

MECHANICAL SPECIFICATIONS

EXISTING CONDITIONS

- PRIOR TO BIDDING THE CONTRACTOR SHALL FAMILIARIZE THEMSELVES WITH THE EXISTING CONDITIONS.
- LIMITED SITE VISITS HAVE BEEN CONDUCTED TO DOCUMENT THE EXISTING CONDITIONS.
- THE PLANS DEPICT THE EXISTING CONDITIONS PER PLANS PROVIDED OR RECORDED DURING SITE VISITS. ALL CONDITIONS MAY NOT BE SHOWN. IF EXISTING CONDITIONS ARE DIFFERENT THAN DEPICTED, THE ENGINEER SHALL BE NOTIFIED ACCORDINGLY.
- IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY EXISTING CONDITIONS.
- TO THE BEST OF THE ENGINEERS KNOWLEDGE, ALL EXISTING EQUIPMENT THAT IS SHOWN TO BE REUSED IS FUNCTIONAL. THE FUNCTIONALITY OF THE EXISTING EQUIPMENT SHALL BE VERIFIED BY THE CONTRACTOR. IF IT IS DETERMINED THE SYSTEM IS NOT FUNCTIONAL, THE ENGINEER OF RECORD SHALL BE NOTIFIED.
- PROVIDE (1) SET OF NEW FILTERS TO ALL EXISTING MECHANICAL SYSTEMS THAT ARE BEING REUSED PRIOR TO CO.

GENERAL

- CONTRACTOR SHALL PROVIDE ALL EQUIPMENT AS SCHEDULED ON DRAWINGS AND ALL EQUIPMENT NOT SPECIFIED ON DRAWINGS NECESSARY TO PROVIDE A FULLY FUNCTIONAL MECHANICAL SYSTEM.
- CONTRACTOR SHALL WARRANTY THE COMPLETE MECHANICAL SYSTEM FOR (1) YEAR AFTER BUILDING IS ISSUED THE CERTIFICATION OF OCCUPANCY.
- ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE 2020 FLORIDA BUILDING, MECHANICAL, AND ENERGY CODE.
- ALL WORK SHALL BE DONE IN A NEAT WORKMANSHIP LIKE MANNER UNDER THE DIRECT SUPERVISION OF A STATE CERTIFIED AIR CONDITIONING OR MECHANICAL CONTRACTOR.
- ALL MECHANICAL EQUIPMENT SHALL BE INSTALLED PER DRAWING DETAILS/SPECIFICATIONS. ALL FIELD CONFLICTS, INTERFERENCES, CLARIFICATIONS, ETC. SHALL BE BROUGHT TO THE ENGINEER'S ATTENTION THROUGH AN RTI. RTIS SHALL BE SIGNED BY THE MECHANICAL CONTRACTOR & GENERAL CONTRACTOR INDICATING THEIR ACCEPTANCE. RTIS SHALL BE SENT THROUGH THE ARCHITECT'S OFFICE. RTIS SENT DIRECTLY TO THE ENGINEER WILL NOT BE REVIEWED UNLESS A REVIEW HAS BEEN CONDUCTED BY THE ARCHITECT.
- (5) SETS OF SHOP DRAWINGS SHALL BE SUBMITTED TO ENGINEER FOR APPROVAL. SHOP DRAWINGS SHALL INCLUDE: HVAC SYSTEMS, CONTROLS, FANS, DUCTWORK, DIFFUSERS & GRILLES, ROOF CURBS, CONDENSING UNIT STANDS, FIRE DAMPERS, SHEET METAL DUCT CONSTRUCTION, SHEET METAL DUCT CONSTRUCTION SHALL INCLUDE FLOOR PLAN WITH DUCT ELEVATIONS, INTENDED FITTING CONSTRUCTION, DUCT SIZES, AND DUCT SECTIONS CLEARLY IDENTIFIED. MECHANICAL SHOP DRAWINGS WILL NOT BE RELEASED UNTIL A SHEET METAL DUCT CONSTRUCTION FLOOR PLAN HAS BEEN SUBMITTED FOR REVIEW. REVIEW OF SHOP DRAWINGS WILL BE CONDUCTED ONLY IF THE SUBMITTALS ARE COMPLETE AND THE SHOP DRAWINGS HAVE BEEN APPROVED BY THE CONTRACTOR. ALL SHOP DRAWINGS SHALL BE SUBMITTED IN A THREE RING BINDER AND SHALL INCLUDE A COVER PAGE SIGNED OR STAMPED BY THE CONTRACTOR INDICATING HIS APPROVAL.
- ALL MECHANICAL EQUIPMENT SHALL BE LABELED WITH STAMPED BRASS OR ENGRAVED PHENOLIC PLASTIC EQUIPMENT LABELS. LABELS SHALL INCLUDE EQUIPMENT TAG AND LOCATION SERVED AS INDICATED IN EQUIPMENT SCHEDULES.
- DRAWINGS DO NOT AND CANNOT SHOW ALL DUCTWORK OFFSETS AND TRANSITIONS THAT MAY BE NECESSARY TO AVOID OBSTRUCTIONS IN THE CEILING CAVITY. ALL NECESSARY OFFSETS AND TRANSITIONS SHALL BE PROVIDED.
- ALL DUCTWORK, PIPING, ETC SHALL BE COORDINATED BY THE CONTRACTOR WITH ALL TRADES PRIOR TO INSTALLATION. IF CONFLICTS EXIST, THEY SHALL BE BROUGHT TO THE ENGINEER OF RECORD PRIOR TO RESOLVING CONFLICT AND PRIOR TO INSTALLATION.

