U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL RESEARCH SERVICE

REPAIR HVAC SYSTEMS, BUILDING 1 BASE BID

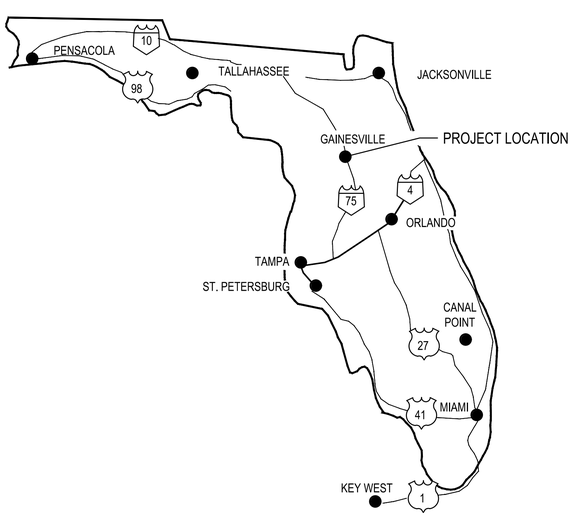
DESIGN CONTRACT NO: 12405B21D0003

DESIGN ORDER NO: 1232SA25F0354

CENTER FOR MEDICAL AGRICULTURAL AND VETERINARY ENTOMOLOGY (CMAVE)
1600 SW 23RD DRIVE
GAINESVILLE, FL 32608

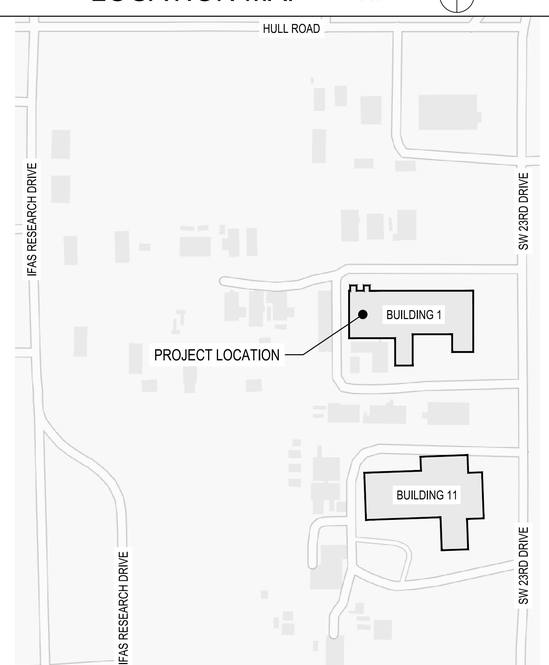
VICINITY MAP

NO SCALE



LOCATION MAP

NO SCALE



CENTER FOR MEDICAL AGRICULTURAL AND VETERINARY ENTOMOLOGY (CMAVE)
1600 SW 23RD DRIVE
GAINESVILLE, FL 32608

PROJECT INFORMATION

GENERAL NOTES:

1. THE CONTRACTOR MUST FIELD VERIFY ALL DIMENSIONS AND EXISTING CONDITIONS PRIOR TO PERFORMING WORK, FABRICATION OR PURCHASE OF ANY EQUIPMENT, MATERIALS, AND ASSEMBLIES. ANY DISCREPANCIES MUST BE BROUGHT TO THE CONTRACTING OFFICER'S ATTENTION FOR RESOLUTION BEFORE PROCEEDING WITH ANY CONSTRUCTION, FABRICATION, OR EQUIPMENT PURCHASE.
2. CONTRACTOR MUST PERFORM A THOROUGH SURVEY OF THE BUILDING AND DOCUMENT ANY DEFICIENCIES IN BUILDING FINISHES, BUILDING EQUIPMENT AND BUILDING SYSTEMS PRIOR TO BEGINNING WORK. SUBMIT DOCUMENT WITH PHOTOGRAPHS TO THE CONTRACTING OFFICER.
3. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO PROTECT EXISTING FURNISHINGS TO ACCOMMODATE THE WORK. PROTECT FINISHES AND FURNISHINGS DURING THE WORK.

HAZARDOUS MATERIALS INFORMATION:

1. REFER TO THE HAZARDOUS MATERIALS SURVEY REPORT IN THE SPECIFICATIONS. CONTRACTOR MUST ABIDE BY ALL GOVERNING REGULATIONS IN REGARDS TO DISTURBANCE, REMOVAL AND DISPOSAL OF HAZARDOUS MATERIALS (REFERENCE SAID REPORT).
2. CONTRACTOR MUST ASSUME THAT ALL EXISTING PAINT COATINGS ON BUILDING MATERIALS AND SYSTEMS CONTAINS SOME LEVEL OF LEAD. ANY MATERIALS TO BE DISPOSED OF WITH PAINT COATINGS INTACT, MAY BE DISPOSED OF AS NORMAL CONSTRUCTION WASTE. THE CONTRACTOR MUST PROVIDE WORKER PROTECTION IN ACCORDANCE WITH OSHA FOR ANY DISTURBANCE OF EXISTING PAINT COATINGS.
3. THE HAZARDOUS MATERIALS SURVEY TOOK SAMPLES OF SUSPECT ASBESTOS-CONTAINING MATERIALS. LABORATORY ANALYSIS OF THE SAMPLES DID NOT TEST POSITIVE FOR ASBESTOS. SHOULD THE CONTRACTOR DISCOVER MATERIALS THEY REASONABLY BELIEVE TO CONTAIN ASBESTOS, THE WORK MUST STOP AND THE CONTRACTING OFFICER MUST BE NOTIFIED IMMEDIATELY.

PROTECTION OF EXISTING FACILITIES:

1. CONTRACTOR MUST PROTECT ALL EXISTING CONSTRUCTION DURING WORK INCLUDING, BUT NOT LIMITED TO, FINISHES, EQUIPMENT, DOORS, WINDOWS, FURNISHINGS AND SEATING. ANY DAMAGE TO EXISTING CONSTRUCTION MUST BE REPAIRED OR REPLACED NEW, LIKE-IN-KIND.

USDA

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ARCHITECTS/ENGINEERS - PLANNING - SURVEYING - MANAGEMENT
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NO.	DATE	BY	DESCRIPTION

REVISIONS

A-E FIRM	USDA
PROJECT MGR: TEL	COR: E. WILSON
DESIGNER: JND	EPM: E. WILSON
CHECKED BY: BTD	SAFETY & HEALTH: TBD
JOB #: 3925	REAL PROPERTY: TBD

USDA Agricultural Research Service

REPAIR HVAC SYSTEM, BUILDINGS 1 AND 11 CENTER FOR MEDICAL AGRICULTURAL AND VETENARY ENTOMOLOGY (CMAVE) - GAINESVILLE, FLORIDA
BUILDING 1
TITLE SHEET

PROJECT NO. ---

DATE 5/04/2026

USDA ARS
5601 SUNNYSIDE AVENUE
RM 3-2102
BELTVILLE MD 20705

SHEET T-101
1 OF 20

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May 13, 2026 - 12:34pm

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GENERAL		
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HVAC		
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M-002	5 OF 20	BUILDING 1 HVAC SYMBOL LEGEND
MD101	6 OF 20	BUILDING 1 1ST FLOOR HVAC DEMOLITION
MD102	7 OF 20	BUILDING 1 ROOF HVAC DEMOLITION
M-101	8 OF 20	BUILDING 1 FIRST FLOOR HVAC
M-102	9 OF 20	BUILDING 1 ROOF HVAC PLAN
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M-701	12 OF 20	BUILDING 1 DEDICATED OUTDOOR UNIT AHU-1 CONTROLS DIAGRAM
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ED102	15 OF 20	BUILDING 1 ROOF ELECTRICAL DEMOLITION PLAN
E-101	16 OF 20	BUILDING 1 1ST FLOOR ELECTRICAL
E-102	17 OF 20	BUILDING 1 ELECTRICAL ROOF PLAN
E-501	18 OF 20	BUILDING 1 EQUIPMENT SCHEDULE AND DETAILS
E-701	19 OF 20	BUILDING 1 PANEL SCHEDULES
EG101	20 OF 20	BUILDING 1 LIGHTNING PROTECTION PLAN

WORK PHASING INFORMATION

THIS IS PROJECT CONSISTS OF PHASED CONSTRUCTION. SUBMIT A SEPARATE, STAND ALONE BID FOR EACH WORK PHASE. THE WORK IN THIS SET OF PLANS PERTAINS TO BUILDING 1. REFER TO THE SPECIFICATIONS FOR MORE INFORMATION. THE SCOPE OF THIS PROJECT INCLUDES BUT IS NOT LIMITED TO:

1. REPLACE THE EXISTING ROOF MOUNTED FANS. THE DESIGN INTENT IS TO REPLACE THE EXISTING FANS IN KIND. THE REPLACEMENT FANS WILL CONNECT TO THE EXISTING DUCTWORK. MODIFY DUCTWORK AS REQUIRED TO ACCOMMODATE THE REPLACEMENT FANS.
2. REPLACE ROOF MOUNTED AHU-1. THE INTENT IS TO REPLACE THE AHU IN KIND. THE REPLACEMENT AHU WILL CONNECT TO THE EXISTING DUCTWORK. MODIFY DUCTWORK AS REQUIRED TO ACCOMMODATE THE REPLACEMENT AHU.
3. AHU-2 AND AHU-3 ARE EXISTING TO REMAIN.
4. ELECTRICAL WORK IS PRIMARILY IN SUPPORT OF THE MECHANICAL WORK. DISCONNECT AND RECONNECT HVAC EQUIPMENT AS SHOWN.
5. MODIFY THE EXISTING LIGHTNING PROTECTION SYSTEM (LPS) AS REQUIRED TO ACCOMMODATE NEW ROOF-MOUNTED EQUIPMENT.

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NO.	DATE	BY	DESCRIPTION

REVISIONS

THOMAS E. LOVELL REGISTERED ENGINEER AGRICULTURE CHAMBERS 102769 TENNESSEE
05/04/2026

A-E FIRM	USDA
PROJECT MGR: TEL	COR: E. WILSON
DESIGNER: JND	EPM: E. WILSON
CHECKED BY: BTD	SAFETY & HEALTH: TBD
JOB #: 3925	REAL PROPERTY: TBD

USDA

USDA Agricultural Research Service

REPAIR HVAC SYSTEM, BULDINGS 1 AND 11 CENTER FOR MEDICAL AGRICULTURAL AND VETENARY ENTOMOLOGY (CMAVE) - GAINESVILLE, FLORIDA

BUILDING 1
DRAWING LIST

PROJECT NO. ---

DATE 5/04/2026

USDA ARS
5601 SUNNYSIDE AVENUE
RM 3-2102
BELTVILLE MD 20705

SHEET T-102
2 OF 20

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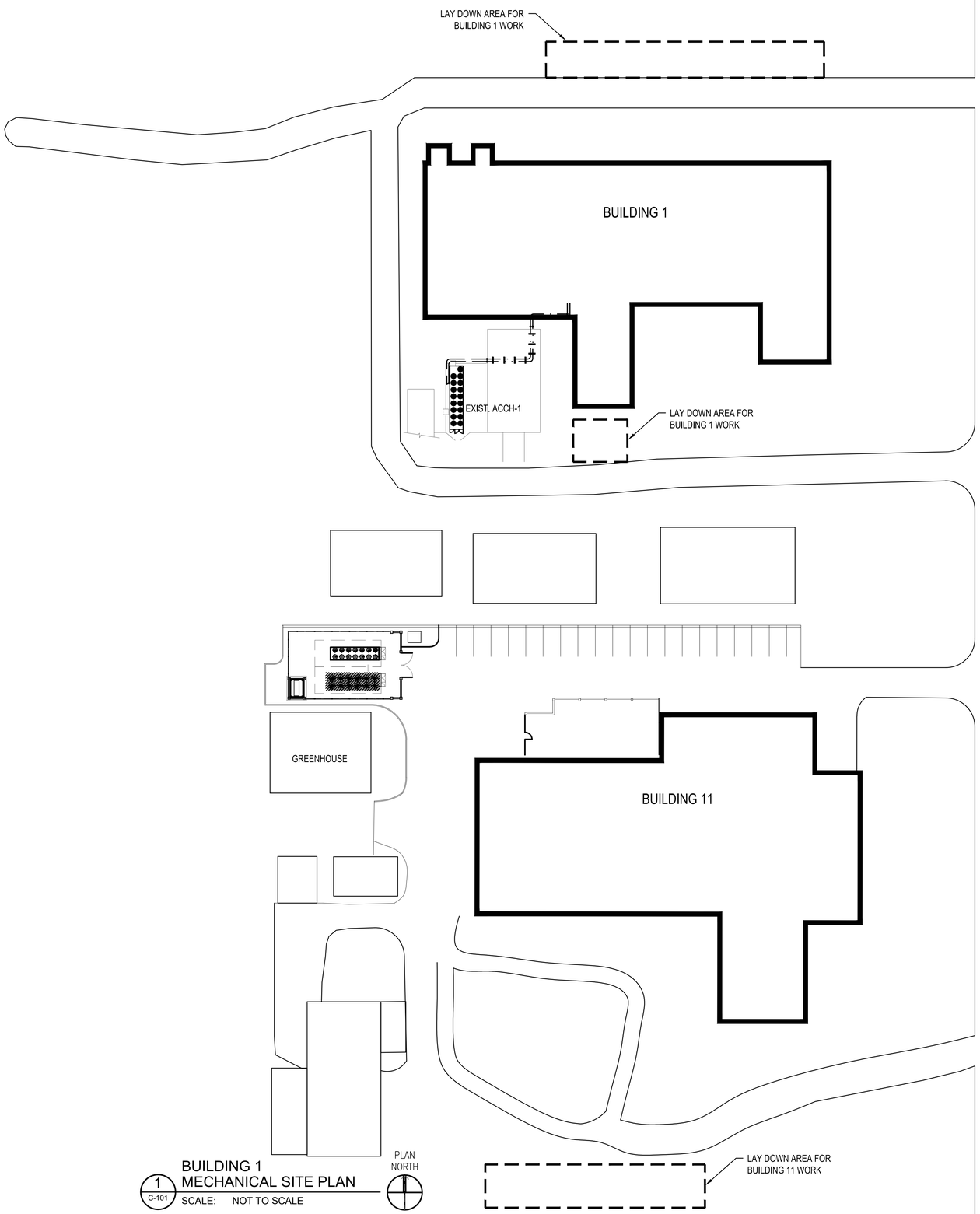
May 04, 2026 - 1:55pm



1 C-101 BUILDING 1
MECHANICAL SITE PLAN
SCALE: NOT TO SCALE

GENERAL NOTES

1. THIS SHEET PROVIDED TO SHOW GENERAL SITE CONDITIONS AND CONTRACTOR LAY DOWN AREAS. NO CIVIL WORK IS REQUIRED FOR THIS PROJECT.
2. THE LAY DOWN AREAS SHOWN ARE FOR REFERENCE ONLY AND ARE SUBJECT TO CHANGE. COORDINATE LAY DOWN AREAS FOE EACH PHASE OF CONSTRUCTION WITH SITE PERSONNEL AT TIME OF CONSTRUCTION.

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NO.	DATE	BY	DESCRIPTION

REVISIONS

A-E FIRM	USDA
PROJECT MGR TEL	COR E. WILSON
DESIGNER JND	EPM E. WILSON
CHECKED BY BTD	SAFETY & HEALTH TBD
JOB # 3925	REAL PROPERTY TBD

USDA Agricultural Research Service

REPAIR HVAC SYSTEM, BULDINGS 1 AND 11 CENTER FOR MEDICAL AGRICULTURAL AND VETENARY ENTOMOLOGY (CMAVE) - GAINESVILLE, FLORIDA

BUILDING 1
MECHANICAL SITE PLAN

PROJECT NO. ---

DATE 5/04/2026

USDA ARS
5601 SUNNYSIDE AVENUE
RM 3-2102
BELTVILLE MD 20705

SHEET C-101
3 OF 20

THOMAS E. LOVELL REGISTERED ENGINEER AGRICULTURAL CHAMBERS OF COMMERCE BUILDING NO. 102769 TALLAHASSEE, FLORIDA

05/04/2026

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HVAC GENERAL NOTES:

