

**FORM F3**

**BUILDING CODE ANALYSIS FORM**

PROJECT SPRINGFIELD MIDDLE SCHOOL HVAC UPGRADES DISTRICT YORK SCHOOL DISTRICT 4  
 SUBMITTAL:  SCHEMATIC  DESIGN DEVELOPMENT  CONSTRUCTION DOCUMENT  
 DATE 02-22-2021 CODE & EDITION 2018 SCEBC GUIDE EDITION 2020

CODE ANALYSIS	
PROJECT ADDRESS: 1711 SPRINGFIELD PKWY, FORT MILL, SC 29715	OCCUPANCY CLASSIFICATION: E
CODE & EDITION: 2018 SOUTH CAROLINA EXISTING BUILDING CODE	TYPE OF CONSTRUCTION: IIB (ASSUMED)
SCEBC COMPLIANCE METHOD: WORK AREA	DESIGN OCCUPANCY LOAD: N/A
SCEBC CLASSIFICATION OF WORK: CLASS 1 ALTERATION	AUTOMATIC SPRINKLER SYSTEM PROVIDED? NO
GUIDE EDITION: 2020	AUTOMATIC SPRINKLER SYSTEM PROVIDED? NO
APPLICABLE ICC A117.1: 2017	

MECHANICAL INFORMATION		
GENERAL INFORMATION		
BUILDING LOCATION	FORT MILL, SOUTH CAROLINA	
CLIMATE ZONE	3A	
OUTDOOR DESIGN TEMPERATURE	SUMMER	95 DEG. F DF
		74 DEG. F WB
	WINTER	19 DEG. F DF
		N/A DEG. F WB
INDOOR DESIGN TEMPERATURE	SUMMER	75 DEG. F DF
		50 % RH
	WINTER	70 DEG. F DF
		N/A % RH
OUTSIDE AIR		
OCCUPIED MINIMUM OUTSIDE AIR	N/A	
CO2 DEMAND MANAGEMENT	<input checked="" type="checkbox"/> NO <input type="checkbox"/> YES	
SUPERVISED CONTROL SYSTEM	<input type="checkbox"/> NO <input checked="" type="checkbox"/> YES	
MECHANICAL SYSTEMS, SERVICE SYSTEMS & EQUIPMENT		
THE EXISTING PACKAGED UNITS AND OUTSIDE AIR UNITS TO BE REPLACED WITH NEW EQUIPMENT.		

ELECTRICAL INFORMATION N/A, EXISTING SERVICES		
SERVICE TRANSFORMER	<input type="checkbox"/> BY UTILITY	N/A KVA PRIMARY
	<input type="checkbox"/> BY DISTRICT	N/A VOLTAGE/PHASE
ELECTRICAL SERVICE INFORMATION		
SERVICE VOLTAGE/PHASE	N/A AMPERES	
SERVICE ENTRANCE CONDUCTOR SIZE	N/A QTY PER PHASE	
TOTAL CONNECTED LOAD	N/A KVA	
ESTIMATED MAXIMUM DEMAND	N/A KVA	
AVAILABLE FAULT CURRENT IN SYMMETRICAL AMPERES	N/A	
INTERRUPTING CAPACITY OF SERVICE OVERCURRENT DEVICE	N/A	
GROUNDING ELECTRODE SYSTEM COMPONENTS (NEC 250)		
EMERGENCY SERVICE INFORMATION N/A		
EMERGENCY GENERATOR	<input type="checkbox"/> NO <input type="checkbox"/> YES	N/A KVA
	FUEL	N/A VOLTAGE/PHASE
EXIT/EMERGENCY LIGHTS BACKUP POWER		
<input type="checkbox"/> INTEGRAL BATTERY		
<input type="checkbox"/> GENERATOR		
FIRE ALARM SYSTEM	<input type="checkbox"/> MANUAL	<input type="checkbox"/> ADDRESSABLE
	<input type="checkbox"/> AUTOMATIC	<input type="checkbox"/> CLASS A
		<input type="checkbox"/> CLASS B
LIGHTNING PROTECTION PROVIDED		
<input type="checkbox"/> NO <input type="checkbox"/> YES		

STRUCTURAL DESIGN INFORMATION, BUILDING		
WIND LOADS	ANALYSIS PROCEDURE (ASCE 7 OR IBC 1609.6)	ASCE 7-16
	BASIC WIND SPEED, MPS (3 SEC GUST IBC FIG 1609)	V <sub>3s</sub> = 119
	EXPOSURE CATEGORY	B
	WIND IMPORTANCE FACTOR (ASCE 7 TABLE 6.1)	I <sub>w</sub> = 1.15
SEISMIC LOADS	INTERNAL PRESSURE COEFFICIENT (ASCE 7)	G <sub>CPI</sub> = N/A
	EXTERNAL PRESSURE COEFFICIENT (ASCE 7)	G <sub>CP</sub> = N/A
	SEISMIC IMPORTANCE FACTOR (ASCE 7)	I = 1.25
	SOIL CLASS (IBC 1613.5.2)	D
	MAPPED SPECTRAL RESPONSE ACCELERATIONS	S <sub>s</sub> = 0.218 S <sub>1</sub> = 0.086
	DESIGN SPECTRAL RESPONSE ACCELERATION PARAMETERS	S <sub>DS</sub> = 0.233 S <sub>DI</sub> = 0.137
	SEISMIC USE GROUP (ASCE 7 AND SEISMIC OCCUPANCY CATEGORY IBC)	III
	SEISMIC DESIGN CATEGORY (IBC TABLES 1613.5.6(1) & 16.13.5.6.(2))	C
	BASIC SEISMIC FORCE RESISTING SYSTEM	N/A
	DESIGN BASE SHEAR	N/A KIPS
SEISMIC RESPONSE COEFFICIENT(S) ASCE 7	C <sub>s</sub> = N/A	
RESPONSE MODIFICATION FACTOR(S) ASCE 7	R = N/A	
ANALYSIS PROCEDURE	N/A	

**FORT MILL SCHOOLS / YCSD 4  
 SPRINGFIELD MIDDLE SCHOOL  
 1711 SPRINGFIELD PARKWAY  
 FORT MILLS, SC 29715**

**HVAC UPGRADES**

**PROJECT # 20028**

**2021-02-22**

Project Engineer: DER  
 Drawn By: LAM

Revisions:  
 No. \_\_\_\_\_ Date \_\_\_\_\_  
 No. \_\_\_\_\_ Date \_\_\_\_\_  
 No. \_\_\_\_\_ Date \_\_\_\_\_

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**SOUTH CAROLINA**  
 BUFORD GOFF & ASSOCIATES, INC.  
 No. 000022  
 CERTIFICATE OF AUTHORIZATION

**SOUTH CAROLINA**  
 REGISTERED PROFESSIONAL ENGINEER  
 No. 26527  
 1/22/2021  
 NATHAN BURKETT

**SITE MAP**



**CONSULTANTS**

**GENERAL CONSTRUCTION - MECHANICAL - ELECTRICAL**  
**BUFORD GOFF & ASSOCIATES, INC.**  
 1331 ELMWOOD AVENUE, SUITE 200  
 COLUMBIA, SOUTH CAROLINA 29201  
 TEL: (803) 254-6302  
 FAX: (803) 771-6142

**CODE ANALYSIS**

1. SOUTH CAROLINA EXISTING BUILDING CODE (SCEBC): 2018
2. SOUTH CAROLINA BUILDING CODE (SCBC): 2018
3. SOUTH CAROLINA FIRE CODE (SCFC): 2018
4. SOUTH CAROLINA FUEL GAS CODE (SCFGC): 2018
5. SOUTH CAROLINA MECHANICAL CODE (SCMC): 2018
6. SOUTH CAROLINA PLUMBING CODE (SCPC): 2018
7. NATIONAL ELECTRIC CODE (NEC) WITH SC MODIFICATIONS: 2017
8. INTERNATIONAL ENERGY CONSERVATION CODE (IECC) WITH SC MODIFICATIONS: 2009
9. SEISMIC & WIND DESIGN CRITERIA: CATEGORY C, RISK CATEGORY III, WIND SPEED 119 MPH

**DRAWING INDEX**

**GENERAL CONSTRUCTION**

- GD201 GENERAL DEMOLITION PLAN - AREA - G
- GD202 GENERAL DEMOLITION PLAN - AREA - C, E, F
- GD203 GENERAL DEMOLITION PLAN - AREA - A, B, D
- GC201 GENERAL CONSTRUCTION PLAN - AREA - G
- GC202 GENERAL CONSTRUCTION PLAN - AREA - C, E, F
- GC203 GENERAL CONSTRUCTION PLAN - AREA - A, B, D

**STRUCTURAL**

- S200 STRUCTURAL PLANS AND NOTES
- S201 STRUCTURAL PLANS AND DETAILS

**MECHANICAL**

- MD201 MECHANICAL DEMOLITION PLAN - AREA - G
- MD202 MECHANICAL DEMOLITION PLAN - AREA - C, E, F
- MD203 MECHANICAL DEMOLITION PLAN - AREA - A, B, D
- M201 MECHANICAL ROOF PLAN - AREA - G
- M202 MECHANICAL ROOF PLAN - AREA - C, E, F
- M203 MECHANICAL ROOF PLAN - AREA - A, B, D
- M300 HVAC NOTES AND SCHEDULES
- M400 HVAC DETAILS
- M401 HVAC DETAILS
- M402 ENLARGED AIR HANDLING UNIT DETAILS

**ELECTRICAL**

- ED201 PARTIAL ROOF PLAN - ELECTRICAL DEMOLITION
- ED202 PARTIAL ROOF PLAN - ELECTRICAL DEMOLITION
- ED203 PARTIAL ROOF PLAN - ELECTRICAL DEMOLITION
- E201 PARTIAL ROOF PLAN - ELECTRICAL RENOVATION
- E202 PARTIAL ROOF PLAN - ELECTRICAL RENOVATION
- E203 PARTIAL ROOF PLAN - ELECTRICAL RENOVATION

FORT MILLS SCHOOL DISTRICT  
 SPRINGFIELD MIDDLE SCHOOL HVAC UPGRADES

COVER SHEET

**Buford Goff**  
 & Associates, Inc.  
 Engineers & Planners  
 1331 Elmwood Ave.  
 Suite 200  
 Columbia, SC 29201  
 Phone: (803) 254-6302



**A**  
GD201  
DUCT ON ROOF  
SCALE:



**B**  
GD201  
ROOF ACCESS  
SCALE:

**GENERAL DEMOLITION KEY NOTES**

1. UNIT TO BE REMOVED. COORDINATE LOCATION OF NEW ROOFTOP EQUIPMENT WITH MECHANICAL PLANS.
2. ROOF SHALL BE PROTECTED DURING REMOVAL OF EXISTING EQUIPMENT AND INSTALLATION OF NEW EQUIPMENT. ANY DAMAGE TO THE ROOF SHALL BE REPAIRED BY A CONTRACTOR LICENSED TO INSTALL THE TYPE OF ROOF ON THIS BUILDING. THE CONTRACTOR SHALL PROVIDE DOCUMENTATION THAT THE ROOF BOND IS INTACT AFTER THIS WORK IS COMPLETED.
3. PROVIDE TEMPORARY SAFETY RAILS AS REQUIRED FOR REMOVAL OF EXISTING EQUIPMENT AND INSTALLATION OF NEW EQUIPMENT OR ACCESS MODIFICATIONS. ALL WORK SHALL BE DONE IN ACCORDANCE WITH OSHA AND DISTRICT GUIDELINES. CONTRACTOR SHALL PROVIDE ALL BARRICADES AND SAFETY EQUIPMENT REQUIRED. CONTRACTOR SHALL COORDINATE ALL CRANE LOCATIONS WITH THE SCHOOL DISTRICT.
4. REMOVE EXISTING LADDER.
5. INSPECT ROOF AFTER DUCTWORK IS REMOVED AND REPAIR AS NECESSARY. REMOVE ROOF AS REQUIRED FOR NEW DUCTWORK INSTALLATION.

Project Engineer: JEB

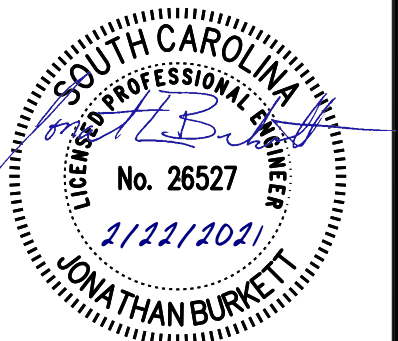
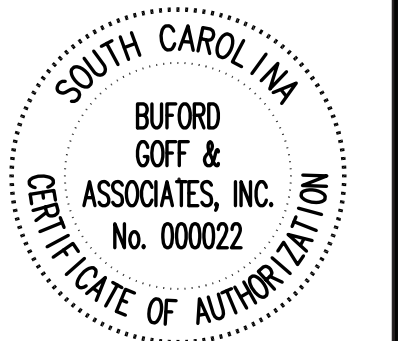
Drawn By: xxx

Revisions:

No. \_\_\_\_\_ Date \_\_\_\_\_  
No. \_\_\_\_\_ Date \_\_\_\_\_  
No. \_\_\_\_\_ Date \_\_\_\_\_

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**FORT MILLS SCHOOL DISTRICT**  
**SPRINGFIELD MIDDLE SCHOOL HVAC UPGRADES**  
 GENERAL DEMOLITION PLAN - AREA - G

Project \_\_\_\_\_  
Sheet Title \_\_\_\_\_

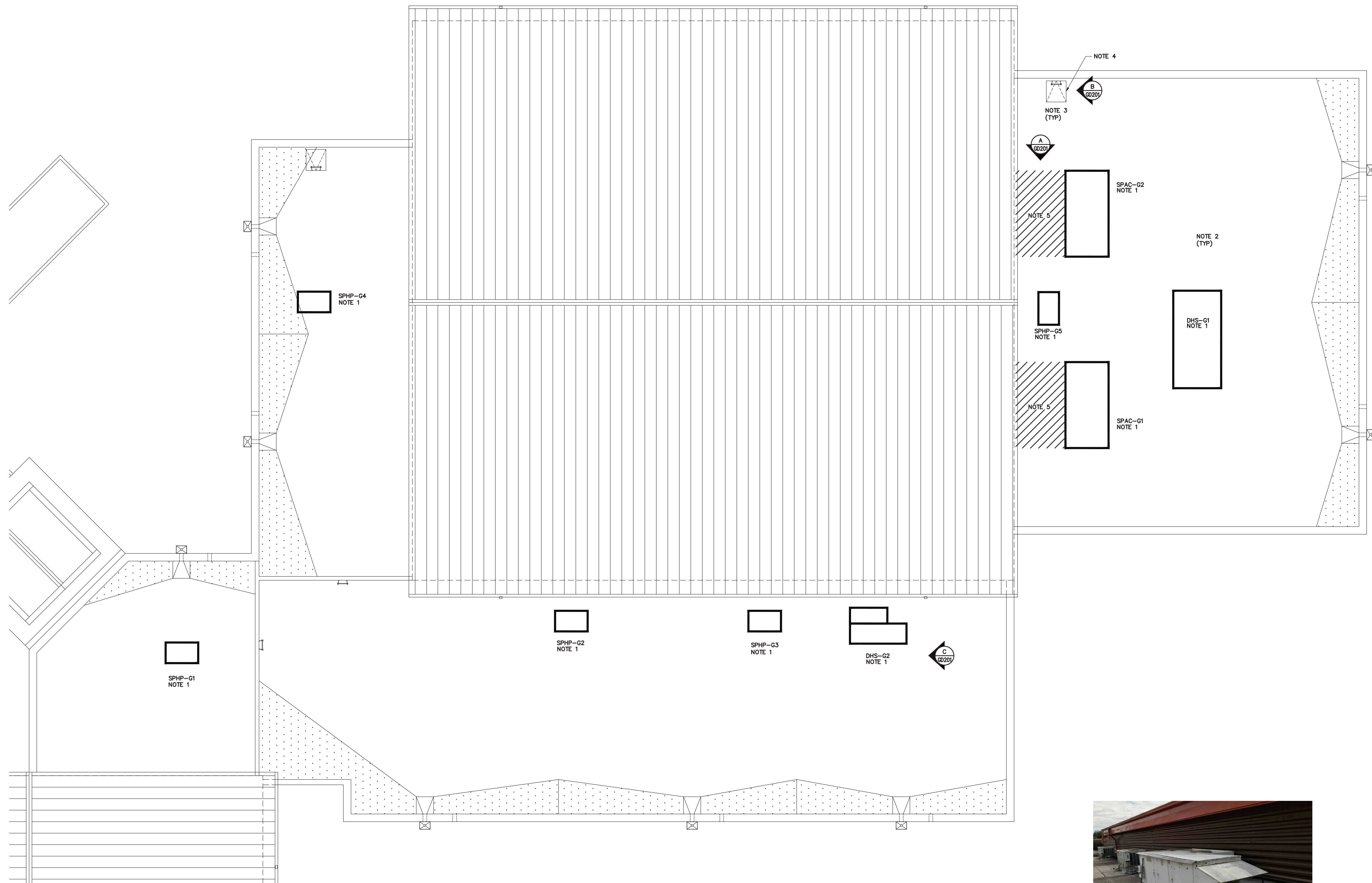
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& Associates, Inc.  
Engineers & Planners

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Suite 200  
Columbia, SC 29201  
Phone: (803) 254-6302

Sheet Number:

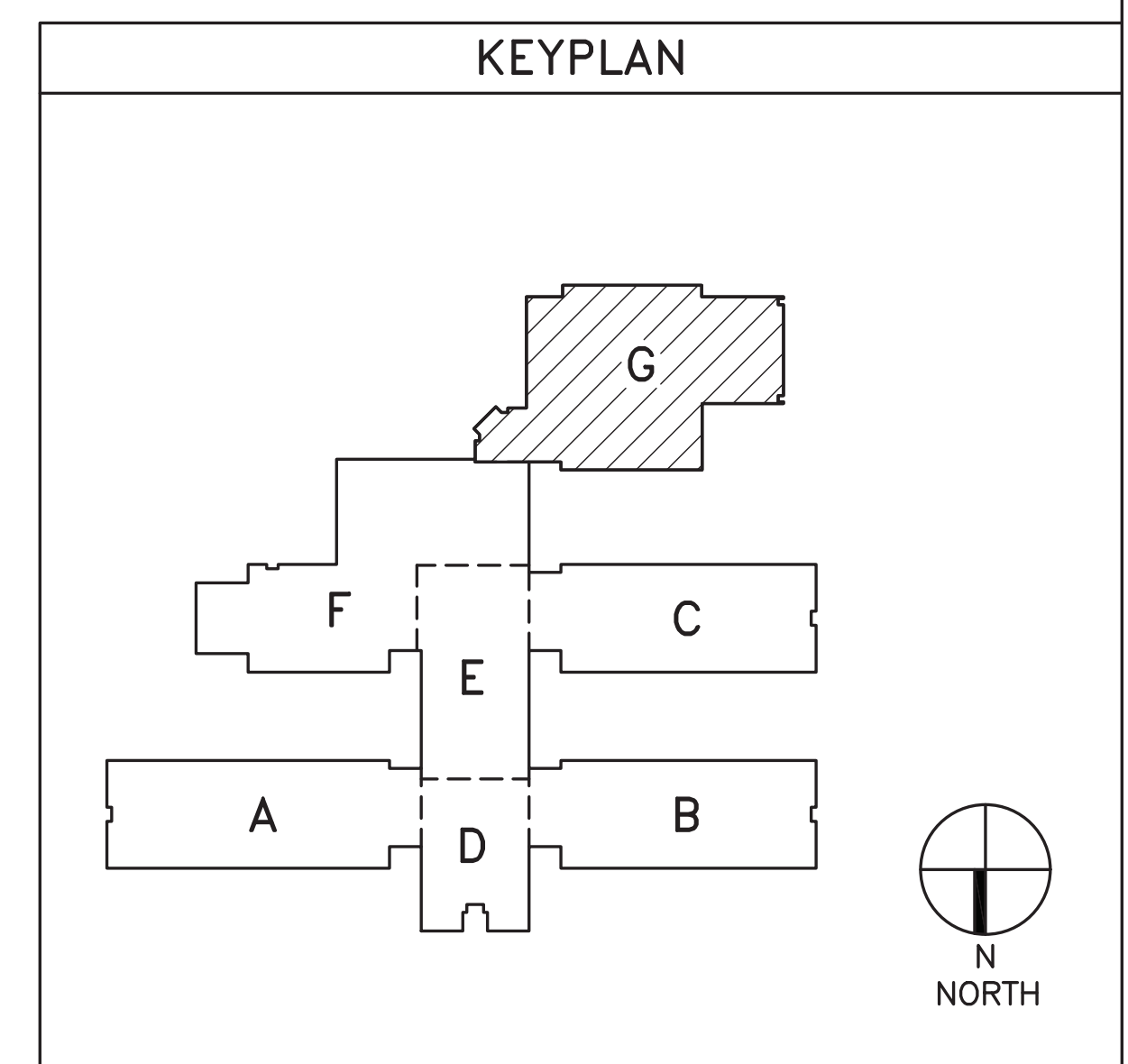
**GD201**

Date: FEBRUARY 22, 2021  
Scale: As Noted  
BGA PROJECT NUMBER: 20028  
CONSTRUCTION DOCUMENTS



**1**  
GD201  
GENERAL DEMOLITION PLAN - AREA - G  
SCALE: 1/8" = 1'-0"

**C**  
GD201  
SPHP-G2, G3 & DHS-G2  
SCALE:



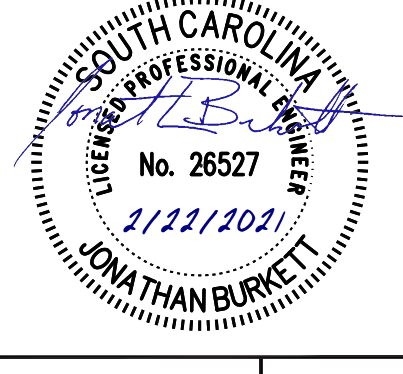
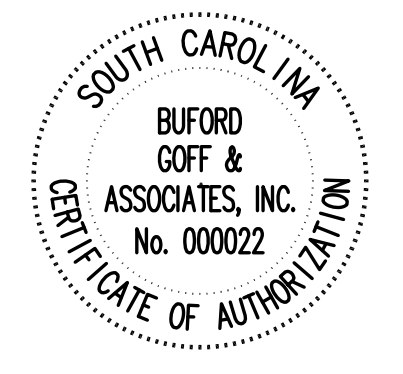
**KEYPLAN**

GENERAL DEMOLITION KEY NOTES

1. UNIT TO BE REMOVED. COORDINATE LOCATION OF NEW ROOFTOP EQUIPMENT WITH MECHANICAL PLANS.
2. ROOF SHALL BE PROTECTED DURING REMOVAL OF EXISTING EQUIPMENT AND INSTALLATION OF NEW EQUIPMENT. ANY DAMAGE TO THE ROOF SHALL BE REPAIRED BY A CONTRACTOR LICENSED TO INSTALL THE TYPE OF ROOF ON THIS BUILDING. THE CONTRACTOR SHALL PROVIDE DOCUMENTATION THAT THE ROOF BOND IS INTACT AFTER THIS WORK IS COMPLETED.
3. REMOVE ROOF AS REQUIRED FOR NEW UNIT INSTALLATION AND NEW DUCTWORK INSTALLATION.
4. REMOVE EXTERIOR SIDING AND WALL AS REQUIRED FOR NEW PENETRATIONS.

Project Engineer:  
JEB  
Drawn By:  
xxx  
Revisions:  
No. \_\_\_\_\_ Date \_\_\_\_\_  
No. \_\_\_\_\_ Date \_\_\_\_\_  
No. \_\_\_\_\_ Date \_\_\_\_\_

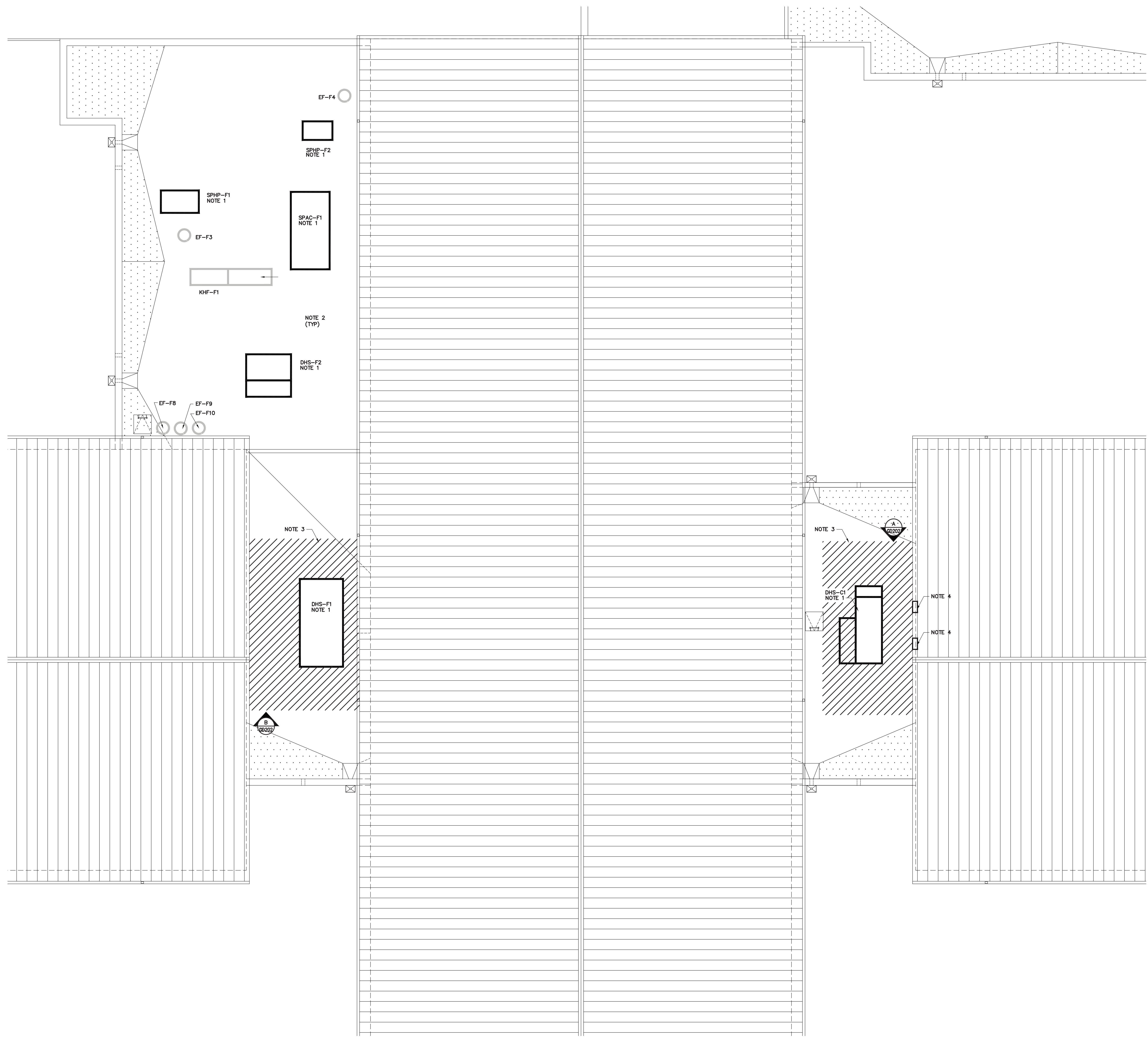
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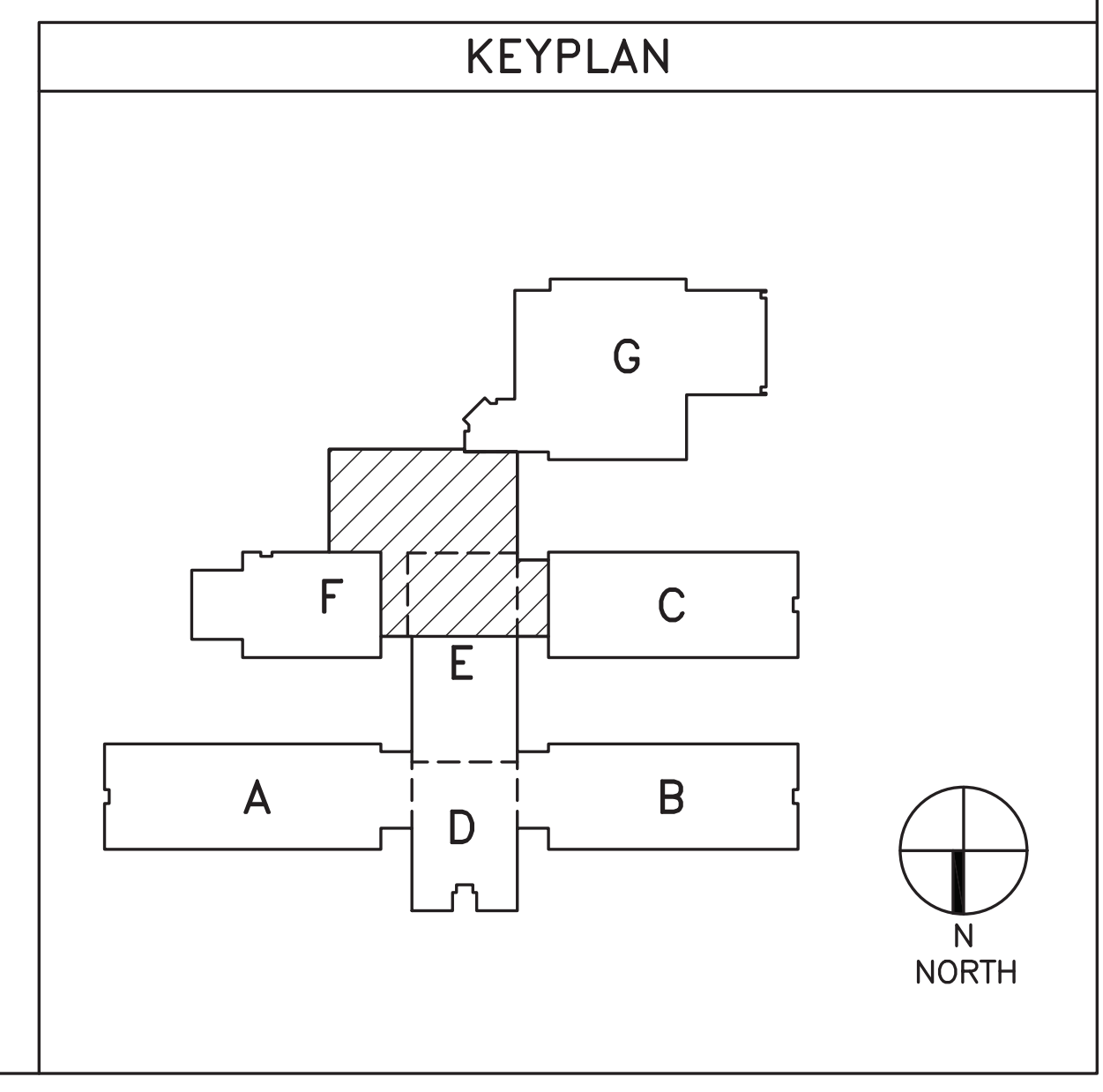
A  
GD202  
DHS-C1  
SCALE



B  
GD202  
DHS-F1  
SCALE



1  
GD202  
GENERAL DEMOLITION PLAN - AREA - C, E, F  
SCALE: 1/8" = 1'-0"



Project  
Sheet Title  
FORT MILLS SCHOOL DISTRICT  
SPRINGFIELD MIDDLE SCHOOL HVAC UPGRADES  
GENERAL DEMOLITION PLAN - AREA - C, E, F

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Sheet Number:  
**GD202**

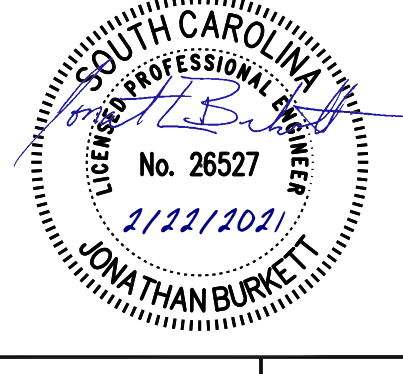
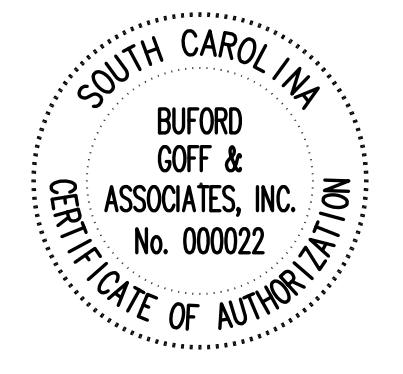
Date: FEBRUARY 22, 2021  
Scale: As Noted  
BGA PROJECT NUMBER: 20028  
CONSTRUCTION DOCUMENTS

GENERAL DEMOLITION KEY NOTES

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3. REMOVE ROOF AS REQUIRED FOR NEW UNIT INSTALLATION AND NEW DUCTWORK INSTALLATION.
4. REMOVE EXTERIOR SIDING AND WALL AS REQUIRED FOR NEW PENETRATIONS.

Project Engineer: JEB  
 Drawn By: xxx  
 Revisions:  
 No. \_\_\_\_\_ Date \_\_\_\_\_  
 No. \_\_\_\_\_ Date \_\_\_\_\_  
 No. \_\_\_\_\_ Date \_\_\_\_\_

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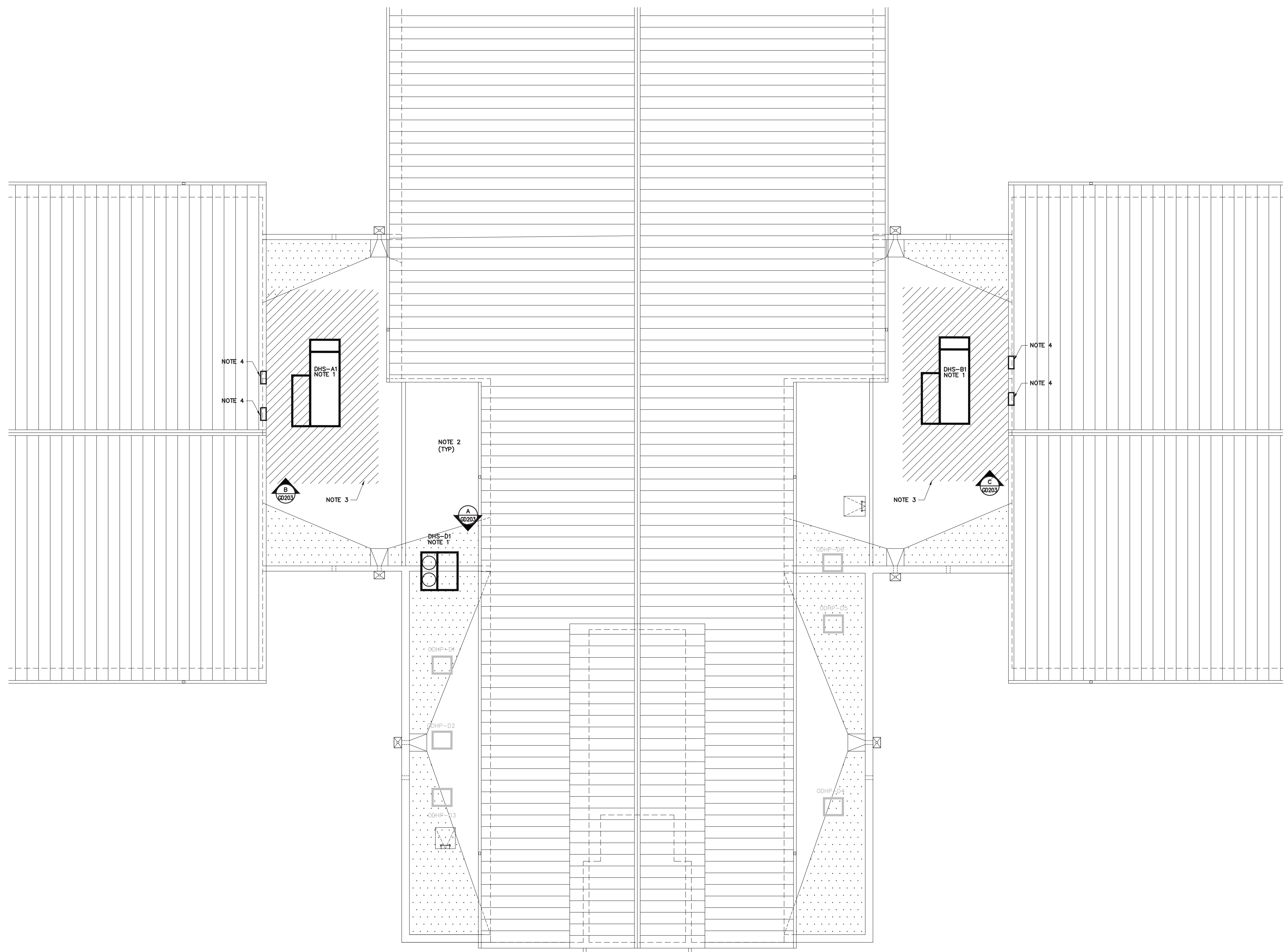
A  
GD203 DHS-D1  
SCALE:



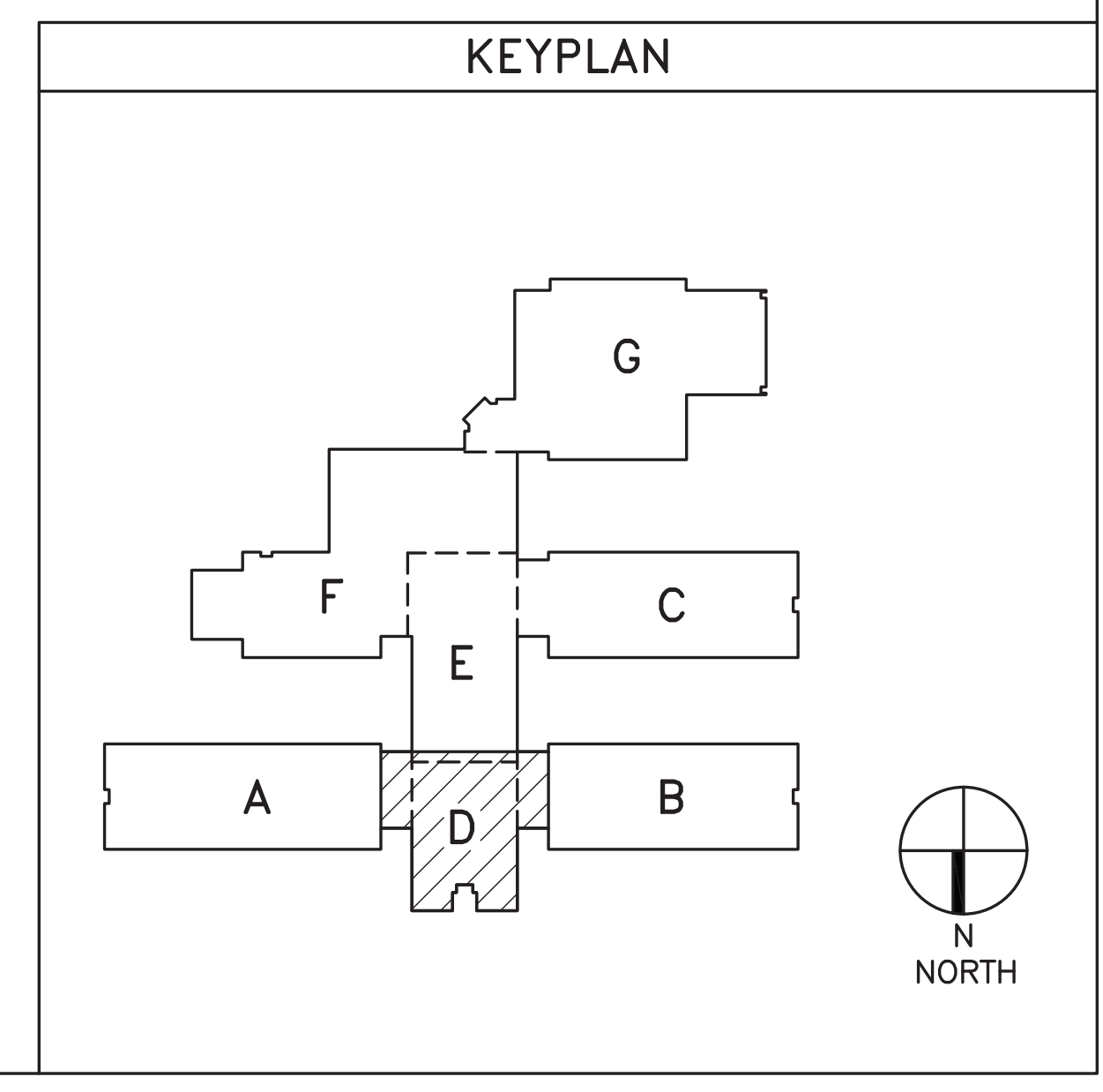
A  
GD203 DHS-A1  
SCALE:



A  
GD203 DHS-B1  
SCALE:



1  
GD203 GENERAL DEMOLITION PLAN - AREA - A, B, D  
SCALE: 1/8"=1'-0"



Project  
 Sheet Title  
**FORT MILLS SCHOOL DISTRICT  
 SPRINGFIELD MIDDLE SCHOOL HVAC UPGRADES**  
 GENERAL DEMOLITION PLAN - AREA - A, B, D

**Buford Goff & Associates, Inc.**  
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Sheet Number:  
**GD203**

Date: FEBRUARY 22, 2021  
 Scale: As Noted  
 BGA PROJECT NUMBER: 20028  
 CONSTRUCTION DOCUMENTS

**GENERAL CONSTRUCTION KEY NOTES**

- COORDINATE LOCATION OF NEW ROOFTOP EQUIPMENT WITH MECHANICAL PLANS.
- INSTALL NEW LADDER SAFETY POST ON EXISTING ROOF ACCESS.
- INSTALL NEW LADDER AND SAFETY POST.
- SEAL AND FRAME DUCT PENETRATION THROUGH WALL AS REQUIRED.
- REPLACE ROOFING AROUND NEW DUCTWORK AS REQUIRED.

