

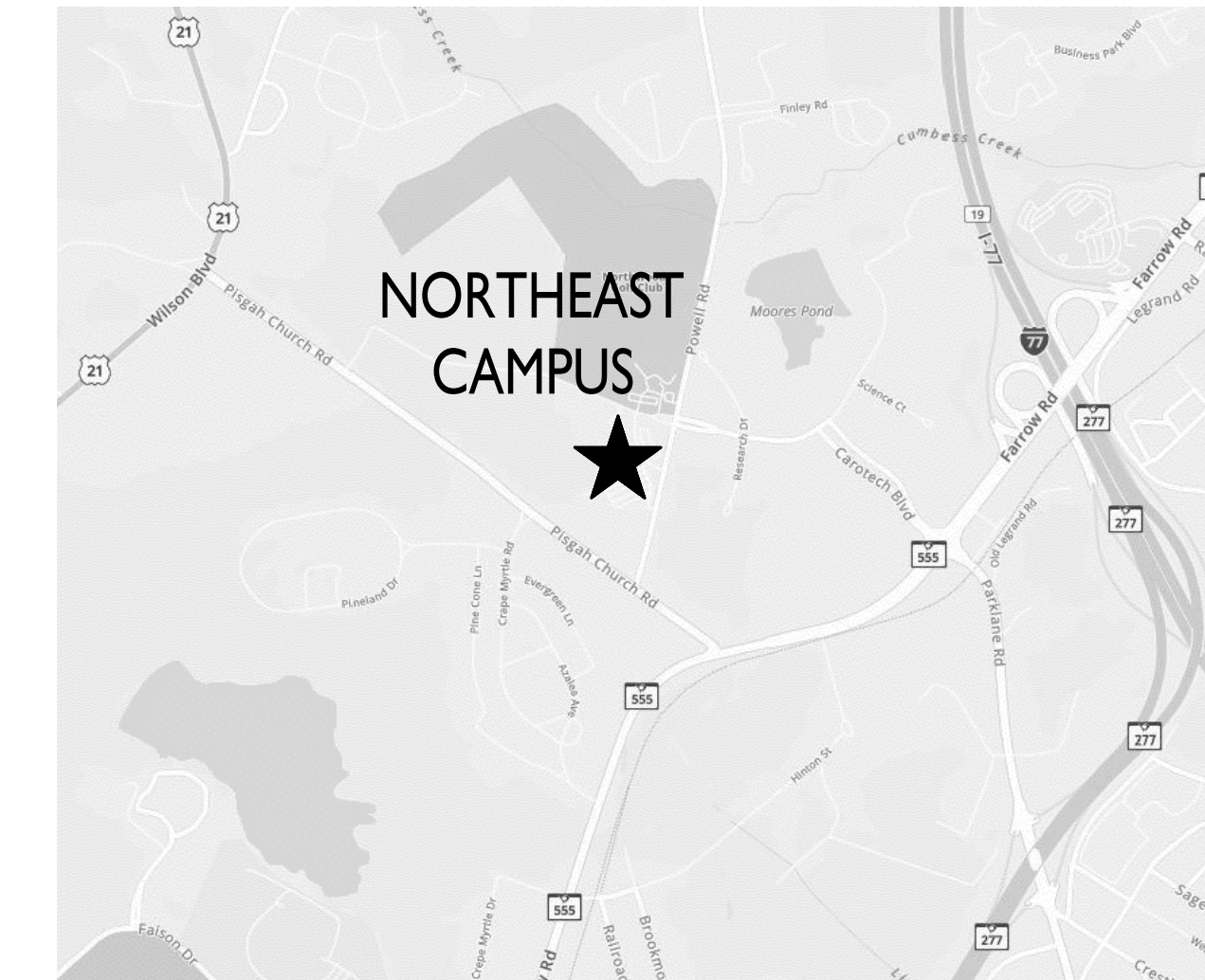
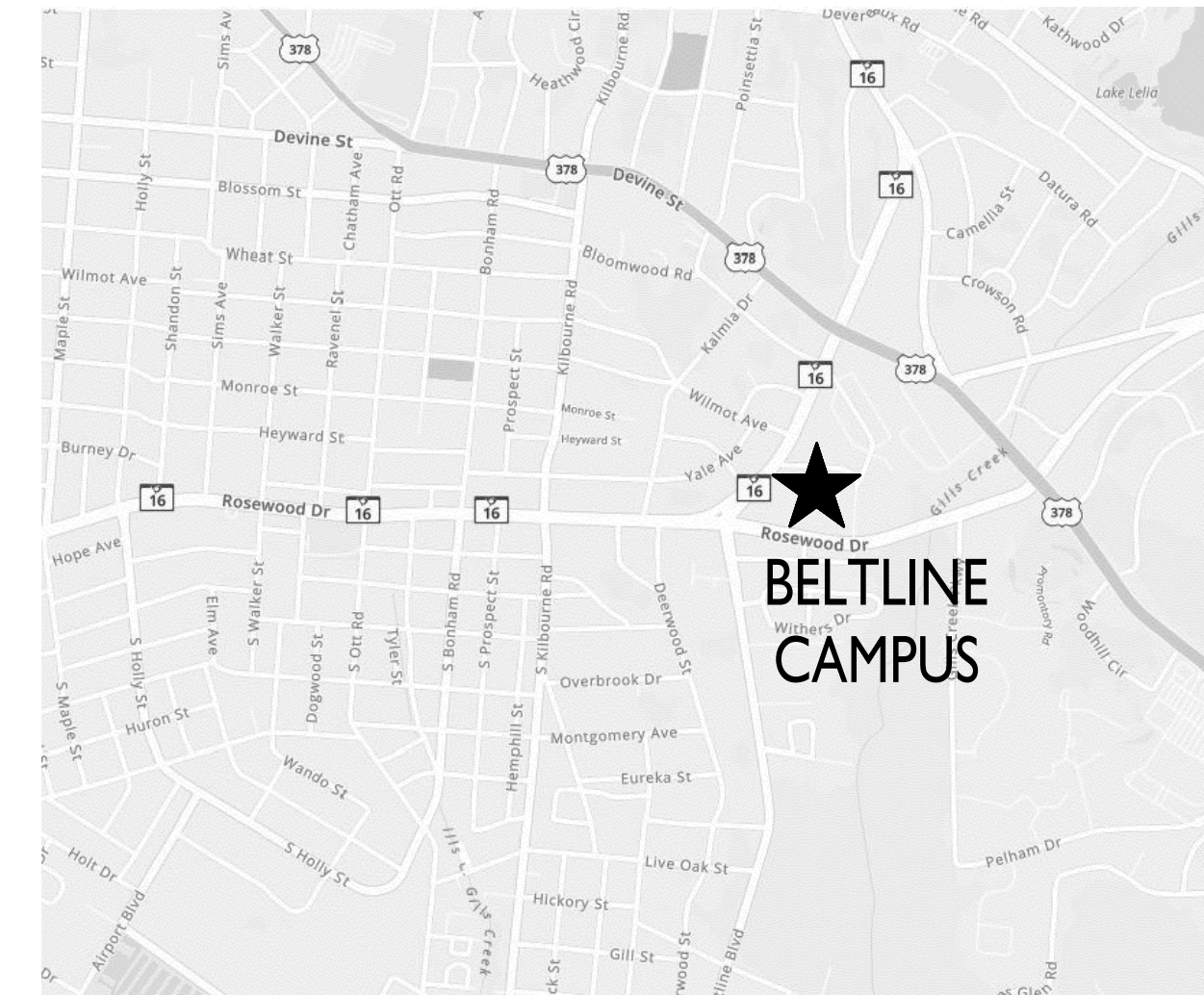