DUCTWORK

- SUPPLY AND RETURN AIR DUCT TRUNKLINES SHALL BE CONSTRUCTED OF 1.5" JOHN MANVILLE MIRCROTELE XG DUCTBOARD. ALL DUCTBOARD SHALL BE CONSTRUCTED WITH SHIP-LAP SEAMS PER NAIMA STANDARDS. ALL ELBOWS SHALL BE 3-PIECE.
- SUPPLY AND RETURN TAKE-OFFS TO DIFFUSERS SHALL GALVANIZED SHEET METAL TO WITHIN 5'-0" OF DIFFUSER. GALVANIZED SHEET METAL TO BE WRAPPED WITH R6.0 EXTERNAL DUCT WRAP WITH FSK FACING. FINAL 5'-0" OF RUN TO BE CONSTRUCTED OF 1.5" R6.0 SILVER FLEX EQUAL TO ATCO #36. FLEX DUCT INNER LINER SHALL BE SECURED TO SHEET METAL COLLAR WITH A TIE WRAP AND TAPE; OUTER LINER SHALL BE SEALED WITH A UL 181A PRESSURE SENSITIVE TAPE. TAPE SHALL BE INSTALLED ACCORDING TO THE MANUFACTURER'S INSTALLATION INSTRUCTIONS.
- GENERAL EXHAUST AND OUTSIDE AIR DUCTWORK SHALL BE CONSTRUCTED OF GALVANIZED SHEET METAL MANUFACTURED ACCORDING TO ASTM A653. SHEET METAL DUCTWORK SHALL BE INSTALLED PER SMACNA STANDARDS. ALL TRANSVERSE SEAMS IN THE SHEET METAL DUCTWORK SHALL BE SEALED WITH GREY MASTIC. T-FIN ALUMINUM DUCTWORK CAN BE USED TO CONNECT THE EXHAUST FAN TO THE EXHAUST DUCTWORK, BUT SHOULD BE LIMITED TO A MAXIMUM OF 6 FT.
- ALL DUCTBOARD TRUNKLINES SHALL BE SUPPORTED WITH MIN. 1.5" WIDE SUPPORTS EVERY 4 FT.
- FLEX DUCT SHALL BE SUPPORTED WITH MIN. 2" WIDE PLASTIC HANGING STRAP EVERY 3 FT. FLEX DUCT SHALL BE FULLY STRETCHED AFTER BOX IS OPENED AND PRIOR TO INSTALLATION. ADDITIONAL SUPPORTS SHALL BE PROVIDED AS NEEDED TO REMOVE SAG AROUND BENDS.

VOLUME DAMPERS AND MOTORIZED DAMPERS

- MANUAL VOLUME DAMPERS SHALL BE PROVIDED AT EACH TAKE-OFF. DAMPERS SHALL BE PROVIDED WITH STANDOFF AND LOCKING QUADRANT.
- ALL VOLUME DAMPERS LOCATED WITHIN TAKE-OFFS SHALL BE INSTALLED PARALLEL TO THE TRUNK-LINE AIRFLOW DIRECTION SO THEY DO NOT ACT AS A SCOOP WHEN FULLY OPEN.
- OUTSIDE AIR MOTORIZED DAMPERS SHALL BE LOW LEAKAGE WITH 24VAC ACTUATOR, EQUAL TO HONEYWELL M# EARD.

AIR DISTRIBUTION

- DIFFUSERS, GRILLES, AND LOUVERS SHALL BE PROVIDED AS INDICATED IN AIR DISTRIBUTION SCHEDULE AND SPECIFIED ON DRAWINGS.
- DIFFUSERS AND GRILLES SHALL BE INSTALLED PER DRAWING DETAILS.
- ARCHITECTURAL DRAWINGS SHALL BE REFERENCED FOR CEILING AND WALL TYPES.
- ARCHITECTURAL DRAWINGS SHALL BE REFERENCED FOR EXTERIOR LOUVER ELEVATIONS.
- LOUVERS SHALL BE FLORIDA PRODUCT APPROVED FOR INSTALLATION IN HIGH VELOCITY WIND ZONE AND SHALL BE RATED FOR WIND DRIVEN RAIN. LOUVERS SHALL BE INSTALLED PER MANUFACTURER'S INSTALLATION INSTRUCTIONS. ACCEPTABLE LOUVER MANUFACTURERS: GREENHECK, RUSKIN, POTTOFF.
- ACCEPTABLE DIFFUSER MANUFACTURERS: TITUS, METALAIRE, PRICE.

DUCT SMOKE DETECTION

- DUCT SMOKE DETECTORS ARE TO BE PROVIDED IN THE SUPPLY AIR STREAM FOR THAT AIR HANDLING UNITS THAT ARE CAPABLE OF DELIVERING 2000 CFM OR GREATER.
- WHEN MULTIPLE AIR HANDLING UNITS SHARE A COMMON RETURN AIR PLENUM, AND THERE COMBINED CAPACITY IS 2000 CFM OR GREATER, SMOKE DETECTORS SHALL BE PROVIDED IN THE SUPPLY AND RETURN AIR STREAM.
- DUCT SMOKE DETECTORS SHALL BE INSTALLED PER MANUFACTURER'S INSTALLATION INSTRUCTIONS. PRESSURE READINGS ACROSS THE INLET AND OUTLET AIR FLOW TUBES WILL BE REQUIRED IF THE DETECTORS CANNOT BE INSTALLED ACCORDING TO THE MANUFACTURER'S INSTALLATION INSTRUCTIONS DUE TO FIELD CONDITIONS.
- DUCT SMOKE DETECTORS ARE TO BE SUPPLIED BY FIRE ALARM / ELECTRICAL CONTRACTOR AND INSTALLED BY MECHANICAL CONTRACTOR.
- DUCT SMOKE DETECTORS ARE TO BE CONNECTED TO THE FIRE ALARM SYSTEM. REFERENCE FIRE ALARM DRAWINGS FOR SEQUENCE OF OPERATION.
- FIRE ALARM RELAYS SHALL BE WIRED SO THEY WILL AUTOMATICALLY AND IMMEDIATELY SHUT DOWN THE AIR CONDITIONING SYSTEM SUPPLY FAN.

