

HVAC REPLACEMENT HUMBOLDT COUNTY IT BUILDING

EUREKA, CALIFORNIA

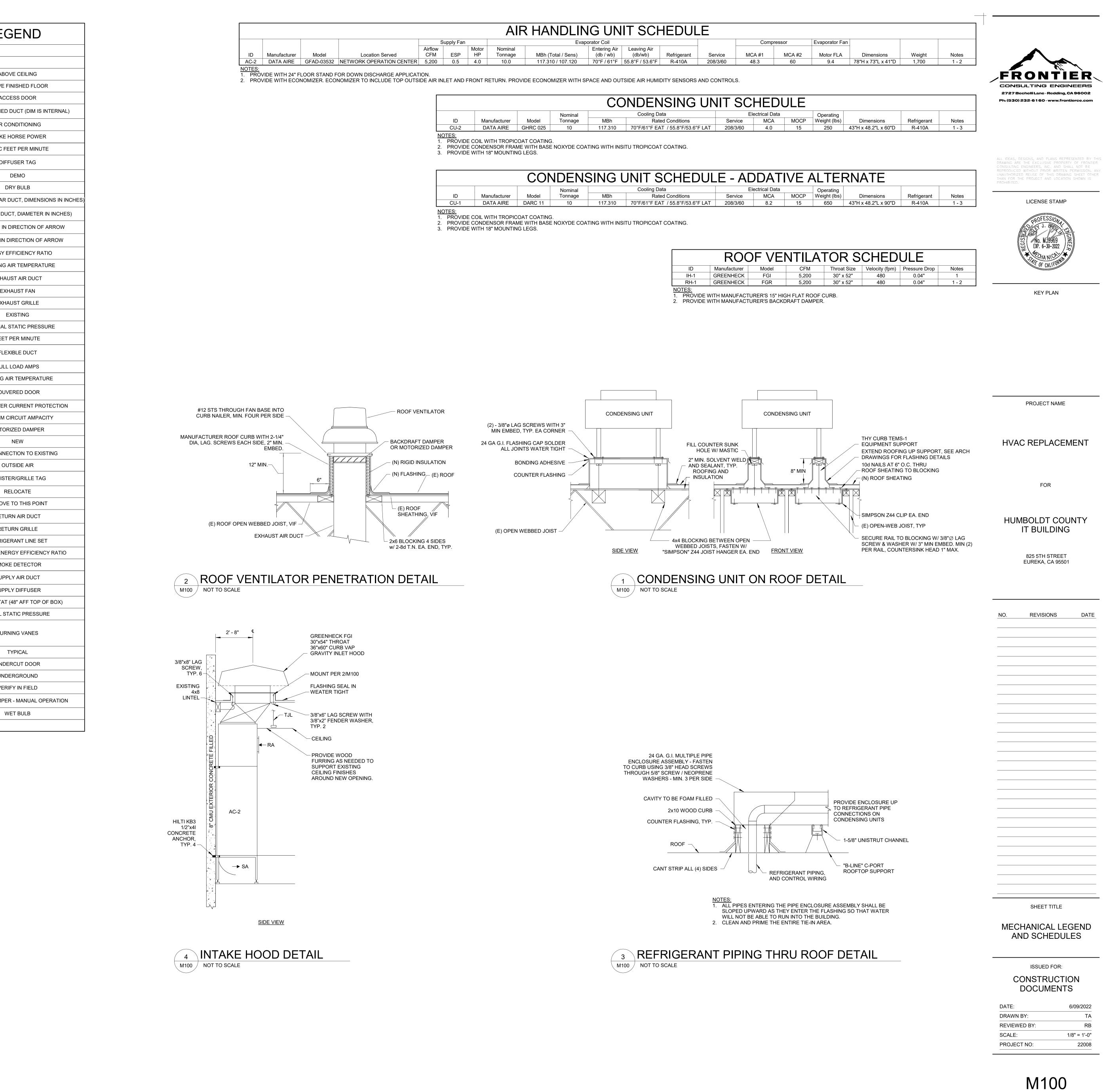
CONSTRUCTION DOCUMENTS

JUNE 9, 2022

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LICENSE STAMP
KEY PLAN
PROJECT NAME
HVAC REPLACEMENT
FOR
HUMBOLDT COUNTY IT BUILDING
825 5TH STREET EUREKA, CA 95501
NO. REVISIONS DATE
SHEET TITLE
TITLE SHEET
ISSUED FOR: CONSTRUCTION DOCUMENTS
DATE: 6/09/2022 DRAWN BY: TA REVIEWED BY: RB
SCALE: 1/8" = 1'-0"
PROJECT NO: 22008

N	1ECHAN	
SYMBOLS	ABBREVIATIONS	
	ABC	
	AFF	ABOVE
AD	AFF	ABOVE
	AL	ACOUSTIC LINED
	AC	AIR C
	BHP	BRAKE
	CFM	CUBIC F
A 123		DIF
	D	
	DB	E
12/8		DUCT (RECTANGULAR
- 12Ø		DUCT (ROUND DL
		DUCT DROP IN
		DUCT RISE IN
	EER	ENERGY
	EAT	ENTERING
F EA 2	EA	EXHA
	EF	EX
		EXH
	(E), EX	
	ESP	EXTERNAL
	FPM	FEET
		FLE
	FLA	FULI
	LAT	LEAVING /
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	MCA	MINIMUM
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		1.7		
1.1	 INCLUDED A. THIS SECTION COVERS MECHANICAL WORK, COMPLETE. WORK INCLUDES FURNISHING, INSTALLING, CALIBRATING, ADJUSTING, TEOTING, DOOL MENTING, AND STADTING, UP FOLLIPMENT IN 		A.	THE DRAW OF THE ME VERIFICAT IS REQUIRI
1.2	TESTING, DOCUMENTING, AND STARTING UP EQUIPMENT IN ACCORDANCE WITH THESE SPECIFICATIONS, THE ACCOMPANYING PLANS, AND THE DIRECTIONS OF THE ENGINEER. CODES AND STANDARDS		B.	THE CONT ARCHITEC ELECTRICA DRAWINGS
1.2				
	 NATIONAL FIRE PROTECTION ASSOCIATION. CALIFORNIA MECHANICAL CODE. CALIFORNIA PLUMBING CODE. 	1.8	VER	WILL BE PR
	 UNDERWRITERS LABORATORIES. TITLES 8, 17, 19, 21, 24 OF THE CALIFORNIA CODE OF REGULATIONS. CALIFORNIA ELECTRIC CODE. SMACNA STANDARDS. ASHRAE STANDARDS 55 AND 62.1. 		A.	BEFORE IN SIZE, AND SERVICES WHERE NE ELECTRICA
	B. WHEN THE CONTRACT DOCUMENTS CALL FOR MATERIALS OR CONSTRUCTION OF A HIGHER STANDARD THAN IS REQUIRED BY THE ABOVE, THE CONTRACT DOCUMENT REQUIREMENTS SHALL TAKE PRECEDENCE OVER THE REQUIREMENTS OF THE APPLICABLE		B.	REMOVE D THAT IS NO OR AS REG APPURTEN
	LAWS, ORDINANCES, RULES, OR REGULATIONS. NOTHING IN THE CONTRACT DOCUMENTS SHALL BE INTERPRETED AS PERMITTING WORK IN VIOLATION OF SAID LAWS, RULES, AND/OR REGULATIONS.		C.	PATCH, CA DEMOLITIC MAIN OR B
	C. THE CONTRACTOR FOR THIS WORK SHALL FURNISH, WITHOUT EXTRA CHARGE, ANY ADDITIONAL MATERIALS AND/OR LABOR AS MAY BE REQUIRED FOR COMPLIANCE WITH THESE LAWS, RULES, AND/OR REGULATIONS THOUGH SUCH MATERIALS AND/OR LABOR		D.	DELIVER R ARCHITEC
.3	ARE NOT SPECIALLY SET FORTH IN THE CONTRACT DOCUMENTS.		E.	INFORMAT UPON AVA DRAWINGS FOUND NE
	A. ALL WORK OF DIVISION 22 AND 23 SHALL BE PERFORMED BY AN APPROPRIATELY LICENSED CONTRACTOR. THE LICENSES SHALL BE CURRENT, VALID THROUGH THE TERM OF THE CONTRACT AND IN THE NAME OF THE CONTRACTOR.	1.9	OPE	CONDITION
	1. ALL HVAC WORK, WHICH INCLUDES WARM AIR HEATING SYSTEMS AND WATER HEATING PUMPS, VENTILATING SYSTEMS, AIR CONDITIONING SYSTEMS, AND DUCTWORK, REGISTERS, FLUES, HUMIDITY, AND THERMOSTATIC CONTROLS IN CONNECTION WITH THESE SYSTEMS, SHALL BE		Α.	FURNISH T MAINTENA APPARATU OBSCURE MANUFACT
	 PERFORMED BY A C-20 – WARM-AIR HEATING, VENTILATING AND AIR-CONDITIONING CONTRACTOR. ALL HYDRONIC PIPING SYSTEMS SHALL BE PERFORMED BY A C-4 – BOILER, HOT WATER HEATING AND STEAM FITTING CONTRACTOR. 		B.	OPERATIN LUBRICATI EQUIPMEN UNTIL A SA AND APPR
1.4	 ALL HYDRONIC PIPING INSULATION SHALL BE PERFORMED BY A C-2 – INSULATION AND ACOUSTICAL CONTRACTOR. COOPERATION WITH OTHER TRADES 		C.	THE OWNE IN THE OPE SYSTEMS.
	A. COOPERATE FULLY WITH OTHER TRADES DOING WORK ON THE PROJECT AS MAY BE NECESSARY FOR THE PROPER COMPLETION	1.10	ACC	URACY OF D
	OF THE PROJECT. REFER TO THE STRUCTURAL, PLUMBING, AND ELECTRICAL DRAWINGS FOR DETAILS OF THE BUILDING STRUCTURE AND EQUIPMENT INSTALLATION THAT WILL TEND TO OVERLAP, CONFLICT WITH OR REQUIRE COORDINATION WITH THE WORK OF THIS SECTION, AND SCHEDULE THIS WORK ACCORDINGLY.		A.	THE DATA COULD BE GUARANTE WILL BE GO ACTUAL FII
	B. ANY WORK DONE WITHOUT REGARD FOR OTHER TRADES SHALL BE MOVED, REPLACED, OR REDONE AS REQUIRED, WITHOUT EXTRA CHARGES TO OWNER.	1.11		IVERY, STOR
1.5	DIVISION OF WORK BETWEEN DIVISIONS 23 AND 26		A.	CONTRACT PROTECTION CONTRACT
	A. CLOSE COORDINATION BETWEEN THE ELECTRICAL AND MECHANICAL TRADES IS A PART OF THE WORK THAT IS REQUIRED BY THIS CONTRACT. NO ALLOWANCE WILL BE MADE FOR OMISSIONS BASED ON INCORRECTLY ASSUMING ANOTHER TRADE WILL BE PERFORMING YOUR WORK. CONFIRM YOUR SCOPE OF WORK WITH THE GENERAL CONTRACTOR.			DAMAGE D SITE SHALI AND BE CC INTERIORS ENTRY OF BEFORE P/ DAMAGED
	B. THE DIVISION OF RESPONSIBILITIES BETWEEN TRADES SUPPLYING EQUIPMENT IN OTHER DIVISIONS MAY BE DIFFERENT. FOR INSTANCE, DIVISION 26 CONTRACTOR MAY BE REQUIRED TO	1.12	WAF	COST TO T
	SUPPLY DISCONNECT SWITCHES AND STARTERS FOR NON-HVAC MECHANICAL EQUIPMENT SUPPLIED UNDER OTHER DIVISIONS. C. DIVISION 23 RESPONSIBILITIES		A.	EQUIPMEN WITH ALL N DATE, IN F/
	 ASSUME RESPONSIBILITY FOR THE PROPER FUNCTIONING OF THE HVAC SYSTEMS IN THEIR ENTIRETY. FURNISH AND INSTALL ALL CONDUCTORS AND CONDUIT REQUIRED FOR CONTROL OF HVAC EQUIPMENT. MAKE ALL TERMINATIONS WITH THE EXCEPTION OF POWER CONDUCTORS. 		В.	THE CONTI SECTION IS FOR A PER OF COMPL CAUSED TO DEFECTIVE
	 FURNISH AND INSTALL ALL CONTROL PANELS AND DEVICES TO PROVIDE A COMPLETE AND FUNCTIONAL CONTROLS SYSTEM, INCLUDING ALL CONTROLS TRANSFORMERS. FURNISH AND INSTALL MOTOR STARTERS FOR ALL 		ALT	CONTRACT
	 EQUIPMENT SPECIFIED IN DIVISION 23. INSTALL DUCT SMOKE DETECTORS FURNISHED BY FIRE ALARM CONTRACTOR IN BUILDINGS WITH FIRE ALARM SYSTEMS. FURNISH AND INSTALL DUCT SMOKE DETECTORS IN BUILDINGS WITHOUT FIRE ALARM SYSTEMS. 		A.	THESE PLA OF THE ME DO NOT PF MATERIALS STATED TO MATERIALS
	 8. FURNISH AND INSTALL ALL CONTROL CONDUCTORS AND CONDUIT CONNECTING DUCT SMOKE DETECTORS TO SMOKE DAMPERS AND FAN START CONTROLS. 9. ALL ELECTRICAL WORK PERFORMED UNDER DIVISION 23 SHALL CONFORM TO THE REQUIREMENTS OF DIVISION 26. 			THE CONT INFORMAT INSTALLAT AND SPEC
	D. DIVISION 26 RESPONSIBILITIES			MATERIALS CONTRACT INTENT OF MANUFACT
	 FURNISH AND INSTALL ALL RACEWAYS, CONDUIT, DISCONNECT SWITCHES, AND CONDUCTORS NECESSARY FOR ELECTRICAL POWER SUPPLY. MAKE ALL POWER SUPPLY TERMINATIONS TO MOTORS, STARTERS, DISCONNECT SWITCHES, CONTROL TRANSFORMERS, AND OTHER MECHANICAL DEVICES. 			AND FOR E
	 FIRE ALARM CONTRACTOR TO FURNISH DUCT SMOKE DETECTORS IN BUILDINGS WITH FIRE ALARM SYSTEMS. PROVIDE POWER TO ALL DUCT SMOKE DETECTORS AND SMOKE DAMPERS 	PART 2.1		PRODUCTS IERAL
1.6	SMOKE DAMPERS. 5. COORDINATE ALL WORK WITH MECHANICAL CONTRACTORS. AS-BUILT DRAWINGS		A.	ALL MATER BEST OF T THE MAKE
	A. A COMPLETE SET OF CONTRACT DRAWINGS SHALL BE MAINTAINED AT THE WORK SITE, AND ALL CHANGES IN THE WORK SHALL BE RECORDED ON THIS SET, ON A DAILY BASIS. THE FINAL AS-BUILT DRAWINGS SHALL BE SUBMITTED TO THE ARCHITECT FOR		B.	ARCHITEC WHEN TWO SAME TYPI PRODUCTS
	APPROVAL.		C	

