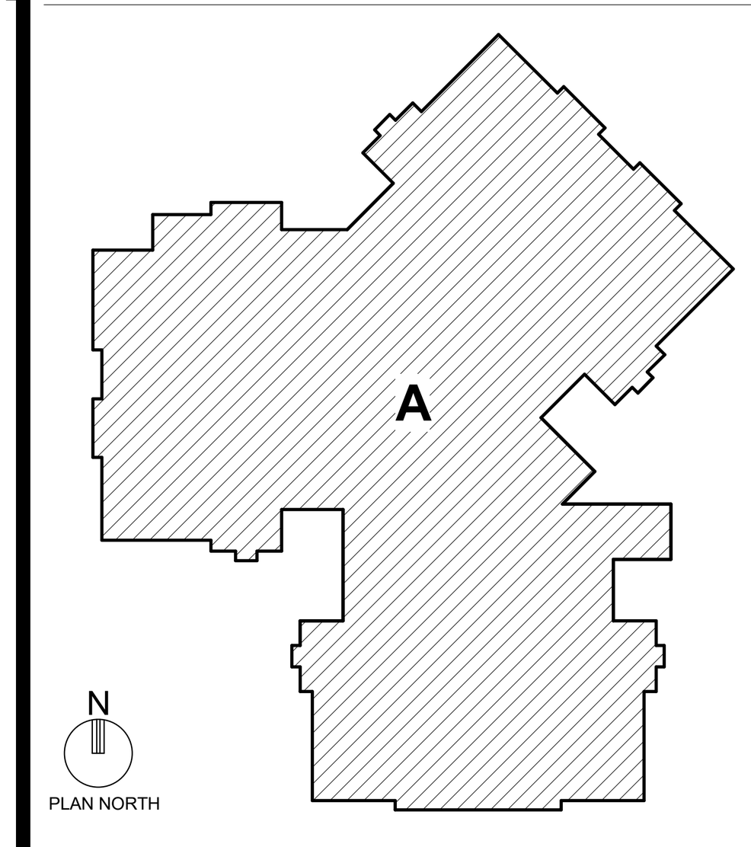
2
M2.1
UNIT D (REDBUD)
1/4" = 1'-0"



1
M2.1
UNIT D DELUXE (MTN LAUREL)
1/4" = 1'-0"

N
PLAN NORTH

KEYPLAN



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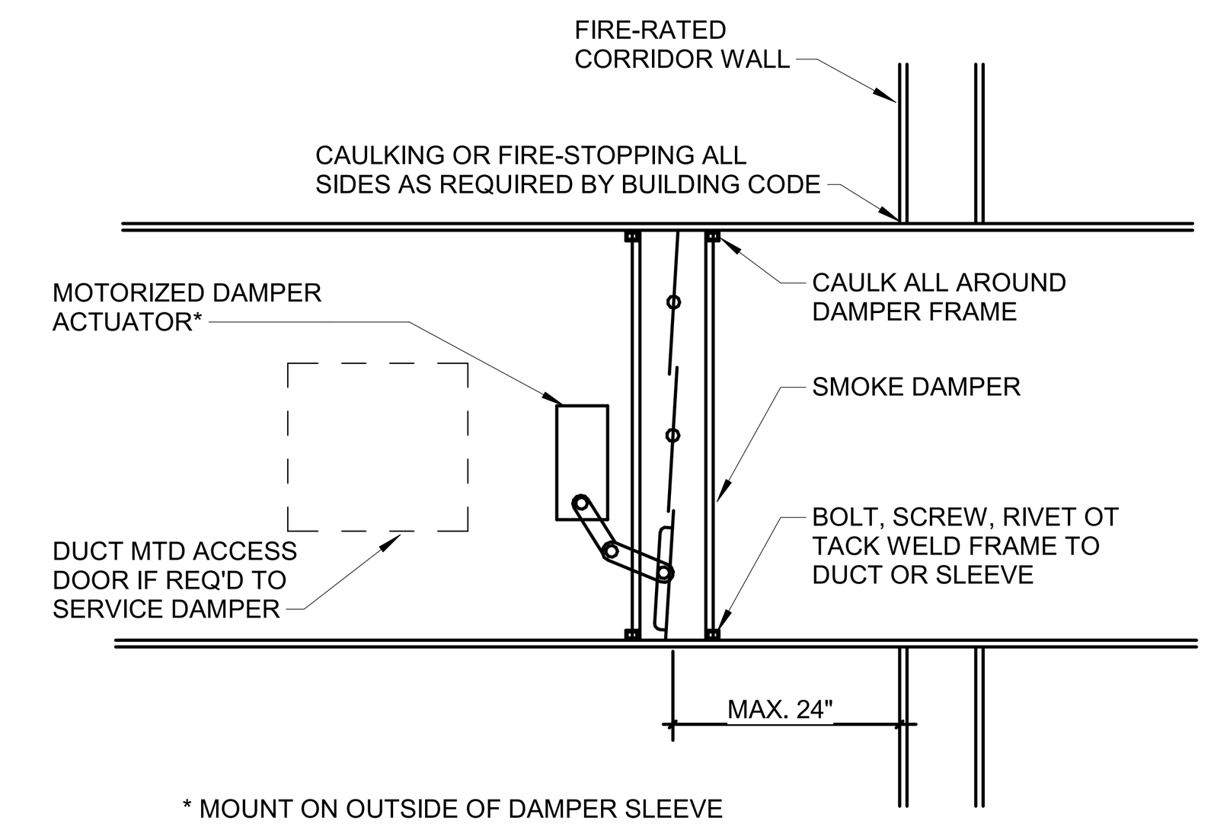
ARCHITECT : NSD		CHECKED : Checker	
ENGINEER : Designer		APPROVED : Approver	