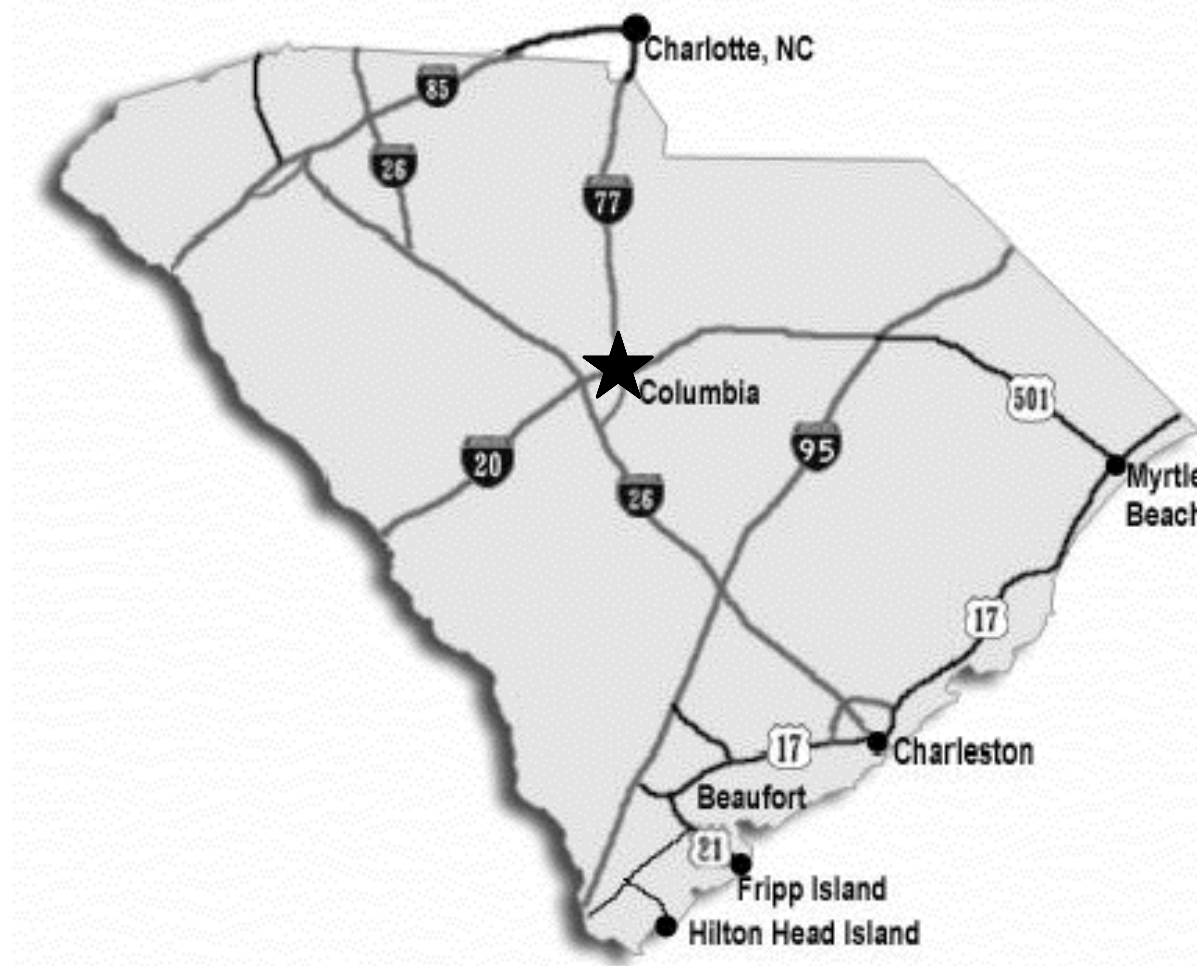
AIR QUALITY UPGRADES FOR BELTLINE AND NORTHEAST CAMPUS