CONTROL WIRING

- CONTROL WIRING BETWEEN AHUS, OUS, AND THERMOSTATS SHALL BE 18 AWG WITH 8 CONDUCTORS.
- CONTROL WIRING BETWEEN THERMOSTATS AND TEMPERATURE SENSORS SHALL BE 18 AWG WITH 3 CONDUCTORS.
- ALL EXPOSED CONTROL WIRING SHALL BE ROUTING IN 1/2" EMT ELECTRICAL CONDUIT.

TEST AND BALANCE

- ALL AIR SYSTEMS SHALL BE TESTED AND BALANCED BY A THIRD PARTY CERTIFIED TEST AND BALANCE CONTRACTOR.
- TEST AND BALANCE REPORT SHALL BE SUBMITTED TO ENGINEER OF RECORD FOR APPROVAL PRIOR TO CO.

AIR CONDITIONING EQUIPMENT SCHEDULE															
TAG	LOCATION SERVED	MAKE	MODEL	HEATER MODEL	FILTER MODEL	SUPPLY (CFM)	OA (CFM)	ESP (IN H2O)	T. COOL (BTUH)	VOLT/ PHASE	FAN FLA	HEAT (KW)	RTU MOP	RTU MCA	SEER (EER)
E-RTU	EXISTING 2714	RHEEM	EXISTING 4 TON RTU			1370	232	.5	-	-	-	-	-	-	-

NOTES & OPTIONS:

- PROVIDE MOTORIZED OA DAMPER IF NOT ALREADY INSTALLED INSIDE UNIT. INTERLOCK WITH SUPPLY FAN.
- RE-BALANCE SUPPLY FAN TO INDICATED AIRFLOW.
- (1) SET OF NEW FILTERS.
- PROVIDE NEW T-STAT. HONEYWELL VISIONPRO 8000 WFI M# TH8321WF

DIFFUSER SCHEDULE					
TAG	TYPE	MAKE	MODEL	BORDER	NOTES
A	T-BAR SUPPLY	PRICE	AMD	3P	ALUMINUM CONSTRUCTION, LOUVERED FACE DIFFUSER WITH PANEL, STR ADAPTOR, INSULATED BACKPAN, WHITE FINISH
B	SUPPLY GRILLE	PRICE	ACVD	F	ALUMINUM CONSTRUCTION, SCREW HOLE MOUNTED, DUCTBOARD SUPPLY CAN, WHITE FINISH
C	LOUVERED RETURN	PRICE	630	TB	ALUMINUM CONSTRUCTION, LOUVERED RETURN GRILLE, LAY-IN BORDER, WHITE FINISH

NOTES & OPTIONS:

- ALL DIFFUSERS SHALL BE PROVIDED WITH INSULATED BACK PANS.
- RETURN CAN SHALL BE A MINIMUM OF 12" DEEP.

EXHAUST FAN SCHEDULE					
TAG	MAKE	MODEL	CFM	ESP (IN H2O)	VOLT/ PHASE
EF-1	PANASONIC	FV-0511V01	80	0.25	120/1

NOTES & OPTIONS:

- PROVIDE DEDICATED SWITCH FOR EACH EXHAUST FAN. REFERENCE ELECTRICAL.
- SET DIP SWITCH ON EXHAUST FAN TO AIRFLOW INDICATED IN SCHEDULE.

OUTSIDE AIR MATRIX - ASHRAE 62.1											
SYSTEM	ROOM	SPACE TYPE	PEOPLE Pz	RATE Rp	AREA Az	RATE Ra	Vbz	SA	%OA	OA	EX
E-RTU	OFFICE / EXAM	OFFICE	7	5	843	.06	86	1320	17	224	
	RESTROOMS	RESTROOMS	-	-	-	-	-	50	17	8	(80)
									TOTAL	232	-
									NET	232	-

NOTES:

- TABLE IS PER LATEST EDITION OF ASHRAE 62.1
- Vbz - REQUIRED AMOUNT OF OUTSIDE AIR IN SPACE
- SA - SUPPLY AIR
- %OA - % OF SUPPLY AIR REQUIRED TO BE OA
- OA - OUTSIDE AIR DELIVERED TO THE SPACE
- EX - EXHAUST AIR () : INDICATES INTERMITTENT AIRFLOW RATES

SHEET INDEX		
SHEET	NAME	SCALE
MO.1	SCHEDULES, SPECIFICATIONS, DETAILS	NO SCALE
MT.0	MECHANICAL PLAN	1/4" = 1'-0"

MECHANICAL SYMBOLS

DIFFUSER TAG

- SCHEDULE REFERENCE
- NECK SIZE
- RUN-OUT SIZE
- AIRFLOW (CFM)
- BLOW PATTERN

18/16

SINGLE WALL DUCT - INTERNAL DUCT DIMENSIONS (AIRFLOW PATH) WIDTH BY DEPTH.

18/16

DOUBLE WALL DUCT - INTERNAL DUCT DIMENSIONS (AIRFLOW PATH) WIDTH BY DEPTH.