1. THIS PROJECT IS A RENOVATION OF AN EXISTING FACILITY. IT IS THE CONTRACTOR'S RESPONSIBILITY TO FIELD VERIFY ALL DIMENSIONS PRIOR TO FABRICATION OR PROCUREMENT OF EQUIPMENT, MATERIALS, AND ASSEMBLIES. ANY DEVIATIONS MUST BE BROUGHT TO THE CONTRACTING OFFICER'S ATTENTION FOR RESOLUTION BEFORE PROCEEDING WITH ANY CONSTRUCTION, FABRICATION, OR EQUIPMENT PROCUREMENT.
2. INSTALLATION OF HVAC WORK MUST BE COORDINATED WITH OTHER TRADES BEFORE ANY WORK IS STARTED. DUCTWORK AND PIPING SHOWN ON PLANS IS SCHEMATIC. PROVIDE ALL TRANSITIONS, ELBOWS, REDUCERS, ETC. REQUIRED TO AVOID CONFLICTS & MAXIMIZE CEILING HEIGHTS. EQUIPMENT, PIPING OR DUCTWORK INTERFERING WITH OTHER TRADES MUST BE RELOCATED AS REQUIRED AT NO ADDITIONAL COST TO THE OWNER.
3. COORDINATE MECHANICAL AND ELECTRICAL SUCH THAT MECHANICAL PIPING, DUCTWORK AND EQUIPMENT IS NOT LOCATED OVER OR ABOVE ANY ELECTRICAL, COMMUNICATIONS, OR DATA EQUIPMENT.
4. AT START OF CONSTRUCTION, PREPARE TYPED LISTS OF EQUIPMENT THAT ARE SUPPLIED REQUIRING ELECTRICAL WORK, AND SEND LISTS TO THE ELECTRICAL CONTRACTOR FOR REVIEW AND COORDINATION.
5. WRITTEN DIMENSIONS ON DRAWINGS HAVE PRECEDENCE OVER SCALED DIMENSIONS. VERIFY DIMENSIONS ON SITE.
6. EQUIPMENT MUST BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S APPROVED CLEARANCE, UNIFIED FACILITIES CRITERIA, AND INTERNATIONAL BUILDING CODE / INTERNATIONAL MECHANICAL CODE.
7. INSTALLATION OF EQUIPMENT MUST PERMIT ACCESSIBILITY FOR SERVICE AND/OR REPLACEMENT WITHOUT NECESSITATING REMOVAL OR MODIFICATION TO OTHER PIPING, WIRING, OR EQUIPMENT.
8. CEILING-MOUNTED EQUIPMENT MUST BE INSTALLED IN SUCH A MANNER THAT LIGHTS, PIPING, DUCTWORK, ETC. , DO NOT BLOCK ACCESS TO EQUIPMENT AND RELATED ACCESSORIES.
9. SEAL WITH SILICONE ALL GAPS BETWEEN WALL, CEILING, AND FLOOR OPENINGS AND HVAC EQUIPMENT PENETRATIONS. PATCH LARGE GAPS BEFORE SEALANT IS APPLIED.
10. DUCTWORK AIR DISTRIBUTION SYSTEMS MUST BE INSTALLED IN ACCORDANCE WITH SMACNA STANDARDS AND THE PRESSURE CLASSIFICATION OF EACH INDIVIDUAL DUCTWORK SYSTEM.
11. VOLUME DAMPERS MUST BE PROVIDED AT EACH MAIN BRANCH TAKE-OFF, EACH TAKEOFF TO DIFFUSERS/GRILLS/REGISTERS, AND OTHER LOCATIONS WHERE REQUIRED TO PROPERLY BALANCE THE SYSTEM. ALL REQUIRED VOLUME DAMPERS MAY NOT BE SHOWN ON PLANS.
12. INSTRUMENT TEST HOLES MUST BE PROVIDED IN AIR DISTRIBUTION SYSTEMS WHEREVER VOLUME DAMPERS ARE INSTALLED. TEST HOLES MUST BE SEALED WITH RUBBER OR PLASTIC TEST HOLE PLUGS.
13. SQUARE ELBOWS MUST ONLY BE USED WHERE SPACE LIMITATIONS PREVENT USE OF 1-1/2 RADIUS ELBOW AND ONLY UPON APPROVAL OF CONTRACTING OFFICER. PROVIDE TURNING VANES IN ALL SQUARE ELBOWS GREATER THAN OR EQUAL TO 45°. TURNING VANES MUST BE SINGLE THICKNESS TYPE WITHOUT RAILING EDGE. TURNING VANES LONGER THAN 36 INCHES MUST BE DOUBLE THICKNESS TYPE.
14. DUCTWORK RUNOUTS TO AIR DISTRIBUTION DEVICES MUST BE SAME DIAMETER AS AIR DISTRIBUTION DEVICE INLET CONNECTION UNLESS OTHERWISE NOTED ON THE DRAWINGS.
15. FLEXIBLE DUCTWORK RUNOUTS FROM BRANCH DUCTS TO AIR DISTRIBUTION DEVICES MUST NOT EXCEED 5 FEET IN LENGTH. BENDS IN FLEXIBLE DUCTWORK MUST NOT EXCEED A MAXIMUM OF 45 DEGREE CHANGE OF DIRECTION AND MUST BE SUPPORTED SUCH THAT THE BEND RADIUS IS NOT RESTRICTIVE TO AIR FLOW THROUGH THE DUCT. FLEXIBLE DUCTWORK MUST NOT BE CRUSHED OR DISTORTED IN ITS FINAL CONFIGURATION.
16. PROVIDE SHEETMETAL TRANSITIONS AT AIR HANDLING UNITS, HEAT PUMP UNITS, FANS, AND OTHER SIMILAR HVAC EQUIPMENT. TRANSITION TO FULL SIZE OF CONNECTION ON UNIT. FLEXIBLE DUCT CONNECTORS MUST BE USED ON FINAL CONNECTION TO AIR HANDLING EQUIPMENT.
17. TRANSFER DUCTS MUST BE SIZED FOR MAX VELOCITY ALLOWED OF 500 FPM. OPEN-ENDED TRANSFER DUCTS MUST HAVE 90° ELBOW FOR SOUND ATTENUATION.
18. LOUVERED SUPPLY AIR DIFFUSERS MUST BE 4-WAY FLOW UNLESS OTHERWISE SHOWN BY FLOW ARROWS ON THE DRAWINGS. LINEAR DIFFUSERS MUST BE ADJUSTABLE 2-WAY FLOW. PROVIDE BATT INSULATION ON DIFFUSER AND GRILLES THAT ARE EXPOSED TO CEILING PLENUM.
19. EXACT LOCATIONS OF THERMOSTATS, CO2 SENSORS, AND EMCS SENSORS MUST BE COORDINATED WITH FINAL LOCATIONS OF WALL-MOUNTED ARCHITECTURAL AND ELECTRICAL EQUIPMENT. MOUNT THERMOSTATS AND CO2 SENSORS MINIMUM 48" AFF.
20. SPECIFICATIONS TAKE PRECEDENCE OVER DRAWINGS. HOWEVER, ITEMS SHOWN ON DRAWING BUT NOT IN THE SPECIFICATIONS ARE REQUIRED WITHIN THE PROJECT SCOPE. IN ADDITION, SPECIFIC ITEMS SHOWN ON THE DRAWINGS TAKE PRECEDENCE OVER SPECIFICATIONS IN CASES WHERE THE SPECIFICATION HAS OPTIONS.
21. ALL EQUIPMENT MUST BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S APPROVED PUBLISHED LITERATURE.
22. DUCT SIZES SHOWN ARE INSIDE CLEAR DIMENSIONS.
23. EXPOSED DUCTWORK, WITH THE EXCEPTION OF DUCTWORK IN MECHANICAL ROOMS MUST BE DOUBLE-WALL, DUCTWORK WITH COATING.
24. ALL THERMOSTATS MUST BE WALL MOUNTED AND WIRED.
25. ALL EQUIPMENT INSTALLED IN THIS PROJECT MUST COMPLY WITH THE "BUY AMERICAN ACT" (BAA). BASIS OF DESIGN SHOWN ON SCHEDULES IS TO ESTABLISH A STANDARD OF QUALITY, NOT TO LIMIT COMPETITION. EQUIVALENT EQUIPMENT FROM ANOTHER MANUFACTURER IS ACCEPTABLE. MANUFACTURER NAME AND MODEL NUMBERS ARE BASIS OF DESIGN AND ARE SHOWN FOR INFORMATION ONLY AND MAY OR MAY NOT COMPLY WITH BAA. REFER TO SPECIFICATIONS FOR COMPLETE REQUIREMENTS.
26. CONTROLS CONTRACTOR MUST PROVIDE ALL LOW VOLTAGE DEVICES, CONDUCTORS, AND PATHWAYS IN ACCORDANCE WITH THE REQUIREMENTS OF 26 20 00. INSTALL CONTROL WIRING IN CONDUIT. SEE DIVISION 26 SPECIFICATIONS FOR REQUIREMENTS.

HVAC GENERAL DEMOLITION NOTES:

1. THE DEMOLITION PLANS AND EXISTING CONDITIONS SHOWN ARE APPROXIMATE AND ARE TO BE FIELD VERIFIED. ITEMS TO BE REMOVED ARE DENOTED BY HATCHING. ADDITIONAL ITEMS ARE LIKEY TO REQUIRE REMOVAL, RELOCATION AND/OR REINSTALLATION TO PERFORM THE WORK BUT REQUIRE VERIFICATION THRU C.O. BEFORE PERFORMING THE WORK.
2. DEMOLITION MUST INCLUDE, BUT IS NOT LIMITED TO, THE ITEMS IDENTIFIED. THE CONTRACTOR MUST COORDINATE ALL REQUIRED RENOVATION AND NEW CONSTRUCTION WITH THE EXISTING BUILDING TO IDENTIFY THE TOTAL EXTENT OF THE DEMOLITION WORK REQUIRED.
3. THE CONTRACTOR IS RESPONSIBLE FOR THE DEMOLITION AND REMOVAL OF ALL EXISTING BUILDING COMPONENTS, MATERIALS, EQUIPMENT, AND APPURTENANCES AS REQUIRED TO PROVIDE ALL NEW CONSTRUCTION.
4. IN THE EVENT THE CONTRACTOR ENCOUNTERS MATERIAL REASONABLY BELIEVED TO BE ASBESTOS, LEAD-BASED PAINT, OR ANY OTHER HAZARDOUS MATERIAL WHICH HAS NOT BEEN RENDERED HARMLESS, THE CONTRACTOR MUST IMMEDIATELY REPORT THE CONDITION TO THE CONTRACTING OFFICER IN WRITING.
5. THE CONTRACTOR IS RESPONSIBLE FOR THE ERECTION, MAINTENANCE, AND REMOVAL OF ALL CONSTRUCTION ASSISTANCE DEVICES SUCH AS SCAFFOLDING AND BARRIERS.
6. THE BUILDING ENVELOPE MUST REMAIN WATERTIGHT THROUGHOUT THE CONSTRUCTION PROCESS.
7. IF IT BECOMES NECESSARY DURING DEMOLITION TO TEMPORARILY REMOVE ANY EXISTING WORK NOT SPECIFICALLY NOTED TO BE REMOVED OR RELOCATED (THEREBY IMPLYING THAT THEY ARE TO BE LEFT FOR FUTURE USE), THE CONTRACTOR MUST REINSTALL SAID WORK TO FULLY OPERABLE CONDITION IN THEIR ORIGINAL LOCATIONS
8. CONTRACTOR MUST DEMOLISH ALL EQUIPMENT, PIPING, DUCTWORK, INSULATION, SUPPORTS, CONTROLS THERMOSTATS, WIRING AND ALL APPURTENANCES WITH THE HVAC SYSTEM TO BE DEMOLISHED.
9. PROTECT EXISTING INTERIOR WALLS DURING REMOVAL AND CONSTRUCTION. PROVIDE TEMPORARY PROTECTION FROM DUST, NOISE, DAMAGE, ETC. AND CONSTRUCTION BARRIERS AND OTHER SITE PROTECTION REQUIREMENTS CONSISTENT WITH THE SPECIFICATIONS SECTION, AND DIVISION 1, GENERAL REQUIREMENTS.
10. IN AREAS OF WORK, AT EXISTING FINISHES TO REMAIN, PATCH AND REPAIR ANY DAMAGE TO MATCH EXISTING FINISH. PREPARE SURFACE TO RECEIVE NEW FINISHES.
11. FIXED ITEMS ON WALLS AND CEILINGS WILL REMAIN IN PLACE DURING CONSTRUCTION. CONTRACTOR MUST PROVIDE PROTECTION OF EXISTING FIXED ITEMS.

THOMAS E. LOVEJAY REGISTERED PROFESSIONAL ENGINEER CONTRACTOR LIC. NO. 102769 STATE OF MARYLAND
05/04/2026

THE Johnson-McAdams FIRM P.A.
ARCHITECTS/ENGINEERS · PLANNING · SURVEYING · MANAGEMENT
P.O. BOX 513, GREENWOOD, MD 20833 PH • (302) 435-4340

NO.	DATE	BY	DESCRIPTION

REVISIONS

USDA Agricultural Research Service

REPAIR HVAC SYSTEM, BUILDINGS 1 AND 11 CENTER FOR MEDICAL AGRICULTURAL AND VETENARY ENTOMOLOGY (CMAVE) - GAINESVILLE, FLORIDA

BUILDING 1
GENERAL HVAC NOTES

A-E FIRM	USDA
PROJECT MGR TEL	COR E. WILSON
DESIGNER JND	EPM E. WILSON
CHECKED BY BTD	SAFETY & HEALTH TBD
JOB # 3925	REAL PROPERTY TBD

PROJECT NO. ---
DATE 5/04/2026

USDA ARS
5601 SUNNYSIDE AVENUE
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BELTVILLE MD 20705

SHEET M-001
4 OF 20

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May 04, 2026 - 2:00pm

ABBREVIATIONS:

@	AT
&	AND
AFF	ABOVE FINISHED FLOOR
AHU	AIR HANDLING UNIT
ARCH	ARCHITECTURAL
AS	AIR SEPARATOR
ASHRAE	AMERICAN SOCIETY OF HEATING, REFRIGERATING, AND AIR CONDITIONING ENGINEERS
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS
APD	AIR PRESSURE DROP
BLDG	BUILDING
BTU, BTUH	BRITISH THERMAL UNITS, BTUs PER HOUR
C	CONDENSATE RECEIVER
CD	CONDENSATE DRAIN
CFM	CUBIC FEET PER MINUTE
CHW	CHILLED WATER
CHWP	CHILLED WATER PUMP
CHWR	CHILLED WATER RETURN
CHWS	CHILLED WATER SUPPLY
CLG	COOLING
CMU	CONCRETE MASONRY UNIT
CO	CLEANOUT
CO2	CARBON DIOXIDE
CONC	CONCRETE
COND	STEAM CONDENSATE
CONN	CONNECT, CONNECTING, CONNECTION
CONT	CONTINUED
CONV	STEAM CONVERTER
COP	COEFFICIENT OF PERFORMANCE
COR	CONTRACTING OFFICER'S (OWNER'S) REPRESENTATIVE
CU	CONDENSING UNIT
D	DEPTH
D	DIFFUSER
DISC	DISCONNECT
DB, Tdb	DRY BULB (TEMPERATURE)
dBA	DECIBELS
DCW	DOMESTIC COLD WATER
DDC	DIRECT DIGITAL CONTROLS
DEG	F (°F) DEGREES FAHRENHEIT
DFCU	DUCTLESS FAN COIL UNIT
DIA, Ø	DIAMETER
DIV	DIVISION
DN	DOWN
DP	DIFFERENTIAL PRESSURE
DWG	DRAWING
DWH	DOMESTIC WATER HEATER
DX	DIRECT EXPANSION
(E)	EXISTING
EA	EXHAUST AIR
EAG	EXHAUST AIR GRILLE
EAT	ENTERING AIR TEMPERATURE
EER	ENERGY EFFICIENCY RATIO
EF	EXHAUST FAN
EFF	EFFICIENCY
ELEC	ELECTRICAL
EMCS	ENERGY MONITORING AND CONTROLS SYSTEM
ER	EXHAUST REGISTER
ERV	ENERGY RECOVERY VENTILATOR
ESP	EXTERNAL STATIC PRESSURE
ET	EXPANSION TANK
EUH	ELECTRIC UNIT HEATER
EWT	ENTERING WATER TEMPERATURE
EXIST.	EXISTING
EXT	EXTERIOR
EXH	EXHAUST
DEG	EXISTING
FCU	FAN COIL UNIT
FD	FIRE DAMPER
FFE	FINISHED FLOOR ELEVATION
FLA	FULL LOAD AMPS
FPD	FLUID PRESSURE DROP
FPM	FEET PER MINUTE
FSD	FIRE SMOKE DAMPER
FT	FOOT, FEET
GA	GAUGE
GALV	GALVANIZED
GC	GENERAL CONTRACTOR
GPM	GALLONS PER MINUTE
GRD	GRILLES, REGISTERS AND DIFFUSERS
HP	HORSE POWER
HR	HOUR
HTG	HEATING
HTR	HEATER
HTW	HEATING WATER
HTWR	HEATING WATER RETURN
HTWS	HEATING WATER SUPPLY
HVAC	HEATING, VENTILATING, AND AIR CONDITIONING
HWP	HOT WATER PIPE
HWR	HOT WATER RETURN
HWS	HOT WATER SUPPLY
HZ	HERTZ
IMC	INTERNATIONAL MECHANICAL CODE
IN	INCH, INCHES
IN WC	INCHES WATER COLUMN
IN WG	INCHES WATER GAUGE
IPLV	INTEGRATED PART LOAD VALUE
KW	KILOWATTS
L	LENGTH, LOUVER (WALL)
LAT	LEAVING AIR TEMPERATURE
LBD	LINEAR BAR DIFFUSER
LB	POUNDS
LD	LINEAR DIFFUSER
LPR	LOW PRESSURE RETURN
LPS	LOW PRESSURE SUPPLY
LWT	LEAVING WATER TEMPERATURE
M	MOTORIZED
MA	MIXED AIR
MAX	MAXIMUM
MBH	1000 BRITISH THERMAL UNITS
MCA	MINIMUM CIRCUIT AMPACITY
MECH	MECHANICAL
MER	MECHANICAL EQUIPMENT ROOM
MERV	MINIMUM EFFICIENCY REPORTING VALUE
MIN	MINIMUM
MOCP	MAXIMUM OVER CURRENT PROTECTION
MSS SP	MANUFACTURERS STANDARD SOCIETY STANDARD PRACTICE
MTL	METAL
N.C.	NORMALLY CLOSED
NC	NOISE CRITERIA
NG	NATURAL GAS
NO.	NUMBER
N.O.	NORMALLY OPEN
NTS	NOT TO SCALE
OA	OUTSIDE AIR
PD	PRESSURE DROP
PH	PHASE
PLBG	PLUMBING
PPM	PARTS PER MILLION
PRV	PRESSURE RELIEF VALVE
PSI	POUNDS PER SQUARE INCH
PSIG	POUNDS PER SQUARE INCH GAUGE
QTY	QUANTITY
R/A	RETURN AIR
RAG	RETURN AIR GRILLE
REF	REFER TO, REFERENCE
RF	RADIO FREQUENCY
REQD	REQUIRED
RH	RELATIVE HUMIDITY, ROOF HOOD
RLD	RECTANGULAR LINEAR DIFFUSER
RM	ROOM
RPM	REVOLUTIONS PER MINUTE
RR	RETURN REGISTER
SA	SUPPLY AIR
SAD	SUPPLY AIR DIFFUSER
SAG	SUPPLY AIR GRILLE
SD	SMOKE DAMPER, SMOKE DETECTOR
SEER	SEASONAL ENERGY EFFICIENCY RATIO
SF	SUPPLY FAN
SHT	SHEET
SMACNA	SHEET METAL AND AIR CONDITIONING CONTRACTOR'S NATIONAL ASSOCIATION
SP	STATIC PRESSURE
SS	STAINLESS STEEL
SWR	SIDEWALL REGISTER
T&P	TEMPERATURE AND PRESSURE
TEMP	TEMPERATURE
TSTAT	THERMOSTAT
TYP	TYPICAL
UH	UNIT HEATER
UL	UNDERWRITER'S LABORATORY
UMCS	UTILITY MONITORING AND CONTROL SYSTEM
V	VOLTAGE, VOLTS
VAV	VARIABLE AIR VOLUME
VD	VOLUME DAMPER
VFD	VARIABLE FREQUENCY DRIVE
WG	WATER GAUGE
WB	WET BULB (TEMPERATURE)
WPD	WATER PRESSURE DROP
W/O	WITHOUT

ABBREVIATION NOTES:

1. SOME ABBREVIATIONS SHOWN MAY NOT BE USED FOR THIS PROJECT.
2. SCHEDULED EQUIPMENT IS NOTED USING UNDERLINED TEXT SUCH AS AHU-1. THIS IS NOT AN ABBREVIATION. IT IS AN EQUIPMENT MARK. REFER TO SCHEDULE SHEETS M-601 THRU M-699 FOR INFORMATION REGARDING SCHEDULED EQUIPMENT.

MISCELLANEOUS LEGEND:

- SUPPLY AIR DIFFUSER FLOW ARROWS INDICATE AIR PATTERN. NO FLOW ARROWS SHOWN INDICATES 4-WAY PATTERN.
- RETURN AIR GRILLE
- EXHAUST AIR GRILLE
- T — THERMOSTAT
- H — HUMIDISTAT
- TH — THERMOSTAT/ HUMIDISTAT
- SD — DUCT SMOKE DETECTOR
- F — FIRESTAT
- T — TEMPERATURE SENSOR
- H — HUMIDITY SENSOR
- SP — STATIC PRESSURE SENSOR
- DP — DIFFERENTIAL PRESSURE SENSOR
- CO — CARBON MONOXIDE SENSOR
- POINT OF RECONNECTION OR EXTENT OF DEMOLITION
- VFD — VARIABLE FREQUENCY DRIVE
- FLOW ARROW

AIR DISTRIBUTION DEVICE TAGS

10" - S1 / 300
- NECK SIZE
- DIFFUSER MARK (REFER TO GRD SCHEDULE)
- AIRFLOW (CFM)

NORTH ARROW

PLAN NORTH

TRUE NORTH

DEMOLITION LEGEND:

HATCHING INDICATES ITEMS TO BE DISMANTLED AND REMOVED.