NO.	REVISION DESCRIPTION	DATE

DRAWING TITLE
ENLARGED PLANS - HVAC

DATE: APRIL 29, 2025
COMM. NO. 22119.00
DRAWING M2.1



* MOUNT ON OUTSIDE OF DAMPER SLEEVE

NOTE:
THE DETAIL ABOVE IS PICTORIAL IN NATURE AND NOT ABSOLUTELY CORRECT FOR ALL SITUATIONS. SMOKE DAMPERS SHALL BE INSTALLED IN STRICT ACCORDANCE WITH THE MANUFACTURER'S UL APPROVED REQUIREMENTS

8 M3.0 SMOKE DAMPER INSTALLATION
N.T.S.

TABLE 504.6.4.1 - DRYER EXHAUST DUCT FITTING EQUIVALENT LENGTH	
DRYER EXHAUST DUCT FITTING	EQUIVALENT LENGTH
4" RADIUS MITERED 45º ELBOW	2 '6"
4" RADIUS MITERED 90º ELBOW	5'
6" RADIUS MITERED 45º ELBOW	1'
6" RADIUS MITERED 90º ELBOW	1' 9"
8" RADIUS MITERED 45º ELBOW	1'
8" RADIUS MITERED 90º ELBOW	1' 7"
10" RADIUS MITERED 45º ELBOW	9"
10" RADIUS MITERED 90º ELBOW	1' 6"

DRYER EXHAUST EQUIVALENT LENGTH

DRYER VENT PLACARD PER IMC; REFER TO TABLE TO DETERMINE EQUIVALENT LENGTH OF INSTALLED DRYER DUCTS. INSTALL PLACARD ADJACENT TO DRYER WALL INLET. FURNISHED DRYER MUST BE RATED BY MANUFACTURER FOR INSTALLED EQUIVALENT LENGTH.

