

GLEN ARM MAINTENANCE FACILITY SIGN & SIGNAL HVAC REPLACEMENT

BID NO. ____-____

MECHANICAL & ELECTRICAL ENGINEERS
BOWMAN

300 East Joppa Road, Suite 501
Towson, Maryland 21286

DRAWING INDEX

2025-1480 T-001 TITLE SHEET

MECHANICAL:

2025-1481 M-001 MECHANICAL COVERSHEET
2025-1482 M-101 MECHANICAL DEMOLITION PLANS
2025-1483 M-102 MECHANICAL NEW WORK PLANS
2025-1484 M-201 MECHANICAL DETAILS AND SCHEDULES
2025-1485 M-202 MECHANICAL CONTROLS

ELECTRICAL

2025-1486 E-001 ELECTRICAL COVERSHEET
2025-1487 E-101 ELECTRICAL DEMOLITION PLANS
2025-1488 E-201 ELECTRICAL NEW WORK PLANS

APPLICABLE CODES AND STANDARDS

2021 INTERNATIONAL BUILDING CODE
2020 NATIONAL ELECTRICAL CODE
2021 INTERNATIONAL MECHANICAL CODE
2021 NATIONAL STANDARD PLUMBING CODE
2021 INTERNATIONAL ENERGY CONSERVATION CODE
ASHRAE 90.1 2019

	PROFESSIONAL CERTIFICATION		AS-BUILT / REVISION		BY	DATE	P.W.A. NO.	KEY SHEET	POSITION	SHT	DRAWING SCALE		PROPERTY MANAGEMENT	
	I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.							QNW	58NE23		PLAN SCALE:	AS SHOWN	APPROVED BY: <i>[Signature]</i>	PROPERTY MANAGER
	LICENSE NO. 17655 EXPIRATION DATE 1/14/26								58NE24		PROFILE SCALE:		DATE: 3/10/2025	
	ENGINEER: <i>[Signature]</i>		DGN BY: <i>[Signature]</i>	BUREAU OF ENGINEERING AND CONSTRUCTION		TRAFFIC	HIGHWAYS	STRUCTURES	STORM DRAINS	SEWER	WATER	FIELD ENGINEER		
	AS-BUILT PER RECORD PRINT		DWN BY: <i>[Signature]</i>	REVIEWED BY:										
BY: DATE:		CHKD BY: <i>[Signature]</i>		DATE REVIEWED:										

SUBDIVISION: GLEN ARM

BALTIMORE COUNTY OFFICE OF BUDGET AND FINANCE – PROPERTY MANAGEMENT

GLEN ARM SIGN & SIGNAL SHOP HVAC

TITLE SHEET

Electrification of Existing Office HVAC - 100% CDs

GLEN ARM SIGN & SIGNAL SHOP

ELECTION DIST. NO.:11C3

SHEET DESIGNATION	CONTRACT NUMBER
T-001	25053 PO0
JOB ORDER NUMBER	
1042031	
SHEET 1 OF 9	
DRAWING NUMBER	
2025-1480	
FILE NO.:	8

DWG. FILENAME:

GENERAL DEMOLITION PROJECT NOTES

1. TEMPORARILY REMOVE EXISTING LAY-IN TILE CEILING SYSTEMS INCLUDING ALL GUY WIRE SUPPORTS AND ASSOCIATED SUSPENSION SYSTEMS WHERE REQUIRED TO COMPLETE WORK. LAY-IN TILE CEILING SYSTEMS SHALL THEN BE RE-INSTALLED AFTER NEW/DEMOLITION WORK. THE COST OF REPLACING/REPAIRING ANY DAMAGE TO THE EXISTING LAY-IN TILE CEILING SYSTEM SHALL BE INCURRED BY THE CONTRACTOR.
2. CAREFULLY REMOVE PLASTER TYPE CEILINGS AS REQUIRED TO FACILITATE THE INSTALLATION/REMOVAL OF ALL EXISTING/NEW DUCTWORK AND ALL EXISTING/NEW PIPING SYSTEMS AND ASSOCIATED APPURTENANCES. NEW PLASTER TYPE CEILINGS SHALL BE INSTALLED TO REPLACE EXISTING REMOVED PORTIONS WHERE INDICATED AND REQUIRED.
3. NOTIFY THE OWNER, IN WRITING, AT LEAST FOURTEEN (14) DAYS IN ADVANCE OF ALL REQUIRED SHUTDOWNS OF WATER, SEWER, FIRE PROTECTION, GAS, ELECTRICAL SERVICE, OR OTHER UTILITIES. UPON WRITTEN RECEIPT OF APPROVAL FROM OWNER, SHUTDOWNS SHALL BE PERFORMED AS DIRECTED OTHERWISE BY THE OWNER AT NO ADDITIONAL CONTRACT COST. AT THE END OF EACH WORK DAY, SHUT DOWN SERVICES SHALL BE RESTORED SO THAT NORMAL USE OF UTILITIES CAN CONTINUE.
4. WHEN WORKING IN AND AROUND THE EXISTING BUILDING, CARE SHALL BE EXERCISED WITH REGARDS TO PROTECTION OF EXISTING STRUCTURE AND MECHANICAL AND ELECTRICAL SERVICES WHICH SHALL REMAIN.
5. REPAIR, REPLACE, OR RESTORE TO THE SATISFACTION OF THE ENGINEER, ALL EXISTING WORK DAMAGED IN THE PERFORMANCE OF THE DEMOLITION AND/OR NEW WORK.
6. EXISTING CONDITIONS (DUCTWORK, PIPING, EQUIPMENT, AND MATERIAL(S) INDICATED ON THE CONTRACT DOCUMENTS ARE NOT WARRANTED TO REPRESENT ALL EXISTING AS-BUILT CONDITIONS. FIELD VERIFY EXACT LOCATIONS OF ALL DUCTWORK, PIPING, EQUIPMENT, AND MATERIALS IN THE FIELD PRIOR TO COMMENCING WITH NEW AND DEMOLITION WORK. EXISTING DUCT, PIPE, AND EQUIPMENT SIZES ARE NOT WARRANTED TO BE COMPLETELY CORRECT. FIELD VERIFY ALL EXISTING CONDITIONS PRIOR TO ORDERING MATERIALS AND INSTALLING NEW WORK.
7. EXISTING MECHANICAL AND ELECTRICAL WORK INDICATED TO BE REMOVED (PIPES, VALVES, DUCTS, ETC.), SHALL BE REMOVED TO A POINT BELOW THE FINISHED FLOORS OR BEHIND FINISHED WALLS AND CAPPED. TERMINATION POINTS SHALL BE FAR ENOUGH BEHIND FINISHED SURFACES TO ALLOW FOR THE INSTALLATION OF THE NORMAL THICKNESS OF FINISHED MATERIAL.
8. EXISTING PIPING NO LONGER REQUIRED TO REMAIN IN SERVICE SHALL BE DISCONNECTED AND REMOVED BACK TO EXISTING ASSOCIATED SERVICE MAINS UNLESS OTHERWISE INDICATED OR NOTED ON THE CONTRACT DRAWINGS. REMOVED EXISTING PIPE HANGERS, PIPE INSULATION, SUPPORTS, VALVES, ETC. EXISTING PIPING INDICATED OR REQUIRED TO REMAIN IN SERVICE OR IN PLACE SHALL BE CAPPED, PLUGGED OR OTHERWISE SEALED. NO EXISTING PIPING SHALL BE LEFT OPEN ENDED.
9. EXISTING DUCTWORK INDICATED TO BE DISCONNECTED AND REMOVED SHALL INCLUDE RELOCATED AIR DEVICES, DUCT INSULATION, HANGERS, SUPPORTS, ETC. DUCTWORK SHALL BE CAPPED WITH SIMILAR GAGE SHEET METAL. SECURE CAP(S) WITH SHEET METAL SCREWS AND SEAL WITH DUCT SEALER, NO EXISTING DUCTWORK SHALL BE LEFT UNCAAPPED. IF CAPPING INSULATED DUCTS, CAP SHALL BE SIMILARLY INSULATED TO MATCH EXISTING INSULATION MATERIALS AND THICKNESS.
10. PATCH TO MATCH ALL NEW AND EXISTING OPENINGS IN WALLS, CEILINGS, AND FLOOR SURFACES DAMAGED OR CREATED BY DEMOLITION WORK. PATCHING SHALL MATCH EXISTING ADJACENT SURFACES AS TO THICKNESS, TEXTURES, MATERIALS, AND COLOR. ALL PATCHING SHALL BE PERFORMED TO THE SATISFACTION OF THE ARCHITECT AND AT NO ADDITIONAL CONTRACT COST.
11. ALL DEMOLISHED EQUIPMENT SHALL BE OFFERED TO THE OWNER PRIOR TO DISPOSAL. EQUIPMENT RETAINED BY THE OWNER SHALL BE STORED WHERE DIRECTED BY THE OWNER. ANY EQUIPMENT THE OWNER DOES NOT WISH TO RETAIN SHALL BE DISPOSED OF, OFF SITE, BY THE CONTRACTOR.
12. ALL ABANDONED DUCTWORK, PLUMBING PIPING, MECHANICAL SYSTEMS PIPING, AND ATC CONTROL WIRING LOCATED IN PLENUM CEILING SPACES SHALL BE REMOVED.

GENERAL FIRE PROTECTION PROJECT NOTES

1. THE EXISTING BUILDING IS SPRINKLERED WITH A WET PIPE SPRINKLER SYSTEM. THE EXISTING SPRINKLER SYSTEM SERVING THE EXISTING OCCUPIED BUILDING AREAS SHALL REMAIN. THE REMAINDER OF THE EXISTING WET PIPE SPRINKLER SYSTEM LOCATED IN THIS PROJECT'S LIMITS SHALL BE MODIFIED/EXTENDED/REPLACED ONLY AS REQUIRED TO ACCOMMODATE NEW OR RENOVATED PORTIONS OF THE BUILDING. SIZE ALL FIRE PROTECTION PIPING IN ACCORDANCE WITH REQUIREMENTS OF THE NATIONAL FIRE PROTECTION ASSOCIATION. SPRINKLER HEAD FLOW COEFFICIENTS SHALL MATCH EXISTING.
2. THE ENTIRE BUILDING SHALL CONTINUE TO BE COMPLETELY 100% SPRINKLERED IN ACCORDANCE WITH NFPA.
3. RELOCATE EXISTING SPRINKLER HEADS, PROVIDE NEW SPRINKLER HEADS AND PROVIDE NEW PIPING EXTENSIONS TO ACCOMMODATE ALL LIGHTING MODIFICATIONS AND DUCTWORK ALTERATIONS IN RENOVATED BUILDING AREAS. AREAS REQUIRING SPRINKLERS SHALL BE DESIGNED FOR OCCUPANCY AS REQUIRED BY APPLICABLE CODES.
4. CONCEAL FIRE PROTECTION PIPING IN FINISHED SPACES UNLESS INDICATED OTHERWISE.
5. EXISTING SYSTEM DRAINS AND INSPECTOR TEST PORTS SHALL REMAIN AS LOCATED. EXCEPT AS OTHERWISE REQUIRED TO BE RELOCATED DUE TO BUILDING RENOVATIONS, EQUIPMENT INSTALLATIONS, UTILITY INSTALLATIONS, ETC. NOTE: IF NEW SYSTEM DRAINS AND INSPECTOR TEST PORTS ARE REQUIRED THEY SHALL NOT BE LOCATED IN FINISHED SPACES.
6. REFER TO SPECIFICATIONS FOR ADDITIONAL FIRE PROTECTION SYSTEM INFORMATION.
7. CONTINUOUSLY MAINTAIN ALL BUILDING EXITS AND BUILDING FIRE PROTECTION DEVICES, SUCH AS FIRE SPRINKLER SYSTEMS, FIRE EXTINGUISHERS, ETC.
8. THE SPRINKLER SYSTEM SHALL BE DESIGNED AND COORDINATED WITH DUCTWORK, PIPING, LIGHTING, EQUIPMENT, AND ARCHITECTURAL REFLECTED CEILING PLANS, PRIOR TO FABRICATION AND INSTALLATION.
9. ANY SHUTDOWN OR DE-ACTIVATION OF THE EXISTING FIRE SPRINKLER SYSTEM SHALL BE COORDINATED AND APPROVED BY THE OWNER.
10. FIRE STOP ALL SPRINKLER PIPING PENETRATIONS THRU FIRE RATED WALLS, PARTITIONS, AND FLOORS. REFER TO ARCHITECTURAL DRAWINGS FOR FIRE RATED WALL AND FLOOR LOCATIONS.

MECHANICAL/ PLUMBING LEGEND

ABBREVIATION	DESCRIPTION	ABBREVIATION	DESCRIPTION
A/C	AIR CONDITIONING	FFE	FINISHED FLOOR ELEVATION
ADJ.	ADJUSTABLE	FLR.	FLOOR
ALT.	ALTERNATE	GPH	GALLONS PER HOUR
AFF	ABOVE FINISHED FLOOR	GPM	GALLONS PER MINUTE
AFG	ABOVE FINISHED GRADE	HP	HORSE POWER
APD	AIR PRESSURE DROP	LBS/HR	POUNDS PER HOUR
AHU	AIR HANDLING UNIT	LAT	LEAVING AIR TEMPERATURE
ACU	AIR CONDITIONING UNIT	MFGR.	MANUFACTURER
BAS	BUILDING AUTOMATION SYSTEM	MBH	ONE THOUSAND BTU PER HOUR
BFF	BELOW FINISHED FLOOR	MAX.	MAXIMUM
BFG	BELOW FINISHED GRADE	MIN.	MINIMUM
BLDG.	BUILDING	NIC	NOT IN CONTRACT
BS	BIRD SCREEN	NTS	NOT TO SCALE
CONT.	CONTINUATION	OA	OUTSIDE AIR
CU	CONDENSING UNIT	PSIG	POUNDS PER SQUARE INCH GAUGE
CONN.	CONNECTION	RA	RETURN AIR
CFH	CUBIC FEET PER HOUR	RAG	RETURN AIR GRILLE
CLG.	CEILING	RAR	RETURN AIR REGISTER
DTL.	DETAIL	RM.	ROOM
DB	DRY BULB	RX.	REMOVE EXISTING
DWG.	DRAWING	SA	SUPPLY AIR
DN.	DOWN	SAD	SUPPLY AIR DIFFUSER
ESP	EXTERNAL STATIC PRESSURE	SHT.	SHEET
EAT	ENTERING AIR TEMPERATURE	SPEC.	SPECIFICATIONS
EX.	EXISTING	TYP.	TYPICAL
EXTR.	EXISTING TO REMAIN	V/ø/HZ	VOLTS/PHASE/HERTZ
EMER.	EMERGENCY	VERT.	VERTICAL
ELEV.	ELEVATION	W/	WITH
FCU	FAN COIL UNIT	WB	WET BULB