EXISTING EQUIPMENT

CH-1 (E) — (E) AFTER AN EQUIPMENT MARK INDICATES EXISTING

PIPING LEGEND:

- CHILLED WATER SUPPLY (CHWS)
- CHILLED WATER RETURN (CHWR)
- HEATING WATER SUPPLY (HTWS)
- HEATING WATER RETURN (HTWR)
- ITEMS TO BE DEMOLISHED
- EXISTING PIPING (EXIST.)
- ELBOW UP
- ELBOW DOWN
- RISE OR DROP
- BRANCH BOTTOM CONNECTION
- BRANCH TOP CONNECTION
- TEE OUTLET UP
- TEE OUTLET DOWN
- PIPE CAP
- DIRECTION OF FLOW
- CONCENTRIC REDUCER
- ECCENTRIC REDUCER
- UNION
- PIPE FLANGE
- STRAINER WITH BLOWDOWN VALVE, CAP, AND CHAIN
- GATE VALVE
- BALL VALVE
- FLOW MEASURING/BALANCING/SHUT-OFF VALVE
- CHECK VALVE
- BUTTERFLY VALVE
- PRESSURE REDUCING VALVE
- GLOBE VALVE
- PRESSURE/TEMPERATURE TAP WITH BALL VALVE
- FLOW SWITCH — FS
- PRESSURE SWITCH — PS
- PLUG VALVE
- MANUAL AIR VENT
- AUTOMATIC AIR VENT
- T&P RELIEF VALVE
- PRESSURE GAUGE WITH GAUGE COCK
- THERMOMETER
- FLEXIBLE CONNECTION

DUCTWORK LEGEND:

- 24"Ø — ROUND DUCT. DIAMETER INDICATED IN INCHES.
- 30"x14" — RECTANGULAR DUCT. SIZE INDICATED IN INCHES, FIRST NUMBER IS SIDE SHOWN. DASHED LINES INDICATE ACOUSTICAL LINER
- 90 DEGREE DUCT ELBOW WITH TURNING VANES
- RADIUS DUCT ELBOW - ROUND OR RECTANGULAR (MIN. 1.5 RADIUS UNLESS OTHERWISE NOTED)
- RECTANGULAR DUCT BRANCH TAKE-OFF WITH 45 DEGREE BRANCH INLET
- SQUARE TO ROUND DUCT BRANCH TAKE-OFF WITH 45 DEGREE BRANCH INLET
- ROUND DUCT BRANCH TAKE-OFF FROM RECTANGULAR MAIN WITH CONICAL TAP
- DUCT SIZE TRANSITION
- DUCT SIZE TRANSITION RECTANGULAR TO ROUND
- FLEXIBLE DUCT CONNECTION
- SUPPLY OR OUTSIDE AIR DUCT UP
- SUPPLY OR OUTSIDE AIR DUCT DOWN
- RETURN AIR DUCT UP
- RETURN AIR DUCT DOWN
- EXHAUST AIR DUCT UP
- EXHAUST AIR DUCT DOWN
- IN-LINE 90 DEGREE RISE/DROP IN SUPPLY DUCT
- IN-LINE 90 DEGREE RISE/DROP IN RETURN DUCT
- IN-LINE 90 DEGREE RISE/DROP IN EXHAUST DUCT
- SD — DUCT MOUNTED SMOKE DETECTOR
- VD — VOLUME/BALANCING DAMPER (LABEL MAY BE OMITTED)
- BD — BACKDRAFT DAMPER (COUNTER-BALANCED UNLESS OTHERWISE NOTED)
- M — DAMPER TYPE: M - MOTORIZED DAMPER (ELECTRIC)
- FD — FIRE DAMPER
- SD — SMOKE DAMPER
- FSD — COMBINATION FIRE/SMOKE DAMPER

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REVISIONS

A-E FIRM	USDA
PROJECT MGR: TEL	COR: E. WILSON
DESIGNER: JND	EPM: E. WILSON
CHECKED BY: BTD	SAFETY & HEALTH: TBD
JOB #: 3925	REAL PROPERTY: TBD

USDA Agricultural Research Service

REPAIR HVAC SYSTEM, BULDINGS 1 AND 11 CENTER FOR MEDICAL AGRICULTURAL AND VETENARY ENTOMOLOGY (CMAVE) - GAINESVILLE, FLORIDA

BUILDING 1

HVAC SYMBOL LEGEND

PROJECT NO. ---

DATE 5/04/2026

USDA ARS
5601 SUNNYSIDE AVENUE
RM 3-2102
BELTVILLE MD 20705

SHEET M-002

5 OF 20

THOMAS E. LOVELL REGISTERED ENGINEER AGRICULTURAL ENGINEERING COMMERCE NO. 102769 STATE OF TENNESSEE

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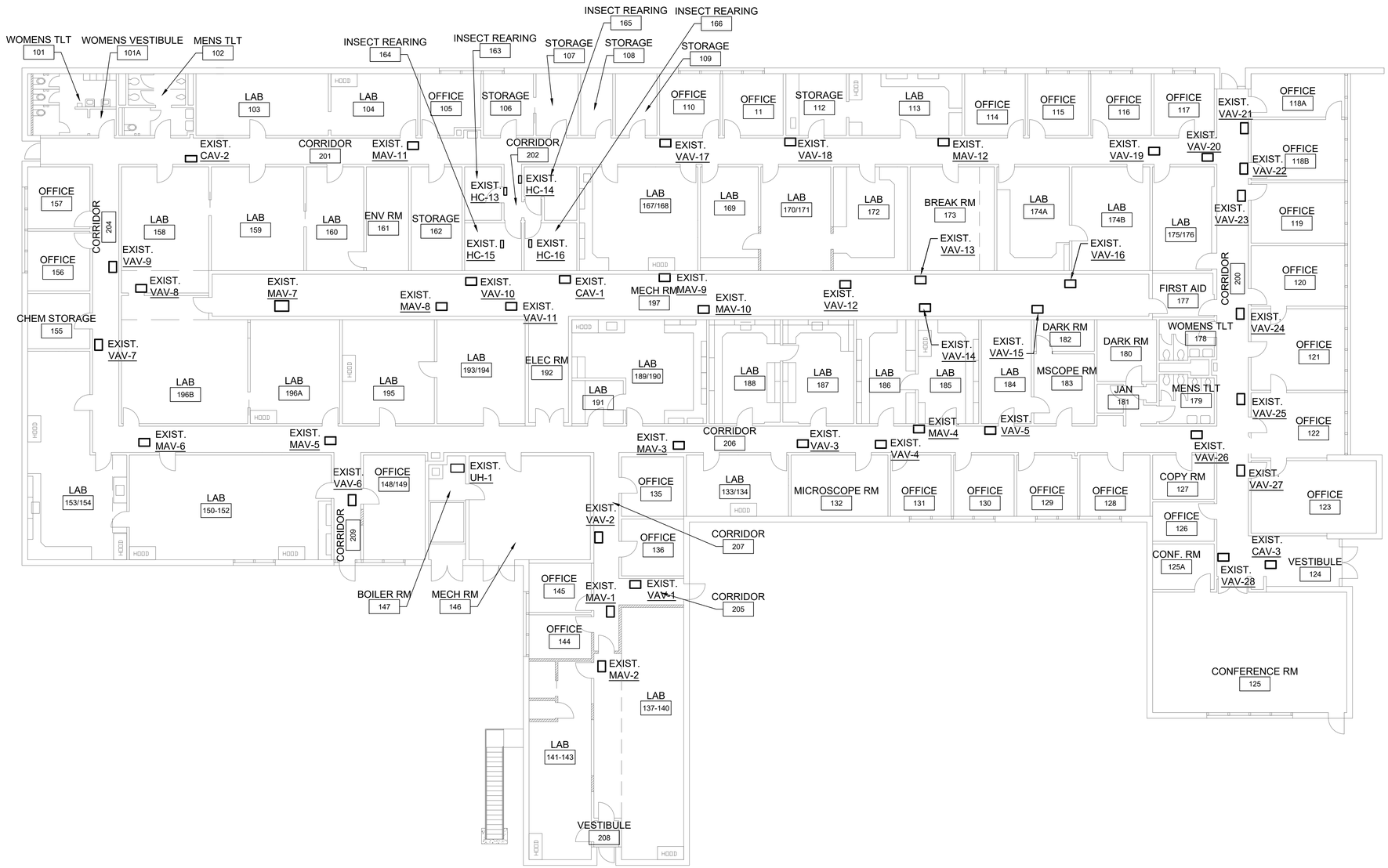

1 MD101 BUILDING 1
1ST FLOOR HVAC DEMOLITION
SCALE: 3/32" = 1'-0"

PLAN NORTH

GENERAL NOTES

A. NO INTERIOR DEMOLITION. SHEET PROVIDED FOR INFORMATION ONLY.

LEGEND

MAV	LABORATORY MAKEUP AIR VALVE
VAV	VARIABLE AIR VOLUME TERMINAL UNIT
CAV	CONSTANT AIR VOLUME TERMINAL UNIT

GRAPHIC SCALE

10' 0 5' 10'
SCALE: 3/32"= 1'-0'

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REVISIONS

A-E FIRM	USDA
PROJECT MGR TEL	COR E. WILSON
DESIGNER JND	EPM E. WILSON
CHECKED BY BTD	SAFETY & HEALTH TBD
JOB # 3925	REAL PROPERTY TBD

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REPAIR HVAC SYSTEM, BUILDINGS 1 AND 11 CENTER FOR MEDICAL AGRICULTURAL AND VETENARY ENTOMOLOGY (CMAVE) - GAINESVILLE, FLORIDA
BUILDING 1
1ST FLOOR HVAC DEMOLITION

PROJECT NO. ---
DATE 5/04/2026

USDA ARS
5601 SUNNYSIDE AVENUE
RM 3-2102
BELTVILLE MD 20705

SHEET MD101
6 OF 20

THOMAS E. LOVEJAY REGISTERED PROFESSIONAL ENGINEER DELAWARE 10278 DATE 05/04/2026

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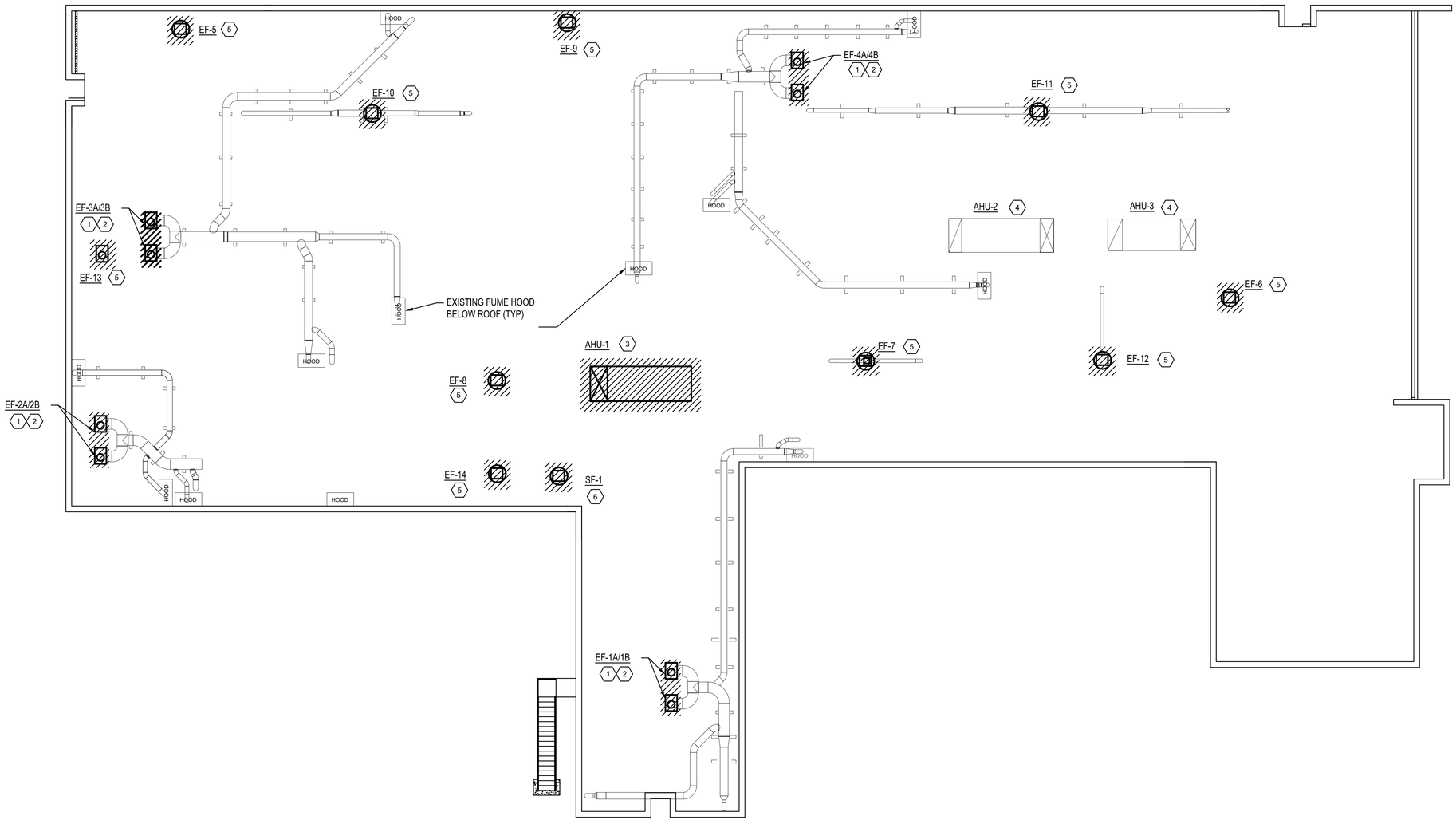

GENERAL NOTES

A. EXISTING ROOF IS A LOW-SLOPED MEMBRANE SYSTEM. EXISTING ROOF WARRANTY MUST BE MAINTAINED DURING THE WORK.

(X) KEYED NOTES

1. DISMANTLE AND REMOVE EXISTING ROOF FAN. PREPARE EXISTING DUCTWORK FOR CONNECTION TO NEW FAN. EXISTING ROOF RAILS TO REMAIN.
2. EXISTING BACKDRAFT DAMPERS TO REMAIN.
3. DISMANTLE AND REMOVE EXISTING AIR HANDLER.
4. EXISTING AIR HANDLER TO REMAIN.
5. DISMANTLE AND REMOVE EXISTING EXHAUST FAN. EXISTING CURB TO REMAIN FOR INSTALLATION OF NEW FAN.
6. DISMANTLE AND REMOVE EXISTING SUPPLY FAN. EXISTING CURB TO REMAIN FOR INSTALLATION OF NEW FAN

GRAPHIC SCALE

10' 0 5' 10'

SCALE: 3/32" = 1'-0'

1 MD102 BUILDING B1
ROOF HVAC DEMOLITION
SCALE: 3/32" = 1'-0"

PLAN NORTH

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NO.	DATE	BY	DESCRIPTION

REVISIONS

THOMAS E. LOVELACE REGISTERED PROFESSIONAL ENGINEER NO. 10270 STATE OF DELAWARE
05/04/2026

A-E FIRM	USDA
PROJECT MGR TEL	COR E. WILSON
DESIGNER JND	EPM E. WILSON
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JOB # 3925	REAL PROPERTY TBD

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REPAIR HVAC SYSTEM, BULDINGS 1 AND 11 CENTER FOR MEDICAL AGRICULTURAL AND VETENARY ENTOMOLOGY (CMAVE) - GAINESVILLE, FLORIDA

BUILDING 1
ROOF HVAC DEMOLITION

PROJECT NO. ---

DATE 5/04/2026

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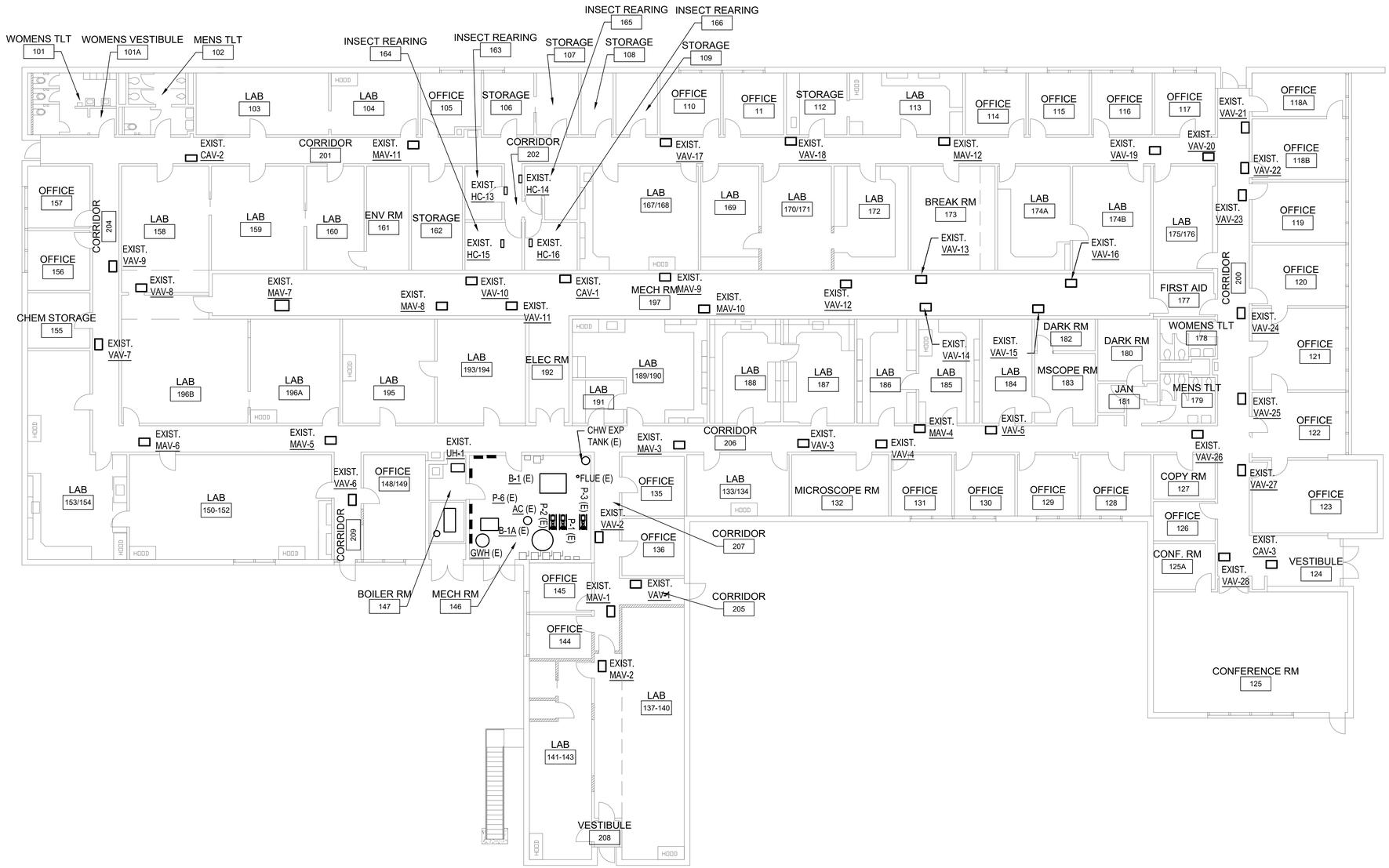
SHEET MD102



GENERAL NOTES

A. NO INTERIOR WORK. SHEET PROVIDED FOR INFORMATION ONLY.

LEGEND

MAV	LABORATORY MAKEUP AIR VALVE
VAV	VARIABLE AIR VOLUME TERMINAL UNIT
CAV	CONSTANT AIR VOLUME TERMINAL UNIT
(E)	EXISTING EQUIPMENT

GRAPHIC SCALE

10' 0 5' 10'

SCALE: 3/32"= 1'-0'

1 M-101 BUILDING 1
1ST FLOOR HVAC
SCALE: 3/32" = 1'-0"

PLAN NORTH

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JOB # 3925	REAL PROPERTY TBD

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REPAIR HVAC SYSTEM, BUILDINGS 1 AND 11 CENTER FOR MEDICAL AGRICULTURAL AND VETENARY ENTOMOLOGY (CMAVE) - GAINESVILLE, FLORIDA
BUILDING 1
1ST FLOOR HVAC

PROJECT NO. ---
DATE 5/04/2026

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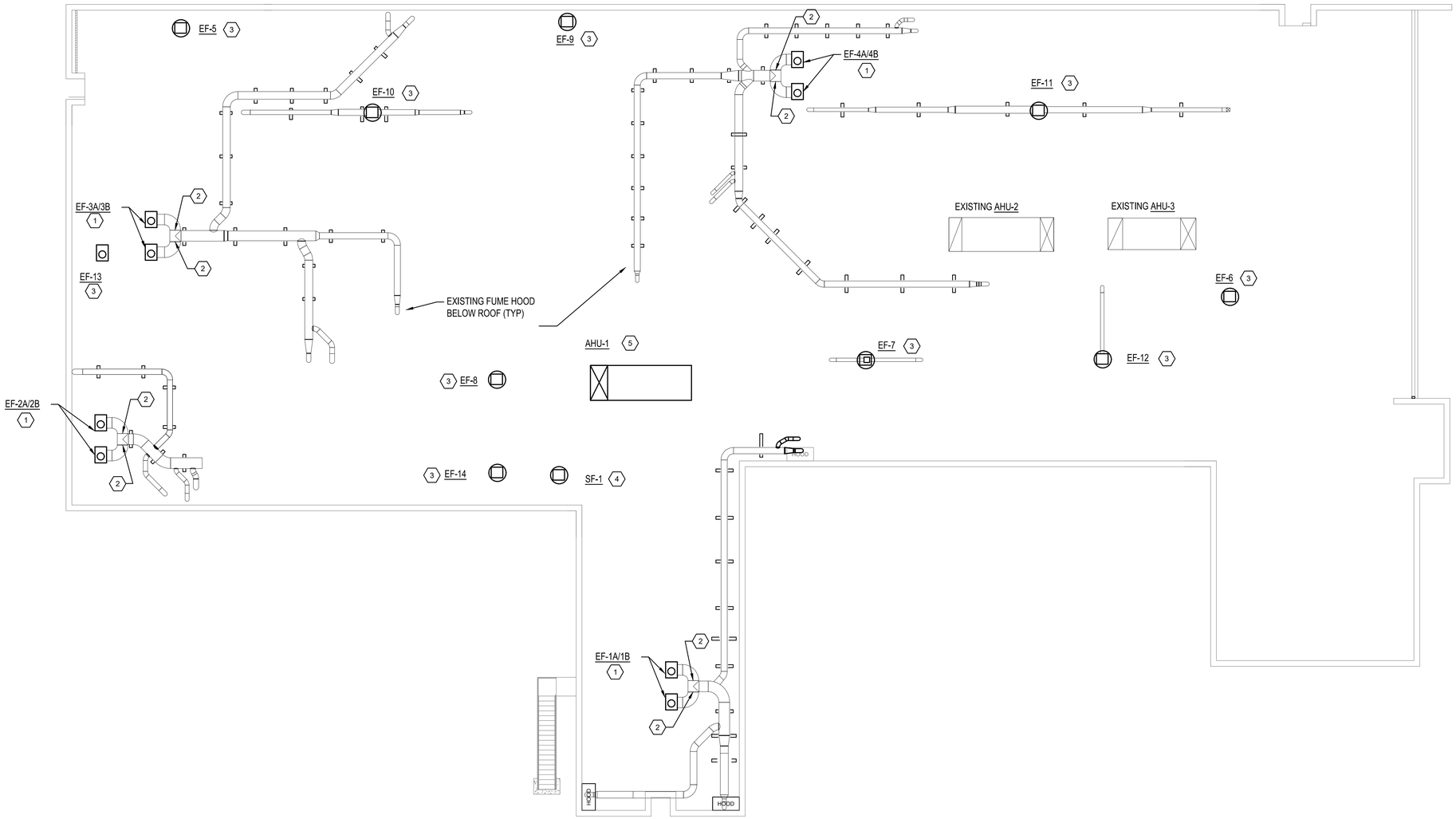
8 OF 20



KEYED NOTES

1. PROVIDE UTILITY SET TYPE EXHAUST FAN. INSTALL ON EXISTING ROOF RAILS. (2) FANS ARE REQUIRED AT EACH LOCATION.
2. PROVIDE GRAVITY BACKDRAFT DAMPER TO BE INSTALLED IN EXISTING DUCTWORK.
3. PROVIDE CURB MOUNTED EXHAUST FAN. INSTALL ON EXISTING CURB.
4. PROVIDE CURB MOUNTED SUPPLY FAN. INSTALL ON EXISTING CURB.
5. PROVIDE CENTRAL STATION AHU. AHU TO BE DIMENSIONALLY EQUAL TO EXISTING AHU OR FURNISH CURB ADAPTOR.