VD

MANUAL VOLUME DAMPER

AHU-4

EQUIPMENT TAG

T

THERMOSTAT

TS

TEMPERATURE SENSOR

HS

HUMIDITY SENSOR

DS

DOOR SWITCH

Flex duct symbol: three wavy lines.

BDD

BACKDRAFT DAMPER

MD

MOTORIZED DAMPER

OBD

OPPOSED BLADE DAMPER

MVD

MANUAL VOLUME DAMPER

DSD

DUCT SMOKE DETECTOR

SATS

SUPPLY TEMPERATURE SENSOR

OATS

OUTSIDE AIR TEMPERATURE SENSOR

OAHS

OUTSIDE AIR HUMIDITY SENSOR

PS

DUCT STATIC PRESSURE SENSOR

FD

FIRE DAMPER

POINT OF CONNECTION TO EXISTING

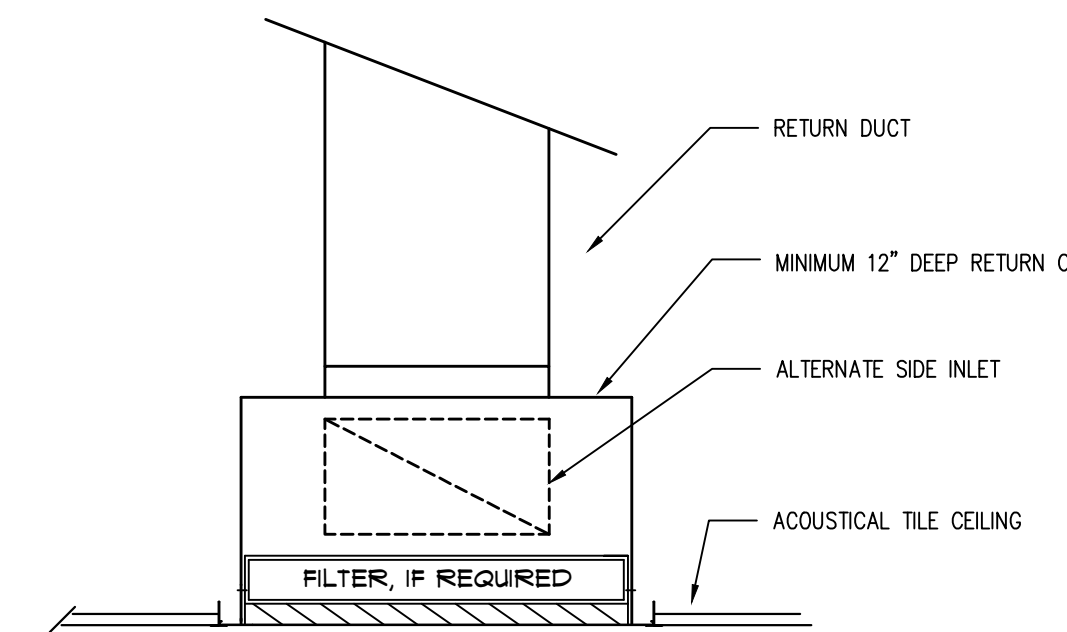
EX1

MO.03

RISER TAG REFERENCE

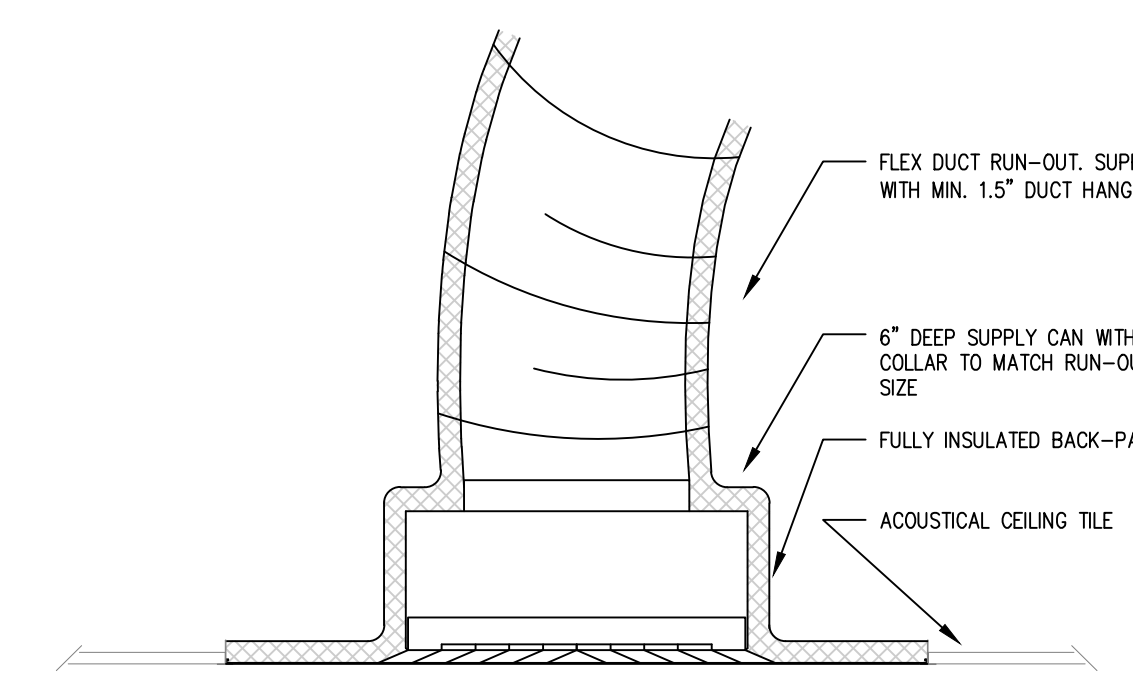
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EXISTING