GENERAL MECHANICAL PROJECT NOTES

1. TEMPORARILY REMOVE EXISTING LAY-IN TILE CEILING SYSTEMS INCLUDING ALL GUY WIRE SUPPORTS AND ASSOCIATED SUSPENSION SYSTEMS WHERE REQUIRED TO COMPLETE WORK. LAY-IN TILE CEILING SYSTEMS SHALL THEN BE RE-INSTALLED AFTER NEW/DEMOLITION WORK. THE COST OF REPLACING/REPAIRING ANY DAMAGE TO THE EXISTING LAY-IN TILE CEILING SYSTEM SHALL BE INCURRED BY THE CONTRACTOR.
2. CAREFULLY REMOVE PLASTER TYPE CEILINGS AS REQUIRED TO FACILITATE THE INSTALLATION/REMOVAL OF ALL EXISTING/NEW DUCTWORK AND ALL EXISTING/NEW PIPING SYSTEMS AND ASSOCIATED APPURTENANCES. NEW PLASTER TYPE CEILINGS SHALL BE INSTALLED TO REPLACE EXISTING REMOVED PORTIONS WHERE INDICATED AND REQUIRED.
3. ALL TEMPORARY UTILITY OUTAGES OF ANY TYPE SHALL BE COORDINATED WITH THE USER. PROVIDE TWO WEEKS ADVANCE NOTIFICATION PRIOR TO PERFORMING ANY TEMPORARY OUTAGES.
4. ALL DUCTWORK SIZES SHOWN ARE INSIDE CLEAR DIMENSIONS.
5. PROVIDE ACCESS DOORS (SIZE AS SPECIFIED) IN DUCTWORK FOR EVERY FIRE DAMPER, FIRE/SMOKE DAMPER, ETC. WHETHER SHOWN OR NOT. COORDINATE ACCESS TO VOLUME DAMPERS.
6. COORDINATE THE LOCATION OF ALL AIR DEVICES WITH LIGHT FIXTURES AND THE ARCHITECT'S REFLECTED CEILING PLANS, AND DOCUMENTS.
7. COORDINATE THE INSTALLATION OF LIGHTING FIXTURES WITH PIPING, DUCTWORK, AIR DEVICES, SPRINKLERS, AND EQUIPMENT BEING INSTALLED IN THE FACILITY SUCH THAT PIPING, DUCTWORK, AIR DEVICES, AND EQUIPMENT DO NOT BLOCK OR IMPEDE LIGHTING.
8. INSTALL DUCTWORK SO THAT VOLUME DAMPERS, V.V.T. / VAV BOX CONTROL PANELS, FANS, DUCT COILS, ETC., ARE ACCESSIBLE. PROVIDE ACCESS PANELS PER SPECIFICATION REQUIREMENTS.
9. REFER TO ARCHITECTURAL DRAWINGS FOR ROOF AND CEILING CONSTRUCTION TYPES AND DETAILS. REFER TO STRUCTURAL DRAWINGS FOR STEEL SIZES AND LOCATIONS.
10. LOCATE ALL EQUIPMENT WHICH MUST BE SERVICED, OPERATED, AND MAINTAINED IN A FULLY ACCESSIBLE POSITION. EQUIPMENT SHALL INCLUDE, BUT NOT BE LIMITED TO VALVES, TRAPS, MOTORS, CONTROLLERS, DRAIN POINTS, ETC. IF REQUIRED FOR ACCESSIBILITY, FURNISH ACCESS DOORS FOR THIS PURPOSE. COORDINATE LOCATION OF ACCESS DOORS WITH ARCHITECT. MINOR DEVIATIONS FROM DRAWINGS MAY BE MADE TO ALLOW FOR BETTER ACCESSIBILITY.
11. COORDINATE MOUNTING HEIGHTS AND LOCATIONS OF THERMOSTATS AND HUMIDISTATS SERVING EQUIPMENT WITH THE OWNER(S) AND/OR ARCHITECT.
12. FIRE STOP ALL PIPING AND DUCT PENETRATIONS THRU FIRE WALLS, PARTITIONS, AND FLOORS. PROVIDE LISTED FIRE DAMPERS IN ALL DUCTS THAT PASS THROUGH FIRE BARRIERS AND PARTITIONS. REFER TO ARCHITECTURAL DRAWINGS FOR FIRE RATED WALL, FLOOR, PARTITION AND BARRIER LOCATIONS.
13. REPLACE FILTERS SERVING AIR HANDLING UNIT EQUIPMENT PRIOR TO FINAL BALANCING OF AIR DISTRIBUTION SYSTEMS.
14. PROVIDE FLEXIBLE DUCT CONNECTIONS AT ALL DUCTED ROOFTOP TOP UNITS, AIR HANDLING UNITS, FAN COIL UNITS, AND EXHAUST FAN INLET AND OUTLET CONNECTIONS. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
15. PROVIDE WEATHER TIGHT WALL AND ROOF DUCT AND PIPING PENETRATIONS. ALL SEALING MATERIALS TO BE APPROVED BY ARCHITECT.
16. ROUTE DOMESTIC WATER PIPING, SPRINKLER PIPING, HVAC PIPING, GAS PIPING, ETC., IN PIPE CHASES, IN FURRED OUT WALLS AND ABOVE CEILINGS, NO PIPING SHALL BE EXPOSED UNLESS APPROVED BY THE ARCHITECT OR OWNER(S).
17. PROVIDE A BALANCING DAMPER ON ALL BRANCH DUCTS SERVING SUPPLY AIR DEVICES AND RETURN AIR DEVICES WHETHER SHOWN ON PLANS OR NOT.
18. EXISTING CONDITIONS (DUCTWORK, PIPING, EQUIPMENT, AND MATERIAL(S) INDICATED ON THE CONTRACT DOCUMENTS ARE NOT WARRANTED TO REPRESENT ALL EXISTING AS-BUILT CONDITIONS. FIELD VERIFY EXACT LOCATIONS OF ALL DUCTWORK, PIPING, EQUIPMENT, AND MATERIALS IN THE FIELD PRIOR TO COMMENCING WITH NEW AND DEMOLITION WORK. EXISTING DUCT, PIPE, AND EQUIPMENT SIZES ARE NOT WARRANTED TO BE COMPLETELY CORRECT. FIELD VERIFY ALL EXISTING CONDITIONS PRIOR TO ORDERING MATERIALS AND INSTALLING NEW WORK.
19. THE DRAWINGS ARE DIAGRAMMATIC AND DO NOT INDICATE EVERY COMPONENT AND/OR ACCESSORY REQUIRED FOR A COMPLETE INSTALLATION. PROVIDE NECESSARY AND REQUIRED COMPONENTS AND ACCESSORIES TO ENSURE THAT THE ENTIRE SYSTEM IS FUNCTIONAL AND IN COMPLIANCE WITH APPLICABLE CODES, ACCEPTED INDUSTRY STANDARDS, AND MANUFACTURER'S INSTALLATION REQUIREMENTS/RECOMMENDATIONS UPON COMPLETION OF WORK.
20. ALL DUCTWORK AND PIPING SHALL RUN AS HIGH AS POSSIBLE AND ABOVE FINISHED CEILINGS UNLESS OTHERWISE NOTED.
21. ALL OUTSIDE AIR LOUVERS (INTAKE, EXHAUST, OR RELIEF) SHALL BE FITTED WITH ½" MESH BIRD SCREENS MOUNTED BEHIND LOUVERS. ALL UNUSED PORTIONS OF OUTSIDE AIR LOUVERS (INTAKE, EXHAUST, OR RELIEF) SHALL BE BLANKED OFF AIRTIGHT WITH 22-GAUGE GALVANIZED SHEET METAL AND 2 INCH RIGID INSULATION. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
22. INSTALL VALVES AND COIL ASSEMBLIES IN ACCESSIBLE LOCATIONS. PROVIDE ACCESS PANELS PER SPECIFICATIONS.
23. DO NOT RELEASE ANY CFC OR HCFC BASED REFRIGERANT INTO THE ATMOSPHERE DURING INSTALLATION, START-UP, OR SERVICING OF NEW OR EXISTING HVAC EQUIPMENT EITHER DIRECTLY OR INDIRECTLY. UTILIZE AN APPROPRIATE REFRIGERANT PURIFICATION/RECLAMATION SYSTEM THAT IS CAPABLE OF SEPARATION AND REMOVAL OF OIL AND RESIDUAL MOISTURE, AND DOT-APPROVED CONTAINMENT OF RECOVERED REFRIGERANT.
24. ALL REFRIGERANT RELIEF DEVICES OR FUSIBLE PLUGS ON ALL SYSTEMS HAVING A REFRIGERANT CHARGE OF 100 LBS. OR GREATER SHALL DISCHARGE TO THE OUTSIDE OF THE BUILDING IN ACCORDANCE WITH APPLICABLE CODES. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
25. ALL REFRIGERANT PIPING SHALL BE SIZED AND SUPPORTED/INSTALLED IN ACCORDANCE WITH APPLICABLE CODES. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
26. REFRIGERANT PIPING INSTALLATION: REFRIGERANT PIPING LOCATED IN CONCEALED LOCATIONS WHERE TUBING IS INSTALLED IN STUDS, JOISTS, RAFTERS, OR SIMILAR MEMBERS, AND LOCATED LESS THAN 1.5" FROM THE NEAREST EDGE OF THE MEMBER, SHALL BE CONTINUOUSLY PROTECTED BY SHIELD PLATES. PROTECTIVE STEEL SHIELD PLATES SHALL BE A MINIMUM OF 16 GAGE AND SHALL COVER THE AREA OF THE TUBING PLUS THE AREA EXTENDING NOT LESS THAN 2" BEYOND BOTH SIDES OF THE TUBE.
27. REFRIGERANT PIPE LOCATED IN AREAS OTHER THAN THE ROOM OR SPACE WHERE THE REFRIGERATING EQUIPMENT IS LOCATED SHALL BE IDENTIFIED. THE PIPE IDENTIFICATION SHALL BE LOCATED AT INTERVALS NOT EXCEEDING 20 FEET ON THE REFRIGERANT PIPING OR PIPE INSULATION. THE MINIMUM HEIGHT OF LETTERING OF THE IDENTIFICATION LABEL SHALL BE ½ INCH. THE IDENTIFICATION SHALL INDICATE THE REFRIGERANT DESIGNATION AND SAFETY GROUP CLASSIFICATION OF REFRIGERANT USED IN THE PIPING SYSTEM. FOR GROUP A2, A3, B2, AND B3 REFRIGERANTS, THE IDENTIFICATION SHALL ALSO INCLUDE THE FOLLOWING STATEMENT: "DANGER - RISK OF FIRE OR EXPLOSION. FLAMMABLE REFRIGERANT." FOR ANY GROUP B REFRIGERANT, THE IDENTIFICATION SHALL ALSO INCLUDE THE FOLLOWING STATEMENT: "DANGER - TOXIC REFRIGERANT."
28. PROVIDE REFRIGERANT STOP VALVES AT THE FOLLOWING LOCATIONS:
- a. FOR SYSTEMS CONTAINING GREATER THAN 6LBS OF REFRIGERANT:
- SUCTION INLET OF EACH COMPRESSOR, COMPRESSOR UNIT OR CONDENSING UNIT.
- DISCHARGE OUTLET OF EACH COMPRESSOR, COMPRESSOR UNIT OR CONDENSING UNIT.
- OUTLET OF EACH LIQUID RECEIVER.
- b. FOR SYSTEMS CONTAINING >100 LBS OF REFRIGERANT, IN ADDITION TO THOSE ABOVE:
- EACH INLET OF EACH LIQUID RECEIVER.
- INLET AND OUTLET OF EACH CONDENSER WHEN MULTIPLE CONDENSERS.

MECHANICAL/ PLUMBING LEGEND

SYMBOL	ABBREVIATION	DESCRIPTION
----	RX.	REMOVE EXISTING
----	EX.	EXISTING
II , O	CO	CLEAN OUT: LINE, FLUSH
-----RL	RL	REFRIGERANT LINE
-----RS-----	RS	REFRIGERANT SUCTION
-----CD-----	CD	CONDENSATE DRAIN (ABOVE FLOOR)
-----HS-----	HS	HEATING WATER SUPPLY
-----HR-----	HR	HEATING WATER RETURN
-----○-----	DP, DN	ELBOW DOWN OR DROP
-----○-----	UP	ELBOW UP OR RISE
-----S-----		PIPE CONTINUES
-----▶-----		FLOW IN DIRECTION OF ARROW
-----○-----		RISE OR DROP IN PIPE
-----T-----		SIDE PIPE CONNECTION
-----S-----		BOTTOM PIPE CONNECTION
-----○-----		TOP PIPE CONNECTION
-----┐-----		CAPPED OUTLET
-----┐-----		CAPPED PIPE
----- -----		UNION
-----≡-----		PIPE GUIDE
-----X-----		PIPE ANCHOR
10x8		RECTANGULAR DUCT
10"Ø		ROUND DUCT
TURNING VANES		TURNING VANES
SA	SA	SUPPLY AIR DUCT; UP, DOWN
SUPPLY AIR DIFFUSER		SUPPLY AIR DIFFUSER
MOD	MOD	MOTOR OPERATED DAMPER
VD	VD	VOLUME DAMPER
UH	UH	UNIT HEATER
① #		TEMPERATURE SENSOR - UNIT NO. CONTROLLED
CONNECT TO EXISTING AT THIS POINT		CONNECT TO EXISTING AT THIS POINT
REMOVE EXISTING TO THIS POINT		REMOVE EXISTING TO THIS POINT
Ø	DIA.	DIAMETER
#	NO.	NUMBER
CFM	CFM	CUBIC FEET PER MINUTE
SYMBOL	DESCRIPTION	
A	AIR DEVICE REFERENCE SYMBOL	
150	SIZE	
CFM	CFM	
XX	DRAWING NOTE REFERENCE SYMBOL	
Δ	REVISION REFERENCE SYMBOL	

OUTSIDE AIR CALCULATION												
Room Names	Occupancy Category ²	Occupant Density #/1000 FT ²	Occupant # per code ³	CFM/ Person ¹	Sq. Ft. ²	CFM/Sq. Ft. ¹	OA cfm	Ez	OA CFM Total required	min. OA CFM supplied	min. CFM supplied	% OA
ROOM A	Office	5	1	5	102	0.06	11	0.8	13.9	15.0	15	100.0%
ROOM B	Office	5	1	5	100	0.06	11	0.8	13.8	15.0	15	100.0%
ROOM C	Office	5	1	5	119	0.06	12	0.8	15.2	20.0	20	100.0%
ROOM D	Office	5	1	5	104	0.06	11	0.8	14.1	15.0	15	100.0%
ROOM E	Office	5	1	5	104	0.06	11	0.8	14.1	15.0	15	100.0%
ROOM F	Office	5	1	5	97	0.06	11	0.8	13.5	15.0	15	100.0%
ROOM G	Office	5	1	5	96	0.06	11	0.8	13.5	15.0	15	100.0%
ROOM H	Office	5	1	5	110	0.06	12	0.8	14.5	15.0	15	100.0%
ROOM I	Office	5	1	5	93	0.06	11	0.8	13.2	15.0	15	100.0%
ROOM J	Office	5	1	5	93	0.06	11	0.8	13.2	15.0	15	100.0%
BREAK ROOM K	Office	5	4	5	131	0.06	28	0.8	34.8	35.0	35	100.0%
									Subtotal	173.7		
									Actual	155.0	190.0	100.0%

- Notes:
1. Occupancy Classification, CFM/Person, and CFM/Square Feet are based on IMC 2021, Table 403.3.
2. Net occupiable square Footage are based on architectural layout per IMC 2021, section 403.3.
3. When code does not provide occupant density, seats were counted for space occupants.
4. Storage rooms are not occupiable areas of the building

	PROFESSIONAL CERTIFICATION		AS-BUILT / REVISION		BY	DATE	P.W.A. NO.	KEY SHEET	POSITION SH	DRAWING SCALE	PROPERTY MANAGEMENT	
	I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.						R.O.W. NO.	QNW	59NE23 59NE24 59NE23 59NE24	PLAN SCALE: AS SHOWN	APPROVED BY:	
	LICENSE NO. 17055		EXPIRATION DATE 1/1/26							PROFILE SCALE:	DATE: 3/10/2025	
	ENGINEER:		DON BY: GRT		BUREAU OF ENGINEERING AND CONSTRUCTION		TRAFFIC	HIGHWAYS	STRUCTURES	STORM DRAINS	SEWER	WATER
	AS-BUILT PER RECORD PRINT		DWN BY: GRT		REVIEWED BY:							
BY: DATE:		CHKD BY: JDM		DATE REVIEWED:								

BALTIMORE COUNTY OFFICE OF BUDGET AND FINANCE – PROPERTY MANAGEMENT

GLEN ARM SIGN & SIGNAL SHOP HVAC

MECHANICAL COVERSHEET

Electrification of Existing Office HVAC - 100% CDs

SUBDIVISION: GLEN ARM

GLEN ARM SIGN & SIGNAL SHOP

ELECTION DIST. NO.:11C3

SHEET DESIGNATION	CONTRACT NUMBER
M-001	25053 POO
JOB ORDER NUMBER	
1042031	
SHEET 2 OF 9	
DRAWING NUMBER	
2025-1481	
FILE NO.: 8	