Project Engineer: JEB

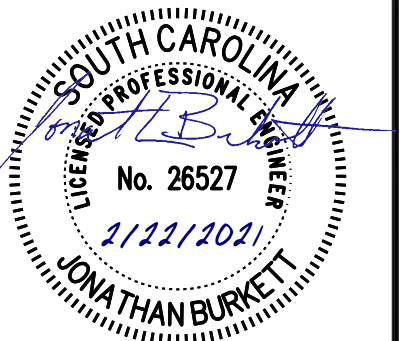
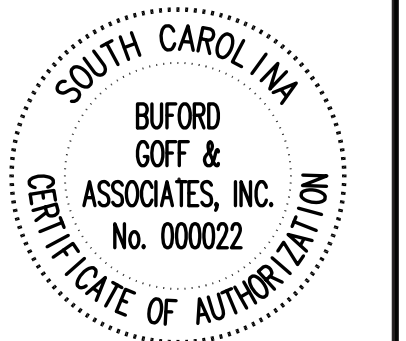
Drawn By: xxx

Revisions:

No.	Date
No.	Date
No.	Date

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**FORT MILLS SCHOOL DISTRICT  
 SPRINGFIELD MIDDLE SCHOOL HVAC UPGRADES**  
 GENERAL CONSTRUCTION PLAN - AREA - G

Project: \_\_\_\_\_  
Sheet Title: \_\_\_\_\_

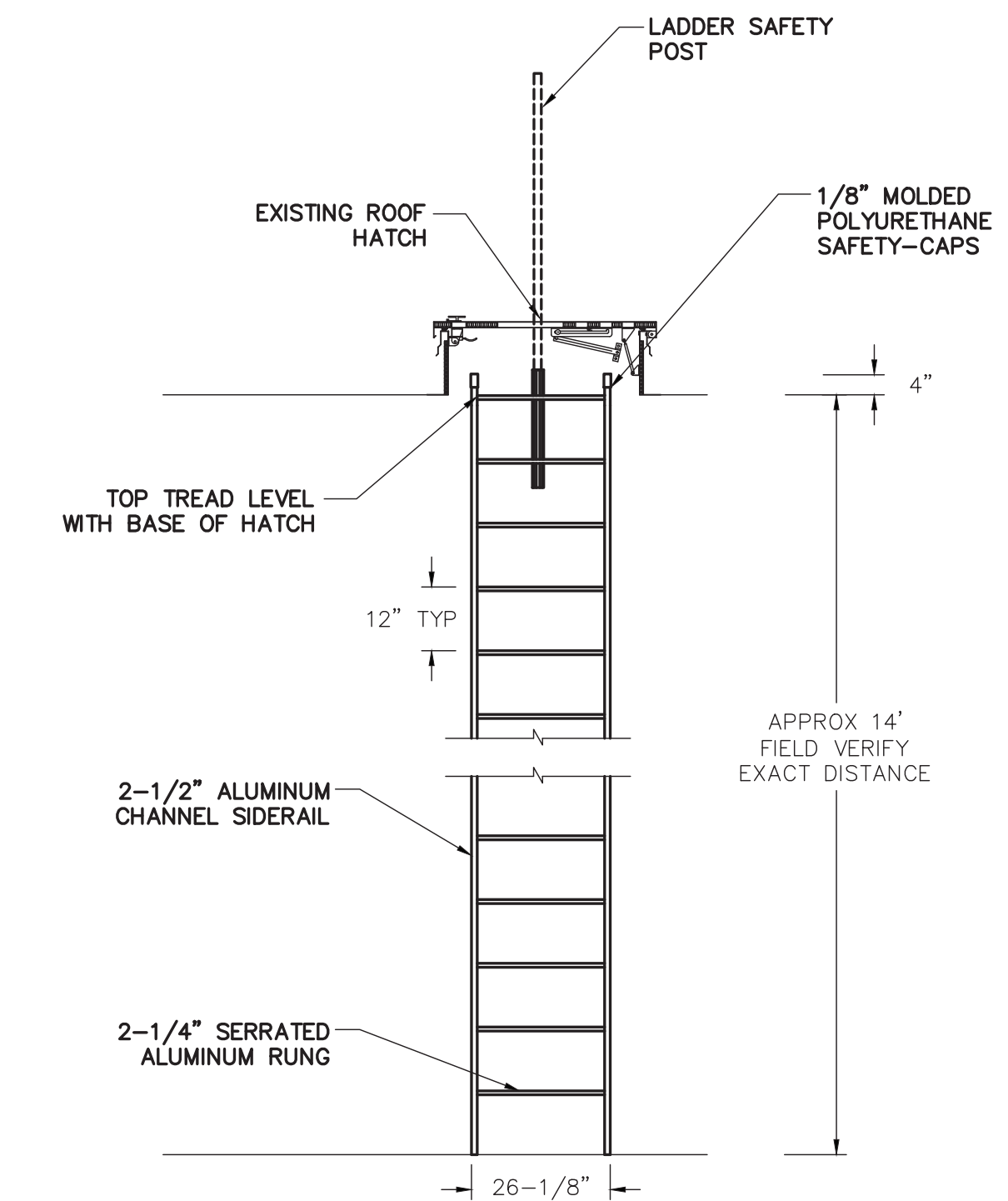
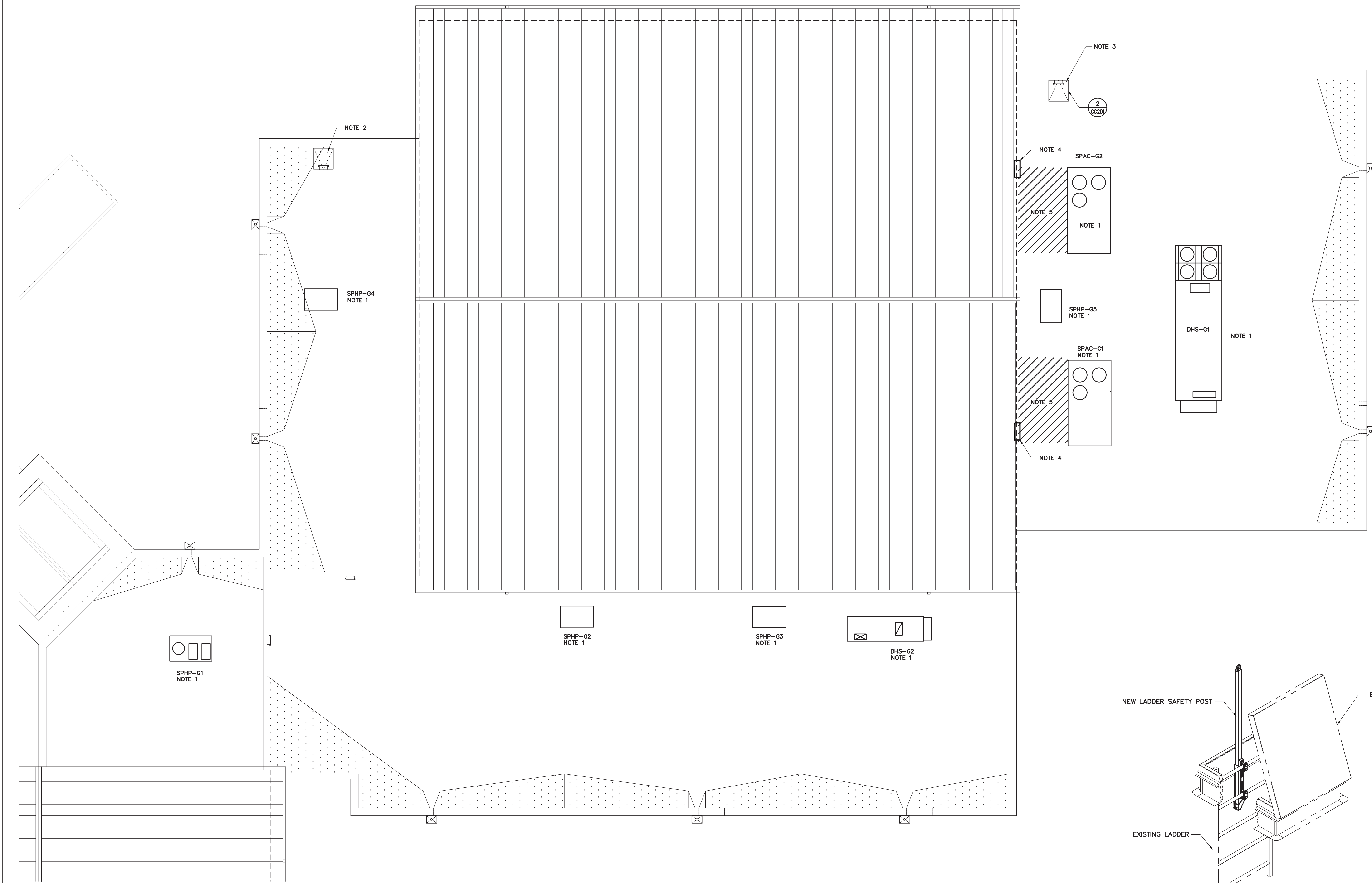
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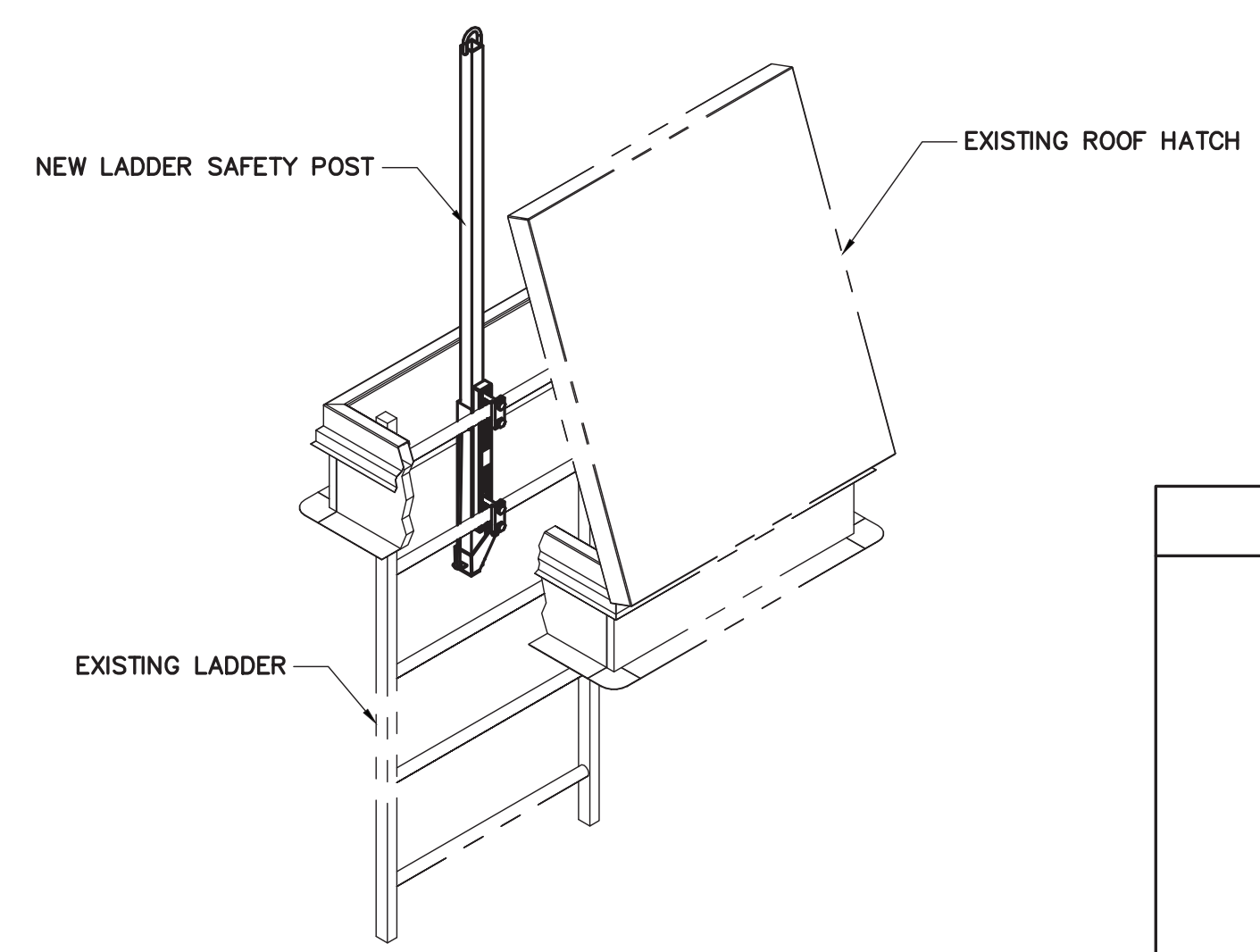
**GC201**

Date: FEBRUARY 22, 2021  
Scale: As Noted  
BGA PROJECT NUMBER: 20028  
CONSTRUCTION DOCUMENTS



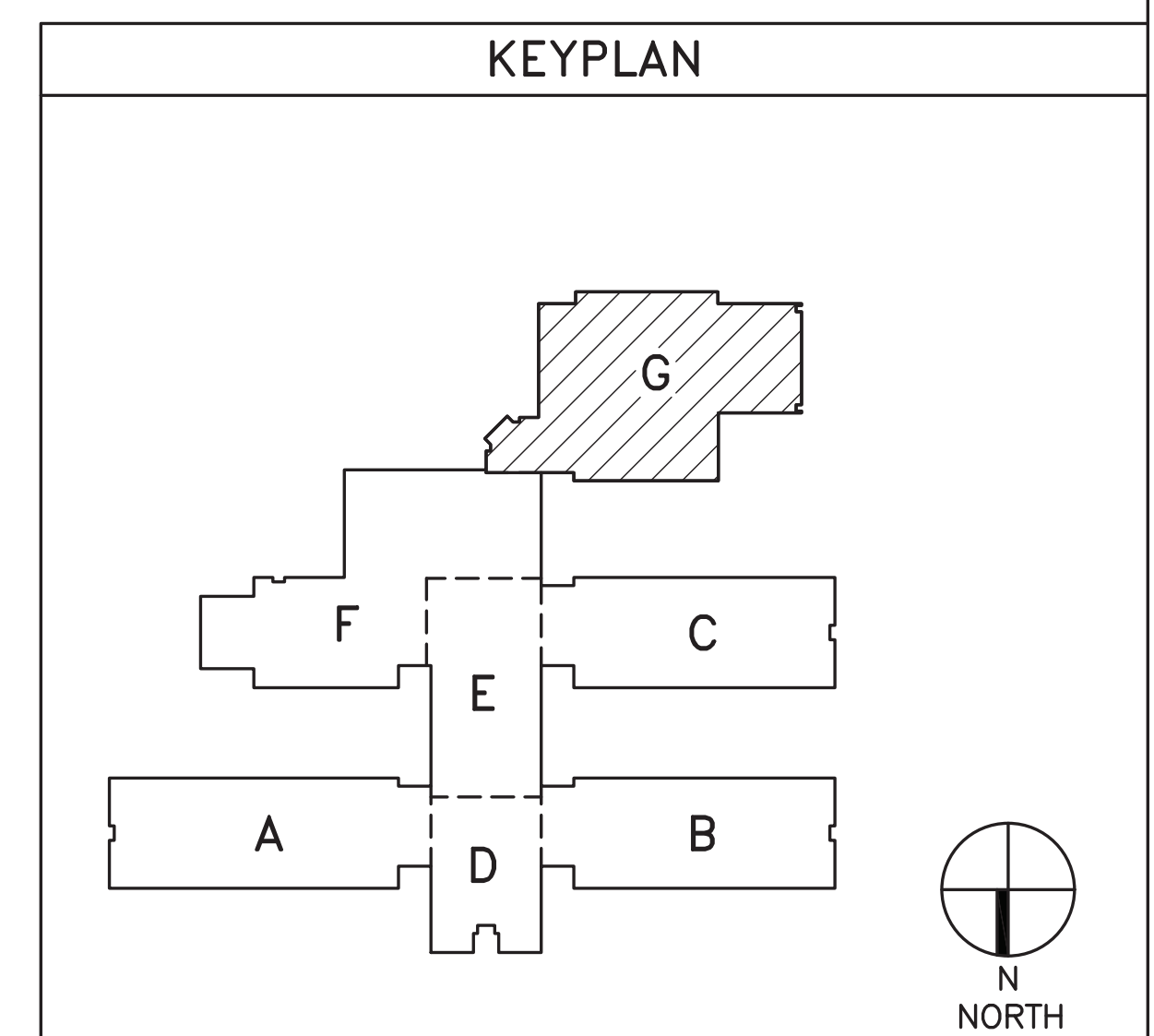
- NOTES:**
- FIELD VERIFY EXISTING CONDITIONS. COORDINATE EXACT LOCATIONS WITH EXISTING EQUIPMENT, PIPING AND STRUCTURAL.
  - FIELD VERIFY ALL DIMENSIONS.
  - INSTALL LADDER AND ALL APPURTENANCES TO MEET OSHA REQUIREMENTS.

**2 LADDER #1 DETAIL**  
SCALE: NTS

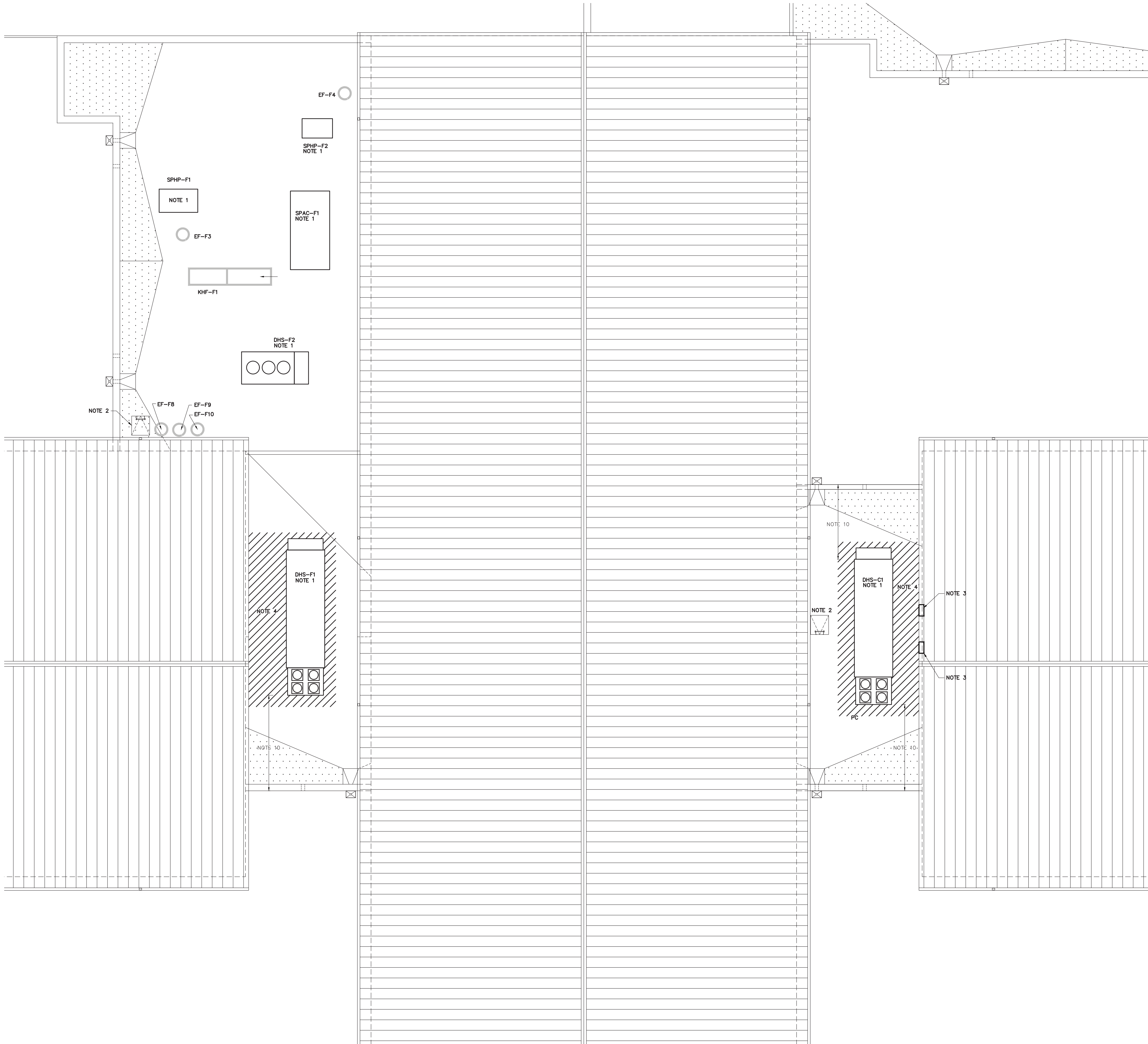


- NOTES:**
- FIELD VERIFY EXISTING LADDER RUNG DIMENSIONS AND SPACING PRIOR TO ORDERING SAFETY POST. PROVIDE ALL HARDWARE TO ATTACH SAFETY POST TO LADDER.
  - POST SHALL EXTEND A MINIMUM OF 42" ABOVE THE ROOF HATCH.

**LADDER SAFETY POST DETAIL**  
NOT TO SCALE



**1 GENERAL CONSTRUCTION PLAN - AREA - G**  
SCALE: 1/8" = 1'-0"



- GENERAL CONSTRUCTION KEY NOTES**
- COORDINATE LOCATION OF NEW ROOFTOP EQUIPMENT WITH MECHANICAL PLANS.
  - INSTALL NEW LADDER SAFETY POST ON EXISTING ROOF ACCESS.
  - SEAL AND FRAME DUCT PENETRATION THROUGH WALL AS REQUIRED.
  - REPLACE ROOFING AROUND NEW ROOFTOP UNIT AND DUCTWORK AS REQUIRED.

Project Engineer:  
JEB

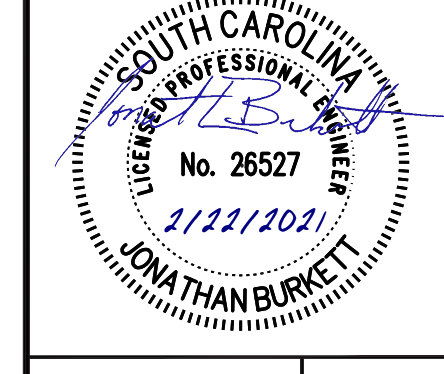
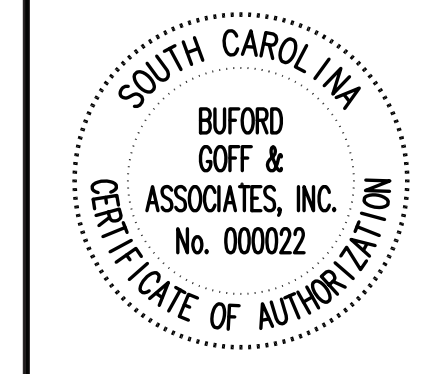
Drawn By:  
xxx

Revisions:

No.	Date
No.	Date
No.	Date

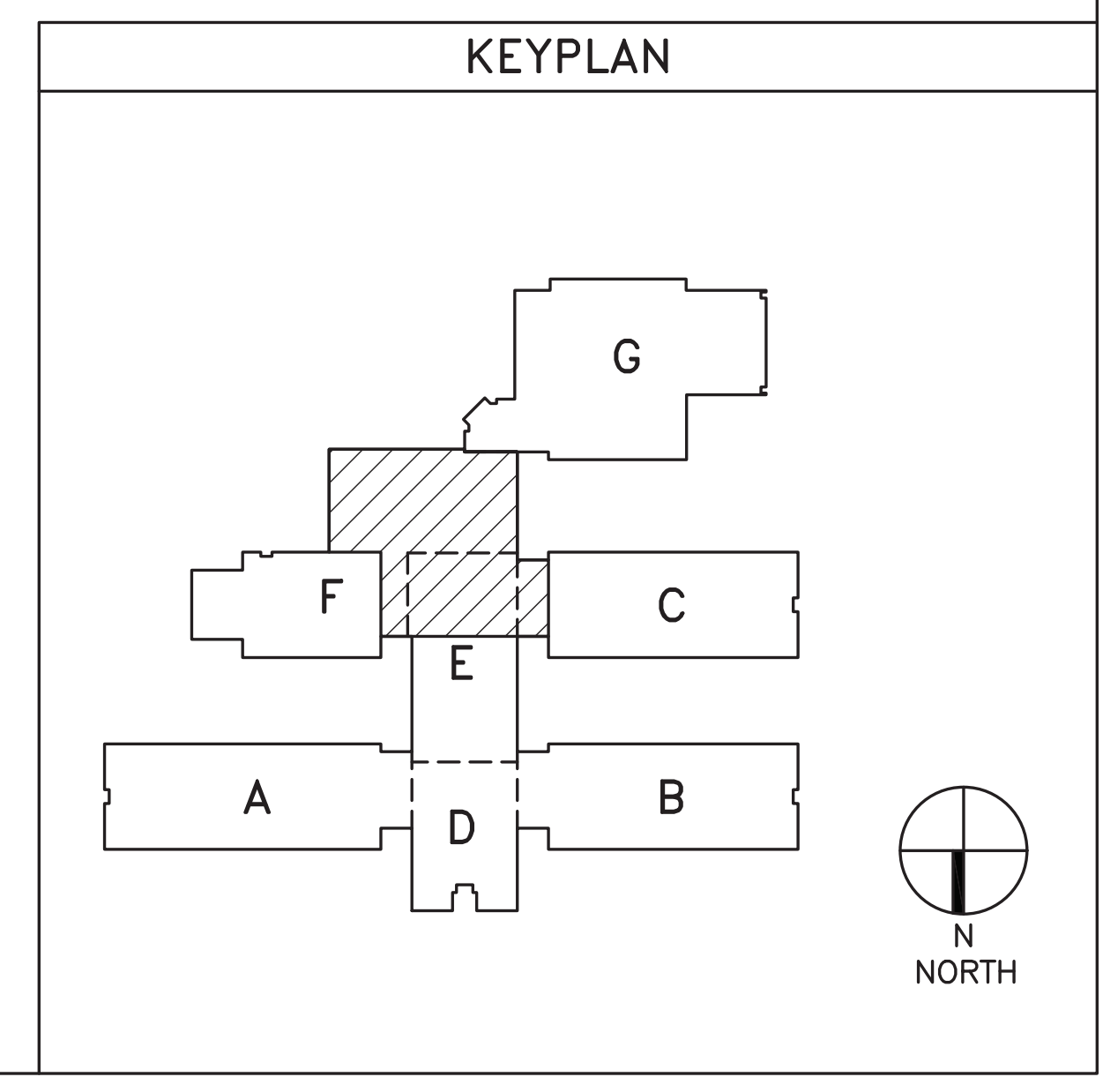
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**FORT MILLS SCHOOL DISTRICT**  
**SPRINGFIELD MIDDLE SCHOOL HVAC UPGRADES**  
 GENERAL CONSTRUCTION PLAN - AREA - C, E, F

**1** GENERAL CONSTRUCTION PLAN - AREA - C, E, F  
SCALE: 1/8" = 1'-0"



Project: \_\_\_\_\_  
Sheet Title: \_\_\_\_\_

**Buford Goff & Associates, Inc.**  
Engineers & Planners

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Suite 200  
Columbia, SC 29201  
Phone: (803) 254-6302

Sheet Number:  
**GC202**

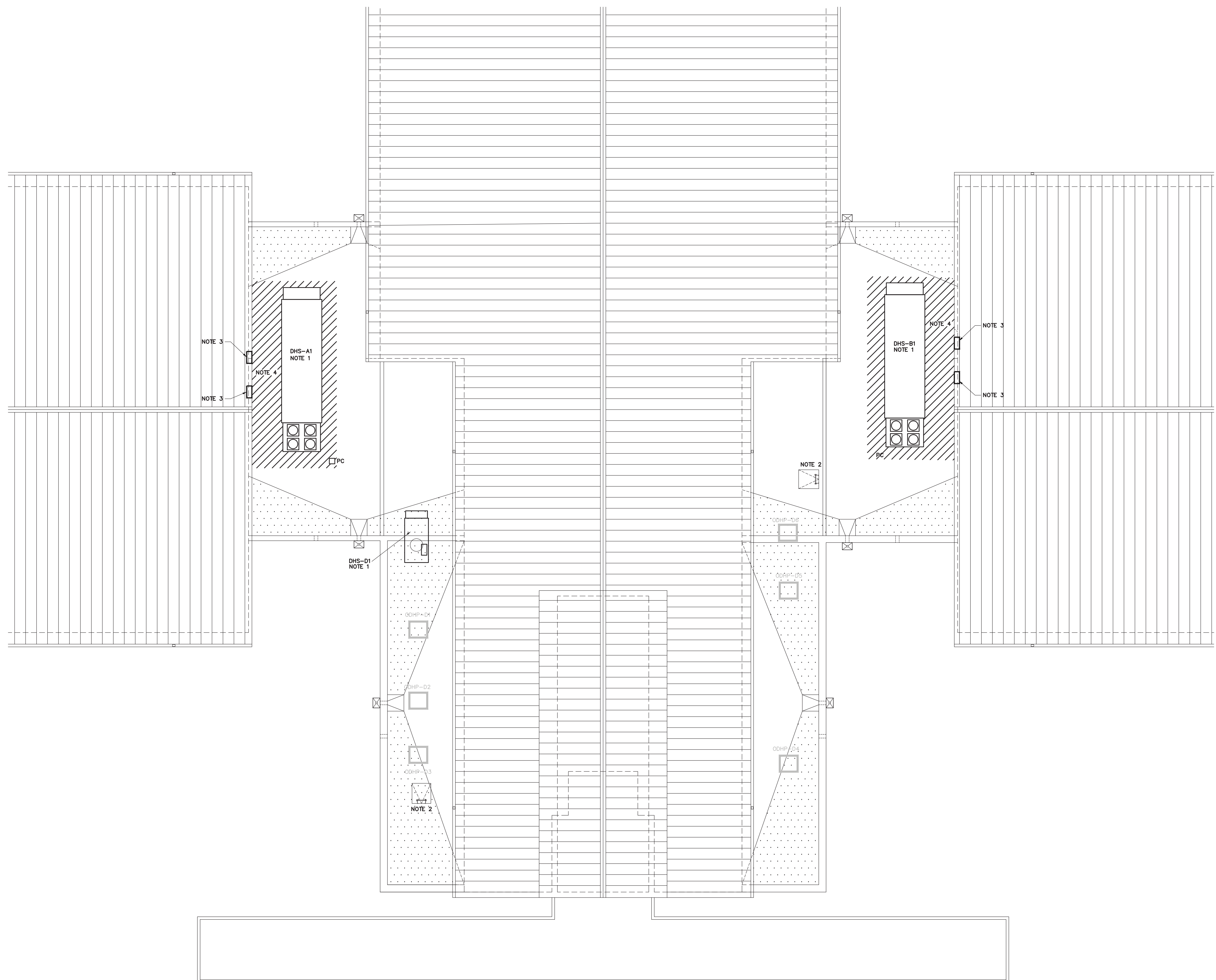
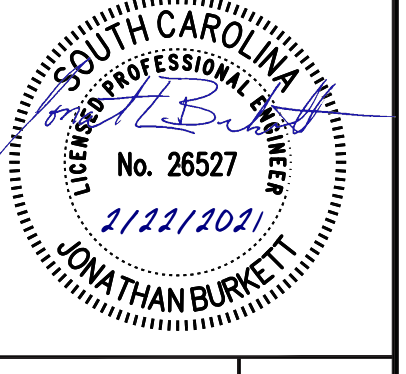
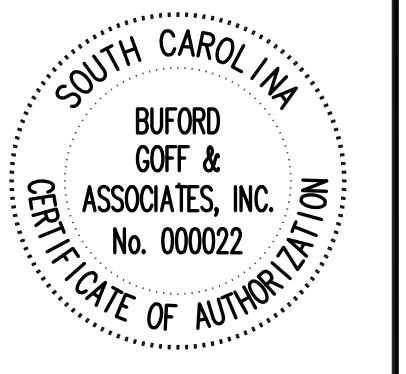
Date: FEBRUARY 22, 2021  
Scale: As Noted  
BGA PROJECT NUMBER: 20028  
CONSTRUCTION DOCUMENTS

GENERAL CONSTRUCTION KEY NOTES

1. COORDINATE LOCATION OF NEW ROOFTOP EQUIPMENT WITH MECHANICAL PLANS.
2. INSTALL NEW LADDER SAFETY POST ON EXISTING ROOF ACCESS.
3. SEAL AND FRAME DUCT PENETRATION THROUGH WALL AS REQUIRED.
4. REPLACE ROOFING AROUND NEW ROOFTOP UNIT AND DUCTWORK AS REQUIRED.