RISK OF FIRE

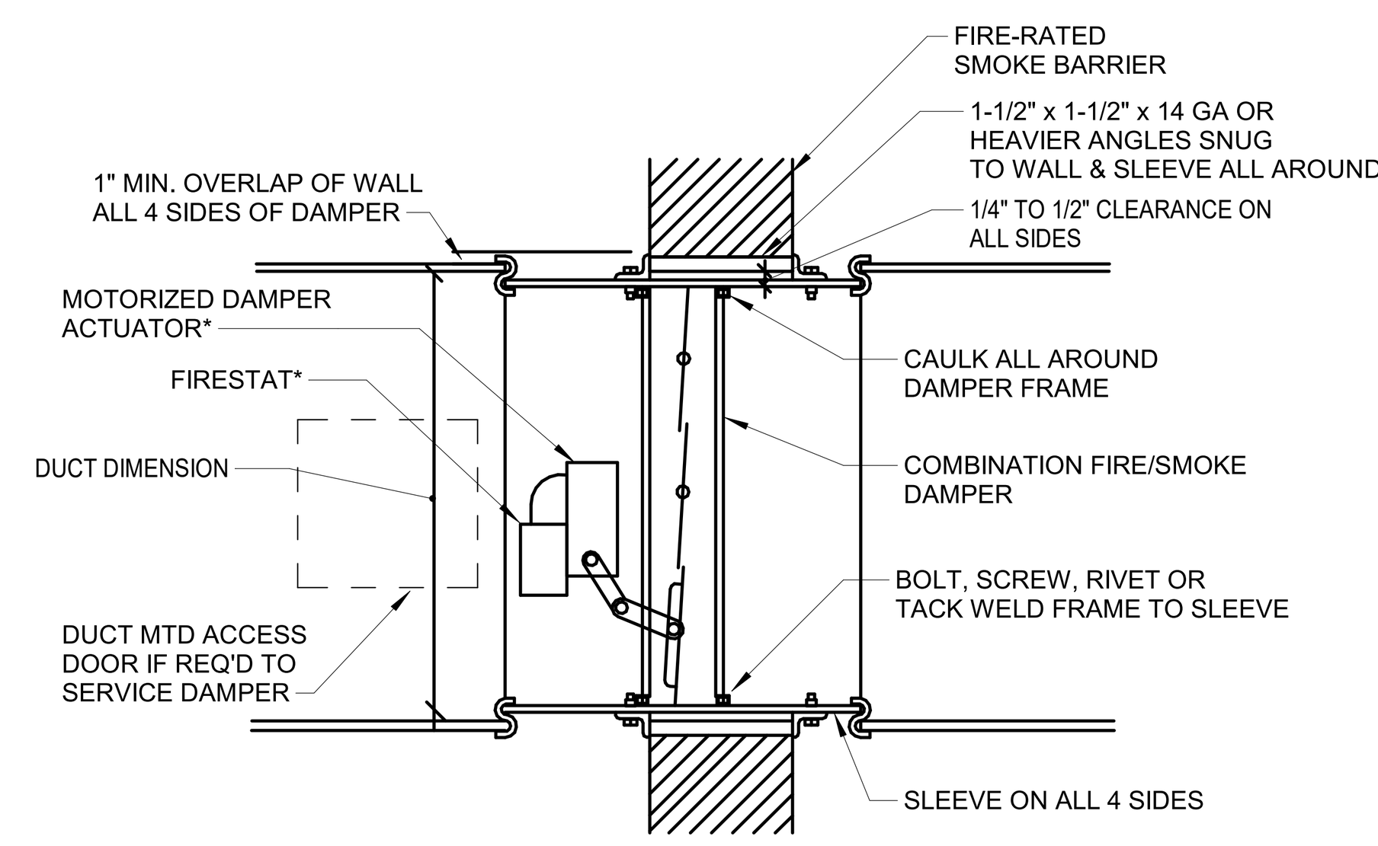
THE NET EQUIVALENT* LENGTH OF DRYER DUCT FROM THIS LOCATION IS ____ FEET

THE MAXIMUM ALLOWABLE EXHAUST DUCT LENGTH STATED IN THE CLOTHES DRYER'S INSTALLATION INSTRUCTIONS SHALL BE EQUAL TO OR GREATER THAN THE POSTED EQUIVALENT LENGTH INDICATED ON THE PLACARD.

MANDATED BY IMC 504.8.5 & IRC M1502.4.6 **
DO NOT REMOVE OR DEFACE THIS PLACARD.