OR CLASS ARE REQUIRED, OF ONE MANUFACTURER. C. APPLY AND INSTALL ALL ITEMS IN ACCORDANCE WITH MANUFACTURER'S WRITTEN INSTRUCTIONS. REFER CONFLICTS BETWEEN MANUFACTURER'S INSTRUCTIONS AND THE CONTRACT

GS

- INGS INDICATE DIAGRAMMA CHANICAL SYSTEMS AND OT ION OF SCALED DIMENSIONS
- RACTOR SHALL REVIEW AND URAL, STRUCTURAL, PLUMB AL DRAWINGS AND ALL OWN , AND ADJUST THEIR WORK TIONS INDICATED THEREON. , BETWEEN DRAWINGS AND DRAWINGS AND SPECIFICAT TO THE ATTENTION OF THE IATION OF THE MODIFICATION AT A MAJOR MODIFICATION IS REPARED.
- F EXISTING CONDITIONS AND
 - ISTALLATION OF ANY NEW W OTHER CONDITIONS AT ALL OR OTHER EXISTING PIPING, W WORK WILL CROSS OR PA AL. OR OTHER FACILITIES.
 - UCTWORK, PIPING, CONTRO OT TO REMAIN IN SERVICE AS QUIRED. THIS INCLUDED THE ANCES AND SUPPORTS.
 - AP, OR REPAIR EXISTING WOR IN IN CONCEALED SPACES W RANCH.
 - EMOVED MATERIAL TO THE . DISPOSE OF ALL OTHER F
 - ION SHOWN RELATIVE TO EX ILABLE RECORDS AND DATA , BUT SHALL BE VERIFIED. M CESSARY TO CONFORM TO A IS, WITHOUT EXTRA CHARGE
- MAINTENANCE INSTRUCTIO
 - HREE SETS OF TYPEWRITTE NCE, ADJUSTMENT, AND OPE IS, BOUND IN A HARD COVER OR CROSS OUT INAPPLICABI TURER'S LITERATURE. SUBM
 - G INSTRUCTIONS SHALL SHO ON, CARE, AND MAINTENANC T. FINAL ACCEPTANCE OF T TISFACTORY SUBMISSION O OVED BY THE ARCHITECT
- R'S AUTHORIZED REPRESEN RATION AND SERVICING OF
- DATA
- GIVEN HEREIN AND ON THE REASONABLY SECURED, BL ED. EXACT LOCATIONS, DIS OVERNED BY SHOP DRAWING ELD CONDITIONS.
- AGE, AND HANDLING
 - FOR SHALL BE RESPONSIBLE ON, AND PLACING OF ALL EC TOR SHALL PROTECT THE WO URING CONSTRUCTION. EQU BE PROTECTED FROM DUS VERED IF EQUIPMENT IS EXF OF NEW EQUIPMENT AND P FOREIGN MATTER. CLEAN B AINTING OR PLACING EQUIPM SHALL BE REPAIRED OR REP HE OWNER.
 - IT WARRANTIES SHALL BE PR IECESSARY INFORMATION F AVOR OF THE OWNER.
 - RACTOR SHALL GUARANTEE S FREE FROM DEFECTS IN M RIOD OF ONE YEAR FROM THE ETION. REPLACEMENT OF DE O WORK OF OTHER TRADES WORK SHALL BE THE RESP FOR, AND SHALL BE MADE AT
- ATERIALS AND METHODS
 - ANS AND SPECIFICATIONS DE CHANICAL SYSTEMS. THESE RECLUDE THE SUBMITTAL OF . MANUFACTURER'S NAMES DIDENTIFY THE TYPE AND QU S REQUIRED FOR THE PROJE
 - RACTOR MAY SUBMIT SHOP ION ON ALTERNATIVE EQUIP ION DETAILS TO ACCOMPLIS IFICATIONS. APPROVAL OF OR INSTALLATION DETAILS FOR OF ANY RESPONSIBILITY THE PLANS AND SPECIFICA FURERS' TECHNICAL INFORM RITTEN DESCRIPTION OF ALT RIBED BY MANUFACTURER'S ACH COMPONENT, EQUIPME ON DETAIL REQUIRED.
 - RIALS, APPLIANCES, AND EQU HEIR RESPECTIVE KINDS, FR BRAND, OR QUALITY SPECIF

RESOLUTION.