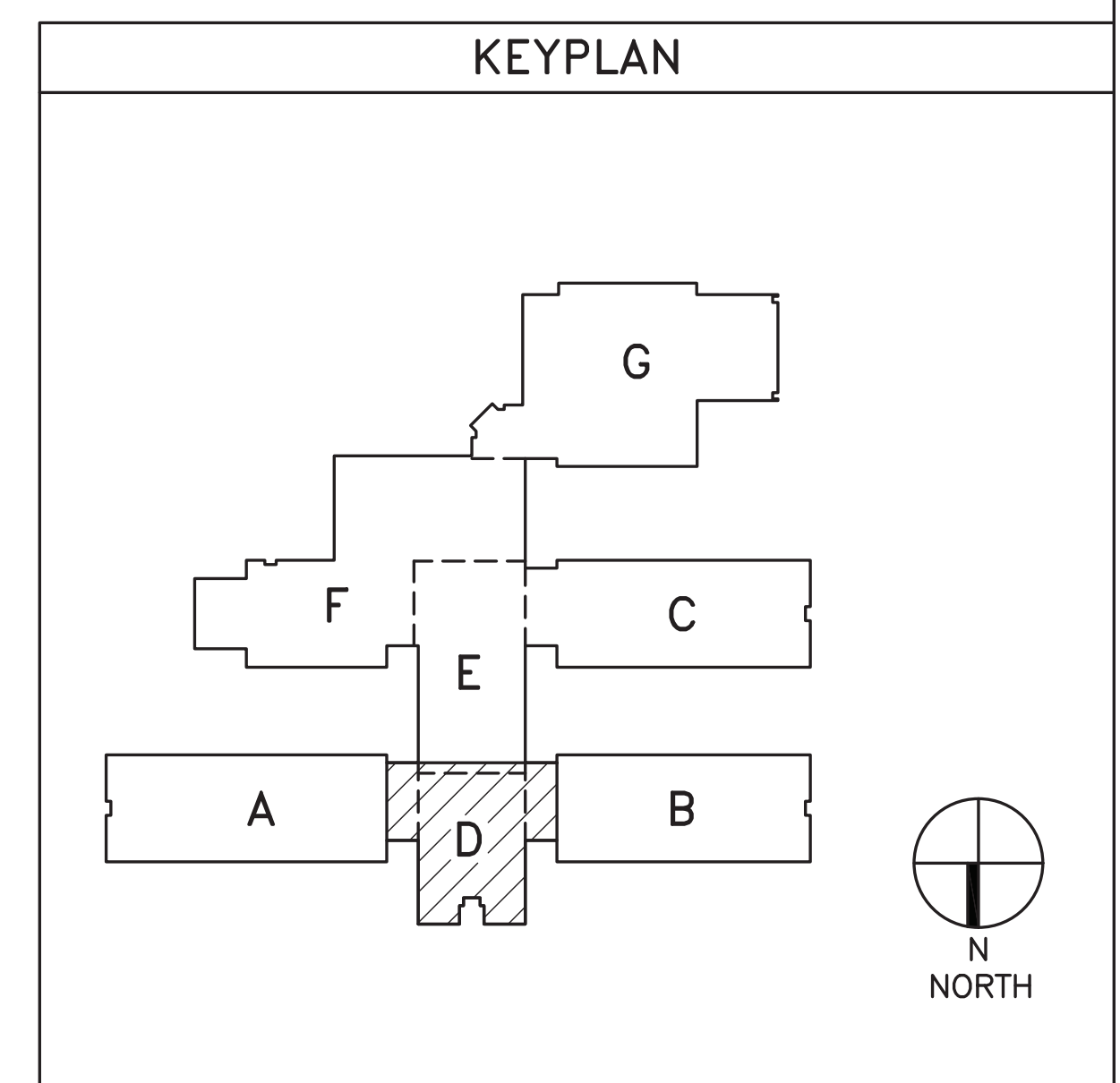
Project Engineer:  
JEB  
 Drawn By:  
xxx  
 Revisions:  
 No. \_\_\_\_\_ Date \_\_\_\_\_  
 No. \_\_\_\_\_ Date \_\_\_\_\_  
 No. \_\_\_\_\_ Date \_\_\_\_\_

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Project: FORT MILLS SCHOOL DISTRICT  
 SPRINGFIELD MIDDLE SCHOOL HVAC UPGRADES  
 Sheet Title: GENERAL CONSTRUCTION PLAN - AREA - A, B, D

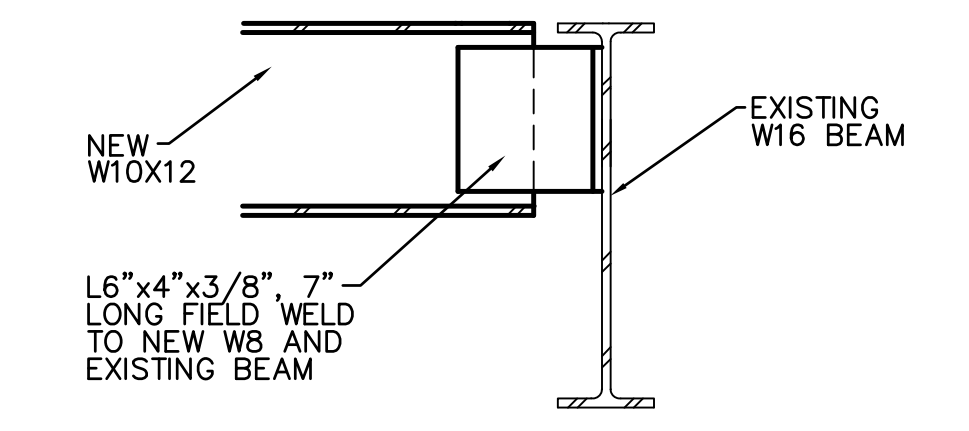
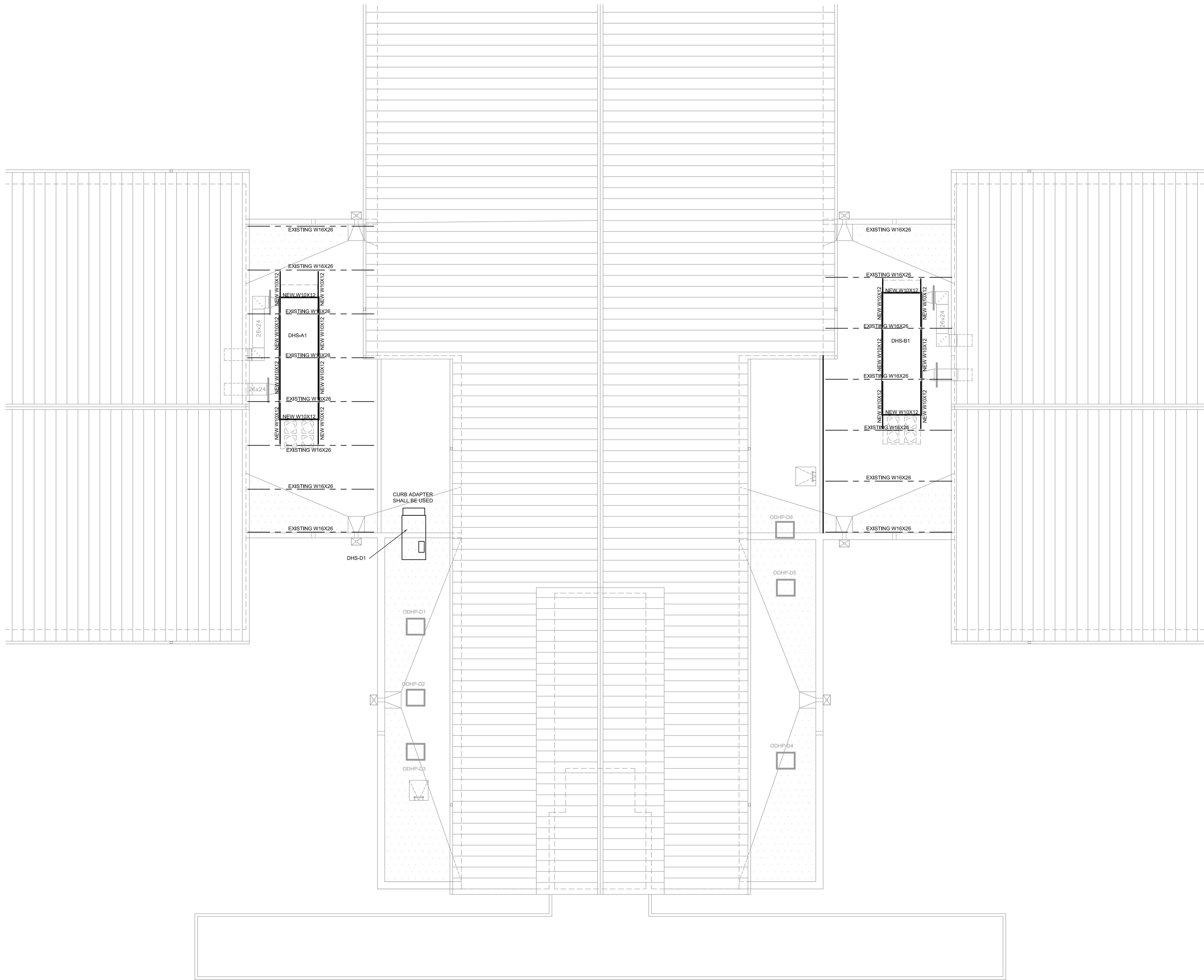
1 GENERAL CONSTRUCTION PLAN - AREA - A, B, D  
 GC203 SCALE: 1/8" = 1'-0"



**Buford Goff & Associates, Inc.**  
 Engineers & Planners  
 1331 Elmwood Ave.  
 Suite 200  
 Columbia, SC 29201  
 Phone: (803) 254-6302

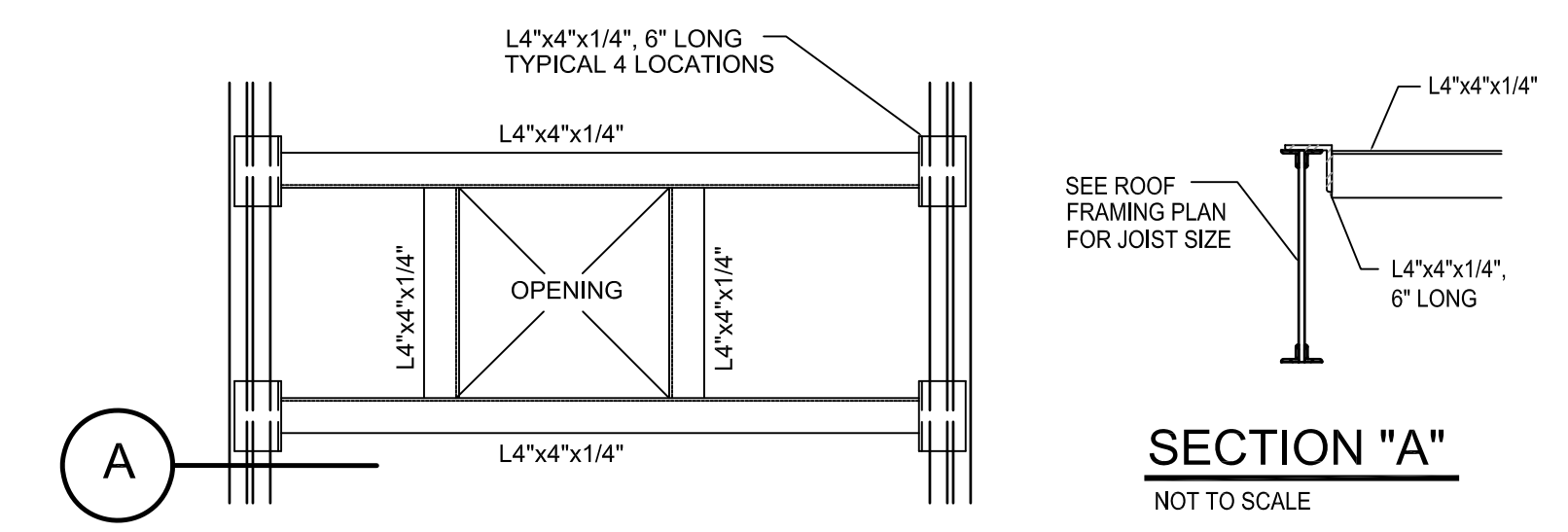
Sheet Number:  
**GC203**

Date: FEBRUARY 22, 2021  
 Scale: As Noted  
 BGA PROJECT NUMBER: 20028  
 CONSTRUCTION DOCUMENTS



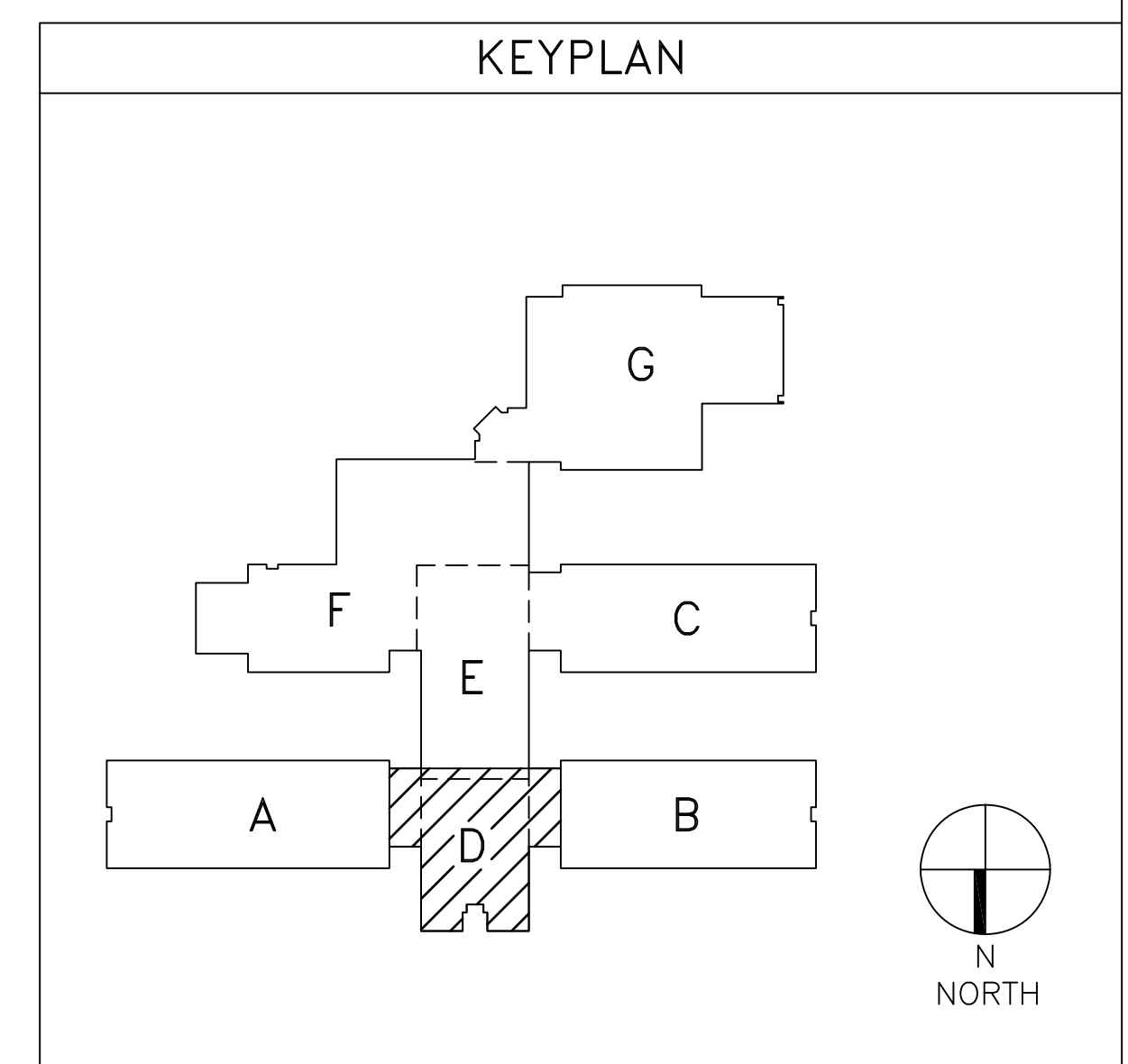
**SECTION AT NEW BEAM TO EXISTING BEAM**  
SCALE: 1/2"=1'-0"

FIELD BOLTING OF NEW TO EXISTING BEAM WOULD BE ACCEPTABLE W/ MINIMUM OF 2-3/4" DIAMETER BOLTS



**TYPICAL ROOF PENETRATION FRAMING DETAIL**  
NOT TO SCALE

**TYPICAL PERIMETER OF CURB SUPPORT - SIMILAR**  
NOT TO SCALE



**STRUCTURAL ROOF FRAMING PLAN AT MECHANICAL RENOVATION - AREA - A, B, D**  
SCALE: 1/8" = 1'-0"

- NOTES:**
1. THE LOCATION OF THE EXISTING ROOF FRAMING MEMBERS WAS TAKEN FROM THE ORIGINAL CONSTRUCTION DOCUMENTS PREPARED BY WGP/ STRUCTURAL ENGINEERING DATED DEC. 10, 2004. CONTRACTOR SHALL VERIFY EXISTING CONDITIONS PRIOR TO FABRICATION OF SECONDARY ANGLE AND STEEL FRAMING MEMBERS SHOWN/REQUIRED AT EVERY NEW ROOF TOP MECHANICAL UNIT.
  2. REFER TO MECHANICAL DRAWINGS FOR LOCATIONS AND ORIENTATION OF NEW EQUIPMENT.
  3. L4"x4"x1/4" FRAMING SHALL BE PLACED AROUND ROOF PENETRATIONS.
  4. CONTRACTOR TO COORDINATE THE ATTACHMENT CONDITIONS/ REQUIREMENTS FOR THE EQUIPMENT SELECTED, TO LOCATE THE ADDITIONAL FRAMING DIRECTLY BELOW THE EQUIPMENT SUPPORT CURB.

Project Engineer: AAS  
Drawn By: GMH  
Revisions:  
No. \_\_\_\_\_ Date \_\_\_\_\_  
No. \_\_\_\_\_ Date \_\_\_\_\_  
No. \_\_\_\_\_ Date \_\_\_\_\_

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**FORT MILLS SCHOOL DISTRICT**  
**SPRINGFIELD MIDDLE SCHOOL HVAC UPGRADES**  
 STRUCTURAL PLAN AND DETAILS

Project: \_\_\_\_\_ Sheet Title: \_\_\_\_\_

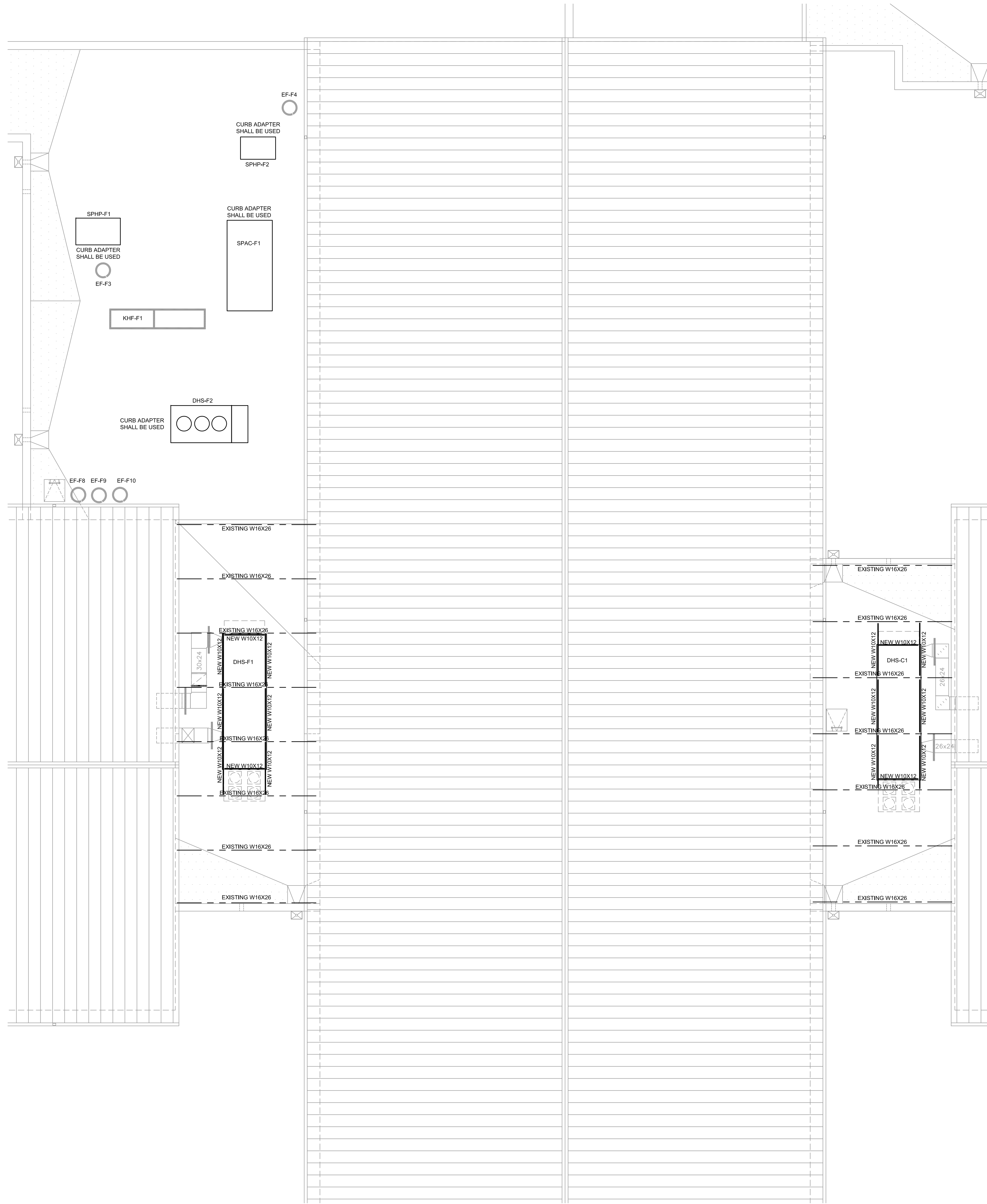
**Mabry Engineering Associates, Inc.**  
Structural Engineers

840 Shull Street  
Suite 100  
West Columbia, SC 29169  
(803) 926-0000  
FAX (803) 926-7600  
M&A# 20-2129

Sheet Number: **S201**

Date: FEBRUARY 22, 2021  
Scale: As Noted  
MEAI PROJECT NUMBER: 20-2129  
CONSTRUCTION DOCUMENTS





STRUCTURAL ROOF FRAMING PLAN AT  
MECHANICAL RENOVATION - AREA - C, E, F

1  
S200

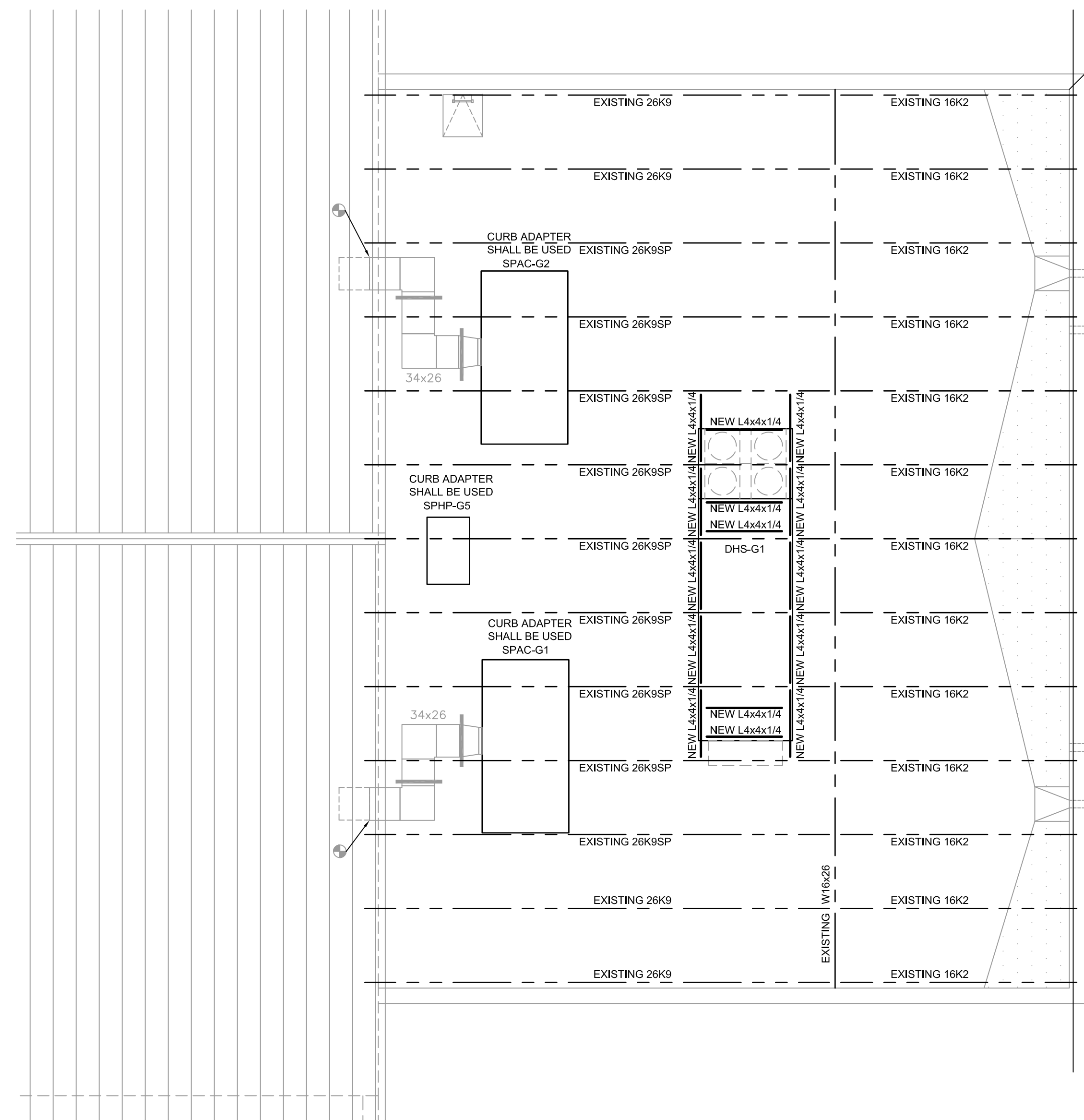
SCALE: 1/8" = 1'-0"

NOTES:

- THE LOCATION OF THE EXISTING ROOF FRAMING MEMBERS WAS TAKEN FROM THE ORIGINAL CONSTRUCTION DOCUMENTS PREPARED BY WSPM STRUCTURAL ENGINEERING DATED DEC. 10, 2004. CONTRACTOR SHALL VERIFY EXISTING CONDITIONS PRIOR TO FABRICATION OF SECONDARY ANGLE AND STEEL FRAMING MEMBERS SHOWN/REQUIRED AT EVERY NEW ROOF TOP MECHANICAL UNIT.
- REFER TO MECHANICAL DRAWINGS FOR LOCATIONS AND ORIENTATION OF NEW EQUIPMENT.
- L4"x4"x1/4" FRAMING SHALL BE PLACED AROUND ROOF PENETRATIONS.
- CONTRACTOR TO COORDINATE THE ATTACHMENT CONDITIONS/ REQUIREMENTS FOR THE EQUIPMENT SELECTED, TO LOCATE THE ADDITIONAL FRAMING DIRECTLY BELOW THE EQUIPMENT SUPPORT CURB.

GENERAL NOTES:

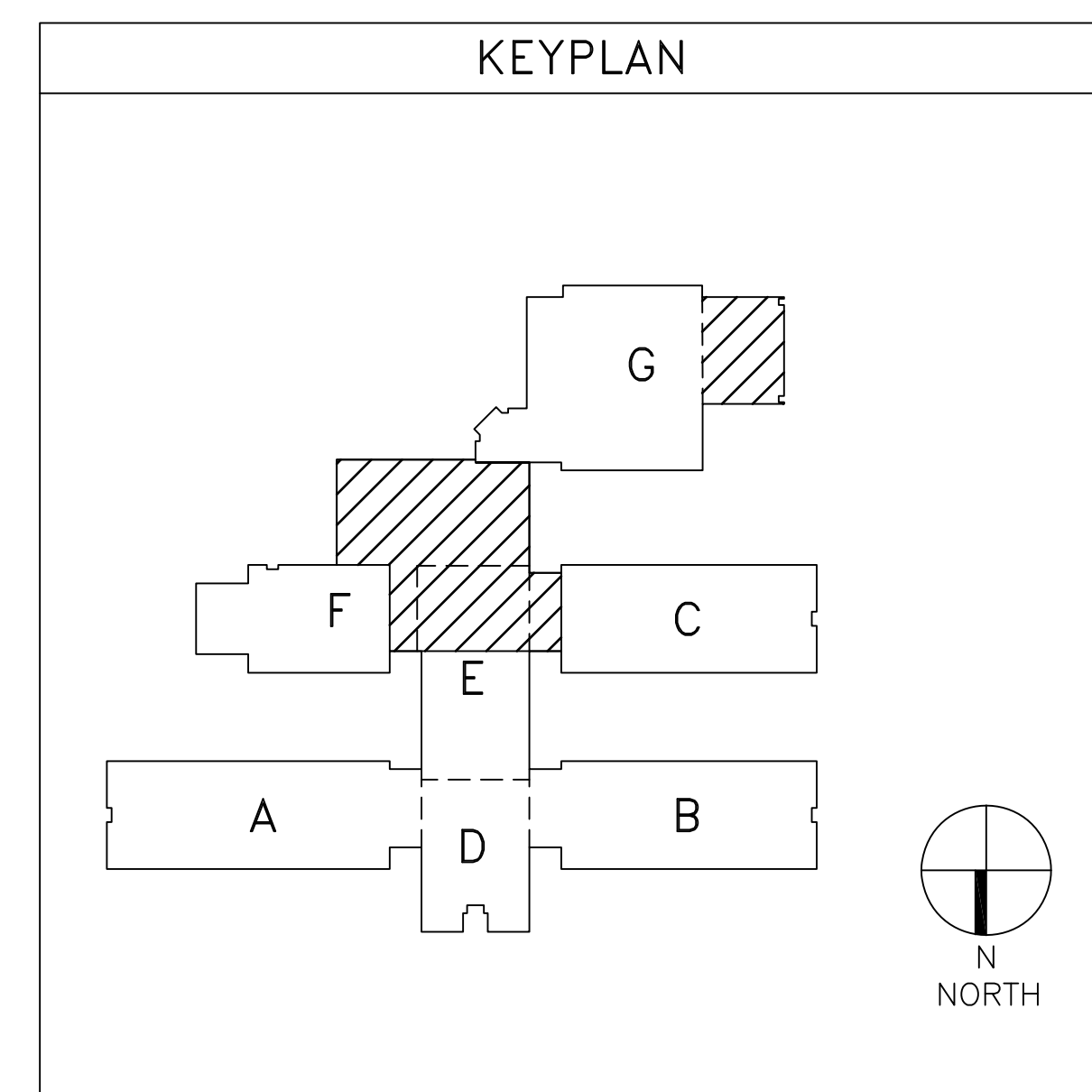
- LOADS:
  - SEISMIC DESIGN CATEGORY C
  - DEAD LOADS: ACTUAL WEIGHTS OF MATERIALS, EQUIPMENT, AND ETC.
  - BUILDING CODE - INTERNATIONAL BUILDING CODE 2018
- SEE MECHANICAL DRAWINGS FOR MISCELLANEOUS DETAILS NOT SHOWN ON STRUCTURAL DRAWINGS.
- CONTRACTOR SHALL VERIFY ALL EXISTING DIMENSIONS AND ELEVATIONS BEFORE ANY FABRICATION HAS STARTED.
- PROVIDE AND INSTALL ALL TEMPORARY BRACING AS REQUIRED FOR SAFETY/STABILITY OF THE STRUCTURE UNTIL STRUCTURE IS COMPLETE.
- BUILDING CONTRACTOR SHALL COORDINATE DIMENSIONS AND LOCATIONS OF ANGLE FRAMES AND STRUCTURAL SUPPORT FOR MECHANICAL EQUIPMENT AND HOLES IN ROOF.
- CONTRACTOR SHALL VISIT SITE TO BECOME THOROUGHLY FAMILIAR WITH ALL EXISTING CONDITIONS AND SHALL FIELD VERIFY ALL EXISTING DIMENSIONS, FRAMING CONDITIONS, AND CONNECTIONS BEFORE BEGINNING CONSTRUCTION OR ANY FABRICATION.
- WHERE DETAIL IS SHOWN ON STRUCTURAL DRAWINGS FOR ONE CONDITION, IT SHALL APPLY TO ALL SIMILAR OR LIKE CONDITIONS, UNLESS NOTED OR SHOWN OTHERWISE ON PLANS.
- STRUCTURAL STEEL:
  - STEEL SHALL CONFORM TO THE FOLLOWING ASTM SPECIFICATIONS, UNLESS NOTED OTHERWISE ON PLANS:
    - STRUCTURAL STEEL BEAMS ----- A-572(Fy=50ksi)
    - STRUCTURAL STEEL PIPE ----- A-53(Fy=35ksi)
    - STRUCTURAL STEEL TUBE ----- A-500(Fy=46ksi)
    - MISCELLANEOUS STEEL ----- A-36(Fy=36ksi)
  - BOLTED CONNECTIONS:
    - ALL CONNECTIONS (UNLESS NOTED OTHERWISE) SHALL BE MADE WITH 3/4" DIAMETER A-325X BOLTS.
    - THE SHOP DRAWINGS SHALL CLEARLY INDICATE THE TYPE OF BOLTS USED IN EACH CONNECTION AND THE ALLOWABLE VALUES USED FOR THE VARIOUS BOLT TYPES.
    - THE FOLLOWING MINIMUM STANDARDS APPLY:
      - MINIMUM PLATE THICKNESS = 3/8"
      - MINIMUM BOLT DIAMETER = 3/4"
      - MINIMUM WELD = 3/16" THICK THROAT
      - MINIMUM DESIGN LOAD ON ANY CONNECTION = 15kips
  - WELDED CONNECTIONS:
    - ALL SHOP AND FIELD WELDING SHALL CONFORM TO ASW STRUCTURAL WELDING CODE-STEEL ANS/AWS - D1.1
  - SPLICING OF STRUCTURAL STEEL WAS NOT DETAILED AND IS PROHIBITED WITHOUT PRIOR WRITTEN APPROVED OF THE ARCHITECT.
- PROVIDE 4" x 4" x 1/4" ANGLE FRAME (SPANNING BETWEEN JOISTS OR OTHER STRUCTURE) FOR EQUIPMENT, OR OPENINGS IN ROOF CAUSED BY EQUIPMENT NOT SHOWN ON STRUCTURAL DRAWINGS.
- GROUT VOID BETWEEN NEW BEAMS AND EXISTING STRUCTURE SOLID TO ENSURE ADEQUATE BEARING.
- REVIEW OF SUBMITTAL AND/OR SHOP DRAWINGS BY THE STRUCTURAL ENGINEER OF RECORD DOES NOT RELIEVE THE CONTRACTOR OF THE SOLE RESPONSIBILITY TO REVIEW AND CHECK SHOP DRAWINGS BEFORE SUBMITTAL TO THE STRUCTURAL ENGINEER OF RECORD. THE CONTRACTOR REMAINS SOLELY RESPONSIBLE FOR ERRORS AND OMISSIONS ASSOCIATED WITH THE PREPARATION OF SHOP DRAWINGS AS THEY PERTAIN TO MEMBER SIZES, DETAILS, AND DIMENSIONS SPECIFIED IN THE CONTRACT DOCUMENTS. CONTRACTOR ALSO SHALL BE RESPONSIBLE FOR MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES OF CONSTRUCTION. SEE SPECIFIC PROVISIONS IN THE CONTRACT DOCUMENTS DEALING WITH THE APPROPRIATE DESIGN RESPONSIBILITIES OF CONTRACTORS, SUBCONTRACTORS, AND SUPPLIERS.



STRUCTURAL ROOF FRAMING PLAN AT  
MECHANICAL RENOVATION - AREA - G

2  
S200

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



Project Engineer: AAS  
 Drawn By: GMH

Revisions:  
 No. \_\_\_\_\_ Date \_\_\_\_\_  
 No. \_\_\_\_\_ Date \_\_\_\_\_  
 No. \_\_\_\_\_ Date \_\_\_\_\_

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 No. 17457  
 MABRY ENGINEERING ASSOCIATES, INC.  
 No. C03489  
 STATE OF SOUTH CAROLINA

**SOUTH CAROLINA REGISTERED PROFESSIONAL ENGINEER**  
 MABRY ENGINEERING ASSOCIATES, INC.  
 No. C03489  
 STATE OF SOUTH CAROLINA

Project: FORT MILLS SCHOOL DISTRICT  
 SPRINGFIELD MIDDLE SCHOOL HVAC UPGRADES

Sheet Title: STRUCTURAL PLANS AND NOTES

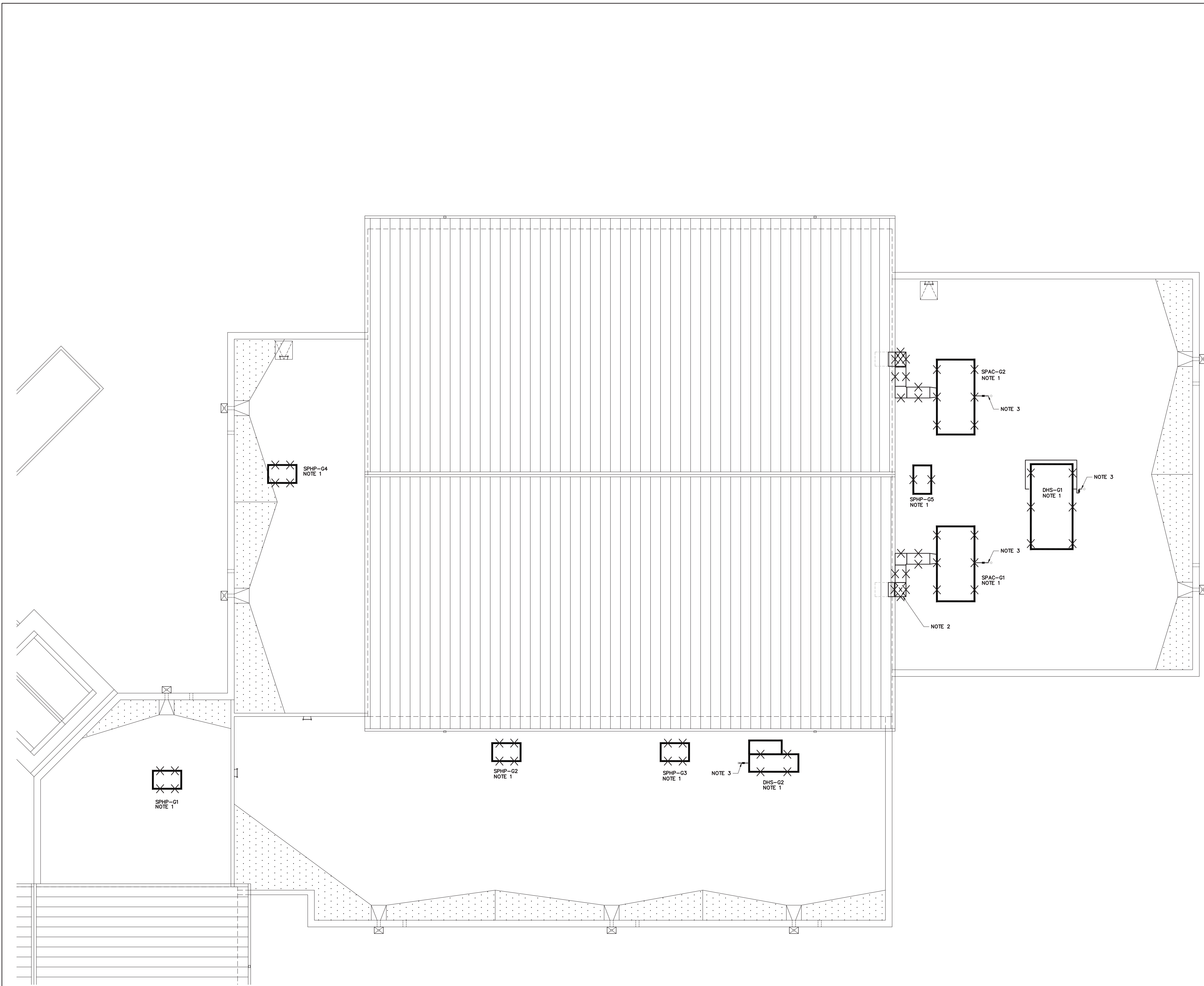
Project: \_\_\_\_\_  
 Sheet Title: \_\_\_\_\_

**Mabry Engineering Associates, Inc.**  
 Structural Engineers

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 FAX (803) 926-7600  
 MEA# 20-2129

Sheet Number: S200

Date: FEBRUARY 22, 2021  
 Scale: As Noted  
 MEA# PROJECT NUMBER 20-2129  
 CONSTRUCTION DOCUMENTS



**HVAC DEMOLITION KEY NOTES**

- DEMOLISH EXISTING UNIT ON ROOF. INSPECT EXISTING CURB TO VERIFY PROPER ATTACHMENT TO THE STRUCTURE.
- DEMOLISH DUCTWORK BACK TO WALL PENETRATION.
- DEMOLISH GAS PIPING BACK TO SHUTOFF VALVE. SHUT OFF GAS AND THOROUGHLY EVACUATE LINE. TEMPORARILY CAP PIPING UNTIL NEW PIPING INSTALLED.

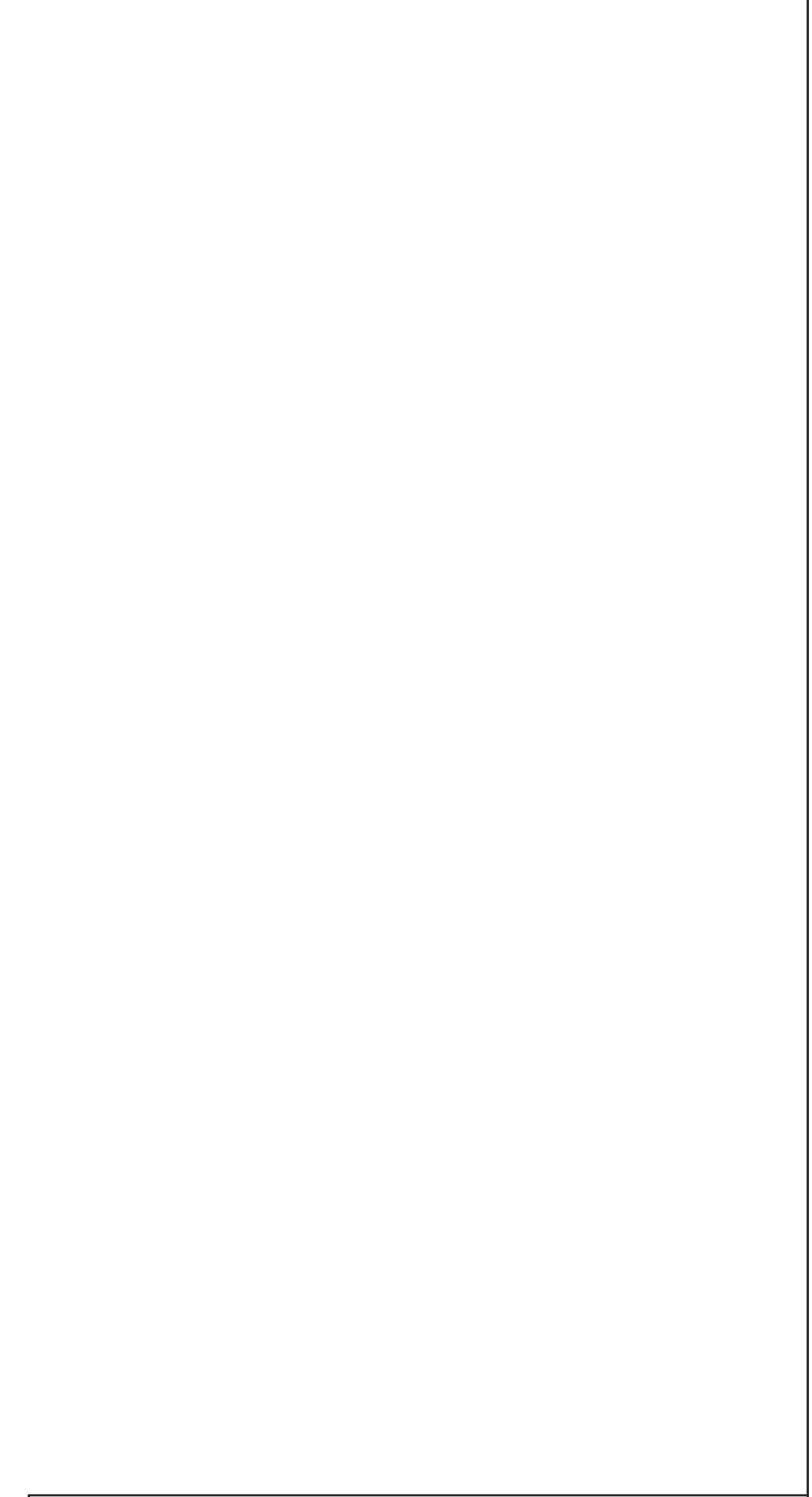
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**TEST AND BALANCE**

- PRIOR TO DEMOLITION, MEASURE EACH ROOFTOP UNIT'S SUPPLY, RETURN, EXHAUST AND OUTSIDE AIR FLOW.
- SUBMIT PREDEMOLITION TEST AND BALANCE REPORT TO ENGINEER FOR REVIEW.