DRYER EXHAUST PLAQUE

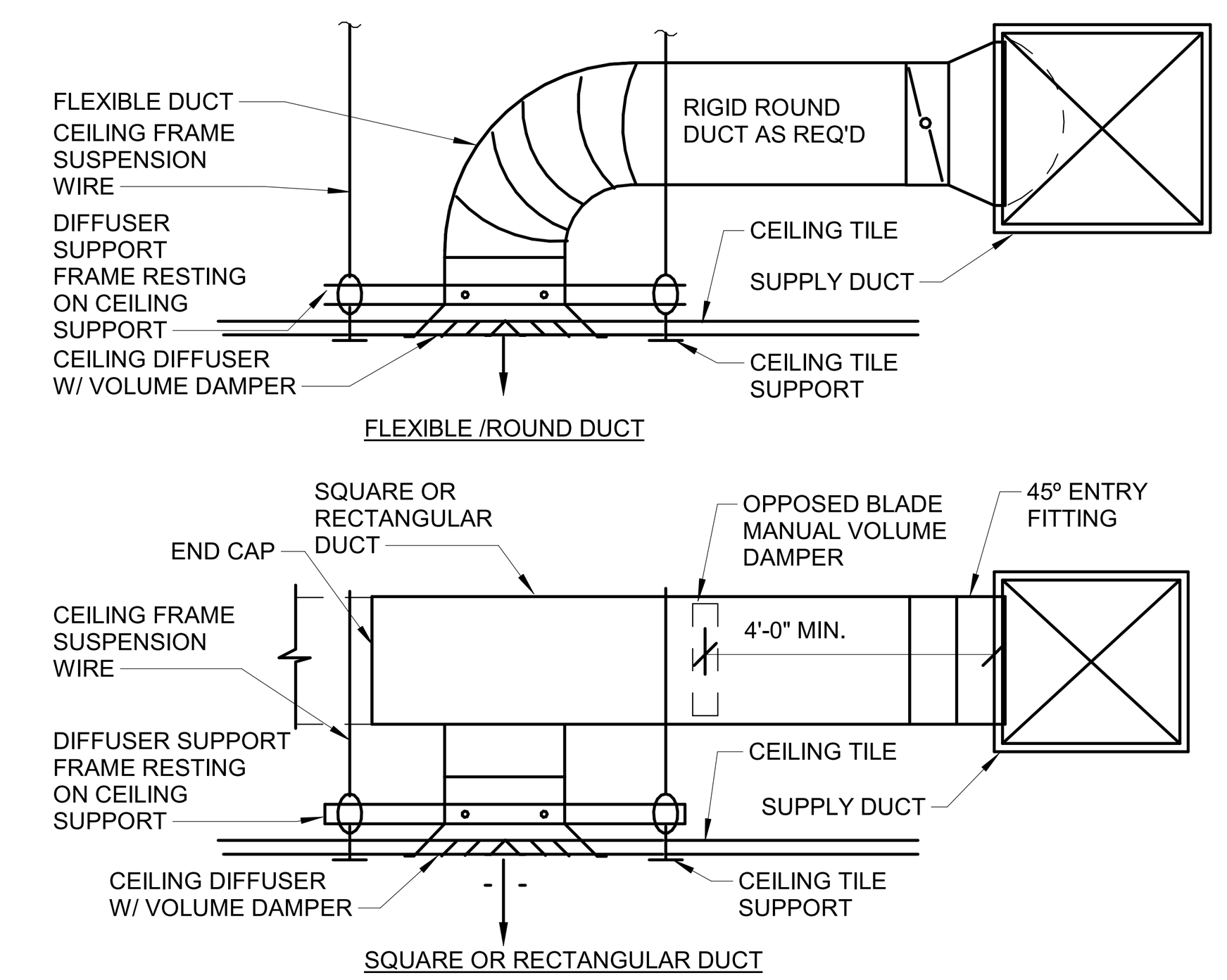
4 M3.0 DRYER EXHAUST VENT PLACARD
N.T.S.



* MOUNT ON OUTSIDE OF DAMPER SLEEVE

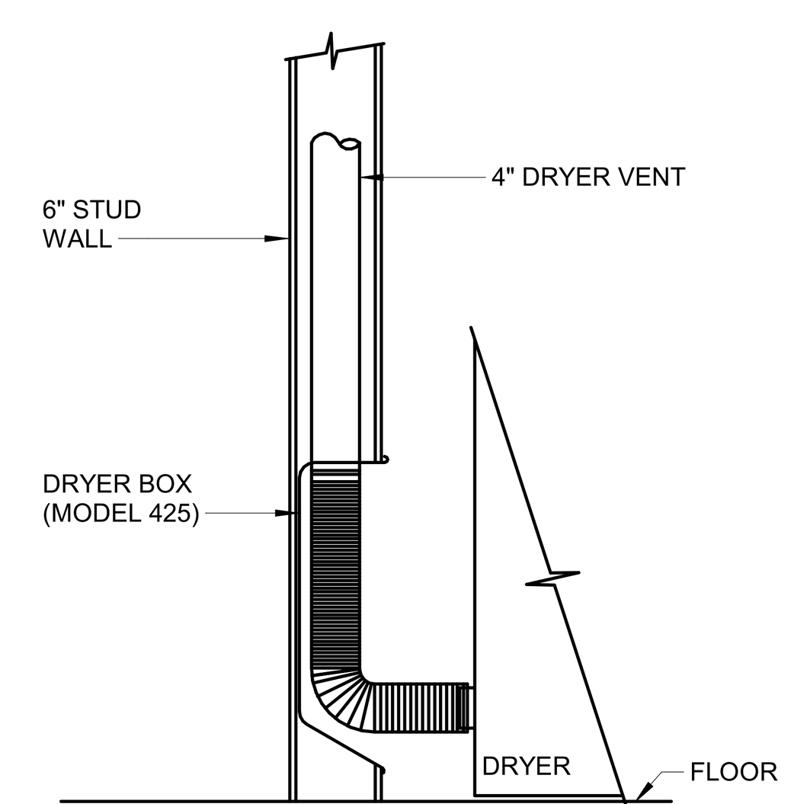
NOTE:
THE DETAIL ABOVE IS PICTORIAL IN NATURE AND NOT ABSOLUTELY CORRECT FOR ALL SITUATIONS. SMOKE DAMPERS SHALL BE INSTALLED IN STRICT ACCORDANCE WITH THE MANUFACTURER'S UL APPROVED REQUIREMENTS. . SEAL ANNULAR SPACE AROUND DAMPER WITH CAULK OR SEALANT AS APPROVED BY THE AUTHORITY HAVING JURISDICTION.