MARCH 27, 2023

MIDLANDS TECHNICAL COLLEGE, BELTLINE CAMPUS, COLUMBIA, SC
MIDLANDS TECHNICAL COLLEGE, NORTHEAST CAMPUS, COLUMBIA, SC
ENGINEER'S COMMISSION NO. 21-39
STATE PROJECT NO. H59-N191-FW

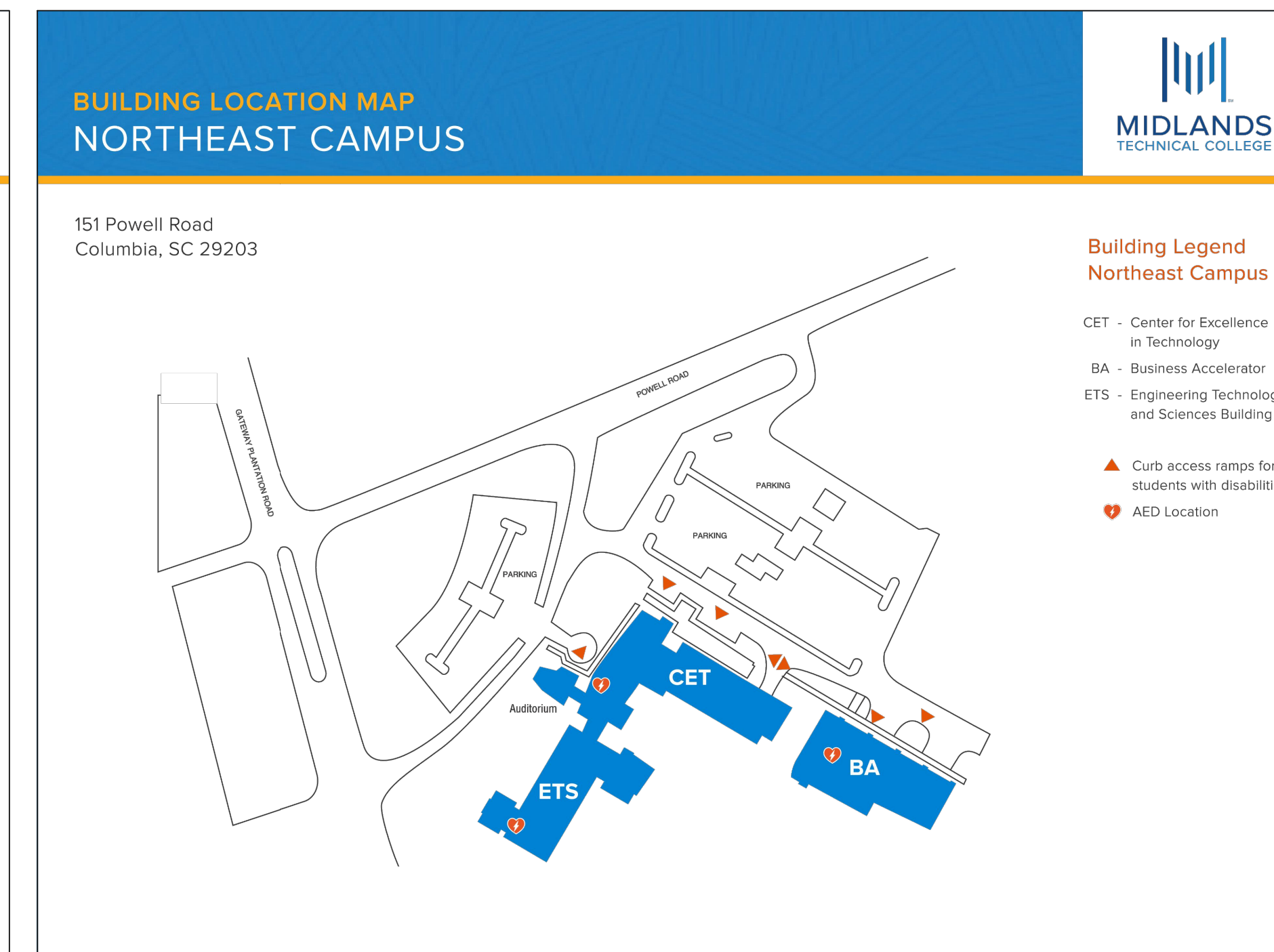
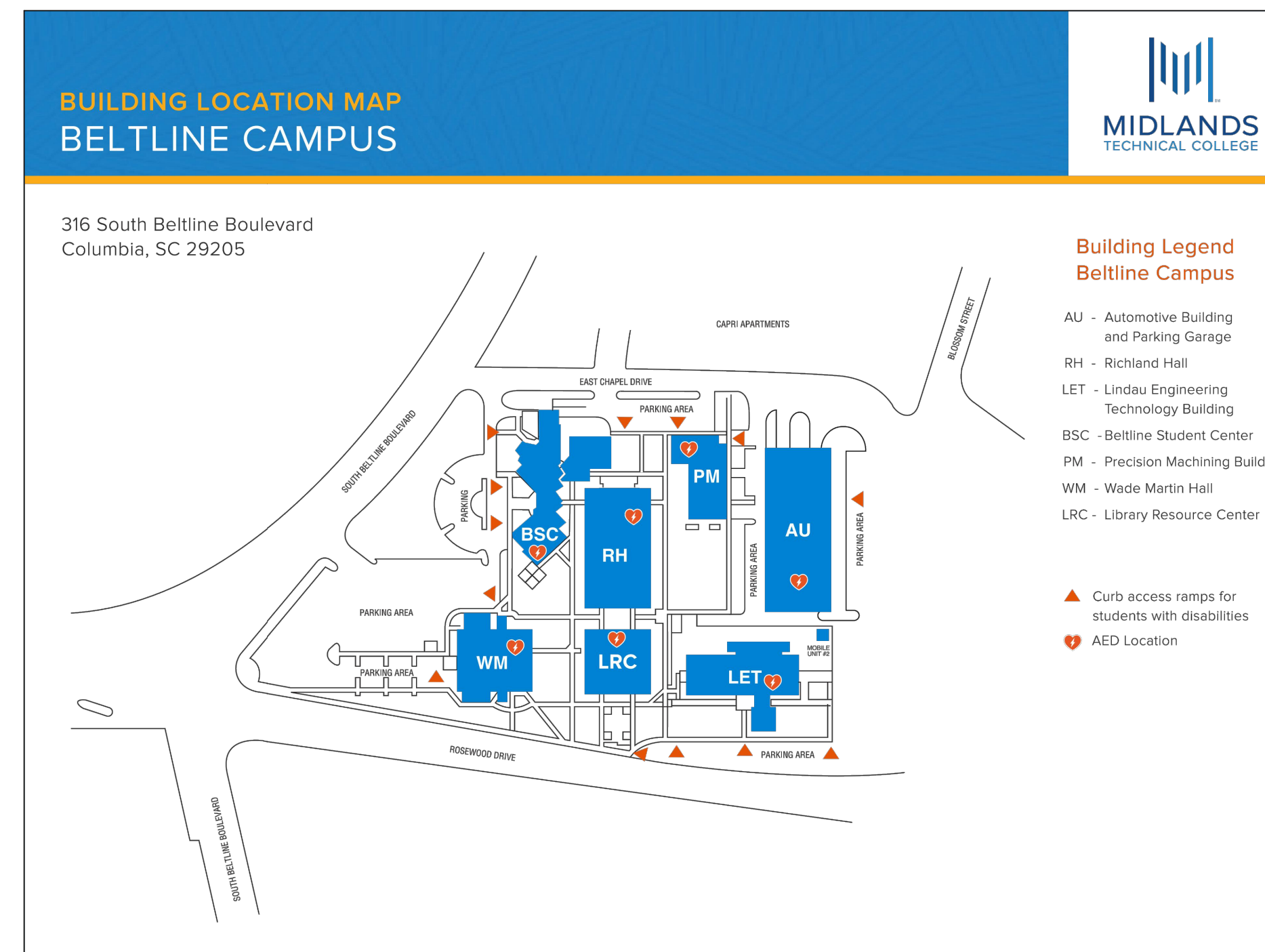
CONSULTANTS