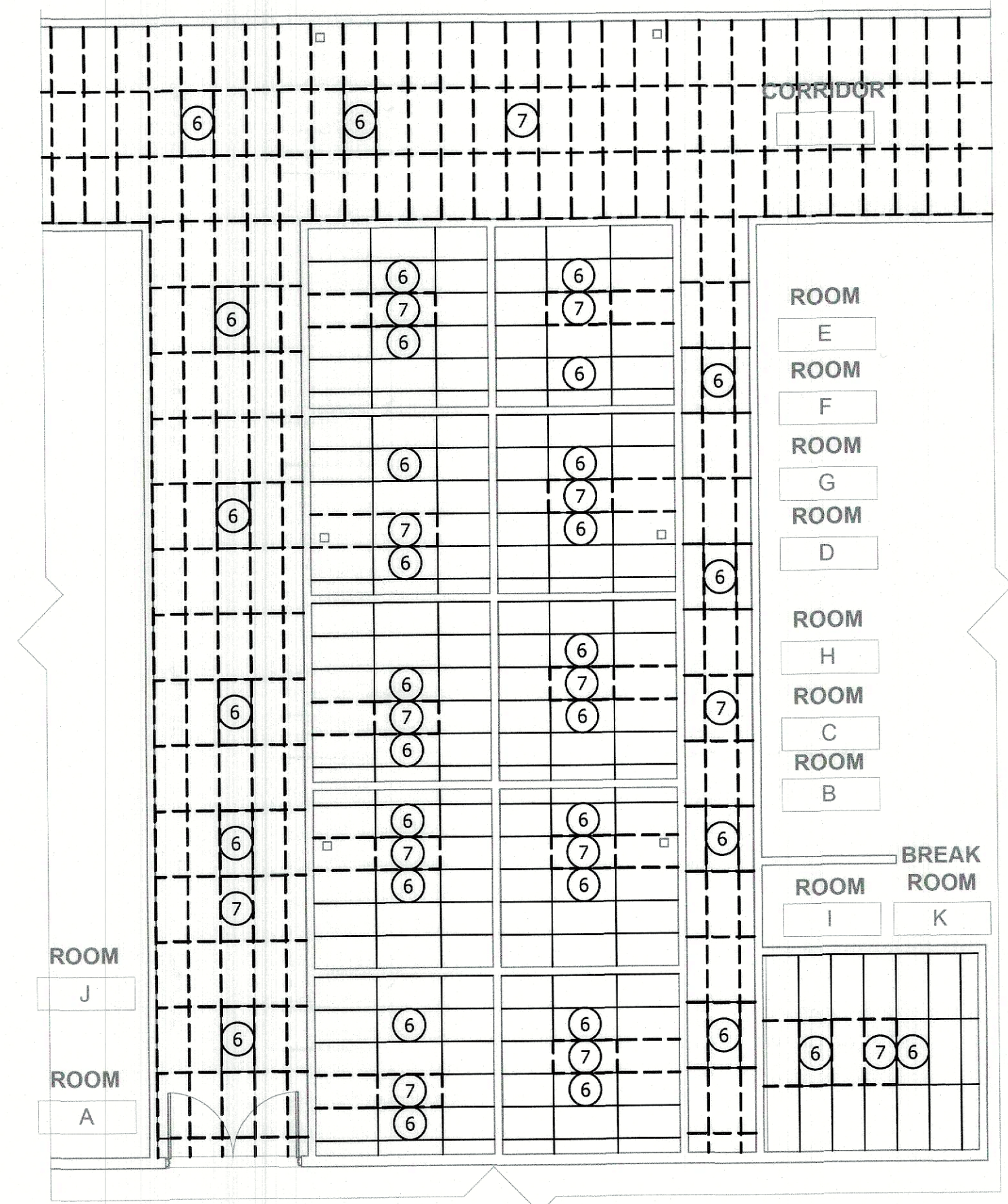
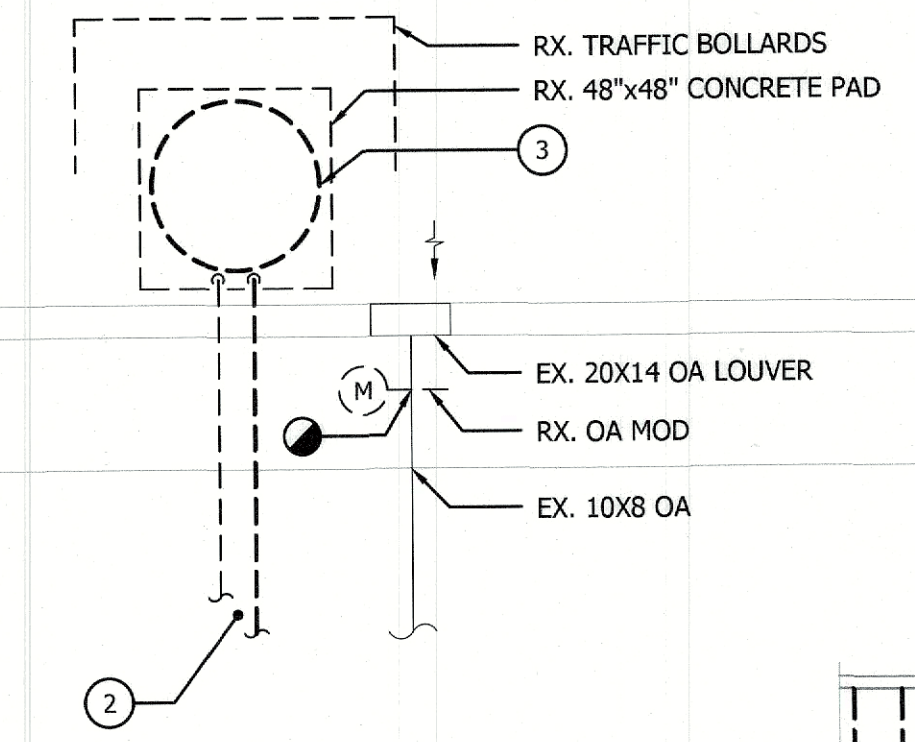
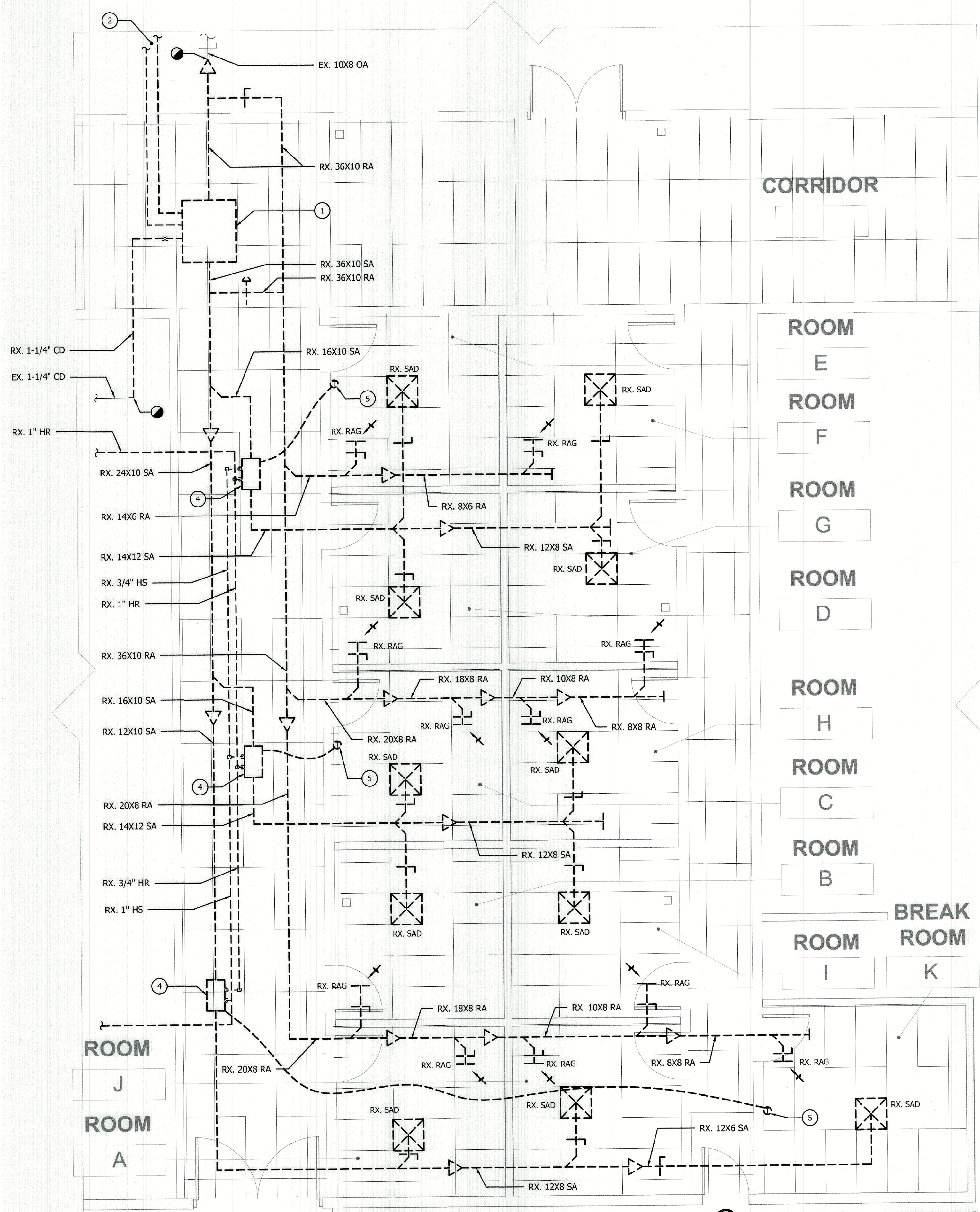


DWG. FILENAME:

EX. 1-1/4" HR
EX. 4" HS
EX. UNIT HEATER
EX. 1" HR
EX. UNIT HEATER

RX. 1" HR
EX. 4" HS
EX. 1-1/4" CD
EX. SPLASH BLOCK

EX. 4" HS
RX. 1" HS



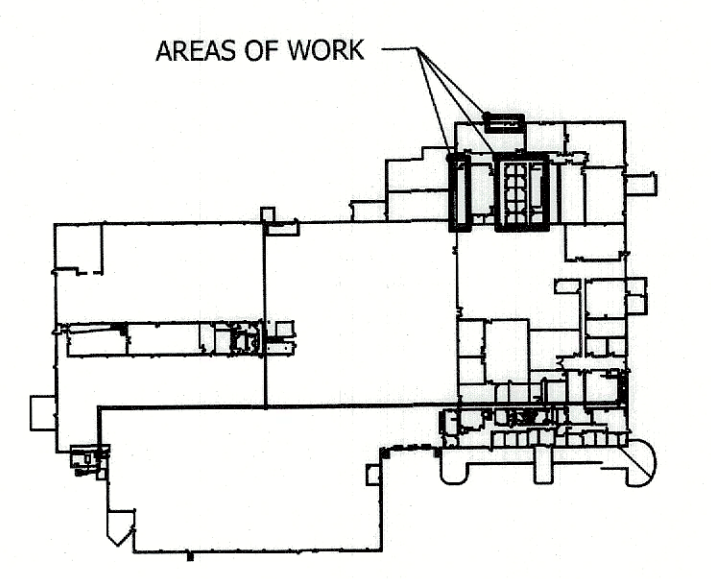
DRAWING NOTES

- 1 REMOVE EXISTING AHU-2 AND ALL ASSOCIATED APPURTENANCES.
- 2 REMOVE EXISTING RS/RL PIPING.
- 3 REMOVE EXISTING CONDENSING UNIT AND ALL ASSOCIATED APPURTENANCES.
- 4 REMOVE EXISTING VAV BOX AND ALL ASSOCIATED APPURTENANCES.
- 5 REMOVE EXISTING THERMOSTAT AND ALL ASSOCIATED APPURTENANCES.
- 6 EXISTING LIGHT FIXTURE. REFER TO ELECTRICAL DRAWINGS FOR MORE INFORMATION.
- 7 REMOVE EXISTING CEILING TILE (TYP.). THE EXISTING CEILING GRID SYSTEM SHALL BE RE-USED.

GENERAL NOTES:

1. TEMPORARILY REMOVE EXISTING LAY-IN TILE CEILING SYSTEMS INCLUDING ALL GUY WIRE SUPPORTS AND ASSOCIATED SUSPENSION SYSTEMS WHERE REQUIRED TO COMPLETE WORK. LAY-IN TILE CEILING SYSTEMS SHALL THEN BE RE-INSTALLED AFTER NEW/DEMOLITION WORK. THE COST OF REPLACING/REPAIRING ANY DAMAGE TO THE EXISTING LAY-IN TILE CEILING SYSTEM SHALL BE INCURRED BY THE CONTRACTOR.
2. CAREFULLY REMOVE PLASTER TYPE CEILINGS AS REQUIRED TO FACILITATE THE INSTALLATION/REMOVAL OF ALL EXISTING/NEW DUCTWORK AND ALL EXISTING/NEW PIPING SYSTEMS AND ASSOCIATED APPURTENANCES. NEW PLASTER TYPE CEILINGS SHALL BE INSTALLED TO REPLACE EXISTING REMOVED PORTIONS WHERE INDICATED AND REQUIRED.

DEMOLITION - RCP
SCALE: 1/8" = 1'-0"



KEY PLAN
SCALE: NONE

SCALE: 1/8" = 1'-0"

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

PROFESSIONAL CERTIFICATION		AS-BUILT / REVISION		BY	DATE	P.W.A. NO.	KEY SHEET	POSITION SHI	DRAWING SCALE	PROPERTY MANAGEMENT	
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.							QNW	59NE23	PLAN SCALE: AS SHOWN	APPROVED BY: <i>[Signature]</i> PROPERTY MANAGER	
LICENSE NO. 17655		EXPIRATION DATE 1/11/26						59NE24	PROFILE SCALE:	DATE: 5/10/2025	
ENGINEER: <i>[Signature]</i>		CONTRACT COMPLETION BOX						59NE24			
DGN BY: GBT		BUREAU OF ENGINEERING AND CONSTRUCTION		TRAFFIC	HIGHWAYS	STRUCTURES	STORM DRAINS	SEWER	WATER	FIELD ENGINEER	
AS-BUILT PER RECORD PRINT		REVIEWED BY:									
BY: GBT		DATE REVIEWED:									
DATE: 3-19-25											