GRAPHIC SCALE

10' 0 5' 10'

SCALE: 3/32" = 1'-0'

1 M-102 BUILDING B1 ROOF HVAC PLAN

SCALE: 3/32" = 1'-0"

PLAN NORTH

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JOB #: 3925	REAL PROPERTY: TBD

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REPAIR HVAC SYSTEM, BULDINGS 1 AND 11 CENTER FOR MEDICAL AGRICULTURAL AND VETENARY ENTOMOLOGY (CMAVE) - GAINESVILLE, FLORIDA

BUILDING 1
ROOF HVAC PLAN

PROJECT NO. ---

DATE 5/04/2026

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9 OF 20

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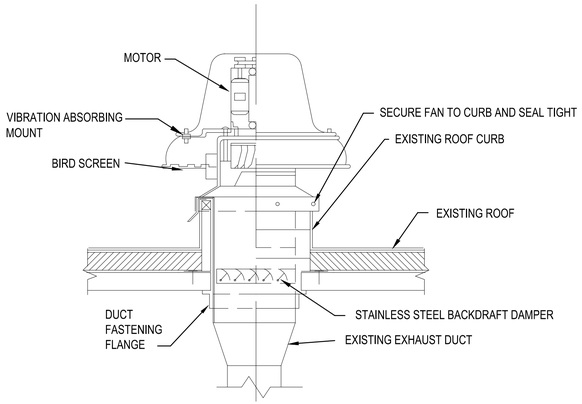
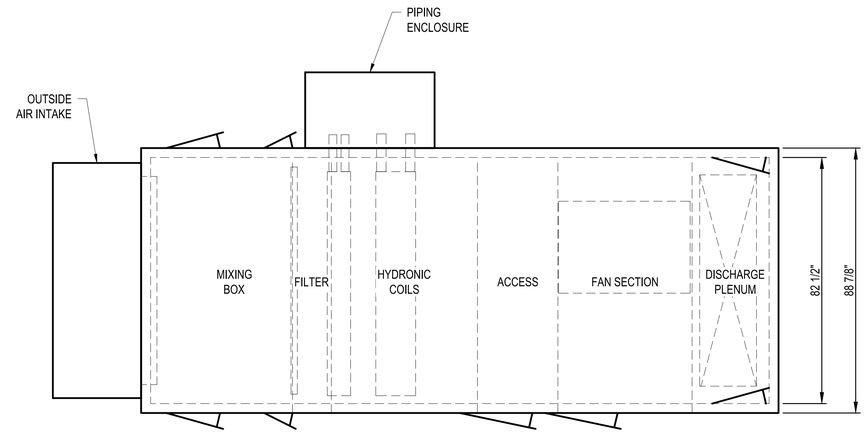


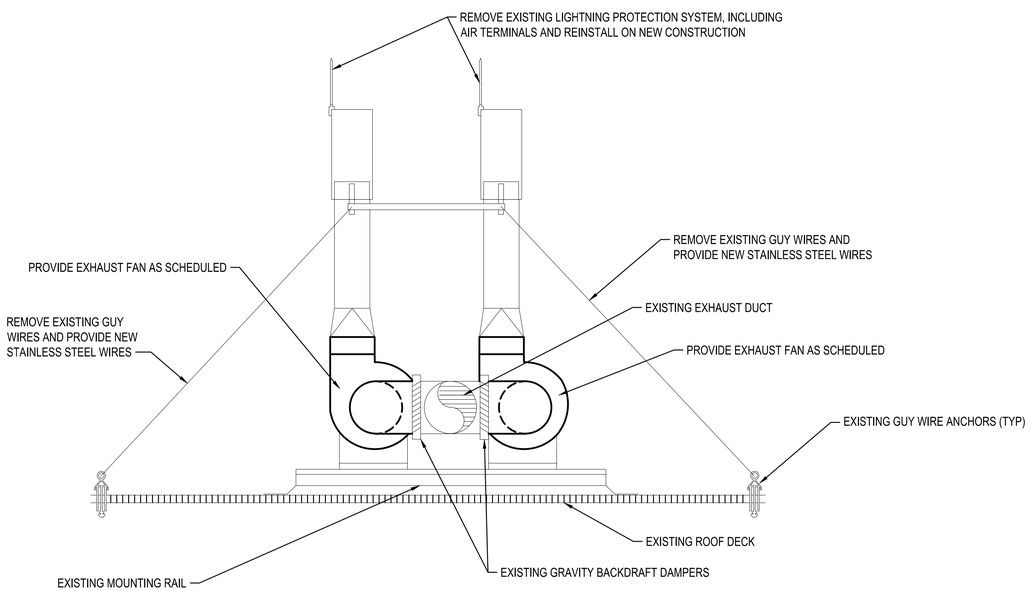
1 / M-501 DOWNBLAST ROOF EXHAUST FAN DETAIL

SCALE: NOT TO SCALE



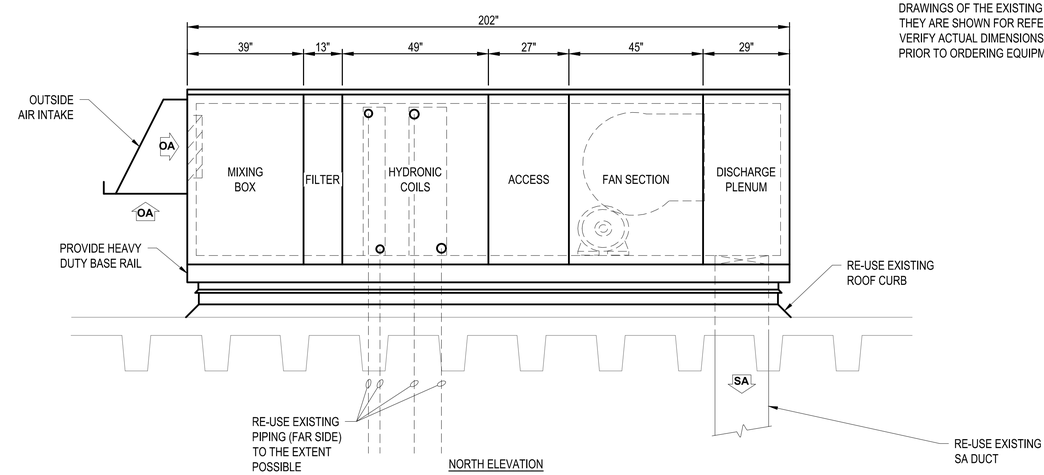
PLAN

NOTE:
DIMENSIONS ARE BASED ON SHOP DRAWINGS OF THE EXISTING AIR HANDLER. THEY ARE SHOWN FOR REFERENCE. VERIFY ACTUAL DIMENSIONS IN THE FIELD PRIOR TO ORDERING EQUIPMENT.



2 / M-501 UPBLAST UTILITY FAN DETAIL

SCALE: NOT TO SCALE



NORTH ELEVATION

3 / M-501 AHU-1 DETAIL

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JOB #: 3925	REAL PROPERTY: TBD

USDA Agricultural Research Service

REPAIR HVAC SYSTEM, BULDINGS 1 AND 11 CENTER FOR MEDICAL AGRICULTURAL AND VETENARY ENTOMOLOGY (CMAVE) - GAINESVILLE, FLORIDA

BUILDING 1
MECHANICAL DETAILS

PROJECT NO. ---

DATE 5/04/2026

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RM 3-2102
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SHEET M-501

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CENTRAL STATION AIR HANDLING UNIT SCHEDULE

MARK	BASIS OF DESIGN		AIRFLOW DATA						HOT WATER PRE-HEAT COIL DATA								CHILLED WATER COOLING COIL DATA											ELECTRICAL DATA			NOTES
	MANUFACTURER	MODEL NO.	SUPPLY AIR FLOW (CFM)	MINIMUM OUTSIDE AIR (CFM)	ESP (IN. WG)	TSP (IN. WG)	FAN QTY	FAN MOTOR POWER (HP)	TOTAL HEAT (BTUH)	ENTERING WATER TEMP (°F)	LEAVING WATER TEMP (°F)	WATER FLOW (GPM)	WATER PRESSURE DROP (FT HD)	ENTERING AIR TEMP (°F)	LEAVING AIR TEMP (°F)	AIR PRESSURE DROP (IN. WG)	TOTAL COOLING (BTUH)	SENSIBLE COOLING (BTUH)	ENTERING WATER TEMP (°F)	LEAVING WATER TEMP (°F)	WATER FLOW (GPM)	WATER PRESSURE DROP (FT HD)	ENTERING AIR DRY BULB (°F)	ENTERING AIR WET BULB (°F)	LEAVING AIR DRY BULB (°F)	LEAVING AIR WET BULB (°F)	AIR PRESSURE DROP (IN. WG)	VOLTAGE (V/PH/Hz)	FLA (AMPS)	FLA (AMPS)	
AHU-1	YORK	XTO-057X084	11,500	11,500	2.25	6.6	1	20	497,000	160	140	62	2.2	15	55	0.09	1,006,000	514,600	45	57	168	5.4	95	79	54.5	54.5	2.78	460/3/60	24	30	ALL

NOTES:
1. INTENT IS REPLACEMENT IN KIND. MANUFACTURER DATA PROVIDED FOR THAT PURPOSE.
2. PROVIDE SUPPLY AIR SMOKE DETECTORS COMPATIBLE WITH EXISTING FIRE ALARM SYSTEM.
3. PROVIDE MIXING BOX SECTION WITH DAMPERS AND ACTUATORS COMPATIBLE WITH EXISTING BUILDING AUTOMATION SYSTEM, FILTER SECTION WITH MERV 8 PRE-FILTERS AND MERV 13 SECONDARY FILTERS, PRE-HEAT SECTION, COOLING SECTION, HINGED AND LATCHED ACCESS SECTION, FAN SECTION AND DISCHARGE PLENUM. REFER TO ELEVATIONS FOR CONFIGURATION DETAILS.
4. PROVIDE UNIT WITH HEAVY DUTY BASE RAIL. INSTALL ON 4" HIGH CONCRETE HOUSEKEEPING PAD.
5. UNIT SHALL BE SHIPPED IN MULTIPLE SECTIONS FOR FIELD ASSEMBLY TO ACCOMMODATE INSTALLATION IN BUILDING.
6. DOUBLE WALL CONSTRUCTION WITH FOAM INJECTED INSULATION.
7. PROVIDE STAINLESS STEEL SLOPED DRAIN PANS IN ALL COIL SECTIONS.

EXHAUST FAN SCHEDULE

MARK	EXISTING FAN INFO		BASIS OF DESIGN (NEW)		TYPE	FAN DATA		ELECTRICAL DATA			NOTES
	MANUFACTURER	MODEL NO.	MFR	MODEL NO.		VOLUME	ESP	MOTOR POWER	FLA (AMPS)	VOLTAGE	
EF-1A	ACME	7122R A/10 CL/1	GREENHECK	SP-B70	UTILITY SET	4,765	2.500	3	-	460/3	ALL
EF-1B	ACME	7122R A/10 CL/1	GREENHECK	SP-B70	UTILITY SET	4,765	2.500	3	-	460/3	ALL
EF-2A	ACME	7122R A/10	GREENHECK	SP-B70	UTILITY SET	5,020	2.500	5	-	460/3	ALL
EF-2B	ACME	7122R A/10	GREENHECK	CUBE-180-7	UTILITY SET	5,020	2.500	5	-	460/3	ALL
EF-3A	ACME	7122R A/10	GREENHECK	CUBE-180-7	UTILITY SET	5,060	2.500	5	-	460/3	ALL
EF-3B	ACME	7122R A/10	GREENHECK	CUBE-180-7	UTILITY SET	5,060	2.500	5	-	460/3	ALL
EF-4A	ACME	7122R A/10 CL/1	GREENHECK	USF-18	UTILITY SET	4,650	2.500	3	-	460/3	ALL
EF-4B	ACME	7122R A/10 CL/1	GREENHECK	USF-18	UTILITY SET	4,650	2.500	3	-	460/3	ALL
EF-5	GREENHECK	CUE-140-C	GREENHECK	CUE-140-C	ALUMINUM UPBLAST	790	0.250	⅛	-	120/1	ALL
EF-6	GREENHECK	CUE-140-C	GREENHECK	CUE-140-C	ALUMINUM UPBLAST	800	0.375	⅛	-	120/1	ALL
EF-7	GREENHECK	CUE-140-C	GREENHECK	CUE-140-C	ALUMINUM UPBLAST	885	0.375	⅛	-	120/1	ALL
EF-8	GREENHECK	CUE-100-C	GREENHECK	CUE-100-C	ALUMINUM DOWNBLAST	750	0.125	-	-	120/1	ALL
EF-9	GREENHECK	CUE-140-C	GREENHECK	CUE-140-C	ALUMINUM UPBLAST	1,870	0.500	⅛	-	120/1	ALL
EF-10	GREENHECK	CUBE-160-3	GREENHECK	CUBE-160-3	ALUMINUM UPBLAST	2,480	0.500	⅓	-	120/1	ALL
EF-11	GREENHECK	CUBE-180-5	GREENHECK	CUBE-180-5	ALUMINUM UPBLAST	265	0.250	½	-	120/1	ALL
EF-12	GREENHECK	CUE-95-B	GREENHECK	CUE-95-B	ALUMINUM UPBLAST	350	1.000	⅙	-	120/1	ALL
EF-13	GREENHECK	7-0RB	GREENHECK	7-0RB	ALUMINUM UPBLAST	450	0.125	¾	-	460/3	ALL
EF-14	GREENHECK	G-100-C	GREENHECK	G-100-C	ALUMINUM UPBLAST		0.125	⅛	-	120/1	ALL
SF-1	GREENHECK	AIS-18-C	GREENHECK	AIS-18-C	ALUMINUM SUPPLY FAN	1481	0.125	⅛	-	120/1	ALL

NOTES
1. PROVIDE WITH GRAVITY BACKDRAFT DAMPER
2. PROVIDE SPEED CONTROLLER MOUNTED IN ACCESSIBLE SPACE (SHIPPED LOOSE)
3. PROVIDE DUCT TO OUTDOORS. TERMINATE WITH WALL CAP. COORDINATE COLOR WITH ARCH.
4. DIRECT DRIVE
5. BELT DRIVE
6. VARIABLE SPEED DRIVE
7. HANGING SPRING ISOLATOR
8. THE EXISTING STARTING DEVICE (CONTACTOR OR VFD) IS TO BE REUSED FOR ALL FANS.
9. PROVIDE FACTORY INSTALLED DISCONNECT SWITCHES FOR 115 VOLT, SINGLE PHASE FANS. DISCONNECT SWITCHES FOR 3 PHASE FANS TO BE PROVIDED BY THE ELECTRICAL CONTRACTOR. REFER TO ELECTRICAL DRAWINGS.

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REVISIONS

THOMAS E. LOVELAND REGISTERED PROFESSIONAL ENGINEER No. 102769 STATE OF DELAWARE
05/04/2026

A-E FIRM	USDA
PROJECT MGR TEL	COR E. WILSON
DESIGNER JND	EPM E. WILSON
CHECKED BY BTD	SAFETY & HEALTH TBD
JOB # 3925	REAL PROPERTY TBD

USDA Agricultural Research Service

REPAIR HVAC SYSTEM, BUILDINGS 1 AND 11 CENTER FOR MEDICAL AGRICULTURAL AND VETENARY ENTOMOLOGY (CMAVE) - GAINESVILLE, FLORIDA

BUILDING 1
MECHANICAL SCHEDULES

PROJECT NO. ---
DATE 5/04/2026

USDA ARS
5601 SUNNYSIDE AVENUE
RM 3-2102
BELTVILLE MD 20705

SHEET M-601

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May 04, 2026 - 2:00pm

SEQUENCE OF OPERATION

VARIABLE AIR VOLUME 100% OA ROOFTOP UNIT SYSTEM OPERATION

ROOFTOP UNIT (AHU-1) RUN CONDITIONS - REQUESTED:

THE UNIT SHALL RUN ACCORDING TO A USER DEFINABLE TIME SCHEDULE IN THE FOLLOWING MODES:

- OCCUPIED MODE: THE UNIT SHALL MAINTAIN
  - § A 72°F (ADJ.) COOLING SETPOINT
  - § A 70°F (ADJ.) HEATING SETPOINT.
- UNOCCUPIED MODE (NIGHT SETBACK): THE UNIT SHALL MAINTAIN
  - § A 80°F (ADJ.) COOLING SETPOINT.
  - § A 55°F (ADJ.) HEATING SETPOINT.

ALARMS SHALL BE PROVIDED AS FOLLOWS:

- HIGH DISCHARGE AIR TEMP: IF THE DISCHARGE AIR TEMPERATURE IS GREATER THAN THE COOLING SETPOINT BY A USER DEFINABLE AMOUNT (ADJ.).
- LOW DISCHARGE AIR TEMP: IF THE DISCHARGE AIR TEMPERATURE IS LESS THAN THE HEATING SETPOINT BY A USER DEFINABLE AMOUNT (ADJ.).

DISCHARGE AIR SETPOINT ADJUST:

THE OCCUPANT SHALL BE ABLE TO ADJUST THE DISCHARGE AIR TEMPERATURE HEATING AND COOLING SETPOINTS.

OPTIMAL START:

THE UNIT SHALL USE AN OPTIMAL START ALGORITHM FOR MORNING START-UP. THIS ALGORITHM SHALL MINIMIZE THE UNOCCUPIED WARM-UP OR COOL-DOWN PERIOD WHILE STILL ACHIEVING COMFORT CONDITIONS BY THE START OF SCHEDULED OCCUPIED PERIOD.

ZONE UNOCCUPIED OVERRIDE:

A TIMED LOCAL OVERRIDE CONTROL SHALL ALLOW AN OCCUPANT TO OVERRIDE THE SCHEDULE AND PLACE THE UNIT INTO AN OCCUPIED MODE FOR AN ADJUSTABLE PERIOD OF TIME. AT THE EXPIRATION OF THIS TIME, CONTROL OF THE UNIT SHALL AUTOMATICALLY RETURN TO THE SCHEDULE.