MECHANICAL SPECIFICATION

INGS	2.2	THE	RMOSTATS	2.5	INSU	JLATION
WINGS INDICATE DIAGRAMMATICALLY THE GENERAL LAYOUT /IECHANICAL SYSTEMS AND OTHER RELATED WORK. FIELD ATION OF SCALED DIMENSIONS TAKEN FROM THE DRAWINGS RED.		A.	ELECTRIC, SOLID-STATE, MICROCOMPUTER-BASED ROOM THERMOSTAT WITH THE FOLLOWING FEATURES. 1. AUTOMATIC SWITCHING FROM HEATING TO COOLING.		A.	EXTERIO 1. UN SU
TRED. TRACTOR SHALL REVIEW AND COMPARE THE CTURAL, STRUCTURAL, PLUMBING, MECHANICAL, AND CAL DRAWINGS AND ALL OWNER SUPPLIED EQUIPMENT GS, AND ADJUST THEIR WORK TO BE IN CONFORMITY WITH IDITIONS INDICATED THEREON. DISCREPANCIES BETWEEN GS, BETWEEN DRAWINGS AND ACTUAL FIELD CONDITIONS, OR N DRAWINGS AND SPECIFICATIONS, SHALL PROMPTLY BE T TO THE ATTENTION OF THE ARCHITECT FOR A INATION OF THE MODIFICATIONS TO BE EFFECTED. IN THE HAT A MAJOR MODIFICATION IS REQUIRED, A CHANGE ORDER PREPARED.			 PREFERENTIAL RATE CONTROL TO MINIMIZE OVERSHOOT AND DEVIATION FROM SET POINT. SET UP FOR FOUR SEPARATE TEMPERATURES PER DAY. INSTANT OVERRIDE OF SET POINT FOR CONTINUOUS OR TIMED PERIOD FROM 1 HOUR TO 31 DAYS. SHORT-CYCLE PROTECTION. PROGRAMMING BASED ON EVERY DAY OF WEEK. SELECTION FEATURES INCLUDE DEGREE F OR DEGREE C DISPLAY, 12- OR 24-HOUR CLOCK, KEYBOARD DISABLE, REMOTE SENSOR, AND FAN ON-AUTO. BATTERY REPLACEMENT WITHOUT PROGRAM LOSS. THERMOSTAT DISPLAY FEATURES INCLUDE THE 			SF JO BL AL OF 2. UN SL SH AL AL OF
OF EXISTING CONDITIONS AND DEMOLITION			FOLLOWING: a. TIME OF DAY.			3. AL OL RE
INSTALLATION OF ANY NEW WORK, VERIFY THE LOCATION, O OTHER CONDITIONS AT ALL POINTS OF CONNECTION TO S OR OTHER EXISTING PIPING, AND AT ALL LOCATIONS NEW WORK WILL CROSS OR PASS NEAR EXISTING PIPING, CAL, OR OTHER FACILITIES. DUCTWORK, PIPING, CONTROLS, FIXTURES, AND EQUIPMENT			 b. ACTUAL ROOM TEMPERATURE. c. PROGRAMMED TEMPERATURE. d. PROGRAMMED TIME. e. DURATION OF TIMED OVERRIDE. f. DAY OF WEEK. g. SYSTEM MODE INDICATIONS INCLUDE "HEATING," "OFF," "FAN AUTO," AND "FAN ON." 			OL FIE AF UL 4. EX PC VE
NOT TO REMAIN IN SERVICE AS SHOWN ON THE DRAWINGS EQUIRED. THIS INCLUDED THE REMOVAL OF ASSOCIATED ENANCES AND SUPPORTS.		B.	THERMOSTAT COVER CONSTRUCTION: HEAVY-DUTY, LOCKING THERMOSTAT GUARD, OF SOLID METAL TAMPERPROOF CONSTRUCTION.			IN: "M DL FA
CAP, OR REPAIR EXISTING WORKS AFFECTED BY THIS ION IN CONCEALED SPACES WITHIN SIX (6) INCHES OF A LIVE BRANCH.		C.	ACCURACY: PLUS OR MINUS 0.5 DEG. F AT CALIBRATION POINT.	2.6	REF	R-4
REMOVED MATERIAL TO THE OWNER AS DIRECTED BY THE CT. DISPOSE OF ALL OTHER REMOVED MATERIAL OFFSITE.		D. E.	WIRE: TWISTED, SHIELDED-PAIR CABLE. CONTRACTOR SHALL FIELD VERIFY DIMENSIONS PRIOR TO		A.	REFRIGE TEMPER
TION SHOWN RELATIVE TO EXISTING SERVICES IS BASED			ORDERING FAN AND CURB ADAPTOR.		В.	MECHAN
AILABLE RECORDS AND DATA DURING PREPARATION OF THE GS, BUT SHALL BE VERIFIED. MAKE REASONABLE DEVIATIONS IECESSARY TO CONFORM TO ACTUAL LOCATIONS AND ONS, WITHOUT EXTRA CHARGE.	2.3	A.	SHEET METAL DUCTWORK - RECTANGULAR		C	PROHIBI BRAZED SILVER (
ID MAINTENANCE INSTRUCTIONS			 DUCTS AND PLENUMS SHALL BE FABRICATED AND INSTALLED IN CONFORMANCE WITH THE LATEST EDITIONS OF: NFPA PAMPHLET NO. 90A; CALIFORNIA BUILDING CODE; 		C.	PIPE FIT JOINTS,
THREE SETS OF TYPEWRITTEN INSTRUCTIONS COVERING ANCE, ADJUSTMENT, AND OPERATION OF EACH PIECE OF TUS, BOUND IN A HARD COVER LOOSE-LEAF BINDER. NEATLY E OR CROSS OUT INAPPLICABLE DATA FROM CTURER'S LITERATURE. SUBMIT DATA TO THE ARCHITECT.			CALIFORNIA MECHANICAL CODE AND THE SMACNA HVAC DUCT CONSTRUCTION STANDARDS (METAL AND FLEXIBLE). DUCTS AND PLENUMS SHALL BE CONSTRUCTED OF HOT DIPPED GALVANIZED MILD STEEL AND SHALL HAVE AIRTIGHT CLASS "B" SEALS AT ALL TRANSVERSE JOINTS		D. E.	FLEXIBL SWEAT MOISTUI COLOR (
NG INSTRUCTIONS SHALL SHOW SEQUENCE OF OPERATIONS, TION, CARE, AND MAINTENANCE REQUIREMENTS OF ALL INT. FINAL ACCEPTANCE OF THE WORK WILL NOT BE MADE SATISFACTORY SUBMISSION OF THIS MATERIAL IS RECEIVED ROVED BY THE ARCHITECT.			 AND LONGITUDINAL SEAMS. TABLES AND FIGURES HEREINAFTER REFERENCED ARE FROM THE 2005 EDITION OF THE SMACNA HVAC DUCT CONSTRUCTION STANDARDS (METAL AND FLEXIBLE). 2. RECTANGULAR DUCT CONSTRUCTION SHALL CONFORM TO TABLE 2-3. ALL TRANSVERSE JOINTS SHALL BE FLANGED 		F.	ELEMEN SPORLA CHARGII DIAPHRA THROUG
NER'S AUTHORIZED REPRESENTATIVE SHALL BE INSTRUCTED PERATION AND SERVICING OF ALL HVAC & PLUMBING S.			PER TABLE 2-32, WITH CORNER CLOSURES OR "DUCT MATE" FLANGED CONNECTIONS WITH CORNER CLOSURES PER FIGURE 2-17. ELBOWS SHALL BE STANDARD RADIUS (TYPE RE 1) OR SQUARE THROAT WITH VANES (TYPE RE 2) PER FIGURE 4-2, WITH DOUBLE THICKNESS TURNING VANES PER		G.	643 SER SOLENC CONNEC SERIES
DATA A GIVEN HEREIN AND ON THE DRAWINGS ARE AS EXACT AS			FIGURES 4-3 AND 4-4. OFFSETS AND TRANSITIONS SHALL BE PER FIGURE 4-7. SUPPLY, RETURN, AND EXHAUST BRANCH CONNECTIONS SHALL BE PER FIGURE 4-5 OR 4-6.		H.	FILTER I HENRY "
E REASONABLY SECURED, BUT ABSOLUTE ACCURACY IS NOT TEED. EXACT LOCATIONS, DISTANCES, ELEVATIONS, ETC. GOVERNED BY SHOP DRAWINGS, THE BUILDING ITSELF, AND FIELD CONDITIONS.			 3. LINED DUCTS SHALL BE FABRICATED SUCH THAT THE NET INSIDE DIMENSIONS EQUALS THE DUCT SIZES SHOWN ON THE DRAWINGS. 		I.	THERMS BRASS E CONNEC
DRAGE, AND HANDLING		В.	SHEET METAL DUCTWORK – ROUND DUCTS SHALL BE SPIRAL, UNITED MCGILL OR EQUAL. ALL TRANSVERSE JOINTS AND		J.	
CTOR SHALL BE RESPONSIBLE FOR DELIVERY, STORAGE, TION, AND PLACING OF ALL EQUIPMENT AND MATERIALS. CTOR SHALL PROTECT THE WORK AND MATERIALS FROM DURING CONSTRUCTION. EQUIPMENT STORED AT THE JOB ALL BE PROTECTED FROM DUST, WATER, OR OTHER DAMAGE, COVERED IF EQUIPMENT IS EXPOSED TO WEATHER. PROTECT RS OF NEW EQUIPMENT AND PIPING SYSTEMS AGAINST		C	LONGITUDINAL SEAMS SHALL HAVE CLASS "B" SEALS. ALL BRANCHES IN ROUND DUCT SYSTEMS SHALL BE MADE WITH FACTORY FABRICATED REDUCING WYE BRANCHES. DUCT TURNS SHALL BE MADE WITH STANDARD, FACTORY FABRICATED, THREE- PIECE ELBOWS. SUPPORTS – SUPPORTS FOR HORIZONTAL DUCTS AND PLENUMS	2.7	ACC A.	WHERE PROVIDI ACCESS SERVICI
F FOREIGN MATTER. CLEAN BOTH INSIDE AND OUTSIDE PAINTING OR PLACING EQUIPMENT IN OPERATION. ANY ITEMS D SHALL BE REPAIRED OR REPLACED, AT NO ADDITIONAL THE OWNER.			SHALL BE FABRICATED PER FIGURES 5-5 AND 5-6 AND TABLES 5-1, AND 5-3. THE MAXIMUM DISTANCE BETWEEN HANGERS SHALL BE EIGHT FEET FOR RECTANGULAR DUCTS AND TWELVE FEET FOR ROUND DUCTS. ATTACHMENTS TO THE STRUCTURE SHALL BE MADE WITH ADEQUATELY SIZED LAG BOLTS FOR STRAPHANGERS AND ADEQUATELY SIZED MACHINE BOLTS AND SIDE BEAM		В.	FIRE RA RATING. SIZES W SCREWI
ENT WARRANTIES SHALL BE PROVIDED FOR ALL EQUIPMENT, NECESSARY INFORMATION FILLED IN, EXCEPT PURCHASE FAVOR OF THE OWNER.		D.	BRACKETS FOR ROD HANGERS. SUPPORTS FOR VERTICAL DUCTS SHALL BE BAND IRON STRAP OR ANGLE BRACKET TYPE PER FIGURE 5-8 AND 5-9. DUCT ACCESS DOORS: INCLUDING THOSE FOR REMOVING		C.	DRYWAL COATED LARGER SCREWI
ITRACTOR SHALL GUARANTEE THAT ALL WORK UNDER THIS IS FREE FROM DEFECTS IN MATERIAL AND WORKMANSHIP ERIOD OF ONE YEAR FROM THE DATE OF FILING THE NOTICE PLETION. REPLACEMENT OF DEFECTIVE WORK AND DAMAGE TO WORK OF OTHER TRADES AS A RESULT OF SUCH	2.4		FILTERS, DUCT ACCESS DOORS SHALL BE AS DETAILED IN FIGURE 7-2 WITH SASH LOCKS, PIANO HINGES, AND GASKETS. ACCESS DOORS SHALL HAVE AN UNOBSTRUCTED FULL SWING.		D.	CONCRE PRIME C TILED SI MINIMUN
VE WORK SHALL BE THE RESPONSIBILITY OF THE CTOR, AND SHALL BE MADE AT NO COST TO THE OWNER.		A.	FLEXIBLE DUCT CONNECTIONS			WHERE OPERAT
MATERIALS AND METHODS LANS AND SPECIFICATIONS DESCRIBE THE GENERAL SCOPE /IECHANICAL SYSTEMS. THESE PLANS AND SPECIFICATIONS PRECLUDE THE SUBMITTAL OF ALTERNATIVE METHODS OR LS. MANUFACTURER'S NAMES AND CATALOG NUMBERS ARE			 DURO-DYNE "METAL-FAB" WITH DUROION, VENTFABRICS "VENTGLASS," OR APPROVED EQUAL. INSTALL AT EACH POINT WHERE A BLOWER UNIT IS CONNECTED TO A DUCT. A MINIMUM CLEARANCE OF THREE INCHES BETWEEN THE DUCT AND THE SOURCE OF VIBRATION SHALL BE MAINTAINED. INSTALL PER FIGURE 			PLASTEI COATED LARGER SCREWI
TO IDENTIFY THE TYPE AND QUALITY OF THE EQUIPMENT OR LS REQUIRED FOR THE PROJECT.			2-17.	3 .1		E XECUTIO JIPMENT S
TRACTOR MAY SUBMIT SHOP DRAWINGS AND/OR TECHNICAL TION ON ALTERNATIVE EQUIPMENT, MATERIALS OR TION DETAILS TO ACCOMPLISH THE INTENT OF THE PLANS CIFICATIONS. APPROVAL OF THE ALTERNATIVE EQUIPMENT, LS OR INSTALLATION DETAILS SHALL NOT RELIEVE THE CTOR OF ANY RESPONSIBILITY FOR COMPLYING WITH THE		Β.	SCREENS – INSTALL REMOVABLE BIRD SCREENS AT ALL OUTSIDE INTAKES AND EXHAUST AIR DISCHARGES. SCREENS SHALL BE FABRICATED FROM ½" X 14 GAUGE MESH SECURED IN FULL FRAMES. SCREENS AND FRAMES SHALL BE CONSTRUCTED OF THE SAME MATERIAL AS THE DUCT, HOOD, OR EQUIPMENT TO WHICH ATTACHED.		A. B.	NOTIFY WEEKS OWNER' MANUFA SUPERV
OF THE PLANS AND SPECIFICATIONS. SUBMIT THE CTURERS' TECHNICAL INFORMATION, SHOP DRAWINGS, WRITTEN DESCRIPTION OF ALTERNATIVE METHODS FOR EACH SCRIBED BY MANUFACTURER'S NAME AND CATALOG NUMBER		C.	JOINTS – TAPE ALL JOINTS AIRTIGHT USING HARDCAST TYPE "DT" PRESSURELESS TAPE AND "HD-20" ADHESIVE, PER MANUFACTURER'S DIRECTIONS.		C.	UNIT MU OPERAT SUPERV
EACH COMPONENT, EQUIPMENT, MATERIAL, OR		D. OR	DAMPERS – PROVIDE BUTTERFLY OR MULTI-BLADE DAMPERS WHERE INDICATED ON THE DRAWINGS OR AS REQUIRED FOR BALANCING AIR QUANTITIES TO VALUES SHOWN WITHOUT GENERATING EXCESSIVE NOISE. PROVIDE DURO-DYNE "KS-385," APPROVED EQUAL, LOCKING QUADRANTS ON EACH MANUAL DAMPER. LOCATE DAMPERS IN FURRED CEILINGS NEAR ACCESS		D.	DURING EQUIPM OF THE MECHAN
ERIALS, APPLIANCES, AND EQUIPMENT SHALL BE NEW AND THEIR RESPECTIVE KINDS, FREE FROM DEFECTS, AND OF E, BRAND, OR QUALITY SPECIFIED OR AS ACCEPTED BY THE CT. VO OR MORE UNITS OF MATERIALS OR EQUIPMENT OF THE PE OR CLASS ARE REQUIRED, THESE UNITS SHALL BE TS OF ONE MANUFACTURER.			 BUTTERFLY DAMPERS SHALL BE CONSTRUCTED AS PER FIGURE 7-4, FIGURE A, B, AND C IN THE DUCT MANUAL. MULTI-BLADE DAMPERS SHALL CONFORM TO FIGURE 7-5. BACK-DRAFT DAMPERS SHALL BE AIR BALANCE "AIR DYNAMIC" MODEL DY-1002-V, OR EQUAL. 			MODULA

DRAWINGS AND SPECIFICATIONS TO THE ARCHITECT FOR

FERIOR OF DUCTWORK:

- UNLESS SPECIFIED TO BE LINED, ALL SHEET METAL SUPPLY AND RETURN DUCTS IN INDIRECTLY CONDITIONED SPACES SHALL BE INSULATED ON THE OUTSIDE WITH JOHNS MANVILLE "MICROLITE XG" FLEXIBLE FIBERGLASS BLANKET-TYPE DUCT WRAP. WITH FACTORY APPLIED FSK ALUMINUM FOIL FACING, WITH A COMPOSITE UL RATING OF 25/50. MINIMUM R-6 INSTALLED.
- UNLESS SPECIFIED TO BE LINED, ALL SHEET METAL SUPPLY AND RETURN DUCTS IN UNCONDITIONED SPACES SHALL BE INSULATED ON THE OUTSIDE WITH JOHNS MANVILLE "MICROLITE XG" FLEXIBLE FIBERGLASS BLANKET-TYPE DUCT WRAP, WITH FACTORY APPLIED FSK ALUMINUM FOIL FACING, WITH A COMPOSITE UL RATING
- OF 25/50, MINIMUM R-8 INSTALLED. ALL OUTSIDE AIR DUCTWORK BETWEEN BUILDING OUTSIDE AIR INLET AND HVAC UNIT OR HEAT/ENERGY **RECOVERY VENTILATOR SHALL BE INSULATED ON THE**
- OUTSIDE WITH JOHNS MANVILLE "MICROLITE XG" FLEXIBLE FIBERGLASS BLANKET-TYPE DUCT WRAP, WITH FACTORY APPLIED FSK ALUMINUM FOIL FACING, WITH A COMPOSITE UL RATING OF 25/50, MINIMUM R-4 INSTALLED. EXHAUST DUCTWORK WITHIN 10 FEET OF TERMINATION POINT AND BETWEEN ANY HEAT/ENERGY RECOVERY VENTILATOR AND EXHAUST TERMINATION SHALL BE INSULATED ON THE OUTSIDE WITH JOHNS MANVILLE "MICROLITE XG" FLEXIBLE FIBERGLASS BLANKET-TYPE DUCT WRAP, WITH FACTORY APPLIED FSK ALUMINUM FOIL FACING, WITH A COMPOSITE UL RATING OF 25/50, MINIMUM

ERATION PIPING AND APPURTENANCES

R-4 INSTALLED.