Project Engineer: JEB  
 Drawn By: xxx  
 Revisions:  
 No. \_\_\_\_\_ Date \_\_\_\_\_  
 No. \_\_\_\_\_ Date \_\_\_\_\_  
 No. \_\_\_\_\_ Date \_\_\_\_\_

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1 MECHANICAL DEMOLITION PLAN - AREA - G  
 MD201 SCALE: 1/8" = 1'-0"

FORT MILLS SCHOOL DISTRICT  
 SPRINGFIELD MIDDLE SCHOOL HVAC UPGRADES  
 MECHANICAL DEMOLITION PLAN - AREA - G

Project: \_\_\_\_\_  
 Sheet Title: \_\_\_\_\_

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 Engineers & Planners  
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**MD201**

Date: FEBRUARY 22, 2021  
 Scale: As Noted  
 BGA PROJECT NUMBER: 20028  
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HVAC DEMOLITION KEY NOTES

- DEMOLISH EXISTING UNIT ON ROOF. INSPECT EXISTING CURB TO VERIFY PROPER ATTACHMENT TO THE STRUCTURE.
- DEMOLISH DUCTWORK BACK TO WALL PENETRATION.
- DEMOLISH GAS PIPING BACK TO SHUTOFF VALVE. SHUT OFF GAS AND THOROUGHLY EVACUATE LINE. TEMPORARILY CAP PIPING UNTIL NEW PIPING INSTALLED.
- DEMOLISH GAS PIPING DOWN BELOW ROOF TO ALLOW ROOM FOR NEW UNIT INSTALLATION. SHUT OFF GAS AND THOROUGHLY EVACUATE LINE. TEMPORARILY CAP BELOW ROOF UNTIL NEW PIPING INSTALLED.
- DEMOLISH EXISTING UNIT AND CURB ON ROOF.

TEST AND BALANCE

- PRIOR TO DEMOLITION, MEASURE EACH ROOFTOP UNIT'S SUPPLY, RETURN, EXHAUST AND OUTSIDE AIR AIRFLOW.
- SUBMIT PREDEMOLITION TEST AND BALANCE REPORT TO ENGINEER FOR REVIEW.

Project Engineer:  
JEB

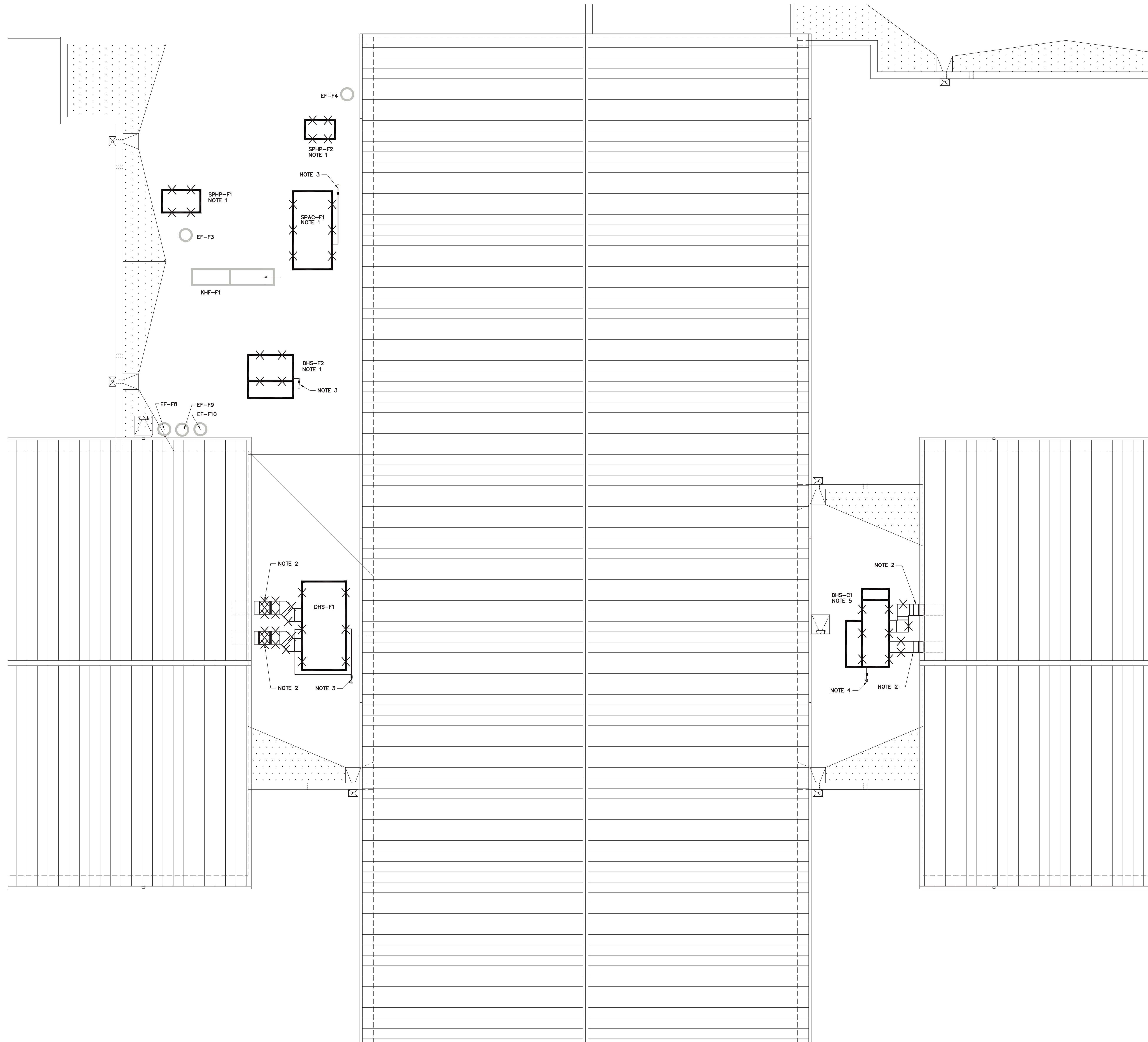
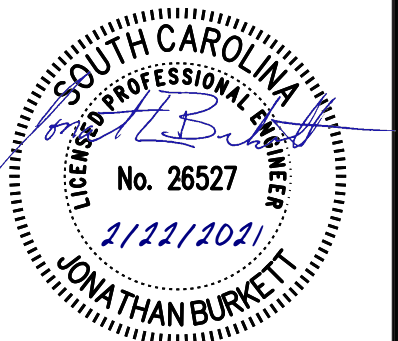
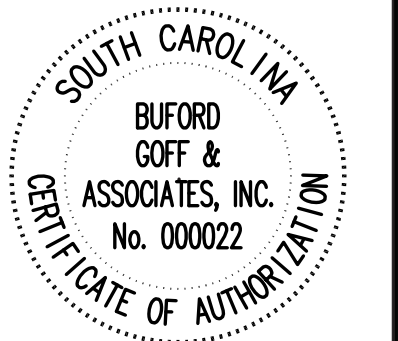
Drawn By:  
xxx

Revisions:

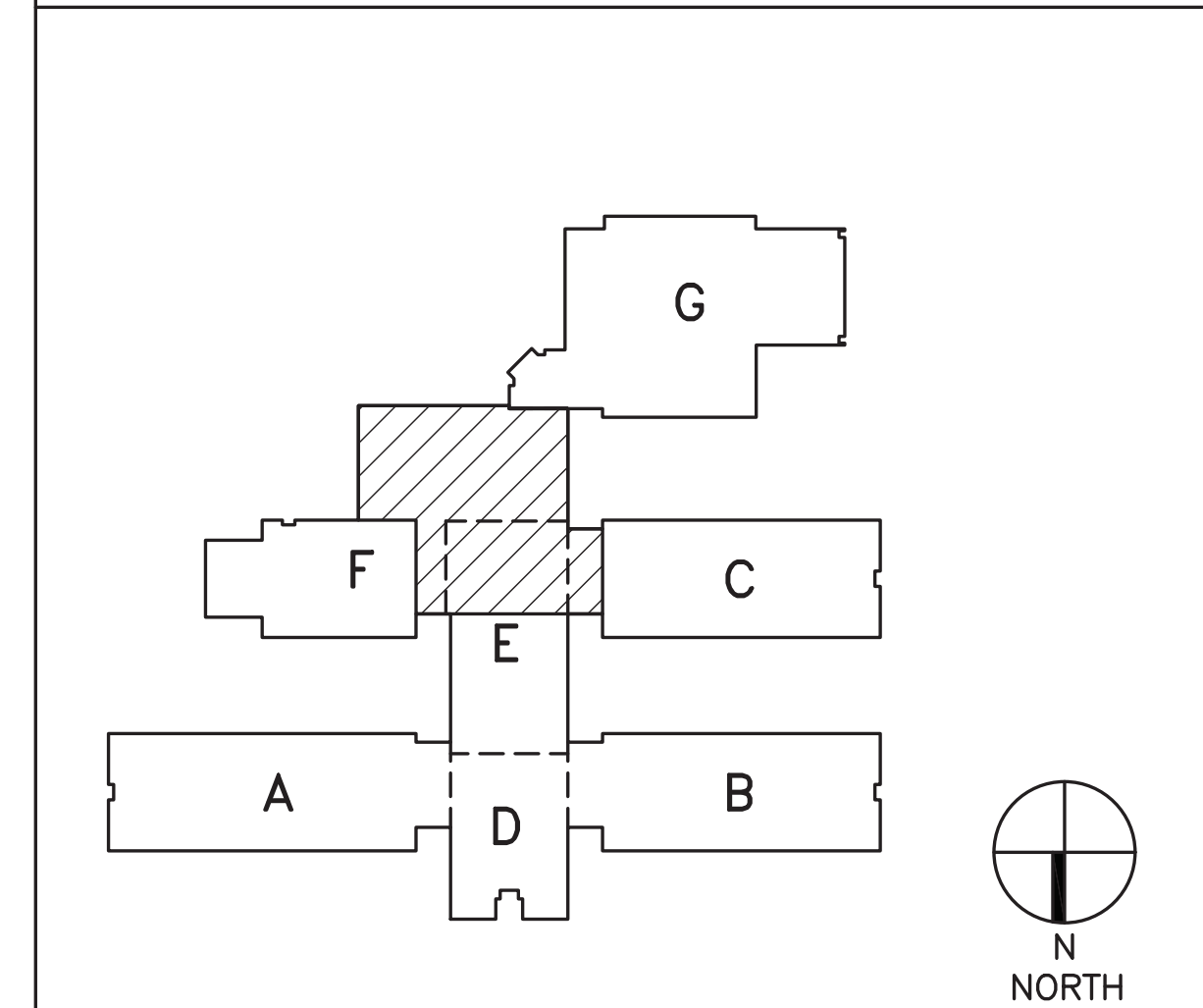
No. \_\_\_\_\_ Date \_\_\_\_\_  
No. \_\_\_\_\_ Date \_\_\_\_\_  
No. \_\_\_\_\_ Date \_\_\_\_\_

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KEYPLAN



MECHANICAL DEMOLITION PLAN - AREA - C, E, F  
SCALE: 1/8" = 1'-0"

FORT MILLS SCHOOL DISTRICT  
 SPRINGFIELD MIDDLE SCHOOL HVAC UPGRADES  
 MECHANICAL DEMOLITION PLAN - AREA - C, E, F

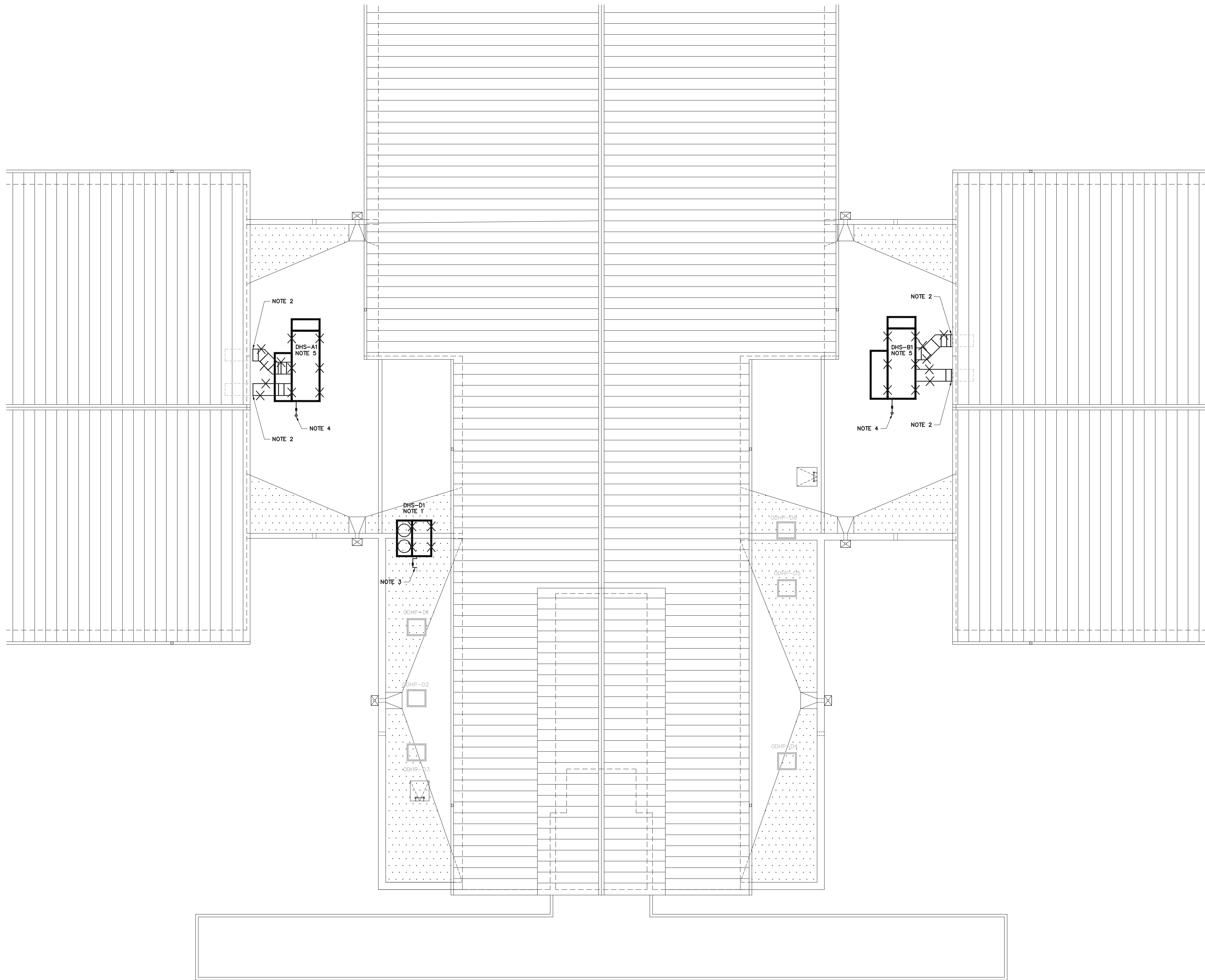
**Buford Goff**  
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**MD202**

Date: FEBRUARY 22, 2021  
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BGA PROJECT NUMBER: 20028  
CONSTRUCTION DOCUMENTS



HVAC DEMOLITION KEY NOTES

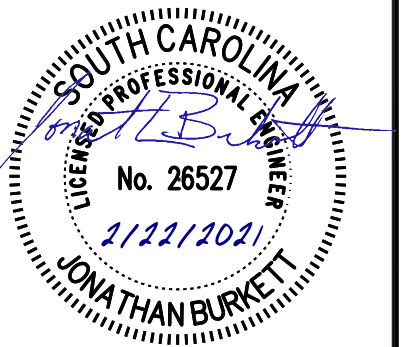
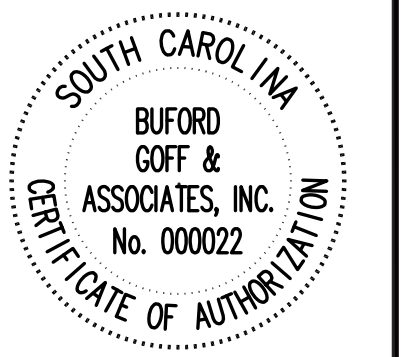
1. DEMOLISH EXISTING UNIT ON ROOF. INSPECT EXISTING CURB TO VERIFY PROPER ATTACHMENT TO THE STRUCTURE.
2. DEMOLISH DUCTWORK BACK TO WALL PENETRATION.
3. DEMOLISH GAS PIPING BACK TO SHUTOFF VALVE. SHUT OFF GAS AND THOROUGHLY EVACUATE LINE. TEMPORARILY CAP PIPING UNTIL NEW PIPING INSTALLED.
4. DEMOLISH GAS PIPING DOWN BELOW ROOF TO ALLOW ROOM FOR NEW UNIT INSTALLATION. SHUT OFF GAS AND THOROUGHLY EVACUATE LINE. TEMPORARILY CAP BELOW ROOF UNTIL NEW PIPING INSTALLED.
5. DEMOLISH EXISTING UNIT AND CURB ON ROOF.

TEST AND BALANCE

1. PRIOR TO DEMOLITION, MEASURE EACH ROOFTOP UNIT'S SUPPLY, RETURN, EXHAUST AND OUTSIDE AIR FLOW.
2. SUBMIT PREDEMOLITION TEST AND BALANCE REPORT TO ENGINEER FOR REVIEW.

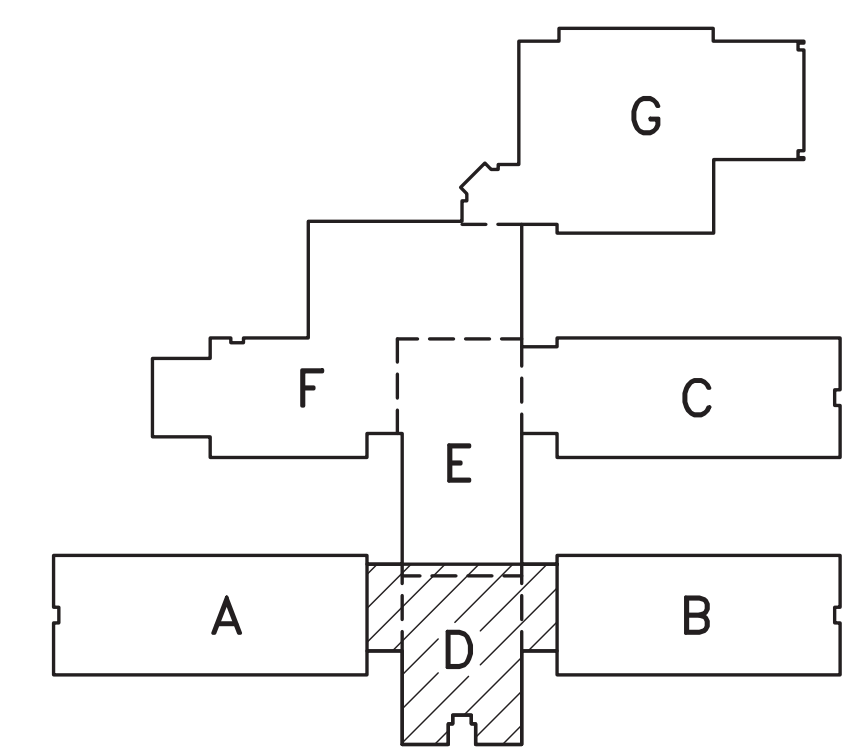
Project Engineer:  
JEB  
 Drawn By:  
xxx  
 Revisions:  
 No. \_\_\_\_\_ Date \_\_\_\_\_  
 No. \_\_\_\_\_ Date \_\_\_\_\_  
 No. \_\_\_\_\_ Date \_\_\_\_\_

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FORT MILLS SCHOOL DISTRICT  
 SPRINGFIELD MIDDLE SCHOOL HVAC UPGRADES  
 MECHANICAL DEMOLITION PLAN - AREA - A, B, D

KEYPLAN



HVAC RENOVATION KEY NOTES

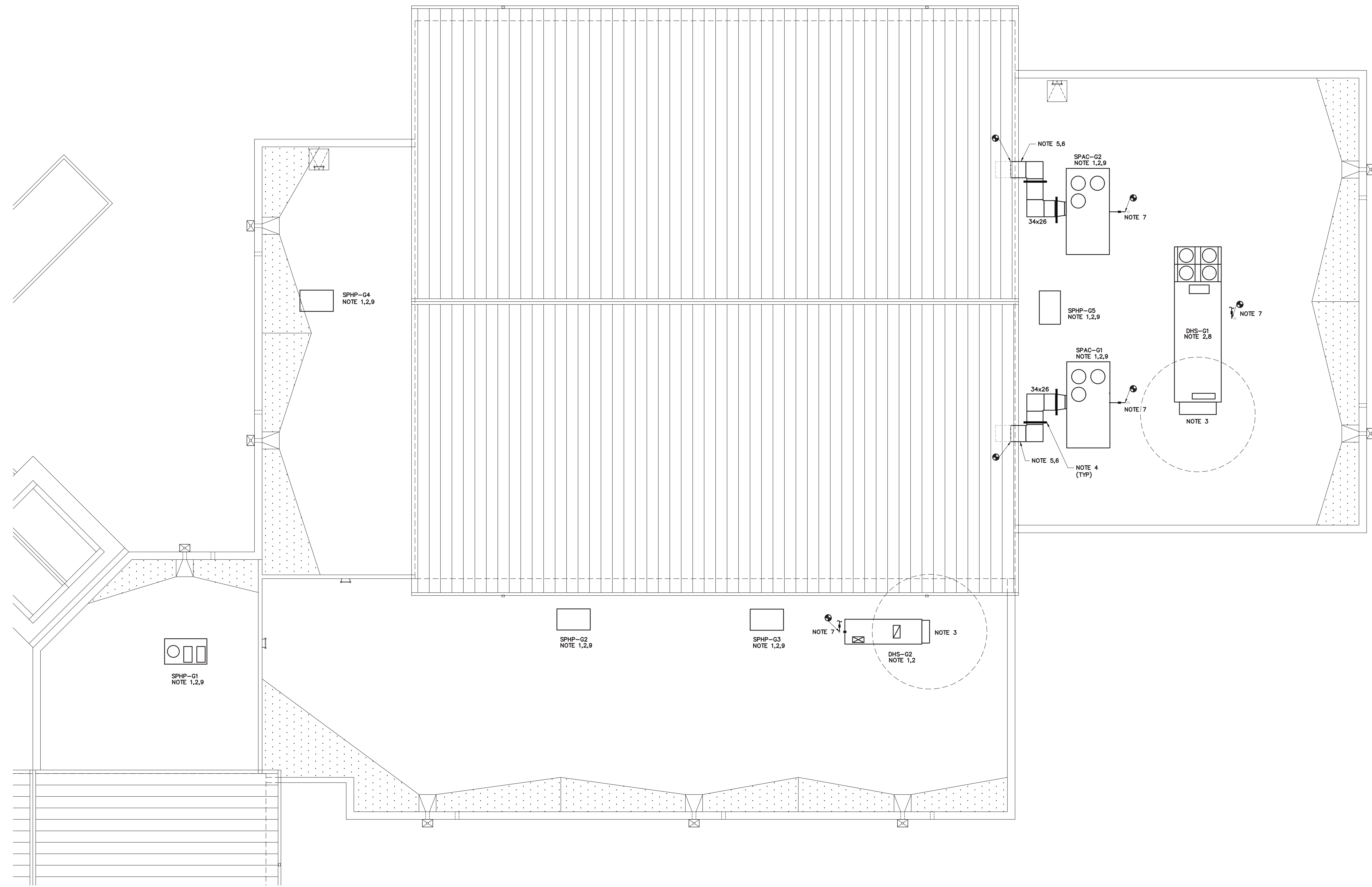
1. INSTALL NEW UNITS ON ADAPTER CURB. COORDINATE SIZE OF NEW CURB WITH EXISTING CURB DIMENSIONS. ATTACH NEW CURB TO EXISTING CURB.
2. PROVIDE DEEP SEAL P-TRAP AND ROUTE CONDENSATE TO DOWNSPOUT.
3. OUTSIDE AIR INTAKE. NO PLUMBING VENTS SHALL BE WITHIN 10 FEET OF THE INTAKE.
4. PROVIDE NEW DUCT ROOF DUCT SUPPORTS. SEE DETAIL.
5. FIELD VERIFY EXISTING DUCT SIZE.
6. ROUTE DUAL WALL DUCT THROUGH EXTERIOR WALL AND TRANSITION TO CONNECT TO EXISTING DUCTWORK. PENETRATE EXTERIOR WALL HIGH ENOUGH TO ALLOW WATERPROOFING UNDER DUCTWORK.
7. CONNECT TO EXISTING GAS LINE AND ROUTE GAS TO UNIT CONNECTION. PROVIDE NEW GAS REGULATOR FOR THE UNIT. SEE CONNECTION DETAIL.
8. INSTALL NEW UNIT ON NEW VIBRATION ISOLATION CURB. COORDINATE EXACT CURB LOCATION WITH STRUCTURE BELOW. RECONNECT DUCTWORK BELOW TO NEW UNIT CONNECTIONS.
9. PROVIDE NEW COMBINATION SPACE THERMOSTAT AND HUMIDITY SENSOR. LOCATE NEW THERMOSTAT/HUMIDITY SENSOR IN THE SAME APPROXIMATE LOCATION AS THE EXISTING. MOUNT DEVICES AT ADA HEIGHTS. SEE DETAIL.

Project Engineer: JEB  
 Drawn By: xxx  
 Revisions:  
 No. \_\_\_\_\_ Date \_\_\_\_\_  
 No. \_\_\_\_\_ Date \_\_\_\_\_  
 No. \_\_\_\_\_ Date \_\_\_\_\_

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 BUFORD GOFF & ASSOCIATES, INC.  
 No. 000022  
 CERTIFICATE OF AUTHORIZATION

**SOUTH CAROLINA**  
 REGISTERED PROFESSIONAL ENGINEER  
 No. 26527  
 1/22/2021  
 NATHAN BURDET



1 M201 MECHANICAL ROOF PLAN - AREA - G  
 SCALE: 1/8" = 1'-0"

KEYPLAN

N  
NORTH

Date: FEBRUARY 22, 2021  
 Scale: As Noted  
 BGA PROJECT NUMBER: 20028  
 CONSTRUCTION DOCUMENTS

Project: FORT MILLS SCHOOL DISTRICT  
 SPRINGFIELD MIDDLE SCHOOL HVAC UPGRADES  
 Sheet Title: MECHANICAL ROOF PLAN - AREA - G

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 Suite 200  
 Columbia, SC 29201  
 Phone: (803) 254-6302

Sheet Number:  
**M201**

HVAC RENOVATION KEY NOTES

- INSTALL NEW UNITS ON ADAPTER CURB. COORDINATE SIZE OF NEW CURB WITH EXISTING CURB DIMENSIONS. ATTACH NEW CURB TO EXISTING CURB.
- PROVIDE DEEP SEAL P-TRAP AND ROUTE CONDENSATE TO DOWNSPOUT.
- OUTSIDE AIR INTAKE. NO PLUMBING VENTS SHALL BE WITHIN 10 FEET OF THE INTAKE.
- PROVIDE NEW DUCT ROOF DUCT SUPPORTS. SEE DETAIL.
- FIELD VERIFY EXISTING DUCT SIZE.
- ROUTE DUAL WALL DUCT THROUGH EXTERIOR WALL AND TRANSITION TO CONNECT TO EXISTING DUCTWORK. PENETRATE EXTERIOR WALL HIGH ENOUGH TO ALLOW WATERPROOFING UNDER DUCTWORK.
- INSTALL NEW UNIT ON NEW VIBRATION ISOLATION CURB. COORDINATE EXACT CURB LOCATION WITH STRUCTURE BELOW.
- CONNECT TO EXISTING GAS LINE AND ROUTE GAS TO UNIT CONNECTION. PROVIDE NEW GAS REGULATOR FOR THE UNIT. SEE CONNECTION DETAIL.
- CONNECT TO EXISTING 1" GAS LINE AND ROUTE GAS UP THROUGH ROOF AND OVER TO THE UNIT. PROVIDE NEW GAS REGULATOR FOR THE UNIT. SEE CONNECTION DETAIL AND PIPE THROUGH ROOF DETAIL. COORDINATE FINAL LOCATION OF ROOF PENETRATION WITH UNIT GAS CONNECTION LOCATION.
- INSTALL NEW UNIT A MINIMUM OF 10 FEET AWAY FROM THE EDGE OF THE ROOF.
- PROVIDE NEW COMBINATION SPACE THERMOSTAT AND HUMIDITY SENSOR. LOCATE NEW THERMOSTAT/HUMIDITY SENSOR IN THE SAME APPROXIMATE LOCATION AS THE EXISTING. MOUNT DEVICES AT ADA HEIGHTS. SEE DETAIL.

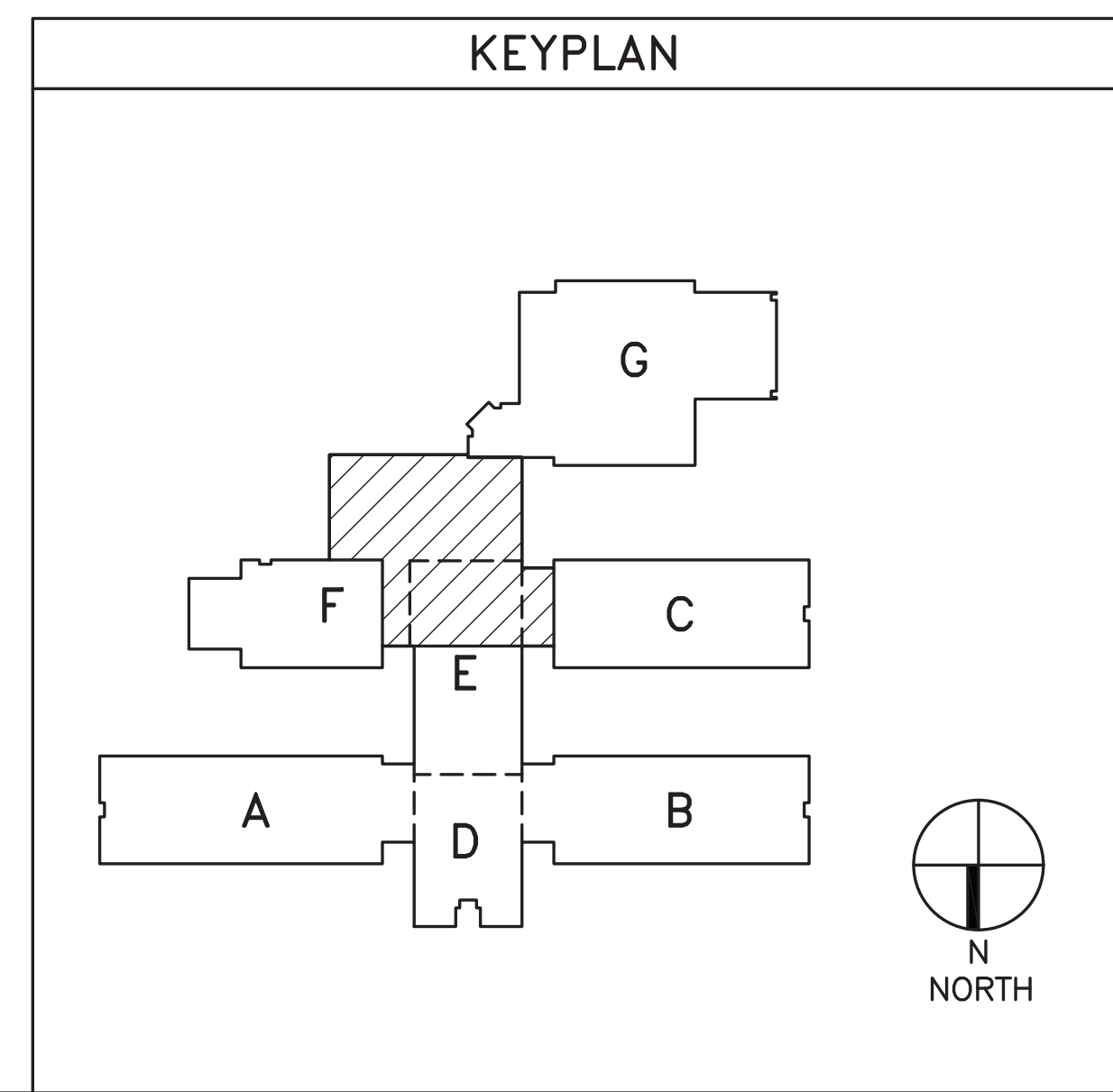
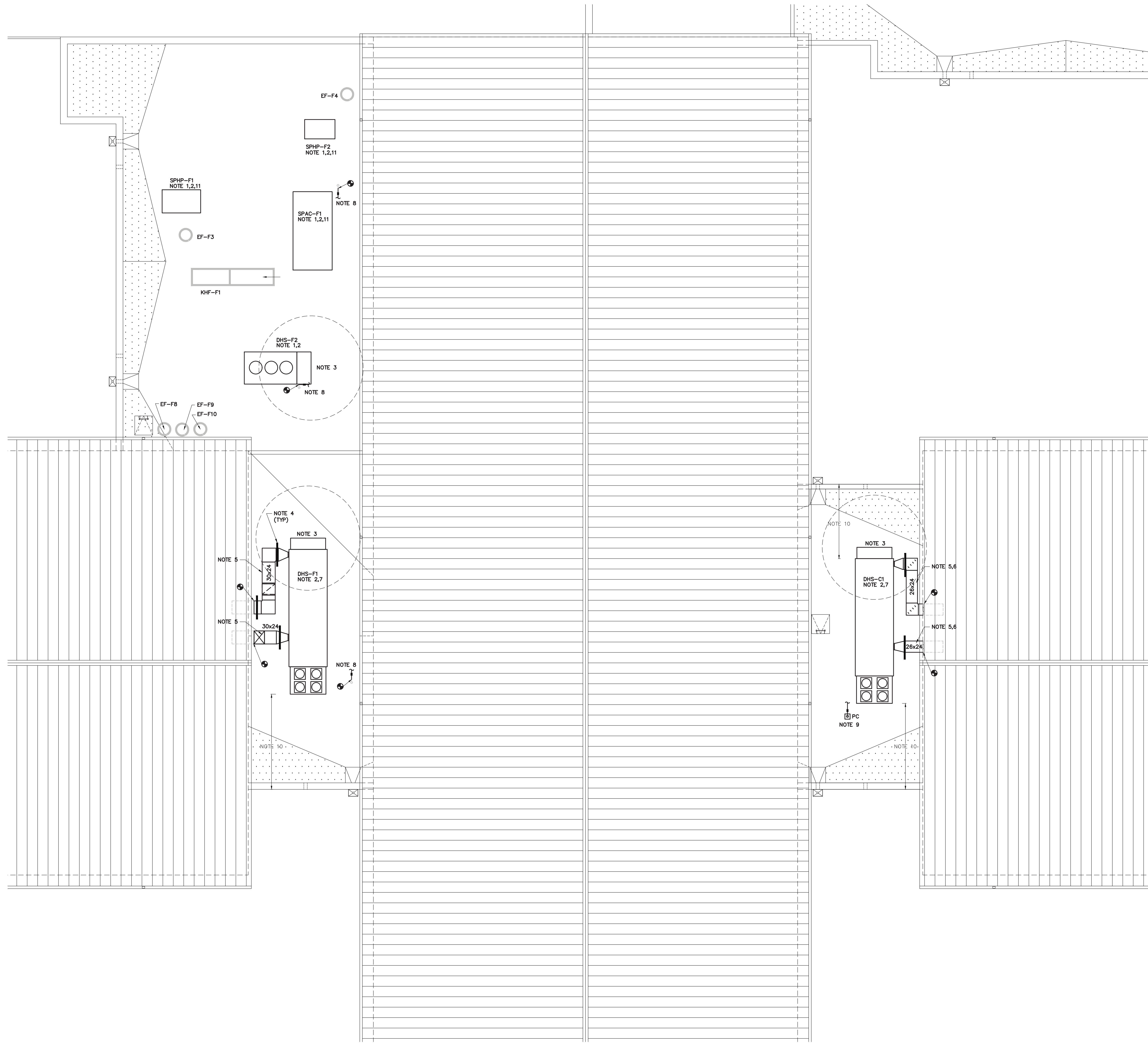
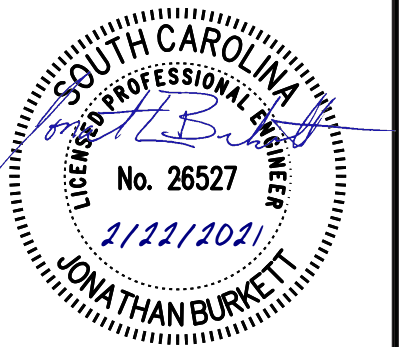
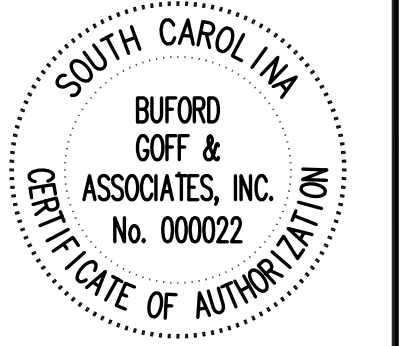
Project Engineer:  
JEB

Drawn By:  
xxx

Revisions:

No.	Date	Description

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M202 MECHANICAL ROOF PLAN - AREA - C, E, F  
SCALE: 1/8" = 1'-0"

Project: FORT MILLS SCHOOL DISTRICT  
 SPRINGFIELD MIDDLE SCHOOL HVAC UPGRADES  
 Sheet Title: MECHANICAL ROOF PLAN - AREA - C, E, F

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HVAC RENOVATION KEY NOTES

1. INSTALL NEW UNITS ON ADAPTER CURB. COORDINATE SIZE OF NEW CURB WITH EXISTING CURB DIMENSIONS. ATTACH NEW CURB TO EXISTING CURB.
2. PROVIDE DEEP SEAL P-TRAP AND ROUTE CONDENSATE TO DOWNSPOUT.
3. OUTSIDE AIR INTAKE. NO PLUMBING VENTS SHALL BE WITHIN 10 FEET OF THE INTAKE.
4. PROVIDE NEW DUCT ROOF DUCT SUPPORTS. SEE DETAIL.
5. FIELD VERIFY EXISTING DUCT SIZE.
6. ROUTE DUAL WALL DUCT THROUGH EXTERIOR WALL AND TRANSITION TO CONNECT TO EXISTING DUCTWORK. PENETRATE EXTERIOR WALL HIGH ENOUGH TO ALLOW WATERPROOFING UNDER DUCTWORK.
7. INSTALL NEW UNIT ON NEW VIBRATION ISOLATION CURB. COORDINATE EXACT CURB LOCATION WITH STRUCTURE BELOW.
8. INSTALL NEW UNIT A MINIMUM OF 10 FEET AWAY FROM THE EDGE OF THE ROOF.
9. CONNECT TO EXISTING 1" GAS LINE AND ROUTE GAS UP THROUGH ROOF AND OVER TO THE UNIT. PROVIDE NEW GAS REGULATOR FOR THE UNIT. SEE CONNECTION DETAIL AND PIPE THROUGH ROOF DETAIL. COORDINATE FINAL LOCATION OF ROOF PENETRATION WITH UNIT GAS CONNECTION LOCATION.
10. CONNECT TO EXISTING GAS LINE AND ROUTE GAS TO UNIT CONNECTION. PROVIDE NEW GAS REGULATOR FOR THE UNIT. SEE CONNECTION DETAIL.