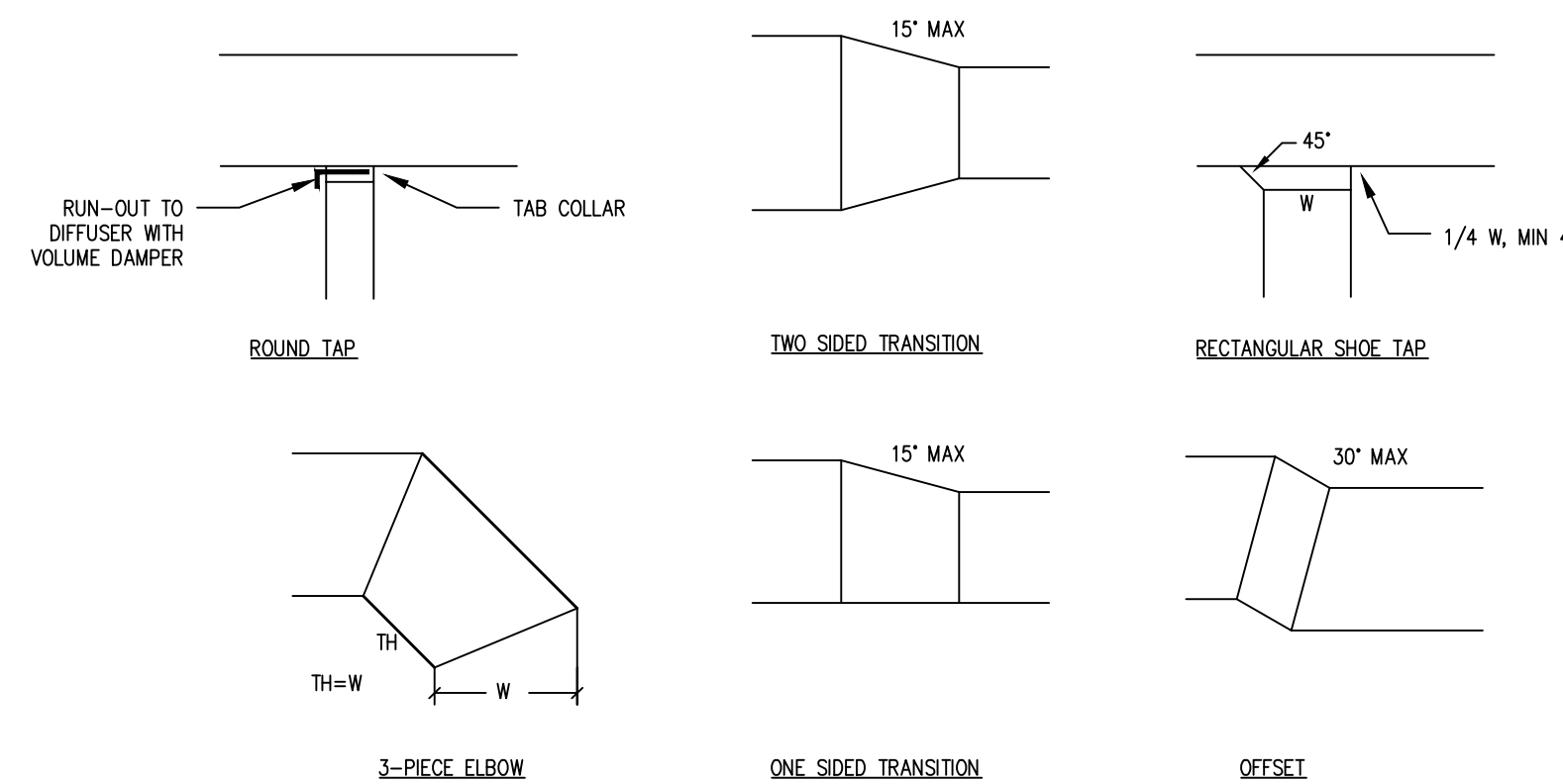
LAY-IN RETURN / EXHAUST GRILLE

SCALE: NO SCALE



LAY-IN DIFFUSER

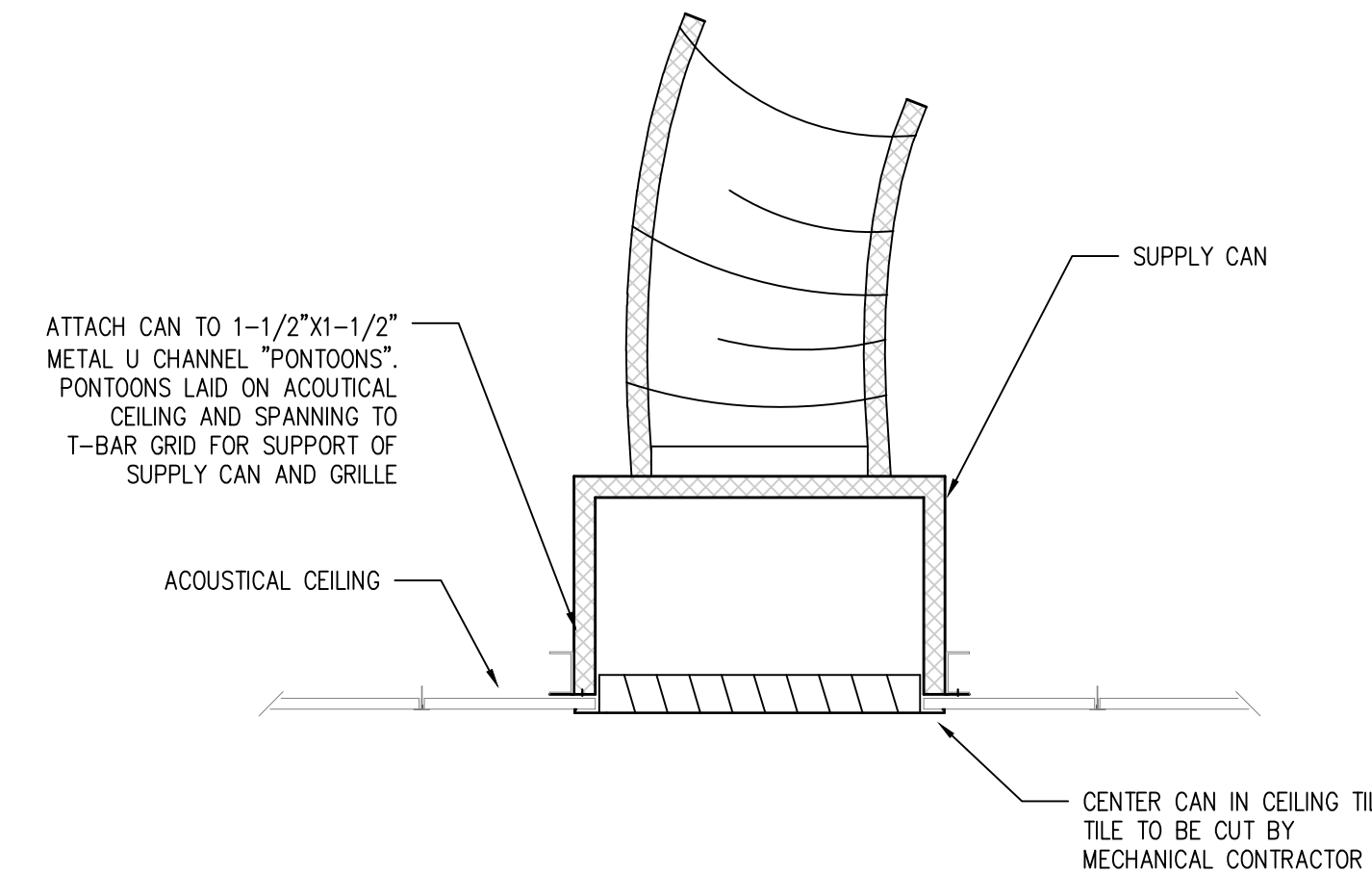
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NOTE: ALL JOINTS TO BE SHIP-LAP CONSTRUCTION AND INSTALLED PER NAIMA STANDARDS.