FRIGERANT PIPING SHALL BE TYPE "ACR" DE-OXIDIZED HARD MPER COPPER TUBE. ASTM B280.

- CHANICAL JOINTS ON REFRIGERANT PIPING SYSTEMS ARE OHIBITED. ALL REFRIGERANT PIPING JOINTS SHALL BE AZED. USE LEAD-FREE, SILVER SOLDER, MINIMUM 15% VER CONTENT.
- PE FITTINGS SHALL BE WROUGHT-COPPER WITH SOLDERED INTS, ASME B16.22.
- EXIBLE CONNECTIONS SHALL BE BRONZE, DOUBLE BRAIDED, /EAT SOLDER ENDS.
- ISTURE/LIQUID INDICATORS (SIGHT GLASSES) SHALL BE LOR CHANGE MOISTURE INDICATION TYPE. REPLACEABLE EMENT, FILTER SCREEN AND PAD, SWEAT SOLDER ENDS; ORLAN "SEE-ALL", HENRY, OR EQUAL.
- ARGING AND PURGE VALVES SHALL BE FORGED BRASS APHRAGM PACKLESS, GLOBE TYPE, ANGLE OR STRAIGHT ROUGH. ONE END SOLDER. ONE END FLARE: HENRY 623 AND SERIES, SPORLAN OR EQUAL.
- LENOID VALVES SHALL BE FORGED BRASS, EXTENDED END NNECTIONS, SOLDER ENDS, MOLDED COIL; SPORLAN "E" RIES OR EQUAL. COMPLY WITH ARI 760 & UL 429.
- TER DRIERS SHALL BE REPLACEABLE MEDIA, ANGLE TYPE; NRY "DRI-COR" OR EQUAL; ARI 730.
- ERMSOTATIC EXPANSION VALVES SHALL HAVE FORGED ASS BODY, STAINLESS STEEL SEATS AND PINS, ODF SOLDER NNECTIONS, EXTERNAL EQUALIZER,; ARI 750.
- ITDOOR CONDENSING UNITS SHALL HAVE A FLEXIBLE PIPING CTION AT THE OUTDOOR UNIT

PANELS

- HERE CONSTRUCTION IS NOT INHERENTLY ACCESSIBLE. OVIDE ADEQUATELY SIZED AND CONVENIENTLY LOCATED CESS DOORS IN CEILINGS, WALLS, AND FURRING FOR RVICING VALVES, EQUIPMENT, ETC. DOORS SHALL BE LIVERED TO THE GENERAL CONTRACTOR FOR INSTALLATION.
- RE RATED: INRYCO/MILCOR, U.L. LISTED, "B" LABEL, 1 ½ HOUR TING. MINIMUM SIZE SHALL BE 12" X 12". PROVIDE LARGER ES WHERE REQUIRED. LOCKS SHALL BE FLUSH REWDRIVER OPERATED.
- YWALLED SURFACES: INRYCO/MILCOR, STYLE DW, PRIME ATED STEEL. MINIMUM SIZE SHALL BE 12" X 12". PROVIDE RGER SIZES WHERE REQUIRED. LOCKS SHALL BE FLUSH REWDRIVER OPERATED.
- NCRETE AND TILED SURFACES: INRYCO/MILCOR, STYLE M, IME COATED STEEL, EXCEPT ACCESS PANELS INSTALLED IN ED SURFACES SHALL BE STAIN FINISH STAINLESS STEEL. NIMUM SIZE SHALL BE 12" X 12". PROVIDE LARGER SIZES HERE REQUIRED. LOCKS SHALL BE FLUSH SCREWDRIVER ERATED.
- ASTERED SURFACES: INRYCO/MILCOR, STYLE K, PRIME ATED STEEL. MINIMUM SIZE SHALL BE 12" X 12". PROVIDE RGER SIZES WHERE REQUIRED. LOCKS SHALL BE FLUSH REWDRIVER OPERATED.

- ENT STARTUP
- TIFY THE OWNER'S REPRESENTATIVE A MINIMUM OF TWO EEKS PRIOR TO EQUIPMENT STARTUP DATE TO ALLOW FOR VNER'S PERSONNEL TO BE PRESENT DURING STARTUP.
- NUFACTURER MUST PROVIDE A SERVICE TECHNICIAN TO PERVISE RIGGING OF THE UNITS TO ENSURE PROPER FIT.
- IT MUST BE CHECKED OUT. TESTED AND PLACED INTO PERATION BY THE INSTALLING CONTRACTOR UNDER THE PERVISION OF AN AUTHORIZED REPRESENTATIVE OF THE CTORY.
- RING STARTUP, THE FULL FUNCTIONALITY OF THE UIPMENT SHALL BE DEMONSTRATED TO THE SATISFACTION THE OWNER'S REPRESENTATIVE, INCLUDING HEATING, CHANICAL COOLING, ECONOMIZER COOLING, ZONE DULATION, AND ALL EMERGENCY SHUTDOWN FEATURES.

- 3.2 EQUIPMENT, GENERAL REQUIREMENTS
 - EQUIPMENT SHALL OPERATE QUIETLY AND WITHOUT OBJECTIONABLE VIBRATION. SUCH PROBLEMS, OTHER THAN FROM EQUIPMENT OPERATING AT OPTIMUM CONDITIONS, SHALL BE THE CONTRACTOR'S RESPONSIBILITY AND SHALL BE ELIMINATED AT THE DIRECTION OF THE ARCHITECT.
 - INSTALL EQUIPMENT TO PROVIDE GOOD APPEARANCE, EASY ACCESS, AND ADEQUATE SPACE TO ALLOW REPLACEMENT AND MAINTENANCE. PROVIDE BASES, SUPPORTS, ANCHOR BOLTS, AND OTHER ITEMS REQUIRED TO ACHIEVE THIS. INSTALLATION SHALL BE LEVEL, ABOVE MOISTURE LEVEL, AND ADEQUATELY BRACED.
 - THOROUGHLY LUBRICATE EQUIPMENT BEFORE OPERATING. REPAIR OF DAMAGE RESULTING FROM FAILURE TO COMPLY WITH THIS REQUIREMENT SHALL BE THE CONTRACTOR'S RESPONSIBILITY.
 - CONNECTIONS TO PIPING SHALL BE SECURED AND PROPERLY ALIGNED AND ALL UTILITY AND CONTROL CONNECTIONS SHALL BE PROPERLY ISOLATED FROM THE BUILDING STRUCTURE BY MEANS OF VIBRATION ISOLATORS AND FLEXIBLE CONNECTIONS. ANY EQUIPMENT NOT MEETING THIS REQUIREMENT WILL BE MODIFIED AND REINSTALLED AT NO EXPENSE TO THE OWNER.
 - MOVE EQUIPMENT INTO BUILDING THROUGH AVAILABLE OPENINGS DISMANTLE EQUIPMENT WHERE NECESSARY TO ACCOMPLISH THIS. AFTER REASSEMBLY, TEST EQUIPMENT TO VERIFY ITS SATISFACTORY OPERATING CONDITION.

3.3 DUCTWORK

- ALL DUCTWORK SHALL BE INSTALLED WITHIN SPACES PROVIDED WHERE POSSIBLE. DUCTS SHALL BE INSTALLED TRUE TO LINE AND GRADE, FULLY SECURED TO STRUCTURAL FAMING WITH SPECIFIED HANGERS AND SUPPORTS, INSULATED, AND VIBRATION ISOLATED, WHERE REQUIRED.
- EACH SECTION OF SUPPLY AIR DUCTWORK SHALL BE CLEANED AT THE SHOP, DUST AND OIL FREE, USING A DEGREASING AGENT AND DETERGENT AND SEALED AIRTIGHT AT BOTH ENDS WITH VISQUEEN AND TAPE. SUPPLY DUCTS SHALL BE ADDITIONALLY CLEANED WITH A DISINFECTING SOLUTION. ENDS OF ALL SUPPLY AND INTERNALLY INSULATED EXHAUST DUSTS SHALL BE KEPT SEALED UNTIL THE TIME THEY ARE JOINTED. WHEN DUCT SECTIONS ARE JOINED, WIPE DOWN ALL INTERIOR SURFACES WITH A CLEAN TACK CLOTH. IF TACK CLOTH SHOWS ANY DUST, THEN RE-CLEAN DUCT AS DESCRIBED ABOVE. THE INTENT IS THAT NO FOREIGN MATTER BE ALLOWED TO ENTER THE DUCTWORK AT ANY TIME AFTER FACTORY CLEANING AND DURING CONSTRUCTION.

3.4 CONTROLS

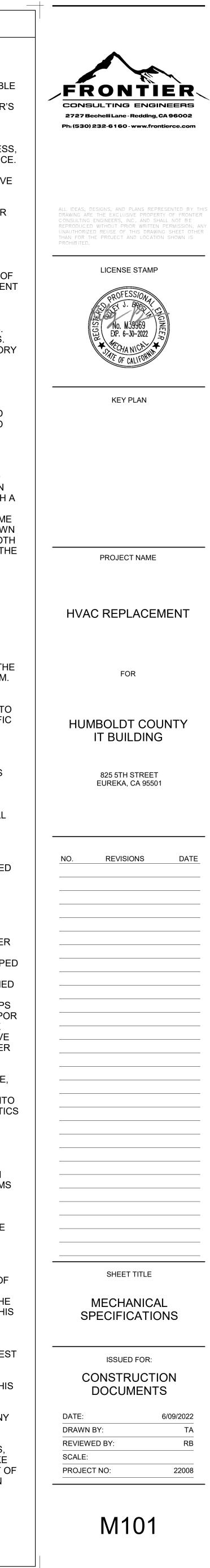
- THIS CONTRACTOR SHALL PROVIDE ALL REQUIRED CONTROL COMPONENTS, INCLUDING BUT NOT LIMITED TO THERMOSTATS, TEMPERATURE SENSORS, STATIC PRESSURE SENSORS, HUMIDITY SENSORS, DAMPER ACTUATORS, VALVE ACTUATORS, UNITARY CONTROLLERS, RELAYS, AND LOW-VOLTAGE WIRING, SUCH THAT THE OWNER IS PROVIDED WITH A FULLY FUNCTIONAL CONTROL SYSTEM.
- WHERE WORK IS PERFORMED IN AN EXISTING BUILDING. THIS B CONTRACTOR SHALL INTEGRATE ALL CONTROL MODIFICATIONS INTO THE EXISTING BUILDING CONTROL SYSTEM, IF APPLICABLE. SPECIFIC REQUIREMENTS SHALL BE COORDINATED WITH OWNER AND APPROVED BY ARCHITECT PRIOR TO INSTALLATION.
- INSTALLATION OF THE SYSTEM SHALL BE MADE UNDER THE SUPERVISION OF THE MANUFACTURER OF THE EQUIPMENT, OR HIS FACTORY AUTHORIZED REPRESENTATIVE.
- ROOM THERMOSTATS SHALL BE INSTALLED IN THE LOCATIONS INDICATED ON THE CONTRACT DRAWINGS. FINAL LOCATIONS SHALL BE COORDINATED WITH OWNER'S MAINTENANCE PERSONNEL AND SHALL BE INSTALLED IN LOCATIONS WHICH SHALL PROVIDE REPRESENTATIVE TEMPERATURES FOR THE ADJACENT AREAS.
- LOW VOLTAGE CONTROL WIRING AND CONDUIT SHALL BE INSTALLED IN ACCORDANCE WITH REQUIREMENTS OF DIVISION 26.

