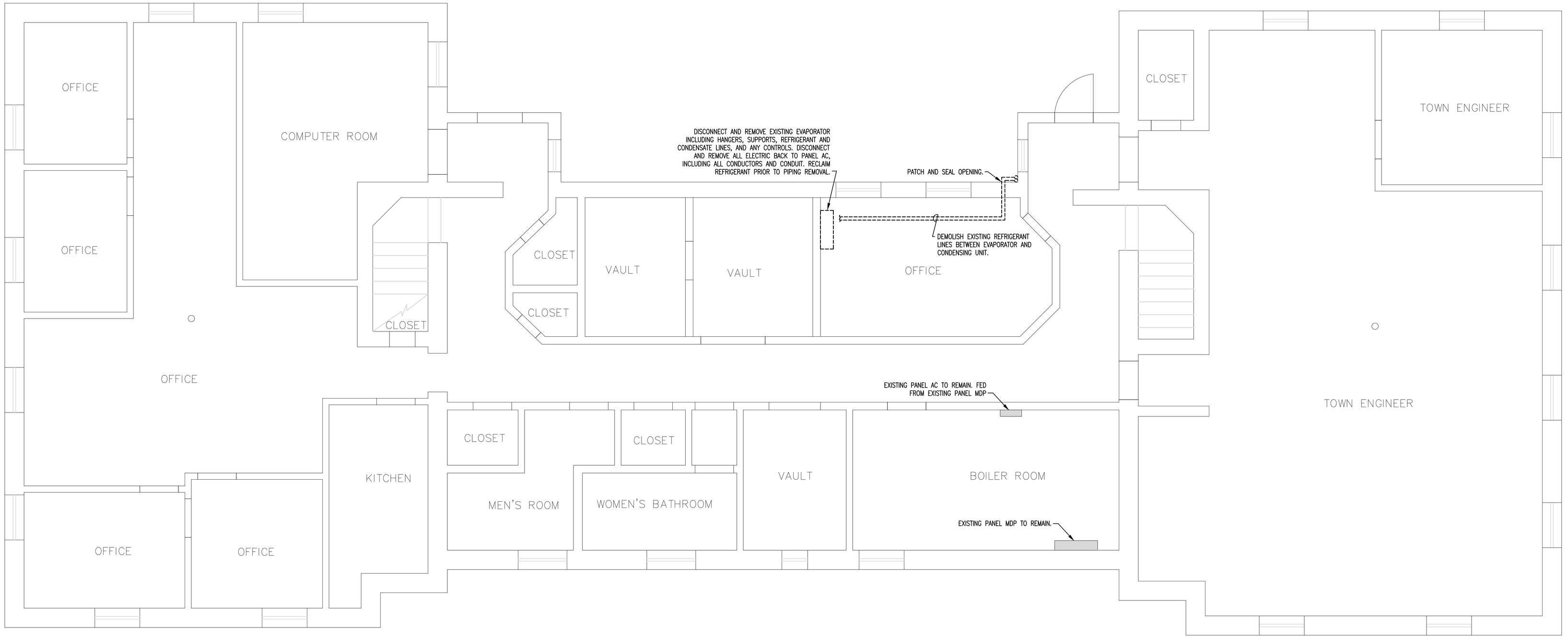
PART THREE

GENERAL SPECIFICATIONS



1 / M1.1 MECHANICAL REMOVAL PLAN - BASEMENT

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

MICHAEL REILLY JR, PE

6 ROWAN ST #3
NORWALK, CT 06855

CLIENT:
TOWN OF YORKTOWN

YORKTOWN TOWN HALL - AC REPLACEMENT
363 UNDERHILL AVE, YORKTOWN HEIGHTS, NY 10598

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Professional License No.

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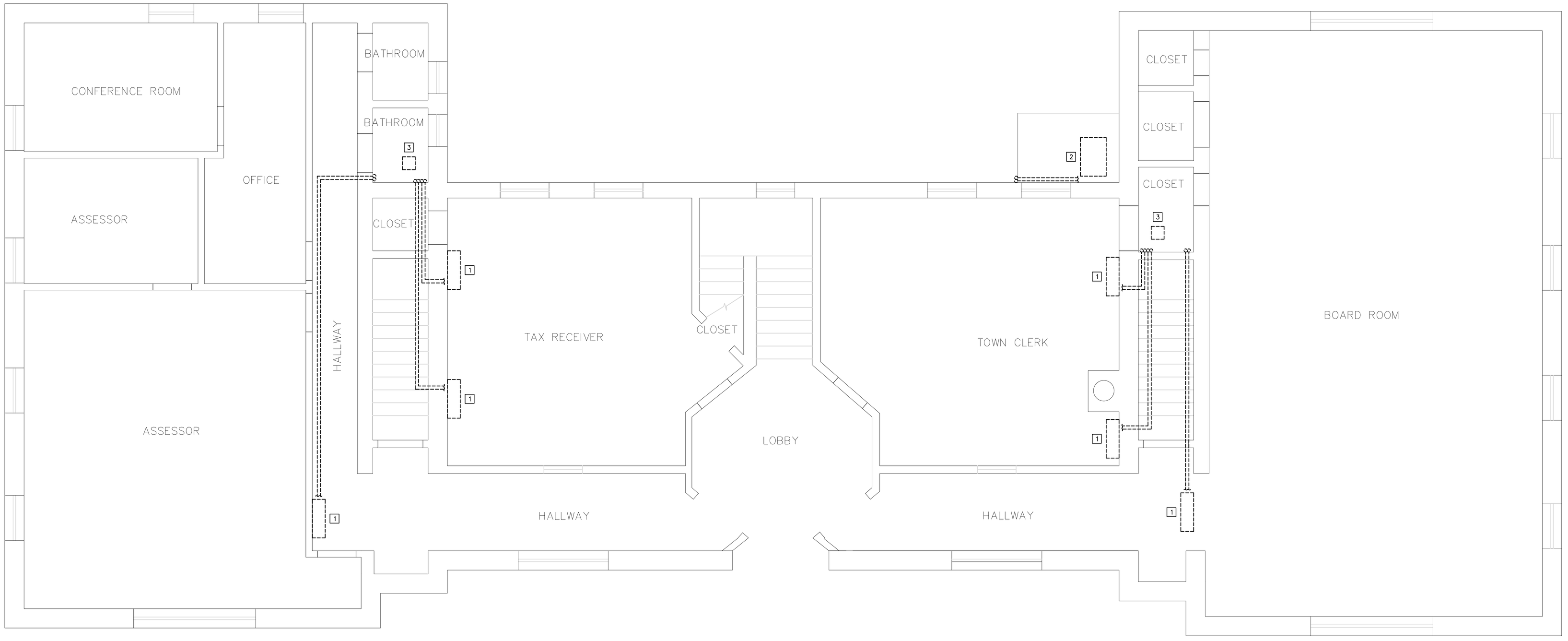
CJR	MWR

MECHANICAL REMOVAL

SCALE: AS INDICATED

M1.1



1 / M1.2 MECHANICAL REMOVAL PLAN - FIRST FLOOR

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

DEMOLITION NOTES: ☐

1. DISCONNECT AND REMOVE EXISTING EVAPORATOR INCLUDING HANGERS, SUPPORTS, REFRIGERANT AND CONDENSATE LINES, AND ANY CONTROLS. DISCONNECT AND REMOVE ALL ELECTRIC BACK TO PANEL AC, INCLUDING ALL CONDUCTORS AND CONDUIT. RECLAIM REFRIGERANT PRIOR TO PIPING REMOVAL.
2. DISCONNECT AND REMOVE EXISTING CONDENSING UNIT INCLUDING SUPPORTS, ACCESSORIES, AND REFRIGERANT PIPING. PATCH ROOF AS NECESSARY. DISCONNECT AND REMOVE ALL ELECTRIC BACK TO PANEL AC, INCLUDING ALL CONDUCTORS AND CONDUIT. RECLAIM REFRIGERANT PRIOR TO PIPING REMOVAL.
3. DISCONNECT AND REMOVE CONDENSATE PUMP INCLUDING ALL TUBING BETWEEN PUMP, EVAPORATOR, AND DISCHARGE POINT.

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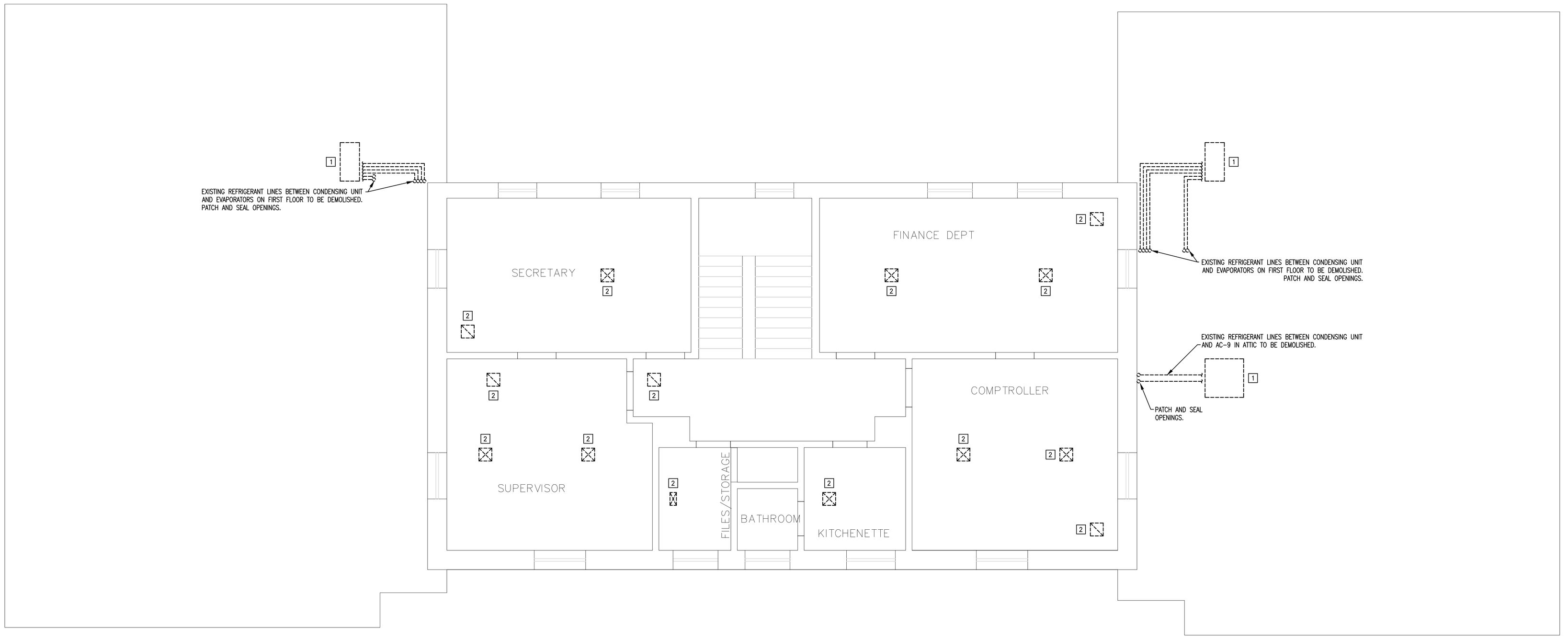
MECHANICAL
REMOVAL

SCALE:
AS INDICATED

M1.2



1 / M1.3 MECHANICAL REMOVAL PLAN - SECOND FLOOR

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

DEMOLITION NOTES: ☐

1. DISCONNECT AND REMOVE EXISTING CONDENSING UNIT INCLUDING SUPPORTS, ACCESSORIES, AND REFRIGERANT PIPING. PATCH ROOF AS NECESSARY. DISCONNECT AND REMOVE ALL ELECTRIC BACK TO PANEL AC, INCLUDING ALL CONDUCTORS AND CONDUITS. RECLAIM REFRIGERANT PRIOR TO PIPING REMOVAL.
2. DISCONNECT AND REMOVE EXISTING DIFFUSER.