SUPPLY FAN:

THE SUPPLY FAN SHALL RUN ANYTIME THE UNIT IS COMMANDED TO RUN, UNLESS SHUTDOWN ON SAFETIES. TO PREVENT SHORT CYCLING, THE SUPPLY FAN SHALL HAVE A USER DEFINABLE (ADJ.) MINIMUM RUNTIME. THE SUPPLY FAN VFD SHALL MODULATE TO MAINTAIN A USER ADJUSTABLE DUCT STATIC PRESSURE SETPOINT. FAN MODULATION SHALL ALSO BE CONTROLLED TO MAINTAIN POSITIVE BUILDING PRESSURE WITH RESPECT TO OUTDOORS AND SHALL MAINTAIN THE LAB SPACES NEGATIVE WITH RESPECT TO THE OTHER AREAS OF THE BUILDING. ALARMS SHALL BE PROVIDED AS FOLLOWS:

- SUPPLY FAN FAILURE: COMMANDED ON, BUT THE STATUS IS OFF.
- SUPPLY FAN IN HAND: COMMANDED OFF, BUT THE STATUS IS ON.
- SUPPLY FAN RUNTIME EXCEEDED: STATUS RUNTIME EXCEEDS A USER DEFINABLE LIMIT (ADJ.).

SUPPLY AIR TEMPERATURE SETPOINT - OPTIMIZED:

THE CONTROLLER SHALL MONITOR THE SUPPLY AIR TEMPERATURE AND SHALL MAINTAIN A SUPPLY AIR TEMPERATURE SETPOINT RESET BASED ON ZONE COOLING AND HEATING REQUIREMENTS AS DETERMINED BY AVERAGE ZONE TEMPERATURE. THE SUPPLY AIR TEMPERATURE SETPOINT SHALL BE RESET FOR COOLING BASED ON ZONE COOLING REQUIREMENTS AS FOLLOWS:

- THE INITIAL SUPPLY AIR TEMPERATURE SETPOINT SHALL BE 55°F (ADJ.).
- AS COOLING DEMAND INCREASES, THE SETPOINT SHALL INCREMENTALLY RESET DOWN TO A MINIMUM OF 53°F (ADJ.).
- AS COOLING DEMAND DECREASES, THE SETPOINT SHALL INCREMENTALLY RESET UP TO A MAXIMUM OF 58°F (ADJ.).

IF MORE ZONES NEED HEATING THAN COOLING, THEN THE SUPPLY AIR TEMPERATURE SETPOINT SHALL BE RESET AS FOLLOWS:

- THE INITIAL SUPPLY AIR TEMPERATURE SETPOINT SHALL BE 60°F (ADJ.).
- AS HEATING DEMAND INCREASES, THE SETPOINT SHALL INCREMENTALLY RESET UP TO A MAXIMUM OF 65°F (ADJ.).
- AS HEATING DEMAND DECREASES, THE SETPOINT SHALL INCREMENTALLY RESET DOWN TO A MINIMUM OF 58°F (ADJ.).

CILLED WATER COOLING:

THE CONTROLLER SHALL MEASURE THE SUPPLY AIR TEMPERATURE AND CONTROL THE COOLING SYSTEM TO MAINTAIN DISCHARGE AIR SETPOINT. THE CHILLED WATER MODULATE BASED ON COOLING LOAD. COOLING SHALL BE ENABLED WHENEVER:

- THE TEMPERATURE CONTROLS IS ACTIVATED.
- AND THE SUPPLY FAN STATUS IS ON.
- AND THE ZONE TEMPERATURE IS ABOVE COOLING SETPOINT.
- AND THE HEATING IS NOT ACTIVE.

FREEZESTAT:

THE FREEZESTAT SHALL PROTECT THE UNIT FROM FREEZING.

HEATING COIL CONTROL:

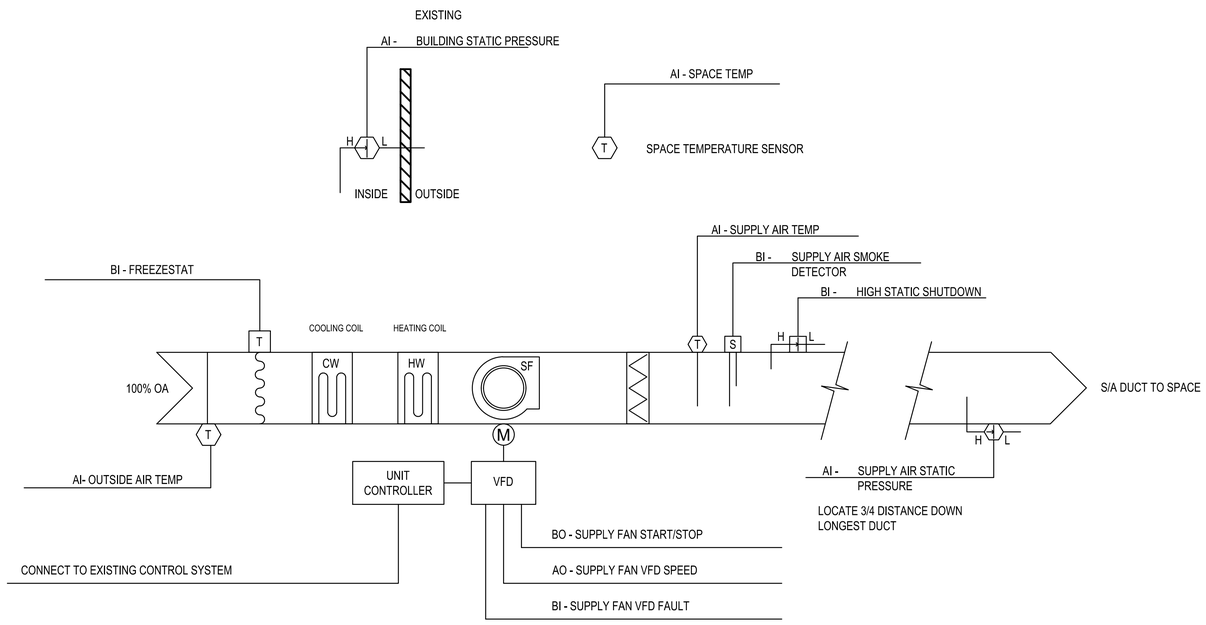
HEAT SHALL BE ENABLED WHENEVER:

- OUTSIDE AIR TEMPERATURE IS LESS THAN 65°F (ADJ.).
- AND THE DISCHARGE AIR TEMPERATURE IS BELOW HEATING SETPOINT.
- AND THE SUPPLY FAN STATUS IS ON.
- AND THE COOLING IS NOT ACTIVE.

SUPPLY AIR TEMPERATURE:

THE CONTROLLER SHALL MONITOR THE SUPPLY AIR TEMPERATURE. ALARMS SHALL BE PROVIDED AS FOLLOWS:

- HIGH SUPPLY AIR TEMP: IF THE SUPPLY AIR TEMPERATURE IS GREATER THAN 120°F (ADJ.).
- LOW SUPPLY AIR TEMP: IF THE SUPPLY AIR TEMPERATURE IS LESS THAN 45°F (ADJ.).



1 M-701 DEDICATED OUTDOOR UNIT AHU-1 CONTROLS DIAGRAM

SCALE: NOT TO SCALE

NOTE:
ALL CONTROLS FOR AHU-1 SHALL BE COMPATABLE WITH AND CONNECT TO THE EXISTING CONTROL SYSTEM SERVING THE BUILDING.

THE Johnson-McAdams FIRM P.A.
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NO.	DATE	BY	DESCRIPTION

REVISIONS

A-E FIRM	USDA
PROJECT MGR TEL	COR E. WILSON
DESIGNER JND	EPM E. WILSON
CHECKED BY BTD	SAFETY & HEALTH TBD
JOB # 3925	REAL PROPERTY TBD

USDA Agricultural Research Service

REPAIR HVAC SYSTEM, BULDINGS 1 AND 11 CENTER FOR MEDICAL AGRICULTURAL AND VETENARY ENTOMOLOGY (CMAVE) - GAINESVILLE, FLORIDA

BUILDING 1 DEDICATED OUTDOOR UNIT AHU-1 CONTROLS DIAGRAM

PROJECT NO. ---

DATE 5/04/2026

USDA ARS
5601 SUNNYSIDE AVENUE
RM 3-2102
BELTVILLE MD 20705

SHEET M-701
12 OF 20

THOMAS E. LOVELL REGISTERED ENGINEER AGRICULTURAL CHAMBERS OF TENNESSEE NO. 102769
05/04/2026

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May 04, 2026 - 2:00pm

GENERAL SYMBOLS LEGEND

(NOT ALL SYMBOLS MAY APPLY, TYP.)

SYMBOL / KEY	DESCRIPTION
	CONDUCTORS IN CONDUIT CONCEALED WITHIN WALL OR CEILING. TIC MARKS INDICATE NUMBER OF CONDUCTORS. THE EQUIPMENT GROUNDING CONDUCTOR IS NOT SHOWN, BUT SHALL BE PROVIDED. SIZE THE EQUIPMENT GROUNDING CONDUCTOR AND THE CONDUIT PER THE NEC. THE ABSENCE OF TIC MARKS SIGNIFIES THAT TWO CONDUCTORS PLUS AN EQUIPMENT GROUNDING CONDUCTOR SHOULD BE PROVIDED. FOR EXAMPLE, THE MARKINGS TO THE LEFT SIGNIFY THAT THREE CONDUCTORS PLUS AN EQUIPMENT GROUNDING CONDUCTOR SHOULD BE PROVIDED.
10	THE TEXT INSIDE THE ARC INDICATES THE AWG SIZE OF THE CONDUCTORS THAT SHALL BE RUN IN THE CONDUIT. THE ABSENCE OF TEXT SIGNIFIES THAT THE CONDUCTORS SHOULD BE #12 AWG.
	CIRCUITRY RUN IN STRAIGHT LINE SEGMENTS SIGNIFIES EXPOSED SURFACE-MOUNTED RACEWAY (SEE SPECIFICATIONS).
	CONDUCTORS IN CONDUIT CONCEALED BELOW GRADE OR FLOOR. TIC MARKS INDICATE NUMBER OF CONFUCTORS. THE EQUIPMENT GROUNDING CONDUCTOR IS NOT SHOWN, BUT SHALL BE PROVIDED. SIZE THE EQUIPMENT GROUNDING CONDUCTOR AND THE CONDUIT PER THE NEC. THE ABSENCE OF TIC MARKS SIGNIFIES THAT TWO CONDUCTORS PLUS AN EQUIPMENT GROUNDING CONDUCTOR SHOULD BE PROVIDED. THE MARKINGS TO THE LEFT SIGNIFY THAT THREE CONDUCTORS PLUS AN EQUIPMENT GROUNDING CONDUCTOR SHOULD BE PROVIDED.
LA-1	HOMERUN TO PANELBOARD. ARC DENOTES CONCEALED CIRCUITRY. TEXT DENOTES PANELBOARD NAME WITH CIRCUIT NUMBER. DEVICES HAVING CIRCUIT NUMBERS LOCATED BESIDE THEM MAY NOT SHOW THE CIRCUIT NUMBERS AT THE HOMERUN ARROWS.
LA-1	PARTIAL HOMERUN TO PANELBOARD. COMBINE ALL PARTIAL HOMERUNS THAT ARE ON THE SAME CIRCUIT IN A JUNCTION BOX PRIOR TO ENTERING THE PANELBOARD.
LA1-13	PANELBOARD AND CIRCUIT DESIGNATION

POWER OUTLET AND COMMUNICATIONS LEGEND

SYMBOL / KEY	DESCRIPTION
?	DUPLEX RECEPTACLE, NEMA 5-20R, MOUNTED 18" A.F.F. TO CENTERLINE OF BOX UNLESS NOTED OTHERWISE.
(42)	ELECTRICAL OR COMMUNICATION DEVICE, MH = AT ELEVATION AFF INDICATED (42" AFF SHOWN)

LIGHTING AND SWITCHING LEGEND

SYMBOL / KEY	DESCRIPTION	SYMBOL / KEY	DESCRIPTION
?	2'X4' RECESSED FIXTURE.	FACP	EXISTING FIRE ALARM CONTROL PANEL
?	EXISTING WALL MOUNTED EXIT SIGN	D R	DUCT SMOKE DETECTOR IN RETURN DUCT.
? ?	EMERGENCY LIGHTING.	D S	DUCT SMOKE DETECTOR IN SUPPLY DUCT.
T	HORSEPOWER RATED SWITCH WITH THERMAL OVERLOADS (MANUAL MOTOR STARTER).		

ONE-LINE DIAGRAM, SCHEDULE, AND DISTRIBUTION LEGEND

SYMBOL / KEY	DESCRIPTION	SYMBOL / KEY	DESCRIPTION
?/?/?	NON-FUSED DISCONNECT SWITCH. TEXT INDICATES AMPACITY/NUMBER OF POLES/ENCLOSURE TYPE.	J	CEILING MOUNTED JUNCTION BOX.
		J	WALL MOUNTED JUNCTION BOX.
?/?/? F-?	FUSED DISCONNECT SWITCH. TEXT INDICATES AMPACITY/NUMBER OF POLES/ENCLOSURE TYPE; F-(RATING OF FUSES).		FLEX. CONNECTION TO EQUIPMENT.
		?	PANELBOARD.
			MAGNETIC MOTOR STARTER/ VARIABLE FREQUENCY DRIVE.
	MOTOR		

VOLTAGE DROP CHART FOR 20A, 1Ø CIRCUITS

VOLTAGE	CIRCUIT LENGTH	CONDUCTOR SIZE (AWG)
120	<50'	#12
120	>50'	#10
120	>90'	#8
120	>140'	#6
277	<130'	#12
277	>130'	#10
277	>200'	#8
277	>330'	#6

VOLTAGE DROP CHART NOTES:

1) CIRCUIT SIZES INDICATED ON THE DRAWINGS ARE MINIMUM REQUIREMENTS. REFER TO THIS CHART FOR UPSIZING CONDUCTORS AS NEEDED.

2) DO NOT CONNECT CONDUCTORS LARGER THAN #10 DIRECTLY TO A RECEPTACLE OR A SWITCH. PROVIDE A JUNCTION BOX TO DOWNSIZE THE CONDUCTOR TO #12 AT THE DEVICE.

3) FOR CIRCUITS LONGER THAN THOSE LISTED ABOVE, CONSULT WITH THE ENGINEER FOR CONDUCTOR SIZES.

MASTER NOTES - ELECTRICAL:

1. THE CONTRACTOR SHALL ABIDE BY ALL FEDERAL, STATE, AND/OR LOCAL CODES. IF A DISCREPANCY BETWEEN CODES OCCURS, THE MOST STRINGENT SHALL PREVAIL.
2. THE CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS PRIOR TO THE COMMENCEMENT OF ANY WORK. SHOULD DISCREPANCIES BE DISCOVERED, THE CONTRACTOR SHALL VERIFY INTENT WITH THE ENGINEER/CONTRACTING OFFICER BEFORE PROCEEDING.
3. COORDINATE LOCATIONS OF ALL CEILING MOUNTED DEVICES WITH OTHER TRADES PRIOR TO INSTALLATION.
4. ALL EQUIPMENT INSTALLED IN THIS PROJECT MUST COMPLY WITH THE "BUY AMERICAN ACT" (BAA). BASIS OF DESIGN SHOWN ON SCHEDULES IS TO ESTABLISH A STANDARD OF QUALITY, NOT TO LIMIT COMPETITION. EQUIVALENT EQUIPMENT FROM ANOTHER MANUFACTURER IS ACCEPTABLE. MANUFACTURER NAME AND MODEL NUMBERS ARE BASIS OF DESIGN AND ARE SHOWN FOR INFORMATION ONLY AND MAY OR MAY NOT COMPLY WITH BAA. REFER TO SPECIFICATIONS FOR COMPLETE REQUIREMENTS.
5. CONTRACTOR SHALL COORDINATE ALL ELECTRICAL WORK WITH MECHANICAL CONTRACTOR TO ENSURE PROPER INSTALLATION OF HVAC EQUIPMENT, CONTROLS, AND ASSOCIATED SYSTEMS. PROVIDE ALL NECESSARY POWER, CONTROL WIRING, AND CONNECTIONS WHETHER OR NOT SPECIFICALLY SHOWN.

GENERAL NOTES:

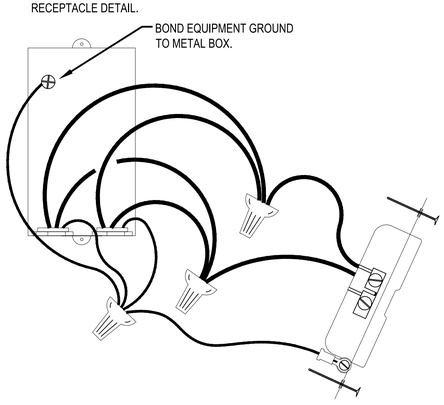
1. DEVICES NOTED AS 'GFI' SHALL BE GROUND FAULT CIRCUIT INTERRUPTING DEVICES.
2. DEVICES NOTED AS 'WP' SHALL BE WEATHERPROOF WHILE-IN-USE.
3. PROVIDE UNSWITCHED POWER TO THE EMERGENCY BATTERY PACKS.
4. 'W/E' DENOTES PROVIDED WITH EQUIPMENT.
5. MINIMUM RACEWAY SIZE SHALL BE 3/4". INCREASE RACEWAY SIZE AS REQUIRED TO LIMIT RACEWAY FILL RATIO TO LESS THAN 40% FULL.
6. THE ELECTRICAL CONTRACTOR SHALL CAREFULLY COORDINATE WORK WITH OTHER TRADES THROUGH THE GENERAL CONTRACTOR AND SHALL BE RESPONSIBLE FOR SECURING SPACE REQUIREMENTS FOR ELECTRICAL EQUIPMENT AND CORRECT ROUGH-IN LOCATIONS OF ELECTRICAL CONNECTIONS.
7. ALL FEEDERS AND BRANCH CIRCUITS SHALL INCLUDE A GREEN INSULATED GROUND CONDUCTOR, SIZED PER THE NATIONAL ELECTRICAL CODE, OR AS SHOWN, CONNECTED TO EACH DEVICE AND OUTLET BOX ON THE CIRCUIT AND TO THE PANELBOARD GROUND BUS. PROVIDE A DEDICATED NEUTRAL CONDUCTOR FOR EACH BRANCH CIRCUIT. MULTIPLE BRANCH CIRCUITS IN ONE RACEWAY REQUIRE ONLY ONE GROUND CONDUCTOR.
8. "PROVIDE" IS AN INCLUSIVE TERM USED TO DESCRIBE ASPECTS OF THE WORK TO BE ACCOMPLISHED, AND IS HEREBY DEFINED TO REQUIRE TO STORE, FURNISH, INSTALL, MOUNT, CONNECT, CONTROL AND POWER EQUIPMENT INDICATED, AS WELL AS ALL APPURTENANCES REQUIRED TO MAKE ELECTRICAL SYSTEMS OPERATE AS INDICATED WITHIN THESE DRAWINGS AND SPECIFICATIONS AND TO FULFILL THE SCOPE OF WORK.
9. ALL CONDUCTORS SHALL BE COPPER
10. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS, DIMENSIONS AND ELEVATIONS BEFORE PROCUREMENT OF ANY MATERIALS AND DEVELOPMENT OF ANY SHOP DRAWINGS OR SUBMITTALS.
11. PROVIDE LABELS ON ALL RECEPTACLES AND JUNCTION BOXES INDICATING THE SOURCE PANEL & CIRCUIT(S). TEXT SHALL BE BLACK, 1/4". LABELS ABOVE FINISHED CEILING CAN BE HANDWRITTEN WITH AN INDELIBLE MARKER.
12. CIRCUIT SIZES INDICATED ON THE DRAWINGS ARE MINIMUM REQUIREMENTS.
13. DO NOT CONNECT CONDUCTORS LARGER THAN #10 DIRECTLY TO A RECEPTACLE OR A SWITCH. PROVIDE A JUNCTION BOX TO DOWNSIZE THE CONDUCTOR TO #12 AT THE DEVICE.