Project Engineer:  
JEB

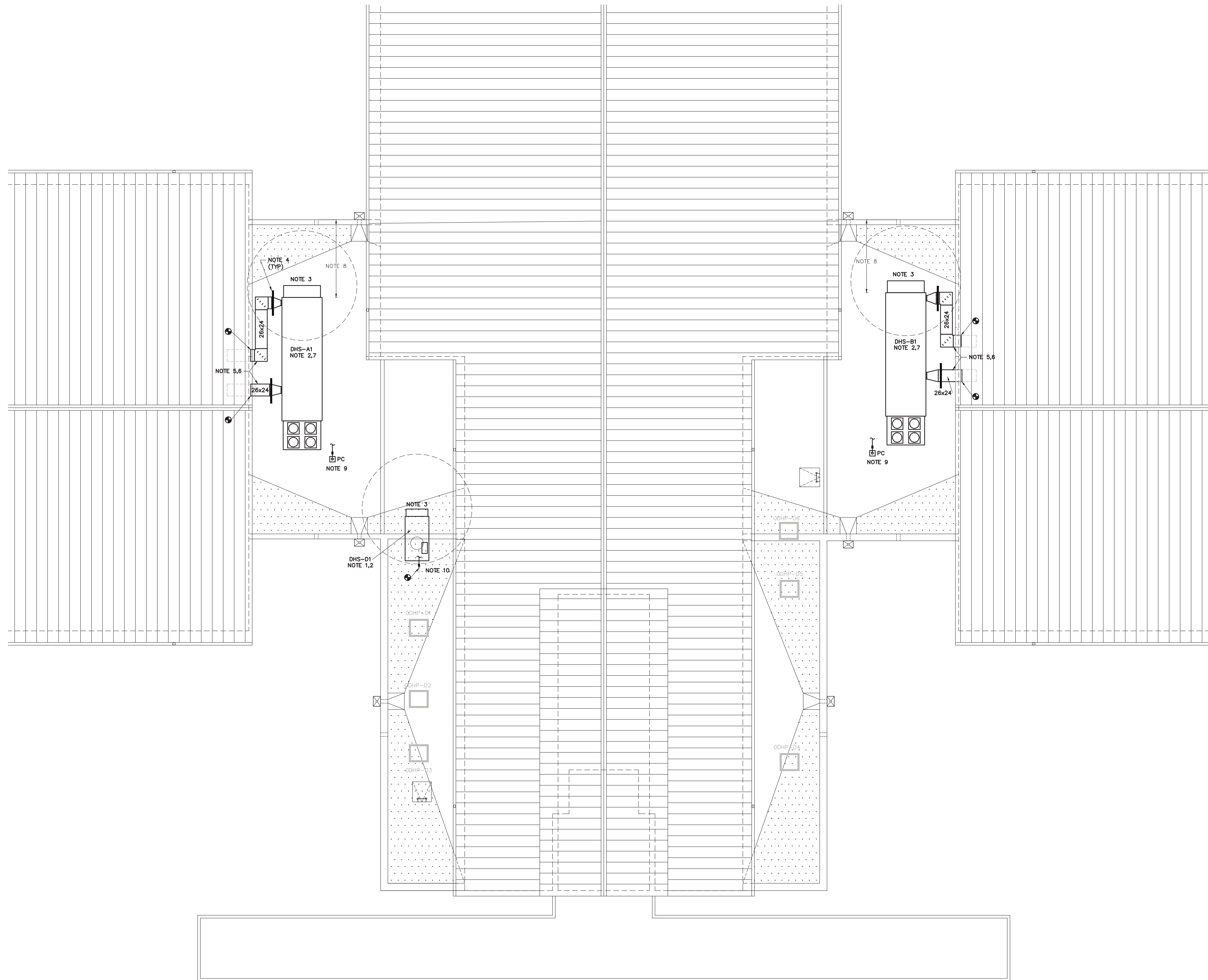
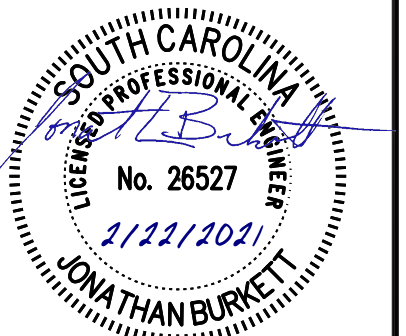
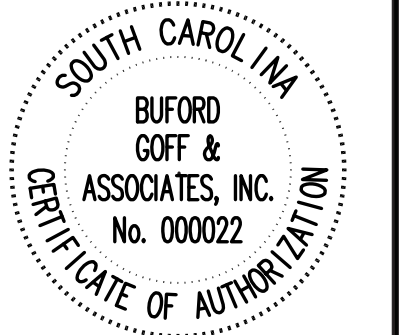
Drawn By:  
xxx

Revisions:

No. \_\_\_\_\_ Date \_\_\_\_\_  
No. \_\_\_\_\_ Date \_\_\_\_\_  
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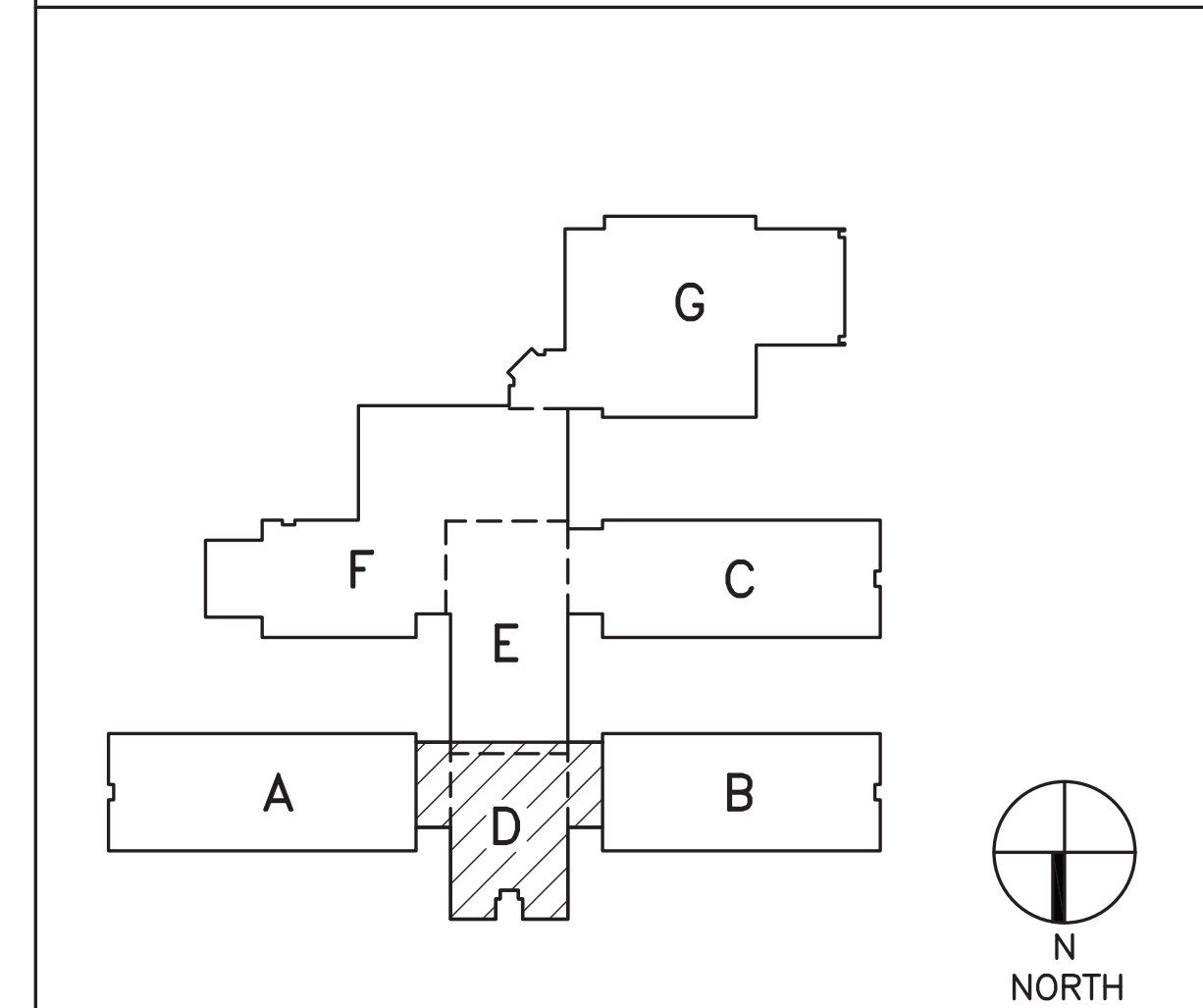
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FORT MILLS SCHOOL DISTRICT  
 SPRINGFIELD MIDDLE SCHOOL HVAC UPGRADES  
 MECHANICAL ROOF PLAN - AREA - A, B, D

KEYPLAN



M203 MECHANICAL ROOF PLAN - AREA - A, B, D  
SCALE: 1/8" = 1'-0"

Project  
Sheet Title

**Buford Goff**  
& Associates, Inc.  
Engineers & Planners

1331 Elmwood Ave.  
Suite 200  
Columbia, SC 29201  
Phone: (803) 254-6302

Sheet Number:

**M203**

Date: FEBRUARY 22, 2021  
Scale: As Noted  
BGA PROJECT NUMBER: 20028  
CONSTRUCTION DOCUMENTS

**MECHANICAL GENERAL NOTES**

- DO NOT SCALE DRAWINGS. (SEE ARCHITECTURAL DRAWINGS AND REFLECTED CEILING PLANS FOR EXACT LOCATIONS/VERIFY EXISTING CONDITIONS) OF DOORS, WINDOWS, CEILING DIFFUSERS, ETC.
- EXTEND ALL DRAIN LINES TO NEAREST GUTTER ON ROOF OR AS INDICATED ON PLANS. CONDENSATE DRAINS SHALL BE TRAPPED. ROUTE TO MINIMIZE TRIPPING HAZARD. PROVIDE CLEANOUTS AT ALL CHANGES OF DIRECTION GREATER THAN 90 DEGREES.
- ALL PIPING AND DUCTWORK INSULATION SHALL BE RUN CONTINUOUSLY THROUGH FLOORS, AND PARTITIONS EXCEPT WHERE PROHIBITED BY FIRE CODES.
- LOCATE ALL THERMOSTATS, HUMIDISTATS AND SWITCHES 48"(TO TOP OF DEVICE) ABOVE FINISH FLOOR.
- ALL PIPING SHALL BE SUPPORTED IN ACCORDANCE WITH THE SPECIFICATIONS. HANGERS SHALL BE ADJACENT TO ELBOWS AND AT EQUIPMENT TO PREVENT WEIGHT OF PIPING BEING PLACED ON THE EQUIPMENT. SUPPORT DETAILS SHALL BE SUBMITTED TO THE MECHANICAL ENGINEER.
- ALL PIPING AND DUCTWORK LOCATIONS SHALL BE COORDINATED WITH THE WORK UNDER OTHER DIVISIONS OF THE SPECIFICATIONS TO AVOID INTERFERENCE.
- AIR DISTRIBUTION SYSTEMS WITH MORE THAN ONE BRANCH, OR MULTIPLE OUTLETS ON A BRANCH, SHALL HAVE VOLUME DAMPERS TO BALANCE AIR FLOWS. SPIN IN FITTINGS ARE PERMITTED FOR CONNECTING FLEX DUCT TO BRANCH OR TRUNK DUCTS WHERE FLEX DUCTS ARE INDICATED. IF FLEX DUCT CANNOT BE CONNECTED WITH A SPIN IN, A HARD DUCTED TAKEOFF MUST BE PROVIDED.
- 45 DEGREE TAKEOFFS SHALL BE USED ON ALL HARD DUCTED SUPPLY BRANCHES.
- ALL PIPING, DUCTS, VENTS, ETC. EXTENDING THRU EXTERIOR WALLS AND ROOFS SHALL BE FLASHED AND COUNTERFLASHED.
- PROVIDE ALL TRANSITIONS REQUIRED FOR INSTALLATION OF DUCT, DUCT HEATERS, AIR VOLUME CONTROLLERS, AIR HANDLING UNITS, FANS, AND ALL OTHER EQUIPMENT AND APPURTENANCES.
- ALL TRANSFER DUCTS SHALL BE LINED WITH ONE INCH ACOUSTICAL LINER.
- ALL DUCTS SERVING THE THEATRE, STAGE, 2ND STAGE AND LOBBY SHALL BE LINED WITH 2 INCH ACOUSTICAL LINER.
- ALL DUCT IS GALVANIZED SHEETMETAL EXCEPT AS NOTED.
- DUCT SIZES ARE CLEAR INSIDE DIMENSIONS.
- INTAKES FOR AIR HANDLING EQUIPMENT SHALL BE A MINIMUM OF FIFTEEN FEET AWAY FROM ANY EXHAUST OR VENT.
- AIR DISTRIBUTION UNITS SHALL HAVE TRIM REQUIRED FOR FINISHED SERVICE.
- ALL EQUIPMENT SHALL MEET THE PROJECT'S SEISMIC DESIGN AND WIND LOAD REQUIREMENTS.

S3951

**SEISMIC AND WIND DESIGN CRITERIA**

**SEISMIC DESIGN**

SEISMIC DESIGN CATEGORY (SDC): C

RISK CATEGORY: III

SPECTRAL RESPONSE COEFFICIENTS  
S<sub>ds</sub>: 0.233; S<sub>d1</sub>: 0.137

**WIND DESIGN**

BASIC WIND SPEED: 119 MPH

EXPOSURE CATEGORY: B

RISK CATEGORY: III

**DUCT PRESSURE CLASSIFICATION**

DUCT	SYSTEM	PRESSURE	STATIC PRESSURE CLASS ("WG)
RETURN DUCT	ALL SYSTEM RETURNS	NEG	-2"
SUPPLY DUCT	ALL SYSTEM SUPPLY	POS	+2"

S3958

**MECHANICAL SYMBOL LEGEND**

	SUPPLY OR OUTSIDE AIR GRILLE		BACS-1 BUILDING AUTOMATION CONTROL SYSTEM NO. 1
	RETURN AIR GRILLE		S SWITCH
	EXHAUST AIR GRILLE		T THERMOSTAT/SENSOR
	DUCT TURNED TO		H HUMIDISTAT/HUMIDITY SENSOR
	DUCT TURNED AWAY		FLEX CONNECTION (DUCT)
	DUCT CAPPED		FILTER SECTION
	EQUIPMENT LOCATED ON ROOF		DUCT SMOKE DETECTORS
	INSIDE DUCT DIMENSION		CONTROL WIRING
	OPPOSED BLADE VOLUME DAMPER		ACCESS DOOR
	FIRE DAMPER (FUSIBLE LINK)		CLEANOUT
	120V POWER IN J-BOX		AIR DISTRIBUTION (OTHER SYMBOLS SIM.)
	MOTORIZED DAMPER		LS LIGHT SWITCH
	CONCEALED REGULATOR		CO <sub>2</sub> CO <sub>2</sub> SENSOR
	POUNDS (OR NUMBER)		
	FIRE ALARM CONTROL PANEL		

S3960

**MECHANICAL ABBREVIATIONS**

ABV	ABOVE	IN	INCHES
AFF	ABOVE FINISH FLOOR	MOD	MOTOR OPERATED DAMPER
AFMS-1	AIRFLOW MEASURING STATION NO.1	MPS	MEDIUM PRESSURE STEAM (16 PSI TO 30 PSI)
BACS	BUILDING AUTOMATION CONTROL SYSTEM	NO	NORMALLY OPEN
BHP	BRAKE HORSE POWER	NC	NORMALLY CLOSED
BOD	BOTTOM OF DUCT	OC	ON CENTER
BOP	BOTTOM OF PIPE	ODAC-1	OUTDOOR AIR CONDITIONING UNIT NO.1
CEP-1	CEILING EXHAUST FAN NO. 1	ODHP-1	OUTDOOR HEAT PUMP NO.1
CFM	CUBIC FEET PER MINUTE	ODP	OPEN DRIP PROOF
CLG	CEILING	PD	PRESSURE DROP
CO	CLEAN OUT	PFD	PIPE TO FLOOR DRAIN
D	DRAIN	PH	PHASE
EF-1	EXHAUST FAN NO.1	REF.	REFRIGERANT LINES
EFF	EFFICIENCY	SF	SQUARE FOOT
ELECT	ELECTRICAL	SP	STATIC PRESSURE SENSOR
ESP	EXTERNAL STATIC PRESSURE	SPAC-1	SINGLE PACKAGE AIR CONDITIONING UNIT NO.1
EUH-1	ELECTRIC UNIT HEATER NO.1	T-1	TERMINAL UNIT NO. 1
EW-1	ELECTRIC WALL HEATER NO.1	TA	THROW AWAY (FILTER)
EXT	EXTERNAL	TC	TIME CONTROL
FPS	FEET PER SECOND	TD	TRANSFER DUCT
FT	FEET	TEAO	TOTALLY ENCLOSED AIR OVER
FLR	FLOOR	TEFC	TOTALLY ENCLOSED FAN COOLED
HP	HORSE POWER	UNO	UNLESS NOTES OTHERWISE
IDAC-1	INDOOR AIR CONDITIONING UNIT NO.1	VFD	VARIABLE FREQUENCY DRIVE
IDHP-1	INDOOR HEAT PUMP NO.1	VEL	VELOCITY
		VOLT	VOLTAGE
		WHP-1	WALL MOUNTED HEAT PUMP NO. 1
		ZPOS	TWO POSITION

S3956

**SINGLE PACKAGE HEAT PUMP UNIT SCHEDULE**

AIR CONDITIONER #	EST * SP(a)	CFM		FANS				COMPRESSOR		ELECTRIC HEAT		COOLING COIL CAPACITY						HEATING COIL CAP		MAX. WEIGHT #	ELECTRIC			MANUFACTURER AND MODEL	REMARKS			
		TOT	OA	FLA	NO	BHP	HP	NO	RLA	KW	VOLT/PH	MBH (NET) TOT	SENS	OUTDOOR DB T	ENT AIR DB	WB	LVG AIR DB	WB	EER(b)		ENT T	MBH	COP			MCA	MOCOP	VOLT/PH
SPHP-F1	0.5	4000	-	1.6	1	-	2.75	1	14.4	18	480/3	108.1	88.8	95	76	64	54.5	54.4	11.0	47	101.3	-	1500	51	60	480/3	TRANE WSC120	①②③④
SPHP-F2	0.5	1200	-	0.6	1	-	0.75	1	6.6	6	480/3	36.3	27.3	95	76	64	52.6	52.5	12.1	47	35.5	-	900	20	20	480/3	TRANE WSC036	①②③④
SPHP-G1	0.5	2200	160	1.6	1	-	1.0	1	10.6	18	480/3	71.6	50.1	95	76	64	54.0	52.3	11.4	47	68.2	-	1300	44	45	480/3	TRANE WSC072	①②③④
SPHP-G2	0.5	1300	220	0.7	1	-	1.0	1	6.3	6	480/3	44.7	31.8	95	76	64	50.9	50.8	12.3	47	46.9	-	1000	21	25	480/3	TRANE WSC048	①②③④
SPHP-G3	0.5	1300	220	0.7	1	-	1.0	1	6.3	6	480/3	44.7	31.8	95	76	64	50.9	50.8	12.3	47	46.9	-	1000	21	25	480/3	TRANE WSC048	①②③④
SPHP-G4	0.5	1200	-	0.6	1	-	0.75	1	6.6	6	480/3	36.3	27.3	95	76	64	52.6	52.5	12.1	47	35.5	-	900	20	20	480/3	TRANE WSC036	①②③④
SPHP-G5	0.5	960	-	0.6	1	-	0.75	1	6.6	6	480/3	35.2	24.4	95	76	64	49.8	49.8	12.1	47	35.1	-	900	20	20	480/3	TRANE WSC036	①②③④

- \* INCLUDES DUCT, GRILLES, AND LOADED FILTERS (a) INCHES WG (b) ARI CONDITIONS
- ① ADAPTER CURB ③ SINGLE POINT POWER
- ② LOW AMBIENT ④ BIPOLAR IONIZATION

**SINGLE PACKAGE AIR CONDITIONING SCHEDULE**

AIR CONDITIONER #	EST * SP(a)	CFM		FANS				COMPRESSOR 1		COMPRESSOR 2		GAS HEAT		COOLING COIL CAPACITY						MAX. WEIGHT #	ELECTRIC			MANUFACTURER AND MODEL	REMARKS			
		TOT	OA	OUTDOOR kW	NO	BHP	HP	NO	RLA	NO	RLA	CFH INPUT	MBH OUTPUT	IN WG	MBH (NET) TOT	SENS	OUTDOOR DB T	ENT AIR DB	WB		LVG AIR DB	WB	EER(b)			MCA	MOCOP	VOLT/PH
SPAC-F1	0.75	12000	2500	0.01	3	6.9	7.5	1	14.1	2	19.2	350	280	7-14	363.0	272.9	95	76	64	54.0	53.2	11.0	47	77.6	90	460/3	TRANE YCD420	②③④⑤⑥⑦⑧⑨⑩⑪
SPAC-G1	0.75	9000	3375	0.01	3	3.77	7.5	1	14.1	2	16.8	350	280	7-14	307.4	221.4	95	76	64	52.7	51.9	11.0	47	72.2	80	460/3	TRANE YCH330	②③④⑤⑥⑦⑧⑨⑩⑪
SPAC-G2	0.75	9000	3375	0.01	3	3.77	7.5	1	14.1	2	16.8	350	280	7-14	307.4	221.4	95	76	64	52.7	51.9	11.0	47	72.2	80	460/3	TRANE YCH330	②③④⑤⑥⑦⑧⑨⑩⑪

- \* INCLUDES DUCT, GRILLES, AND LOADED FILTERS (a) INCHES WG (b) ARI CONDITIONS \*\* UNIT LEAVING AIR TEMP
- ① PROVIDE START CAPACITOR FOR SINGLE PHASE UNITS ③ DOWN DISCHARGE ⑤ HORIZONTAL DISCHARGE (SUPPLY) ⑦ SUPPLY FAN VFD ⑨ ADAPTER CURB ⑪ MODULATING HOT GAS REHEAT TO 72 DEG.
- ② LOW AMBIENT CONTROL TO 0°F ④ SINGLE PT CONNECTION ⑥ 2 STAGE GAS HEAT ⑧ BIPOLAR IONIZATION ⑩ 5 STAGES OF CAPACITY (MIN 25%)

S3252C

**DEHUMIDIFICATION SYSTEM SCHEDULE**

AIR CONDITIONER #	SUPPLY		FANS				COMPRESSOR 1		COMPRESSOR 2		GAS HEAT		COOLING COIL CAPACITY						MAX. WEIGHT #	ELECTRIC			MANUFACTURER AND MODEL	REMARKS							
	CFM	ESP(a)	BHP	HP	CFM	ESP(a)	BHP	HP	FLA	NO	NO	RLA	NO	RLA	CFH INPUT	MBH OUTPUT	IN WG	MBH (NET) TOT		SENS	OUTDOOR DB T	ENT AIR DB			WB	LVG AIR DB	WB	EER(b)	MCA	MOCOP	VOLT/PH
DHS-A1	3500	1.0	2.8	4.4	1800	1.0	1.1	5.7	2	4	1	25.7	1	25.7	176	140	7-14	349	134	95	86.8	80	52	52	10.6	7500	79	100	460/3	ANNEXAIR ERP	②③④⑤⑥⑦⑧⑨⑩⑪⑫⑬⑭⑮
DHS-B1	3300	1.0	2.6	4.4	1700	1.0	1.0	5.7	2	4	1	25.7	1	25.7	170	135	7-14	329	128	95	87.1	80	52	52	10.6	7500	79	100	460/3	ANNEXAIR ERP	②③④⑤⑥⑦⑧⑨⑩⑪⑫⑬⑭⑮
DHS-C1	3300	1.0	2.6	4.4	1700	1.0	1.0	5.7	2	4	1	25.7	1	25.7	170	135	7-14	329	128	95	87.1	80	52	52	10.6	7500	79	100	460/3	ANNEXAIR ERP	②③④⑤⑥⑦⑧⑨⑩⑪⑫⑬⑭⑮
DHS-D1	720	1.0	0.3	6.0	-	-	-	-	2.1	1	1	9.7	-	-	50	40	7-14	69.4	35.6	95	95	78	49.8	49.0	13	1500	23.3	30	460/3	TRANE OABD072	②③④⑤⑥⑦⑧⑨⑩⑪⑫⑬⑭
DHS-F1	4000	1.0	3.4	4.4	1600	1.0	1.0	5.7	2.8/2	2/2	1	41.6	1	20.8	221	176	7-14	398	159	95	88.0	80	52	52	10.5	7700	91	110	460/3	ANNEXAIR ERP	②③④⑤⑥⑦⑧⑨⑩⑪⑫⑬⑭⑮
DHS-F2	2500	1.0	1.0	6.0	-	-	-	-	2.1	3	1	14.7	1	14.7	200	160	7-14	241	115	95	95	80	53	52.8	12.5	3500	47.4	60	460/3	TRANE OAGD240	②③④⑤⑥⑦⑧⑨⑩⑪⑫⑬⑭⑮
DHS-G1	6750	1.0	5.8	6.7	4200	1.0	2.6	4.4	2.2	4	1	25.7	3	25.7	310	247	7-14	673	250	95	85.6	80	52	52	10.5	11000	136	150	460/3	ANNEXAIR ERP	②③④⑤⑥⑦⑧⑨⑩⑪⑫⑬⑭⑮
DHS-G2	600	1.0	0.2	6.0	1200	1.0	0.3	6.0	2.1	1	1	7.8	-	-	50	40	7-14	50.4	26.6	95	95	78	54.3	53.8	12.8	1500	23.3	30	460/3	TRANE OABD048	②③④⑤⑥⑦⑧⑨⑩⑪⑫⑬⑭⑮

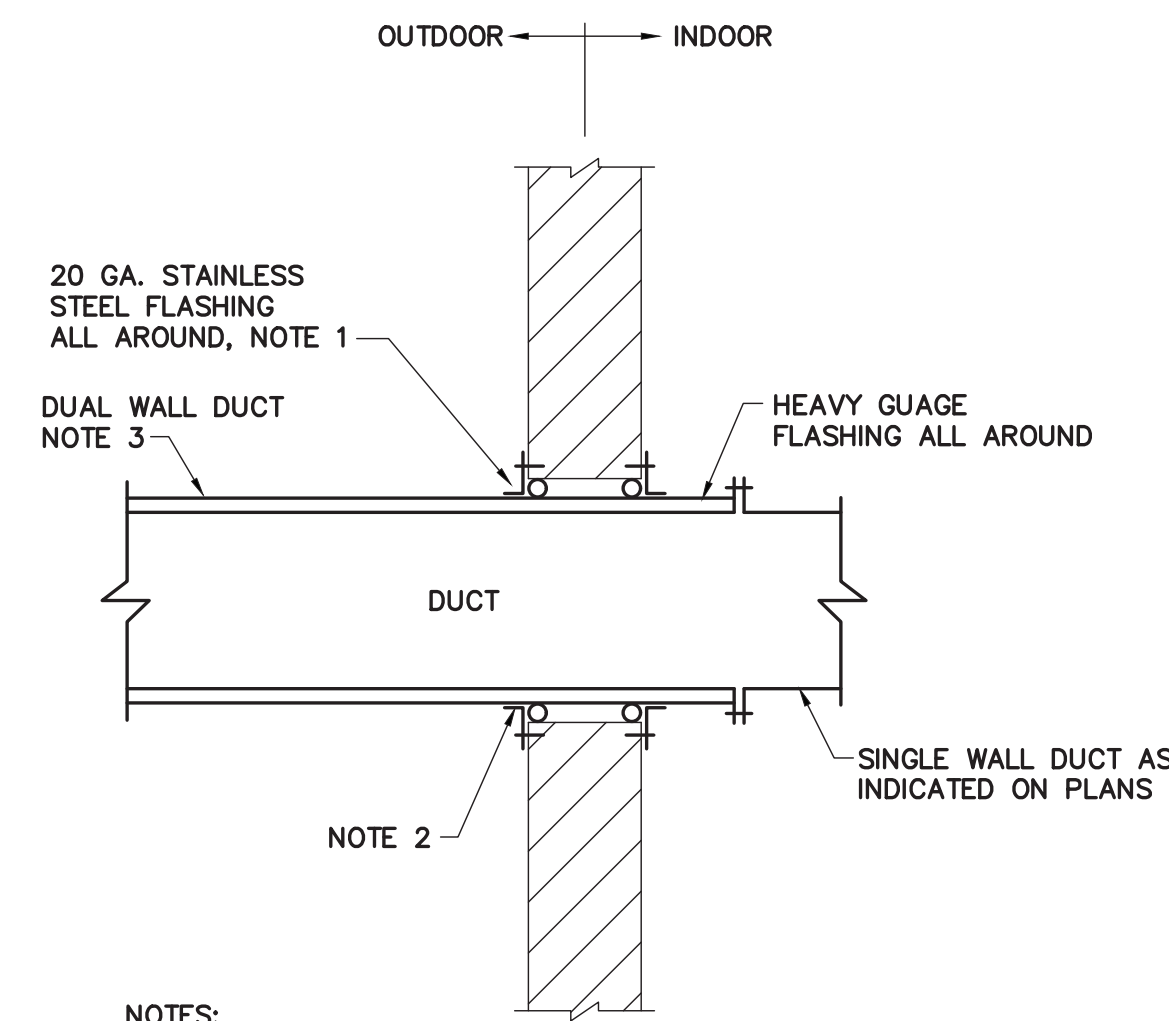
- \* INCLUDES DUCT, GRILLES, AND LOADED FILTERS (a) INCHES WG (b) ARI CONDITIONS \*\* UNIT LEAVING AIR TEMP
- ① PROVIDE START CAPACITOR FOR SINGLE PHASE UNITS ③ PROVIDE MOTORIZED OA DAMPER ⑤ HORIZONTAL DISCHARGE ⑦ MODULATING HOT GAS REHEAT TO 72 DEG. ⑨ VARIABLE SPEED COMPRESSORS ⑪ SUPPLY FAN VFDS ⑬ ADAPTER CURB ⑮ AIRFLOW MEASURING STATION (EXHAUST) BY BAS CONTRACTOR
- ② LOW AMBIENT CONTROL TO 30°F ④ SINGLE PT CONNECTION ⑥ 10:1 TURNDOWN GAS BURNER ⑧ DIRECT DRIVE MOTOR ⑩ VIBRATION ISOLATION CURB ⑫ DOWN DISCHARGE ⑭ AIRFLOW MEASURING STATION (SUPPLY) BY BAS CONTRACTOR

S3252C

**ENTHALPY PLATE HEAT EXCHANGER SCHEDULE**

SYSTEM	SUPPLY		EXHAUST		SUMMER PERFORMANCE						WINTER PERFORMANCE						REMARKS				
	CFM	PD(a)	CFM	PD(a)	OA IN		OA OUT		EA IN		EA OUT		OA IN		SA OUT			RA IN		EA OUT	
					DB T	WB T	DB T	WB T	DB T	WB T	DB T	WB T	DB T	WB T	DB T	WB T		DB T	WB T	DB T	WB T
DHS-A1	3500	0.6	1800	0.6	95	80	86.8	75.8	76.0	64.0	92.0	74.0	20.0	18.0	41.6	36.8	70.0	58.0			

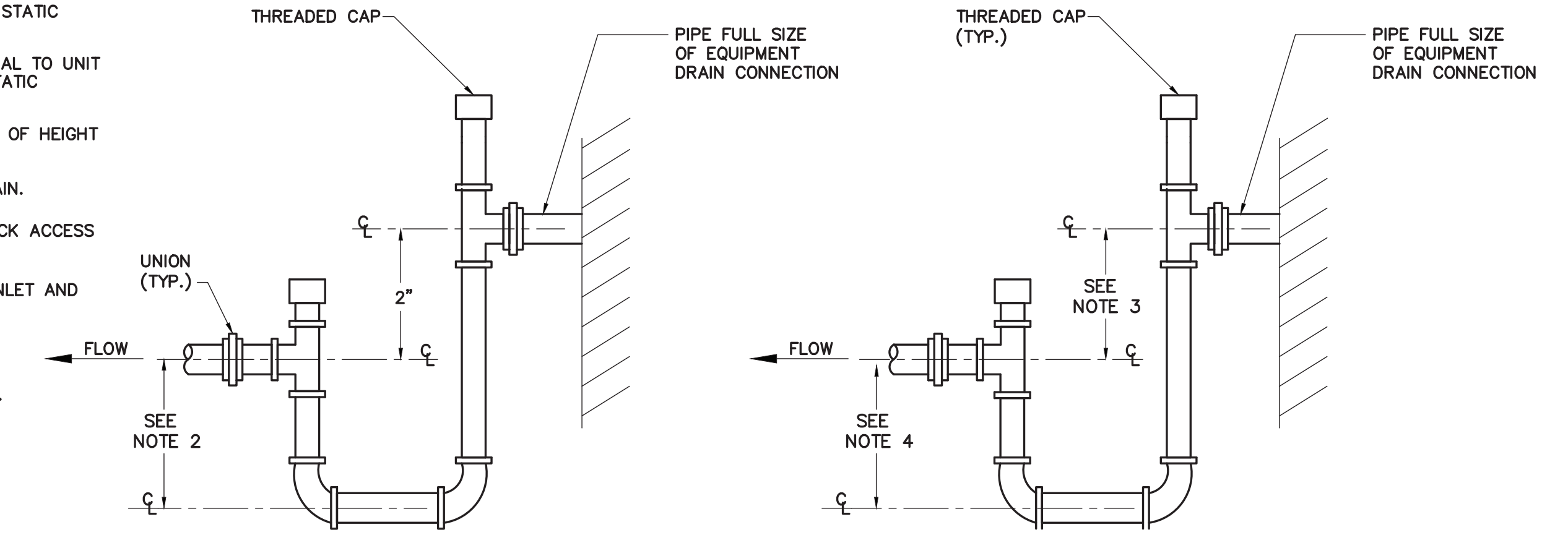




- NOTES:
1. PROVIDE CAULKING BEHIND ANGLE.
  2. PROVIDE SEALANT BETWEEN DUCT AND WALL ALL AROUND.
  3. SEE SPECIFICATIONS.

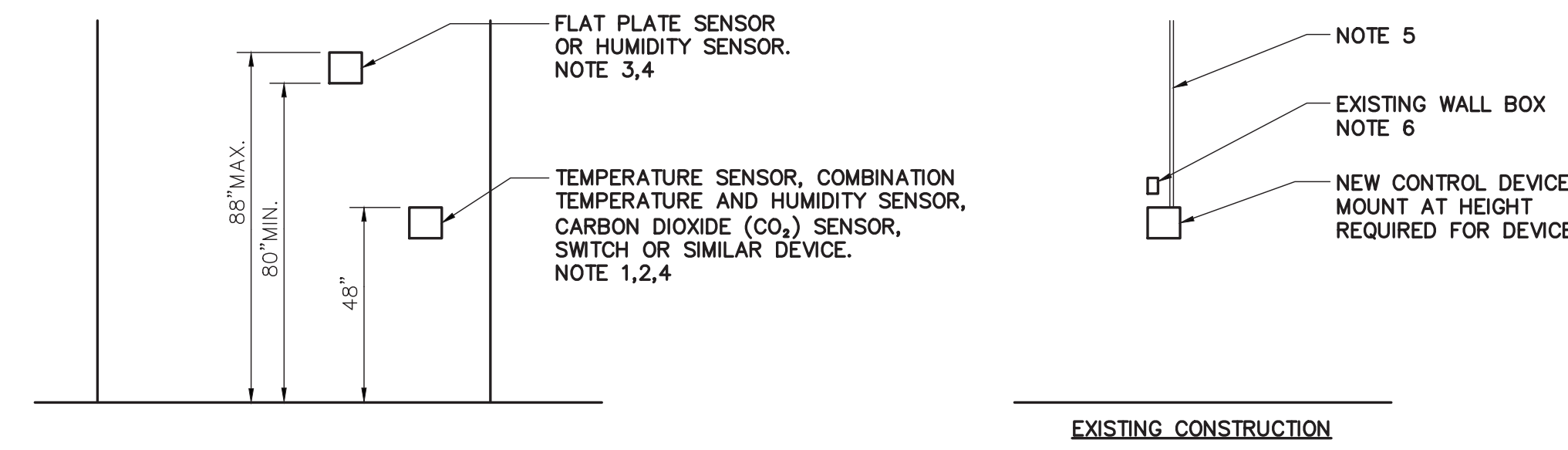
**DUAL WALL DUCT THROUGH EXTERIOR WALL DETAIL**  
NOT TO SCALE

- NOTES:
1. LOCATE TRAPS SO AS TO BE ACCESSIBLE FOR CLEANING.
  2. HEIGHT SHALL BE EQUAL TO UNIT MAXIMUM TOTAL STATIC PRESSURE PLUS 1/2"
  3. HEIGHT SHALL BE EQUAL TO UNIT MAXIMUM NEGATIVE STATIC PRESSURE PLUS 1"
  4. HEIGHT SHALL BE 1/2 OF HEIGHT INSTALLED IN NOTE 3
  5. PIPE TO NEAREST DRAIN.
  6. TRAP SHALL NOT BLOCK ACCESS TO EQUIPMENT.
  7. PROVIDE UNIONS AT INLET AND OUTLET OF TRAP.
  8. DRAIN LINE SHALL BE 3/4" MIN OR UNIT CONNECTION SIZE, WHICHEVER IS LARGER.