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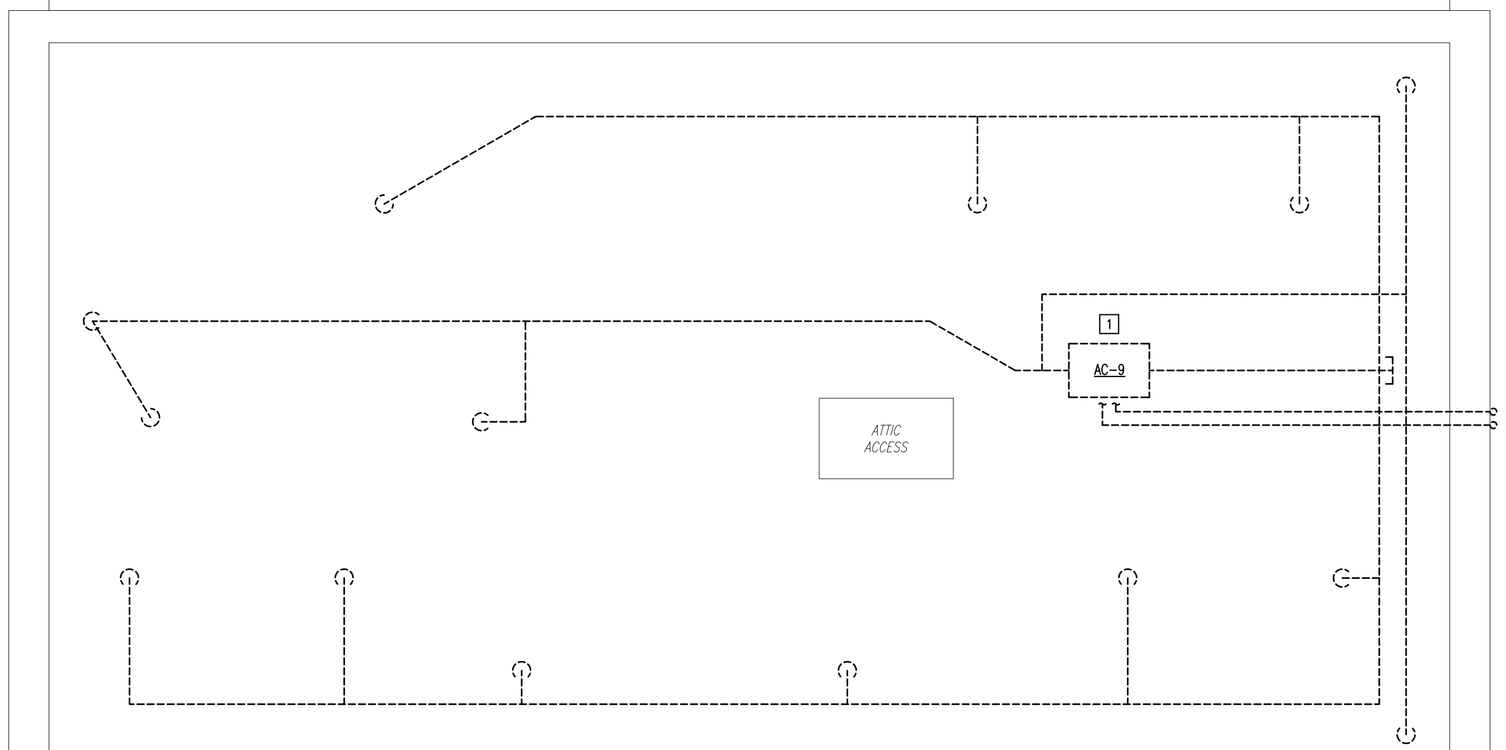
MECHANICAL REMOVAL

SCALE: AS INDICATED

M1.3



1
M1.4

MECHANICAL REMOVAL PLAN - ATTIC

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

DEMOLITION NOTES:

1. DISCONNECT AND REMOVE EXISTING AIR HANDLING UNIT INCLUDING HANGERS, SUPPORTS, CONTROLS, AND REFRIGERANT PIPING. DISCONNECT AND REMOVE ALL ELECTRIC BACK TO PANEL AC, INCLUDING ALL CONDUCTORS AND CONDUIT.

GENERAL NOTES:

1. DISCONNECT AND REMOVE ALL SUPPLY AND RETURN DUCTWORK INCLUDING ALL HANGERS AND SUPPORTS. PATCH SECOND FLOOR CEILING AS NECESSARY.

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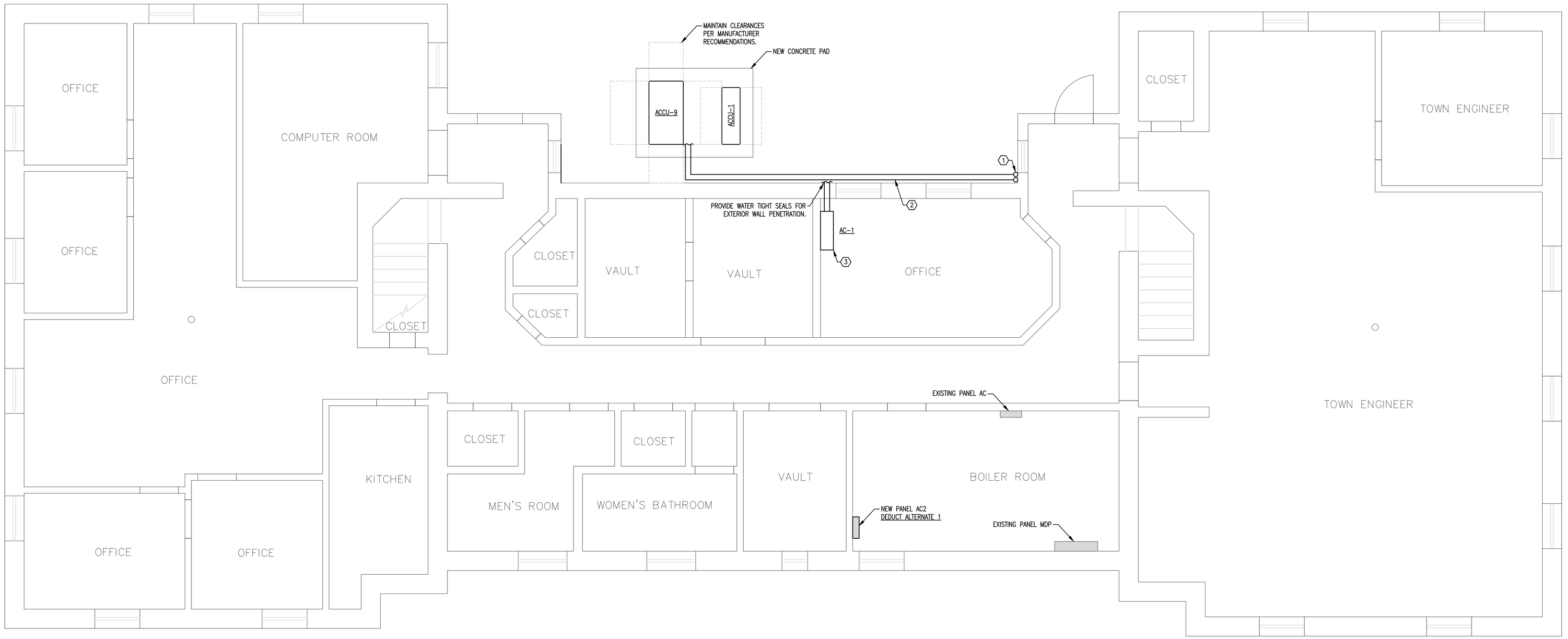
MECHANICAL
REMOVAL

SCALE:
AS INDICATED

M1.4



1 / M2.1 MECHANICAL PLAN - BASEMENT

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

CONSTRUCTION NOTES: ⬡

1. REFRIGERANT LINES BETWEEN ACCU-9 AND AC-9 IN ATTIC.
2. KEEP REFRIGERANT LINES BELOW WINDOWS. CONFIRM EXTERIOR ROUTING WITH OWNER.
3. CONDENSATE SHALL BE GRAVITY DRAINED TO EXTERIOR.

DEDUCT ALTERNATE 1:
PROVIDE PRICING FOR NEW ELECTRIC PANEL AC2, MDP 100A/3P BREAKER, AND 100A FEEDER, WITHIN SCOPE OF WORK. DEDUCT ALTERNATE SHALL BE EXECUTED IF EXISTING AC PANEL CAN ACCOMMODATE ALL NEW ELECTRIC LOADS/CONNECTIONS AND ACCEPTED BY OWNER. SEE ADDITIONAL INFORMATION PERTAINING TO NEW ELECTRICAL PANEL ON SHEET M3.1.

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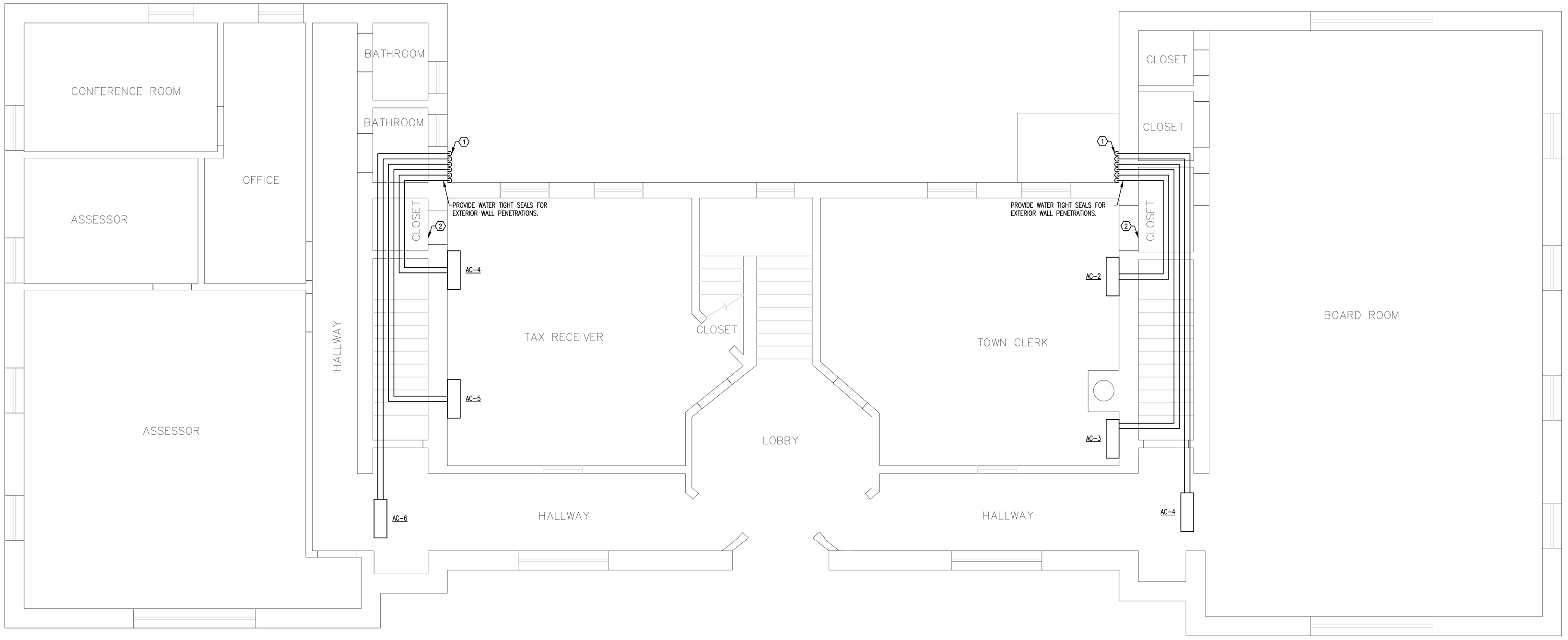
MECHANICAL PLAN

SCALE: AS INDICATED

M2.1



1 / M2.2 MECHANICAL PLAN - FIRST FLOOR

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

CONSTRUCTION NOTES:

1. REFRIGERANT LINES DOWN TO CONDENSING UNIT. CONFIRM ROUTING WITH OWNER. PIPE SIZES PER MANUFACTURER RECOMMENDATIONS.
2. ADD ALTERNATE #1: PROVIDE PRICING FOR CONDENSATE PUMP TO DISCHARGE CONDENSATE FROM THE NEAREST 3 EVAPORATORS. LOCATED PUMP IN CLOSET, HUNG FROM CEILING. ALTERNATE SHOULD BE EXERCISED IF CONDENSATE CANNOT BE GRAVITY DRAINED TO REAR EXTERIOR AND AT THE OWNER'S APPROVAL. REUSE EXISTING WALL RECEPTACLE FOR PUMP POWER.