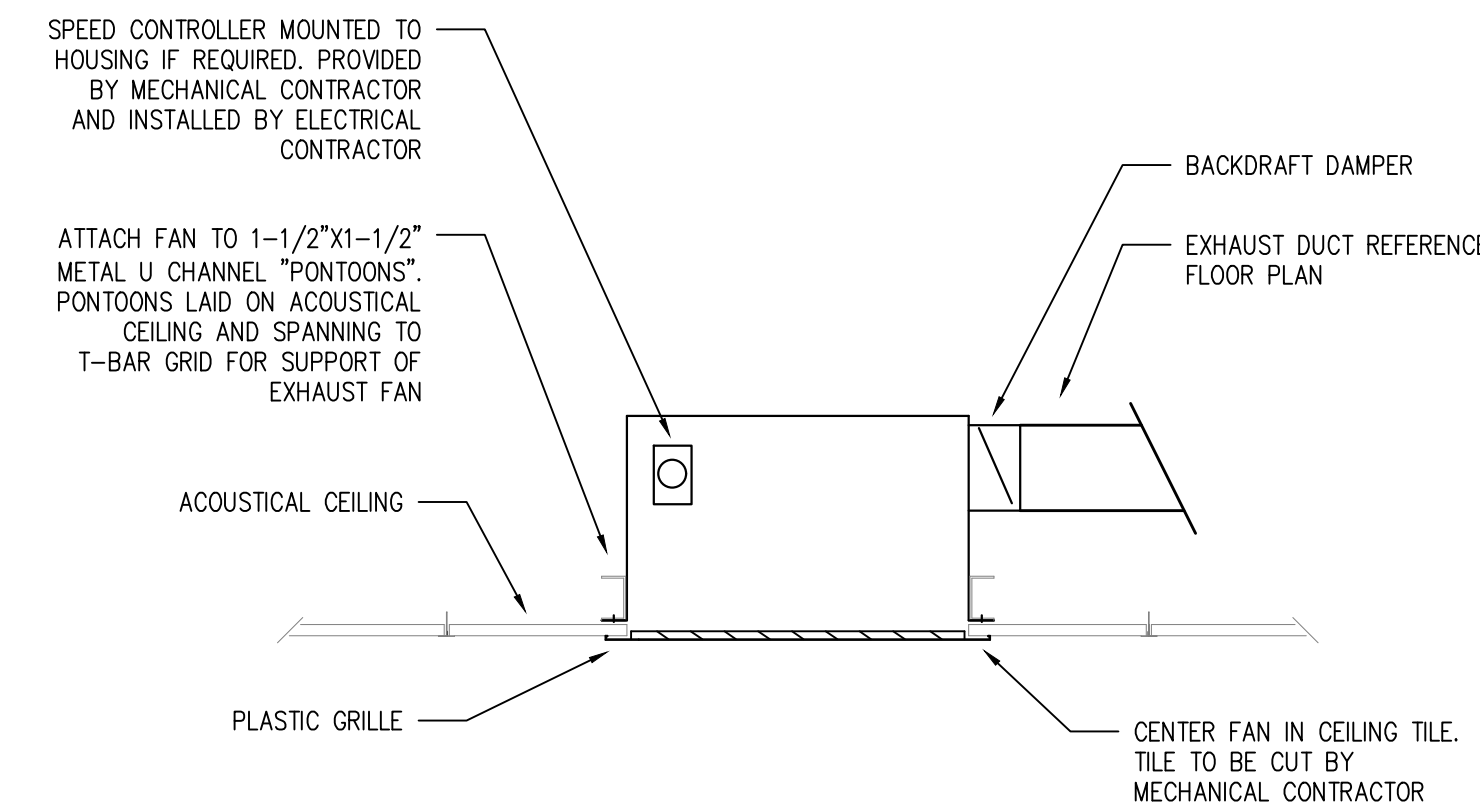
DUCTBOARD DUCT CONSTRUCTION

SCALE: NO SCALE



SUPPLY GRILLE IN LAY-IN CEILING

SCALE: NO SCALE



CEILING EXHAUST FAN

SCALE: NO SCALE

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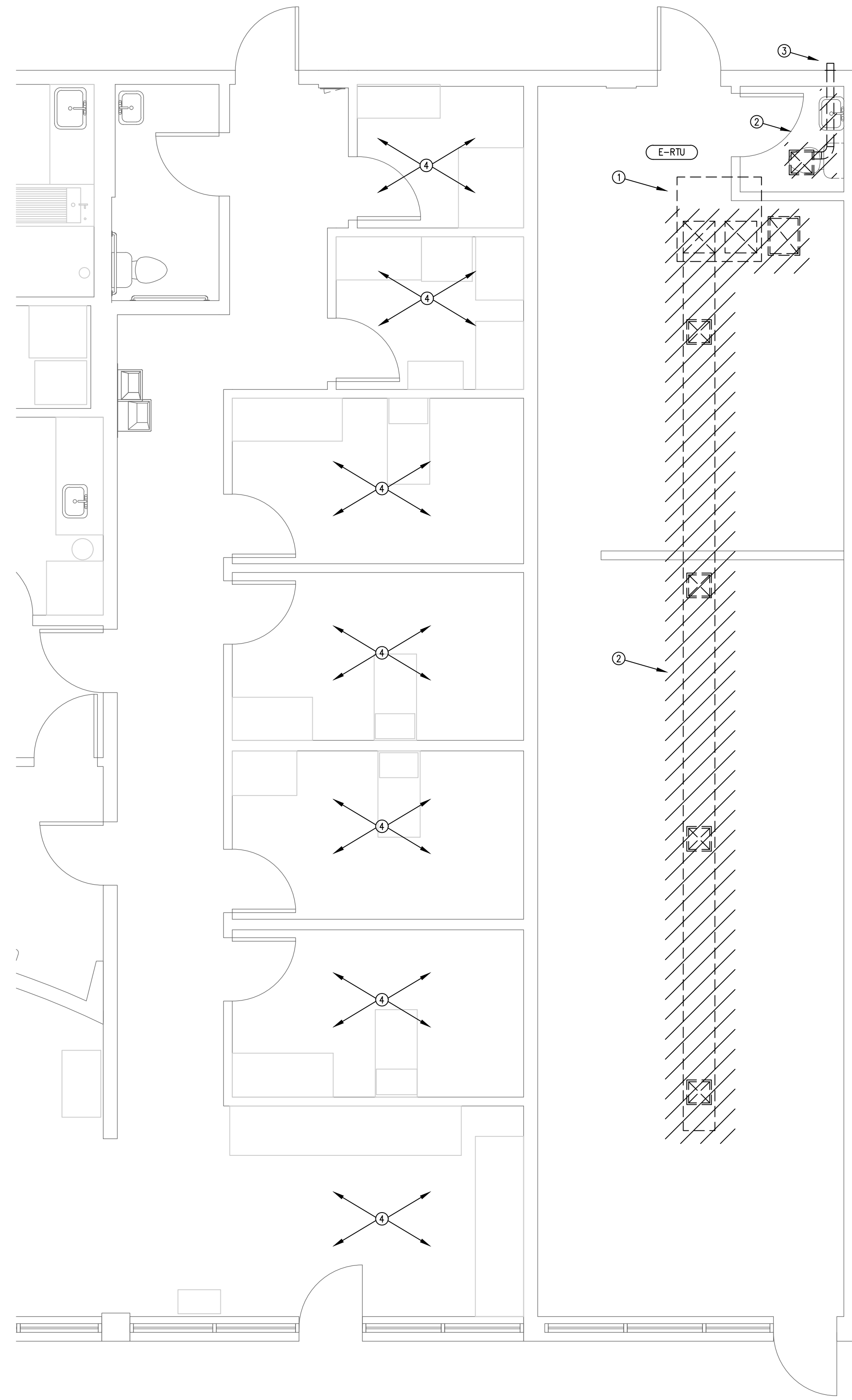
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NATHAN R. BECKMAN PE # 71484