RECEPTACLE DETAIL NOTES:

A. RECEPTACLES SHALL NOT BE CONNECTED IN A FEED-THRU MANNER. WIRE CONNECTIONS IN RECEPTACLE BOXES SHALL BE MADE IN A PIGTAIL MANNER.

B. RECEPTACLES SHOWN AS GFI MAY BE NON GFI TYPE RECEPTACLES IF FED FROM A 20/1 GFI BREAKER OR THE LOAD SIDE OF A GFI RECEPTACLE IN THE SAME ROOM, ON THE SAME CIRCUIT AND RATED 20 AMP FEED-THRU CAPACITY. COVER PLATES SHALL BE CLEARLY MARKED GFI.

C. NON GFI RECEPTACLES SHALL NOT BE CONNECTED IN A FEED-THRU MANNER. WIRE CONNECTIONS IN RECEPTACLE BOXES SHALL BE MADE IN A PIGTAIL MANNER AS SHOWN IN RECEPTACLE DETAIL.



1 E-001 RECEPTACLE DETAIL
SCALE: NONE

BRADEN T. DUKE
LICENSED PROFESSIONAL
ENGINEER
35781
5-4-2026
STATE OF MISSISSIPPI

THE Johnson-McAdams FIRM P.A. ARCHITECTS/ENGINEERS · PLANNING · SURVEYING · MANAGEMENT P.O. BOX 513, GREENWOOD, MISSISSIPPI • (662) 455-6943	NO.	DATE	BY	DESCRIPTION
				REVISIONS

A-E FIRM	USDA
PROJECT MGR TEL	COR E. WILSON
DESIGNER EJH	EPM E. WILSON
CHECKED BY BTD	SAFETY & HEALTH TBD
JOB # 3925	REAL PROPERTY TBD

USDA Agricultural Research Service

REPAIR HVAC SYSTEM, BULDINGS 1 AND 11 CENTER FOR MEDICAL AGRICULTURAL AND VETENARY ENTOMOLOGY (CMAVE) - GAINESVILLE, FLORIDA

BUILDING 1
ELECTRICAL LEGEND

PROJECT NO.	USDA ARS 5601 SUNNYSIDE AVENUE RM 3-2102 BELTVILLE MD 20705	SHEET
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DATE 5/04/2026		13 OF 20

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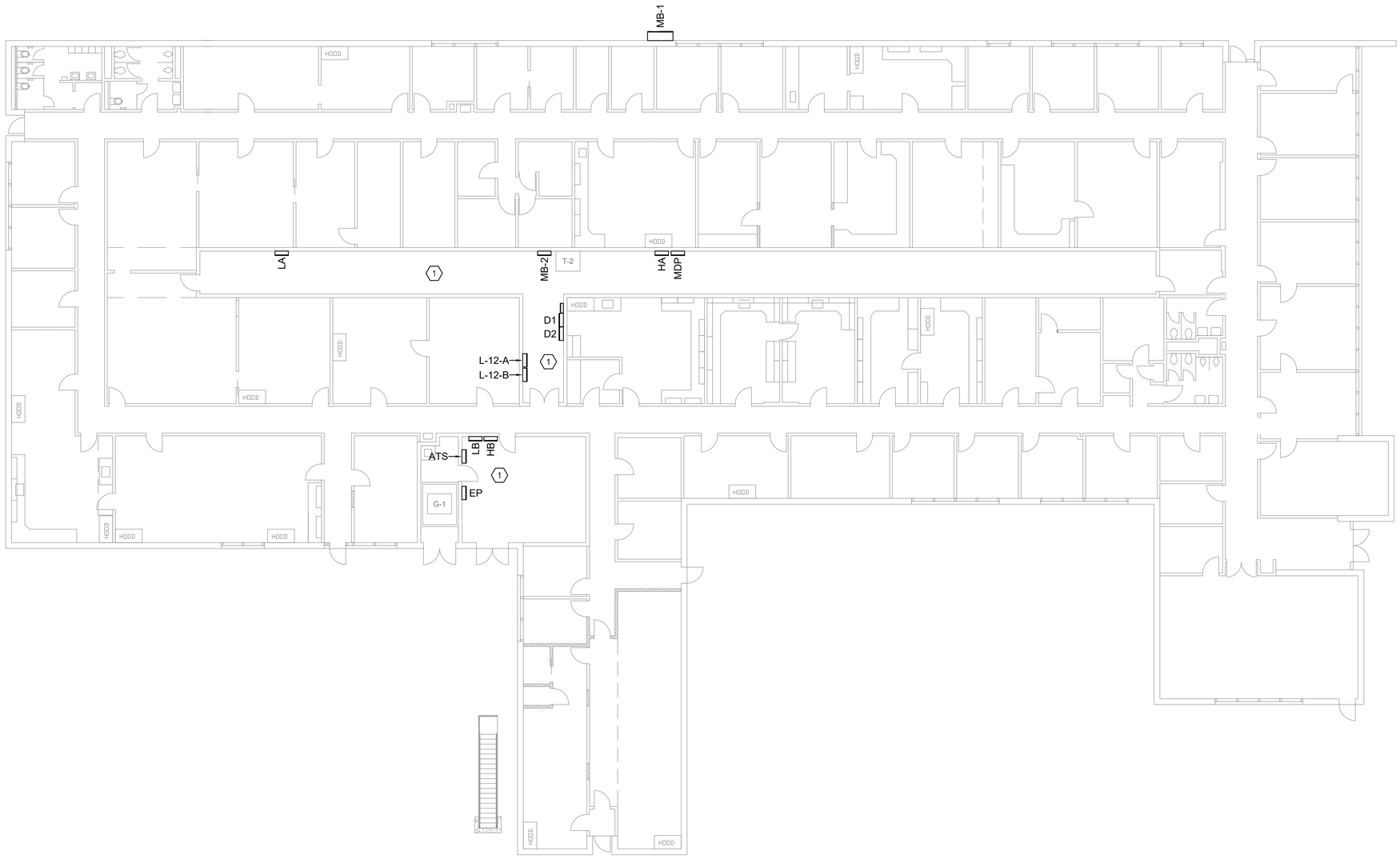
May 04, 2026 - 12:16pm



1 ED101 BUILDING 1
1ST FLOOR ELECTRICAL DEMO
SCALE: 3/32" = 1'-0"

PLAN NORTH

GENERAL DEMOLITION NOTES

A. THE DEMOLITION PLAN AND EXISTING CONDITIONS ARE APPROXIMATE. ITEMS TO BE REMOVED ARE DESIGNATED BY HATCHING AND DASHED LINES. OTHER ITEMS ARE INTENDED TO REMAIN IN PLACE UNLESS NOTED OTHERWISE.

B. PRIOR TO BEGINNING WORK, SURVEY EXISTING ELECTRICAL SYSTEMS. DOCUMENT, IN WRITING, SIGNED BY THE CONTRACTING OFFICER, ANY PORTIONS OF THE EXISTING SYSTEMS THAT ARE NOT OPERATING PROPERLY BEFORE CONSTRUCTION BEGINS. ANY ELECTRICAL SYSTEMS FOUND INOPERABLE AT THE END OF THE CONSTRUCTION PROCESS THAT HAVE NOT BEEN DOCUMENTED SHALL BE REPAIRED BY THE CONTRACTOR AT HIS OWN EXPENSE.

C. PRIOR TO BEGINNING THE DEMOLITION PROCESS, CONDUCT A COMPREHENSIVE SITE SURVEY WITH THE ASSISTANCE OF THE CONTRACTING OFFICER. IDENTIFY AND MARK ALL EXISTING EQUIPMENT TO REMAIN AND ALL EXISTING RACEWAYS AND CIRCUITRY THAT ARE PRESENTLY PASSING THROUGH THE CONSTRUCTION AREA THAT ARE FEEDING EXISTING EQUIPMENT TO REMAIN.

D. REMOVE ELECTRICAL EQUIPMENT IN AREAS BEING DEMOLISHED, AND ELECTRICAL EQUIPMENT FEEDING OTHER EQUIPMENT BEING DEMOLISHED. REMOVE RACEWAYS AND CIRCUITRY BACK TO THE PANEL OF ORIGINATION. WHERE CIRCUITS ARE NOT BEING COMPLETELY DEMOLISHED, REMOVE RACEWAYS AND CIRCUITRY BACK TO A JUNCTION BOX OR OTHER COMMON CONNECTION POINT AND RECIRCUIT EXISTING ELECTRICAL EQUIPMENT TO REMAIN AS REQUIRED. WHERE NECESSARY, COMPLETELY REFEED EXISTING ELECTRICAL EQUIPMENT THAT IS TO REMAIN IF REQUIRED. IT IS THE INTENT OF THESE DOCUMENTS THAT ALL EXISTING EQUIPMENT TO REMAIN BE KEPT COMPLETELY OPERABLE DURING CONSTRUCTION AND LEFT COMPLETELY OPERABLE AT THE END OF THE CONSTRUCTION PROCESS.

E. THE ELECTRICAL EQUIPMENT SHOWN IS PROVIDED TO CONVEY THE APPROXIMATE SCOPE OF THE WORK. IT IS THE INTENT OF THESE DOCUMENTS THAT ALL ELECTRICAL EQUIPMENT, RACEWAYS, AND CIRCUITRY IN THE AREA OF WORK BE DEMOLISHED UNLESS FEEDING EXISTING EQUIPMENT TO REMAIN.

F. PERFORM DEMOLITION WORK AS FOLLOWS:
1. DEMOLISH DEVICE OR END OF LINE EQUIPMENT.
2. DEMOLISH RACEWAYS AND CIRCUITRY FEEDING END OF LINE EQUIPMENT (INCLUDING ALL RACEWAYS AND CIRCUITRY ASSOCIATED WITH CONTROLS).
3. LEAVE ALL RACEWAYS AND CIRCUITRY THAT COMPLETELY PASS-THROUGH THE SPACE COMPLETELY OPERABLE BY REROUTING THE CIRCUITS AS REQUIRED.

(X) KEYED NOTES

1. ELECTRICAL EQUIPMENT SHOWN IN THIS ROOM IS EXISTING TO REMAIN. REFER TO EQUIPMENT SCHEDULES FOR PANEL/CIRCUIT MODIFICATIONS REQUIRED.

GRAPHIC SCALE

10' 0 5' 10'
SCALE: 3/32" = 1'-0"

THE Johnson-McAdams FIRM P.A.
ARCHITECTS/ENGINEERS PLANNING SURVEYING MANAGEMENT
P.O. BOX 513, GREENWOOD, MISSISSIPPI • (662) 455-6943

NO.	DATE	BY	DESCRIPTION

REVISIONS

BRADEN T. DUKE
LICENSED PROFESSIONAL ENGINEER
STATE OF MISSISSIPPI
ENGINEER
5-4-2026
35781

A-E FIRM	USDA
PROJECT MGR TEL	COR E. WILSON
DESIGNER EJH	EPM E. WILSON
CHECKED BY BTD	SAFETY & HEALTH TBD
JOB # 3925	REAL PROPERTY TBD

USDA

USDA Agricultural Research Service

REPAIR HVAC SYSTEM, BULDINGS 1 AND 11 CENTER FOR MEDICAL AGRICULTURAL AND VETENARY ENTOMOLOGY (CMAVE) - GAINESVILLE, FLORIDA

BUILDING 1
1ST FLOOR ELECTRICAL DEMO

PROJECT NO. ---
DATE 5/04/2026

USDA ARS
5601 SUNNYSIDE AVENUE
RM 3-2102
BELTVILLE MD 20705

SHEET ED101
14 OF 20

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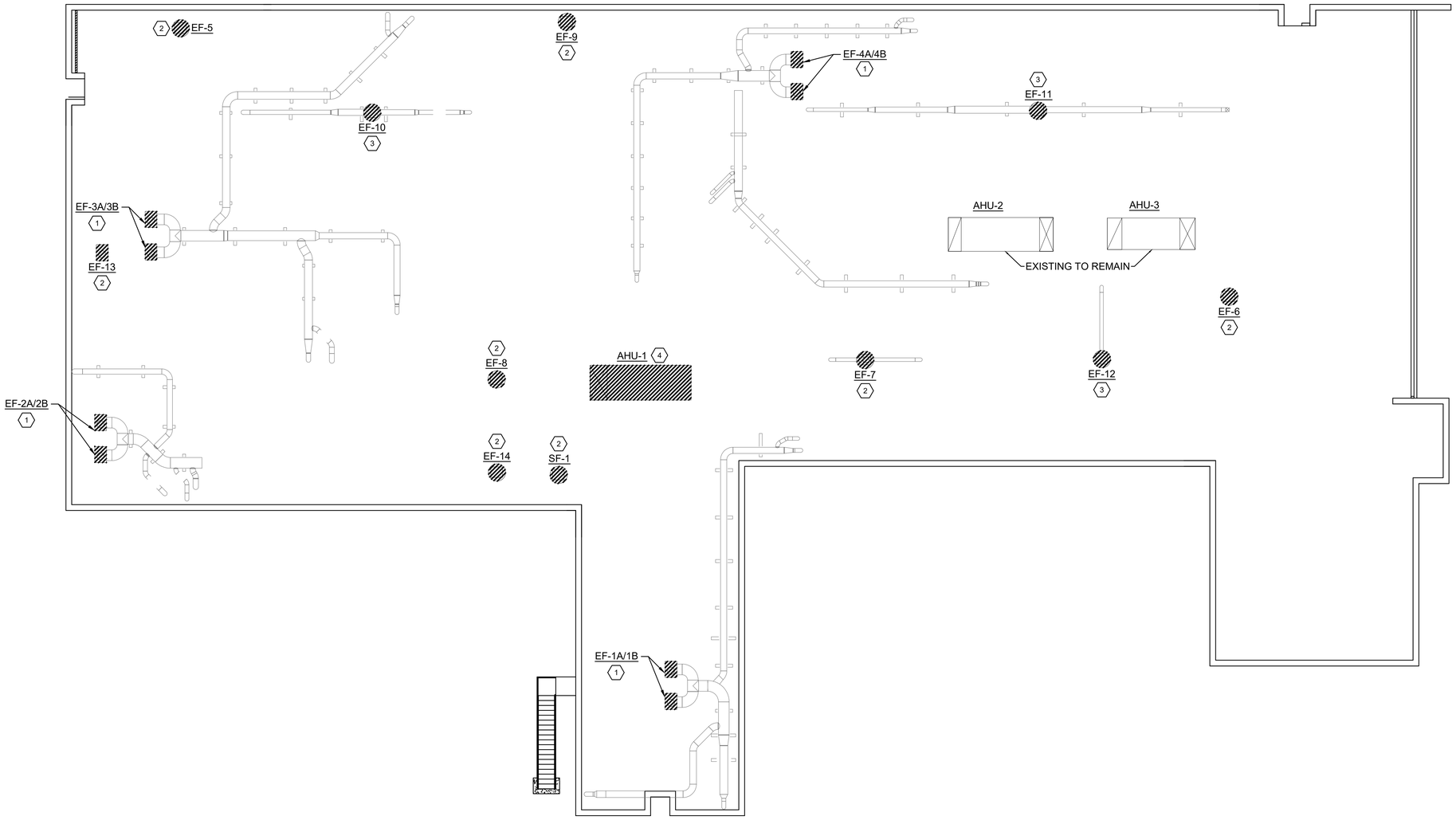
May 04, 2026 - 12:16pm



GENERAL DEMOLITION NOTES

A. SEE GENERAL DEMOLITION NOTES ON ED101.

B. DEMOLISH EXISTING LIGHTNING PROTECTION AIR TERMINALS AND ASSOCIATED COMPONENTS SERVING HVAC EQUIPMENT SCHEDULED FOR REMOVAL. CONTRACTOR SHALL PERFORM WORK IN A MANNER THAT DOES NOT DAMAGE OR DISRUPT THE REMAINING LIGHTNING PROTECTION SYSTEM. ANY DAMAGE SHALL BE REPAIRED AT NO ADDITIONAL COST TO THE GOVERNMENT. REFER TO EG101 FOR REQUIREMENTS ASSOCIATED WITH NEW LIGHTNING PROTECTION WORK.

(X) KEYED NOTES

1. DEMOLISH EXISTING ROOF-MOUNTED EXHAUST FANS INCLUDING UNIT, MAGNETIC MOTOR STARTER, AND CIRCUITRY ALL THE WAY BACK TO PANEL. THE EXISTING CONDUIT SHALL REMAIN AND BE REUSED FOR NEW FANS.

2. DEMOLISH EXISTING ROOF-MOUNTED FANS INCLUDING UNIT, DISCONNECT SWITCH, AND CIRCUITRY ALL THE WAY BACK TO PANEL. THE EXISTING CONDUIT SHALL REMAIN AND BE REUSED FOR NEW FANS.

3. DEMOLISH EXISTING ROOF-MOUNTED FANS INCLUDING UNIT, DISCONNECT SWITCH, CONDUIT AND CIRCUITRY ALL THE WAY BACK TO PANEL. TURN BREAKER OFF AND LABEL AS SPARE.

4. DEMOLISH EXISTING AIR HANDLING UNIT "AHU-1" DISCONNECT. PRESERVE EXISTING CONDUIT AND CIRCUITRY FOR INSTALLATION OF NEW AIR HANDLING UNIT.

GRAPHIC SCALE

10' 0 5' 10'
SCALE: 3/32" = 1'-0"

1 / ED102 BUILDING B1
ROOF ELECTRICAL DEMOLITION PLAN
SCALE: 3/32" = 1'-0"

PLAN NORTH

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P.O. BOX 510, GREENWOOD, MISSISSIPPI • (662) 455-8340

NO.	DATE	BY	DESCRIPTION

REVISIONS

A-E FIRM	USDA
PROJECT MGR: TEL	COR: E. WILSON
DESIGNER: EJH	EPM: E. WILSON
CHECKED BY: BTD	SAFETY & HEALTH: TBD
JOB #: 3925	REAL PROPERTY: TBD

USDA Agricultural Research Service

REPAIR HVAC SYSTEM, BUILDINGS 1 AND 11 CENTER FOR MEDICAL AGRICULTURAL AND VETENARY ENTOMOLOGY (CMAVE) - GAINESVILLE, FLORIDA

BUILDING 1
ROOF ELECTRICAL DEMOLITION PLAN

PROJECT NO. ---
DATE 5/04/2026

USDA ARS
5601 SUNNYSIDE AVENUE
RM 3-2102
BELTVILLE MD 20705

SHEET ED102
15 OF 20

BRADEN T. DUKE
LICENSED PROFESSIONAL ENGINEER
ENGINEER
5-4-2026
35781
STATE OF MISSISSIPPI

J:\greenwood\2025 Jobs\3925 USDA B1 & B11 HVAC Repair Gainesville FL\07 Working Folder\Elec\B1\ED102.dwg
May 04, 2026 - 12:16pm

GENERAL NOTES

A. COORDINATE ALL WORK WITH THE MECHANICAL CONTRACTOR PRIOR TO ROUGH-IN.

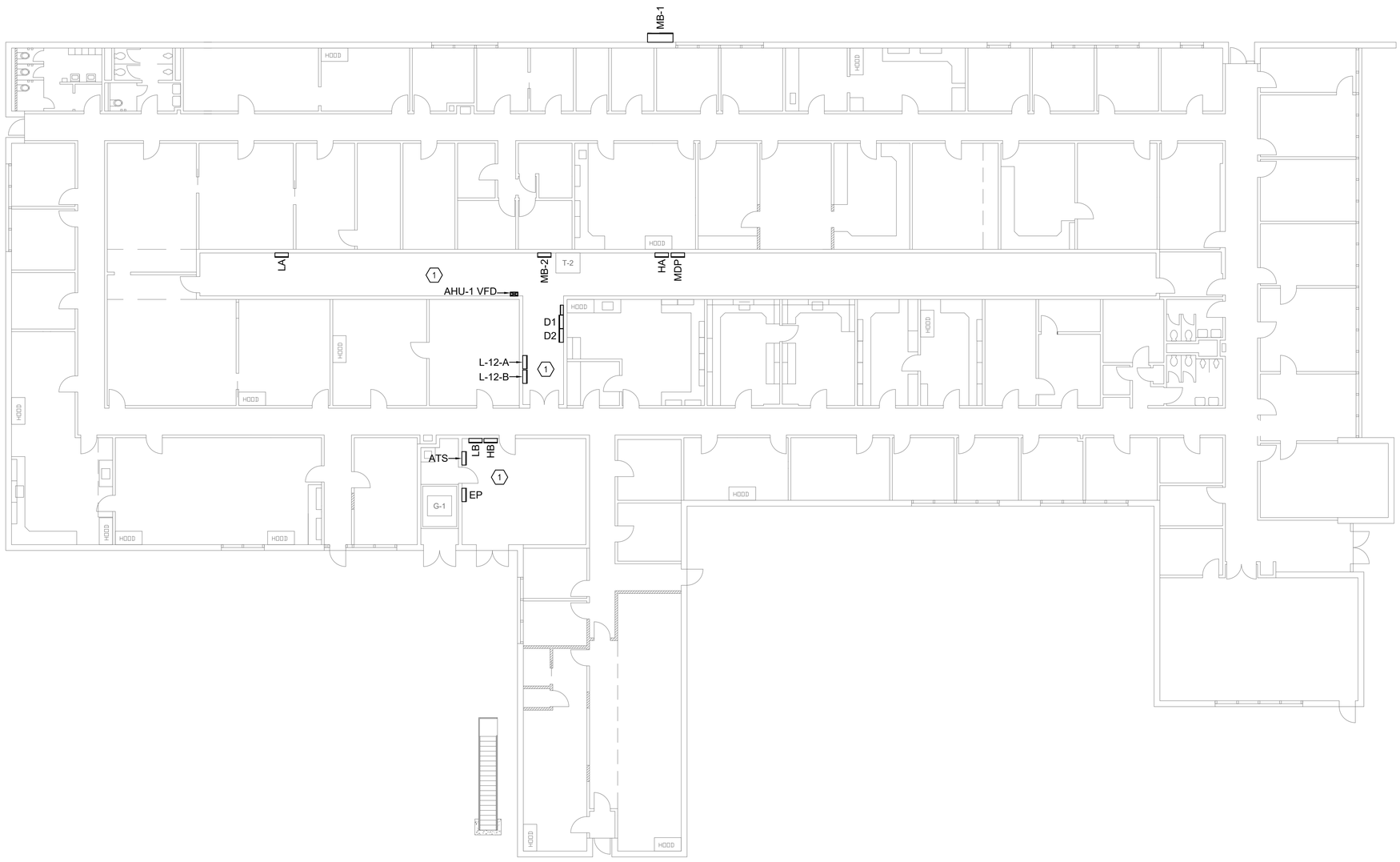
(X) KEYED NOTES

1. ELECTRICAL EQUIPMENT SHOWN IN THIS ROOM IS EXISTING TO REMAIN. REFER TO EQUIPMENT SCHEDULES FOR PANEL/CIRCUIT MODIFICATIONS REQUIRED.