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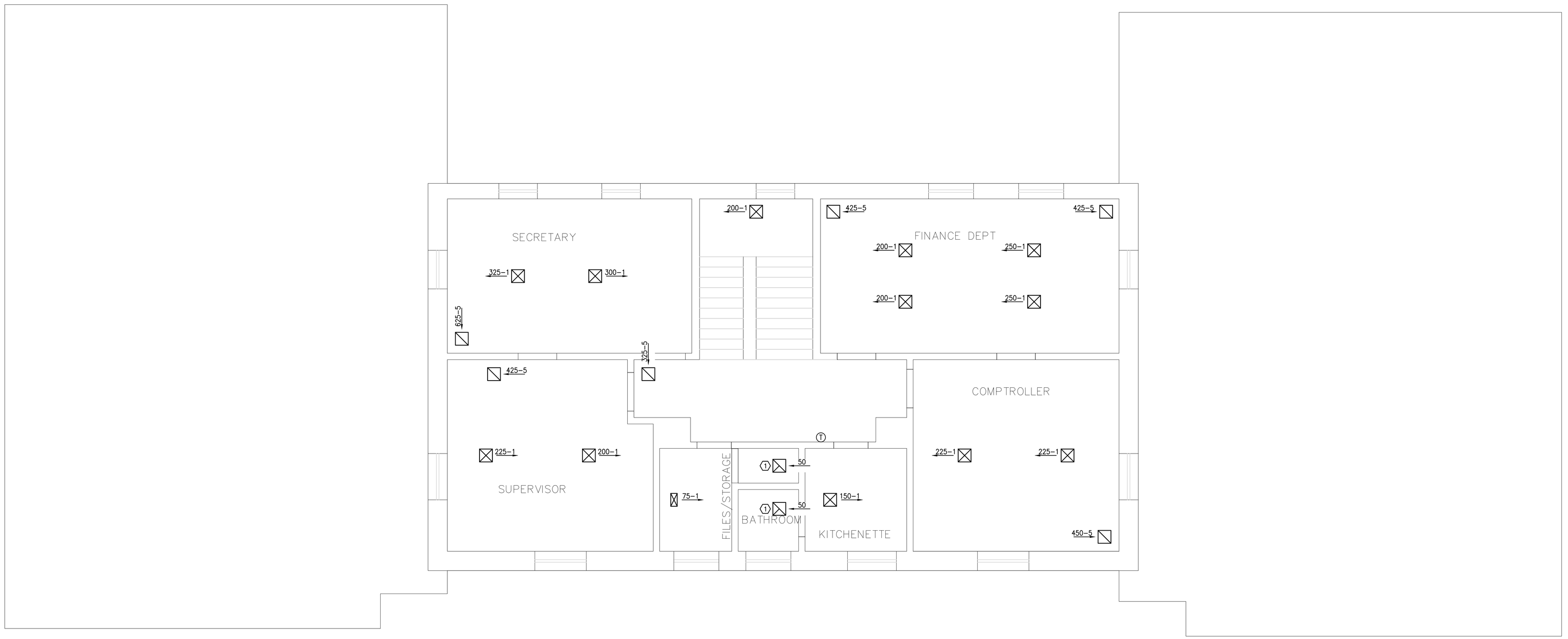
MECHANICAL PLAN

SCALE: AS INDICATED

M2.2



1 / M2.3 MECHANICAL PLAN - SECOND FLOOR

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

CONSTRUCTION NOTES:

1. CEILING MOUNTED EXHAUST FAN. FAN SHALL BE BROAN MODEL AE50, 50 CFM, 0.10 IN WG STATIC PRESSURE WITH 4" DUCT CONNECTION. FAN SHALL BE 120V/1Ø/60HZ. FAN SHALL BE PROVIDED WITH AN AUTOMATIC BACK DRAFT DAMPER. FAN SHALL BE WIRED INTO LIGHT SWITCH FOR ON/OFF CONTROL.

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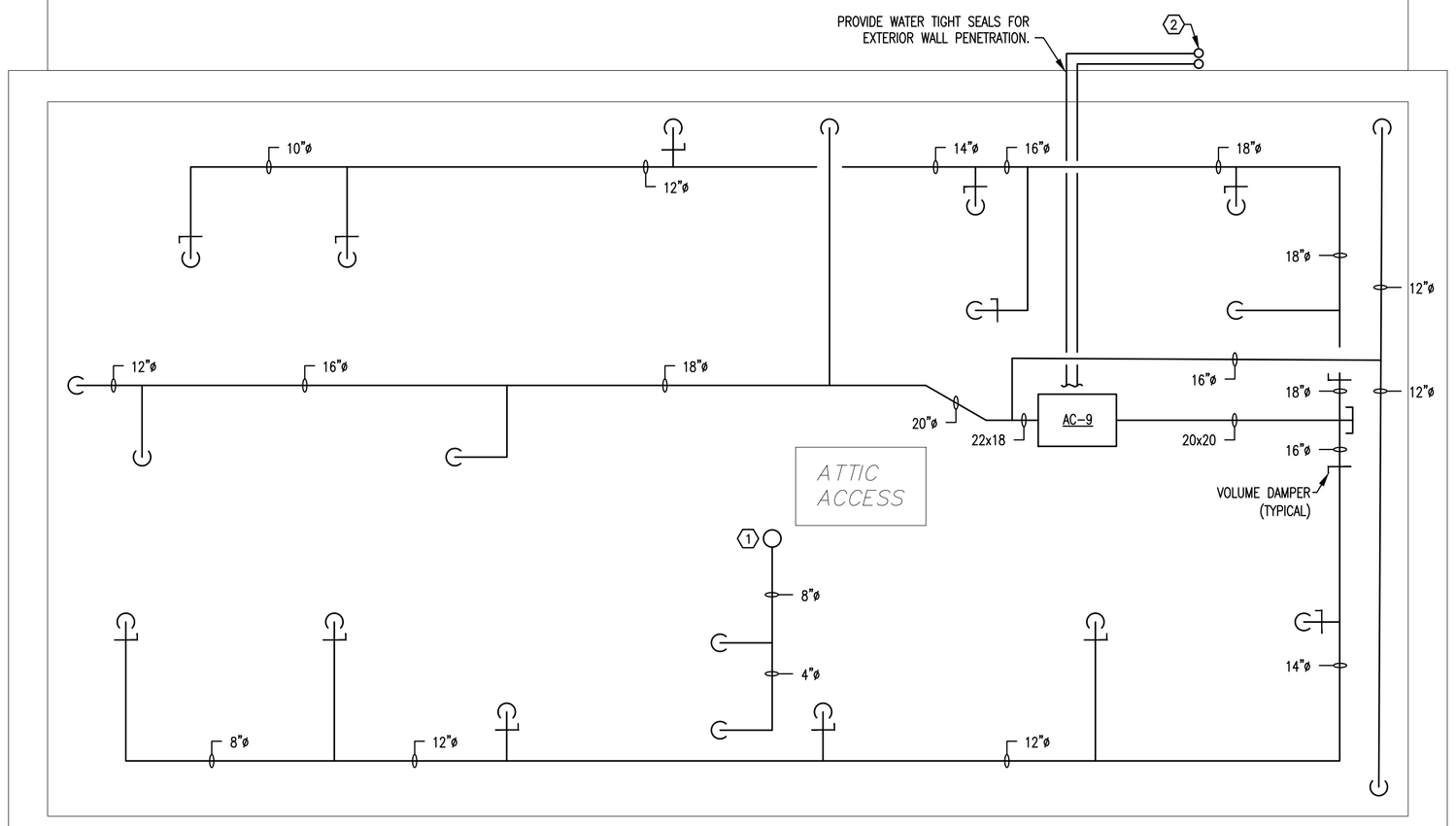
MECHANICAL PLAN

SCALE: AS INDICATED

M2.3



1
M2.4

MECHANICAL PLAN - ATTIC

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

CONSTRUCTION NOTES: ⬡

1. 8" EXHAUST UP THROUGH ROOF WITH GOOSENECK AND WIRE MESH SCREEN. NEW 8" DUCT SHALL FOLLOW PARALLEL TO EXISTING PLUMBING VENT STACK.
2. REFRIGERANT LINES BETWEEN AC-9 AND ACCU-9. CONFIRM EXTERIOR ROUTING WITH OWNER.

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MECHANICAL PLAN

SCALE: AS INDICATED

M2.4

AIR COOLED CONDENSING UNIT SCHEDULE

UNIT NO.	SYSTEM	AMBIENT TEMP DB (°F)	REFRIGERANT TYPE	NO OF CIRCUITS	TOTAL HEAT REJECTION (MBH)	CONDENSER FAN		ELECTRICAL			UNIT DIMENSIONS (LxWxH)	UNIT WEIGHT (LBS)	BASIS OF DESIGN		
						QTY	FLA EA	V/PH/HZ	MCA	MOPD			MANUFACTURER	MODEL	REMARKS
ACCU-9	AC-9	95	410A	1	84.6	2	1.65	208/3/60	36.9	50	59x32x45	386	JOHNSON CONTROLS	J07YEC00A20LB5	1,2,&3
ACCU-1	AC-1-7	105	410A	7	60	2	1.11	208/3/60	34	45	42X17X53	137	MITSUBISHI	PUMY-P60NK-UB	1,2,&3

REMARKS:
1. PROVIDE WITH INTEGRAL WEATHERPROOF DISCONNECT SWITCH.
2. PROVIDE UNIT WITH PROTECTIVE SCREEN FOR EACH COIL INLET FACE.
3. PROVIDE INSULATION ON ENTIRE SUCTION LINE BACK TO EVAPORATOR.