7 M3.0 FIRE/SMOKE DAMPER INSTALLATION
N.T.S.



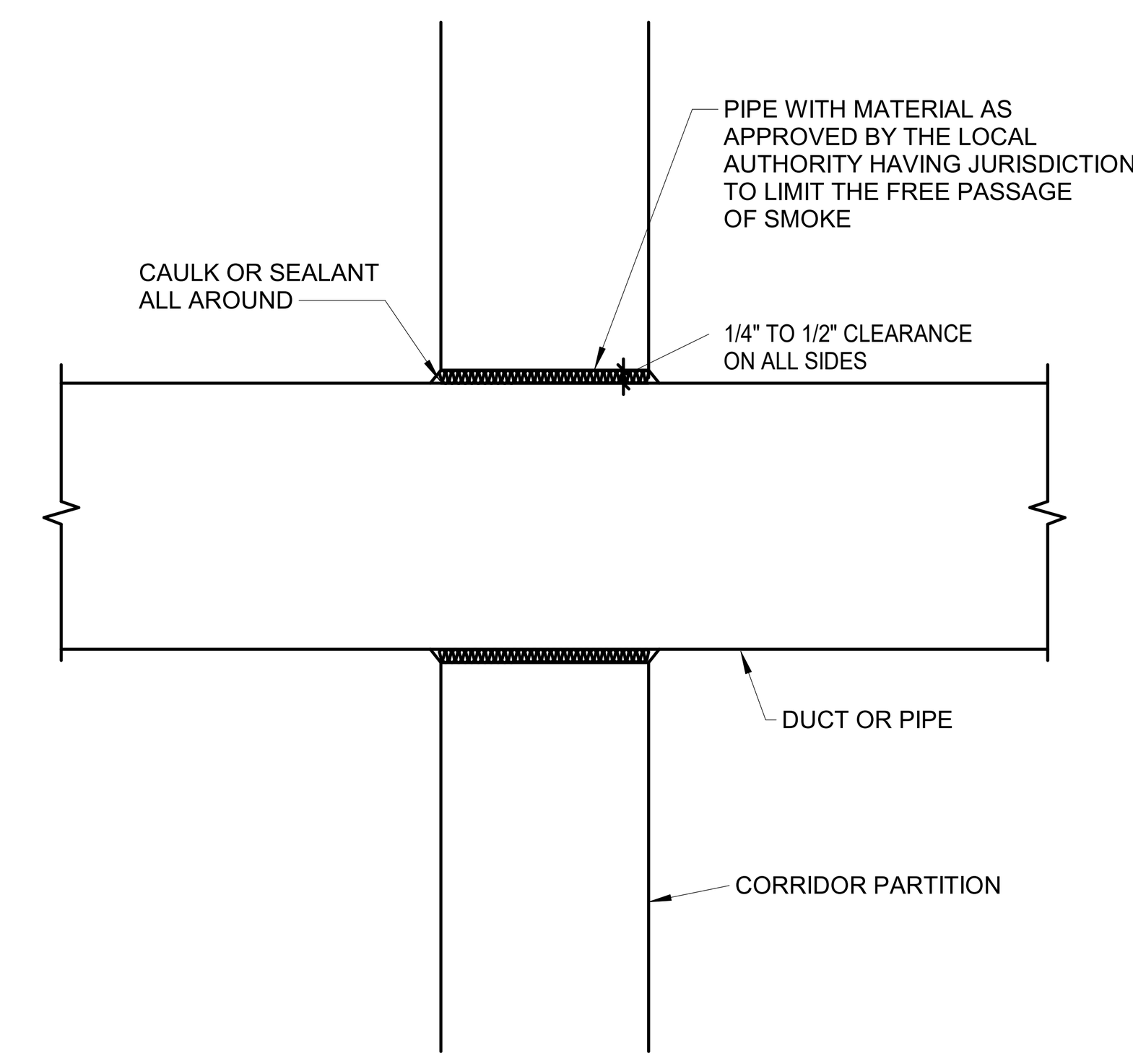
NOTE: SEE SPECIFICATIONS FOR INSULATION AND ACOUSTIC LINE REQUIREMENTS

3 M3.0 CEILING DIFFUSER BRANCH DUCTS
N.T.S.

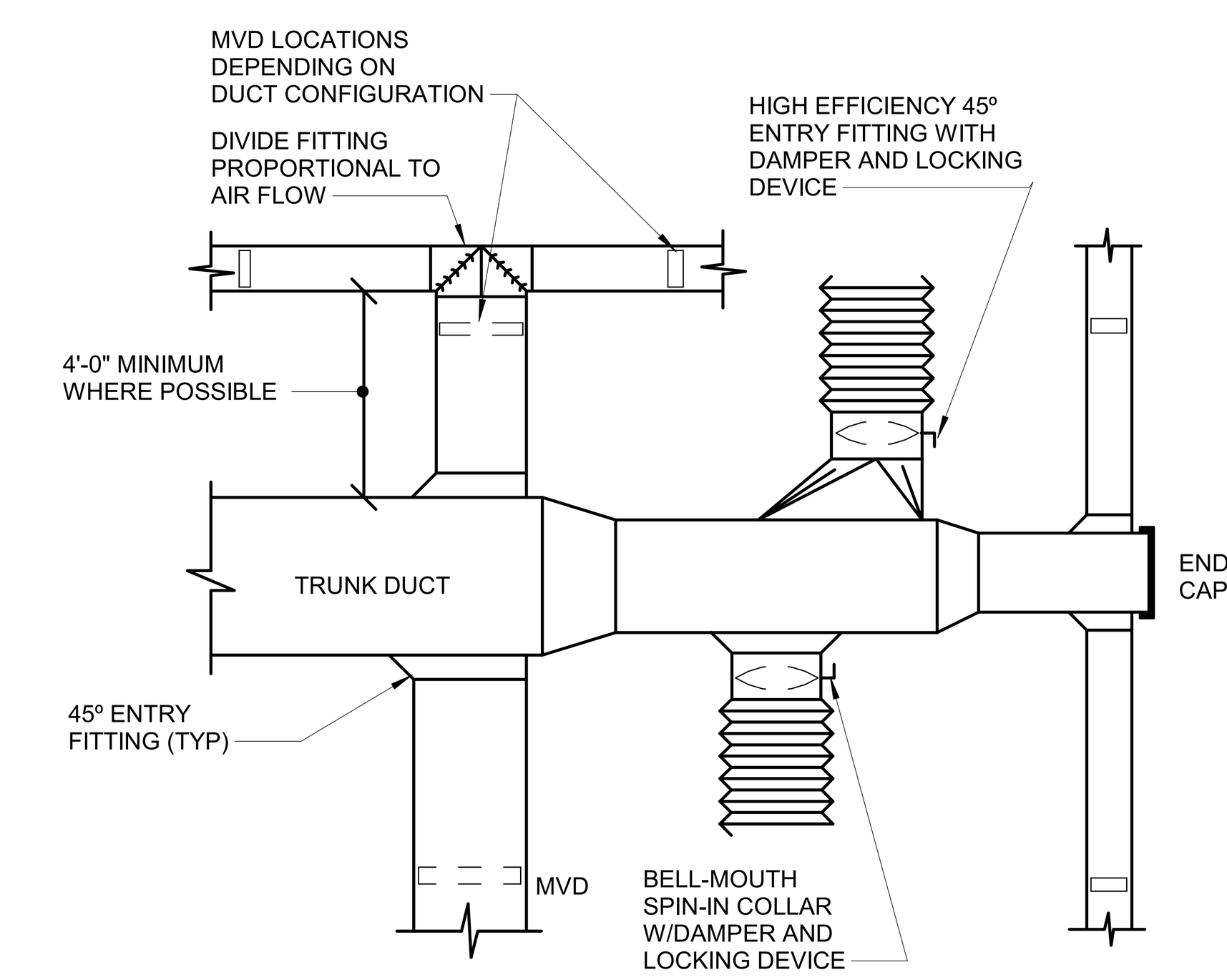


NOTE: DRYER BOX MAY BE USED AT ANY LOCATION WITH A 6" STUD WALL AND CAN BE USED TO ELIMINATE 1-ELBOW AND REDUCE THE MEASURED LENGTH OF THE DRYER VENT USE FOR DIRECT VENTING ONLY. NOT SUITABLE FOR SHARED RISER CONNECTIONS.