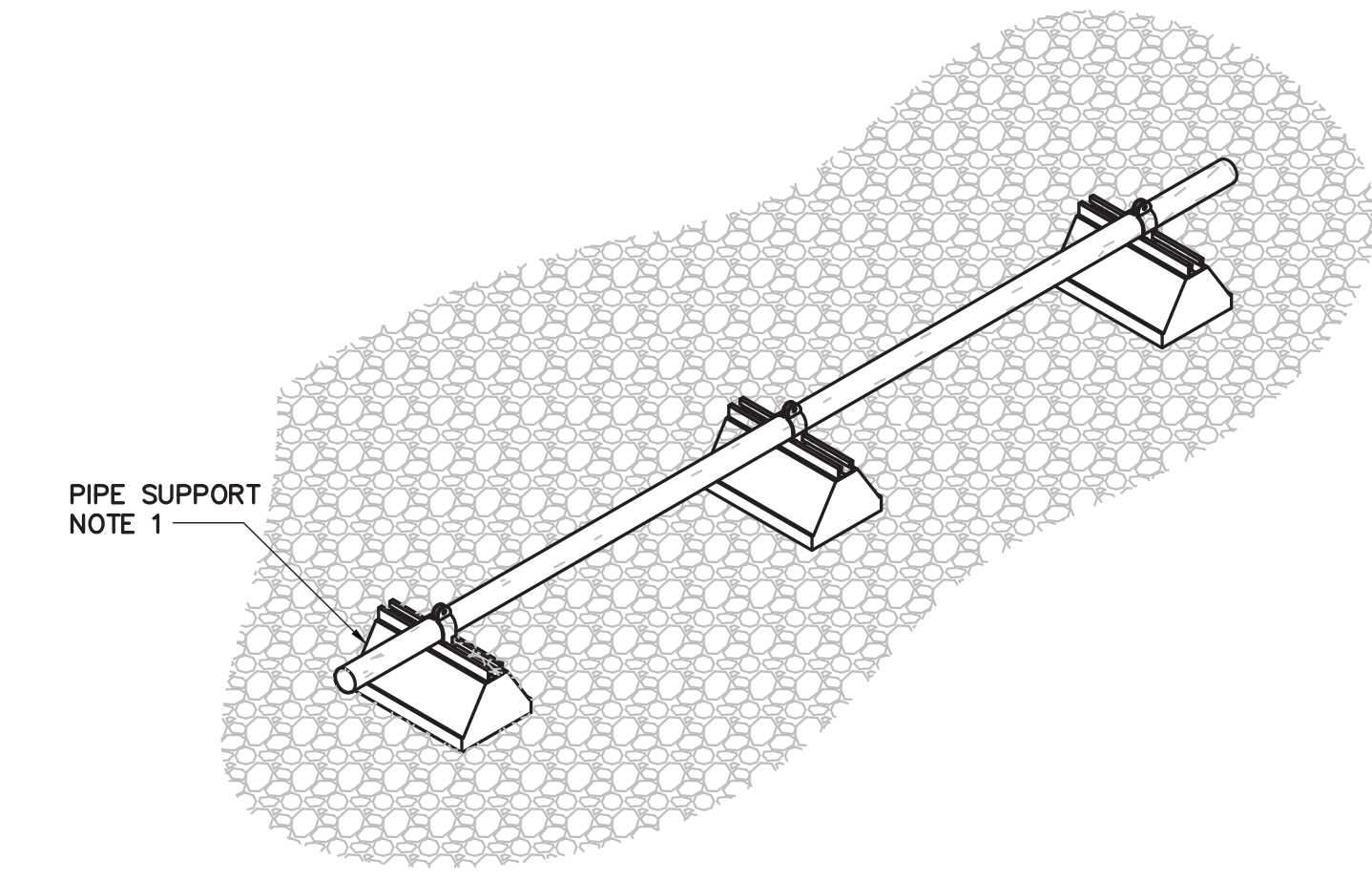
**BLOW THRU DRAIN**      **DRAW THRU DRAIN**

**EQUIPMENT CONDENSATE DRAIN DETAIL**  
3179B      NOT TO SCALE      3/16



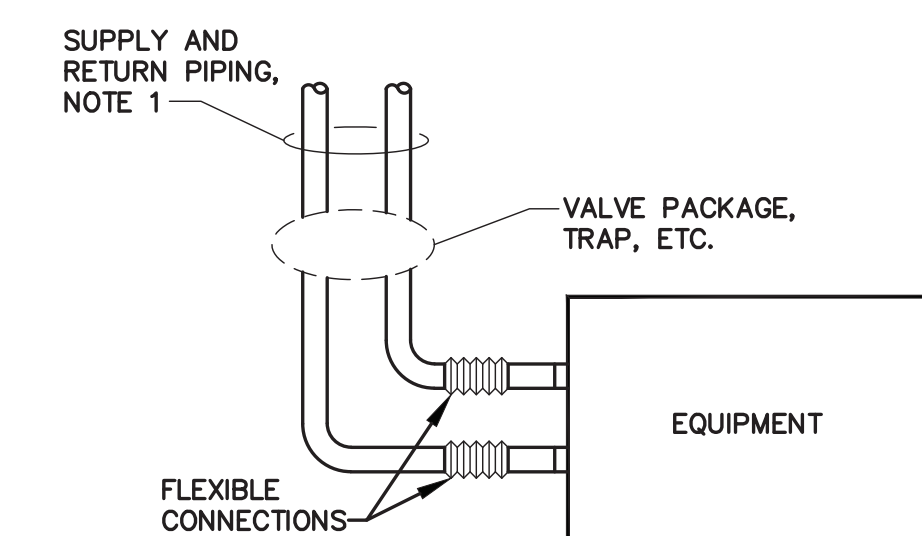
- NOTES:
1. DEVICES THAT REQUIRE ACCESS BY BUILDING OCCUPANTS OTHER THAN MAINTENANCE PERSONNEL.
  2. 44" TO TOP OF DEVICE WHEN OBSTACLE (SHELVING, COUNTER, ETC.) IN FRONT OF DEVICE.
  3. DEVICES THAT DO NOT REQUIRE ACCESS BY BUILDING OCCUPANTS OTHER THAN MAINTENANCE PERSONNEL.
  4. HEIGHT SHALL BE AS INDICATED UNLESS A DEVICE IS SPECIFICALLY REQUIRED TO BE LOCATED AT ANOTHER HEIGHT TO PERFORM ITS INTENDED FUNCTION.
  5. PROVIDE WIRE MOLD WHERE PERMITTED ON EXISTING WALL WHERE CONTROLS CANNOT BE INSTALLED IN THE WALL.
  6. PROVIDE OVERSIZED STAINLESS STEEL COVER PLATE IF BOX IS NOT REUSED.

**DEVICE MOUNTING HEIGHT**  
3714      NOT TO SCALE      2/18



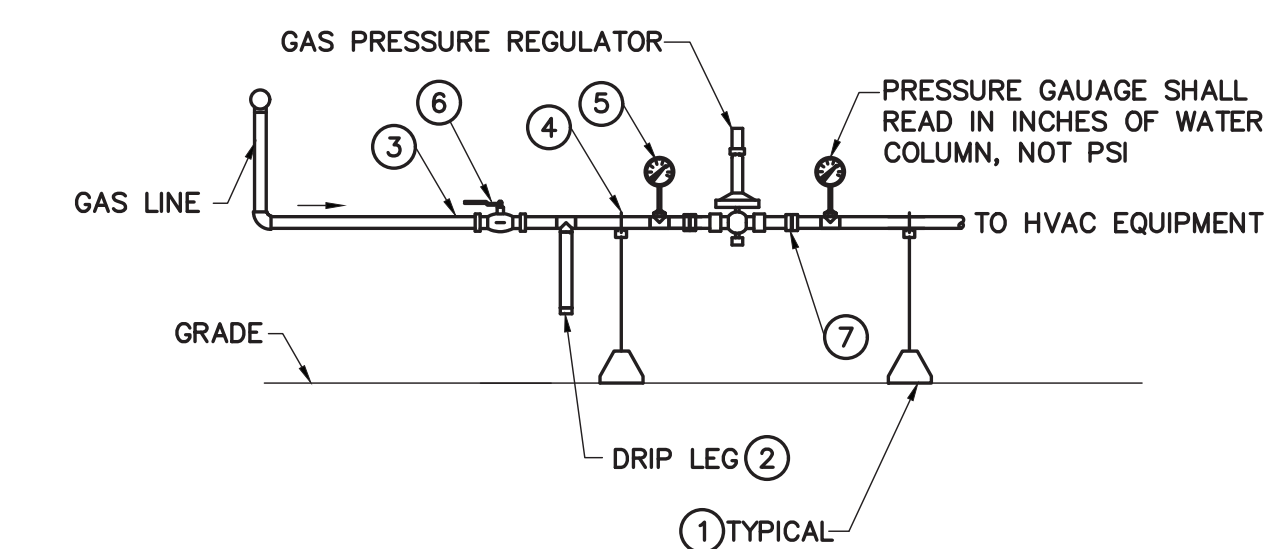
- NOTES:
1. PROVIDE SUPPORT 4 FT ON CENTER.
  2. SUPPORTS SHALL BE MIFAB CE OR APPROVED EQUAL. SUPPORT SHALL BE CONSTRUCTED OF UV RESISTANT RUBBER OR POLYCARBONATE WITH TWO STAINLESS STEEL TREADED RODS WITH A 14 GAUGE STAINLESS STEEL CHANNEL SUPPORT.
  3. PROVIDE A HEAVY BED OF ROOFING TAR OR MASTIC ACCEPTABLE TO ROOFING CONTRACTOR TO SET THE SUPPORTS ON.
  4. ADJUST PIPE SUPPORT FOR GRAVITY FLOW OF CONDENSATE DRAIN LINES.

**EQUIPMENT DRAIN PIPE SUPPORT ON ROOF DETAIL**  
3179C      NOT TO SCALE      5/10



- NOTES:
1. ALL GAS, CONDUIT AND UTILITY CONNECTIONS SIMILAR.

**PIPING AND CONDUIT CONNECTION TO EQUIPMENT**  
3855      NOT TO SCALE      12/12

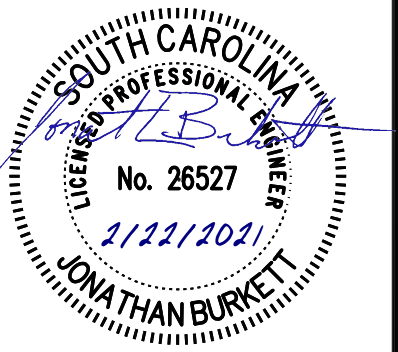
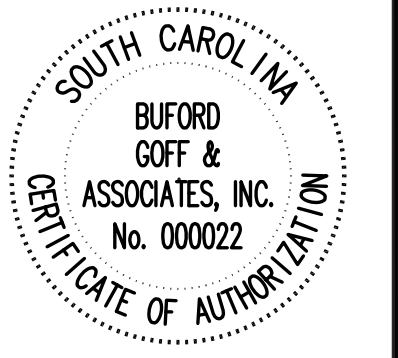


- NOTES:
- ① PIPE SUPPORT SHALL BE MIFAB (C-PORT) MODEL C10-8, EXTENSION SERIES OR APPROVED EQUAL. APPROVED MANUFACTURERS ARE MIRO, MAPA OR PIPE PER.
  - ② DRIP LEG TO BE A MIN. OF 6".
  - ③ ALL PIPING SHALL BE PAINTED.
  - ④ ALL PIPE SUPPORTS SHALL BE GALVANIZED OR PAINTED.
  - ⑤ PRESSURE GAUGE SHALL READ IN PSI.
  - ⑥ BALL VALVE SHUT-OFF, TYPICAL.
  - ⑦ UNION, TYPICAL.

**GAS REGULATOR PIPING ON ROOF**  
NOT TO SCALE

Project Engineer: JEB  
Drawn By: xxx  
Revisions:  
No. \_\_\_\_\_ Date \_\_\_\_\_  
No. \_\_\_\_\_ Date \_\_\_\_\_  
No. \_\_\_\_\_ Date \_\_\_\_\_

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FORT MILLS SCHOOL DISTRICT  
 SPRINGFIELD MIDDLE SCHOOL HVAC UPGRADES  
 HVAC DETAILS

Project  
Sheet Title

**Buford Goff**  
& Associates, Inc.  
Engineers & Planners

1331 Elmwood Ave.  
Suite 200  
Columbia, SC 29201  
Phone: (803) 254-6302

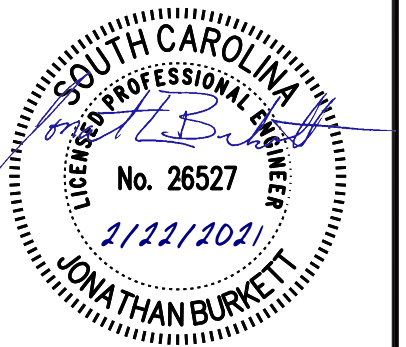
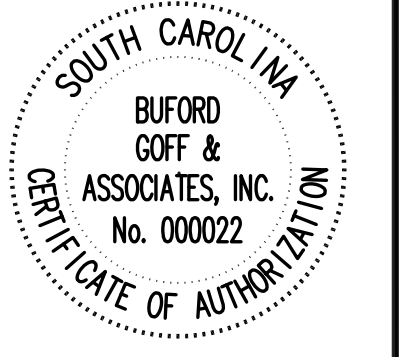
Sheet Number:

**M400**

Date: FEBRUARY 22, 2021  
Scale: As Noted  
BGA PROJECT NUMBER: 20028  
CONSTRUCTION DOCUMENTS

Project Engineer:  
JEB  
 Drawn By:  
xxx  
 Revisions:  
 No. \_\_\_\_\_ Date \_\_\_\_\_  
 No. \_\_\_\_\_ Date \_\_\_\_\_  
 No. \_\_\_\_\_ Date \_\_\_\_\_

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FORT MILLS SCHOOL DISTRICT  
 SPRINGFIELD MIDDLE SCHOOL HVAC UPGRADES  
 HVAC DETAILS

Project \_\_\_\_\_  
 Sheet Title \_\_\_\_\_

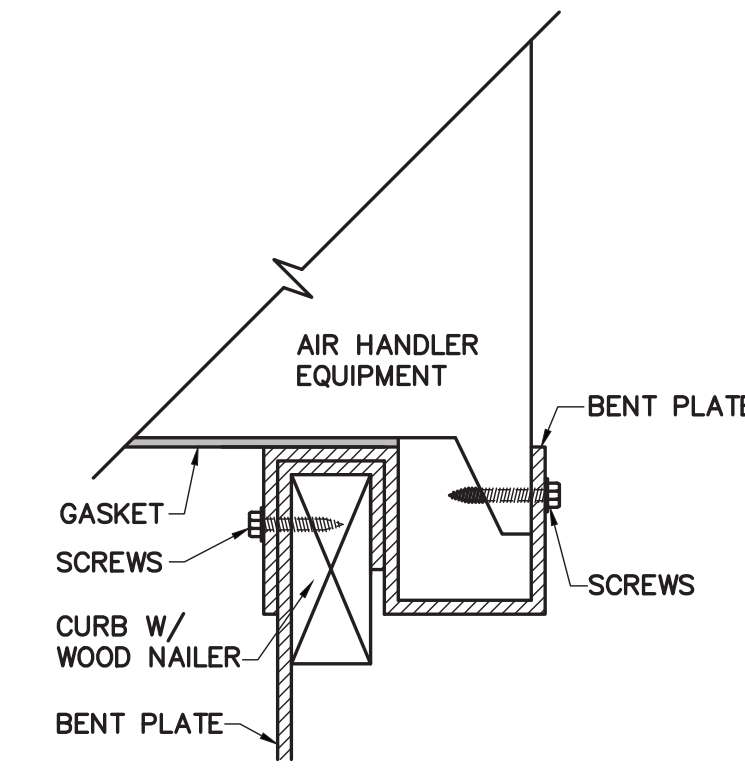
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Sheet Number:

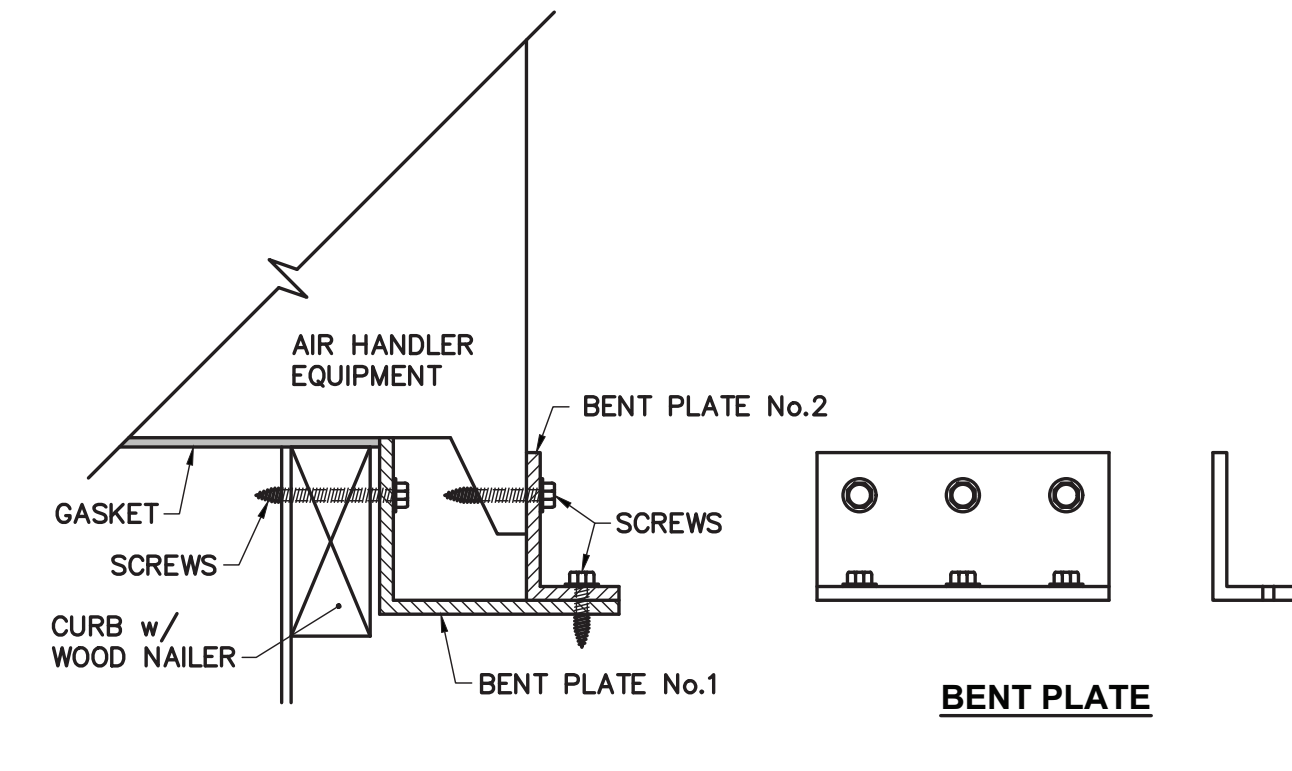
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Date: FEBRUARY 22, 2021  
 Scale: As Noted  
 BGA PROJECT NUMBER: 20028  
 CONSTRUCTION DOCUMENTS



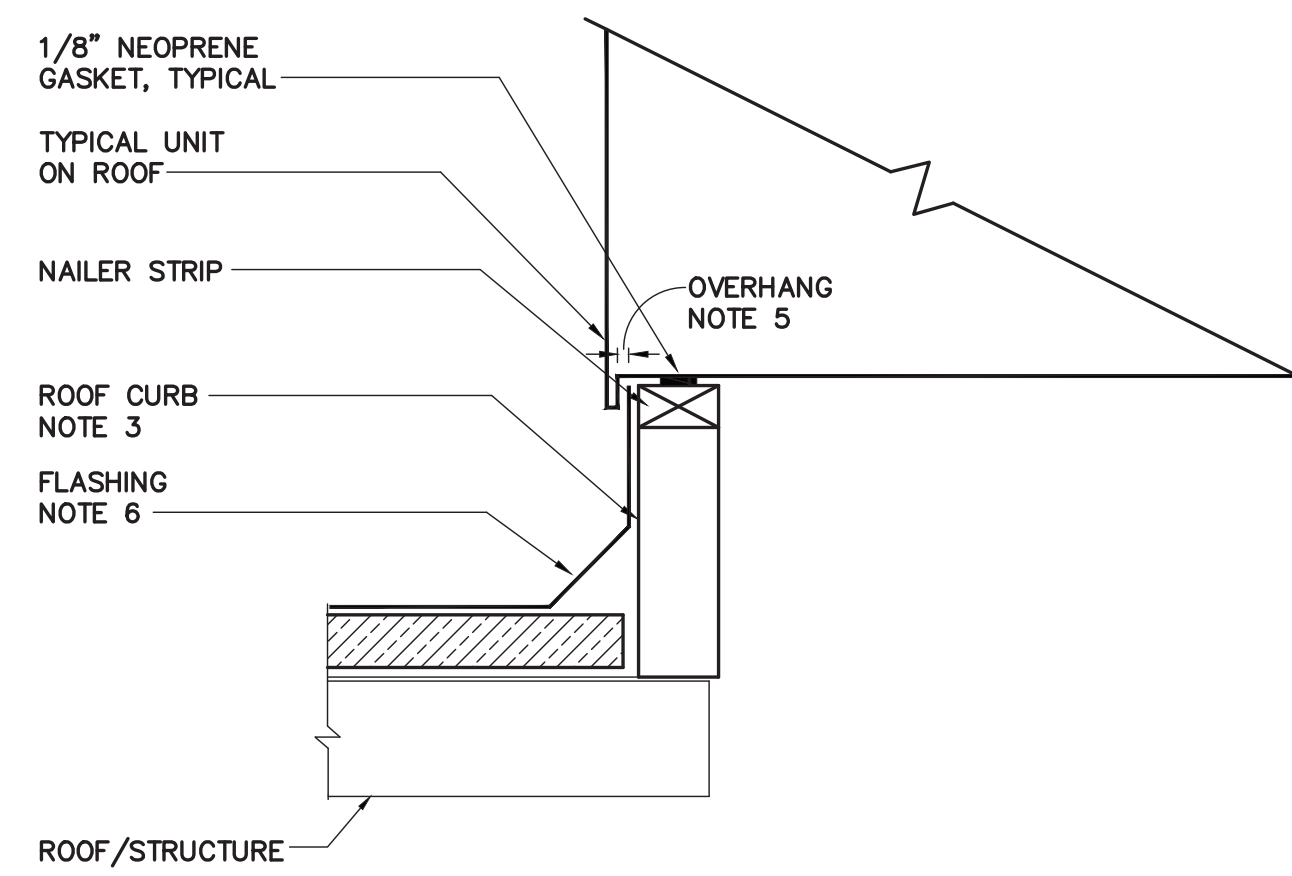
- NOTES:**
1. THIS DETAIL REPRESENTS A GENERAL INSTALLATION DETAIL. SPECIFIC SIZES OF BENT PLATES, FASTENERS, ETC. TO BE DETERMINED BY THE SEISMIC ENGINEER.
  2. ALTERNATIVE ATTACHMENT MAY BE ACCEPTABLE WHEN SUBMITTED BY THE SEISMIC ENGINEER.

**ROOFTOP UNIT ATTACHMENT TO CURB DETAIL - TYPE 2**  
 3860B NOT TO SCALE 10/10



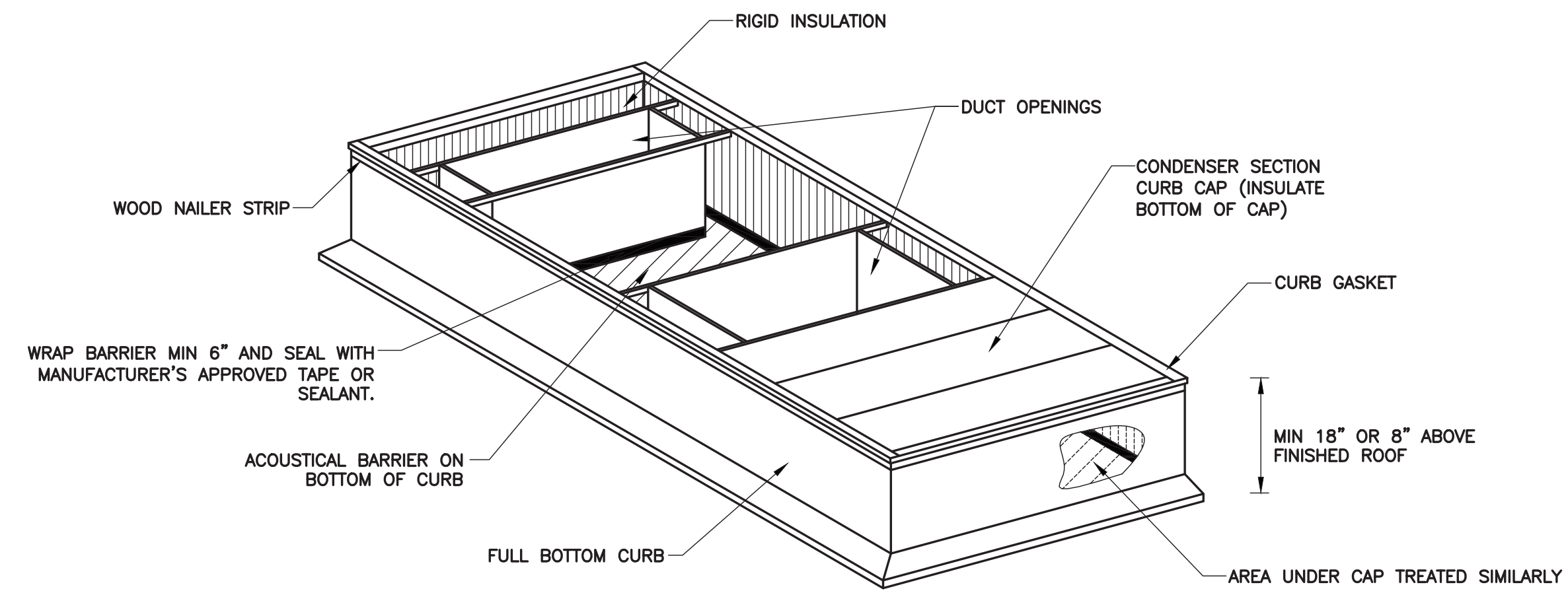
- NOTES:**
1. THIS DETAIL REPRESENTS A GENERAL INSTALLATION DETAIL. SPECIFIC SIZES OF BENT PLATES, FASTENERS, ETC. TO BE DETERMINED BY THE SEISMIC ENGINEER.
  2. ALTERNATIVE ATTACHMENT MAY BE ACCEPTABLE WHEN SUBMITTED BY THE SEISMIC ENGINEER.

**ROOFTOP UNIT ATTACHMENT TO CURB DETAIL - TYPE 1**  
 3860A NOT TO SCALE 10/10



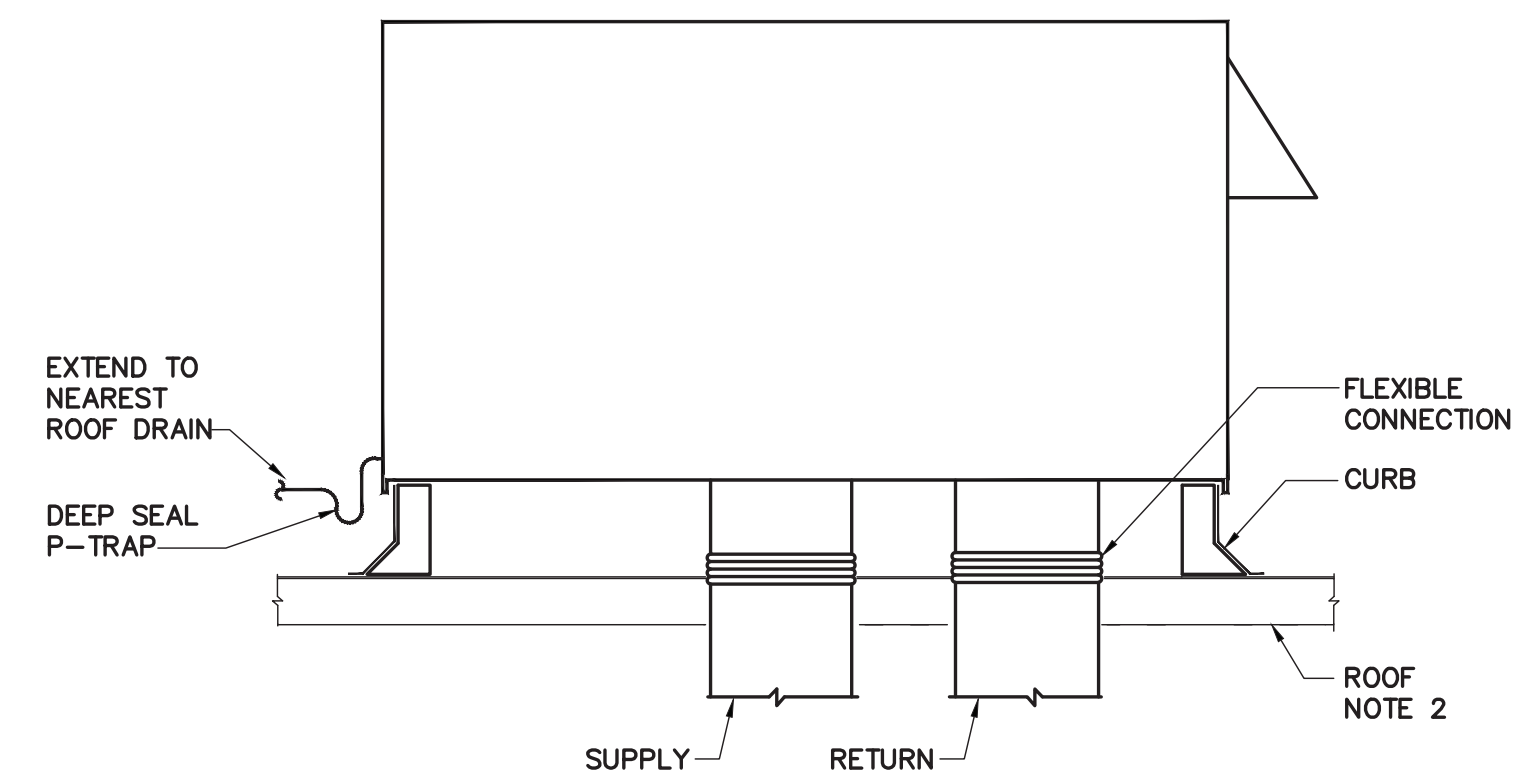
- NOTES:**
1. PROVIDE ROOF CURB TO MATCH ROOF SLOPE.
  2. SEE ARCHITECTURAL AND STRUCTURAL PLANS FOR ROOF/STRUCTURE CONSTRUCTION.
  3. ATTACH CURB TO ROOF OR STRUCTURE AS REQUIRED BY SEISMIC REQUIREMENTS. IF NONE, SPOT WELD OR MECHANICALLY ANCHOR.
  4. ATTACH UNIT TO CURB 12" O.C. MINIMUM, 2 PER SIDE.
  5. PROVIDE OVERHANG RECOMMENDED BY EQUIPMENT MANUFACTURER BUT NO LESS THAN 3/4".
  6. FLASHING ON DETAIL IS DIAGRAMMATIC ONLY. SEE ARCHITECTURAL DETAILS AND/OR ROOFING INSTALLERS REQUIREMENTS FOR ACTUAL FLASHING AND COUNTER FLASHING REQUIRED.

**ROOF CURB DETAIL**  
 3325B NOT TO SCALE 04/12



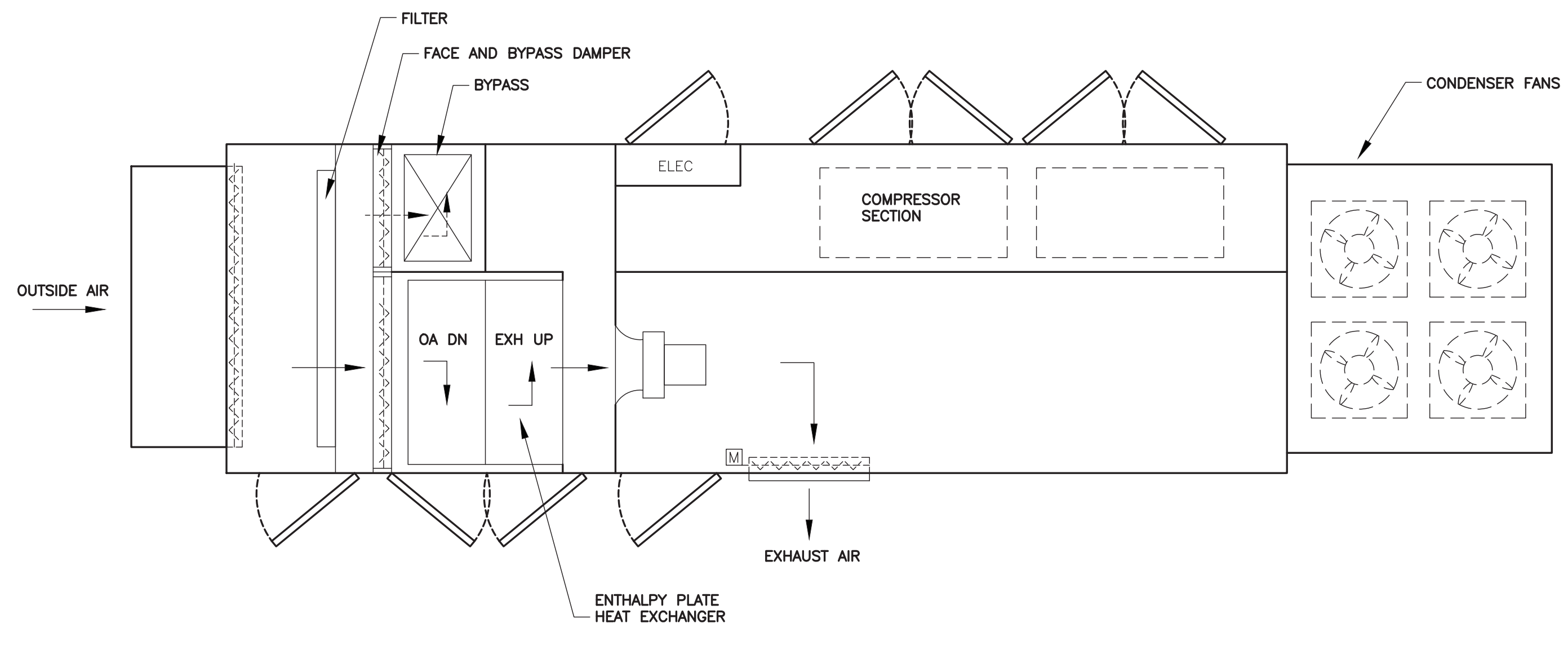
- NOTES:**
1. SEE SPECIFICATIONS FOR MORE INFORMATION.
  2. CURB SHALL BE WELDED AND GASKETED TO PROVIDE AN AIR AND WATER TIGHT SEAL. CURB SHALL HAVE A SOLID BOTTOM.
  3. CURB SHALL BE FLASHED IN PER ROOFING MANUFACTURER'S REQUIREMENTS.
  4. COORDINATE CURB HEIGHT WITH DUCT SIZE AND FLASHING REQUIREMENTS. SEE SPECIFICATION FOR MORE DETAIL.
  5. PROVIDE ACOUSTICAL BARRIER ON BOTTOM OF CURB. SEE SPECIFICATIONS.
  6. ATTACH UNIT TO CURB AND CURB TO STRUCTURE PER SEISMIC ENGINEER'S RECOMMENDATIONS.
  7. PROVIDE THROUGH CURB ELECTRICAL AND CONTROLS. COORDINATE LOCATION WITH EQUIPMENT MANUFACTURER. SEAL AROUND PENETRATION TO PREVENT SOUND TRANSFER.
  8. PROVIDE A SLOPED, STAINLESS STEEL, STANDING SEAM TYPE CONDENSER DRAIN PAN FOR UNITS WITHOUT AN INTEGRAL CONDENSER DRAIN PAN. INSULATE BOTTOM OF DRAIN PAN.
  9. COORDINATE CURB SIZE WITH THE EXACT UNIT PROVIDED ON THE JOB.
  10. CONNECT SUPPLY AND RETURN DUCT WITH FLEXIBLE CONNECTORS ON THE BOTTOM SIDE OF THE CURB.
  11. UNLESS SPECIFIED ELSEWHERE, PROVIDE FULL BOTTOM CURBS ON ALL ROOFTOP EQUIPMENT.
  12. ADAPTER CURBS SIMILAR. ATTACH ADAPTER CURB TO EXISTING CURB.

**FULL BOTTOM CURB DETAIL**  
 NOT TO SCALE

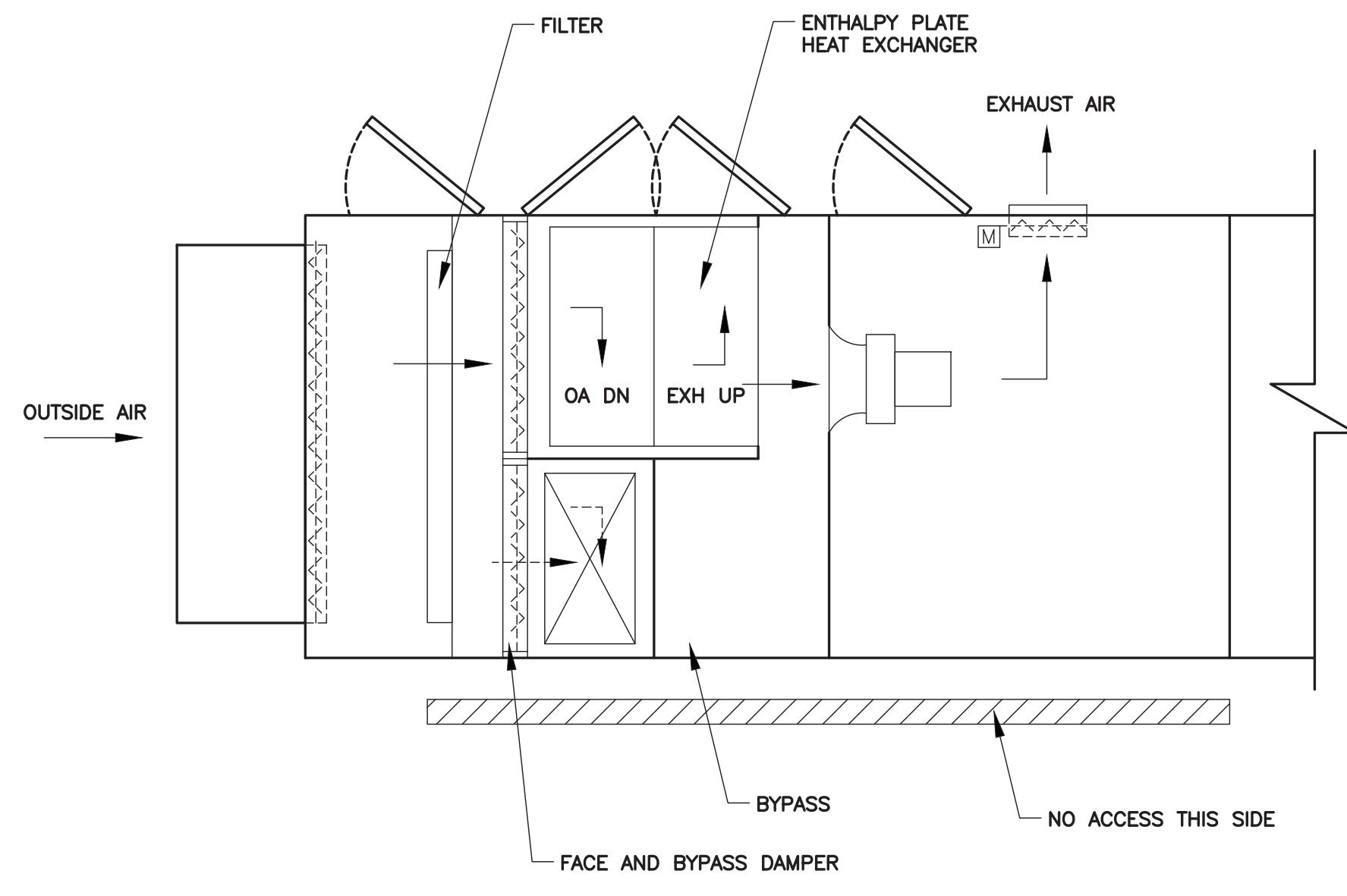


- NOTES:**
1. TRANSITION DUCT AS REQUIRED TO MAIN SUPPLY AND RETURN.
  2. SEE ARCHITECTURAL AND STRUCTURAL PLANS FOR ROOF CONSTRUCTION.