3.5 INSULATION

- EXTERIOR DUCTWORK: Α.
- THE INSULATION SHALL BE CUT LONGER THAN THE PERIMETER OF THE DUCT TO PROVIDE 2" STAPLE LAP AND MINIMUM COMPRESSION AT THE CORNERS. ALL JOINTS SHALL BE LAPPED 2' AND STAPLED WITH OUTWARD CLINCHING STAPLES 2" ON CENTER. THE INSULATION SHALL BE MECHANICALLY FASTENED TO THE UNDERSIDE OF ALL DUCTS 24" WIDE OR MORE USING CUP-HEAD PINS, WELD PINS, OR STICK PINS WITH SPEED CLIPS 18" ON CENTER. ALL JOINTS AND PENETRATIONS OF THE VAPOR BARRIER JACKET SHALL BE SEALED WITH A MINIMUM 3" WIDE MATCHING PRESSURE SENSITIVE TAPE. PRESSURE-SENSITIVE TAPE SHALL BE FIRMLY RUBBED IN PLACE IMMEDIATELY AFTER APPLICATION USING A "SQUEEGEE" TYPE TOOL WHEN A VAPOR SEAL IS REQUIRED, TWO COATS OF VAPOR RETARDER MASTIC REINFORCED WITH ONE LAYER OF 4" WIDE, OPEN WEAVE GLASS FABRIC MAY BE USED IN LIEU OF PRESSURE-SENSITIVE TAPE. MASTIC SHALL BE BRUSHED ONTO JOINT AND GLASS FABRIC UNTIL THE FABRIC IS FILLED. MASTICS SHALL BE APPLIED IN ACCORDANCE WITH APPLICATION INSTRUCTIONS ON THE CONTAINER
- **REFRIGERANT PIPING** C
 - THE INSULATION SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS. ALL JOINTS AND SEAMS SHALL BE SEALED WITH WATERPROOF VAPOR RETARDANT ADHESIVE. ALL PIPES EXPOSED TO THE WEATHER SHALL BE COATED WITH ALUMINUM JACKETING TO PROTECT THE INSULATION FROM ULTRA-VIOLET RADIATION IN ACCORDANCE WITH THE MANUFACTURER'S PUBLISHED INSTRUCTIONS.

3.6 TEST, INSPECTIONS

- MAKE ALL NECESSARY CONTROL ADJUSTMENTS AND BALANCING OF Α. AIR AND WATER FLOWS. OPERATE THE ENTIRE SYSTEM FOR A PERIOD OF TIME NOT LESS THAN THREE (3) WORKING DAYS FOR THE PURPOSE OF PROVING SATISFACTORY PERFORMANCE. DURING THIS PERIOD, INSTRUCT SUCH PERSONS AS THE OWNER AND/OR ARCHITECT MAY DESIGNATE IN THE PROPER OPERATION OF THE SYSTEMS. SHOULD FURTHER ADJUSTMENT PROVE NECESSARY, OPERATING TESTS SHALL BE REPEATED UNTIL A SATISFACTORY TEST IS OBTAINED.
- THIS CONTRACTOR SHALL NOT ALLOW OR CAUSE ANY WORK OF THIS SECTION TO BE COVERED OR ENCLOSED UNTIL IT HAS BEEN INSPECTED, TESTED, AND APPROVED BY THE ARCHITECT AND THE AUTHORITIES HAVING JURISDICTION OVER THE WORK. SHOULD ANY OF THIS WORK BE ENCLOSED OR COVERED UP BEFORE SUCH INSPECTION, TESTING, AND APPROVAL, THIS CONTRACTOR SHALL UNCOVER THE WORK, HAVE THE NECESSARY INSPECTIONS, TESTS AND APPROVALS MADE AND, AT NO EXPENSE TO THE OWNER, MAKE ALL REPAIRS NECESSARY TO RESTORE BOTH HIS WORK AND THAT OF OTHER CONTRACTORS WHICH MAY HAVE BEEN DAMAGED TO BE IN CONFORMITY WITH THE CONTRACT DOCUMENTS.



1.1 3		AL		1.		HANDI
	SCOPE				a. b.	MAN SIZE
ŀ		OVIDE ALL SUPERVISION, PERSONNEL, INSTRUMENTS, LIBRATION, EQUIPMENT, AND ALL OTHER MATERIALS NECESSARY			c. d.	MOT LOC
		PERFORM BALANCING AND TESTING, AND COMPILE TEST DATA			e.	IDEN AND
	HE	ATING, VENTILATING, AND AIR CONDITIONING SYSTEMS FOR THIS OJECT, ALL IN ACCORDANCE WITH THE PROJECT DRAWINGS AND			f.	SUP WHE
		ECIFICATIONS AND AS SPECIFIED HEREIN.			g. h.	FAN MO1
.2 (GENERA	L			i.	INLE
ŀ		CHANICAL CONTRACTOR WILL EMPLOY A TESTING, ADJUSTING,				BE F
		D BALANCING (TAB) AGENCY THAT IS CERTIFIED BY ASSOCIATED & BALANCING COUNCIL (AABC), NATIONAL ENVIRONMENTAL			j.	STA FILT
		LANCING BUREAU (NEBB), OR TESTING, ADJUSTING, AND LANCING BUREAU (TABB).			k.	ENT 1009
E	B. TH	E TAB AGENCY SHALL BE RESPONSIBLE FOR INSPECTING,			Ι.	ENT 100
		LANCING, ADJUSTING, TESTING, AND LOGGING THE DATA OF THE RFORMANCE OF FANS, ALL DAMPERS IN THE DUCT SYSTEMS, ALL			m. n.	00 ⁻ 00
	AIF	R DISTRIBUTION DEVICES, AND THE FLOWS OF WATER THROUGH COILS.			0.	
(ISTING EQUIPMENT, UNLESS SPECIFICALLY MENTIONED	PAR	r 2 – F	PRODI	
·		HERWISE, SHALL NOT IN THE SCOPE OF THE TAB WORK.			EXECL	
[COMPLETELY OPERABLE SYSTEM SHALL BE PLACED INTO ERATION EACH DAY DURING TESTING AND BALANCING.	3.1	GEN	ERAL	PROC
E		E TAB AGENCY SHALL UTILIZE INSTRUMENTATION WHICH MEETS		A.		ING T
		E REQUIREMENTS OF ASHRAE 111, SECTION 5, STRUMENTATION".				NDJUS ITROL
F	F. TH	E MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR				RECT
	CE	RTIFYING IN WRITING THAT THE SYSTEM, AS SCHEDULED FOR LANCING, IS OPERATIONAL AND COMPLETE. COMPLETENESS			HOL	R DA
	SH	ALL INCLUDE NOT ONLY THE PHYSICAL INSTALLATION, BUT THE CHANICAL CONTRACTOR'S CERTIFICATION THAT THE PRIME			VAR	ΙΑΤΙΟ
	MC	VERS ARE INSTALLED IN GOOD WORKING ORDER, AND THAT LL LOAD PERFORMANCE HAS BEEN PRELIMINARY TESTED UNDER			PER	IUM T IOD.
	TH	E CERTIFICATION OF THE MECHANICAL CONTRACTOR. BEFORE	0.0			
	SH	Y TESTING AND BALANCING IS STARTED, A COMPLETE REPORT ALL BE SENT TO THE TAB AGENCY BY THE MECHANICAL	3.2		SYSTE	
				A.	BAL	TAB / ANCE
(MA	E MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR KING ALL MODIFICATIONS TO RECERTIFY DISCREPANCIES				LOWII
	CO	PORTED BY THE TAB CONTRACTOR AS INDICATING NON- MPLIANCE WITH THE CONTRACT DOCUMENTS. BY COMPLETING			1.	TES REC
	TH	E WORK ON TIME, THE MECHANICAL CONTRACTOR SHALL OVIDE SUFFICIENT TIME BEFORE THE COMPLETION DATE SO			2.	TES COF
		AT BALANCING CAN BE ACCOMPLISHED.			3.	MAł OB1
ł		CONSTRUCTION DEFICIENCIES ARE ENCOUNTERED WHICH			4.	TES
	WI	ECLUDE OBTAINING OPTIMUM CONDITIONS, THE DEFICIENCIES LL BE RECORDED AND GIVEN TO THE OWNER'S			5.	ANE TES
	DE	PRESENTATIVE. THE TAB AGENCY IS ADVISED THAT FICIENCIES IN THE HVAC CONSTRUCTION ARE OFTEN			6.	AIR. TES
		COUNTERED DURING FINAL TAB SERVICES, AND SHOULD CLUDE IN THE BID AN AMOUNT DEEMED ADVISABLE TO			7.	TEN TES
	CO	MPENSATE FOR TIME IN IDENTIFYING THE DEFICIENCIES.			8.	TEN ADJ
	SERVICE	S			0.	PRO
ŀ		E TAB AGENCY WILL BALANCE, TEST, AND ADJUST THE SYSTEM MPONENTS TO OBTAIN OPTIMUM CONDITIONS IN EACH			0	BE I
	CO	NDITIONED SPACE IN THE BUILDING. IF CONSTRUCTION			9.	ADJ RET
	OP	FICIENCIES ARE ENCOUNTERED WHICH PRECLUDE OBTAINING TIMUM CONDITIONS, THE DEFICIENCIES WILL BE RECORDED AND			10.	TES TO
		/EN TO THE OWNER'S REPRESENTATIVE. THE TAB AGENCY IS VISED THAT DEFICIENCIES IN THE HVAC CONSTRUCTION ARE			11.	EAC IDE
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		MPENSATE FOR TIME IN IDENTIFYING THE DEFICIENCIES.				IDE EQI
E		E REPORT SHALL BE COMPLETE WITH LOGS, DATA, AND CORDS AS REQUIRED HEREIN AND ALL LOGS, DATA, AND			13.	CAL
	RE	CORDS SHALL BE TYPED, PRODUCED, ON WHITE BOND PAPER,			15.	REC
	RE	D BOUND. TRANSMIT FOUR COPIES DIRECTLY TO THE OWNER'S PRESENTATIVE TO BE DISTRIBUTED TO THE MECHANICAL				TES RES
	CO FIL	NTRACTOR, CONTROLS CONTRACTOR, ENGINEER, AND RECORD E.			14.	TAB ARE
(C. TH	E REPORT SHALL CONTAIN THE FOLLOWING GENERAL DATA IN A				CON
	-	RMAT SELECTED BY THE TAB AGENCY FOR CLARITY AND EASE REFERENCE.	3.3	TEM	PERA	TURE
	1.	PROJECT TITLE.		Α.		HE PF
	2.	PROJECT LOCATION.				
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	3. 4.	PROJECT ARCHITECT (FIRM NAME AND ADDRESS). PROJECT MECHANICAL ENGINEER (NAME).			1.	MO
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AB SPECIFICATION			
NG UNITS (EXISTING AND NEW)	3.5	DUC	T LEAKAGE TEST
IFACTURER AND MODEL.		A.	ALL SUPPLY, RETURN, EXHAUST, AND OUTSIDE AIR DUCTWORK SHALL
OR HP, VOLTAGE, PHASE, CYCLES, FULL LOAD AMPS. TION AND LOCAL IDENTIFICATION DATA.			BE TESTED FOR LEAKS, USING NECESSARY INSTRUMENTS BEFORE INSULATING ANY DUCTWORK.
TIFICATION TAG LISTED IN SCHEDULES ON DRAWINGS SPECIFICATIONS. LY AIRFLOW (CFM) AND EXHAUST AIRFLOW (CFM), RE APPLICABLE. RPM. OR CURRENT READINGS AT EACH FAN. AND OUTLET STATIC PRESSURE FROM SUPPLY FAN EXHAUST FAN (IF APPLICABLE). THESE READINGS SHALL ELATED TO THE FAN CURVE.		B.	DUCTWORK SHALL BE LEAK-TESTED IN ACCORDANCE WITH SMACNA HVAC AIR DUCT LEAKAGE TEST MANUAL. REPRESENTATIVE SECTIONS TOTALING NOT LESS THAN 10 PERCENT OF THE TOTAL INSTALLED DUCT AREA SHALL BE TESTED. WHERE THE TESTED 10 PERCENT FAILS TO COMPLY WITH THE REQUIREMENTS OF THIS SECTION, THEN 40 PERCENT OF THE TOTAL INSTALLED DUCT AREA SHALL BE TESTED. WHERE THE TESTED 40 PERCENT FAILS TO COMPLY WITH THE REQUIREMENTS OF THIS SECTION, THEN 100 PERCENT OF THE TOTAL INSTALLED DUCT AREA SHALL BE TESTED.
IC PRESSURE DIFFERENTIAL ACROSS EACH COIL AND R SECTION. RING AIR AND LEAVING AIR TEMPERATURES (DB/WB) IN		C.	THE MAXIMUM PERMITTED LEAKAGE SHALL BE DETERMINED IN ACCORDANCE WITH CMC 603.10.1.
COOLING MODE. RING AIR AND LEAVING AIR TEMPERATURES (DB) IN HEATING MODE. OOR AIR PERCENTAGE SETTING. OOR AIRFLOW IN ECONOMIZER MODE (IF APPLICABLE). OOR AIRFLOW IN DEMAND CONTROL VENTILATION	3.6	D. TEST	THE TEST AND BALANCE REPORT SHALL INCLUDE THE RESULTS OF THE DUCT LEAKAGE TEST FOR THE ENGINEER'S REVIEW.
E (IF APPLICABLE). I OT USED)		Α.	THE REPORT SHALL CONTAIN THE FOLLOWING DATA:
			1. A LISTING OF THE MEASURED AIR QUANTITIES AT EACH OUTLET CORRESPONDING TO THE TEMPERATURE TABULATION
DURES E BALANCING, THE TEMPERATURE REGULATION SHALL			 SPECIFIED ABOVE. AIR QUANTITIES AT EACH RETURN AND EXHAUST AIR HANDLING DEVICE (ONLY IF DUCTED RETURN SYSTEMS). STATIC PRESSURE READINGS ENTERING AND LEAVING EACH SUPPLY, RETURN AND EXHAUST FAN, FILTER, AND COIL OF THE
E BALANCING, THE TEMPERATURE REGULATION SHALL ED FOR PROPER RELATIONSHIP BETWEEN NG INSTRUMENTS AND CALIBRATED. THE ESS OF THE FINAL SETTING SHALL BE PROVED BY URLY READINGS FOR A PERIOD OF ONE SUCCESSIVE 8- IN A TYPICAL ROOM ON EACH SEPARATELY ED ZONE, AFTER TENANT MOVES IN. THE TOTAL			 4. MOTOR CURRENT READINGS AT EACH FAN AND PUMP. THE VOLTAGES AT THE TIME OF THE READINGS SHALL BE LISTED.
ED ZONE, AFTER TENANT MOVES IN. THE TOTAL SHALL NOT EXCEED 2 DEGREES FROM THE PRESET MPERATURE DURING THE TEMPERATURE SURVEY	3.7	FINA	LACCEPTANCE
HIS WILL BE DONE ONLY ON SYSTEMS THAT ARE PERATIONAL).		A.	AT THE TIME OF FINAL INSPECTION, THE BALANCING AGENCY SHALL RECHECK, IN THE PRESENCE OF THE OWNER'S REPRESENTATIVE, SPECIFIC AND RANDOM SELECTIONS OF DATA, I.E., WATER AND AIR QUANTITIES, RECORDED IN THE CERTIFIED REPORT.
GENCY SHALL PERFORM THE FOLLOWING TESTS AND HE AIR SYSTEMS IN ACCORDANCE WITH THE		В.	POINTS AND AREAS FOR RECHECK SHALL BE SELECTED BY THE OWNER'S REPRESENTATIVE.
G REQUIREMENTS:		C.	MEASUREMENT AND TEST PROCEDURES SHALL BE THE SAME AS
AND ADJUST BLOWER AND MOTOR RPM TO DESIGN IIREMENTS. AND RECORD MOTOR FULL LOAD AMPERES AND		D.	APPROVED FOR WORK FORMING BASIS OF CERTIFIED REPORT. SELECTIONS FOR RECHECK, SPECIFIC PLUS RANDOM, WILL NOT
RESPONDING VOLTAGE. PITOT TUBE TRAVERSE OF MAIN SUPPLY DUCTS AND IN DESIGN CFM AT FANS.			NORMALLY EXCEED 25% OF THE TOTAL NUMBER TABULATED IN THE REPORT, EXCEPT THAT SPECIAL AIR SYSTEMS MAY REQUIRE A COMPLETE RECHECK FOR SAFETY REASONS.
AND RECORD SYSTEM STATIC PRESSURES, SUCTION DISCHARGE.		E.	IF RANDOM TESTS ELICIT A MEASURED FLOW DEVIATION OF 10% OR
AND ADJUST SYSTEM FOR DESIGN CFM OF OUTSIDE AND RECORD ENTERING AND LEAVING AIR DRY BULB ERATURES OF ALL HEATING AND COOLING COILS. AND RECORD ENTERING AND LEAVING WET BULB ERATURES OF ALL COOLING COILS. ST ALL MAIN SUPPLY AND RETURN AIR DUCTS TO ER DESIGN CFM. SYSTEM SUPPLY AIRFLOW, SYSTEM			MORE FROM THAT RECORDED IN THE CERTIFIED REPORT ON 10% OR MORE OF THE SELECTED RECHECK STATIONS, THE REPORT SHALL BE AUTOMATICALLY REJECTED. IN THE EVENT THE REPORT IS REJECTED, ALL SYSTEMS SHALL BE READJUSTED AND TESTED, NEW DATA RECORDED, NEW CERTIFIED REPORT SUBMITTED, AND NEW INSPECTION TESTS MADE, ALL AT NO ADDITIONAL COST TO THE OWNER.
RN AIRFLOW, AND SYSTEM OUTDOOR AIRFLOW SHALL ALANCED TO WITHIN 5% OF THE DESIGN REQUIREMENT. ST ALL ZONES TO PROPER DESIGN CFM, SUPPLY AND RN. AND ADJUST EACH DIFFUSER, GRILLE, AND REGISTER ITHIN 10% OF DESIGN REQUIREMENT.		F.	FOLLOWING FINAL ACCEPTANCE OF THE CERTIFIED REPORT BY THE OWNER'S REPRESENTATIVE, THE SETTINGS OF ALL VALVES, SPLITTER, DAMPERS, AND OTHER ADJUSTMENT DEVICES SHALL BE PERMANENTLY MARKED BY THE TAB AGENCY, SO THAT ADJUSTMENT CAN BE RESTORED IF DISTURBED AT ANY TIME. DEVICES SHALL NOT BE MARKED UNTIL AFTER FINAL ACCEPTANCE.
GRILLE, DIFFUSER, AND REGISTER SHALL BE TIFIED AS TO LOCATION AND AREA.			END OF SECTION
TYPE, AND MANUFACTURER OF DIFFUSERS, GRILLES, STERS, AND ALL TESTED EQUIPMENT SHALL BE FIFIED AND LISTED. MANUFACTURER'S RATINGS ON ALL PMENT SHALL BE USED TO MAKE REQUIRED ULATIONS.			
INGS AND TEST OF DIFFUSERS, GRILLES, AND STERS SHALL INCLUDE REQUIRED FPM VELOCITY AND RESULTANT VELOCITY, REQUIRED CFM AND TEST LTANT CFM AFTER ADJUSTMENTS.			
GENCY SHALL CHECK ALL CONTROLS TO ENSURE THEY OPERATING AS SPECIFIED. PROVIDE THE CONTROL RACTOR WITH SPECIFIC SET POINTS.			
ONTROL SYSTEM			
GRESS OF PERFORMING THE TAB WORK, THE TAB IALL:			
K WITH THE CONTROLS CONTRACTOR TO ENSURE THE EFFECTIVE TOTAL SYSTEM OPERATION WITHIN THE ON LIMITATIONS, AND TO OBTAIN MUTUAL RSTANDING OF INTENDED CONTROL PERFORMANCE. Y THAT ALL CONTROL DEVICES ARE PROPERLY IECTED.			
Y THAT ALL DAMPERS, VALVES, AND OTHER ROLLED DEVICES ARE OPERATED BY THE INTENDED ROLLER.			
TION INDICATED BY THE CONTROLLER (OPEN, CLOSED,			