GRAPHIC SCALE

10' 0 5' 10'

SCALE: 3/32" = 1'-0'



1 E-101 BUILDING 1
1ST FLOOR ELECTRICAL
SCALE: 3/32" = 1'-0"

PLAN NORTH

BRADEN T. DUKE
LICENSED PROFESSIONAL ENGINEER
35781
STATE OF MISSISSIPPI
5-4-2026

THE Johnson-McAdams FIRM P.A.
ARCHITECTS/ENGINEERS PLANNING SURVEYING MANAGEMENT
P.O. BOX 513, GREENWOOD, MISSISSIPPI • (662) 455-6943

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REVISIONS

A-E FIRM	USDA
PROJECT MGR TEL	COR E. WILSON
DESIGNER EJH	EPM E. WILSON
CHECKED BY BTD	SAFETY & HEALTH TBD
JOB # 3925	REAL PROPERTY TBD

USDA Agricultural Research Service

REPAIR HVAC SYSTEM, BULDINGS 1 AND 11 CENTER FOR MEDICAL AGRICULTURAL AND VETENARY ENTOMOLOGY (CMAVE) - GAINESVILLE, FLORIDA

BUILDING 1
1ST FLOOR ELECTRICAL

PROJECT NO. ---

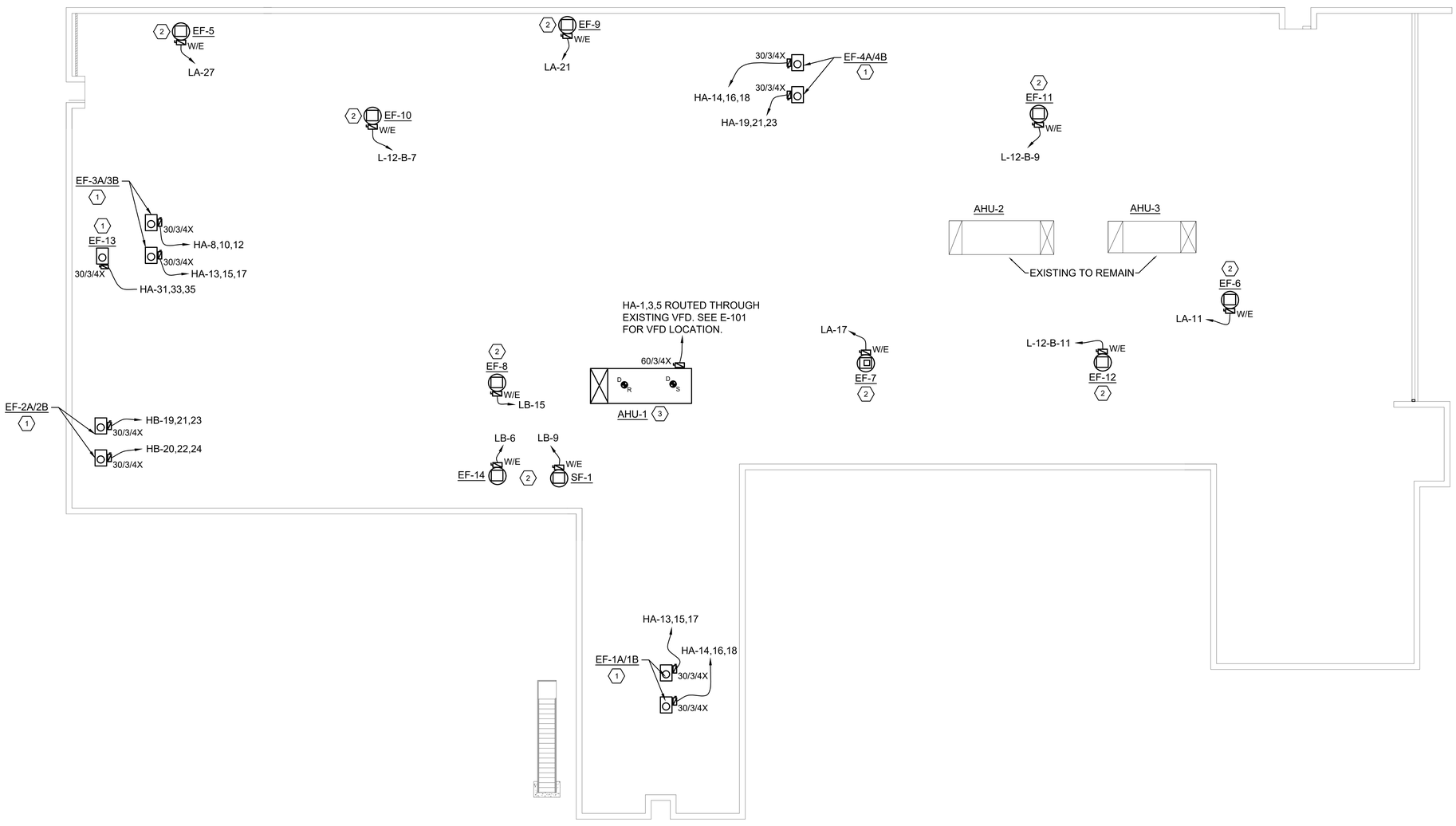
DATE 5/04/2026

USDA ARS
5601 SUNNYSIDE AVENUE
RM 3-2102
BELTVILLE MD 20705

SHEET E-101

16 OF 20

J:\greenwood\2025 Jobs\3925 USDA B1 & B11 HVAC Repair Gainesville FL\07 Working Folder\Elec\B1\E-101.dwg
May 04, 2026 - 12:16pm



1 E-102 BUILDING B1
ROOF POWER PLAN
SCALE: 3/32" = 1'-0"

PLAN NORTH

GENERAL NOTES

A. ALL ROOF MOUNTED CONDUIT SHALL BE SUPPORTED A MINIMUM OF 3" ABOVE THE ROOF.

B. ALL CIRCUITRY FOR ROOF MOUNTED EQUIPMENT SHALL BE XHHW-2 INSULATION.

C. ALL ROOFTOP MECHANICAL UNIT VFD'S AND STARTERS SHALL BE MOUNTED IN A GASKETED NEMA 4X BOX.

D. UTILIZE LIQUID TIGHT FLEXIBLE METAL CONDUIT BETWEEN EXHAUST FAN STARTER AND UNIT.

E. CONTRACTOR SHALL COORDINATE ALL ELECTRICAL WORK WITH MECHANICAL CONTRACTOR TO ENSURE PROPER INSTALLATION OF HVAC EQUIPMENT, CONTROLS, AND ASSOCIATED SYSTEMS. PROVIDE ALL NECESSARY POWER, CONTROL WIRING, AND CONNECTIONS WHETHER OR NOT SPECIFICALLY SHOWN.

(X) KEYED NOTES

1. THE ELECTRICAL CONTRACTOR SHALL PROVIDE AND INSTALL A NEMA 0 FULL VOLTAGE NON REVERSING (FVNR) IN NEMA 4X STAINLESS STEEL ENCLOSURE WITH INTEGRAL SUNSHIELD, SUITABLE FOR OUTDOOR ROOFTOP INSTALLATION IN HIGH TEMPERATURE, HUMIDITY, AND UV EXPOSURE ENVIRONMENTS. STARTER SHALL BE PROVIDED COMPLETE WITH OVERLOAD PROTECTION SIZE FOR THE CONNECTED MOTOR.

   ALL CONDUIT ENTRIES SHALL BE WATERTIGHT AND INSTALLED FROM BOTTOM WHERE POSSIBLE. SEE E-501 FOR CIRCUITRY REQUIREMENTS.

   SEE 1/E-501 FOR TYPICAL MOTOR STARTER, DISCONNECT AND RECEPTACLE UNISTRUT DETAIL.

2. SEE E-501 FOR CIRCUITRY REQUIREMENTS.

3. THE CONTRACTOR SHALL PROVIDE A 60/3/4X DISCONNECT MOUNTED ON GALVANIZED STRUT RACK. REUSE EXISTING CONDUCTORS MADE AVAILABLE DURING DEMOLITION PHASE.

GRAPHIC SCALE

10' 0 5' 10'
SCALE: 3/32" = 1'-0'

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May 04 , 2026 - 12:16pm

THE Johnson-McAdams FIRM P.A.
ARCHITECTS/ENGINEERS PLANNING SURVEYING MANAGEMENT
P.O. BOX 513, GREENWOOD, MISSISSIPPI • (662) 455-6943

NO.	DATE	BY	DESCRIPTION

REVISIONS

BRADEN T. DUKE
LICENSED PROFESSIONAL
ENGINEER
35781
STATE OF MISSISSIPPI
5-4-2026

A-E FIRM	USDA
PROJECT MGR TEL	COR E. WILSON
DESIGNER EJH	EPM E. WILSON
CHECKED BY BTD	SAFETY & HEALTH TBD
JOB # 3925	REAL PROPERTY TBD

USDA

USDA Agricultural Research Service

REPAIR HVAC SYSTEM, BULDINGS 1 AND 11 CENTER FOR MEDICAL AGRICULTURAL AND VETENARY ENTOMOLOGY (CMAVE) - GAINESVILLE, FLORIDA

BUILDING 1
ELECTRICAL ROOF PLAN

PROJECT NO. ---
DATE 5/04/2026

USDA ARS
5601 SUNNYSIDE AVENUE
RM 3-2102
BELTVILLE MD 20705

SHEET E-102
17 OF 20

EQUIPMENT SCHEDULE

MARK	VOLTAGE	HP	FLA	MCA	MOCP	CKT	CONDUCTOR	NOTES	
AHU-1	480V 3Ø	20 HP	24A	30A	50A	HA-1,3,5	RECONNECT EXISTING CIRCUITRY	UTILIZE EXISTING BREAKER, CIRCUITRY, AND CONDUIT. SEE E-102 FOR ADDITIONAL REQUIREMENTS.	
EF-1A	480V 3Ø	3 HP	4.8A	6A	15A	HB-13,15,17	3#10, #10(G), EXISTING CONDUIT	UTILIZE EXISTING BREAKER. SEE E-102 FOR DISCONNECT AND MOTOR STARTER REQUIREMENTS.	2
EF-1B	480V 3Ø	3 HP	4.8A	6A	15A	HB-14,16,18	3#10, #10(G), EXISTING CONDUIT	UTILIZE EXISTING BREAKER. SEE E-102 FOR DISCONNECT AND MOTOR STARTER REQUIREMENTS.	2
EF-2A	480V 3Ø	5 HP	7.6A	9.5A	15A	HB-19,21,23	3#10, #10(G), EXISTING CONDUIT	UTILIZE EXISTING BREAKER. SEE E-102 FOR DISCONNECT AND MOTOR STARTER REQUIREMENTS.	2
EF-2B	480V 3Ø	5 HP	7.6A	9.5A	15A	HB-20,22,24	3#10, #10(G), EXISTING CONDUIT	UTILIZE EXISTING BREAKER. SEE E-102 FOR DISCONNECT AND MOTOR STARTER REQUIREMENTS.	2
EF-3A	480V 3Ø	5 HP	7.6A	9.5A	15A	HA-8,10,12	3#10, #10(G), EXISTING CONDUIT	UTILIZE EXISTING BREAKER. SEE E-102 FOR DISCONNECT AND MOTOR STARTER REQUIREMENTS.	1
EF-3B	480V 3Ø	5 HP	7.6A	9.5A	15A	HA-13,15,17	3#10, #10(G), EXISTING CONDUIT	UTILIZE EXISTING BREAKER. SEE E-102 FOR DISCONNECT AND MOTOR STARTER REQUIREMENTS.	1
EF-4A	480V 3Ø	3 HP	4.8A	6A	15A	HA-14,16,18	3#10, #10(G), EXISTING CONDUIT	UTILIZE EXISTING BREAKER. SEE E-102 FOR DISCONNECT AND MOTOR STARTER REQUIREMENTS.	1
EF-4B	480V 3Ø	3 HP	4.8A	6A	15A	HA-19,21,23	3#10, #10(G), EXISTING CONDUIT	UTILIZE EXISTING BREAKER. SEE E-102 FOR DISCONNECT AND MOTOR STARTER REQUIREMENTS.	1
EF-5	120V 1Ø	1/8 HP	3.8A	4.8A	15A	LA	2#10, #10(G), EXISTING CONDUIT	UTILIZE EXISTING BREAKER.	
EF-6	120V 1Ø	1/8 HP	3.8A	4.8A	15A	LA	2#10, #10(G), EXISTING CONDUIT	UTILIZE EXISTING BREAKER.	
EF-7	120V 1Ø	1/8 HP	3.8A	4.8A	15A	LA	2#10, #10(G), EXISTING CONDUIT	UTILIZE EXISTING BREAKER.	
EF-8	120V 1Ø	1/8 HP	3.8A	4.8A	15A	LA	2#10, #10(G), EXISTING CONDUIT	UTILIZE EXISTING BREAKER.	
EF-9	120V 1Ø	1/8 HP	3.8A	4.8A	15A	LA	2#10, #10(G), EXISTING CONDUIT	UTILIZE EXISTING BREAKER.	
EF-10	120V 1Ø	1/3 HP	7.2A	9A	15A	L-12-B-7	INSTALL 2#10, #10(G), 3/4"C.	PROVIDE AND INSTALL 15A/1P BREAKER. MATCH EXISTING TYPE AND AIC RATING.	3
EF-11	120V 1Ø	1/2 HP	9.8A	12.3A	15A	L-12-B-9	INSTALL 2#10, #10(G), 3/4"C.	PROVIDE AND INSTALL 15A/1P BREAKER. MATCH EXISTING TYPE AND AIC RATING.	3
EF-12	120V 1Ø	1/6 HP	4.4A	5.5A	15A	L-12-B-11	INSTALL 2#10, #10(G), 3/4"C.	PROVIDE AND INSTALL 15A/1P BREAKER. MATCH EXISTING TYPE AND AIC RATING.	3
EF-13	480V 3Ø	3/4 HP	1.6A	2A	15A	HA-31,33,35	3#10, #10(G), EXISTING CONDUIT	REMOVE EXISTING 20A/3P BKR AND INSTALL 15A/3P BKR. MATCH EXISTING TYPE AND AIC RATING.	
EF-14	120V 1Ø	1/8 HP	3.8A	4.8A	15A	LB	2#10, #10(G), EXISTING CONDUIT	UTILIZE EXISTING BREAKER.	
SF-1	120V 1Ø	1/8 HP	3.8A	4.8A	15A	LB	2#10, #10(G), EXISTING CONDUIT	UTILIZE EXISTING BREAKER.	

GENERAL NOTES

A. ALL CIRCUITRY FOR ROOF MOUNTED EQUIPMENT SHALL BE XHHW-2 INSULATION.

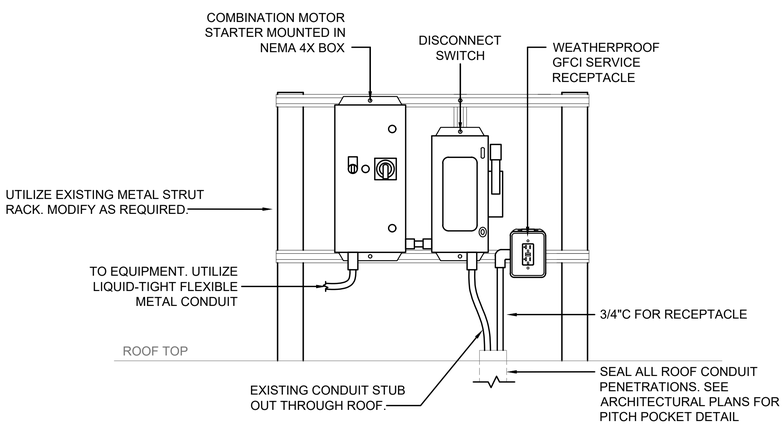
B. CONTRACTOR SHALL COORDINATE ALL ELECTRICAL WORK WITH MECHANICAL CONTRACTOR TO ENSURE PROPER INSTALLATION OF HVAC EQUIPMENT, CONTROLS, AND ASSOCIATED SYSTEMS. PROVIDE ALL NECESSARY POWER, CONTROL WIRING, AND CONNECTIONS WHETHER OR NOT SPECIFICALLY SHOWN.

(X) KEYED NOTES

1. PROVIDE WEATHERPROOF WHILE-IN-USE, GFI RATED MAINTENANCE RECEPTACLE MOUNTED TO UNISTRUT RACK. UTILIZE SPARE 20/1 BREAKER IN PANEL LA. UTILIZE 2#10, #10(G), 3/4"C. REFER TO 1/E-501.

2. PROVIDE WEATHERPROOF WHILE-IN-USE, GFI RATED MAINTENANCE RECEPTACLE MOUNTED TO UNISTRUT RACK. UTILIZE SPARE 20/1 BREAKER IN PANEL LA. UTILIZE 2#10, #10(G), 3/4"C. REFER TO 1/E-501.