AIR DEVICE SCHEDULE

TYPE	SERVICE	STYLE	FACE SIZE (IN)	NECK SIZE (IN)	AIR FLOW RANGE (CFM)	MAXIMUM PRESSURE DROP (IN WG)	MAX NOISE (NC)	REMARKS
1,2,3,4	SUPPLY	PLAQUE	12"x12"	6"ø	0-150	0.1	35	
1,2,3,4	SUPPLY	PLAQUE	12"x12"	8"ø	151-350	0.1	35	
5	RETURN/EXHAUST	PLAQUE	12"x12"	8"ø	0-200	0.1	35	
5	RETURN/EXHAUST	PLAQUE	12"x12"	12"ø	201-650	0.1	35	

EQUIVALENT BRANCH DUCT SIZES TO SINGLE CD'S, CDR'S, AND CR'S

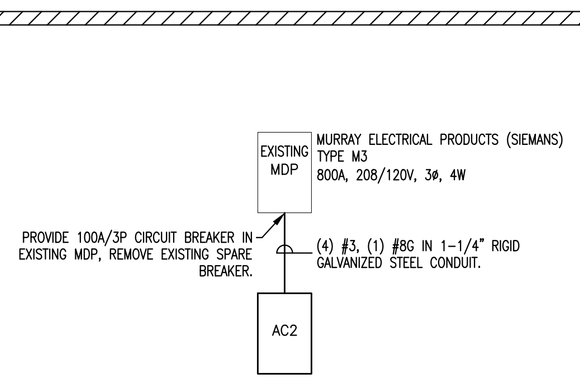
CEILING DIFFUSERS (CD)		CEILING DIFFUSER RETURNS (CDR)		CEILING REGISTERS (RD)	
CFM	BRANCH DUCT SIZE	CFM	BRANCH DUCT SIZE	CFM	BRANCH DUCT SIZE
UP TO 125	8"ø	UP TO 350	14X6	UP TO 200	12X6
126 TO 200	8"ø	351 TO 500	22X6	201 TO 300	16X5
201 TO 300	10"ø	501 TO 700	22X7	301 TO 350	16X6
301 TO 400	10"ø	701 TO 900	22X8	351 TO 480	20X6
401 TO 500	12"ø	90 TO 1100	22X9	481 TO 600	22X6
		1101 TO 1300	22X10	601 TO 730	24X7
		1301 TO 1600	26X10	731 TO 1000	28X7

AIR HANDLING UNIT SCHEDULE

UNIT NO.	SUPPLY FAN DATA										COOLING COIL DATA											ELECTRIC HEATING COIL									AIR FILTER DATA				ELECTRICAL						BASIS OF DESIGN		
	OA CFM	CFM	QTY	TOTAL SP (IN WC)	EXT. SP (IN WC)	FAN RPM	WHEEL TYPE	DRIVE TYPE	MOTOR			TOTAL COOLING (MBH)	SENSIBLE CAPACITY (MBH)	SPLIT COIL	MAX FACE VEL (FPM)	MAX FINS PER INCH	MIN ROWS	EAT DB/WB (°F)	LAT DB/WB (°F)	MAX AIR PD (IN WC)	DX			TOTAL HEAT (MBH)	TYPE	MAX FACE VEL. (FPM)	EAT DB (°F)	LAT DB (°F)	MAX AIR PD (IN WC)	ELECTRIC				MERV	THICK (IN)	NO. SIZE	FACE VEL (FPM)	V/PH/HZ	MCA	FLA	MOPD	UNIT DIMENSIONS (LxWxH)	MAX UNIT WEIGHT (LBS)	MANUFACTURER	MODEL	REMARKS
									BHP	HP	VSD										REFRIG. TYPE	QTY CIRCUITS	SST (°F)						CAPACITY (KW)	HEATING FLA	VOLTAGE	STAGES												
AC-9	0	2775	1	2.13	1.0	1287	IC	BELT	1.97	3	N	83	66.5	N	492	8	8	75/63	53/53	0.61	410A	4	45	30.7	ELEC	496	70	80	0.03	9.0	24.98	208/3/60	1	8	2	2-20"x25"	385	208/3/60	45.98	36.78	50	150X44X30	1007	JOHNSON CONTROLS	AM1-H-6	

SPLIT SYSTEM SCHEDULE

UNIT NO.	CONDENSING UNIT	AIRFLOW (CFM)	COOLING CAPACITY (MBH)	HEATING CAPACITY (MBH)	ELECTRICAL DATA					BASIS OF DESIGN	
					KW	FLA	V/PH/HZ	MCA	MOPD	MANUFACTURER	MODEL
AC-1	ACCU-1	237	8	9	0.03	0.25	208/1/60	0.24	15	MITSUBISHI	PLFY-P08NLMU-E
AC-2	ACCU-1	297	12	13.5	0.04	0.35	208/1/60	0.24	15	MITSUBISHI	PLFY-P12NLMU-E
AC-3	ACCU-1	297	12	13.5	0.04	0.35	208/1/60	0.24	15	MITSUBISHI	PLFY-P12NLMU-E
AC-4	ACCU-1	237	8	9	0.03	0.25	208/1/60	0.24	15	MITSUBISHI	PLFY-P08NLMU-E
AC-5	ACCU-1	237	8	9	0.03	0.25	208/1/60	0.24	15	MITSUBISHI	PLFY-P08NLMU-E
AC-6	ACCU-1	191	6	6.7	0.02	0.20	208/1/60	0.24	15	MITSUBISHI	PLFY-P06NLMU-E
AC-7	ACCU-1	191	6	6.7	0.02	0.20	208/1/60	0.24	15	MITSUBISHI	PLFY-P06NLMU-E



ONE-LINE DIAGRAM
SCALE: N.T.S.

ELECTRICAL SPECIFICATIONS:

A. PANELBOARDS

1. PANELBOARD SHALL BE FURNISHED COMPLETE WITH INTERIOR, BOX, TRIM DOOR, DOOR LOCK WITH KEY, AND TYPED PANELBOARD CIRCUIT DIRECTORY. PANELBOARDS SHALL BE EQUIPED WITH BOLT-ON CIRCUIT BREAKERS. PROVIDE FULL HEIGHT TIN OR SILVER PLATED ALUMINUM BUS BARS AND FULL SIZE NEUTRAL BUS. PROVIDE ISOLATED NEUTRAL AND SEPARATED GROUND BUS.

B. EXISTING PANELBOARDS

1. PROVIDE CIRCUIT BREAKERS AND ASSOCIATED BREAKER MOUNTING HARDWARE IN EXISTING PANELBOARDS AS REQUIRED. CIRCUIT BREAKER TYPE AND INTERRUPTING RATING TO MATCH EXISTING. REMOVE/RELOCATE EXISTING CIRCUIT BREAKERS AS REQUIRED FOR INSTALLATION OF NEW BREAKERS. UPDATE PANEL BRANCH CIRCUIT DIRECTORIES TO REFLECT PANEL MODIFICATIONS.

DESIGNATION: AC2

SINGLE PANEL ■ DOUBLE PANEL □ COMMON COVER □

MAINS: 100A | VOLTAGE: 208/120V-3ø-4W | LOCATION: BOILER RM
TYPE: MECHANICAL | MINIMUM O.C. DEVICE INTERRUPTING RATING: 10,000 AIC | FED BY: MDP
O.C. DEVICE: MLO | MOUNTING: SURFACE

CKT.	P	TRIP	WIRE	G	C	Description	KVA ø A	KVA ø B	KVA ø C	Description	C	G	WIRE	TRIP	P	CKT.
1							3.54	3.26								2
3	3	50	2#12	12	3/4"	ACCU-9		3.54	3.26	ACCU-1	3/4"	12	2#12	45	3	4
5									3.54	3.26						6
7							4.41	0.11		AC-1 THRU AC-7	3/4"	12	2#12	15	2	8
9	3	50	2#12	12	3/4"	AC-9		4.41	0.11							10
11									4.41	SPARE BREAKER					20	2	12
13																14
15	3	20				SPARE BREAKER				SPARE BREAKER					20	1	16
17										SPARE BREAKER					20	1	18
19	2	20				SPARE BREAKER				SPARE BREAKER					20	1	20
21										SPARE BREAKER					20	1	22
23						SPACE AND PROVISIONS				SPACE AND PROVISIONS							24
						CONNECTED KVA PER PHASE	11.32	11.32	11.21								

TOTAL CONNECTED KVA: 33.85 | TOTAL CONNECTED AMPERES: 94.03

1 / M3.1 DEDUCT ALTERNATE 1
SCALE: N.T.S.

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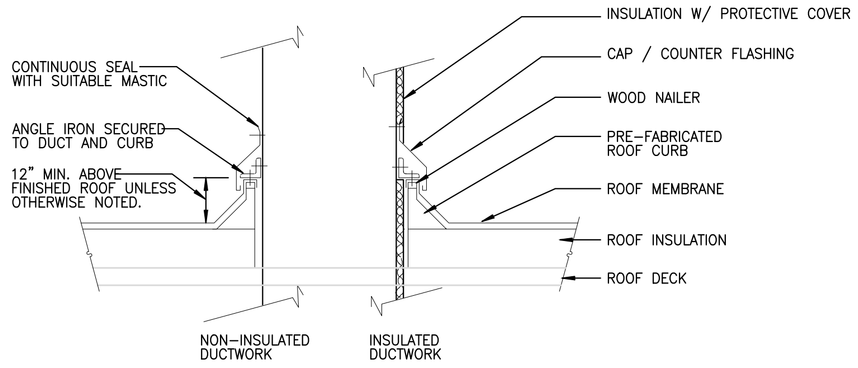
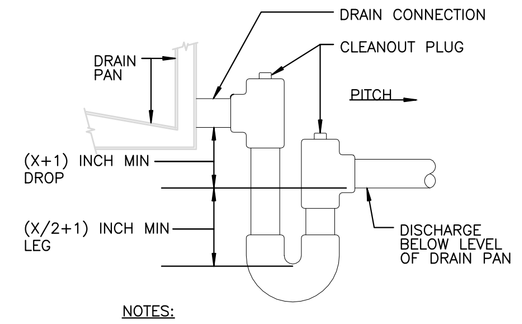
MECHANICAL SCHEDULES

SCALE: NONE

M3.1



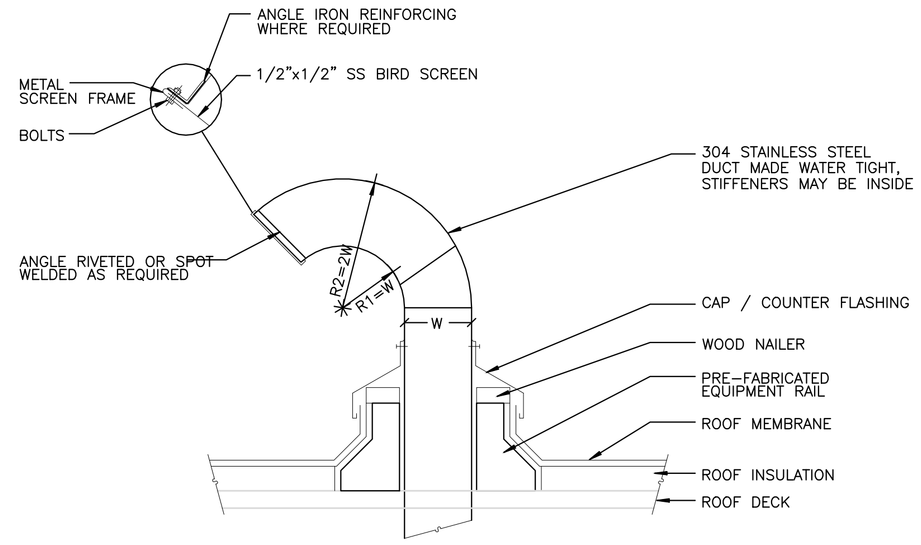
1 M4.1 **DUCT THROUGH ROOF**
SCALE: N.T.S.