ITION INDICATED BY THE CONTROLLER (OPEN, CLOSED, MODULATING). IFY THAT THE INTEGRITY OF VALVES AND DAMPERS IN

MS OF TIGHTNESS OF CLOSE-OFF AND FULL-OPEN ITION. THIS INCLUDES DAMPERS IN MULTI-ZONE UNITS. CK THAT ALL VALVES ARE PROPERLY INSTALLED IN THE NG SYSTEM IN RELATION TO DIRECTION OF FLOW AND ATION.

IFY THE CALIBRATION OF ALL CONTROLLERS. IFY THE PROPER APPLICATION OF ALL NORMALLY OPEN NORMALLY CLOSED VALVES.

CK THE LOCATIONS OF ALL THERMOSTATS AND IIDISTATS FOR POTENTIAL ERRATIC OPERATION FROM SIDE INFLUENCES SUCH AS SUNLIGHT, DRAFTS, OR COLD

CK THE LOCATIONS OF ALL SENSORS TO DETERMINE THER THEIR POSITION WILL ALLOW THEM TO SENSE Y THE INTENDED TEMPERATURES OR PRESSURES OF MEDIA. CONTROLS CONTRACTOR WILL RELOCATE AS MED NECESSARY BY THE TAB AGENCY. CK THE SEQUENCE OF OPERATION FOR ANY CONTROL

DE IS IN ACCORDANCE WITH APPROVED SHOP DRAWINGS. IFY THAT ONLY MINIMUM SIMULTANEOUS HEATING AND LING OCCURS. OBSERVE THAT HEATING CANNOT TAKE CE UNTIL THE COOLING ZONE OF VALVE IS COMPLETELY SED.

IFY THAT ALL CONTROLLER SET POINTS MEET THE IGN INTENT. CK ALL DAMPERS FOR FREE TRAVEL.

IFY THE OPERATION OF ALL INTERLOCK SYSTEMS. FORM ALL SYSTEM VERIFICATION TO ASSURE THE FETY OF THE SYSTEM AND ITS COMPONENTS.

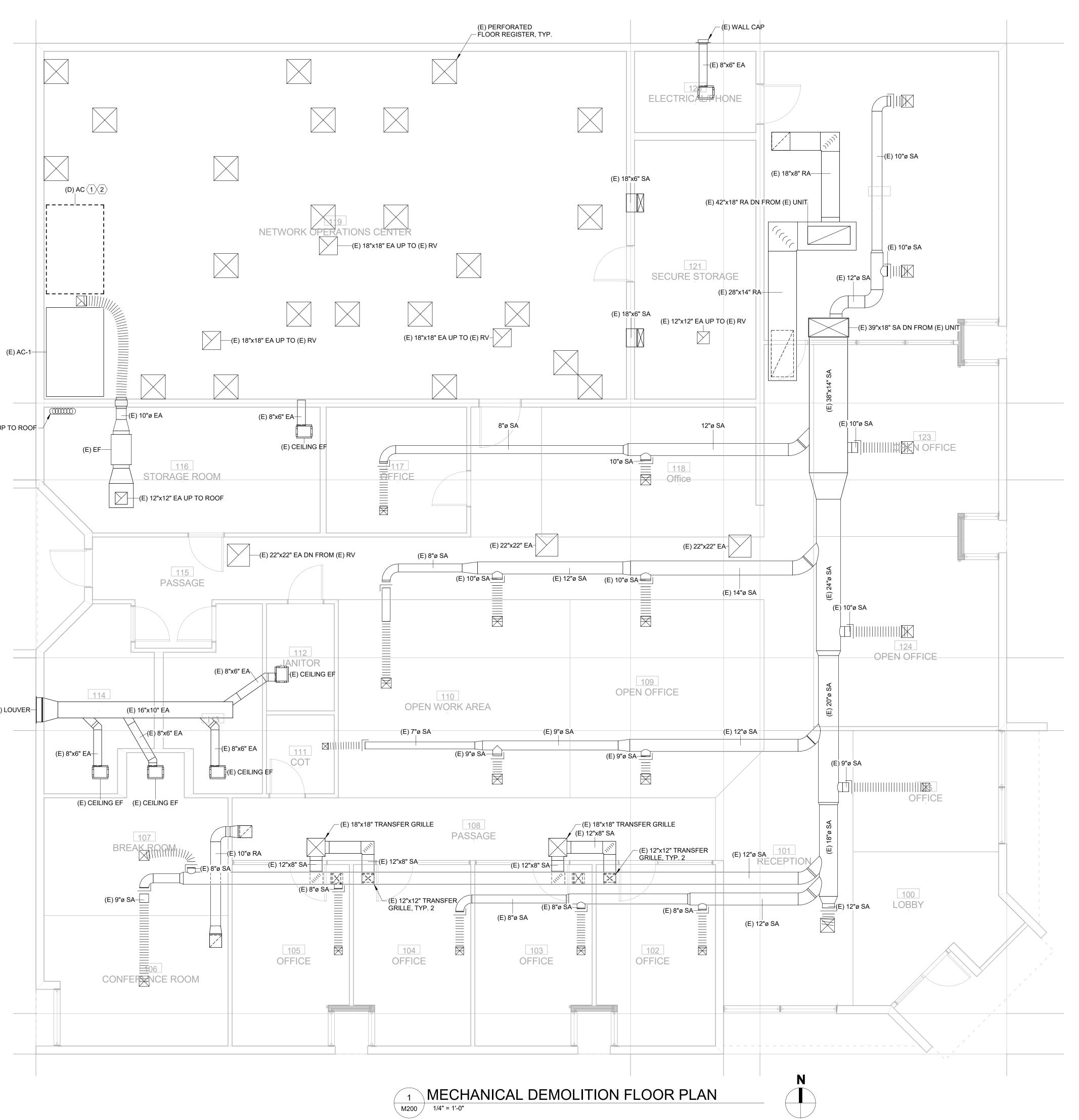
B. A SYSTEMATIC CHECK OF THE ABOVE REQUIREMENTS SHALL BE INCLUDED IN THE FINAL TAB REPORT.