3. PROVIDE NEW CONDUIT TO EXHAUST FAN FROM PANEL INDICATED.



1 / E-501 TYPICAL STARTER, RECEPTACLE AND DISCONNECT UNISTRUT

SCALE: NONE

THE Johnson-McAdams FIRM P.A.
ARCHITECTS·ENGINEERS PLANNING SURVEYING · MANAGEMENT
P.O. BOX 510, GREENWOOD, MISSISSIPPI – (662) 455-6543

NO.	DATE	BY	DESCRIPTION

REVISIONS

A-E FIRM	USDA
PROJECT MGR: TEL	COR: E. WILSON
DESIGNER: EJH	EPM: E. WILSON
CHECKED BY: BTD	SAFETY & HEALTH: TBD
JOB #: 3925	REAL PROPERTY: TBD

BRADEN T. DUKE, MISSISSIPPI PROFESSIONAL ENGINEER, 35781, STATE OF MISSISSIPPI, 5-4-2026

USDA Agricultural Research Service

REPAIR HVAC SYSTEM, BULDINGS 1 AND 11 CENTER FOR MEDICAL AGRICULTURAL AND VETENARY ENTOMOLOGY (CMAVE) - GAINESVILLE, FLORIDA

BUILDING 1
EQUIPMENT SCHEDULE AND DETAILS

PROJECT NO. ---

DATE 5/04/2026

USDA ARS
5601 SUNNYSIDE AVENUE
RM 3-2102
BELTVILLE MD 20705

SHEET E-501
18 OF 20

J:\greenwood\2025 Jobs\3925 USDA B1 & B11 HVAC Repair Gainesville FL\07 Working Folder\Elec\B11E-501.dwg
May 04, 2026 - 12:16pm

PANEL HA

LOCATION: **ELECTRICAL ROOM**
VOLT: **480Y/277V, 3Ø, 4W**
BUS: **225A**
LUG LOCATION: **BOTTOM FEED**
MAIN BUS: **MAIN LUGS ONLY**
MOUNTING: **SURFACE**
EXISTING PANEL

EXIST. NO.	CIRCUIT NO.	BREAKER AMPS	BREAKER POLES	DESCRIPTION	PHASE LOAD (KVA) A		PHASE LOAD (KVA) B		PHASE LOAD (KVA) C		DESCRIPTION	BREAKER AMPS	BREAKER POLES	CIRCUIT NO.	EXIST. NO.
1	1	50	3	AHU-1	6.6	0.0					AHU-2 (EX.)	40	3	2	2
	3	-	-	-			6.6	0.0			-	-	-	4	
	5	-	-	-					6.6	0.0	-	-	-	6	
3	7	30	3	AHU-3 (EX.)	0.0	2.1					EF-3A	15	3	8	4
	9	-	-	-			0.0	2.1			-	-	-	10	
	11	-	-	-					0.0	2.1	-	-	-	12	
5	13	15	3	EF-3B	2.1	1.3					EF-4A	15	3	14	6
	15	-	-	-			2.1	1.3			-	-	-	16	
	17	-	-	-					2.1	1.3	-	-	-	18	
7	19	15	3	EF-4B	1.3	0.0					SPARE	15	3	20	8
	21	-	-	-			1.3	0.0			-	-	-	22	
	23	-	-	-					1.3	0.0	-	-	-	24	
9	25	15	3	SPARE	0.0	0.0					SPARE	15	3	26	10
	27	-	-	-			0.0	0.0			-	-	-	28	
	29	-	-	-					0.0	0.0	-	-	-	30	
11	31	15	3	EF-13	0.4	0.0					SPARE	20	1	32	12
	33	-	-	-			0.4	0.0			POWERLOGIC (EX.)	20	3	34	14
	35	-	-	-					0.4	0.0	-	-	-	36	
13	37	N.A.	N.A.	SPACE	0.0	0.0					-	-	-	38	
15	39	N.A.	N.A.	SPACE			0.0	0.0			SPACE	N.A.	N.A.	40	16
17	41	N.A.	N.A.	SPACE					0.0	0.0	SPACE	N.A.	N.A.	42	18
TOTAL					14.0		14.0		14.0						

PANEL HB

LOCATION: **RM 146**
VOLT: **480Y/277V, 3Ø, 4W**
BUS: **225A**
LUG LOCATION: **BOTTOM FEED**
MAIN BUS: **MAIN LUGS ONLY**
MOUNTING: **SURFACE**
EXISTING PANEL

EXIST. NO.	CIRCUIT NO.	BREAKER AMPS	BREAKER POLES	DESCRIPTION	PHASE LOAD (KVA) A		PHASE LOAD (KVA) B		PHASE LOAD (KVA) C		DESCRIPTION	BREAKER AMPS	BREAKER POLES	CIRCUIT NO.	EXIST. NO.
1	1	30	3	PUMP #1 (EX.)	0.0	0.0					PUMP #2 (EX.)	40	3	2	2
	3	-	-	-			0.0	0.0			-	-	-	4	
	5	-	-	-					0.0	0.0	-	-	-	6	
3	7	20	3	PUMP #3 (EX.)	0.0	0.0					PUMP #4 (EX.)	15	3	8	4
	9	-	-	-			0.0	0.0			-	-	-	10	
	11	-	-	-					0.0	0.0	-	-	-	12	
5	13	15	3	EF-1A	1.3	1.3					EF-1B	15	3	14	6
	15	-	-	-			1.3	1.3			-	-	-	16	
	17	-	-	-					1.3	1.3	-	-	-	18	
7	19	15	3	EF-2A	2.1	2.1					EF-2B	15	3	20	8
	21	-	-	-			2.1	2.1			-	-	-	22	
	23	-	-	-					2.1	2.1	-	-	-	24	
9	25	15	3	BOILER FAN (EX.)	0.0	0.0					SPARE	15	3	26	10
	27	-	-	-			0.0	0.0			-	-	-	28	
	29	-	-	-					0.0	0.0	-	-	-	30	
	31	N.A.	N.A.	SPACE	0.0	0.0					SPACE	N.A.	N.A.	32	
	33	N.A.	N.A.	SPACE			0.0	0.0			SPACE	N.A.	N.A.	34	
	35	N.A.	N.A.	SPACE					0.0	0.0	SPACE	N.A.	N.A.	36	
	37	N.A.	N.A.	SPACE	0.0	0.0					SPACE	N.A.	N.A.	38	
	39	N.A.	N.A.	SPACE			0.0	0.0			SPACE	N.A.	N.A.	40	
	41	N.A.	N.A.	SPACE					0.0	0.0	SPACE	N.A.	N.A.	42	
TOTAL					6.9		6.9		6.9						

PANEL LA

LOCATION: **ROOM 197**
VOLT: **208Y/120V, 3Ø, 4W**
BUS: **250A**
LUG LOCATION: **BOTTOM FEED**
MAIN BUS: **MAIN LUGS ONLY**
MOUNTING: **SURFACE**
EXISTING PANEL

EXIST. NO.	CIRCUIT NO.	BREAKER AMPS	BREAKER POLES	DESCRIPTION	PHASE LOAD (KVA) A		PHASE LOAD (KVA) B		PHASE LOAD (KVA) C		DESCRIPTION	BREAKER AMPS	BREAKER POLES	CIRCUIT NO.	EXIST. NO.
1	1	100	2	UPS (EX.)	0.0	0.0					AIR COMPRESSOR (EX.)	30	3	2	2
	3	-	-	-			0.0	0.0			-	-	-	4	
3	5	20	1	VAV BOXES (EX.)					0.0	0.0	-	-	-	6	
5	7	20	1	VAV BOXES (EX.)	0.0	0.0					VACUUM PUMP (EX.)	30	3	8	4
7	9	20	1	VAV BOXES (EX.)			0.0	0.0			-	-	-	10	
9	11	15	1	EF-6					0.5	0.0	-	-	-	12	
11	13	20	1	VAV BOXES (EX.)	0.0	0.0					SPEED VAC PUMP (EX.)	20	2	14	6
13	15	20	1	VAV BOXES (EX.)			0.0	0.0			-	-	-	16	8
15	17	15	1	EF-7					0.5	0.0	196B BENCH (EX.)	20	1	18	10
17	19	20	1	PLUG IN RM 193 (EX.)	0.0	0.0					100A PANEL RM 158 (EX.)	100	2	20	12
19	21	15	1	EF-9			0.5	0.0			-	-	-	22	14
21	23	100	2	SPARE (EX.)					0.0	0.0	RM 258 (EX.)	20	1	24	16
23	25	-	-	-	0.0	0.0					RM 196 CENTER BENCH (EX.)	20	1	26	18
25	27	15	1	EF-5			0.5	0.0			BECKNEL'S ULTRA LOW (EX.)	20	1	28	20
27	29	20	1	SPARE (EX.)					0.0	0.0	ULTRA LOW ALARM (EX.)	20	1	30	22
TOTAL					0.0		0.9		0.9						

PANEL LB

LOCATION: **RM 146**
VOLT: **208Y/120V, 3Ø, 4W**
BUS: **250A**
LUG LOCATION: **BOTTOM FEED**
MAIN BUS: **MAIN LUGS ONLY**
MOUNTING: **SURFACE**
EXISTING PANEL

EXIST. NO.	CIRCUIT NO.	BREAKER AMPS	BREAKER POLES	DESCRIPTION	PHASE LOAD (KVA) A		PHASE LOAD (KVA) B		PHASE LOAD (KVA) C		DESCRIPTION	BREAKER AMPS	BREAKER POLES	CIRCUIT NO.	EXIST. NO.
1	1	50	3	3P TFS (EX.)	0.0	0.0					WATER HEATER (EX.)	20	1	2	2
	3	-	-	-			0.0	0.0			FAN HEATER (EX.)	20	1	4	4
	5	-	-	-					0.0	0.5	EF-14	15	1	6	6
3	7	20	1	BLOWER (EX.)	0.0	0.0					SPARE (EX.)	30	2	8	8
5	9	15	1	SF-1			0.5	0.0			-	-	-	10	
7	11	20	1	CHILLER CIRC (EX.)					0.0	0.0	GEN CHARGER (EX.)	20	1	12	10
9	13	20	1	HOT WATER PUMP (EX.)	0.0	0.0					EMERGENCY SWITCH GEN (EX.)	20	1	14	12
11	15	15	1	EF-8			0.5	0.0			SPARE (EX.)	20	1	16	14
	17	N.A.	N.A.	SPACE					0.0	0.0	SPACE	N.A.	N.A.	18	
	19	N.A.	N.A.	SPACE	0.0	0.0					SPACE	N.A.	N.A.	20	
	21	20	3	PUMP (EX.)			0.0	0.0			SPACE	N.A.	N.A.	22	
	23	-	-	-					0.0	0.0	SPACE	N.A.	N.A.	24	
	25	-	-	-	0.0	0.0					SPACE	N.A.	N.A.	26	
	27	N.A.	N.A.	SPACE			0.0	0.0			SPACE	N.A.	N.A.	28	
	29	N.A.	N.A.	SPACE					0.0	0.0	SPACE	N.A.	N.A.	30	
TOTAL					0.0		0.9		0.5						

PANEL L-12-B

LOCATION: **ROOM 197**
VOLT: **208Y/120V, 3Ø, 4W**
BUS: **100A**
LUG LOCATION: **BOTTOM FEED**
MAIN BUS: **MAIN LUGS ONLY**
MOUNTING: **SURFACE**
EXISTING PANEL

EXIST. NO.	CIRCUIT NO.	BREAKER AMPS	BREAKER POLES	DESCRIPTION	PHASE LOAD (KVA) A		PHASE LOAD (KVA) B		PHASE LOAD (KVA) C		DESCRIPTION	BREAKER AMPS	BREAKER POLES	CIRCUIT NO.	EXIST. NO.
1	1	30	3	RM 134 AUTOCLAVE (EX.)	0.0	0.0					RM 187 (EX.)	30	2	2	2
	3	-	-	-			0.0	0.0			-	-	-	4	
	5	-	-	-					0.0	0.0	SPACE	N.A.	N.A	6	
3	7	15	1	EF-10	0.9	0.0					SPARE (EX.)	20	3	8	4
	9	15	1	EF-11			1.2	0.0			-	-	-	10	
	11	15	1	EF-12					0.5	0.0	-	-	-	12	
5	13	20	3	SPARE (EX.)	0.0	0.0					RM 226 PLUG (EX.)	30	2	14	
	15	-	-	-			0.0	0.0			-	-	-	16	
	17	-	-	-					0.0	0.0	RM 193 PLUG (EX.)	20	1	18	22
7	19	20	3	SPARE (EX.)	0.0	0.0					RM 152 FAN (EX.)	20	1	20	8
	21	-	-	-			0.0	0.0			ROOF RECEPTACLE (EX.)	20	1	22	
	23	-	-	-					0.0	0.0	RM 190 ROOF HOOD (EX.)	20	1	24	
	25	20	1	LAB 189 BENCH (EX.)	0.0	0.0					SPARE (EX.)	20	1	26	
	27	20	1	RM 134 (EX.)			0.0	0.0			RM 169 FAN (EX.)	20	1	28	
	29	20	1	RM 134 (EX.)					0.0	0.0	RM 193 DISHWASHER (EX.)	20	1	30	
TOTAL					0.9		1.2		0.5						

J:\greenwood\2025 Jobs\3925 USDA B1 & B11 HVAC Repair Gainesville FL\07 Working Folder\Elec\B11E-701.dwg
May 04, 2026 - 12:16pm

THE Johnson-McAdams FIRM P.A.
ARCHITECTS/ENGINEERS · PLANNING · SURVEYING · MANAGEMENT
P.O. BOX 513, GREENWOOD, MISSISSIPPI • (662) 455-6543

NO.	DATE	BY	DESCRIPTION

REVISIONS

BRADEN T. DUKE
LICENSED PROFESSIONAL
ENGINEER
35781
STATE OF MISSISSIPPI
5-4-2026

A-E FIRM	USDA
PROJECT MGR TEL	COR E. WILSON
DESIGNER EJH	EPM E. WILSON
CHECKED BY BTD	SAFETY & HEALTH TBD
JOB # 3925	REAL PROPERTY TBD

USDA

USDA Agricultural Research Service

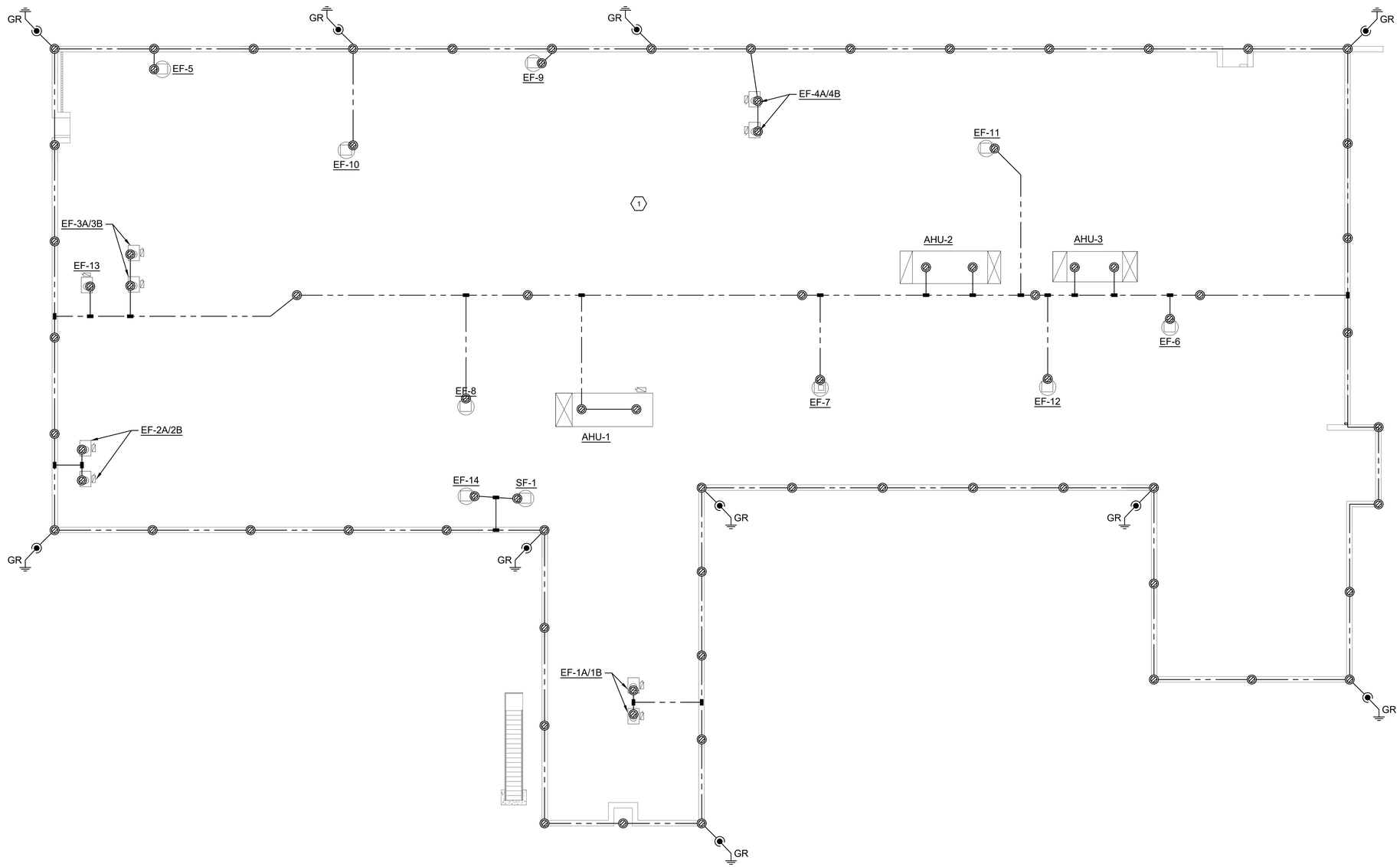
REPAIR HVAC SYSTEM, BULDINGS 1 AND 11 CENTER FOR MEDICAL AGRICULTURAL AND VETENARY ENTOMOLOGY (CMAVE) - GAINESVILLE, FLORIDA

BUILDING 1
PANEL SCHEDULES

PROJECT NO. ---
DATE 5/04/2026

USDA ARS
5601 SUNNYSIDE AVENUE
RM 3-2102
BELTVILLE MD 20705

SHEET E-701
19 OF 20



GENERAL NOTES

A. LIGHTNING PROTECTION SYSTEM SHALL COMPLY WITH NFPA 780 AND SPECIFICATION 26 41 00.

B. INSTALLED LIGHTNING PROTECTION SYSTEM SHALL BE FIELD INSPECTED BY CONTRACTOR PROVIDED INDEPENDENT TESTING AGENCY AND FURNISHED WITH A UL MASTER LABEL FOR LIGHTNING PROTECTION SYSTEM.

C. PROVIDE AIR TERMINALS FOR ROOF-MOUNTED EQUIPMENT AND CONNECT TO EXISTING LIGHTNING PROTECTION SYSTEM.

(X) KEYED NOTES

1. CONTRACTOR SHALL MODIFY THE EXISTING LIGHTNING PROTECTION SYSTEM (LPS) AS REQUIRED TO ACCOMMODATE NEW ROOF-MOUNTED EQUIPMENT. PROVIDE AND INSTALL AIR TERMINALS ON ALL ROOF-MOUNTED EQUIPMENT AND APPURTENANCES IN ACCORDANCE WITH PROJECT SPECIFICATIONS.

   ADJUST, RELOCATE, OR EXTEND EXISTING CONDUCTORS, AIR TERMINALS, AND BONDING CONNECTIONS AS REQUIRED TO MAINTAIN A COMPLETE AND CODE-COMPLIANT SYSTEM.

   UPON COMPLETION, THE ENTIRE LPS SHALL BE TESTED, INSPECTED, AND CERTIFIED AS A FULLY FUNCTIONAL SYSTEM. PROVIDE DOCUMENTATION OF COMPLIANCE AND CERTIFICATION IN ACCORDANCE WITH PROJECT SPECIFICATIONS.

GRAPHIC SCALE

10' 0 5' 10'

SCALE: 3/32"= 1'-0'

1 EG101 BUILDING B1
ROOF LIGHTNING PROTECTION PLAN

SCALE: 3/32" = 1'-0"

PLAN NORTH

J:\greenwood\2025 Jobs\3925 USDA B1 & B11 HVAC Repair Gainesville FL\07 Working Folder\Elec\B1\EG101.dwg
May 04, 2026 - 12:16pm

THE Johnson-McAdams FIRM P.A.
ARCHITECTS/ENGINEERS PLANNING SURVEYING - MANAGEMENT
P.O. BOX 510, GREENWOOD, MISSISSIPPI - (662) 455-6940

NO.	DATE	BY	DESCRIPTION

REVISIONS

BRADEN T. DUKE
REGISTERED PROFESSIONAL ENGINEER
ENGINEER
5-4-2026
35781
STATE OF MISSISSIPPI

A-E FIRM	USDA
PROJECT MGR TEL	COR E. WILSON
DESIGNER EJH	EPM E. WILSON
CHECKED BY BTD	SAFETY & HEALTH TBD
JOB # 3925	REAL PROPERTY TBD

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BUILDING 1
LIGHTNING PROTECTION PLAN

PROJECT NO. ---

DATE 5/04/2026

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5601 SUNNYSIDE AVENUE
RM 3-2102
BELTVILLE MD 20705

SHEET EG101
20 OF 20