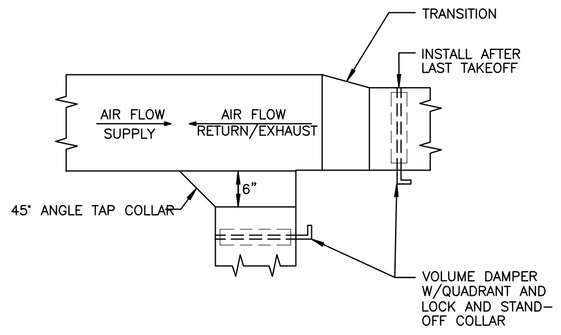
NOTES:

1. X= SUCTION PRESSURE IN SECTION (NEGATIVE INTERNAL S.P. IN INCHES WC)
2. FOR AIR HANDLING UNITS X= 4" WC
3. FOR FAN COIL UNITS X= 1" WC

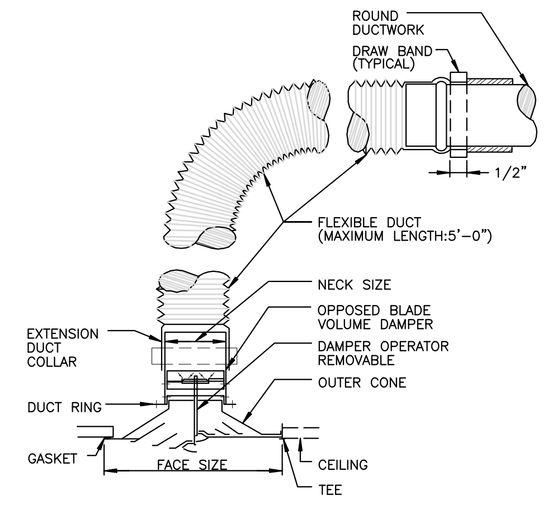
2 M4.1 **CONDENSATE DRAIN P-TRAP DETAIL**
SCALE: N.T.S.



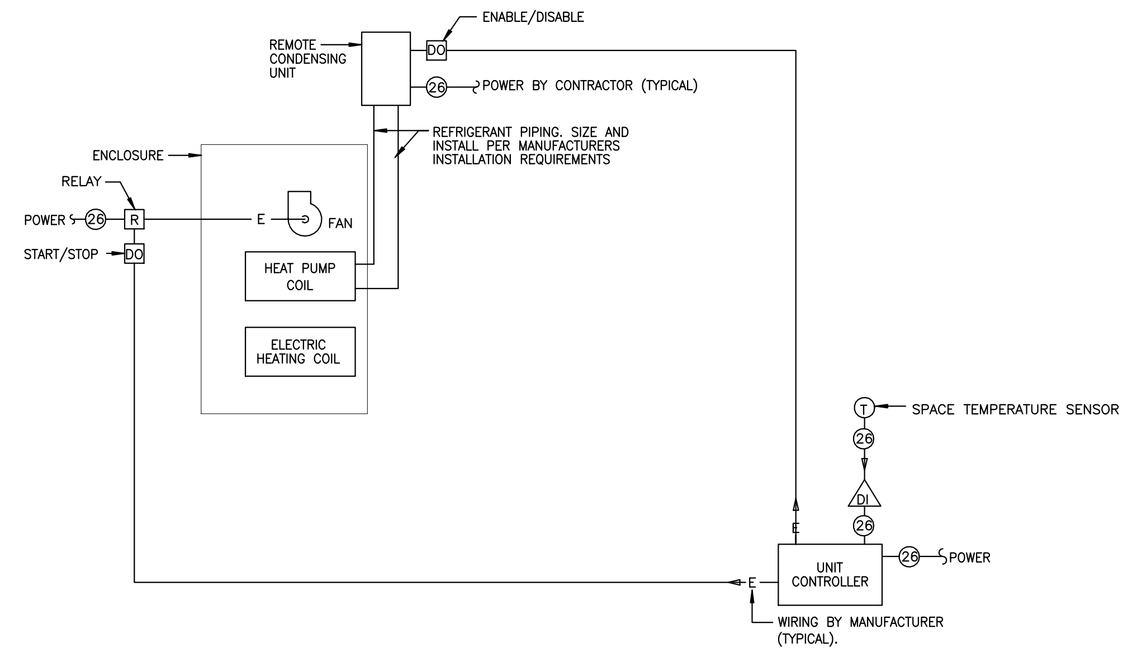
3 M4.1 **TYPICAL GOOSENECK**
SCALE: N.T.S.



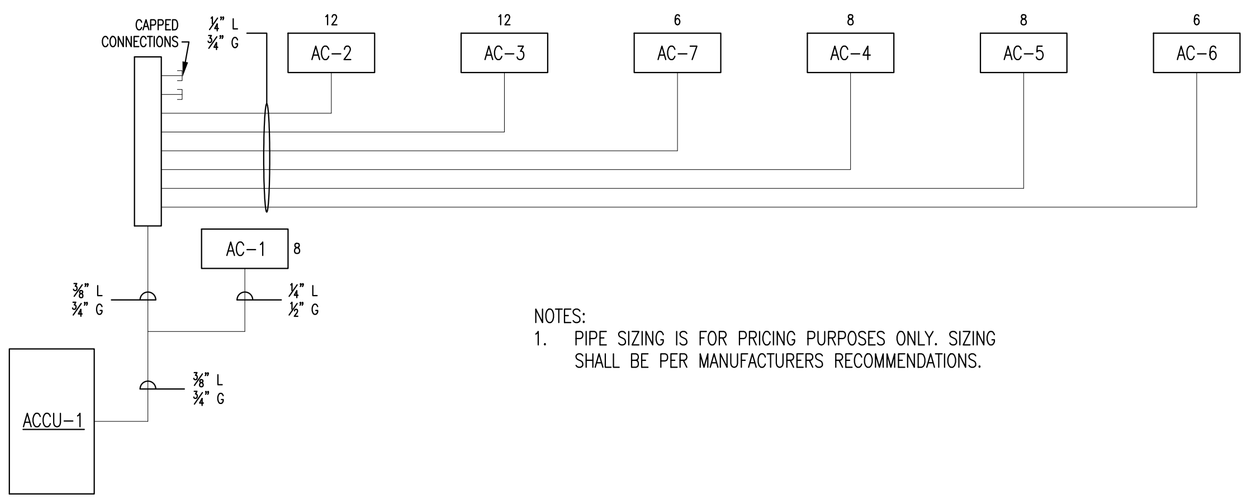
4 M4.1 **DUCT TAKE-OFF**
SCALE: N.T.S.



5 M4.1 **TYPE 1,2,3 AND 4 CEILING DIFFUSER**
SCALE: N.T.S.



6 M4.1 **AIR HANDLING UNIT - FLOW AND CONTROLS DIAGRAM**
SCALE: N.T.S.



NOTES:

1. PIPE SIZING IS FOR PRICING PURPOSES ONLY. SIZING SHALL BE PER MANUFACTURERS RECOMMENDATIONS.

7 M4.1 **SPLIT SYSTEM PIPING DIAGRAM**
SCALE: N.T.S.

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MECHANICAL DETAILS

SCALE: NONE

M4.1

PART 1 – GENERAL

A. GENERAL PROVISIONS:

1. THE MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR VISITING THE SITE OF WORK AND, BY THEIR OWN INVESTIGATION, FAMILIARIZE THEMSELVES WITH THE EXISTING CONDITIONS AND QUANTITY OF WORK TO BE DONE UNDER THESE DOCUMENTS.

2. THE MECHANICAL CONTRACTOR SHALL MAINTAIN A CLEAN WORKING ENVIRONMENT.

B. SCOPE OF WORK:

1. FURNISH ALL LABOR AND MATERIALS NECESSARY TO INSTALL AND PLACE INTO OPERATION THE EQUIPMENT AND SYSTEMS DESCRIBED HEREIN AND/OR SHOWN ON THE DRAWINGS. REPAIR REUSED EXISTING EQUIPMENT, CONTROLS, AND SYSTEMS SUCH THAT THEY PROVIDE RELIABLE, TROUBLE FREE OPERATION.

C. CODES, ORDINANCES, AND PERMITS:

1. ALL WORK DONE UNDER THIS CONTRACT SHALL BE ACCOMPLISHED IN ACCORDANCE WITH APPLICABLE STATE AND LOCAL CODES AND ORDINANCES.

D. SUBMITTALS

1. PROVIDE DIGITAL COPIES FOR ALL MECHANICAL SYSTEM EQUIPMENT AND COMPONENTS TO THE OWNER FOR APPROVAL. PROVIDE SPECIFIC DESCRIPTION OF BUILDING/MECHANICAL SYSTEM MODIFICATIONS DUE TO THE USE OF ALTERNATE MATERIALS/METHODS OF WORK. COORDINATE ALL MODIFICATIONS WITH DISCIPLINES AFFECTED BY SAID MODIFICATIONS. ANY SUBSTITUTIONS FROM THE ORIGINAL SPECIFICATIONS MUST BE HIGHLIGHTED FOR REVIEWS.

2. SUBSTITUTIONS FOR SPECIFIED MANUFACTURERS SHALL BE OF EQUAL OR BETTER QUALITY THAN SPECIFIED MANUFACTURERS AS DETERMINED BY THE OWNER. THE CONTRACTOR IS RESPONSIBLE FOR THE ADDED COST AND IMPLEMENTATION OF ANY CHANGES DUE TO SUBSTITUTION.

E. ELECTRICAL CHARACTERISTICS:

1. THE MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR ANY MISCELLANEOUS CONTROL WIRING REQUIRED FOR OPERATION OF THE DESCRIBED SYSTEM.

2. MOTORS 1/2 HP AND SMALLER SHALL BE SUITABLE FOR SINGLE PHASE ELECTRIC SERVICE.

3. MOTORS 3/4 HP AND LARGER SHALL BE SUITABLE FOR THREE–PHASE ELECTRIC SERVICE AS NOTED.

F. GUARANTEE:

1. THE MECHANICAL CONTRACTOR SHALL GUARANTEE THAT ALL MATERIALS AND WORK FURNISHED UNDER THIS SECTION SHALL BE FREE FROM DEFECTS FOR ONE YEAR FROM THE DATE OF ACCEPTANCE.

2. PROVIDE ALL LABOR, MATERIAL, AND EQUIPMENT NECESSARY TO CORRECT DEFECTS IN THE WORK DURING THE GUARANTEE PERIOD.

G. SEISMIC RESTRAINT AND BRACING:

1. PROVIDE AND INSTALL SEISMIC RESTRAINTS FOR ALL EQUIPMENT, PIPING, DUCTWORK AND ELECTRICAL AS REQUIRED BY 2020 MECHANICAL CODE OF NEW YORK STATE. UTILIZE VENDOR THOROUGHLY FAMILIAR WITH ALL ASPECTS OF THE CODE. ACCEPTABLE MANUFACTURERS INCLUDE MASON INDUSTRIES, KINETICS. CONTRACTOR TO SUBMIT ALL CALCULATIONS.

PART 2 – PRODUCTS

A. SLEEVES, INSERTS AND OPENINGS:

1. PROVIDE SLEEVED OPENINGS FOR ALL PIPING IN FLOOR AND WALL CONSTRUCTION. PROVIDE INFORMATION TO THE GENERAL CONTRACTOR FOR ALL NECESSARY BOXED OPENINGS TO ACCOMMODATE DUCTWORK.

2. SEAL ALL PIPING PENETRATIONS AIR AND WATER TIGHT WITH PROPER MATERIAL SO AS TO MAINTAIN THE INTEGRITY OF THE PENETRATED BARRIER.

B. VIBRATION ISOLATION:

1. PROVIDE VIBRATION ISOLATION DEVICES FOR ALL MECHANICAL EQUIPMENT FURNISHED UNDER THIS SECTION AS SUITS THE APPLICATION.

C. PIPING MATERIALS:

1. DX PIPING SHALL BE PREPACKAGED TUBING KITS OR TYPE 'ACR' COPPER TUBING, WROUGHT COPPER FITTINGS AND ASSEMBLED USING SILVER SOLDER BRAZED JOINT CONSTRUCTION, OR PER MANUFACTURER'S REQUIREMENTS.