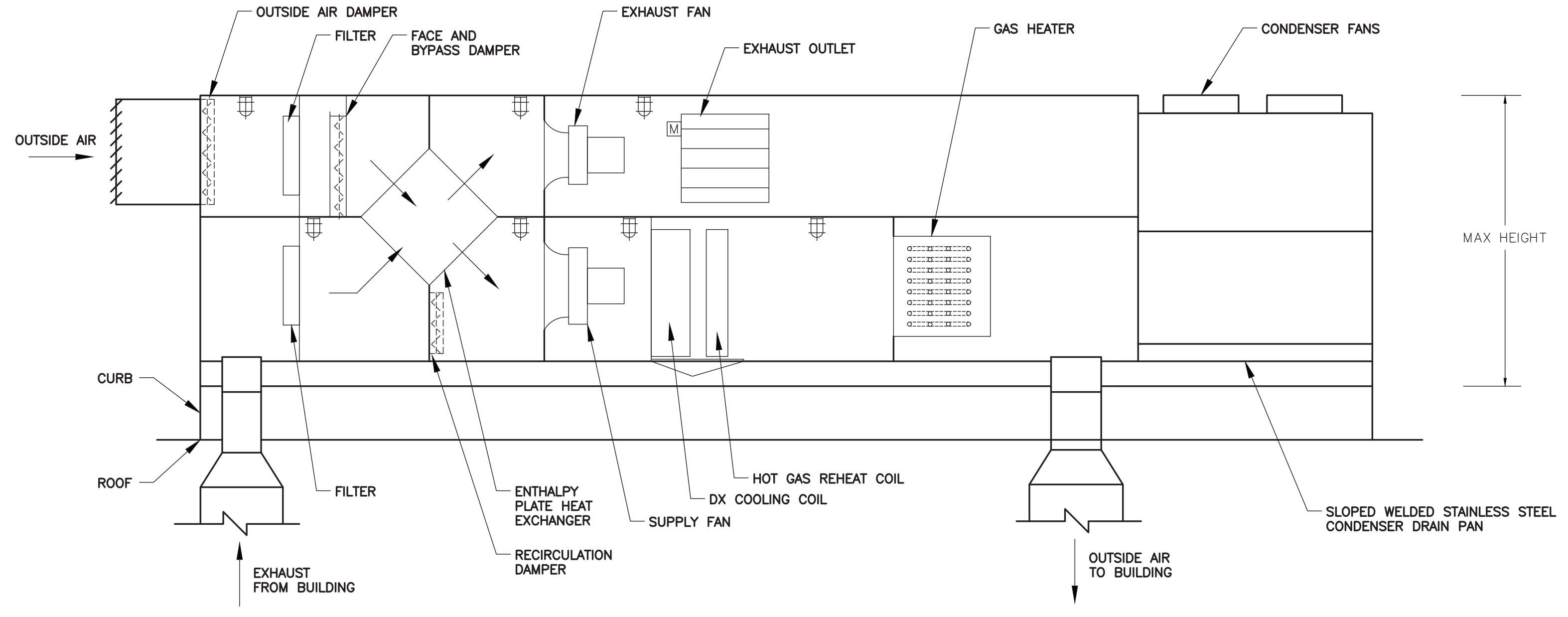
**ROOFTOP UNIT DETAIL - VERTICAL DISCHARGE**  
 3017A NOT TO SCALE 12/05



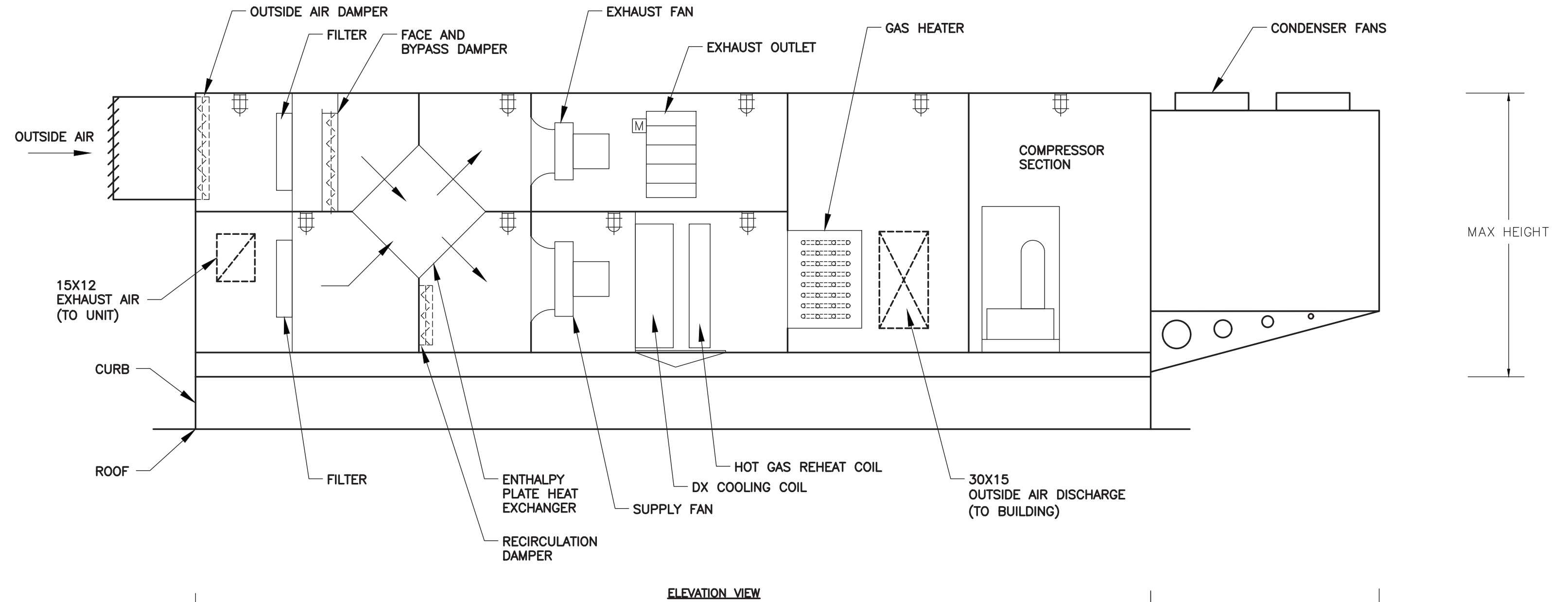
PLAN VIEW - UPPER SECTION



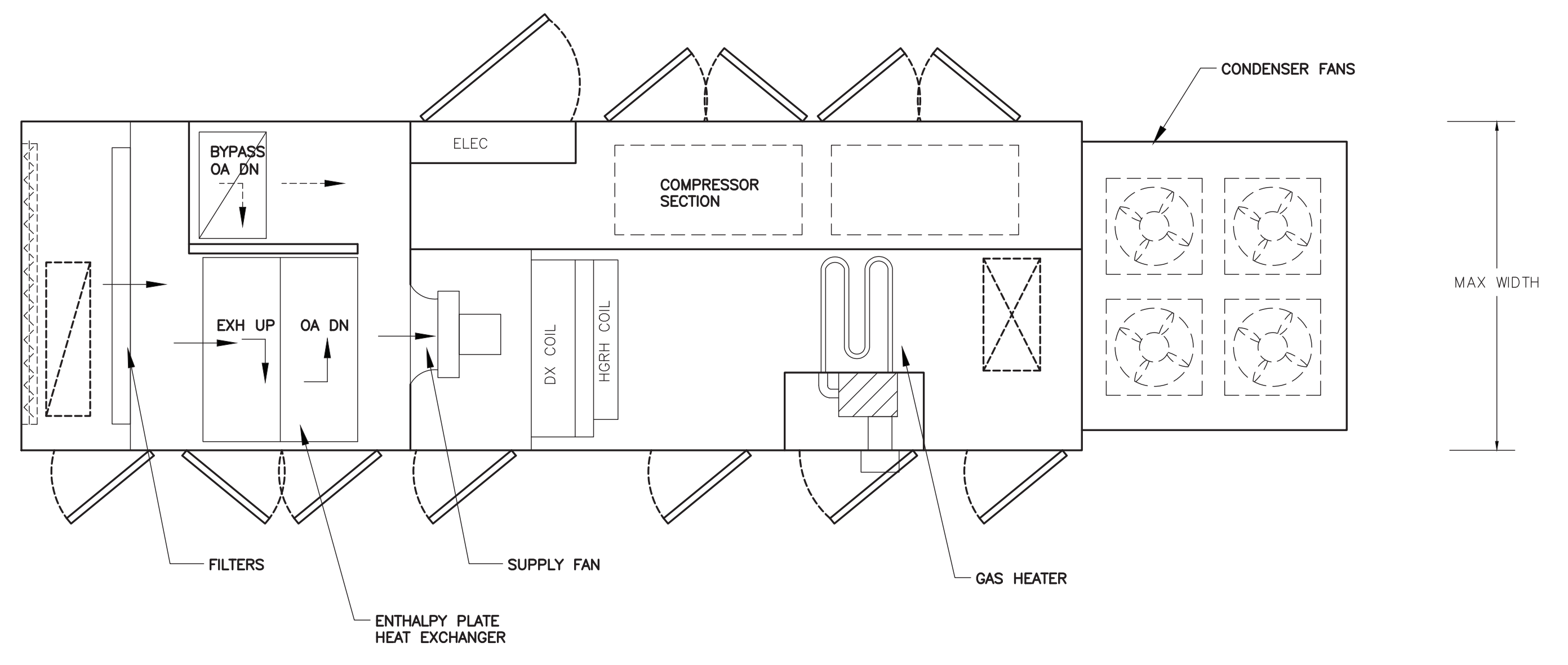
PLAN VIEW - UPPER SECTION



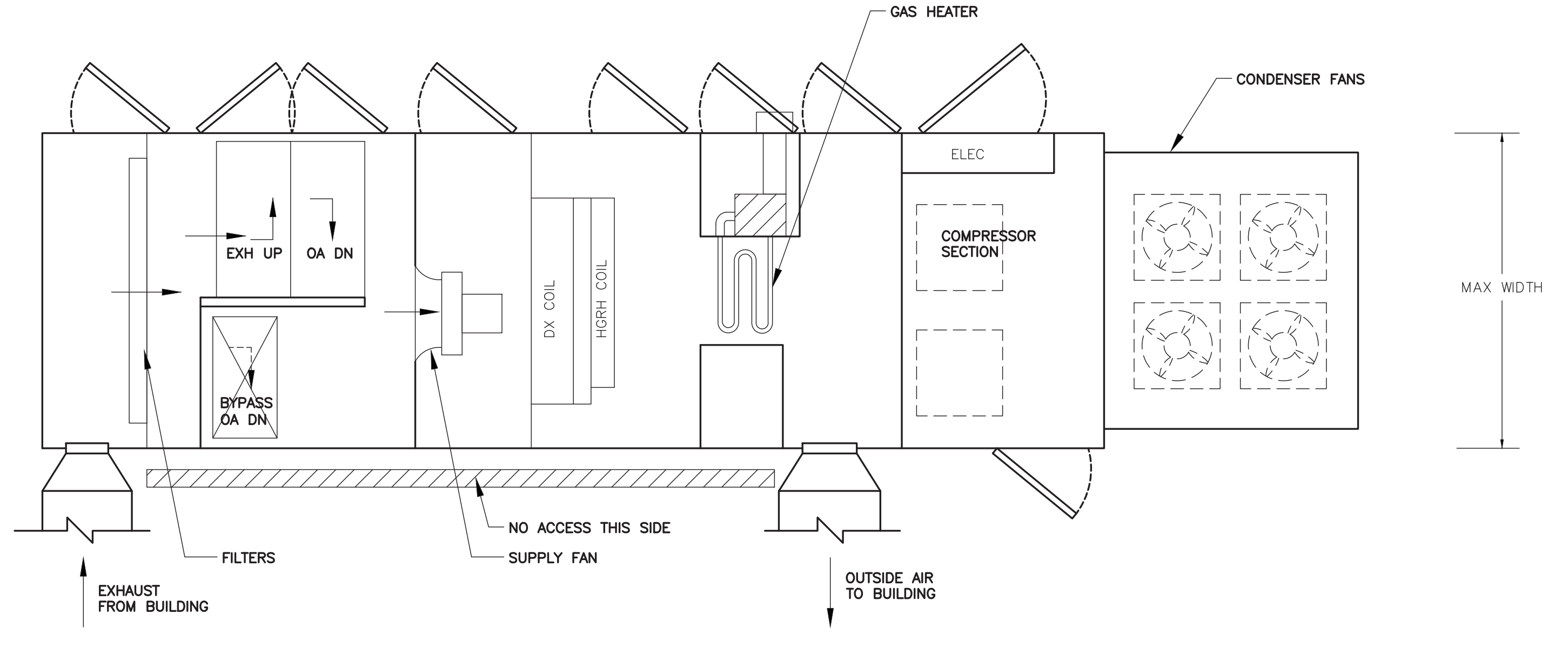
ELEVATION VIEW



ELEVATION VIEW



PLAN VIEW - LOWER SECTION



PLAN VIEW - LOWER SECTION

MAX DIMENSIONS (LENGTH A [LENGTH B] x WIDTH x HEIGHT)  
 DHS-G1 - 325 x 98 x 89

- GENERAL NOTES**
- DRAWINGS INDICATE BASIS OF DESIGN AIR HANDLERS. CONTRACTOR IS RESPONSIBLE FOR ALL CHANGES IN DUCT, PIPING, ETC. AS WELL AS COORDINATION WITH ROOF STRUCTURE BASED UPON ACTUAL UNIT SELECTED.
  - UNIT DETAILS SHOW TYPICAL UNITS. REFER TO SCHEDULES AND SPECIFICATIONS FOR SPECIFIC REQUIREMENTS.
  - COORDINATE UNIT ORIENTATION AND ACCESS WITH DRAWINGS. SEE PLANS FOR ADDITIONAL INFORMATION.
  - ALL EA AND OA DAMPERS TO BE INSULATED LOW LEAK DAMPERS. SEE DAMPER SPECIFICATION.

**DEHUMIDIFICATION UNIT (ENERGY RECOVERY MODEL) - DHS-G1**  
 NOT TO SCALE

MAX DIMENSIONS (LENGTH A [LENGTH B] x WIDTH x HEIGHT)  
 DHS-A1 - 270 [63] X 88 X 82  
 DHS-B1 - 270 [63] X 88 X 82  
 DHS-C1 - 270 [63] X 88 X 82  
 DHS-F1 - 270 [63] X 88 X 82

- GENERAL NOTES**
- DRAWINGS INDICATE BASIS OF DESIGN AIR HANDLERS. CONTRACTOR IS RESPONSIBLE FOR ALL CHANGES IN DUCT, PIPING, ETC. AS WELL AS COORDINATION WITH ROOF STRUCTURE BASED UPON ACTUAL UNIT SELECTED.
  - UNIT DETAILS SHOW TYPICAL UNITS. REFER TO SCHEDULES AND SPECIFICATIONS FOR SPECIFIC REQUIREMENTS.
  - COORDINATE RIGHT HAND/LEFT HAND HORIZONTAL DISCHARGE ARRANGEMENT WITH DUCT CONFIGURATION SHOWN ON PLANS. ALL ACCESS DOORS SHALL BE ACCESSIBLE WITHOUT STEPPING OVER DUCTWORK OR EQUIPMENT.
  - ALL EA AND OA DAMPERS TO BE INSULATED LOW LEAK DAMPERS. SEE DAMPER SPECIFICATION.

**DEHUMIDIFICATION UNIT (ENERGY RECOVERY MODEL) - DHS-A1, B1, C1 & F1**  
 NOT TO SCALE

ELECTRICAL SYMBOL SCHEDULE	
SYMBOL	DESCRIPTION
	MOTOR LOAD
	JUNCTION BOX, SIZE PER NEC UNLESS SIZE NOTED
	DISCONNECT SWITCH
	DUCT SMOKE DETECTOR TEST SWITCH/REMOTE ALARM INDICATOR
	CARBON MONOXIDE DETECTOR
	DUCT SMOKE DETECTOR
	ADDRESSABLE CONTROL MODULE
	CONDUIT RUN OVERHEAD
	CONDUIT RUN IN OR UNDER FLOOR SLAB OR UNDERGROUND
AFF	ABOVE FINISHED FLOOR
UNO	UNLESS NOTED OTHERWISE
C.	CONDUIT
SPAC	ROOF-TOP AC UNIT
R/T	RAIN TIGHT
DHS	DEHUMIDIFICATION HVAC UNIT
SPHP	ROOFTOP HEAT PUMP
	KEYNOTE LABEL
	CONDUIT RUN, VERTICAL
	SEALTIGHT FLEX CONNECTION TO MOTOR LOAD

Project Engineer:  
ECW

Drawn By:  
MTFH

Revisions:

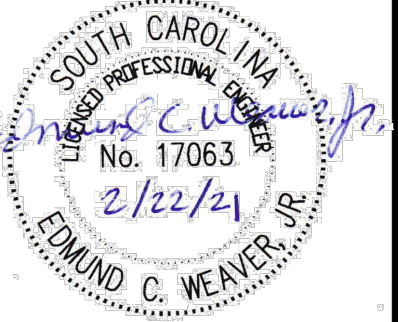
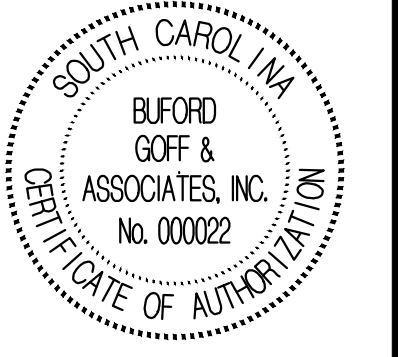
No. \_\_\_\_\_ Date \_\_\_\_\_

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No. \_\_\_\_\_ Date \_\_\_\_\_

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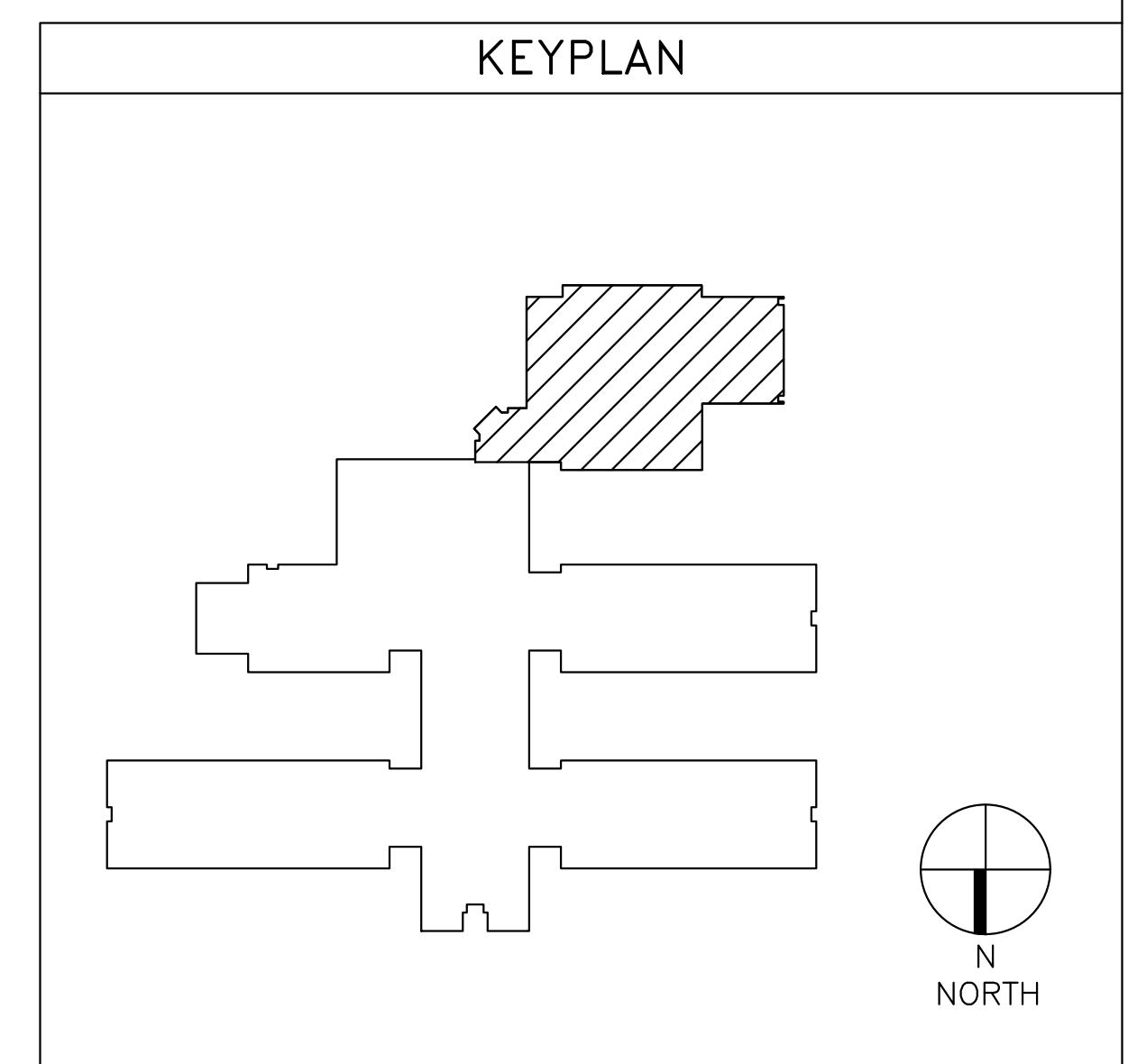
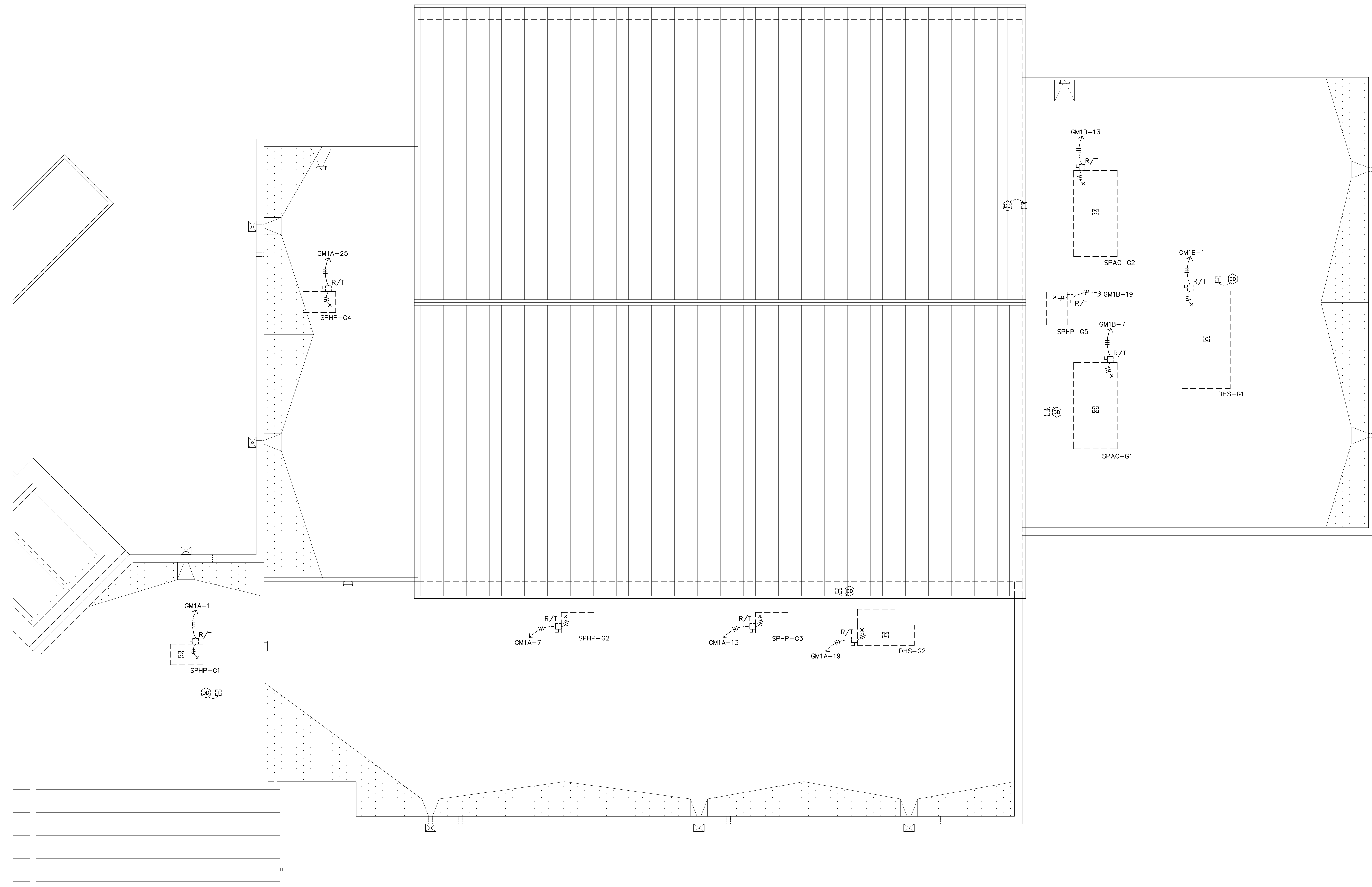


**SCOPE OF ELECTRICAL DEMOLITION AND RENOVATION WORK FOR SPAC, SPHP AND DHS UNITS (TYPICAL FOR EACH HVAC UNIT UNLESS OTHERWISE NOTED):**

- BRANCH CIRCUIT WORK: DISCONNECT EXISTING BRANCH CIRCUIT, REMOVE AND PRESERVE EXISTING DISCONNECT SWITCH. REMOUNT EXISTING DISCONNECT ON NEW UNIT AND RECONNECT EXISTING BRANCH CIRCUIT TO NEW UNIT. REPLACE EXISTING DISCONNECT FUSES WITH NEW DUAL ELEMENT-TIME DELAY FUSES SIZED BASED ON UNIT NAMEPLATE DATA. PROVIDE NEW LIQUID-TIGHT FLEXIBLE METALLIC CONDUIT AND ADDITIONAL BRANCH CIRCUIT WIRING (MATCH EXISTING) SPLICED PER NEC REQUIREMENTS AS REQUIRED TO EXTEND BRANCH CIRCUITS TO NEW HVAC UNIT TERMINATION POINT.
- FIRE ALARM WORK:
  - REMOVE AND PRESERVE EXISTING ADDRESSABLE HVAC UNIT SHUT-DOWN CONTROL MODULE. REINSTALL THE EXISTING CONTROL MODULE IN NEW HVAC UNIT AND RECONNECT TO THE EXISTING FIRE ALARM SIGNALING LOOP. COORDINATE FINAL CONNECTION TO HVAC UNIT CONTROLLER WITH HVAC CONTRACTOR.
  - EXISTING DUCT DETECTORS ARE TO REMAIN UNDISTURBED AND IN SERVICE UNLESS OTHERWISE NOTED ON THE DRAWINGS.
  - PROVIDE PRE-TESTING, CERTIFICATION TESTING, ACCEPTANCE TESTING, AND RE-ACCEPTANCE TESTING (IF INITIAL ACCEPTANCE TESTING FAILS) TO ESTABLISH PROPER FUNCTIONING OF EACH NEW HVAC UNIT'S DUCT DETECTOR(S) AND SHUT-DOWN CONTROLS.
  - CEILING-MOUNT NEW CARBON MONOXIDE DETECTORS (CO) IN THE FIRST SPACE (CLOSEST TO UNIT IN TERMS OF AIR FLOW) SERVED BY EACH OF THE FOLLOWING GAS POWERED HVAC UNITS: ALL DHS UNITS, SPAC-F1, SPAC-G1 & SPAC-G2. MAKE SYSTEM MODIFICATIONS, IMPROVEMENTS, AND ADDITIONS AS REQUIRED TO ACCOMMODATE NEW CO DETECTORS AND SOUNDER BASES. WORK SHALL INCLUDE BUT SHALL NOT BE LIMITED TO NEW POWER SUPPLIES, REWIRING OF EXISTING CIRCUITS, NEW CIRCUITS, AND PROGRAMMING MODIFICATIONS. LOCATE CO DETECTORS 3'-6" FROM THE FIRST SUPPLY GRILLE SERVED BY THE ROOM SUPPLY DUCT. DEACTIVATE SMOKE AND HEAT MODES IN CO DETECTORS IN PROGRAMMING (DETECTORS SHALL FUNCTION AS CO DETECTORS ONLY).
- SEE SPECIFICATION 283111 FOR ADDITIONAL REQUIREMENTS.

**GENERAL ELECTRICAL DEMOLITION NOTES:**

- BRANCH CIRCUIT HOMERUN TAGS ARE EXISTING 480/277V PANELBOARD AND CIRCUIT NUMBER DESIGNATIONS. UNLESS OTHERWISE NOTED, EXISTING BRANCH CIRCUIT BREAKERS SHALL REMAIN UNDISTURBED AND IN SERVICE.



1 PARTIAL FLOOR PLAN - ELECTRICAL DEMOLITION  
ED201 SCALE: 1/8" = 1'-0"

Project: FORT MILLS SCHOOL DISTRICT  
 SPRINGFIELD MIDDLE SCHOOL HVAC UPGRADES  
 Sheet Title: PARTIAL ROOF PLAN - ELECTRICAL DEMOLITION

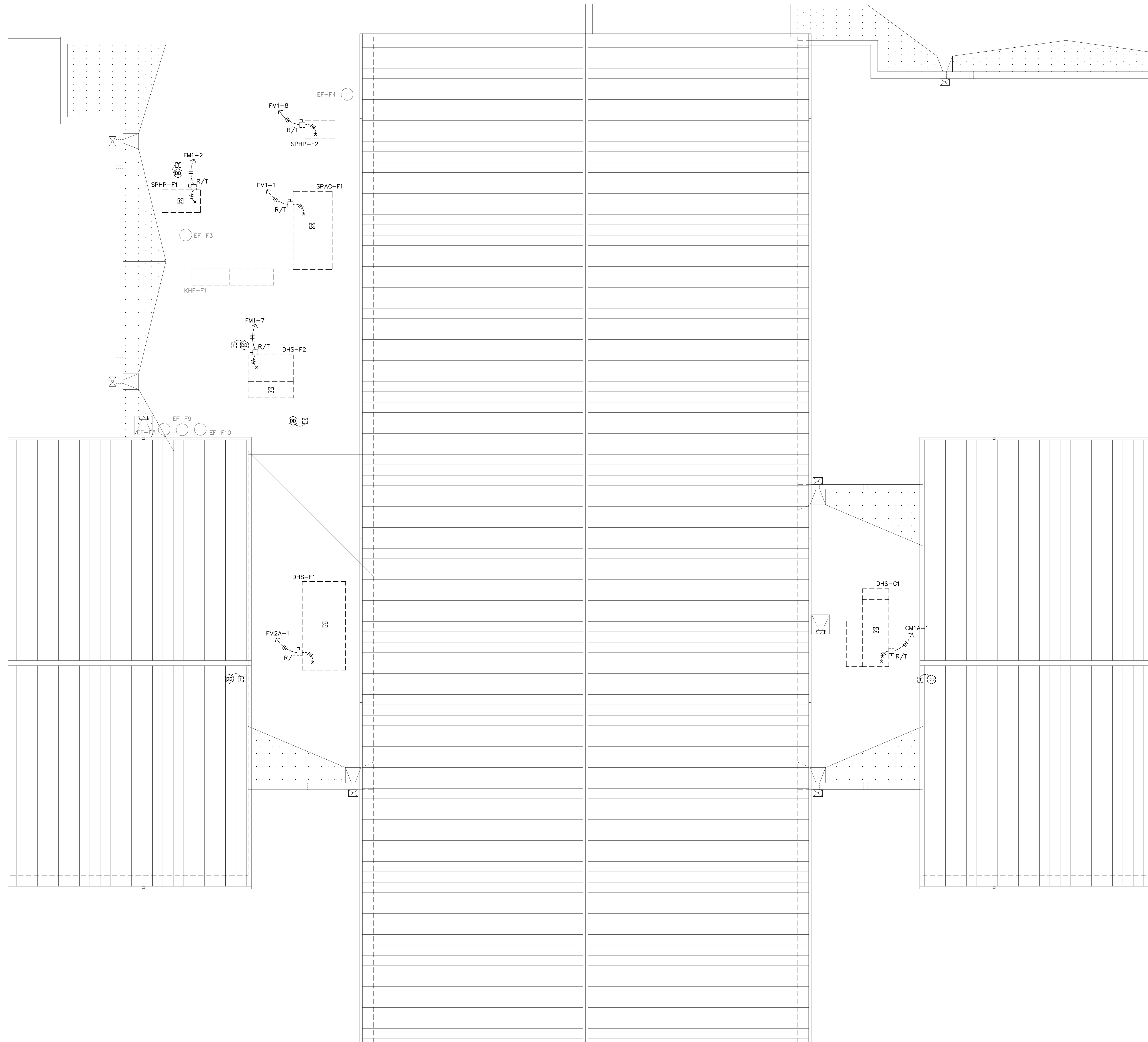
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Sheet Number:

**ED201**

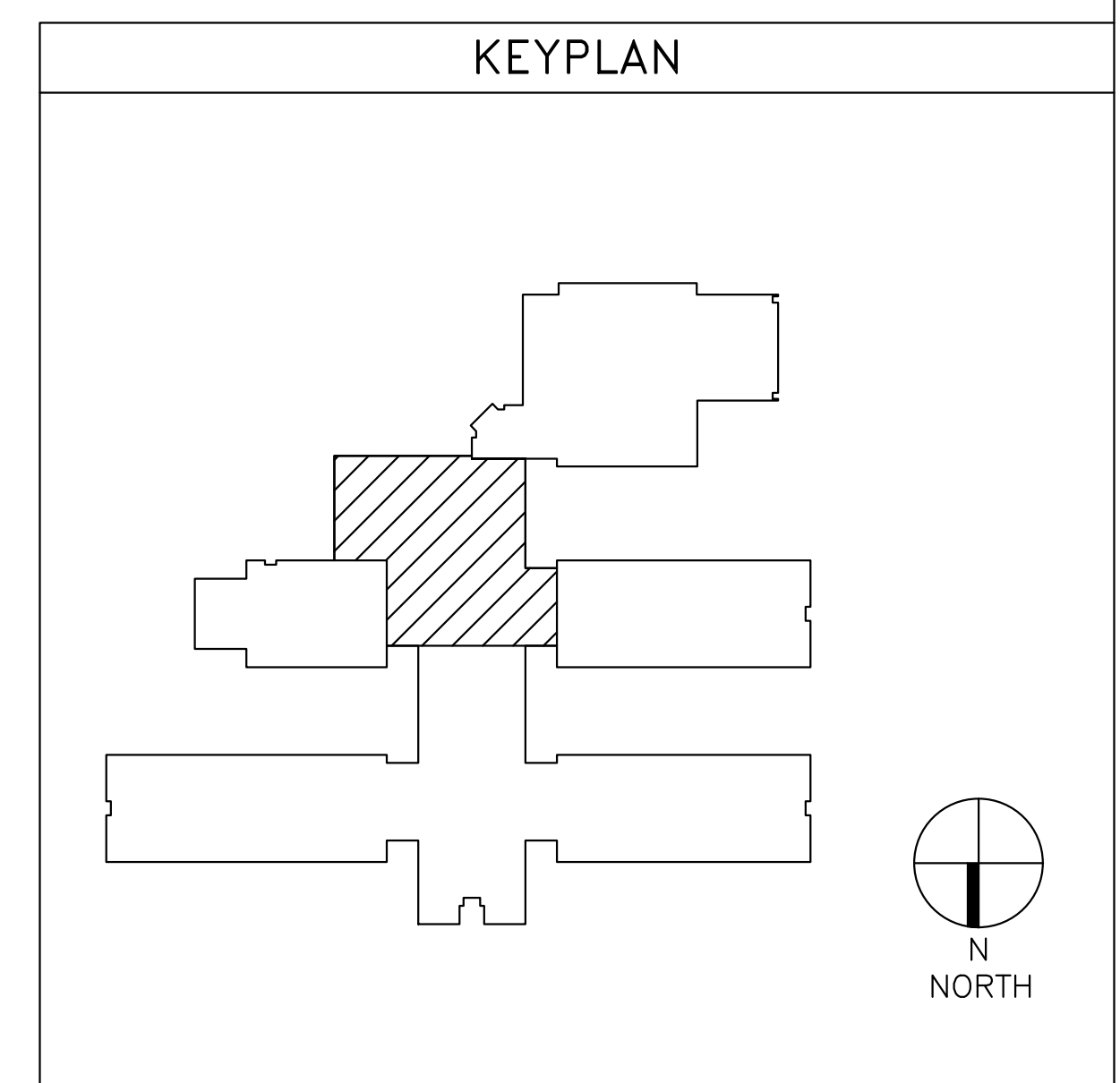
Date: FEBRUARY 22, 2021  
Scale: As Noted  
BGA PROJECT NUMBER: 20028  
CONSTRUCTION DOCUMENTS



**GENERAL ELECTRICAL DEMOLITION NOTES:**

- BRANCH CIRCUIT HOMERUN TAGS ARE EXISTING 480/277V PANELBOARD AND CIRCUIT NUMBER DESIGNATIONS. UNLESS OTHERWISE NOTED, EXISTING BRANCH CIRCUIT BREAKERS SHALL REMAIN UNDISTURBED AND IN SERVICE.

1 PARTIAL ROOF PLAN - ELECTRICAL DEMOLITION  
ED202 SCALE: 1/8" = 1'-0"

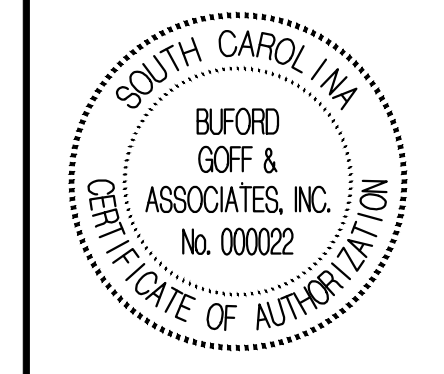


Project Engineer: ECW  
 Drawn By: MTFH

Revisions:

No.	Date

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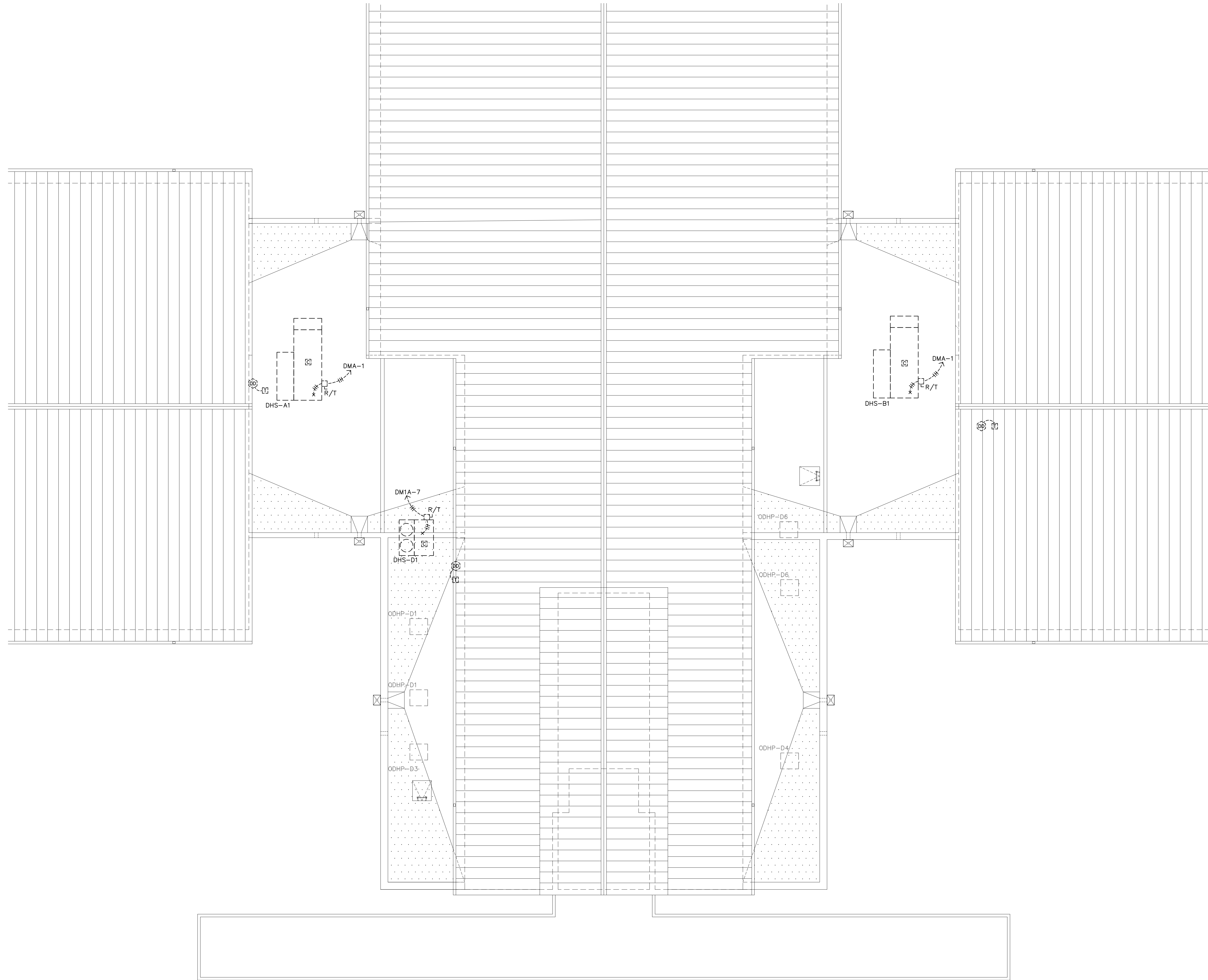


Project: FORT MILLS SCHOOL DISTRICT  
 SPRINGFIELD MIDDLE SCHOOL HVAC UPGRADES  
 Sheet Title: PARTIAL ROOF PLAN - ELECTRICAL DEMOLITION

**Buford Goff & Associates, Inc.**  
 Engineers & Planners  
 1331 Elmwood Ave.  
 Suite 200  
 Columbia, SC 29201  
 Phone: (803) 254-6302

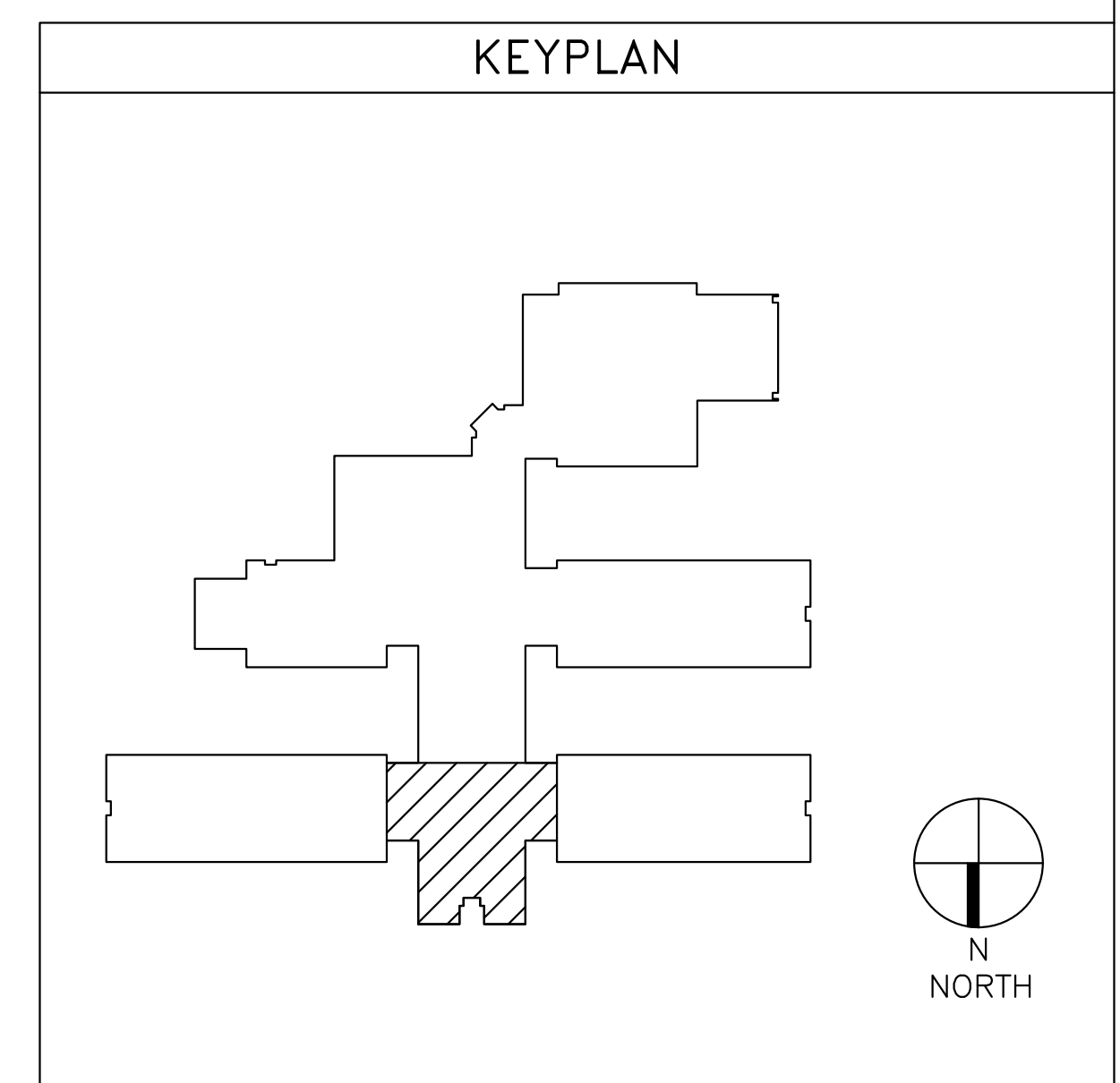
Sheet Number:  
**ED202**

Date: FEBRUARY 22, 2021  
 Scale: As Noted  
 BGA PROJECT NUMBER: 20028  
 CONSTRUCTION DOCUMENTS



**GENERAL ELECTRICAL DEMOLITION NOTES:**

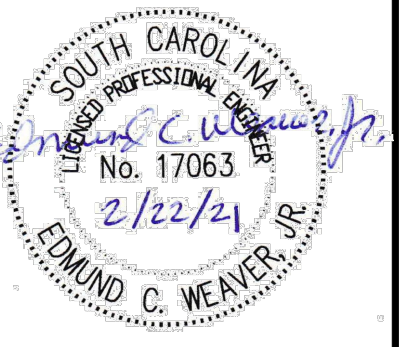
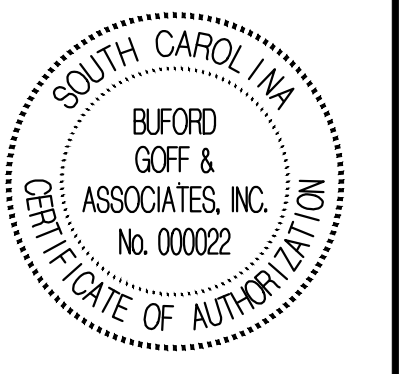
- BRANCH CIRCUIT HOMERUN TAGS ARE EXISTING 480/277V PANELBOARD AND CIRCUIT NUMBER DESIGNATIONS. UNLESS OTHERWISE NOTED, EXISTING BRANCH CIRCUIT BREAKERS SHALL REMAIN UNDISTURBED AND IN SERVICE.