MECHANICAL ENGINEERS:
FELKEL & HASTINGS CONSULTING ENGINEERS
 2725 CYPRESS STREET
 COLUMBIA, SC 29205
 1-803-771-0185



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PROJECT DESIGNED IN ACCORDANCE WITH:

1. INTERNATIONAL BUILDING CODE, 2021 EDITION
2. INTERNATIONAL EXISTING BUILDING CODE, 2021 EDITION
3. INTERNATIONAL ENERGY CONSERVATION CODE, 2009 EDITION
4. INTERNATIONAL MECHANICAL CODE, 2021 EDITION
5. INTERNATIONAL PLUMBING CODE, 2021 EDITION
6. NATIONAL ELECTRICAL CODE, 2020 EDITION

REVISIONS

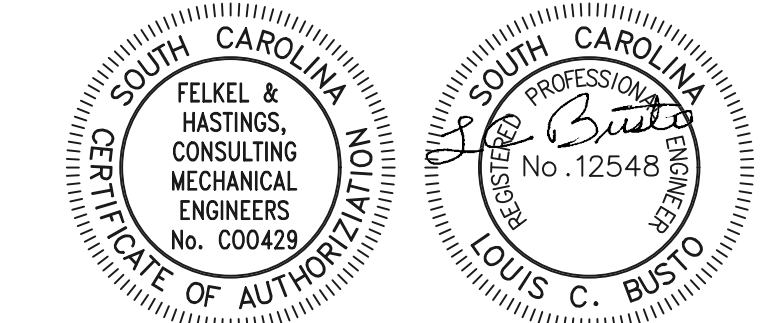
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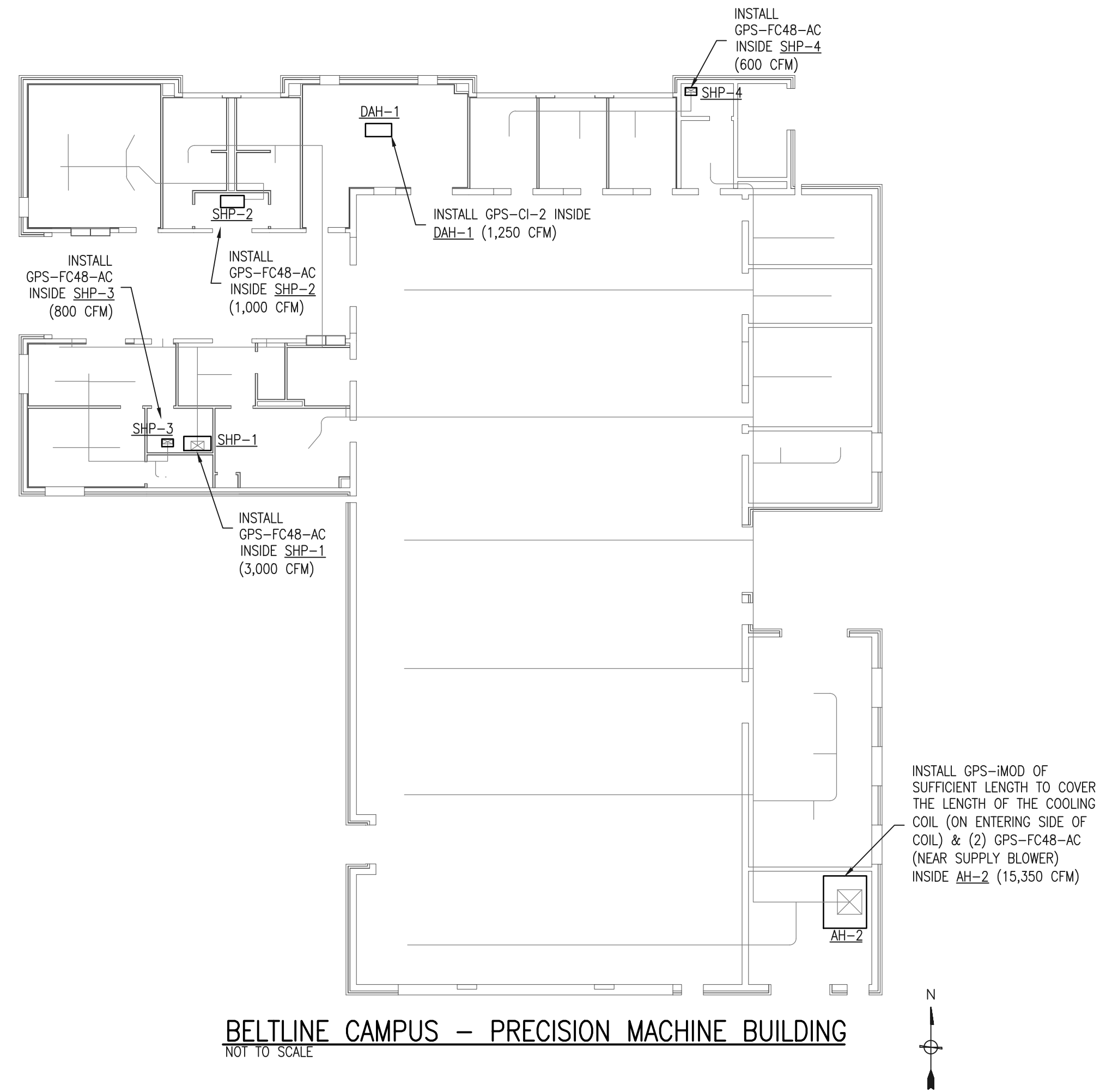
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TITLE SHEET