2. CONDENSATE DRAIN PIPING SHALL BE CPVC PLASTIC PIPE WITH SOLVENT CEMENTED JOINTS.

3. FITTINGS:

   a. WROUGHT–COPPER FITTINGS: ANSI B 16.22, STREAMLINED PATTERN.
   b. CAST–IRON THREADED FITTINGS: ANSI B 16.4 CLASS 125.
   c. UNIONS: ANSI B 16.39 MALLEABLE–IRON, CLASS 150, HEXAGONAL STOCK WITH METAL TO METAL BRONZE SEATED SURFACES; FEMALE THREADED ENDS.
   d. SOLDER FILLER METALS: ASTM B32 95–5 TIN ANTIMONY.

4. Y–PATTERN STRAINER: 125 PSIG WORKING PRESSURE CAST–IRON BODY (ASTM A 126, CLASS B) WITH THREADED CONNECTIONS, BOLTED COVER, PERFORATED TYPE 304 STAINLESS STEEL BASKET AND BOTTOM DRAIN CONNECTION.

5. PRESSURE–REGULATING VALVES: SINGLE–SEATED, DIRECT–OPERATED TYPE, HAVING BRONZE BODY WITH INTEGRAL STRAINER AND COMPLYING WITH REQUIREMENTS OF ASSE STANDARD 1003. SELECT PROPER SIZE FOR MAXIMUM FLOW RATE AND INLET AND OUTLET PRESSURES INDICATED.

D. DUCTWORK MATERIALS:

1. ALL DUCTWORK SHALL COMPLY WITH APPLICABLE SMACNA REQUIREMENTS AND NFPA 90A.

2. CONSTRUCT DUCTWORK OF GALVANIZED SHEET STEEL OF LOCK–FORMING QUALITY, ASTM A 527, COATING DESIGNATION G90.

3. CONSTRUCT FLEXIBLE CONNECTIONS OF NEOPRENE–COATED FLAMEPROOF FABRIC CRIMPED INTO DUCT FLANGES FOR ATTACHMENT TO DUCT AND EQUIPMENT.

4. FLEXIBLE DUCT SHALL BE CONSTRUCTED OF TWO–PLY LAMINATE MECHANICALLY CORRUGATED BONDED ALUMINUM INNER CORE COVERED BY ONE INCH THICK FIBERGLASS INSULATION OF ONE POUND DENSITY. FIBERGLASS SHALL BE COVERED WITH A 2.5 MIL POLYETHYLENE VAPOR BARRIER. FLEXIBLE DUCT SHALL MEET THE LATEST REQUIREMENTS OF UL STANDARD 181, CLASS 1, FLEXIBLE AIR DUCT. DUCT TO BE RATED FOR 12 INCHES POSITIVE OR NEGATIVE PRESSURE.

5. DUCT ACCESS DOORS SHALL BE CONSTRUCTED OF SAME OR GREATER GAUGE AS DUCTWORK. PROVIDE INSULATED ACCESS DOORS FOR INSULATED DUCTWORK. GASKET ALL EDGES AIRTIGHT, SIZE ACCESS DOORS TO PERMIT MAINTENANCE. MINIMUM SIZE 15" x 15" OR AS LARGE AS AVAILABLE DUCT SPACE WILL ALLOW.

6. TURNING VANES SHALL BE CONSTRUCTED IN ACCORDANCE WITH SMACNA REQUIREMENTS.

7. LOW PRESSURE MANUAL DAMPERS SHALL BE OF SINGLE BLADE TYPE OR MULTIBLADE TYPE CONSTRUCTION IN ACCORDANCE WITH SMACNA REQUIREMENTS.

E. INSULATING MATERIALS:

1. ACCEPTABLE MANUFACTURERS INCLUDE OWENS–CORNING FIBERGLASS CORP., SCHULLER, AND CERTAINTEED MANSON.

2. FIBERGLASS PIPING INSULATION: ASTM C 547, CLASS 1 UNLESS OTHERWISE INDICATED.

3. FLEXIBLE UNICELLULAR PIPING INSULATION: ASTM C 534, TYPE 1.

4. JACKETS FOR PIPING INSULATION: ASTM C 1136, TYPE 1 VAPOR BARRIER, ALL SERVICE JACKET. ENCASE FIBERGLASS PIPE FITTING INSULATION WITH ONE–PIECE PREMOLDED PVC FITTING COVERS, INSTALL PER MANUFACTURERS INSTRUCTIONS.

5. FOR PIPE INSTALLATION, PROVIDE AND INSTALL ALL STAPLES, BANDS, WIRES, CEMENT, ADHESIVES, SEALERS, AND PROTECTIVE FINISHES AS RECOMMENDED BY INSULATION MANUFACTURER FOR GIVEN APPLICATIONS.

6. FLEXIBLE FIBERGLASS DUCT INSULATION: ASTM C 553, TYPE 1, CLASS B–4, MINIMUM 1.5 LB.CU.FT DENSITY. ALUMINUM FOIL FACING, MINIMUM 0.001 INCHES THICK REINFORCED WITH GLASS FIBER YARN MESH AND LAMINATED TO 40 POUND PERMANENTLY TREATED, FIRE RESISTANT KRAFT WITH A MINIMUM R–VALUE OF 5.0.

7. RIGID FIBERGLASS DUCT INSULATION: ASTM C 612, CLASS 1, 3 LB./CU.FT. DENSITY. ALUMINUM FOIL FACING, MINIMUM 0.001 INCHES THICK REINFORCED WITH GLASS FIBER YARN MESH AND LAMINATED TO 40 POUND, PERMANENTLY TREATED, FIRE RESISTANT KRAFT WITH A MINIMUM R–VALUE OF 3.5.

8. JACKETS FOR DUCT INSULATION: ASTM C 921, TYPE 1, FOR DUCTWORK WITH TEMPERATURES BELOW AMBIENT, TYPE II FOR DUCTWORK WITH TEMPERATURES ABOVE AMBIENT. FACTORY APPLIED VAPOR BARRIER.

9. DUCT INSULATION SHALL MEET NFPA 90 PERFORMANCE STANDARDS AND HAVE FIRE HAZARD CLASSIFICATION IN ACCORDANCE WITH ASTM E84, NFPA 225, AND U.L. 723. THE DUCT INSULATION SHALL NOT EXCEED FLAME SPREAD 25, FUEL CONTRIBUTION 50, SMOKE DEVELOPED 50.

10. FOR DUCT INSULATION, PROVIDE ALL STAPLES, BANDS, WIRES, TAPE, ANCHORS, CORNER ANGLES, CEMENTS, ADHESIVES, COATINGS, SEALERS, PROTECTIVE FINISHES AND OTHER ITEMS AS RECOMMENDED BY INSULATION MANUFACTURER FOR GIVEN APPLICATION.

11. FOR OUTDOOR PIPE APPLICATIONS, PROVIDE CLOSED CELL RIGID FIBERGLASS INSULATION WITH ALUMINUM JACKET WITH MOISTURE BARRIER WITH LOCKING LONGITUDINAL STEAM AND BUTT STRAPS. FOR FITTINGS, VALVES, ETC, PROVIDE FACTORY OR JOB FABRICATED ALUMINUM COVER SECURED WITH BANDING AND/OR SCREWS.

F. DIFFUSERS, REGISTERS, AND GRILLES:

1. PROVIDE EQUIPMENT AS MANUFACTURED BY PRICE, ANEMOSTAT, KRUEGER, TITUS OR TUTTLE & BAILEY, EQUAL TO THE MANUFACTURER'S MODELS SCHEDULED.

2. CONSTRUCT REGISTERS AND GRILLES OF ALUMINUM OR STEEL WITH BAKED ENAMEL FINISH, UNLESS OTHERWISE INDICATED, AND PROVIDE WITH FRAME TYPE APPROPRIATE TO THE INSTALLATION. SUBMIT COLOR CHART, COLOR TO BE SELECTED BY OWNER.

3. SUPPLY REGISTERS AND GRILLES SHALL BE DOUBLE DEFLECTION FULLY ADJUSTABLE TYPE WITH INTEGRAL OPPOSED BLADE VOLUME CONTROL DAMPERS, OPERABLE FROM THE FACE. RETURN AND EXHAUST REGISTERS AND GRILLES SHALL HAVE A CORE OF FIXED BLADES.

4. CEILING AIR DIFFUSERS (TYPE 1, 2, 3, 4) EQUAL TO ANEMOSTAT PGF. PLAQUE FACE DIFFUSER WITH 1/2" DROP; 360° DISCHARGE PATTERN STEEL CONSTRUCTION. PROVIDE VOLUME DAMPERS, ARTIC WHITE FINISH. DIFFUSER SHALL BE SURFACE MOUNTED.

G. DAMPERS: X.

1. PROVIDE AUTOMATIC CONTROL DAMPERS AS INDICATED, WITH DAMPER FRAMES NOT LESS THAN FORMED 13–GA GALVANIZED STEEL. PROVIDE MOUNTING HOLES FOR ENCLOSED DUCT MOUNTING. PROVIDE DAMPER BLADES NOT LESS THAN FORMED 16–GAUGE GALVANIZED STEEL, WITH MAXIMUM BLADE WIDTH OF 8 INCH. ACCEPTABLE MANUFACTURERS INCLUDE RUSKIN MFG. CO., ARROW UNITED INDUSTRIES INC., LOUVERS & DAMPERS INC.

2. SECURE BLADES TO 1/2 INCH DIAMETER ZINC–PLATED AXLES USING ZINC–PLATED HARDWARE. SEAL OFF AGAINST SPRING STAINLESS STEEL BLADE BEARINGS. PROVIDE BLADE BEARINGS OF NYLON AND PROVIDE THRUST BEARINGS AT EACH END OF EVERY BLADE. CONSTRUCT BLADE LINKAGE HARDWARE OF ZINC–PLATED STEEL AND BRASS. SIZE AS INDICATED ON DRAWINGS.

3. OPERATING TEMPERATURE RANGE: FROM -20° TO 200°F.

4. PROVIDE PARALLEL OR OPPOSED BLADE DESIGN (AS SELECTED BY MANUFACTURER'S SIZING TECHNIQUES) WITH OPTIONAL CLOSED–CELL NEOPRENE EDGING.

5. SIZE EACH MOTOR TO OPERATE DAMPERS WITH SUFFICIENT RESERVE POWER TO PROVIDE SMOOTH MODULATING ACTION OR 2 POSITION ACTION AS SPECIFIED. PROVIDE PERMANENT SPLIT–CAPACITOR OR SHADED POLE TYPE MOTORS WITH GEAR TRAINS COMPLETELY OIL–IMMERSED AND SEALED. EQUIP SPRING–RETURN MOTORS, WHERE INDICATED ON DRAWINGS OR IN OPERATIONAL SEQUENCE, WITH INTEGRAL SPIRAL–SPRING MECHANISM. FURNISH ENTIRE SPRING MECHANISM IN HOUSINGS DESIGNED FOR EASY REMOVAL FOR SERVICE OR ADJUSTMENT OF LIMIT SWITCHED, AUXILIARY SWITCHES, OR FEEDBACK POTENTIOMETER.

H. PACKAGE AIR CONDITIONER (AC–9, ACCU–9):

1. AIR HANDLER: AIR HANDLING UNIT SHALL BE COMPLETELY FACTORY ASSEMBLED INCLUDING COIL, CONDENSATE DRAIN PAN, FAN, MOTOR, FILTERS AND CONTROLS IN AN INSULATED CASING FOR HORIZONTAL CONFIGURATION. CASING SHALL CONSIST OF DOUBLE WALL RUGGED SHEET METAL AND STEEL CONSTRUCTION WITH PAINTED ENAMEL FINISH. THE DOUBLE WALL CABINET SHALL BE INSULATED WITH 1" THICK FIBERGLASS INSULATION. THE SINGLE REFRIGERANT CIRCUIT SHALL BE CONTROLLED BY A FACTORY INSTALLED FLOW CONTROL CHECK VALVE. THE ALUMINUM FIN EVAPORATOR COIL SHALL BE MECHANICALLY BONDED TO 1/2 INCH COPPER TUBING. THE COIL SHALL BE FACTORY PRESSURE AND LEAK TESTED. THE CONDENSATE DRAIN PAN SHALL BE SLOPED TO PREVENT STANDING WATER AND SHALL BE CONSTRUCTED OF 18 GAUGE G60 GALVANIZED OR STAINLESS STEEL. THE FORWARD CURVED BELT DRIVEN FAN SHALL BE STATICALLY AND DYNAMICALLY BALANCED WITH SELF–ALIGNING, NON–REVERSIBLE BALL BEARINGS. PROVIDE CONTACTOR TYPE MOTOR STARTER. THE TWO INCH, LOW VELOCITY REPLACABLE FILTERS SHALL BE PROVIDED WITH THE UNIT. A LOW VOLTAGE TERMINAL CONTROL BOARD SHALL BE PROVIDED. PROVIDE HINGE TYPE ACCESS DOORS WITH QUICK–ACTION LATCHES ON SIDE WITH COIL CONNECTIONS.