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

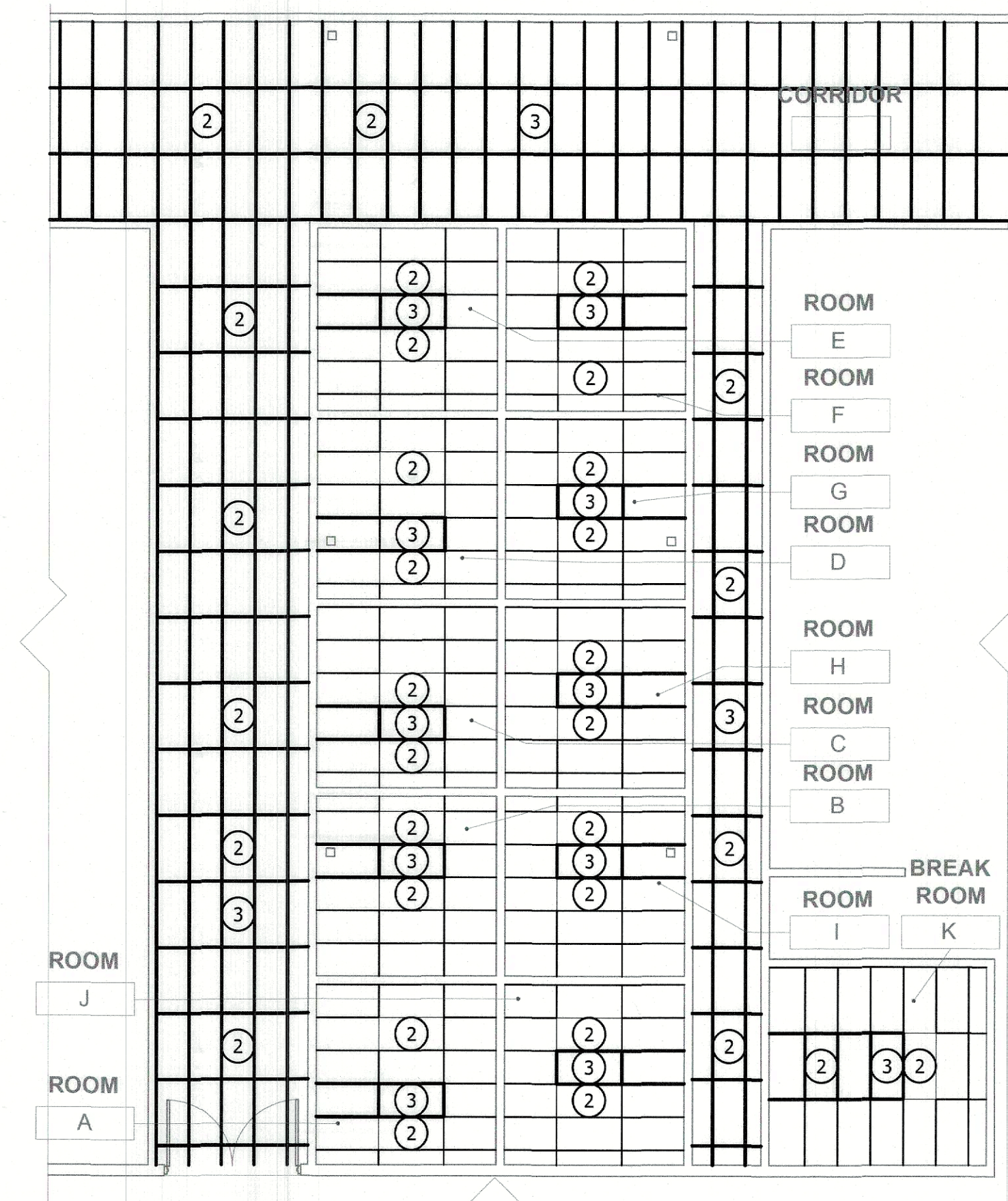
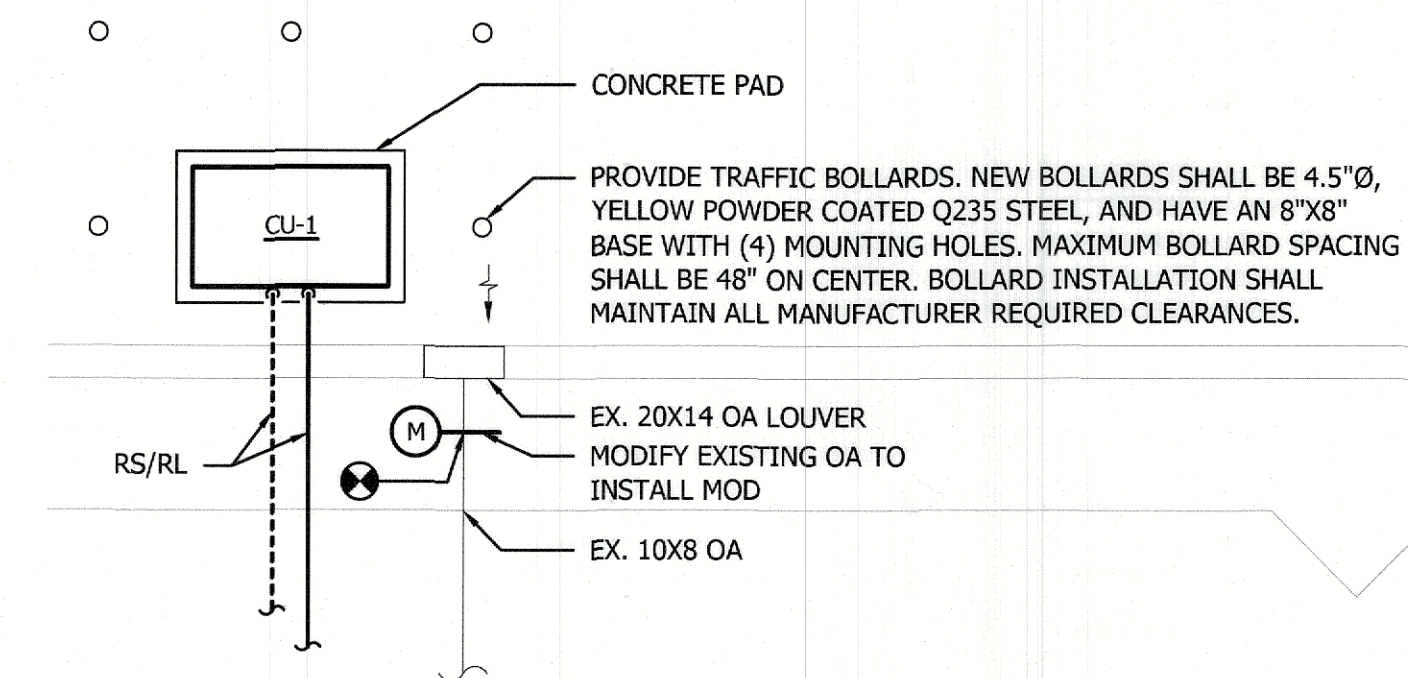
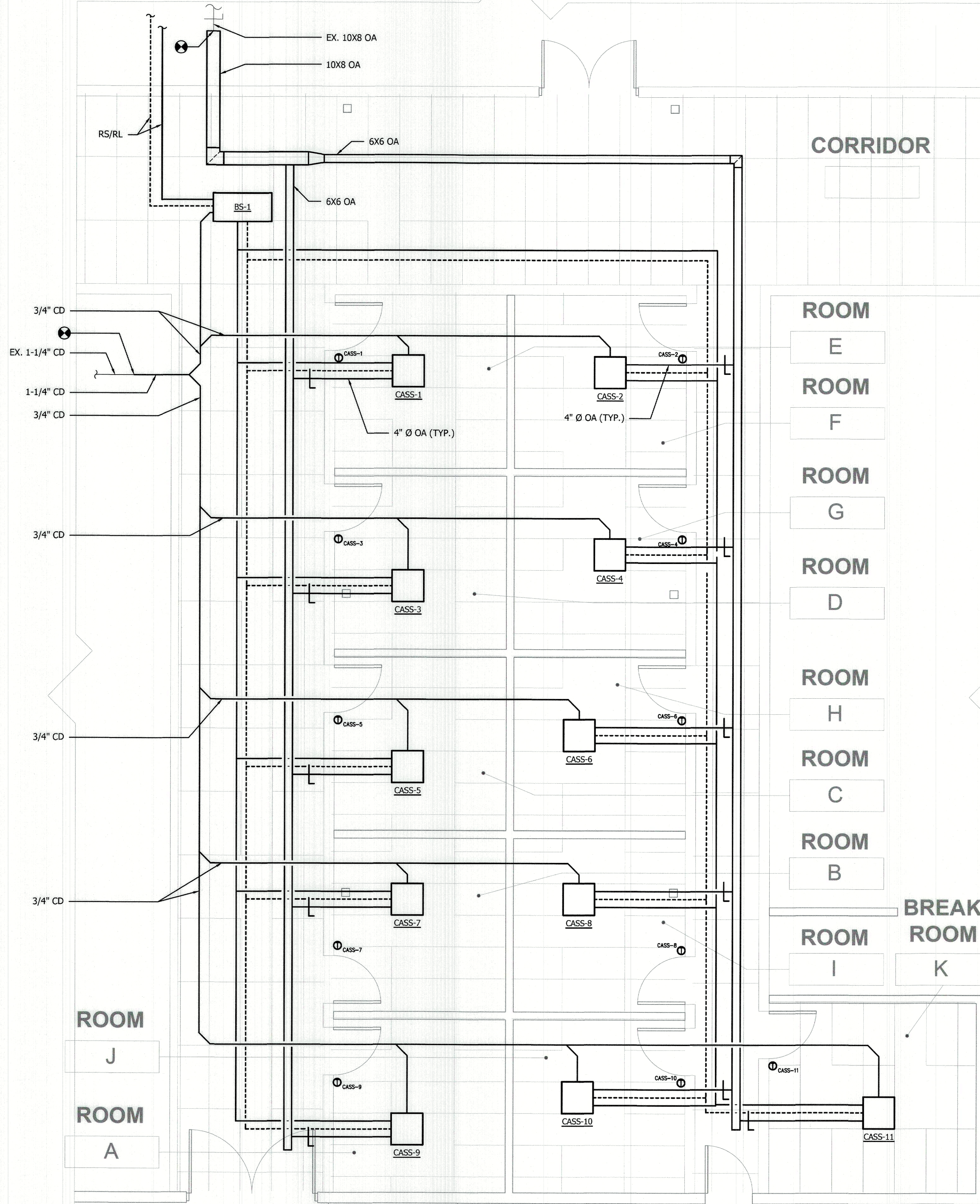
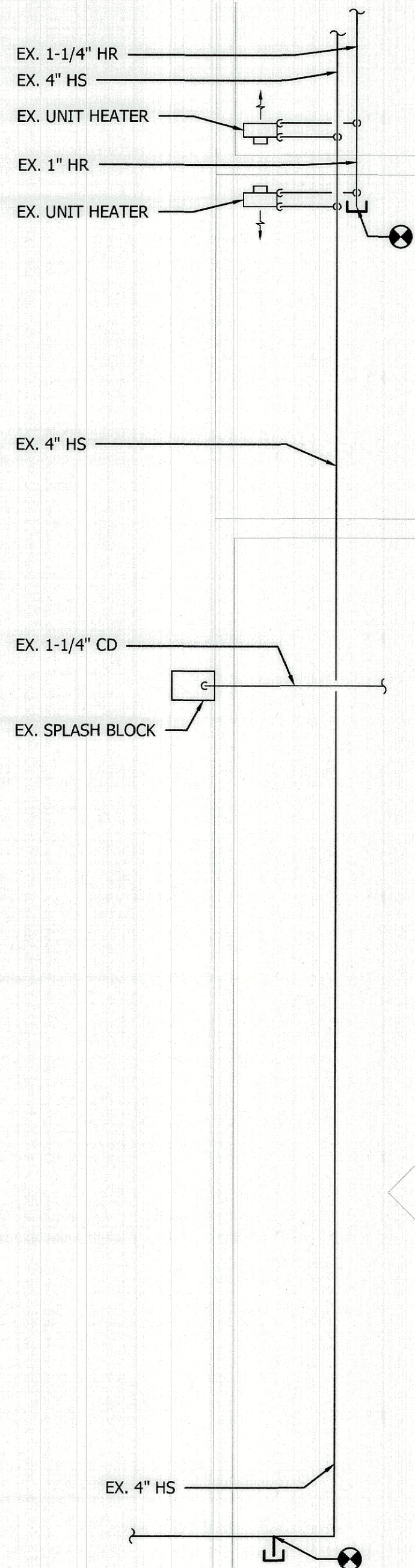
BALTIMORE COUNTY OFFICE OF BUDGET AND FINANCE - PROPERTY MANAGEMENT

GLEN ARM SIGN & SIGNAL SHOP HVAC
MECHANICAL DEMOLITION PLANS
Electrification of Existing Office HVAC - 100% CDs

GLEN ARM SIGN & SIGNAL SHOP

ELECTION DIST. NO.:11C3

SHEET DESIGNATION	CONTRACT NUMBER
M-101	25053 POO
JOB ORDER NUMBER	1042031
SHEET 3 OF 9	
DRAWING NUMBER	2025-1482
FILE NO.:	8



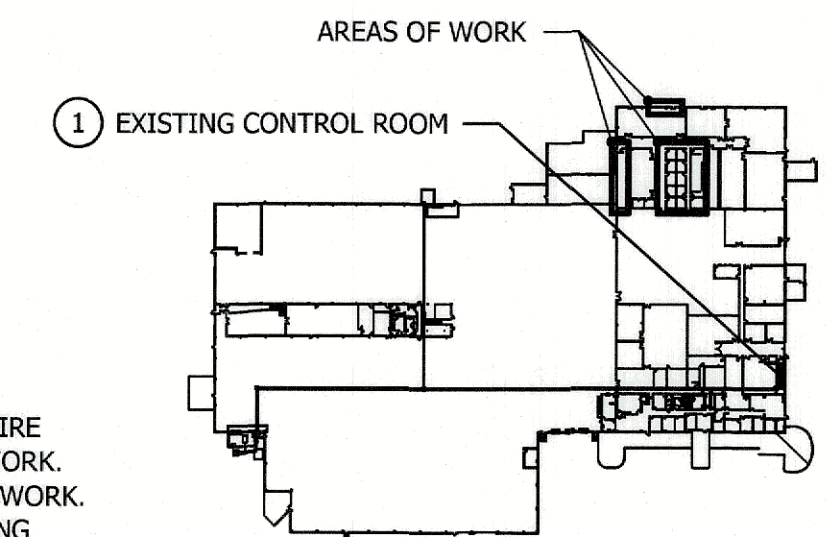
NEW WORK - RCP
SCALE: 1/8" = 1'-0"

DRAWING NOTES

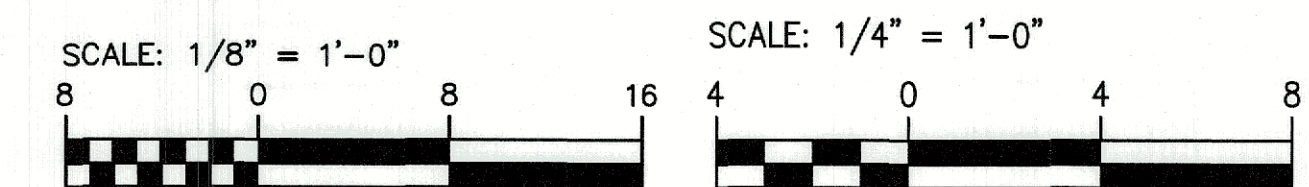
- EXISTING VRF CONTROL PANEL. CONNECT VRF EQUIPMENT TO EXISTING VRF CONTROLLER.
- EXISTING LIGHT FIXTURE. REFER TO ELECTRICAL DRAWINGS FOR MORE INFORMATION.
- CEILING TILE (TYP.). COORDINATE TILE INSTALLATION WITH EXISTING GRID SYSTEM. NEW CEILING TILES SHALL MATCH EXISTING. CEILING TILES SHALL BE MANUFACTURED BY ARMSTRONG OR APPROVED EQUAL.

GENERAL NOTES:

- TEMPORARILY REMOVE EXISTING LAY-IN TILE CEILING SYSTEMS INCLUDING ALL GUY WIRE SUPPORTS AND ASSOCIATED SUSPENSION SYSTEMS WHERE REQUIRED TO COMPLETE WORK. LAY-IN TILE CEILING SYSTEMS SHALL THEN BE RE-INSTALLED AFTER NEW/DEMOLITION WORK. THE COST OF REPLACING/REPAIRING ANY DAMAGE TO THE EXISTING LAY-IN TILE CEILING SYSTEM SHALL BE INCURRED BY THE CONTRACTOR.
- CAREFULLY REMOVE PLASTER TYPE CEILINGS AS REQUIRED TO FACILITATE THE INSTALLATION/REMOVAL OF ALL EXISTING/NEW DUCTWORK AND ALL EXISTING/NEW PIPING SYSTEMS AND ASSOCIATED APPURTENANCES. NEW PLASTER TYPE CEILINGS SHALL BE INSTALLED TO REPLACE EXISTING REMOVED PORTIONS WHERE INDICATED AND REQUIRED.



KEY PLAN
SCALE: NONE




NEW WORK - MECHANICAL
SCALE: 1/4" = 1'-0"

PROFESSIONAL CERTIFICATION				AS-BUILT / REVISION		BY	DATE	P.W.A. NO.	KEY SHEET	POSITION	SHT	DRAWING SCALE	PROPERTY MANAGEMENT	
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. <u>17655</u> , EXPIRATION DATE <u>1/11/26</u>								R.O.W. NO.	QNW	50NE23	50NE24	PLAN SCALE: AS SHOWN	APPROVED BY: <u>Jim Arm</u>	
				CONTRACT COMPLETION BOX						50NE23	50NE24	PROFILE SCALE:	DATE: <u>3/10/2025</u>	
ENGINEER: <u>Edwin Abbott</u>				DGN BY: <u>GHT</u>		BUREAU OF ENGINEERING AND CONSTRUCTION		TRAFFIC	HIGHWAYS	STRUCTURES	STORM DRAINS	SEWER	WATER	FIELD ENGINEER
AS-BUILT PER RECORD PRINT				DWN BY: <u>GHT</u>		REVIEWED BY:								
BY: <u>JD</u>				CHKD BY: <u>JD</u>		DATE REVIEWED:								
DATE: <u>3-19-25</u>														

SUBDIVISION: **GLEN ARM**

BALTIMORE COUNTY OFFICE OF BUDGET AND FINANCE - PROPERTY MANAGEMENT
GLEN ARM SIGN & SIGNAL SHOP HVAC
MECHANICAL NEW WORK PLANS
Electrification of Existing Office HVAC - 100% CDs
GLEN ARM SIGN & SIGNAL SHOP

ELECTION DIST. NO.: **11C3**

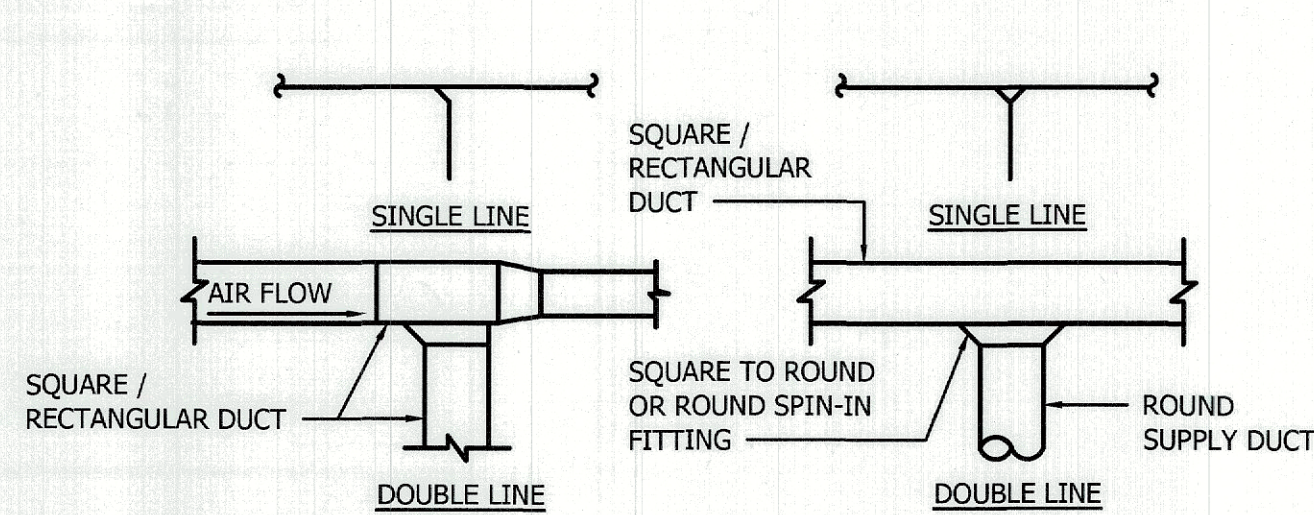
SHEET DESIGNATION	CONTRACT NUMBER
M-102	25053 PO0
	JOB ORDER NUMBER
	1042031
	SHEET 4 OF 9
	DRAWING NUMBER
	2025-1483
	FILE NO.: 8