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T1
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BELTLINE CAMPUS – PRECISION MACHINE BUILDING
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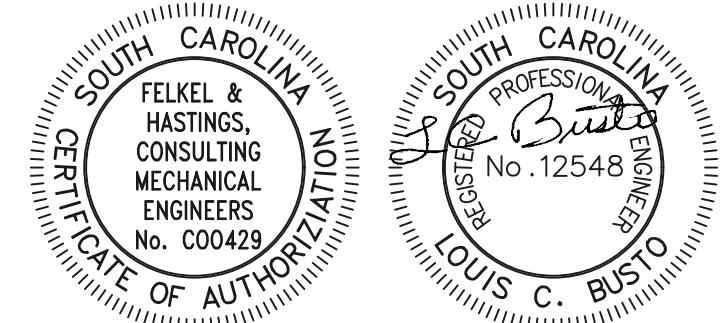
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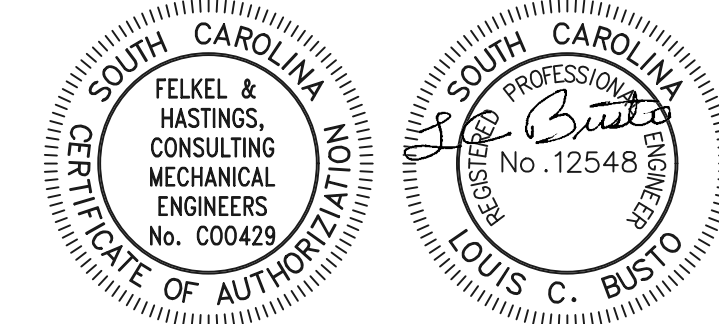
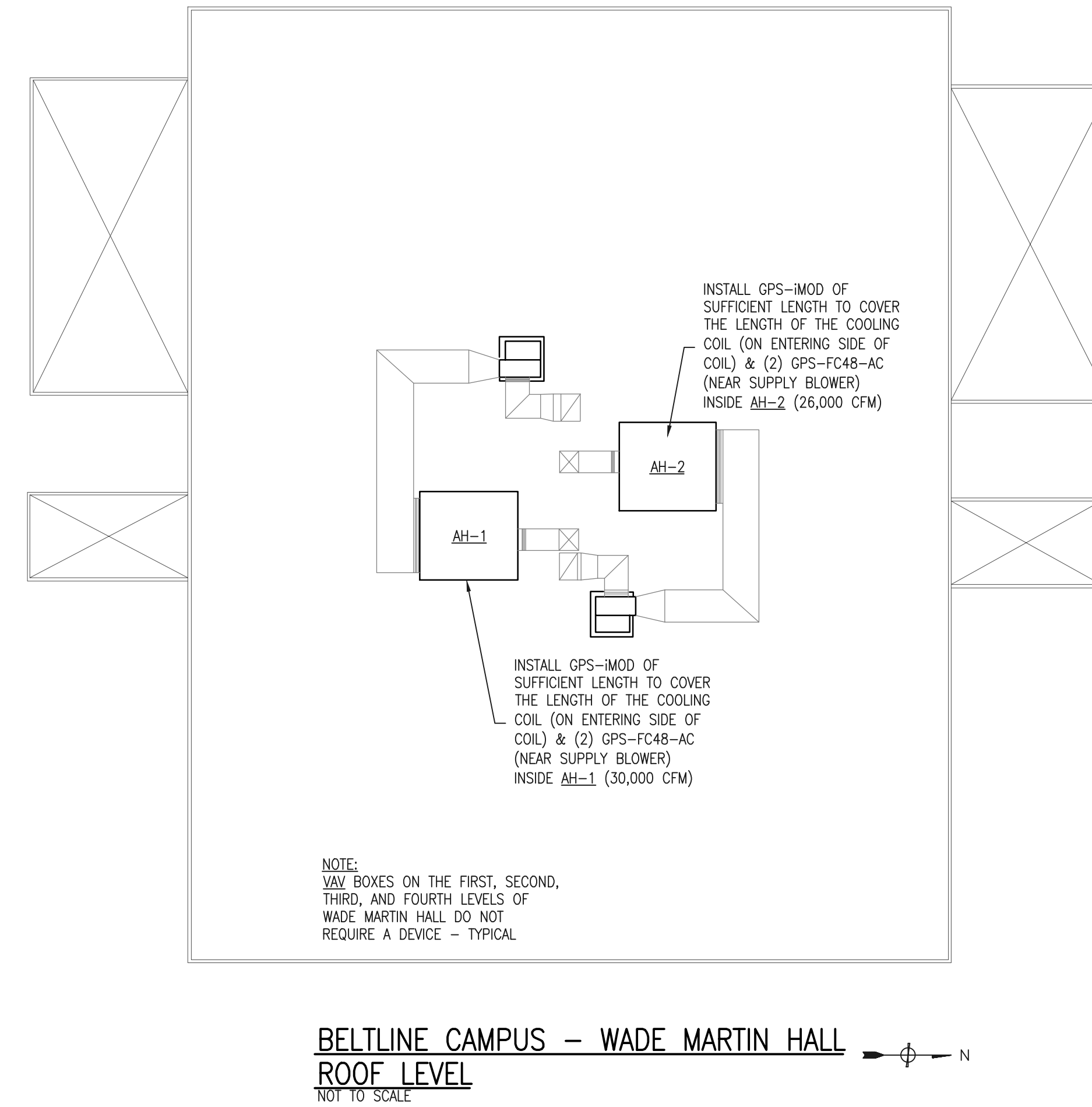
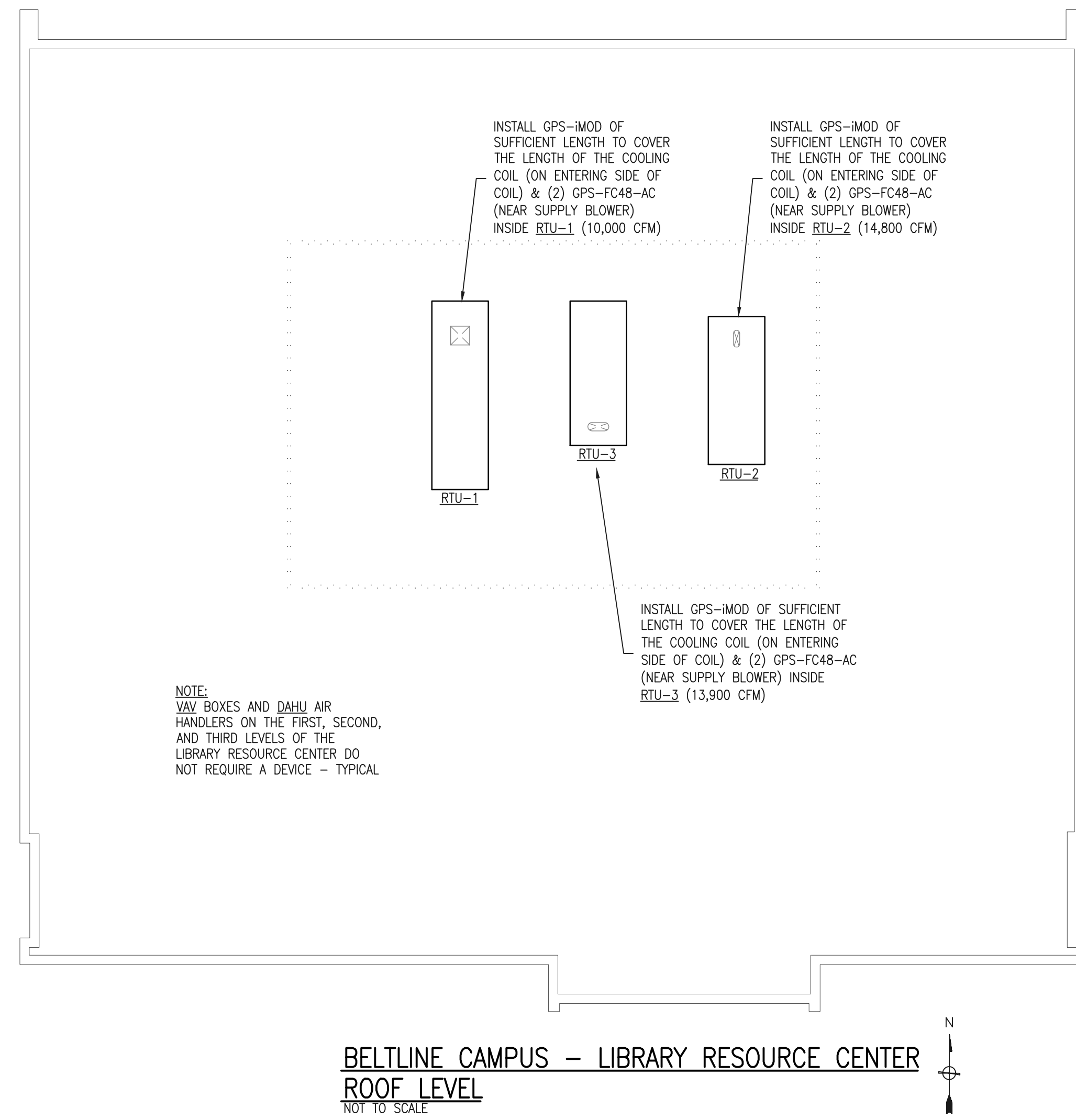
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BELTLINE CAMPUS
PRECISION MACHINE
BUILDING