2. CONDENSING UNIT: THE UNIT SHALL BE COMPLETELY FACTORY ASSEMBLED INCLUDING COMPRESSOR, CONDENSER COIL, FAN AND CONTROLS IN A WEATHER RESISTANT CASING. CASING SHALL BE CONSTRUCTED OF HEAVY GAGE GALVANIZED STEEL WITH A WEATHER RESISTANT FINISH. HERMETIC COMPRESSOR SHALL FEATURE A INTERNAL OVER TEMPERATURE AND PRESSURE PROTECTION. THE COMPRESSOR SHALL BE INTERNALLY ISOLATED. THE CONDENSER COIL SHALL BE CONSTRUCTED FOR CORROSION RESISTANCE WITH ALUMINUM FINS GLUED TO SEAMLESS ALUMINUM TUBE. THE UNIT SHALL HAVE LOW AMBIENT CONTROLS.

I. SPLIT SYSTEM EVAPORATORS (AC–1 – AC–7):

1. THE WALL MOUNTED INDOOR UNIT SHALL BE FACTORY ASSEMBLED, WIRED AND RUN TESTED. CONTAINED WITHIN THE UNIT SHALL BE ALL FACTORY WIRING, PIPING, ELECTRONIC MODULATING LINEAR EXPANSION DEVICE, CONTROL CIRCUIT BOARD AND FAN MOTOR. THE UNIT SHALL HAVE A SELF–DIAGNOSTIC FUNCTION, 3–MINUTE TIME DELAY MECHANISM, AN AUTO RESTART FUNCTION, AND A TEST RUN SWITCH. INDOOR UNIT AND REFRIGERANT PIPES SHAL BE CHARGED WITH DEHYDRATED AIR BEFORE SHIPMENT.

2. ALL CASINGS, REGARDLESS OF MODEL SIZE, SHALL HAVE THE SAME WHITE FINISH. MULTIDIRECTIONAL DRAIN AND REFRIGERANT PIPING OFFERING FOUR (4) DIRECTIONS FOR REFRIGERANT PIPING AND TWO (2) DIRECTIONS FOR DRAINING ARE REQUIRED. THERE SHALL BE A SEPARATE BACK PLATE WHICH SECURES THE UNIT FIRMLY TO THE WALL.

3. THE INDOOR FAN SHALL BE STATICALLY AND DYNAMICALLY BALANCED TO RUN ON A SINGLE MOTOR WITH PERMANENTLY LUBRICATED BEARINGS.

4. THE INDOOR COIL SHALL BE OF NONFERROUS CONSTRUCTION WITH SMOOTH PLATE FINS ON COPPER TUBING. THE TUBING SHALL HAVE INNER GROOVES FOR HIGH EFFICIENCY HEAT EXCHANGE. ALL TUBE JOINTS SHALL BE BRAZED WITH PHOS–COPPER OR SILVERY ALLOY.

J. AIR COOLED CONDENSING UNIT (ACCU–1):

1. THE OUTDOOR UNIT MODULES SHALL BE AIR–COOLED, DIRECT EXPANSION (DX), MULTI–ZONE UNITS USED SPECIFICALLY WITH VRF COMPONENTS. THE OUTDOOR UIT MODULES SHALL BE EQUIPPED WITH A SINGLE COMPRESSOR WHICH IS INVERTER–DRIVEN AND MULTIPLE CIRCUIT BOARDS – ALL OF WHICH MUST BE MANUFACTURERED BY THE BRANDED VRF MANUFACTURER. EACH OUTDOOR UNIT MODULE SHALL BE COMPLETELY FACTORY ASSEMBLED, PIPED AND WIRED AND RUN TESTED AT THE FACTORY.

2. REFRIGERANT LINES FROM THE OUTDOOR UNIT TO THE INDOOR UNITS SHALL BE SIZED, INSTALLED, AND INSULATED IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION MANUAL.

3. THE OUTDOOR UNIT SHALL HAVE AN ACCUMULATOR WITH REFRIGERANT LEVEL SENSORS AND CONTROLS. THE OUTDOOR UNIT SHALL HAVE A HIGH PRESSURE SAFETY SWITCH, OVER–CURRENT PROTECTION, CRANKCASE HEATER AND DC BUS PROTECTION.

4. THE UNIT CASING SHALL BE FABRICATED OF GALVANIZED STEEL, BONDERIZED AND FINISHED. OUTDOOR UNIT COMPONENTS SHALL BE COATED WITH THE SEACOAST PROTECTION COATING (BRINE SPRAY – BS COATING) TO PROTECT FROM PREMATURE CORROSION DUE TO A SEACOAST ENVIRONMENT. COATING SHALL BE APPLIED TO COMPONENTS BEFORE ORIGINAL OUTDOOR UNIT ASSEMBLY.

5. EACH OUTDOOR UNIT MODULE SHALL BE FURNISHED WITH DIRECT DRIVE, VARIABLE SPEED PROPELLER TYPE FAN(S) ONLY. ALL FAN MOTORS SHALL HAVE INHERENT PROTECTION, HAVE PERMANENTLY LUBRICATED BEARINGS, AND BE COMPLETELY VARIABLE SPEED.

6. THE OUTDOOR COIL SHALL BE OF NONFERROUS CONSTRUCTION WITH LANCED OR CORRUGATED FINS ON COPPER TUBING. THE COIL FINS WILL HAVE A FACTORY APPLIED CORROSION RESISTANT BLUE–FIN FINISH.THE COIL SHALL BE PROTECTED WITH AN INTEGRAL METAL GUARD. REFRIGERANT FLOW FROM THE OUTDOOR UNIT SHALL BE CONTROLLED BY MEANS OF AN INVERTER DRIVEN COMPRESSOR.

7. EACH OUTDOOR UNIT MODULE SHALL BE EQUIPPED WITH ONLY INVERTER DRIVEN SCHOLL HERMETIC COMPRESSORS. NON INVERTER–DRIVEN COMPRESSORS, WHICH MAY CAUSE INRUSH CURRENT (DEMAND CHARGES) AND REQUIRE LARGER GENERATORS FOR TEMPORARY POWER SHALL NOT BE ALLOWED. CRANKCASE HEAT SHALL BE PROVIDED VIA INDUCTION–TYPE HEATER UTILIZING EDDY CURRENTS FROM MOTOR WINDINGS. ENERGY–WASTING "BELLY–BAND" TYPE CRANKCASE HEATERS ARE NOT ALLOWED. COMPRESSOR SHALL HAVE AN INVERTER TO MODULATE CAPACITY. THE COMPRESSOR SHALL BE EQUIPPED WITH AN INTERNAL THERMAL OVERLOAD.

PART 3 – EXECUTION

A. PLANS AND SPECIFICATIONS: THE PLANS AND SPECIFICATIONS ARE INTENDED TO PROVIDE A GENERAL SCOPE OF WORK.

B. WORK COORDINATION AND JOB OPERATIONS: THE MECHANICAL CONTRACTOR SHALL COORDINATE HIS WORK WITH OTHER TRADES, PROVIDING TIMELY INFORMATION ON HIS NEEDS AND RESPOND IN A TIMELY MANNER TO REQUESTS BY OTHERS.

C. MATERIALS AND WORKMANSHIP: ALL MATERIALS SHALL BE NEW AND WITHOUT DAMAGED PARTS. ALL WORK SHALL BE ACCOMPLISHED BY WORKMEN TRAINED IN THAT PARTICULAR FUNCTION OR TASK.

D. PROTECTION AND CLEANUP: ALL MATERIALS SHALL BE SUITABLY STORED DURING CONSTRUCTION TO PREVENT DAMAGE AND/OR DETERIORATION. KEEP THE SITE CLEAN OF DEBRIS DUE TO THESE OPERATIONS. CAP/SEAL OR OTHERWISE PROTECT PIPING AND DUCTWORK FROM FOREIGN MATERIAL DURING CONSTRUCTION. AIR FILTERS UPSTREAM OF COILS SHALL BE CHANGED REGULARLY TO PREVENT BUILDUP OF MATERIAL ON COIL. FILTERS SHALL BE CHANGED AT LEAST WEEKLY OR WHEN FULLY LOADED.

E. SYSTEM STARTUP AND OPERATION: PROVIDE ALL LABOR, MATERIALS, AND EQUIPMENT TO PLACE THE HVAC SYSTEMS INTO OPERATION. MAINTAIN OPERATION DURING BALANCING AND INSTRUCTION PERIODS. INSURE ALL EQUIPMENT IS RUNNING PROPERLY WITH PROPER LUBRICATION, WITHOUT EXCESSIVE VIBRATION, AND PROPER ELECTRICAL CHARACTERISTICS. PROVIDE OWNER WITH ANY MANUALS, AIR BALANCE REPORTS PRODUCT MAINTENANCE SPECIFICATIONS, BROCHURES AND/OR DRAWINGS NEEDED FOR THE OPERATION AND MAINTENANCE OF NEW EQUIPMENT.

F. SYSTEM BALANCING:

1. PROVIDE FOR AIR FLOW BALANCING FOR THE INDICATED FLOW QUANTITIES (±10%) AT ALL DEVICES, TERMINAL UNITS AND EQUIPMENT. EXISTING EQUIPMENT SHALL BE BALANCED FOR ORIGINAL FLOW UNLESS INDICATED OTHERWISE. ALL BALANCING PROCEDURES SHALL CONFORM TO ASHRAE RECOMMENDATIONS.

2. MAKE NECESSARY ADJUSTMENTS TO MAIN HVAC EQUIPMENT TO ACHIEVE THE DESIGN QUANTITIES INDICATED.

3. PROVIDE DIGITAL COPY OF AIR BALANCE REPORT TO OWNER.

4. CONTRACTOR SHALL RE–VISIT THE SITE AFTER THE SITE HAS BEEN OCCUPIED TO PERFORM THE FINAL BALANCE ON THE SYSTEM. CONTRACTOR SHALL SCHEDULE FINAL VISIT WITH OWNER.

G. DUCTWORK SYSTEM INSTALLATION:

1. ALL DUCTWORK SHALL COMPLY WITH APPLICABLE SMACNA REQUIREMENTS AND NFPA 90A.

2. SEAL ALL DUCTWORK AIRTIGHT WITH AN APPROVED SEALANT METHOD TO WITHSTAND MAXIMUM OPERATING PRESSURE OF SYSTEM OR 4 INCHES WATER GAUGE MINIMUM FOR SUPPLY DUCTWORK AND 2 INCHES WATER GAUGE MINIMUM FOR RETURN AND EXHAUST AIR DUCTWORK.