VRF SYSTEM SCHEDULE

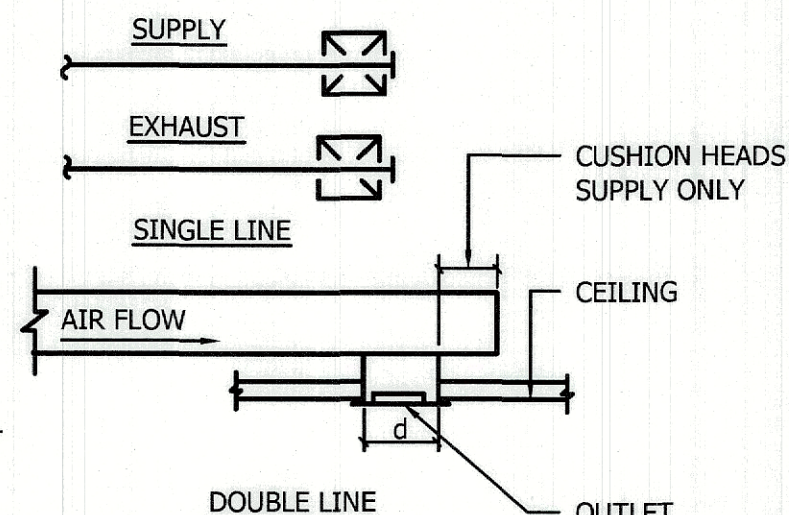
INDOOR UNIT															OUTDOOR UNIT													NOTES					
UNIT DESIGNATION	UNIT LOCATION	UNIT ARRANGEMENT	SUPPLY FAN		VENTILLATION AIR (CFM)	COOLING				HEAT PUMP HEATING (0°F)	TOTAL INDOOR UNIT ELECTRICAL				BASIS OF DESIGN		BRANCH BOX SELECTOR			UNIT DESIGNATION	COOLING CAPACITY (AT 95°F)		HEATING CAPACITY (AT 0°F)		UNIT EFF. EER	TOTAL OUTDOOR UNIT ELECTRICAL				WEIGHT (LBS)	BASIS OF DESIGN		
						DESIGN CFM	ESP (IN H2O)	TOTAL MBH	SENSIBLE MBH		EAT		MCA	MOP (A)							(V/Ø/HZ)	NOMINAL (Btu/hr)	ACTUAL (Btu/hr)	NOMINAL (Btu/hr)		ACTUAL (Btu/hr)	QUANTITY OF POWER CONNECTION		MCA				MOCp
			DB (°F)	WB (°F)							MBH	DESIGNATION			ELECTRICAL (V/Ø/HZ)	MODEL #																	
CASS-1	ROOM E	CEILING	315	-	15	7.6	6.1	75.0	63.0	8.5	0.3	15	208/1/60	MITSUBISHI	TPLFYP008	BS-1	208/1/60	TCMBM1016JA11N4	CU-1	96000.0	93149.0	108000.0	93472.0	12.0	1	20.0	30.0	460/3/60	649.0	MITSUBISHI	TURYE0964AN41AN	1,2,3,4,5	
CASS-2	ROOM F	CEILING	315	-	15	7.6	6.1	75.0	63.0	8.5	0.3	15	208/1/60	MITSUBISHI	TPLFYP008																	1,2,3,4,5	
CASS-3	ROOM D	CEILING	315	-	15	7.6	6.1	75.0	63.0	8.5	0.3	15	208/1/60	MITSUBISHI	TPLFYP008																	1,2,3,4,5	
CASS-4	ROOM G	CEILING	315	-	15	7.6	6.1	75.0	63.0	8.5	0.3	15	208/1/60	MITSUBISHI	TPLFYP008																	1,2,3,4,5	
CASS-5	ROOM C	CEILING	315	-	20	7.6	6.1	75.0	63.0	8.5	0.3	15	208/1/60	MITSUBISHI	TPLFYP008																	1,2,3,4,5	
CASS-6	ROOM H	CEILING	315	-	15	7.6	6.1	75.0	63.0	8.5	0.3	15	208/1/60	MITSUBISHI	TPLFYP008																	1,2,3,4,5	
CASS-7	ROOM B	CEILING	315	-	15	7.6	6.1	75.0	63.0	8.5	0.3	15	208/1/60	MITSUBISHI	TPLFYP008																	1,2,3,4,5	
CASS-8	ROOM I	CEILING	315	-	15	7.6	6.1	75.0	63.0	8.5	0.3	15	208/1/60	MITSUBISHI	TPLFYP008																	1,2,3,4,5	
CASS-9	ROOM A	CEILING	315	-	15	7.6	6.1	75.0	63.0	8.5	0.3	15	208/1/60	MITSUBISHI	TPLFYP008																	1,2,3,4,5	
CASS-10	ROOM J	CEILING	315	-	15	7.6	6.1	75.0	63.0	8.5	0.3	15	208/1/60	MITSUBISHI	TPLFYP008																	1,2,3,4,5	
CASS-11	BREAK ROOM K	CEILING	390	-	35	7.6	6.1	75.0	63.0	8.5	0.3	15	208/1/60	MITSUBISHI	TPLFYP008																	1,2,3,4,5	

NOTES:

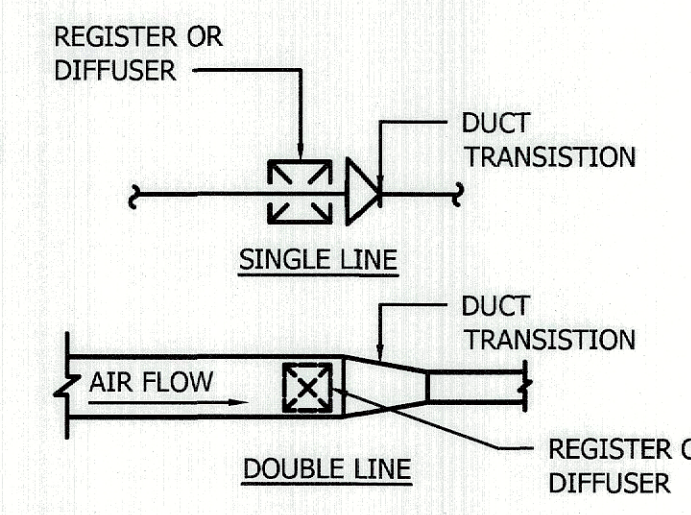
- REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION AND ACCESSORIES ASSOCIATED WITH UNIT.
- PROVIDE VARIABLE CAPACITY INVERTER COMPRESSORS.
- MANUFACTURER SHALL BE CERTIFIED WITH ANSI/AHRI-1230 AND MEET ASHRAE 90.1 REQUIREMENTS.
- MANUFACTURER MUST MEET THE SCHEDULED PERFORMANCE, TAKING INTO ACCOUNT FOR ALL PIPING DE-RATES AND OPERATING AMBIENT DE-RATES.
- PROVIDE CONDENSATE PUMP.



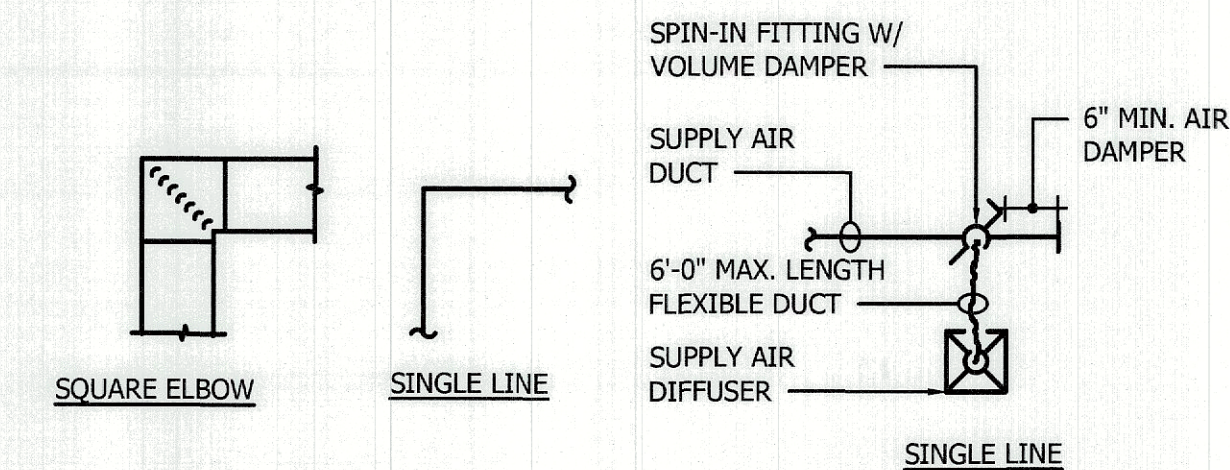
TYPICAL TAPOFF & TRANSITION FROM SIDE OF DUCT



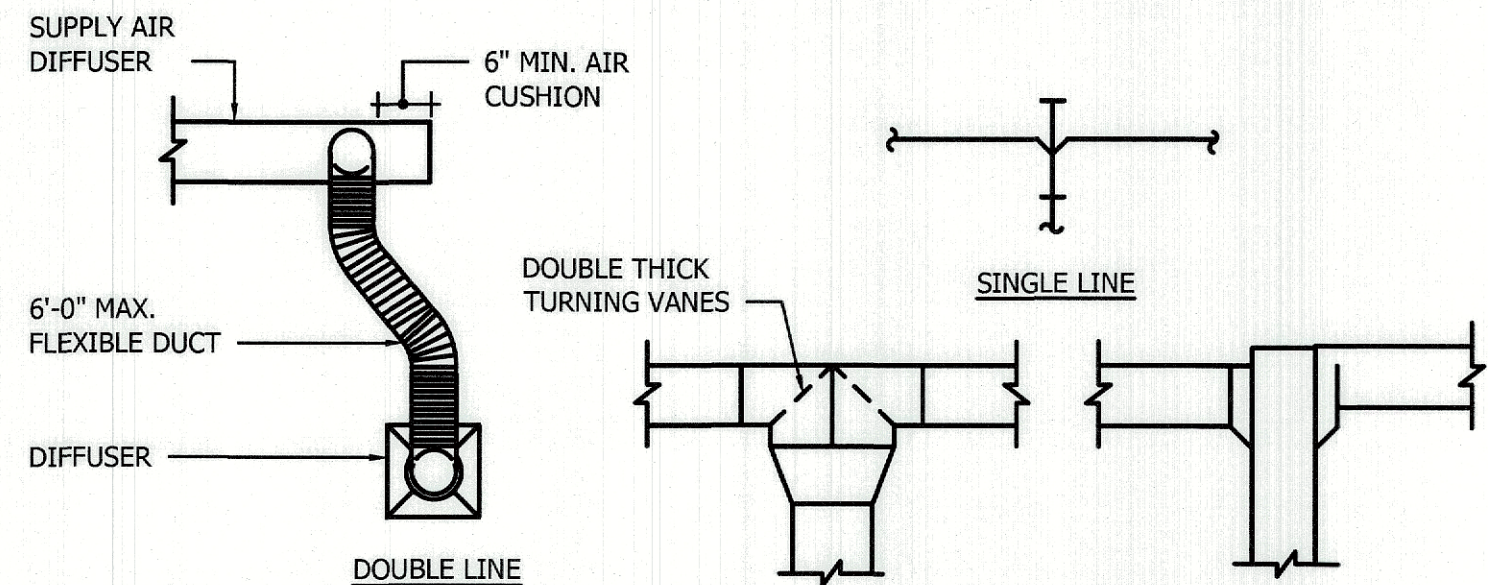
OUTLET LOCATED AT END OF RUN



DIFFUSER OR REGISTER TAPOFF & TRANSITION



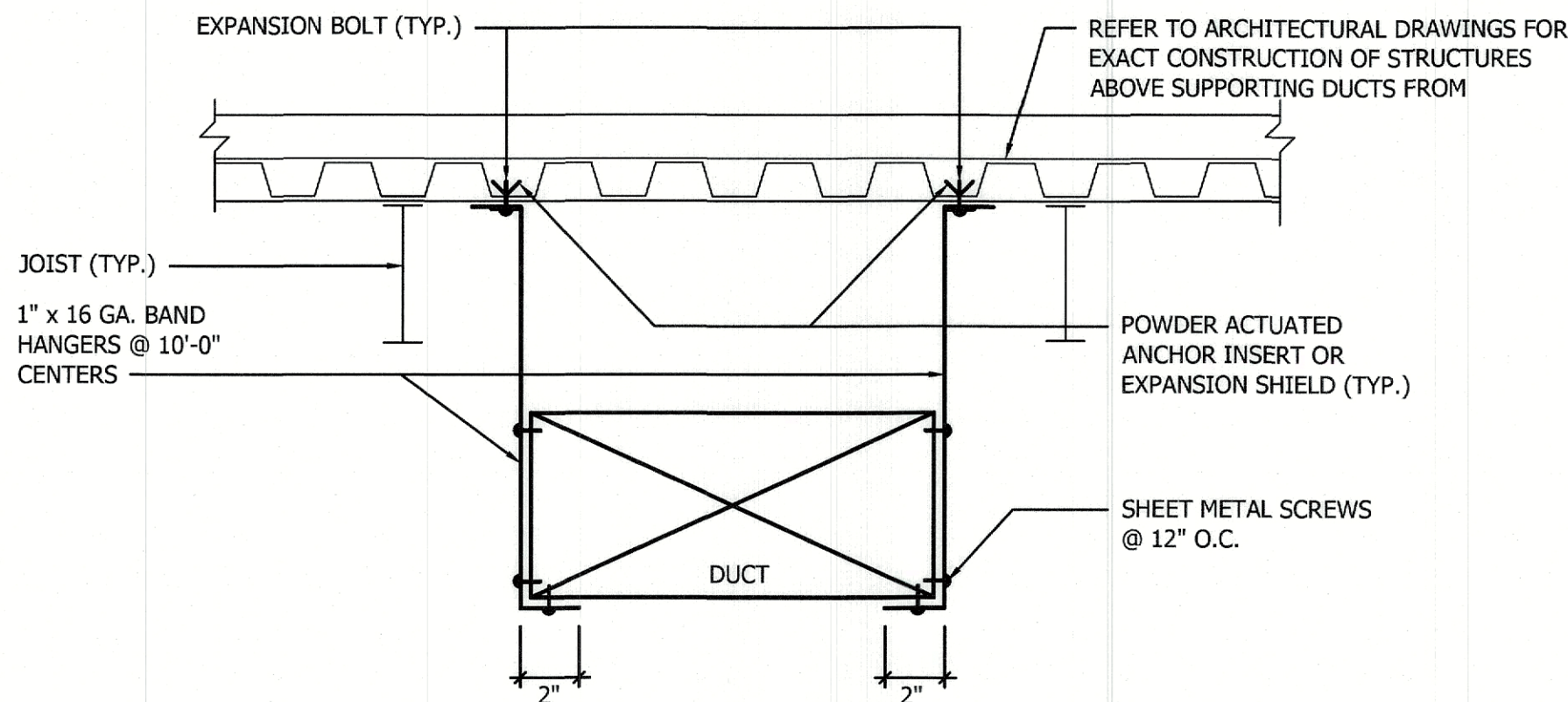
SUPPLY AND RETURN DUCTS



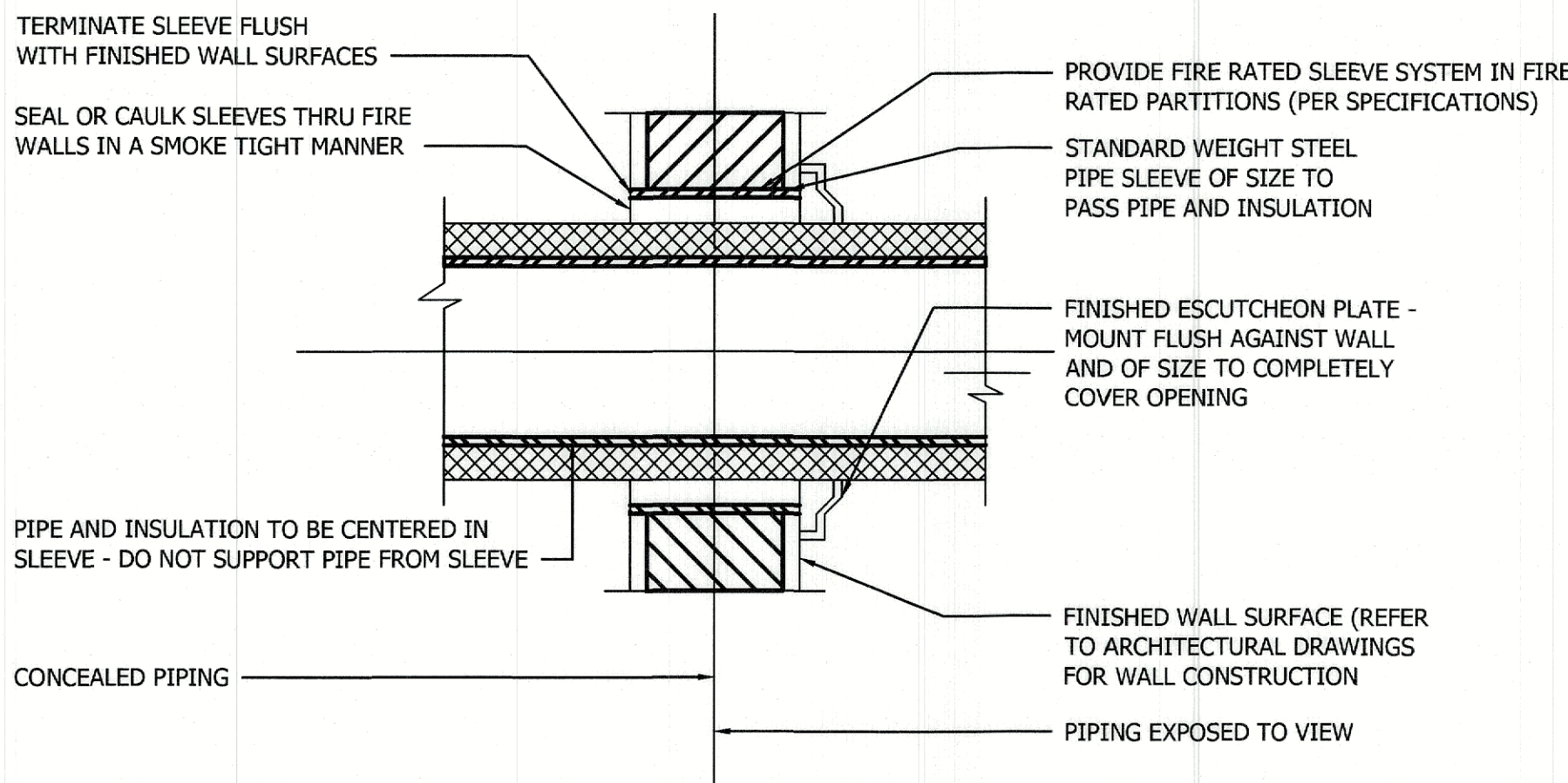
FLEXIBLE DUCT TAKE-OFF (WITHIN 6'-0" TRUNK)