06 - 17 - 2022

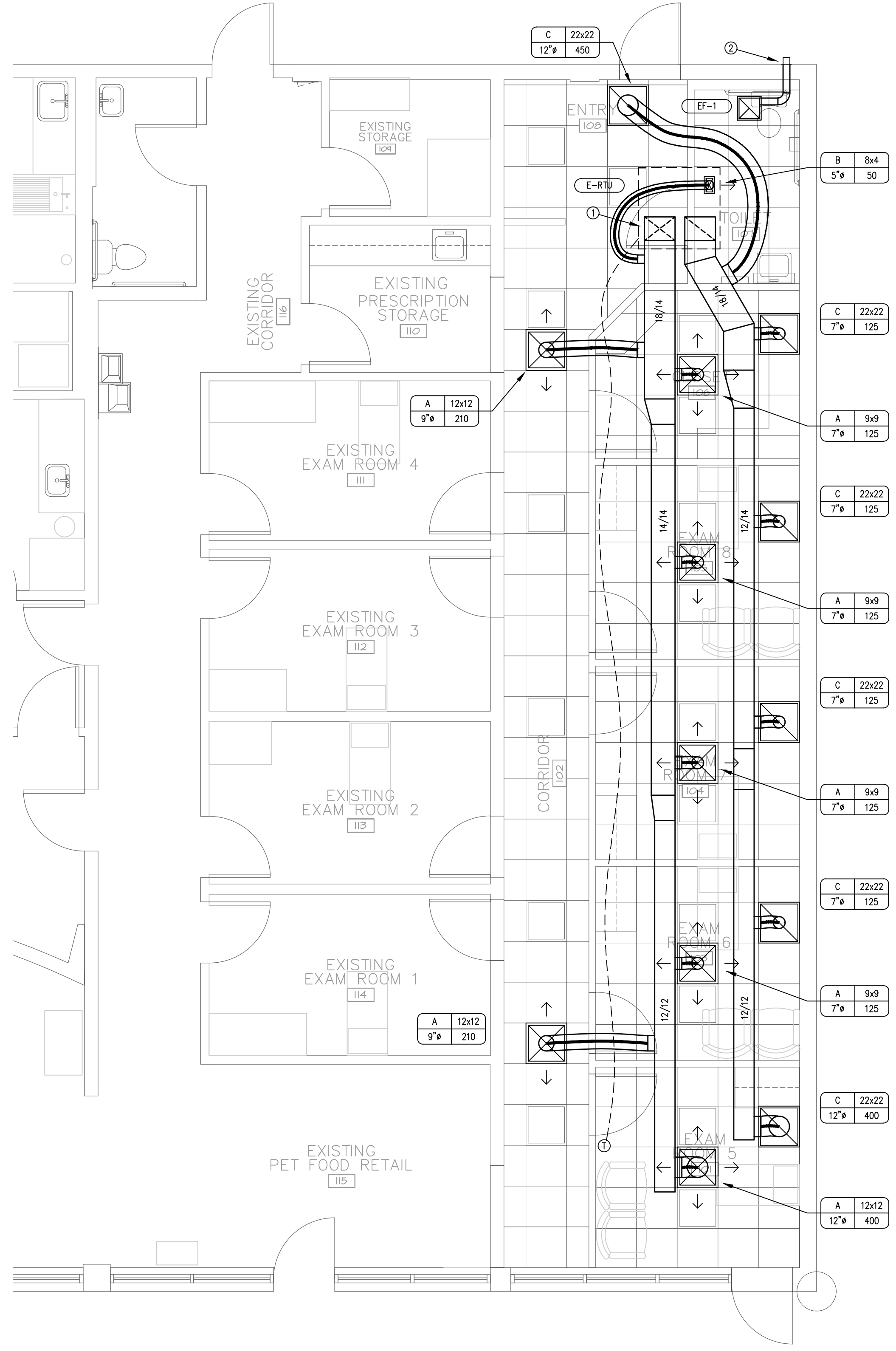
MO.1

PROJECT NO. 2022-112



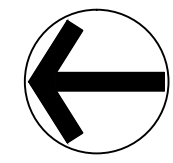
GENERAL NOTES

1. DRAWINGS ARE DIAGRAMMATIC AND DO NOT / CANNOT SHOW ALL TRANSITIONS & OFFSETS NECESSARY FOR A COMPLETE SYSTEM. CONTRACTOR SHALL PROVIDE ALL TRANSITIONS, OFFSETS, ETC NECESSARY FOR A COMPLETE SYSTEM.
2. ALL PIPE ROUTING, DUCT ROUTING AND EQUIPMENT LOCATIONS SHALL BE COORDINATED WITH THE BUILDING STRUCTURE AND OTHER TRADES PRIOR TO INSTALLATION. IF ANY CONFLICTS EXIST, THE DESIGN TEAM SHALL BE NOTIFIED PRIOR TO ANY ACTION BEING MADE TO RESOLVE CONFLICT. CONTRACTOR SHALL REFERENCE ARCH & ID DRAWINGS FOR CEILING HEIGHTS, WALL CONSTRUCTION, CEILING CONSTRUCTION, AND TRIM CARPENTRY.
3. ALL PIPES AND WIRING ROUTING THROUGH FIRE RATED PARTITIONS SHALL BE SEALED BY AN APPROVED THROUGH PENETRATION DETAIL.
4. CONTRACTOR SHALL FAMILIARIZE THEMSELVES WITH THE EXISTING CONDITIONS PRIOR TO BIDDING.



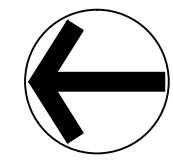
MECHANICAL DEMO PLAN

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



MECHANICAL PLAN

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



HVAC DEMO KEYED NOTES

1. EXISTING RTU TO REMAIN.
2. REMOVE ALL EXISTING DUCTWORK, GRILLES, DIFFUSERS, EXHAUST FANS, AND CONTROL WIRING.
3. EXISTING WALL CAP TO REMAIN.
4. EXISTING HVAC TO REMAIN.

HVAC KEYED NOTES

1. SUPPLY AND RETURN DROP UP TO RTU. TRANSITION TO RTU CONNECTION SIZE IN VERTICAL.
2. CONNECT TO EXISTING WALL CAP.

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