3. SUPPORT ALL DUCTWORK FROM STRUCTURE UTILIZING MATERIAL COMPATIBLE WITH DUCT MATERIAL.

4. INSTALL ALL DUCTWORK CONCEALED ABOVE CEILING OR BEHIND FINISHED CONSTRUCTION.

5. PROVIDE FLEXIBLE DUCT CONNECTIONS WHEREVER DUCTWORK CONNECTS TO VIBRATION ISOLATED EQUIPMENT. INSTALL AIRTIGHT WITH ADEQUATE JOINT FLEXIBILITY TO ALLOW FOR THERMAL, AXIAL, TRANSVERSE, AND TORSIONAL MOVEMENT, AND ALSO CAPABLE OF ABSORBING VIBRATIONS OF CONNECTED EQUIPMENT.

6. PROVIDE ACCESS DUCT DOORS OF THE SIZE AND LOCATIONS TO PERMIT INSPECTION AND MAINTENANCE OF EQUIPMENT.

7. PROVIDE TURNING VANES AT ALL RECTANGULAR ELBOWS.

8. PROVIDE BALANCING DAMPERS AT ALL BRANCH DUCTS LEADING TO INDIVIDUAL DIFFUSERS.

H. INSULATION INSTALLATION:

1. EXAMINE AREAS AND CONDITIONS UNDER WHICH INSULATION IS TO BE INSTALLED. DO NOT PROCEED WITH WORK UNTIL SATISFACTORY CONDITIONS HAVE BEEN CORRECTED IN A MANNER ACCEPTABLE TO INSTALLER.

2. INSULATE REFRIGERANT SUCTION LINES ONE INCH OR LESS WITH 1 INCH THICK FLEXIBLE UNICELLULAR, OR PER THE MANUFACTURER'S REQUIREMENTS. INSULATE REFRIGERANT LINES LARGER THAN ONE INCH WITH 1–1/2" THICK FLEXIBLE UNICELLULAR, OR PER THE MANUFACTURER'S REQUIREMENTS.

3. INSULATE INTERIOR CONDENSATE DRAIN PIPING WITH 1/2 INCH THICK FLEXIBLE UNICELLULAR INSULATION.

4. INSULATE ALL SUPPLY AIR AND RETURN AIR DUCTWORK AND OUTSIDE AIR DUCTWORK WITH 1–1/2 INCH THICK INSULATION. APPLY RIGID INSULATION FOR EXPOSED DUCTWORK AND FLEXIBLE INSULATION FOR CONCEALED DUCTWORK.

I. PIPING SYSTEM INSTALLATION:

1. PIPING SHALL BE INSTALLED STRAIGHT AND PLUMB IN A NEAT WORKMAN–LIKE MANNER FOLLOWING BUILDING LINES. PARTICULAR EMPHASIS SHALL BE PAID TO ARRANGING PIPING TO PERMIT MAXIMUM ACCESS SPACE AROUND EQUIPMENT. PIPING SHALL BE RUN CONCEALED BEHIND FINISHED CONSTRUCTION. SUSPEND PIPING FROM THE STRUCTURE UTILIZING ADJUSTABLE STEEL CLEVIS HANGERS OR ADJUSTABLE ROLLER HANGERS FOR HORIZONTAL RUNS.

2. USE FITTINGS FOR ALL CHANGES IN DIRECTION AND ALL BRANCH CONNECTIONS.

3. INSTALL PIPING TIGHT TO SLABS, BEAMS, JOINTS, COLUMNS, WALLS, AND OTHER PERMANENT ELEMENTS OF THE BUILDING. PROVIDE SPACE TO PERMIT INSULATION APPLICATIONS, WITH 1 INCH CLEARANCE OUTSIDE THE INSULATION. ALLOW SUFFICIENT SPACE ABOVE REMOVABLE CEILING PANELS TO ALLOW FOR PANEL REMOVAL.

4. INSTALL PRESSURIZED PIPING AT A UNIFORM GRADE OF 1 INCH IN 40 FEET, UPWARD IN THE DIRECTION OF FLOW.

5. CONDENSATE DRAIN PIPING SHALL BE PITCHED 1/4 INCH PER LINEAR FOOT DOWNWARD IN THE DIRECTION OF FLOW WITH CLEANOUT EVERY 50 FEET.

6. MAKE REDUCTIONS IN PIPE SIZES USING ECCENTRIC REDUCER FITTING INSTALLED WITH THE LEVEL SIDE UP.

7. INSTALL UNIONS IN PIPES 2 INCHES AND SMALLER, ADJACENT TO EACH VALVE, AT FINAL CONNECTIONS TO EACH PIECE OF EQUIPMENT, AND ELSEWHERE AS INDICATED.

8. INSTALL DIELECTRIC WATERWAY FITTINGS TO JOIN DISSIMILAR METALS.

9. PROVIDE AND INSTALL ALL VALVES, FITTINGS, UNIONS, ESCUTCHEONS, ETC. REQUIRED FOR INSTALLATION IN A PROFESSIONAL MANNER.

10. REFRIGERATION LINES SHALL BE SIZED AND RUN IN ACCORDANCE WITH EQUIPMENT MANUFACTURER'S RECOMMENDATIONS. PROVIDE AND INSTALL ALL VALVES, SIGHT GLASSES, FILTER DRYERS, ETC., REQUIRED TO MEET MANUFACTURERS RECOMMENDATIONS.

P. FILTER INSTALLATION:

1. INSTALL AIR FILTERS AND HOLDING DEVICES IN ACCORDANCE WITH MANUFACTURERS INSTRUCTIONS AND RECOGNIZED INDUSTRY PRACTICES. POSITION UNIT WITH SUFFICIENT CLEARANCE FOR NORMAL SERVICE AND MAINTENANCE. ANCHOR FILTER HOLDING FRAMES SECURELY TO SUBSTRATE. COORDINATE WITH OTHER WORK INCLUDING DUCTWORK, PIPING, CONDUIT, ETC. TO MAINTAIN REQUIRED CLEARANCES AND CONSISTENT AIR VELOCITY ACROSS FILTER BANK.

2. PROVIDE MINIMUM 2 COMPLETE SETS OF SPARE FILTERS FRO USE DURING CONSTRUCTION. CHANGE FILTERS WHEN THE FILTER PRESSURE DROP EXCEEDS RECOMMENDED MAXIMUM. PROVIDE ADDITIONAL SETS OF FILTERS AS NEEDED DURING CONSTRUCTION. A NEW SET OF FILTERS SHALL BE INSTALLED BEFORE TESTING AND BALANCING. MINIMUM 3 SETS TOTAL.

Q. SPLIT SYSTEM AIR CONDITIONER INSTALLATION (ACCU–9, AC–9):

1. AIR HANDLER: INSTALL AIR HANDLER SUSPENDED FROM CEILING AT LOCATION INDICATED. INSTALL PLUMB AND LEVEL FIRMLY ANCHORED WITH VIBRATION ISOLATION AS REQUIRED. INSTALL IN ACCORDANCE WITH MANUFACTURERS INSTALLATION INSTRUCTIONS MAINTAINING RECOMMENDED CLEARANCES.

2. CONDENSING UNIT: INSTALL AT GRADE ON CONCRETE PAD IN LOCATION INDICATED. CONCRETE PAD TO BE PROVIDED AND INSTALLED BY MECHANICAL CONTRACTOR. INSTALL IN ACCORDANCE WITH MANUFACTURERS INSTALLATION INSTRUCTIONS MAINTAINING RECOMMENDED CLEARANCES. INSTALL THERMOSTATS IN LOCATION INDICATED AND CONNECT THERMOSTATS TO CONDENSING UNIT AND AIR HANDLER.

R. SPLIT SYSTEM AIR CONDITIONER INSTALLATION (ACCU–1, AC–1 – AC–7)

1. EVAPORATOR: INSTALL EVAPORATOR WALL MOUNTED AT LOCATION INDICATED. INSTALL PLUMB AND LEVEL FIRMLY ANCHORED WITH VIBRATION ISOLATION AS REQUIRED. INSTALL IN ACCORDANCE WITH MANUFACTURERS INSTALLATION INSTRUCTIONS MAINTAINING RECOMMENDED CLEARANCES.

2. CONDENSING UNIT: INSTALL AT GRADE ON CONCRETE PAD IN LOCATION INDICATED. CONCRETE PAD TO BE PROVIDED AND INSTALLED BY MECHANICAL CONTRACTOR. INSTALL IN ACCORDANCE WITH MANUFACTURERS INSTALLATION INSTRUCTIONS MAINTAINING RECOMMENDED CLEARANCES. INSTALL THERMOSTATS IN LOCATION INDICATED AND CONNECT THERMOSTATS TO CONDENSING UNIT AND AIR HANDLER

PART 4 – CONTROLS CONTROLS

A. CONTROLS

1. PROVIDE MANUFACTURER'S STANDARD CONTROL SYSTEM COMPONENTS COMPATIBLE WITH SELECTED EQUIPMENT AND CAPABLE OF PERFORMING ALL CONTROL TASKS IN THE SEQUENCE OF OPERATION.

2. INSTALL THERMOSTATS 54" ABOVE FLOOR. INSTALL AND SECURELY FASTEN ALL CONTROL WIRING IN A NEAT WORKMANLIKE MANNER. VERIFY FINAL THERMOSTAT LOCATION WITH ARCHITECT.

3. ON–OFF THERMOSTATS:PROVIDE THERMOSTAT OF BIMETAL ACTUATED OPEN CONTACT, OR BELLOWS ACTUATED ENCLOSED SNAP–SWITCH TYPE OR EQUIVALENT SOLID–STATE TYPE; UL–LISTED AT ELECTRICAL RATING COMPARABLE WITH APPLICATION. PROVIDE BIMETAL THERMOSTATS WHICH EMPLOY HEAT ANTICIPATION. FOR LOW VOLTAGE THERMOSTATS, PROVIDE THERMOSTATS OF BIMETAL OPERATED MERCURY–SWITCH TYPE, WITH EITHER ADJUSTABLE OR FIXED UNIVERSAL ANTICIPATION HEATER.

4. INSTALL TEMPERATURE SENSORS 54" ABOVE FLOOR. INSTALL AND SECURELY FASTEN ALLCONTROL WIRING IN A NEAT WORKMANLIKE MANNER. VERIFY FINAL THERMOSTAT LOCATION WITH ARCHITECT.

B. SEQUENCE OF OPERATION.

1. AIR HANDLER/CONDENSING UNIT: INTERLOCK A PROGRAMMABLE THERMOSTAT TO PROVIDE THE FOLLOWING SEQUENCE OF OPERATION

   a. DURING THE OCCUPIED TIME PERIOD, THE AIR HANDLER SHALL RUN CONTINUOUSLY PROVIDING AIR CODITIONING TO THE SPACE. WHEN THE SUPPLY DUCT AIR TEMPERATURE RISES ABOVE 60°F, THE CONDENSING UNIT SHALL ENERGIZE TO PROVIDE COOLING. WHEN THE ROOM TEMPERATURE DROPS BELOW 68°F, THE HOT WATER VALVE ON THE APPLICABLE HOT WATER DUCT COIL SHALL MODULATE TO HEAT THE SUPPLY AIR AND MAINTAIN THE THERMOSTAT SETPOINT.

   b. DURING THE UNOCCUPIED TIME PERIOD, THE AIR CONDITIONING SYSTEM SHALL NOT OPERATE UNLESS THE SPACE TEMPERATURE DROPS BELOW 60°F.

MICHAEL REILLY JR, PE
6 ROWAN ST #3
NORWALK, CT 06855

CLIENT:
TOWN OF YORKTOWN

YORKTOWN TOWN HALL - AC REPLACEMENT

363 UNDERHILL AVE, YORKTOWN HEIGHTS, NY 10598

Signature and Seal

NOT FOR CONSTRUCTION

Professional License No.

REVISIONS

NO.	REVISION	DATE

08-03-2022

DRAWN/DESIGN BY	CHECKED BY
CJR	MWR

MECHANICAL SPECIFICATIONS

SCALE: NONE

M5.1