1 PARTIAL ROOF PLAN - ELECTRICAL DEMOLITION  
ED203 SCALE: 1/8" = 1'-0"

Project Engineer:	ECW
Drawn By:	MTFH
Revisions:	
No. _____	Date _____
No. _____	Date _____
No. _____	Date _____

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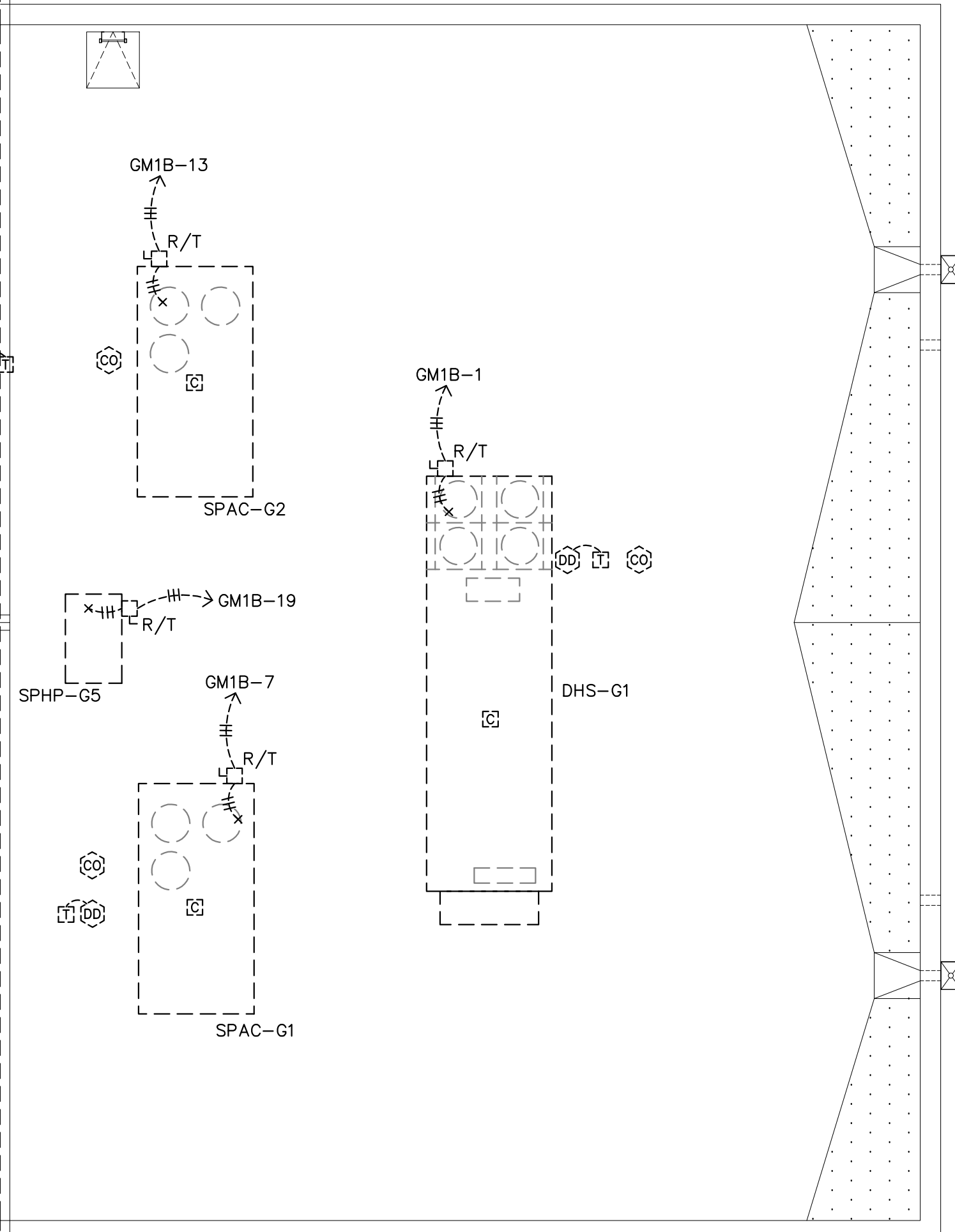
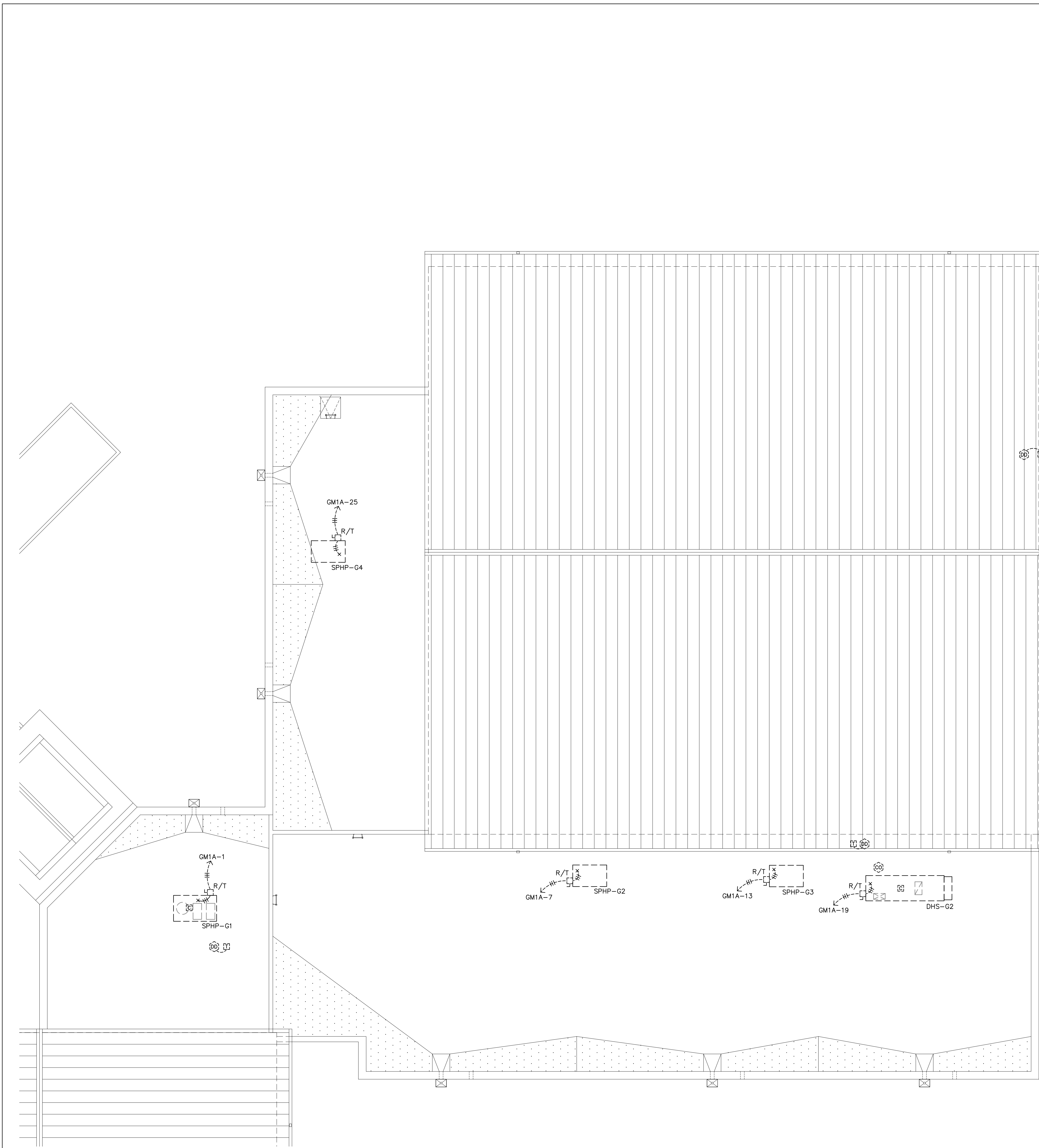
FORT MILLS SCHOOL DISTRICT  
 SPRINGFIELD MIDDLE SCHOOL HVAC UPGRADES  
 PARTIAL ROOF PLAN - ELECTRICAL DEMOLITION

Project \_\_\_\_\_  
Sheet Title \_\_\_\_\_

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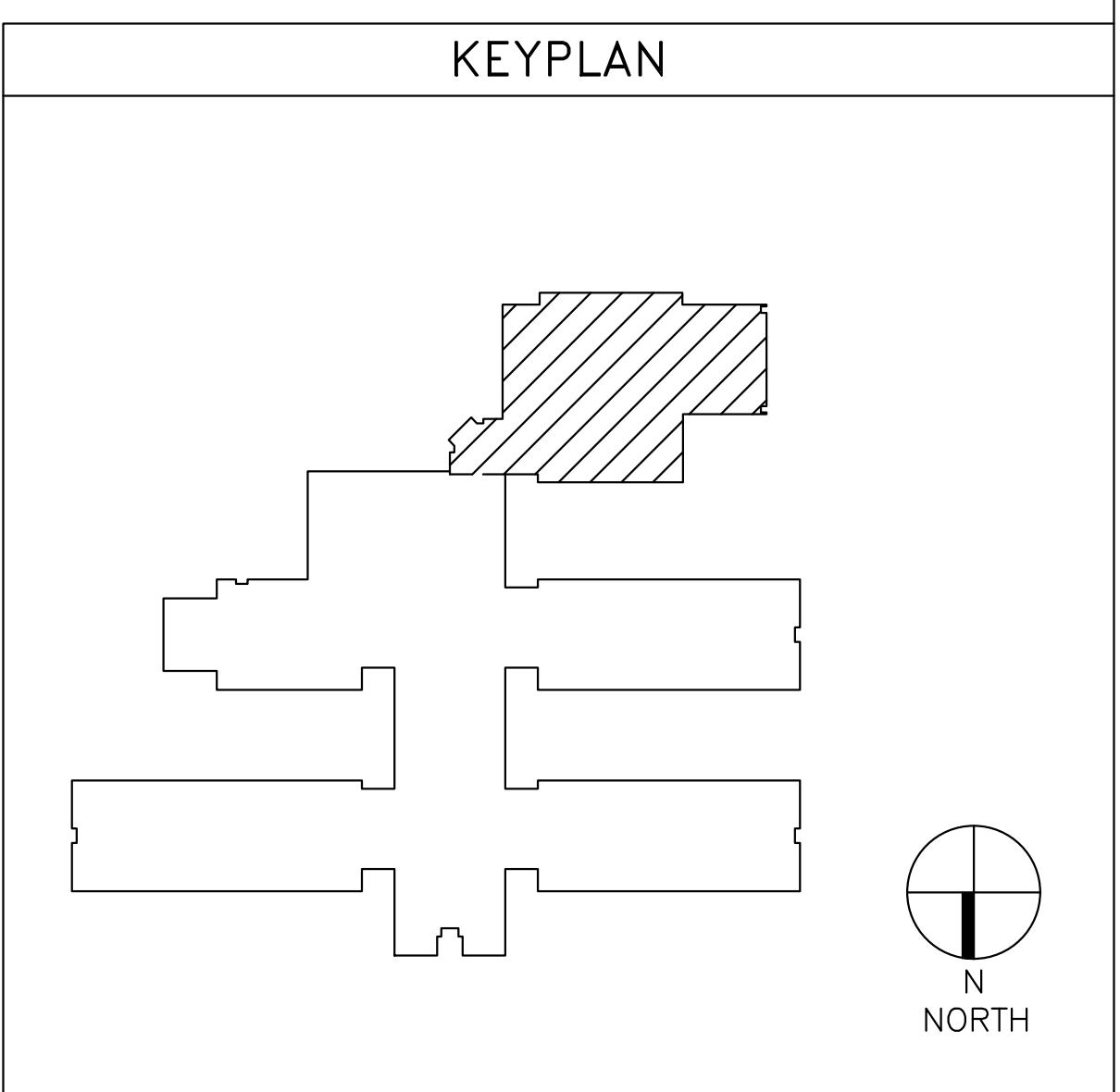
Sheet Number:  
**ED203**

Date: FEBRUARY 22, 2021  
Scale: As Noted  
BGA PROJECT NUMBER: 20028  
CONSTRUCTION DOCUMENTS

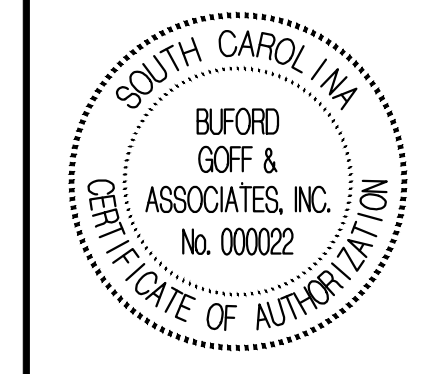


- GENERAL ELECTRICAL RENOVATION NOTES:**
- EXISTING DUCT SMOKE DETECTOR LOCATIONS AND NEW CO DETECTOR LOCATIONS ARE APPROXIMATE. LOCATE DEVICES IN FIELD AND UPDATE AS-BUILT DRAWINGS.
  - IN ADDITION TO TESTING OF DUCT DETECTORS AND HVAC UNIT SHUT-DOWN FUNCTIONS AFTER NEW HVAC UNITS ARE INSTALLED, TEST DUCT DETECTORS, TEST SWITCHES, AND SHUT-DOWN FUNCTIONS ON EXISTING HVAC UNITS BEFORE DEMOLITION COMMENCES. DUCT DETECTOR TESTING SHALL BE PERFORMED USING IGNITABLE SMOKE EMITTERS. REPORT COMPLETE TEST RESULTS FOR EACH UNIT TO THE ENGINEER.
  - SEE SHEET ED-201 FOR ADDITIONAL INFORMATION.

HVAC UNIT BRANCH CIRCUIT SCHEDULE					
UNIT DESIGNATION	EXISTING BRANCH CIRCUIT SIZE	EXISTING BRANCH CIRCUIT BREAKER RATING (A)	NEW BRANCH CIRCUIT SIZE	NEW BRANCH CIRCUIT BREAKER RATING (A)	NOTES
DHS-A1	3#2, #8GND, 1-1/2" C.	100	MATCH EXISTING	EXISTING TO REMAIN	
DHS-B1	3#3, #8GND, 1-1/4" C.	80	MATCH EXISTING	100	PROVIDE NEW CIRCUIT BREAKER.
DHS-C1	3#3, #8GND, 1-1/4" C.	80	MATCH EXISTING	100	PROVIDE NEW CIRCUIT BREAKER.
DHS-D1	3#10, #10GND, 3/4" C.	25	3#10, #10GND, 3/4" C.	30	PROVIDE NEW WIRING AND CIRCUIT BREAKER.
DHS-F1	3#2, #8GND, 1-1/2" C.	100	MATCH EXISTING	EXISTING TO REMAIN	
DHS-F2	3#3, #8GND, 1-1/4" C.	80	MATCH EXISTING	EXISTING TO REMAIN	
DHS-G1	3#2, #8GND, 1-1/2" C.	100	3#1/0, #6GND, 1-1/2" C.	150	PROVIDE NEW WIRING AND CIRCUIT BREAKER.
DHS-G2	3#12, #10GND, 3/4" C.	20	3#10, #10GND, 3/4" C.	30	PROVIDE NEW WIRING AND CIRCUIT BREAKER.
SPAC-F1	3#2, #8GND, 1-1/2" C.	100	MATCH EXISTING	EXISTING TO REMAIN	
SPAC-G1	3#3, #8GND, 1-1/4" C.	90	MATCH EXISTING	EXISTING TO REMAIN	
SPAC-G2	3#3, #8GND, 1-1/4" C.	90	MATCH EXISTING	EXISTING TO REMAIN	
SPHP-F1	3#6, #10GND, 3/4" C.	60	MATCH EXISTING	EXISTING TO REMAIN	
SPHP-F2	3#8, #10GND, 1" C.	40	MATCH EXISTING	EXISTING TO REMAIN	
SPHP-G1	3#6, #10GND, 3/4" C.	60	MATCH EXISTING	EXISTING TO REMAIN	
SPHP-G2	3#10, #10GND, 3/4" C.	30	MATCH EXISTING	EXISTING TO REMAIN	
SPHP-G3	3#10, #10GND, 3/4" C.	30	MATCH EXISTING	EXISTING TO REMAIN	
SPHP-G4	3#10, #10GND, 3/4" C.	30	MATCH EXISTING	EXISTING TO REMAIN	
SPHP-G5	3#10, #10GND, 3/4" C.	30	MATCH EXISTING	EXISTING TO REMAIN	



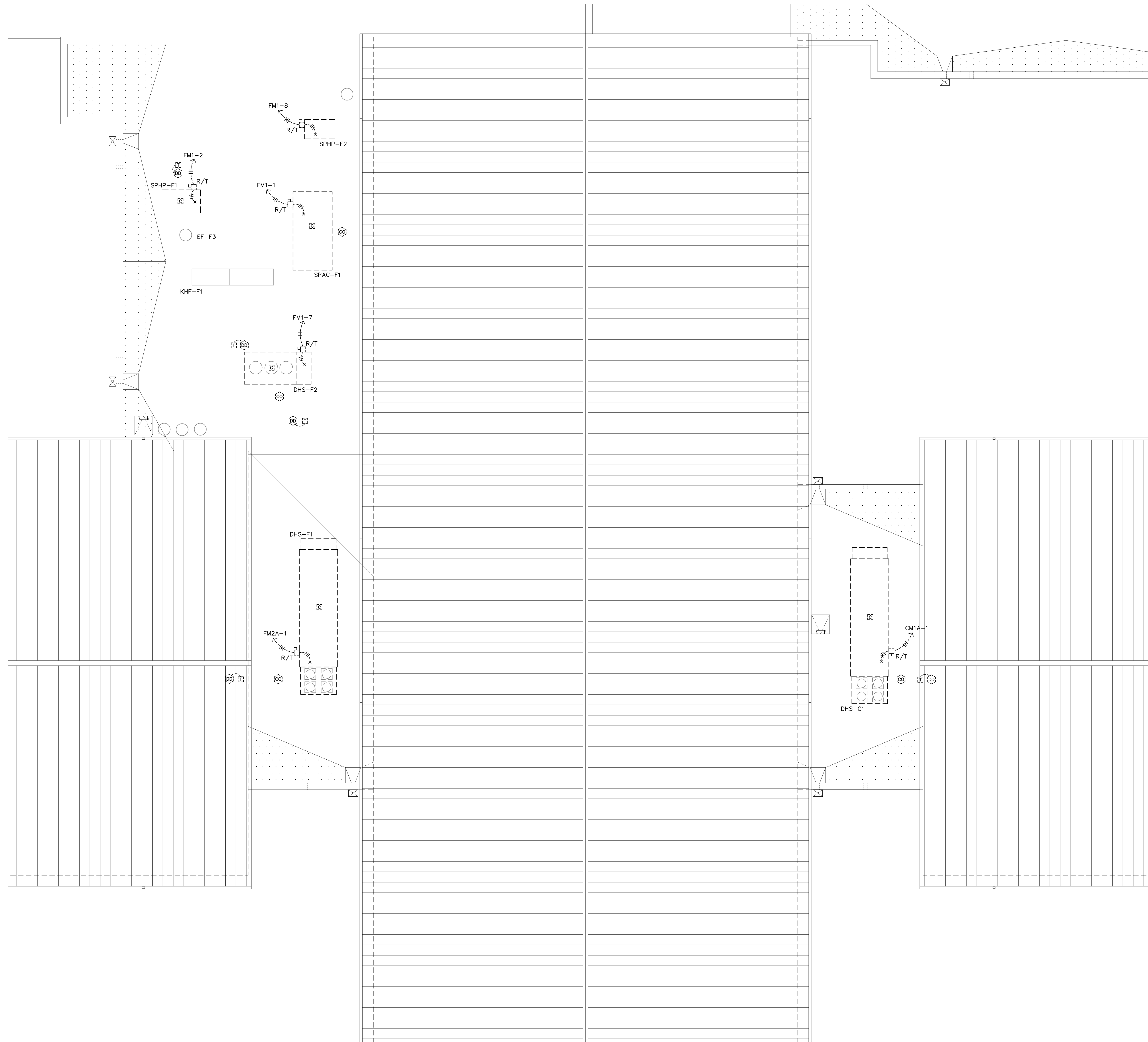
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FORT MILLS SCHOOL DISTRICT  
 SPRINGFIELD MIDDLE SCHOOL HVAC UPGRADES  
 PARTIAL ROOF PLAN - ELECTRICAL RENOVATION

Project \_\_\_\_\_  
 Sheet Title \_\_\_\_\_

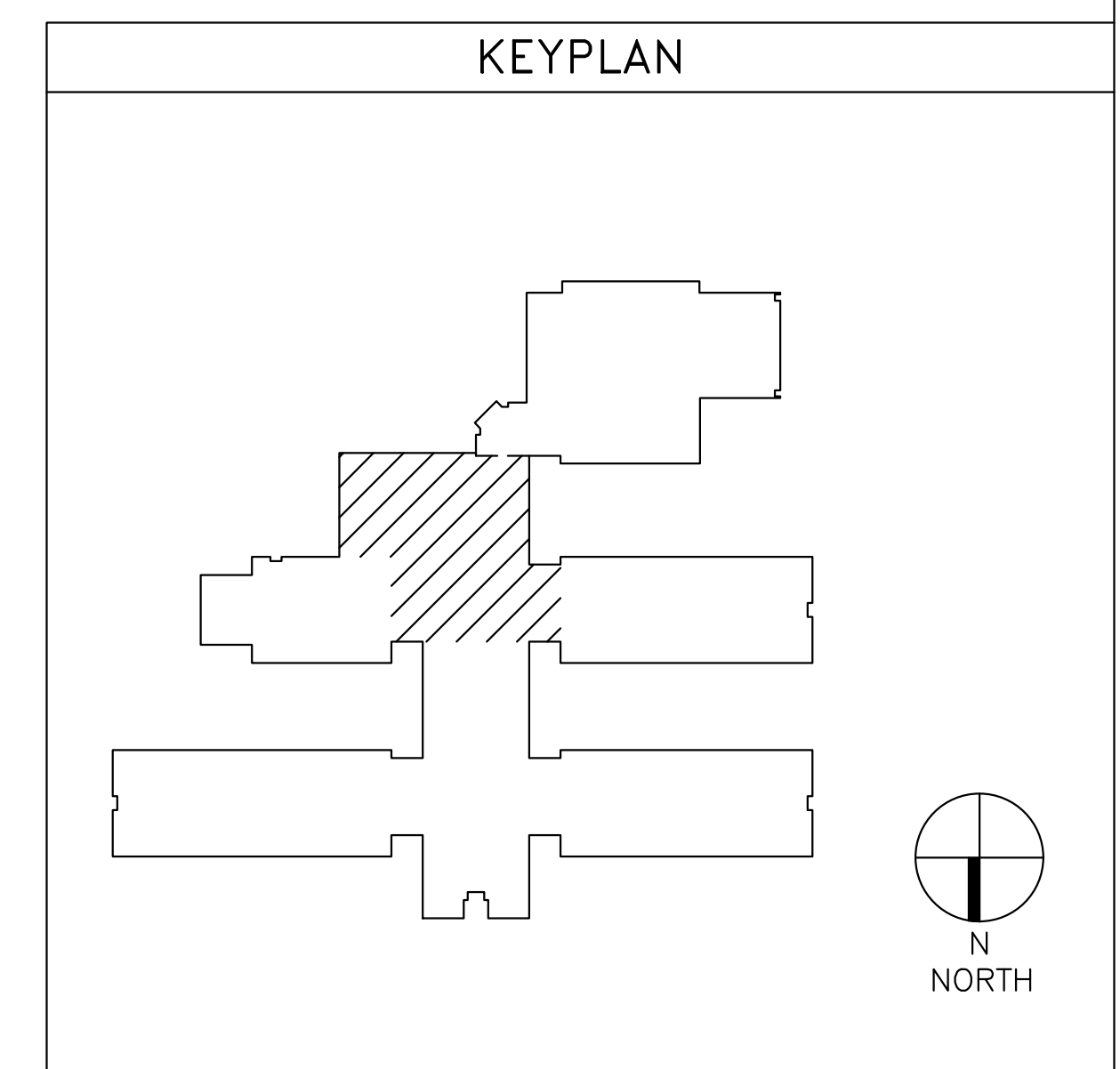




**GENERAL ELECTRICAL RENOVATION NOTES:**

1. EXISTING DUCT SMOKE DETECTOR LOCATIONS AND NEW CO DETECTOR LOCATIONS ARE APPROXIMATE. LOCATE DEVICES IN FIELD AND UPDATE AS-BUILT DRAWINGS.
2. IN ADDITION TO TESTING OF DUCT DETECTORS AND HVAC UNIT SHUT-DOWN FUNCTIONS AFTER NEW HVAC UNITS ARE INSTALLED, TEST DUCT DETECTORS, TEST SWITCHES, AND SHUT-DOWN FUNCTIONS ON EXISTING HVAC UNITS BEFORE DEMOLITION COMMENCES. DUCT DETECTOR TESTING SHALL BE PERFORMED USING IGNITABLE SMOKE EMITTERS. REPORT COMPLETE TEST RESULTS FOR EACH UNIT TO THE ENGINEER.
3. SEE SHEET ED-201 FOR ADDITIONAL INFORMATION.

1 PARTIAL ROOF PLAN - ELECTRICAL RENOVATION  
E202 SCALE: 1/8" = 1'-0"



Project Engineer: ECV  
 Drawn By: MTFH

Revisions:  
 No. \_\_\_\_\_ Date \_\_\_\_\_  
 No. \_\_\_\_\_ Date \_\_\_\_\_  
 No. \_\_\_\_\_ Date \_\_\_\_\_

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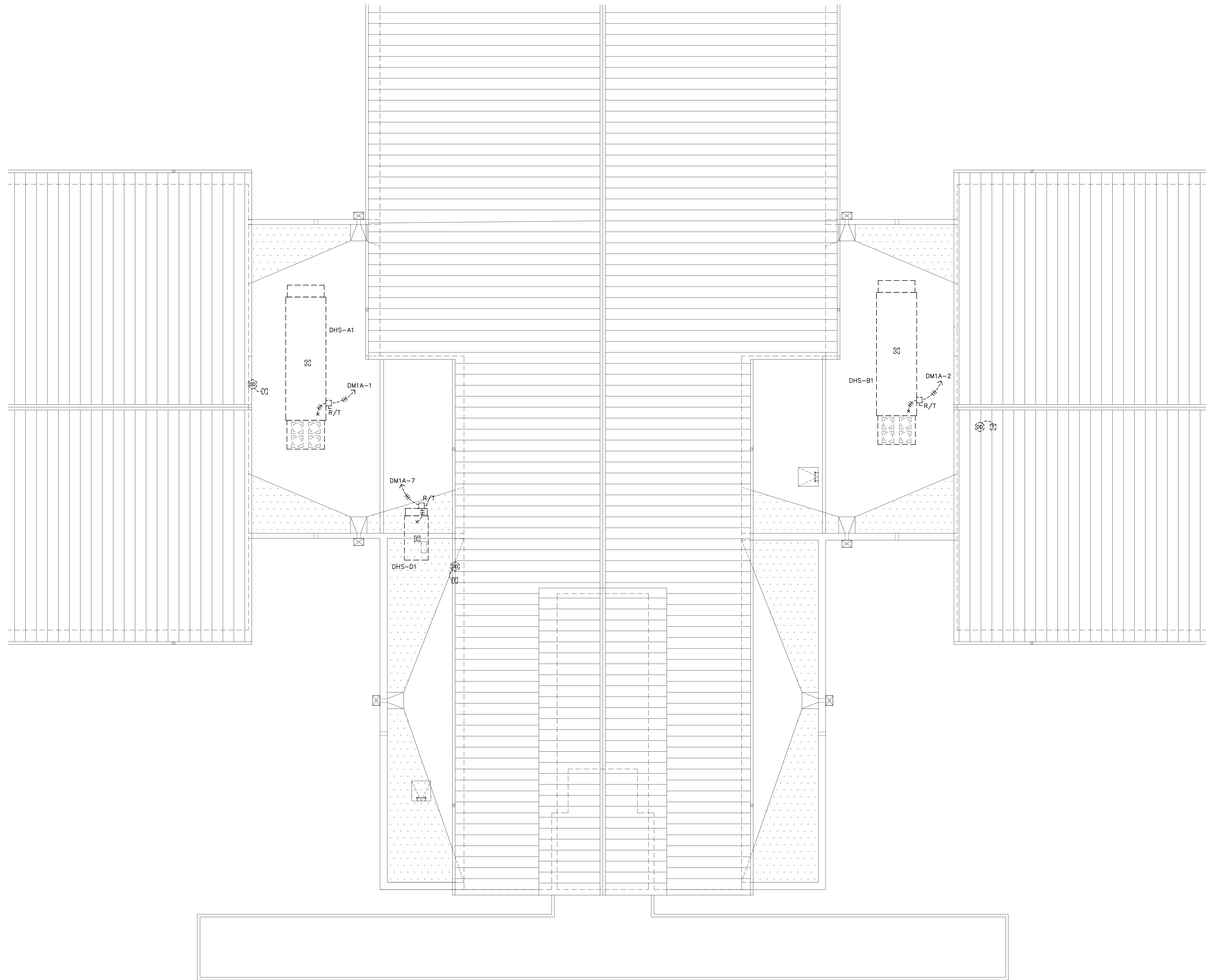
**SOUTH CAROLINA**  
**EDWARD C. WEATER**  
 No. 17063  
 2/22/21  
**REGISTERED PROFESSIONAL ENGINEER**

FORT MILLS SCHOOL DISTRICT  
 SPRINGFIELD MIDDLE SCHOOL HVAC UPGRADES  
 PARTIAL ROOF PLAN - ELECTRICAL RENOVATION

**Buford Goff**  
 & Associates, Inc.  
 Engineers & Planners  
 1331 Elmwood Ave.  
 Suite 200  
 Columbia, SC 29201  
 Phone: (803) 254-6302

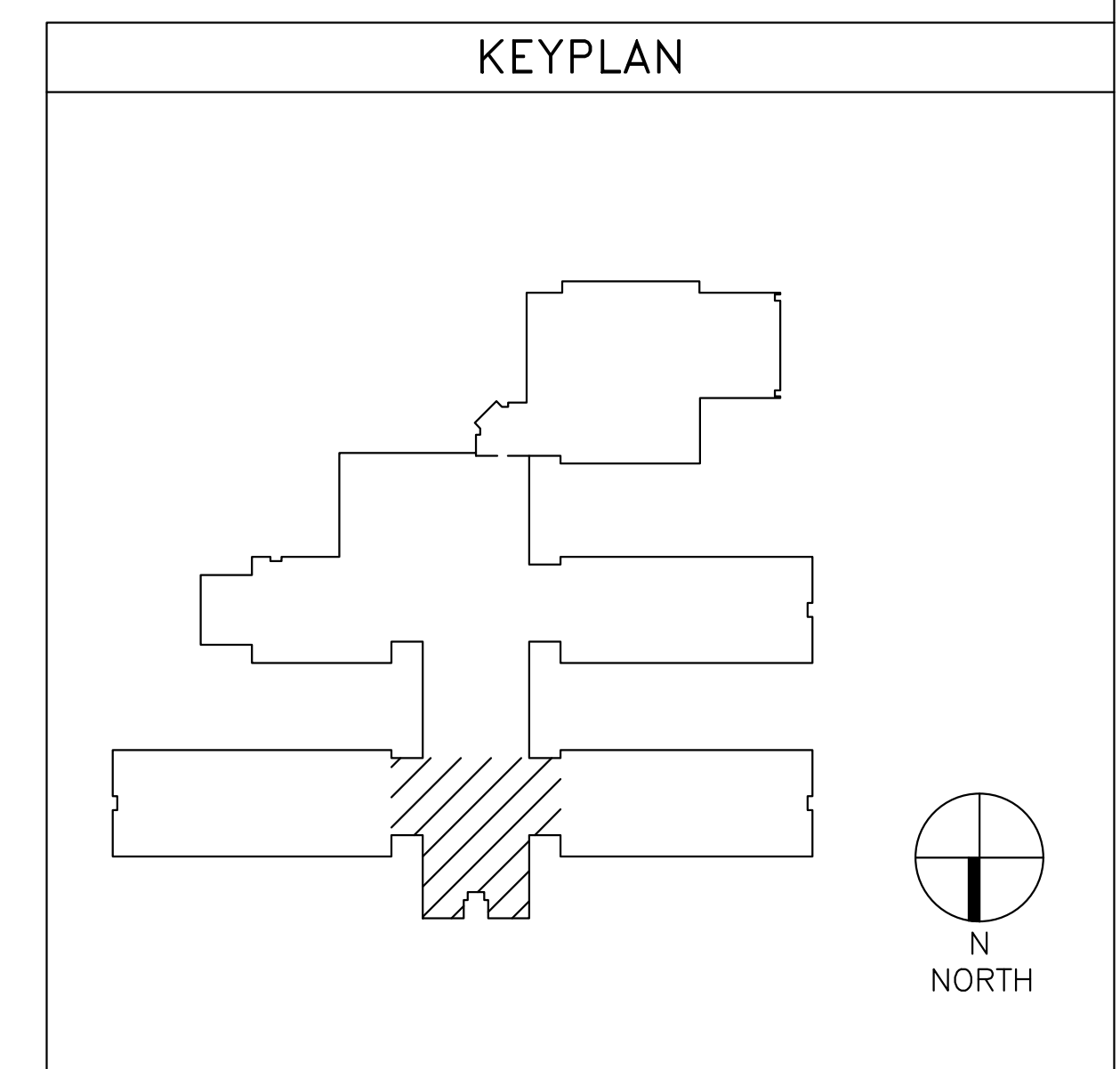
Sheet Number:  
**E202**  
 Date: FEBRUARY 22, 2021  
 Scale: As Noted  
 BGA PROJECT NUMBER: 20028  
 CONSTRUCTION DOCUMENTS





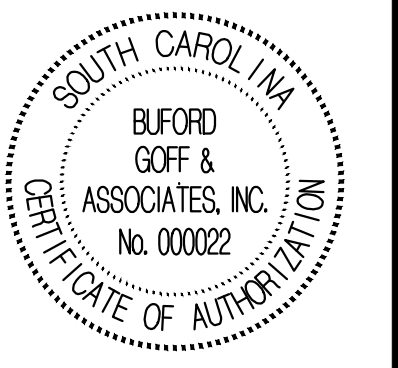
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Project Engineer:	ECW
Drawn By:	MTFH
Revisions:	
No. _____	Date _____
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No. _____	Date _____

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FORT MILLS SCHOOL DISTRICT  
 SPRINGFIELD MIDDLE SCHOOL HVAC UPGRADES  
 PARTIAL ROOF PLAN - ELECTRICAL RENOVATION

Project: \_\_\_\_\_  
Sheet Title: \_\_\_\_\_

**Buford Goff & Associates, Inc.**  
Engineers & Planners

1331 Elmwood Ave.  
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Columbia, SC 29201  
Phone: (803) 254-6302

Sheet Number:  
**E203**

Date: FEBRUARY 22, 2021  
Scale: As Noted  
BGA PROJECT NUMBER: 20028  
CONSTRUCTION DOCUMENTS