10 M3.0 DRYER EXHAUST VENT CONNECTION
N.T.S.

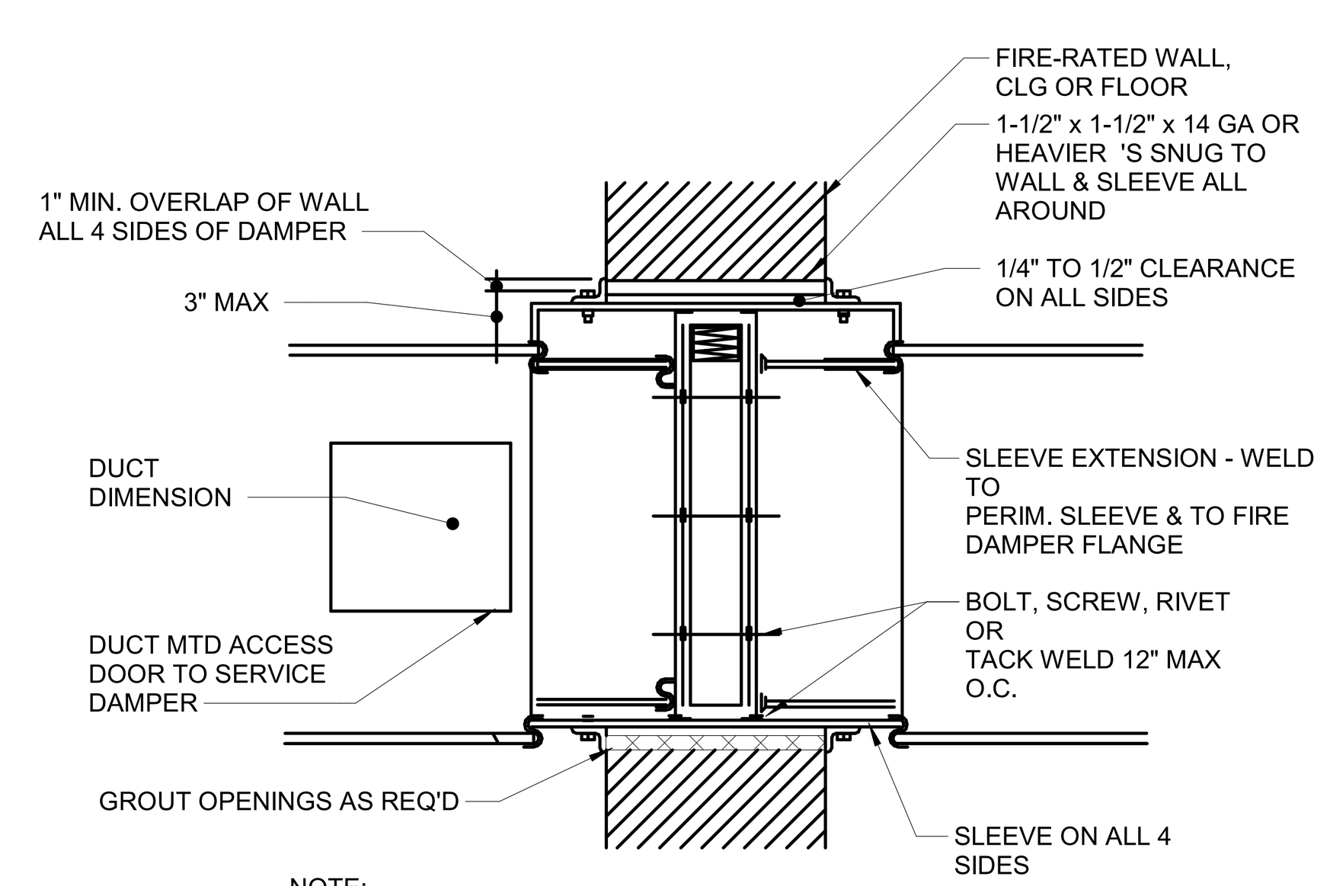


6 M3.0 CORRIDOR PARTITION PENETRATION
N.T.S.



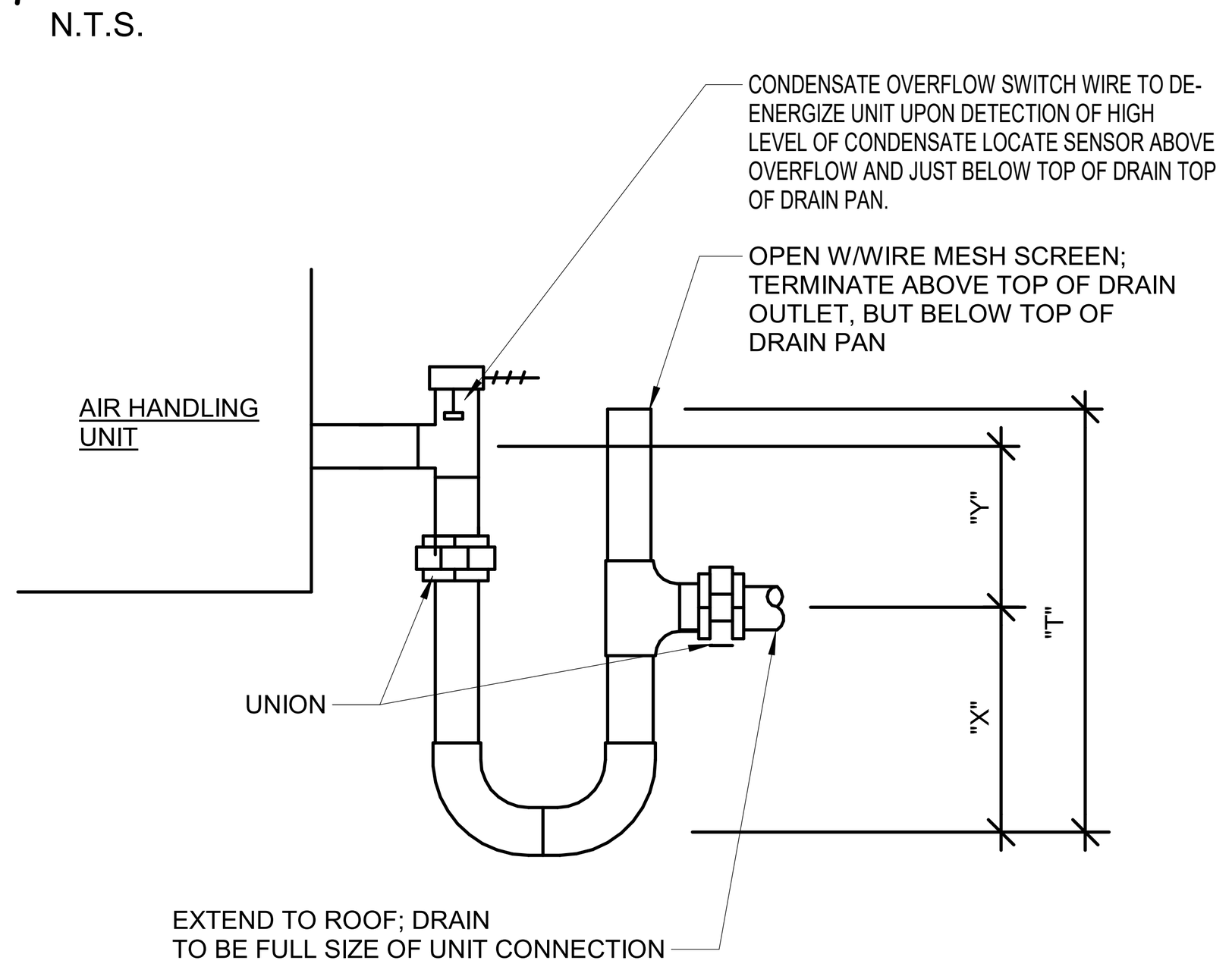
NOTE: THIS DETAIL IS GENERAL IN NATURE AND APPLIES WHERE CEILING ACCESS IS READILY AVAILABLE. DO NOT INSTALL BALANCING DAMPERS ABOVE "HARD" CEILINGS" UNLESS BOTH DAMPERS AND ACCESS DOORS ARE INDICATED ON THE DRAWINGS. ASK IF THERE IS DOUBT AS TO THE DESIGNERS INTENT.

2 M3.0 BRANCH DUCT TAKE-OFF OPTIONS
N.T.S.



NOTE:
THE DETAIL ABOVE IS PICTORIAL IN NATURE AND NOT ABSOLUTELY CORRECT FOR ALL SITUATIONS. FIRE DAMPERS SHALL BE INSTALLED IN STRICT ACCORDANCE WITH THE MANUFACTURER'S UL APPROVED REQUIREMENTS.

9 M3.0 FIRE DAMPER INSTALLATION
N.T.S.



UNIT TYPE	X	Y	T
DRAW THRU (NEG SP)	1/2 OF Y	1 + CASING STATIC PRESSURE	X+Y+(1.5 x PIPE DIAMETER)

ELEVATION

1 M3.0 RTU & DOA CONDENSATE DRAIN
N.T.S.

GENERAL NOTES

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ARCHITECT : NSD		CHECKED : WBP	
ENGINEER : MAP		APPROVED : ATC	
NO.	REVISION DESCRIPTION		DATE

DRAWING TITLE
MECHANICAL DETAILS

DATE: APRIL 29, 2025
COMM. NO. 22119.00
DRAWING M3.0