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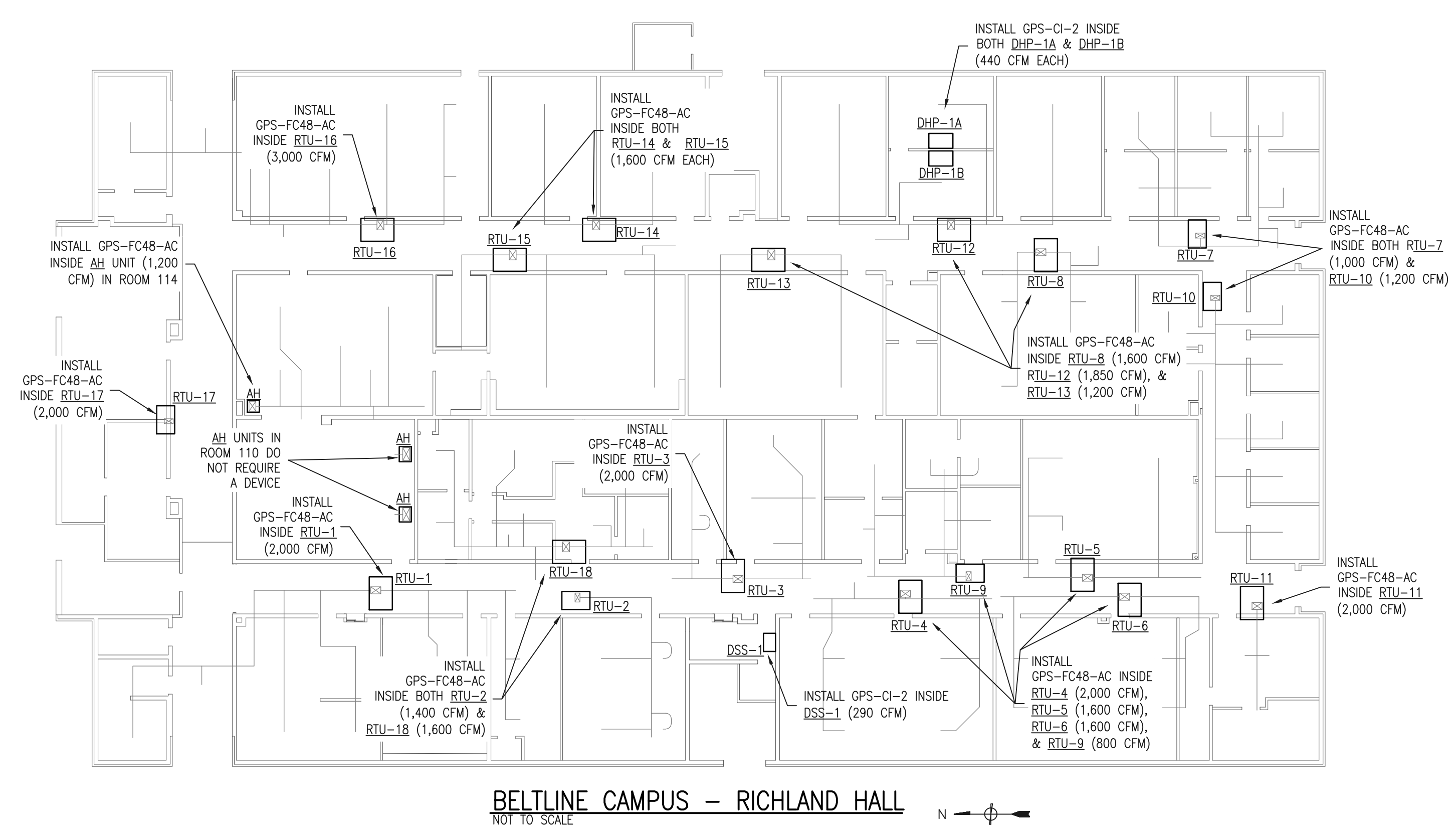
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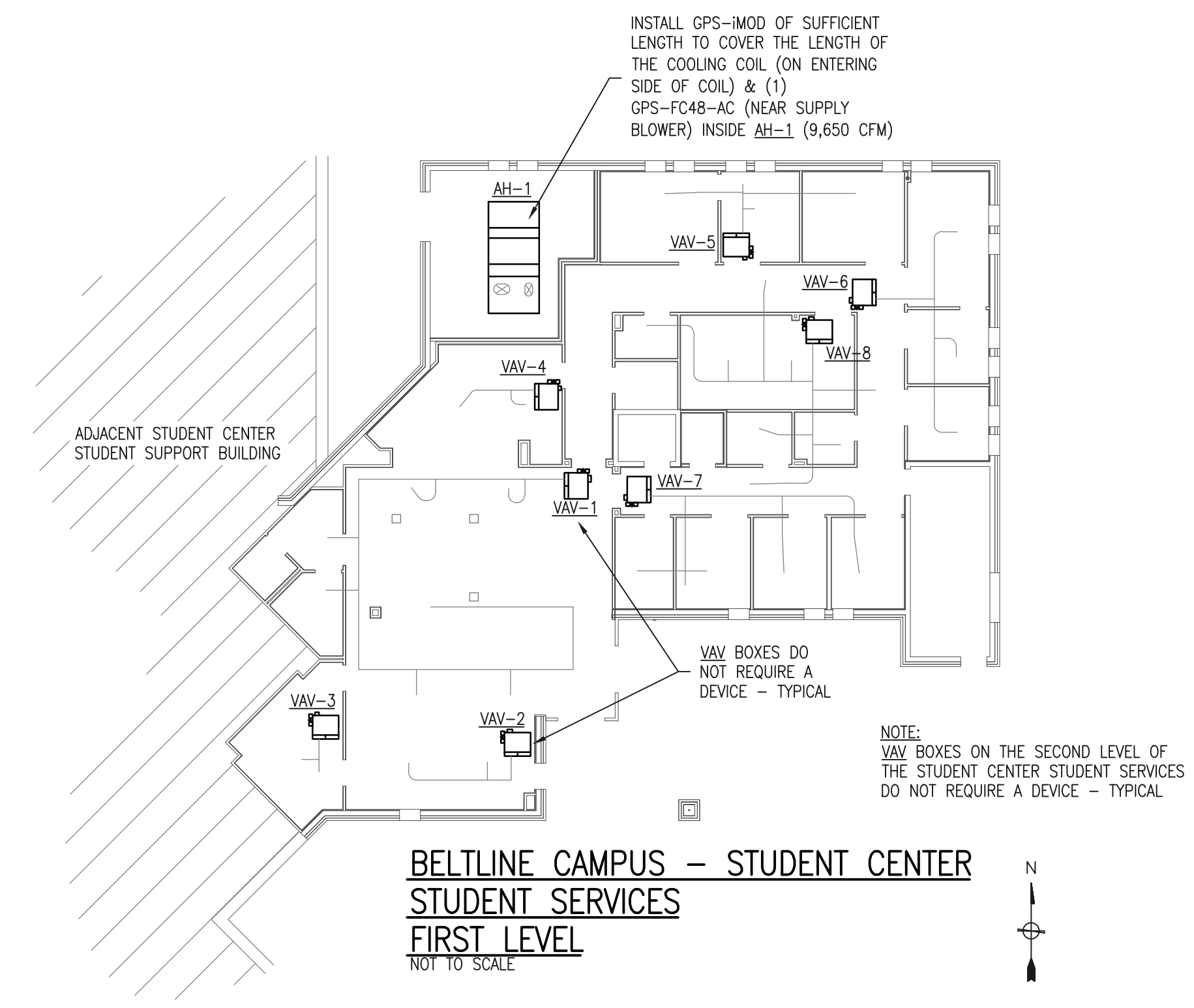
BELTLINE CAMPUS
LIBRARY RESOURCE
CENTER &
WADE MARTIN HALL