TYPICAL SPLIT

DETAIL - TYPICAL SINGLE AND DOUBLE LINE DUCTWORK
SCALE: NONE



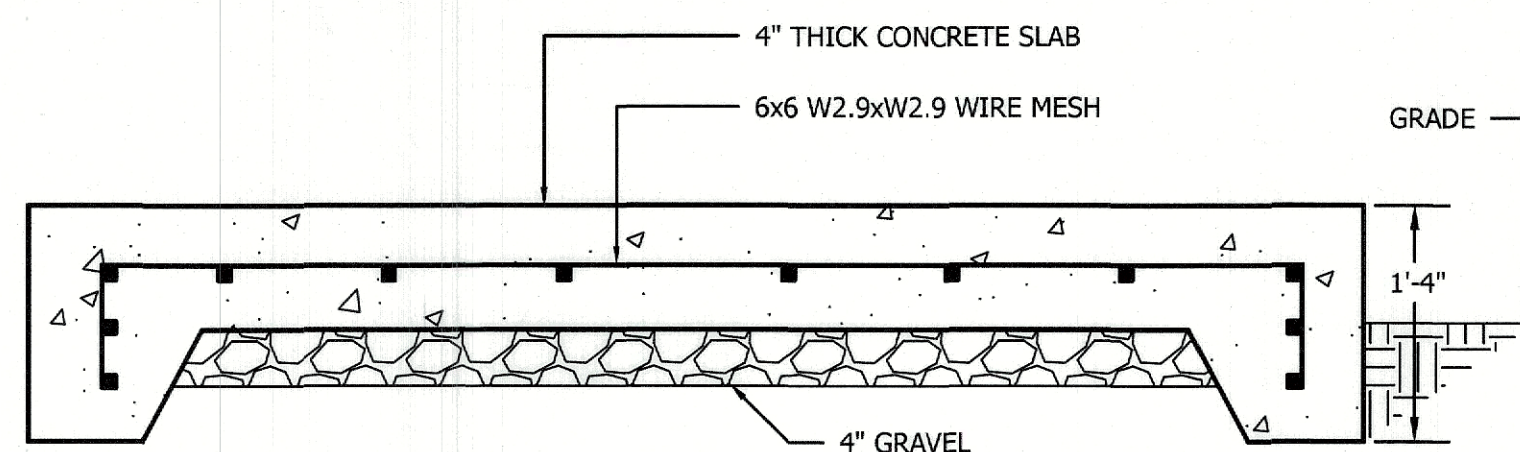
DETAIL - TYPICAL DUCT HANGING SUPPORT
SCALE: NONE



DETAIL - TYPICAL PIPE SLEEVE THRU INTERIOR WALL
SCALE: NONE

NOTES:

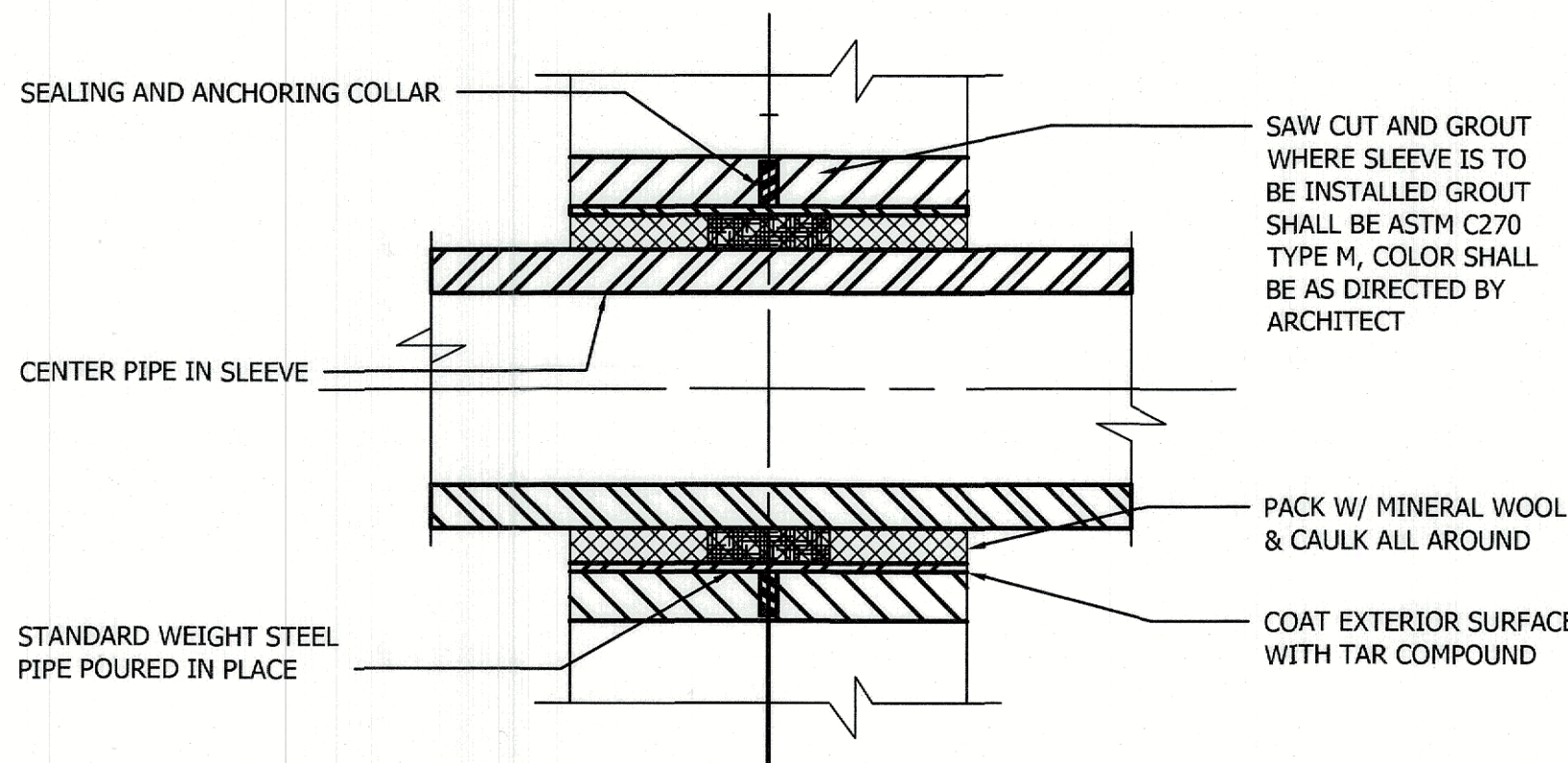
- PROVIDE PIPE SLEEVES AT ALL WALL PENETRATIONS.
- REFER TO ARCHITECTURAL DRAWINGS FOR EXACT WALL CONSTRUCTIONS.



NOTES:

- EXTEND PAD 4" BEYOND AIR COOLED CONDENSING UNIT / HEAT PUMP ON ALL 4 SIDES. TOP OF PAD SHALL BE 4" MINIMUM ABOVE EXISTING GRADE.
- PROVIDE REBAR IN SIZES, QUANTITIES AND CONFIGURATION(S) AS RECOMMENDED BY THE STRUCTURAL ENGINEER.
- SECURE CONDENSING UNIT / HEAT PUMP TO PAD PER MANUFACTURER'S RECOMMENDATIONS.

DETAIL - TYPICAL CONCRETE PAD FOR OUTDOOR CONDENSING UNIT / HEAT PUMP ON GRADE
SCALE: NONE



DETAIL - TYPICAL PIPE SLEEVE THRU EXTERIOR WALL
SCALE: NONE

NOTES:

- PROVIDE WEATHER TIGHT PIPE SLEEVES AT ALL WALL PENETRATIONS.
- REFER TO ARCHITECTURAL DRAWINGS FOR WALL CONSTRUCTIONS.

SEAL OF MARYLAND PAUL ABBOY PROFESSIONAL ENGINEER DATE: 3-19-25	PROFESSIONAL CERTIFICATION		AS-BUILT / REVISION		BY	DATE	P.W.A. NO.	KEY SHEET	POSITION SH	DRAWING SCALE		PROPERTY MANAGEMENT	
	I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.						R.O.W NO.	QNW	59NE23 59NE24 59NE23 59NE24	PLAN SCALE: AS SHOWN		APPROVED BY: <i>Adam Dan</i>	PROPERTY MANAGER
	LICENSE NO. 17655 EXPIRATION DATE 1/1/26		CONTRACT COMPLETION BOX							PROFILE SCALE:		DATE: 5/10/2025	
	ENGINEER: <i>Adam Dan</i>	DGN BY: GHT	BUREAU OF ENGINEERING AND CONSTRUCTION	TRAFFIC	HIGHWAYS	STRUCTURES	STORM DRAINS	SEWER	WATER	FIELD ENGINEER			
AS-BUILT PER RECORD PRINT		DWN BY: GHT	REVIEWED BY:										
BY: DATE:		CHD BY: JDM	DATE REVIEWED:										

BALTIMORE COUNTY OFFICE OF BUDGET AND FINANCE – PROPERTY MANAGEMENT

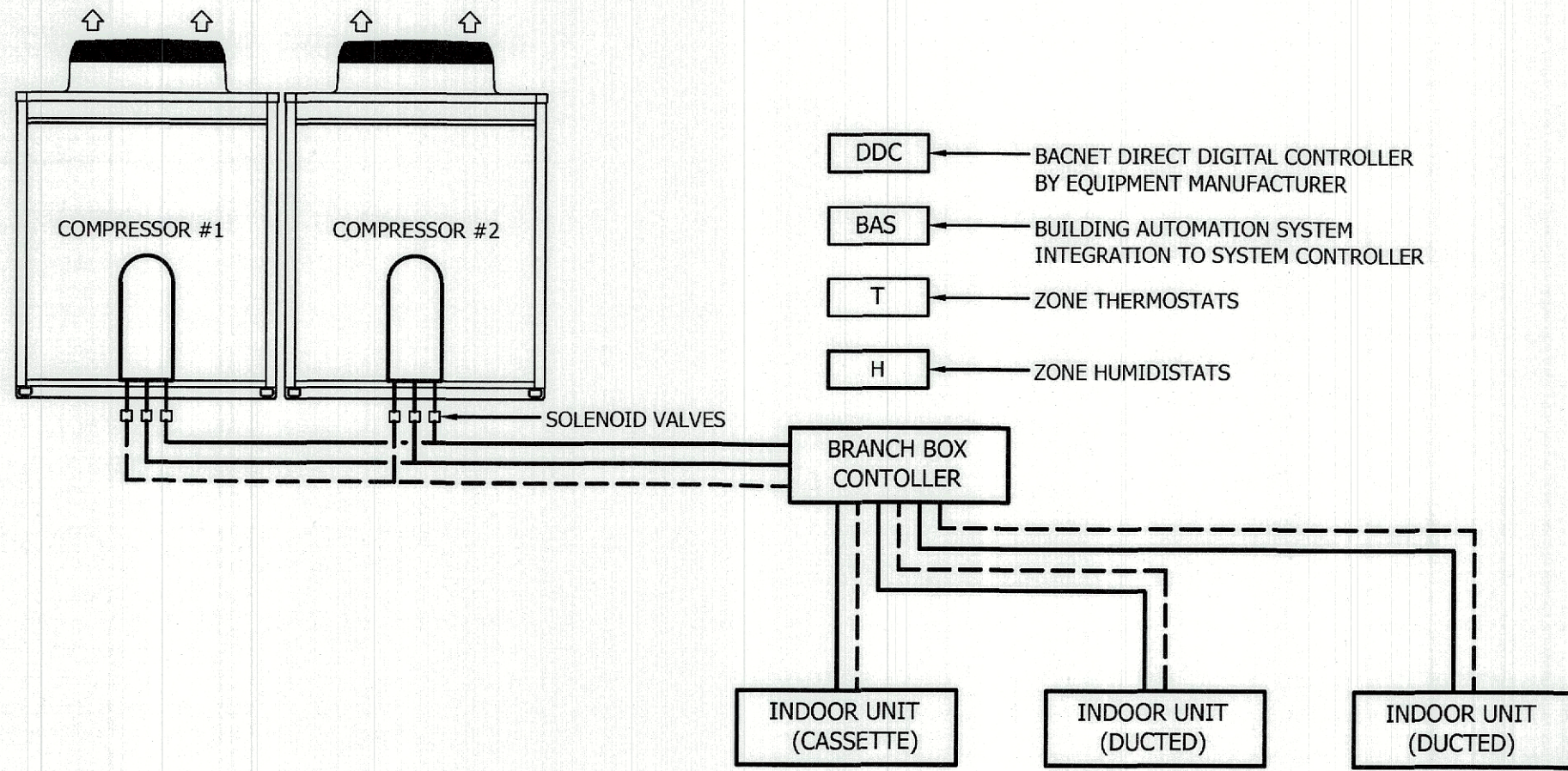
GLEN ARM SIGN & SIGNAL SHOP HVAC
MECHANICAL DETAILS AND SCHEDULES

Electrification of Existing Office HVAC - 100% CDs

GLEN ARM SIGN & SIGNAL SHOP

ELECTION DIST. NO.:11C3

SHEET DESIGNATION	CONTRACT NUMBER
M-201	25053 PO0
JOB ORDER NUMBER	1042031
SHEET 5 OF 9	DRAWING NUMBER
2025-1484	FILE NO.: 8



AIR COOLED VARIABLE REFRIGERANT FLOW CONTROL DIAGRAM

SCALE: NONE

AIR COOLED VARIABLE REFRIGERANT FLOW SEQUENCE OF OPERATION AND POINTS LIST

- A. General

 - The building automation system (BAS) shall be capable of energizing and de-energizing the Variable Refrigerant Flow System (VRF) per a time of day schedule or operator override (local controller).
- B. Unoccupied Mode

 - When the VRF is in the unoccupied mode the indoor unit shall be in Auto-Mode and the fan shall be set to Auto. If the zone temperature falls outside of the unoccupied temperature set point, the unit shall modulate to maintain the unoccupied zone temperature set point.
 - Unoccupied Dehumidification (Dry Mode): Dehumidification shall be available in unoccupied mode via the VRF dry mode. When the space humidity rises above the unoccupied set point of 65% RH, the BAS shall command the indoor unit to enter Dry Mode. When the space humidity is 5% RH lower than the set point the dehumidification mode shall be disabled.
- C. Occupied Mode

1. General

 - VRF shall be in occupied mode automatically based on an occupancy schedule programmed into the BAS or manually through an operator override.
 - The unit shall be set to control to space temperature set point not return air temperature setpoint.
 - When the VRF is in the occupied mode, the indoor unit shall be in Auto-Mode and the fan shall be set to Auto.
- D. Humidity Control

 - When the Zone Humidity rises above the Zone Humidity Setpoint of 58%RH (adj.) the dehumidification mode shall be energized.
 - The BAS shall command the local indoor unit to enter Dry Mode.
 - When the Zone Humidity falls below the Zone Humidity Setpoint of 52%RH (adj.) the dehumidification mode shall be de-energized.
 - If the Zone Humidity rises above the 60%RH (adj.) an alarm shall be annunciated at the BAS.
- E. Refrigerant Leak Detection (by ATC contractor)

1. General

 - Refrigerant Leak Detectors shall be provided and installed per the manufacturers recommendations where noted and/or indicated.
 - Detectors shall be tied to the local VRF thermostat/controller for equipment shutdown. Shutdown shall consist of closing the associated solenoid valves within the branch boxes, and compressor shut down.

2. System Solenoid Valves

 - Solenoid valves shall be field provided and installed where indicated on the floor plans. Valves shall be normally closed.
 - Valves shall close when: (1) Power is lost. (2) Refrigerant pressure fails below manufacturers low limit. coordinate with manufacturer. (3) Indoor refrigerant leak detector has sensed leakage.

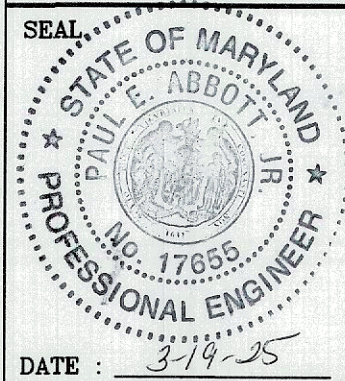
3. Provide an alarm if refrigerant leak is detected. Audible and visual alarm will be set off.