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LICENSE STAMP
PROFESSION PROFES
No. M39969 EXP. 6-30-2022
KEY PLAN
PROJECT NAME
HVAC REPLACEMENT
FOR
HUMBOLDT COUNTY IT BUILDING
825 5TH STREET
EUREKA, CA 95501
NO. REVISIONS DATE
SHEET TITLE
TAB SPECIFICATIONS
ISSUED FOR:
DOCUMENTS
DATE: 6/09/2022 DRAWN BY: TA REVIEWED BY: RB
SCALE: PROJECT NO: 22008

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 $\left< \overline{3} \right>$ (E) RL/RS UP TO ROOF –

(E) LOUVER-



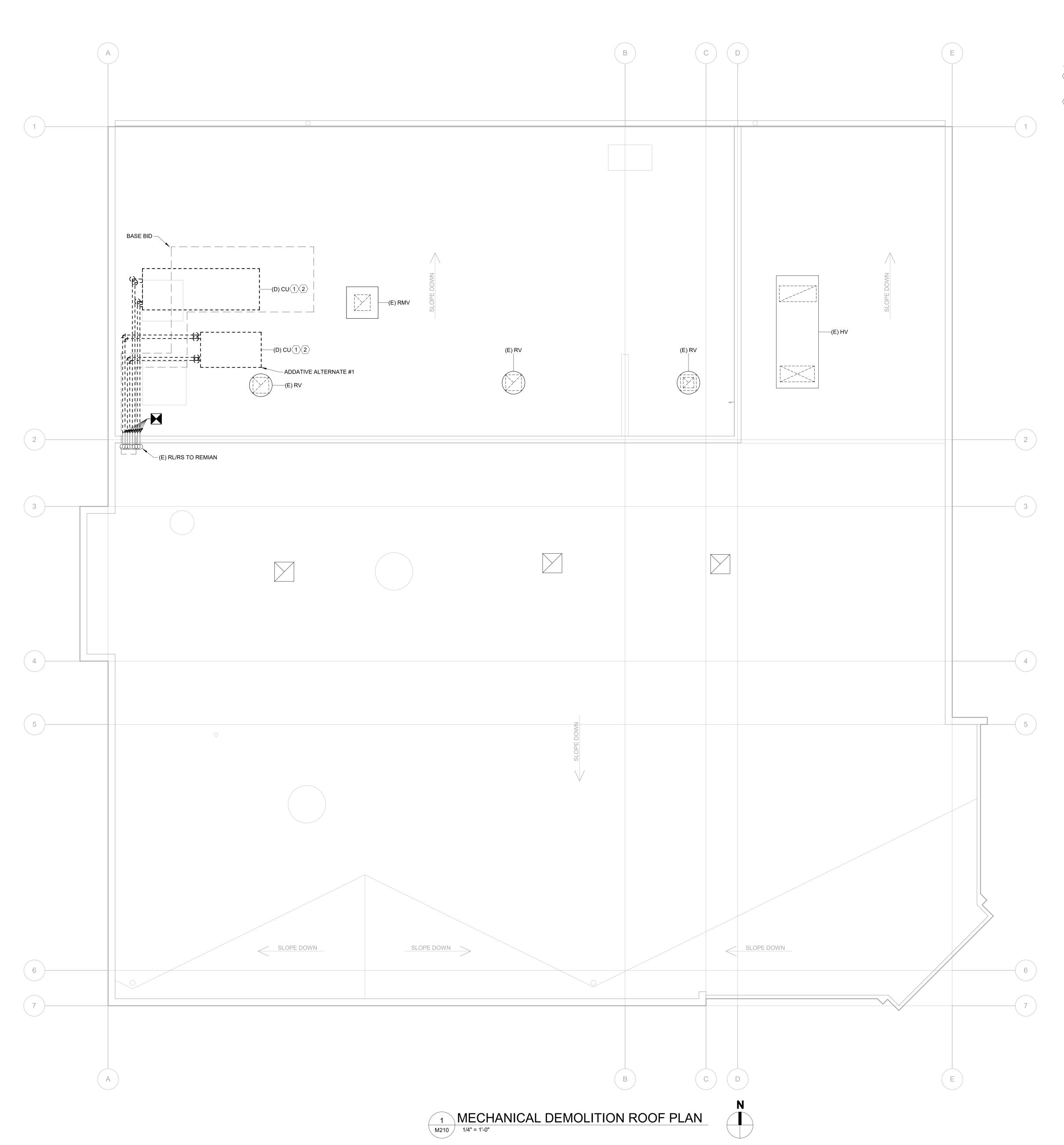
KEYED NOTES:

 $\langle 1 \rangle$ REMOVE EXISTING AC UNIT, AND SUPPORTS.

2 DISCONNECT ELECTRICAL CONNECTION AND PREPARE FOR INSTALLATION OF NEW FUSED DISCONNECT.

 $\langle \overline{\mathbf{3}} \rangle$ RL/RS PIPING TO BE ABANDONED IN PLACE.

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KEY PLAN
PROJECT NAME
HVAC REPLACEMENT
FOR
HUMBOLDT COUNTY IT BUILDING
825 5TH STREET EUREKA, CA 95501
NO. REVISIONS DATE
SHEET TITLE MECHANICAL DEMOLITION PLAN
ISSUED FOR: CONSTRUCTION
DOCUMENTS DATE: 6/09/2022 DRAWN BY: TA REVIEWED BY: RB SCALE: 1/4" = 1'-0" PROJECT NO: 22008
M200



GENERAL NOTES:

1. CONTRACTOR IS RESPONSIBLE FOR SUPPLYING AND INSTALLING ROOFING MATERIALS AND FLASHING NEEDED TO PATCH ALL NEW PENETRATIONS WEATHERTIGHT. ALL SUPPLIED ROOFING MATERIAL IS TO BE COMPATIBLE WITH EXISTING ROOFING.

REMOVING OR REPLACING EQUIPMENT.

- KEYED NOTES: $\fbox{1}$ REMOVE EXISTING CONDENSING UNIT AND ASSOCIATED PIPING AND SUPPORTS. PREPARE ROOF FOR INSTALLATION OF NEW ROOF SUPPORTS.
- 2 DISCONNECT EXISTING ELECTRICAL CONNECTIONS AND PREPARE FOR INSTALLATION OF NEW FUSED DISCONNECT.

2. CONTRACTOR TO MAINTAIN FLOOR STRUCTURE WHILE

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KEY PLAN

PROJECT NAME

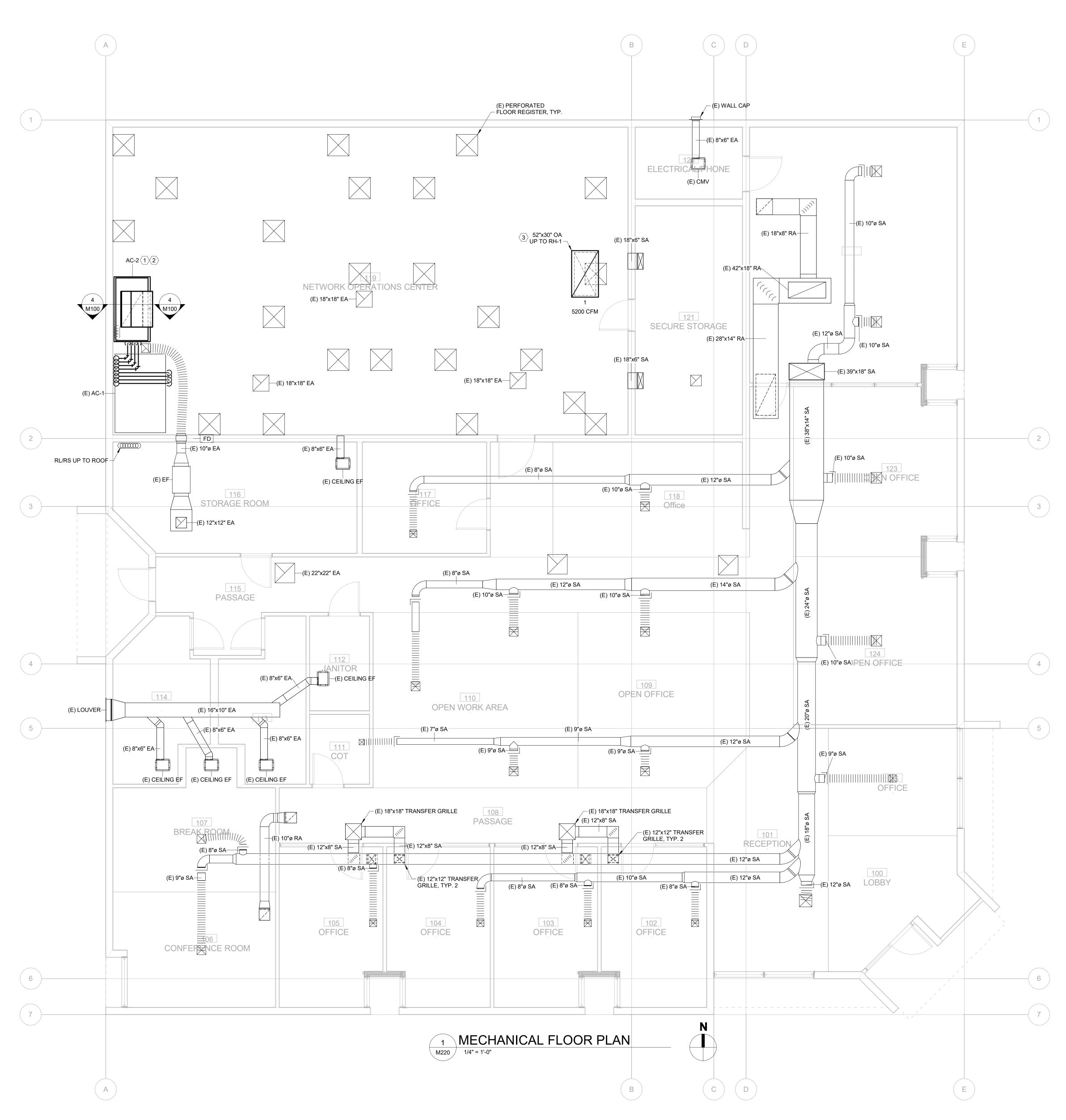
HVAC REPLACEMENT

FOR

HUMBOLDT COUNTY IT BUILDING

825 5TH STREET EUREKA, CA 95501

NO.	REVISIONS	DATE
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<u>GENERAL NOTES:</u> 1. CONTRACTOR TO MAINTAIN FLOOR STRUCTURE W REMOVING OR REPLACING EQUIPMENT. KEYED NOTES:

(1) CONNECT AC-2 TO EXISTING ELECTRICAL INFRASTRUCTURE. PROVIDE WITH NEW FUSED 60A DISCONNECT. REUSE EXISTING CONDUCTORS.

 $\langle 2 \rangle$ Contractor to make all required floor MODIFICATIONS TO SEAL FLOOR AROUND NEW UNIT.

 $\langle \mathbf{3} \rangle$ COORDINATE LOCATION WITH EXISTING STRUCTURAL MEMBERS AND LIGHTING IN NETWORK OPERATIONS CENTER.