BAS POINTS LIST

TYPE	POINT	POINT ABBREVIATION	UNITS	TREND	ALARM	READ/WRITE	PROVIDER
AI	OPERATION MODE STATUS	MODE-S	AUTO/HEAT/COOL	X	X	READ	MFR.
AI	SYSTEM ERROR CODE	ERROR-CODE	ERROR CODE #		X	READ	MFR.
AI	SET ZONE TEMPERATURE STATUS	ZN-SP	DEG F			READ	MFR.
AI	SET UPPER ZONE TEMPERATURE	ZNSP-HIGH	DEG F	X		READ/WRITE	MFR.
AI	SET LOWER ZONE TEMPERATURE	ZNSP-LOW	DEG F	X		READ/WRITE	MFR.
AI	FAN SPEED STATUS	FANSPEED-S	LO-MED-HI-AUTO	X		READ	MFR.
AO	OPERATION MODE	OPERMODE-C	AUTO/HEAT/COOL	X		READ/WRITE	MFR.
AO	FAN SPEED COMMAND	FANSPEED-C	LO-MED-HI-AUTO			READ/WRITE	MFR.
AI	ZONE TEMPERATURE	ZN-T	DEG F	X	X	READ	MFR.
AI	ZONE HUMIDITY	ZN-H	% RH		x	READ	BAS
BI	SYSTEM STATUS	SYSTEM-S	ON/OFF	X		READ	MFR.
BI	GENERAL ALARM	GEN-A	NORMAL/ALARM		X	READ	MFR.
BI	CONDENSATE ALARM	COND-A	NORMAL/ALARM		x	READ	BAS
BO	SYSTEM COMMAND	SYSTEM-C	ON/OFF	X		READ/WRITE	MFR.
BO	LOCK LOCAL COMMAND	LL-C	ENABLE/DISABLED			READ/WRITE	MFR.
BO	LOCK LOCAL MODE	LL-MODE	ENABLE/DISABLED			READ/WRITE	MFR.
BO	LOCK LOCAL FAN SPEED	LL-FS	ENABLE/DISABLED			READ/WRITE	MFR.
BO	LOCK LOCAL TEMPERATURE SETTING	LL-SP	ENABLE/DISABLED			READ/WRITE	MFR.

PROVIDER ABBREVIATION: MFR. = EQUIPMENT MANUFACTURER, MECH. = MECHANICAL CONTRACTOR, BAS = CONTROL CONTRACTOR, ELEC. = ELECTRICAL CONTRACTOR

PROVIDE ALL SOFTWARE POINTS TO ACCOMPLISH SEQUENCE OF OPERATION.



PROFESSIONAL CERTIFICATION				AS-BUILT / REVISION	BY	DATE	P.W.A. NO.	KEY SHEET	POSITION SHT	DRAWING SCALE	PROPERTY MANAGEMENT
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 17655 EXPIRATION DATE 11/12/26				CONTRACT COMPLETION BOX			R.O.W NO.	QNW	58NE23 58NE24 58NE23 58NE24	PLAN SCALE: AS SHOWN PROFILE SCALE:	APPROVED BY: <i>[Signature]</i> PROPERTY MANAGER DATE: 5/10/2025
ENGINEER: <i>[Signature]</i>				BUREAU OF ENGINEERING AND CONSTRUCTION	TRAFFIC	HIGHWAYS	STRUCTURES	STORM DRAINS	SEWER	WATER	FIELD ENGINEER
AS-BUILT PER RECORD PRINT				REVIEWED BY:							
BY: DATE:				CHKD BY: JMM							
				DATE REVIEWED:							

SUBDIVISION: GLEN ARM

BALTIMORE COUNTY OFFICE OF BUDGET AND FINANCE – PROPERTY MANAGEMENT

GLEN ARM SIGN & SIGNAL SHOP HVAC

MECHANICAL CONTROLS

Electrification of Existing Office HVAC - 100% CDs

GLEN ARM SIGN & SIGNAL SHOP

ELECTION DIST. NO.:11C3

SHEET DESIGNATION	CONTRACT NUMBER
M-202	25053 POO
JOB ORDER NUMBER	
1042031	
SHEET 6 OF 9	
DRAWING NUMBER	
2025-1485	
FILE NO.: 8	



DWG. FILENAME:

ELECTRICAL LEGEND	
SYMBOL	DESCRIPTION
	DRAWING NOTE
	EXISTING OR FUTURE EQUIPMENT, AS NOTED THIN/SOLID
	EXISTING EQUIPMENT TO BE REMOVED, HEAVY/DASHED
	NEW EQUIPMENT, AS NOTED HEAVY/SOLID
	SPECIAL RECEPTACLE; NEMA TYPE AS NOTED. M.H. 18" UNLESS NOTED
	DISTRIBUTION PANELBOARD
	BRANCH CIRCUIT PANELBOARD; SURFACE MOUNTED, FLUSH MOUNTED
	DISCONNECT SWITCH - 3P-30A UNLESS OTHERWISE NOTED; FUSED, NON-FUSED
	MAGNETIC MOTOR STARTER; COMBINATION STARTER/DISCONNECT
	THERMAL MANUAL MOTOR STARTER SWITCH
	TRANSFORMER (INTERIOR)
	MOTOR - HP AS NOTED
	CONDUIT OR CONDUIT AND WIRE ROUTED IN GRADE OR BELOW SLAB
	CONDUIT AND WIRE OR CABLE ROUTED WITHIN WALLS OR CEILING SPACE OR ROUTED EXPOSED ON WALLS OR CEILINGS. CROSSLINES INDICATE THE NUMBER OF CONDUCTORS IF MORE THAN TWO (NOT INCLUDING GROUND)
	HOMERUN TO PANELBOARD. NUMBER OF ARROWS INDICATES THE NUMBER OF CIRCUITS
	CONDUIT ENTRANCE FROM ABOVE, FROM BELOW

ELECTRICAL ABBREVIATIONS			
A	AMPERE	KW	KILOWATT
AFF	ABOVE FINISHED FLOOR	M.H.	MOUNTING HEIGHT
AFG	ABOVE FINISHED GRADE	MTD	MOUNTED
AHU	AIR HANDLING UNIT	NFSS	NON-FUSED SAFETY SWITCH
C	CONDUIT	P	POLE
DWG	DRAWING	PNL	PANEL
EF	EXHAUST FAN	RGS	RIGID GALVANIZED STEEL
ENCL	ENCLOSURE	RX	REMOVE EXISTING
EX	EXISTING	TYP	TYPICAL
FSS	FUSED SAFETY SWITCH	UH	UNIT HEATER
GND	GROUND	V	VOLTS
HOA	HAND-OFF-AUTOMATIC (SWITCH)	VRF	VARIABLE REFRIGERANT FLOW
HP	HORSEPOWER	W	WIRE
		WP	WEATHERPROOF

GENERAL PROJECT DEMOLITION NOTES	
1.	INFORMATION SHOWN ON THIS DRAWING PERTAINING TO EXISTING CONDITIONS HAS BEEN OBTAINED FROM EXISTING DRAWINGS OR GENERAL FIELD OBSERVATIONS AND MAY NOT INDICATE ACTUAL EXISTING CONDITIONS IN DETAIL OR DIMENSION. CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE ACTUAL CONDITIONS AND EFFECT ON HIS WORK PRIOR TO FABRICATION, ROUGHIN, MATERIAL ORDERS OR PERFORMANCE OF THE WORK. SHOULD CONDITIONS BE DISCOVERED THAT PREVENT EXECUTION OF THE WORK AS INDICATED, IMMEDIATELY NOTIFY THE ARCHITECT IN WRITING FOR DIRECTION BEFORE PROCEEDING WITH THE WORK.
2.	REMOVE ALL EQUIPMENT INDICATED, INCLUSIVE OF ASSOCIATED CONDUIT, WIRING, BOXES, SUPPORTS, ETC. BACK TO SOURCE OR LAST REMAINING DEVICE ON SAME CIRCUIT, UNLESS NOTED OTHERWISE.
3.	EXISTING CIRCUITS INTERRUPTED BY DEMOLITION OR RELOCATION WORK, BUT SERVING ITEMS INDICATED TO REMAIN, SHALL BE MADE CONTINUOUS.
4.	DEMOLITION SHALL INCLUDE REMOVAL OF ELECTRICAL EQUIPMENT AND ASSOCIATED COMPONENTS AND MATERIALS. DO NOT ABANDON IN PLACE ANY ITEMS UNLESS NOTED ON THE DRAWINGS. EQUIPMENT REMOVED SHALL BE OFFERED TO THE OWNER PRIOR TO DISPOSAL, AND IF DESIRED, SHALL BE STORED ON SITE, WHERE INSTRUCTED. ALL MATERIALS NOT TO BE RETAINED BY OWNER SHALL BE REMOVED FOR OFF-SITE, LEGAL DISPOSAL.
5.	UNLESS NOTED OTHERWISE, ELECTRICAL ITEMS SHOWN HEAVY/DASHED (-----) SHALL BE REMOVED AND/OR RELOCATED. ELECTRICAL ITEMS SHOWN LIGHT/SOLID (_____) ARE EXISTING TO REMAIN. ELECTRICAL ITEMS SHOWN HEAVY/SOLID (_____) REPRESENTS NEW WORK.
6.	THE EXISTING FACILITY SHALL REMAIN IN OPERATION DURING CONSTRUCTION. ALL INTERRUPTIONS TO UTILITIES OR SERVICES MUST BE COORDINATED WITH THE OWNER OR USING AGENCY TO MINIMIZE DISRUPTIONS. PROVIDE NOTICE TO THE FACILITY AND OWNER 15 DAYS IN ADVANCE OF PLANNED OUTAGES.
7.	NOTIFY OWNER OF ANY DAMAGED OR NON-WORKING ITEMS PRIOR TO REMOVAL. ANY EQUIPMENT DAMAGED DURING REMOVAL AND/OR RELOCATION SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE WITH EQUIPMENT EQUAL TO EXISTING.
8.	ANY OPENINGS LEFT IN CEILINGS/WALLS SHALL BE PATCHED AND FINISHED TO MATCH EXISTING ADJACENT SURFACES. WHERE DEVICES ARE REMOVED FROM CEILING TILES, PROVIDE REPLACEMENT TILE(S) TO MATCH EXISTING.
9.	DISCONNECT AND REMOVE ALL ASSOCIATED ELECTRICAL CONNECTIONS FOR EXISTING HVAC AND PLUMBING EQUIPMENT BEING REMOVED, INCLUDING: CONDUIT, WIRING, OUTLETS, DISCONNECTING MEANS, STARTERS, SWITCHES, ETC. REFER TO MECHANICAL DRAWINGS FOR ADDITIONAL INFORMATION.

GENERAL PROJECT NOTES													
1.	DRAWINGS ARE DIAGRAMMATIC AND GENERALLY REPRESENTATIVE OF THE WORK REQUIRED. VERIFY ALL WORK ON SITE AND REPORT ANY CONFLICTS TO THE ENGINEER FOR REVIEW PRIOR TO PROCEEDING WITH WORK OR CHANGES.												
2.	PROVIDE NEW TYPED CIRCUIT DIRECTORIES FOR ALL NEW PANELBOARDS AND ANY EXISTING PANELS IN WHICH CIRCUITS WERE MODIFIED.												
3.	ALL PANELBOARD AND SWITCHBOARD CONNECTIONS ARE BASED ON COPPER CONDUCTORS. WHERE ALUMINUM CONDUCTORS ARE PERMITTED BY SPECIFICATIONS, CONTRACTOR SHALL ADJUST CONDUCTOR AND CONDUIT SIZES TO MAINTAIN SAME AMPACITY RATINGS AS THE SPECIFIED COPPER CONDUCTORS PER 75 DEGREE COLUMN IN NEC TABLES.												
4.	ALL CONDUIT, BOXES, CABLE TRAY, ETC. SHALL GENERALLY BE INSTALLED A MINIMUM OF 12" ABOVE CEILINGS. COORDINATE WITH OTHER TRADES PRIOR TO INSTALLATION.												
5.	ALL PROJECT CONDUIT AND CABLING SHALL BE INSTALLED ABOVE FINISHED CEILINGS, WHERE POSSIBLE TO MINIMIZE VISIBILITY OF SUCH ITEMS IN AREAS WITH EXPOSED STRUCTURE. ALL CABLING INSTALLED IN EXPOSED STRUCTURE AREAS, SHALL BE IN EMT CONDUIT INSTALLED TIGHT TO DECK ABOVE, EXCEPT FOR SHORT FINAL CONNECTIONS TO FIRE ALARM DEVICES, LIGHT FIXTURES, ETC. MC CABLE SHALL BE PERMITTED WHERE INSTALLED ABOVE FINISHED CEILINGS OR CONCEALED IN PARTITION WALLS.												
6.	REFER TO ARCHITECTURAL DRAWINGS FOR CEILING TYPES, FINISHES, ETC. COORDINATE ALL LIGHT FIXTURE MOUNTING, FRAME KITS, ETC. AS REQUIRED.												
7.	MAKE MINOR ADJUSTMENTS TO LIGHT FIXTURE LOCATIONS AND/OR ELEVATIONS IN UTILITY ROOMS, TO COORDINATE WITH FINAL INSTALLED PIPING, CONDUITS, AND LARGE EQUIPMENT. DO NOT INSTALL LIGHTS ABOVE PIPING OR EQUIPMENT.												
8.	TEMPORARILY REMOVE EXISTING LAY-IN TILES AND/OR CEILING GRID SYSTEMS, AS REQUIRED TO PERFORM THE WORK OF THIS CONTRACT. REINSTALL ALL COMPONENTS AT COMPLETION OF THE WORK. REPLACE ANY DAMAGED COMPONENTS.												
9.	WHERE THE WORK OF THIS CONTRACT, INCLUDING THAT OF ALL OTHER DISCIPLINES, REQUIRES THE REMOVAL AND REPLACEMENT OF THE CEILING, PROVIDE FOR REMOVAL AND REINSTALLATION OF ELECTRICAL DEVICES AND EQUIPMENT MOUNTED IN OR ON THE CEILING. ALTERNATELY, THE CONTRACTOR MAY PROVIDE TEMPORARY SUPPORT FOR SUCH DEVICES, INCLUDING REINSTALLATION INTO NEW CEILING.												
10.	ALL LOW VOLTAGE CABLING INSTALLED ABOVE CEILINGS AND NOT IN RACEWAYS SHALL BE PLENUM RATED.												
11.	ALL BRANCH CIRCUITS SHALL UTILIZE INDIVIDUAL NEUTRAL CONDUCTORS. SHARED NEUTRALS AND MULTI-WIRE CIRCUITS ARE NOT PERMITTED.												
12.	ALL BRANCH CIRCUITS AND FEEDERS SHALL INCLUDE AN EQUIPMENT GROUNDING CONDUCTOR. CONDUIT IS NOT PERMITTED AS THE SOLE GROUND PATH.												
13.	THIS PROJECT REQUIRES SPECIFIC SEISMIC SWAY BRACING AND SUPPORTING OF SELECTED EQUIPMENT AND SYSTEMS. REFER TO SPEC SECTION 16071 (26 05 48).												
14.	UNLESS LARGER GAUGE IS INDICATED ON PANEL SCHEDULES, BRANCH CIRCUIT WIRING SHALL COMPENSATE FOR VOLTAGE DROP, AS FOLLOWS: <table><tr><td>a. 120V, 0-90LF:</td><td>#12AWG</td><td>277V, 0-150LF:</td><td>#12 AWG</td></tr><tr><td>b. 120V, 91-140LF:</td><td>#10 AWG</td><td>277V, 151-240LF:</td><td>#10 AWG</td></tr><tr><td>c. 120V, >140LF:</td><td>#8 AWG</td><td>277V, >240LF:</td><td>#8 AWG</td></tr></table>	a. 120V, 0-90LF:	#12AWG	277V, 0-150LF:	#12 AWG	b. 120V, 91-140LF:	#10 AWG	277V, 151-240LF:	#10 AWG	c. 120V, >140LF:	#8 AWG	277V, >240LF:	#8 AWG
a. 120V, 0-90LF:	#12AWG	277V, 0-150LF:	#12 AWG										
b. 120V, 91-140LF:	#10 AWG	277V, 151-240LF:	#10 AWG										
c. 120V, >140LF:	#8 AWG	277V, >240LF:	#8 AWG										
15.	UNLESS NOTED OTHERWISE, ALL WIRING & CONDUIT/CABLING SHOWN ON FLOOR PLANS IS FOR DIAGRAMMATIC PURPOSES ONLY. COORDINATE EXACT INSTALLATION REQUIREMENTS WITH FIELD CONDITIONS AND INSTALL PER SPECIFICATIONS.												
16.	MINIMUM INTERIOR RIGID CONDUIT SIZE SHALL BE ¾" UNLESS NOTED OTHERWISE.												

	PROFESSIONAL CERTIFICATION		AS-BUILT / REVISION	BY	DATE	P.W.A. NO.	KEY SHEET	POSITION SHT	DRAWING SCALE	PROPERTY MANAGEMENT
	I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.					R.O.W. NO.	QNW	58NE23 58NE24 58NE23 58NE24	PLAN SCALE: AS SHOWN PROFILE SCALE:	APPROVED BY: <i>John Doe</i> DATE: 3/10/2025
	LICENSE NO. 17655, EXPIRATION DATE 1/1/26		CONTRACT COMPLETION BOX							
	ENGINEER: <i>Paul E. Abbott</i>	DGN BY: _____	BUREAU OF ENGINEERING AND CONSTRUCTION	TRAFFIC	HIGHWAYS	STRUCTURES	STORM DRAINS	SEWER	WATER	FIELD ENGINEER
	AS-BUILT PER RECORD PRINT		DWN BY: _____	REVIEWED BY: _____						
BY: _____		CHKD BY: _____	DATE REVIEWED: _____							

SUBDIVISION: GLEN ARM

BALTIMORE COUNTY OFFICE OF BUDGET AND FINANCE – PROPERTY MANAGEMENT

GLEN ARM SIGN & SIGNAL SHOP HVAC

ELECTRICAL COVERSHEET

Electrification of Existing Office HVAC - 100% CDs

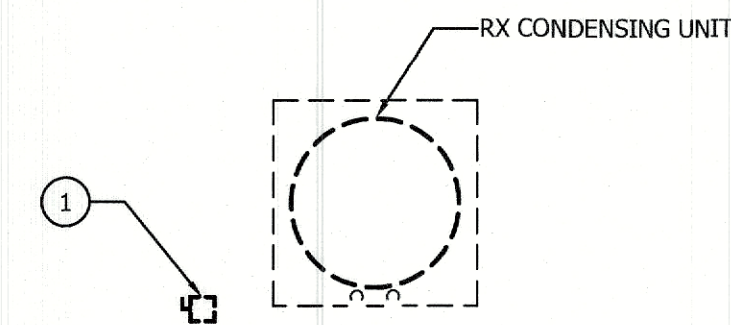
GLEN ARM SIGN & SIGNAL SHOP

ELECTION DIST. NO..11C3

SHEET DESIGNATION	CONTRACT NUMBER
E-001	25053 POO
JOB ORDER NUMBER	
1042031	
SHEET 7 OF 9	
DRAWING NUMBER	
2025-0007	
FILE NO.:	8

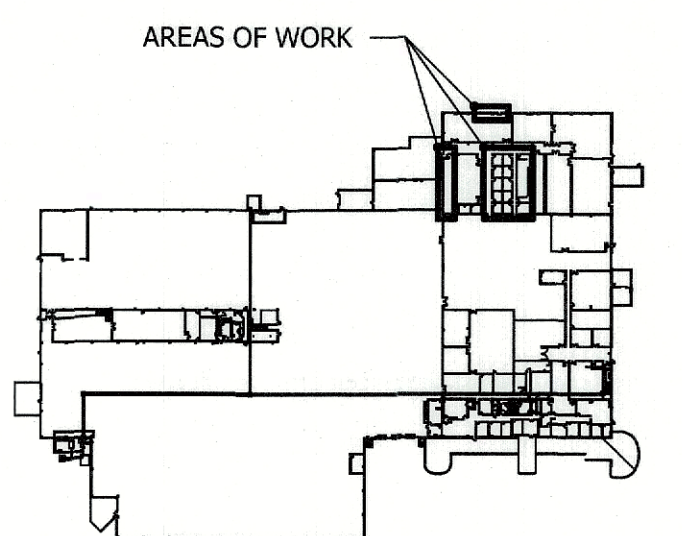


DWG. FILENAME:



1. COORDINATE TEMPORARY REMOVAL OF EXISTING CEILINGS, LIGHTING FIXTURES AND ELECTRICAL DEVICES FROM EXISTING OFFICES AS REQUIRED TO PERFORM DEMOLITION OF EXISTING MECHANICAL WORK. CONTRACTOR SHALL TEMPORARILY SUSPEND EXISTING RECESSED LIGHTING FIXTURES AND EXIT LIGHTING FIXTURES DURING CEILING REMOVAL.

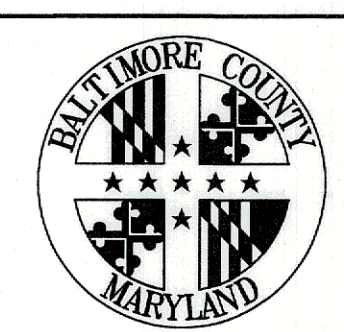
- ① RX CONDENSING UNIT DISCONNECT INCLUDING ASSOCIATED CONDUIT AND WIRING BACK TO SOURCE.
- ② RX AIR HANDLING UNIT DISCONNECT INCLUDING ASSOCIATED CONDUIT AND WIRING BACK TO SOURCE.
- ③ RX VAV UNIT DISCONNECT INCLUDING ASSOCIATED CONDUIT AND WIRING BACK TO SOURCE.
- ④ CONTRACTOR SHALL DISCONNECT AND REMOVE EXISTING RECESSED LIGHTING FIXTURES TO PROVIDE ROOM FOR DEMOLITION OF EXISTING MECHANICAL EQUIPMENT. LIGHTING FIXTURES CAN BE REMOVED OR TEMPORARILY SUPPORTED. SHOULD FIXTURES BE REMOVED CONTRACTOR SHALL STORE THEM IN AN AREA TO PROTECT FROM DAMAGE.



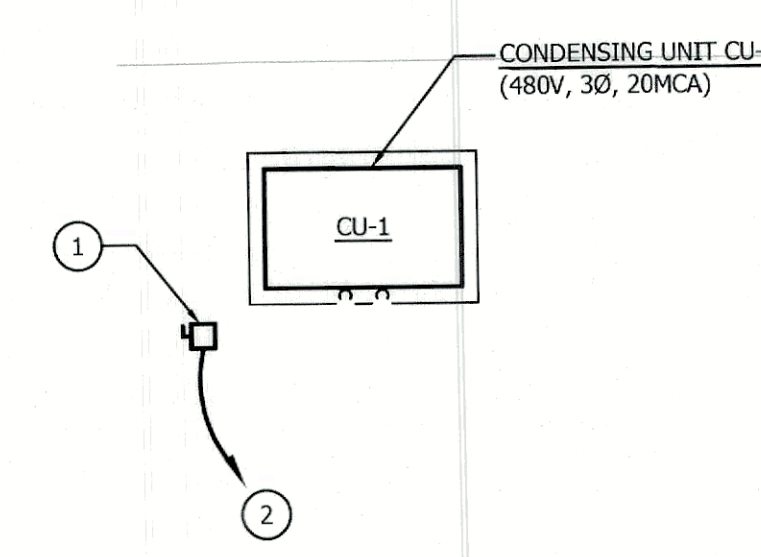
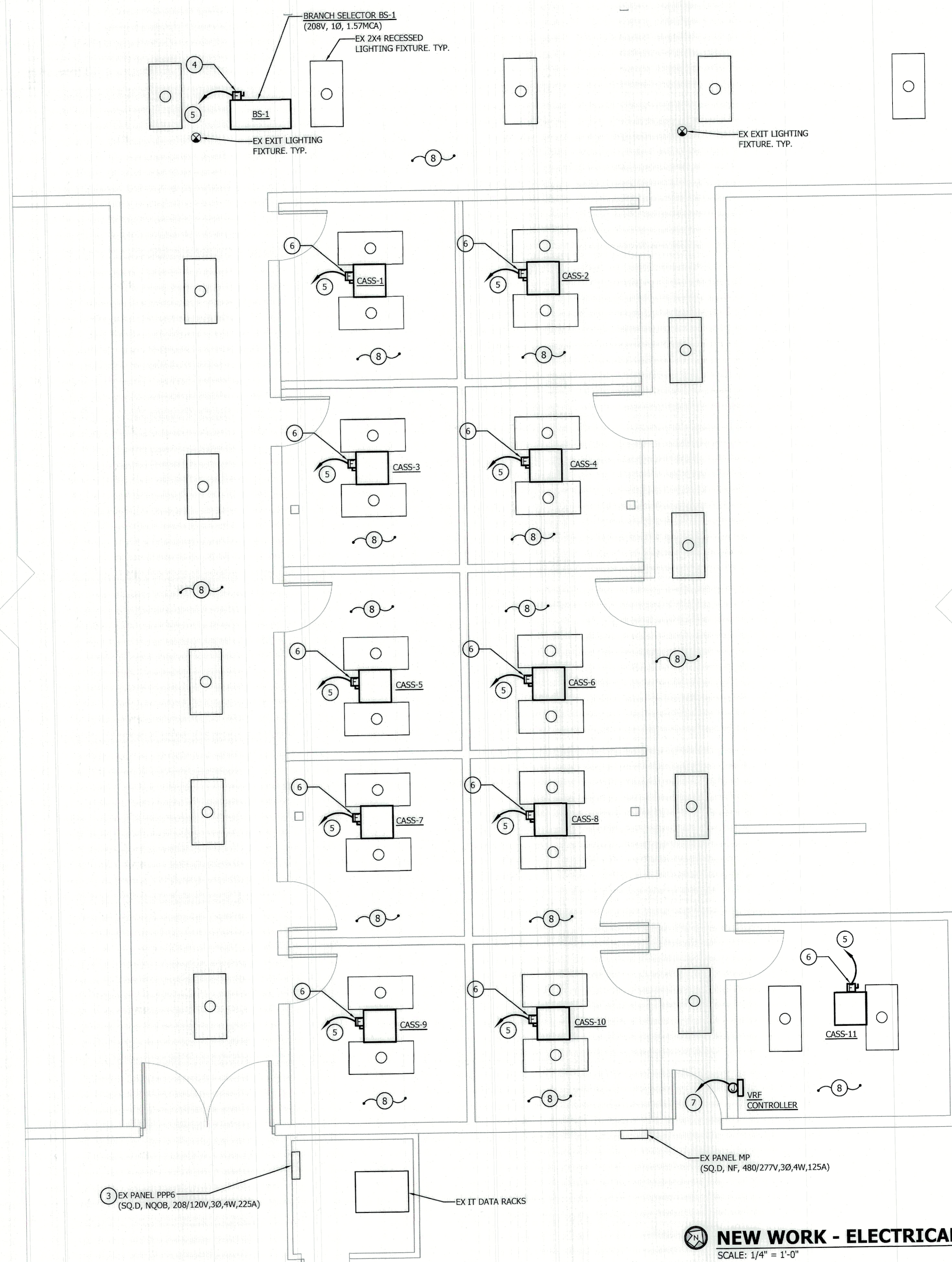
SCALE: $1/4" = 1'-0"$

A horizontal scale bar with alternating black and white segments. It is marked with the numbers 4, 0, 4, and 8 from left to right. The segments between 4 and 0, 0 and 4, and 4 and 8 are each divided into four equal parts, representing 1-foot increments.

BALTIMORE COUNTY OFFICE OF BUDGET AND FINANCE -- PROPERTY MANAGEMENT		
GLEN ARM SIGN & SIGNAL SHOP HVAC		
ELECTRICAL DEMOLITION PLANS		
Electrification of Existing Office HVAC - 100% CDs		
SUBDIVISION: GLEN ARM	GLEN ARM SIGN & SIGNAL SHOP	ELECTION DIST. NO. 11C3



CONTRACT NUMBER	25053 PO0
JOB ORDER NUMBER	1042031
SHEET 8 OF 9	
DRAWING NUMBER	2025-0008
FILE NO.	8 895

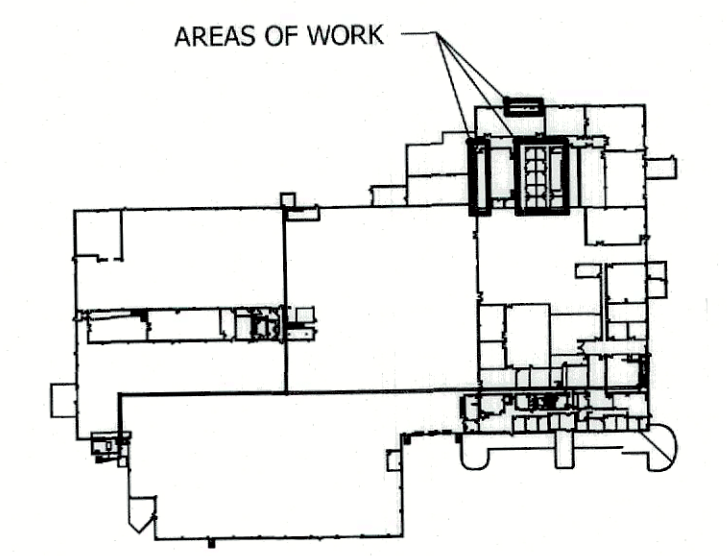


GENERAL NOTES

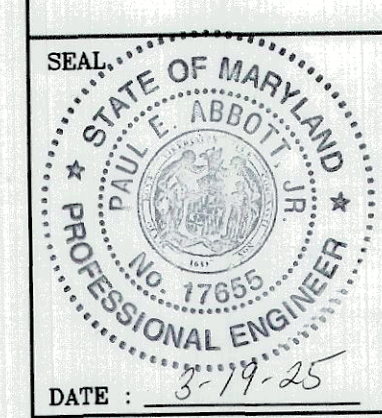
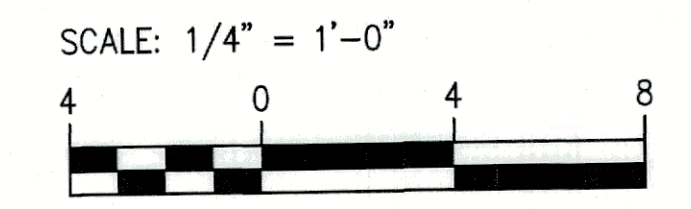
1. CONTRACTOR SHALL COORDINATE REINSTALLATION OF EXISTING CEILINGS, LIGHTING FIXTURES AND CEILING DEVICES WITH NEW MECHANICAL EQUIPMENT AND EXISTING SPRINKLER DEVICES.

DRAWING NOTES

1. PROVIDE 3P-30A NFSS IN NEMA 4X ENCLOSURE FOR CONNECTION OF CONDENSING UNIT CU-1.
2. PROVIDE 3 #12 & 1 #12GND - 3/4" CONDUIT TO 3P-20A CIRCUIT BREAKER IN EXISTING 480 VOLT PANEL MP PREVIOUSLY SERVING DEMOLISHED CONDENSING UNIT.
3. PROVIDE 2P-20A CIRCUIT BREAKER IN EXISTING PANEL SPACE FOR CONNECTION OF MECHANICAL EQUIPMENT.
4. PROVIDE 2P-30A FSS (F @ 15A) FOR CONNECTION OF BRANCH SELECTOR SWITCH BS-1.
5. PROVIDE 2 #12 & 1 #12GND-3/4" CONDUIT BACK TO 2P-15A CIRCUIT BREAKER IN EXISTING 208/120VOLT PANEL PPP6.
6. PROVIDE 2P-30A FSS (F @ 15A) FOR CONNECTION OF CEILING CASSETTE FCU.
7. PROVIDE 2 #12 & 1 #12GND - 3/4" CONDUIT BACK TO 1P-15A CIRCUIT BREAKER IN EXISTING 208/120VOLT PANEL PPP6.
8. CONTRACTOR SHALL REINSTALL EXISTING CEILINGS, LIGHTING FIXTURES AND ELECTRICAL DEVICES IN EXISTING CORRIDORS AND OFFICES AS REQUIRED UPON COMPLETION OF MECHANICAL WORK. REINSTALL AND RECONNECT ANY EXISTING LIGHTING FIXTURES THAT WERE REMOVED.



KEY PLAN
SCALE: NONE



PROFESSIONAL CERTIFICATION				AS-BUILT / REVISION	BY	DATE	P.W.A. NO.	KEY SHEET	POSITION SH	DRAWING SCALE	PROPERTY MANAGEMENT
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. <u>17895</u> , EXPIRATION DATE <u>1/1/26</u>										PLAN SCALE: <u>AS SHOWN</u>	APPROVED BY: <u>[Signature]</u> PROPERTY MANAGER
										PROFILE SCALE: <u> </u>	DATE: <u>3/10/2025</u>
ENGINEER: <u>[Signature]</u>				BUREAU OF ENGINEERING AND CONSTRUCTION	TRAFFIC	HIGHWAYS	STRUCTURES	STORM DRAINS	SEWER	WATER	FIELD ENGINEER
AS-BUILT PER RECORD PRINT				REVIEWED BY:							
BY: <u> </u>				DATE REVIEWED:							
DATE: <u>3-19-25</u>											

BALTIMORE COUNTY OFFICE OF BUDGET AND FINANCE – PROPERTY MANAGEMENT			
GLEN ARM SIGN & SIGNAL SHOP HVAC			
ELECTRICAL NEW WORK PLANS			
Electrification of Existing Office HVAC - 100% CDs			
SUBDIVISION: GLEN ARM		ELECTION DIST. NO. 11C3	
		GLEN ARM SIGN & SIGNAL SHOP	

SHEET DESIGNATION	CONTRACT NUMBER
E-201	25053 PO0
	JOB ORDER NUMBER
	1042031
	SHEET 9 OF 9
	DRAWING NUMBER
	2025-0009
	FILE NO.: 8