WHILE	



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KEY PLAN

PROJECT NAME

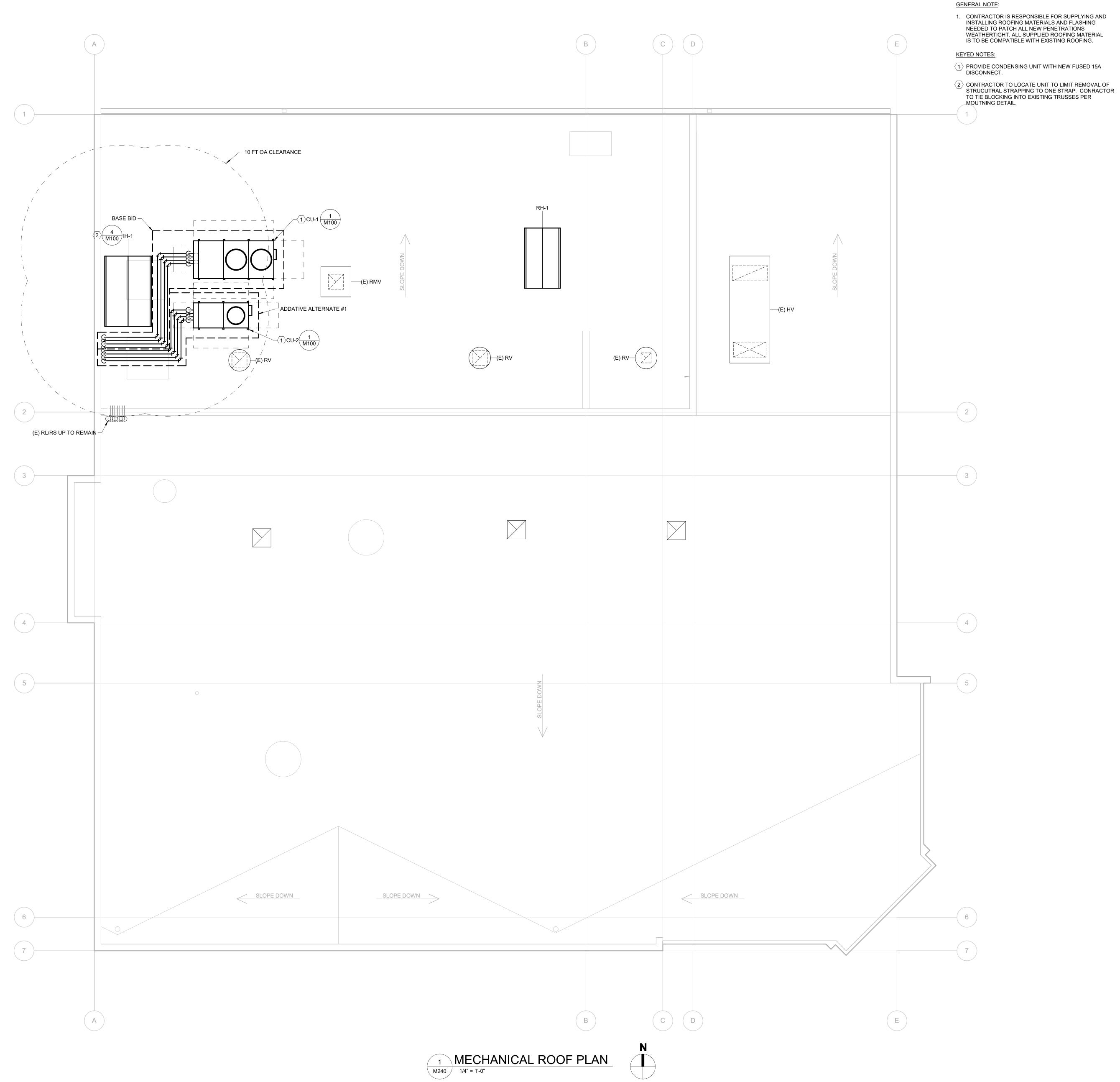
HVAC REPLACEMENT

FOR

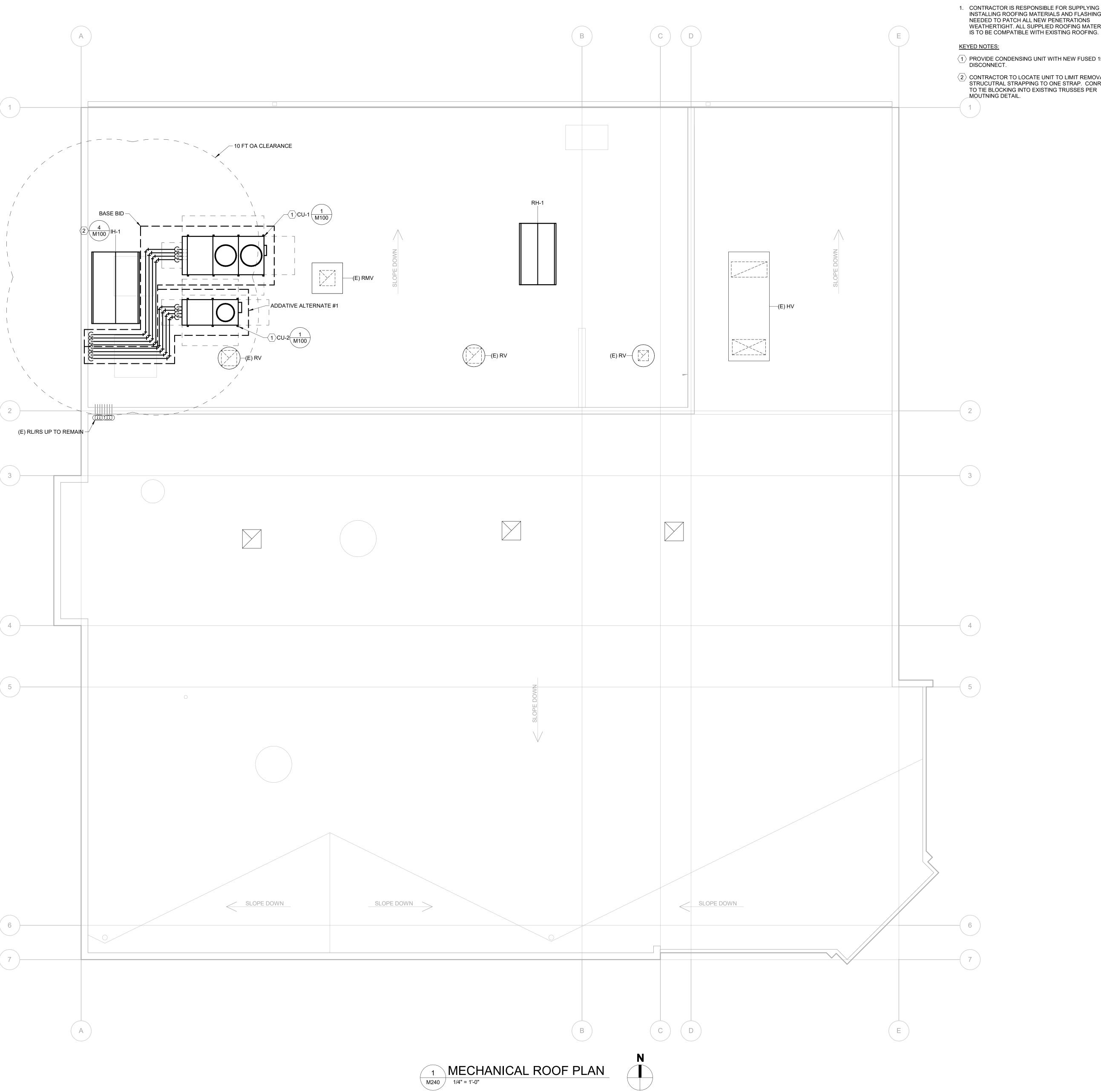
HUMBOLDT COUNTY IT BUILDING

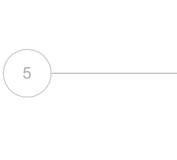
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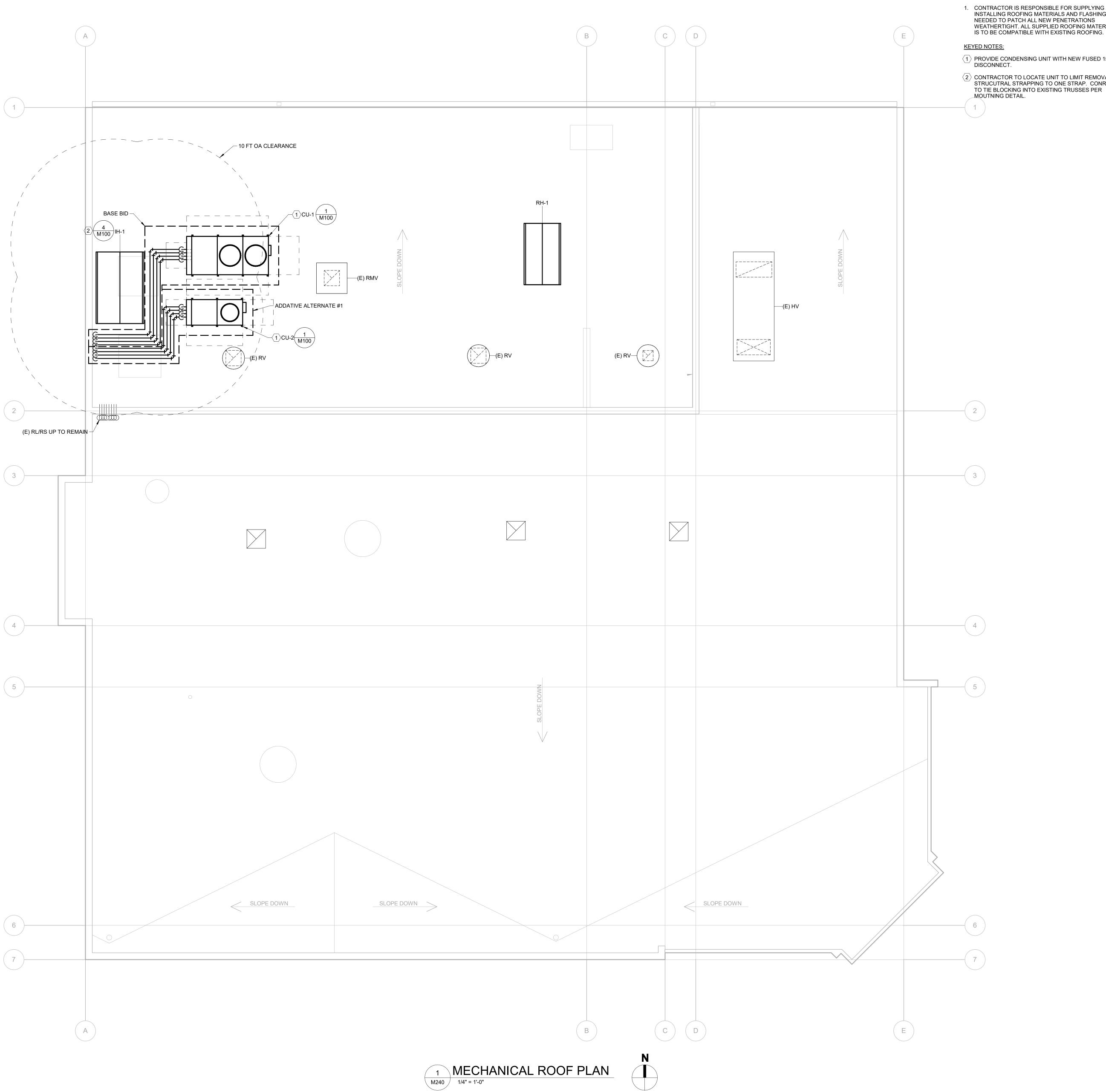
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SCALE: PROJEC ⁻	ΓNO:	1/4" = 1'-0" 22008
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FRONTIER

CONSULTING ENGINEERS 2727 Bechelli Lane - Redding, CA 96002

Ph: (530) 232-6160 - www.frontierce.com



KEY PLAN

PROJECT NAME

HVAC REPLACEMENT

FOR

HUMBOLDT COUNTY IT BUILDING

825 5TH STREET EUREKA, CA 95501

NO.	REVISIONS	DATE
SHEET TITLE		
MECHANICAL ROOF PLAN		
	ISSUED FO	R:
CONSTRUCTION DOCUMENTS		
DATE:		6/09/2022
DRAWN		TA RB
SCALE: PROJEC	CT NO:	1/4" = 1'-0" 22008
M240		