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M2
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BELPLINE CAMPUS - RICHLAND HALL
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BELPLINE CAMPUS - STUDENT CENTER
STUDENT SERVICES
FIRST LEVEL
NOT TO SCALE

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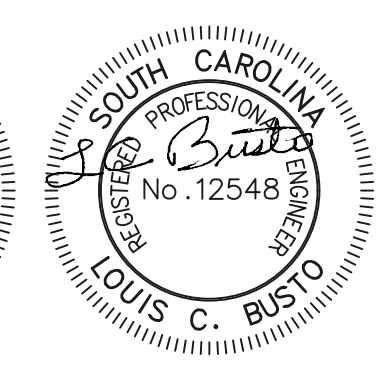
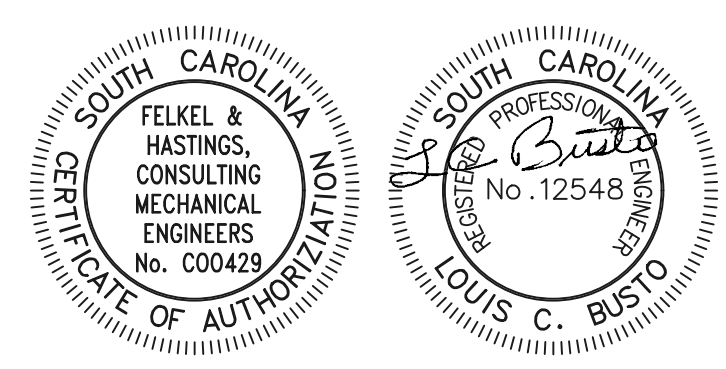
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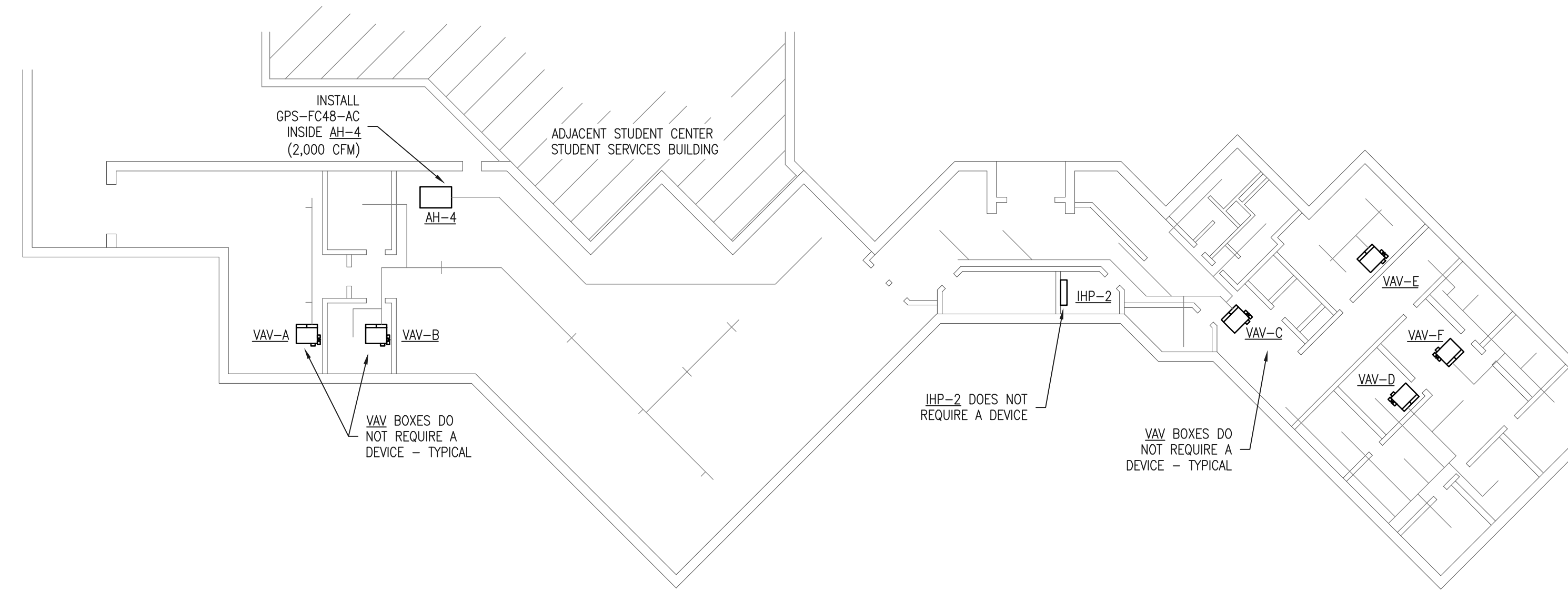
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BELPLINE CAMPUS
RICHLAND HALL &
STUDENT CENTER
STUDENT SERVICES

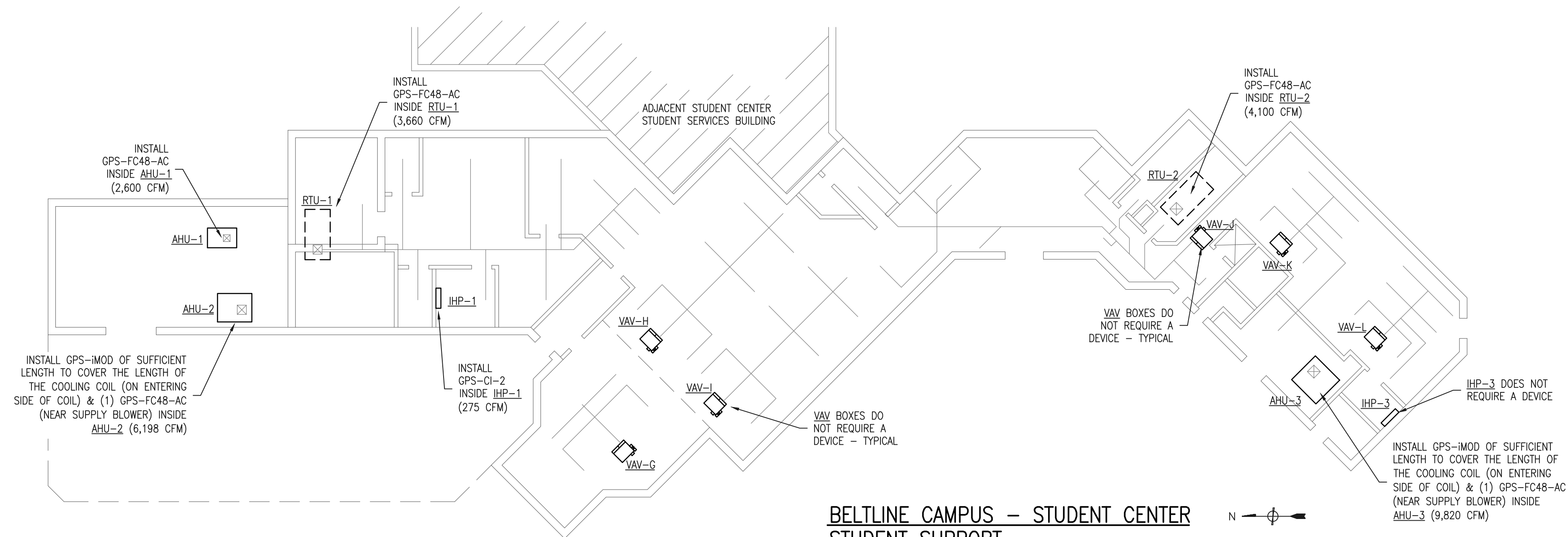
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BELTLINE CAMPUS – STUDENT CENTER
STUDENT SUPPORT
FIRST LEVEL
 NOT TO SCALE



BELTLINE CAMPUS – STUDENT CENTER
STUDENT SUPPORT
SECOND LEVEL
 NOT TO SCALE

NOTE:
 VAV BOXES ON THE THIRD LEVEL OF
 THE STUDENT CENTER STUDENT SUPPORT
 DO NOT REQUIRE A DEVICE – TYPICAL

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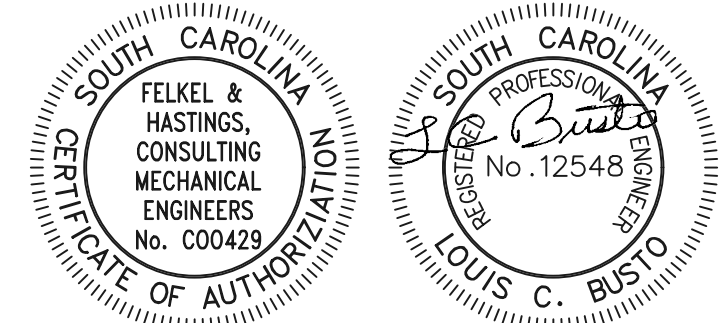
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STATE PROJECT NO. H59-N191-FW

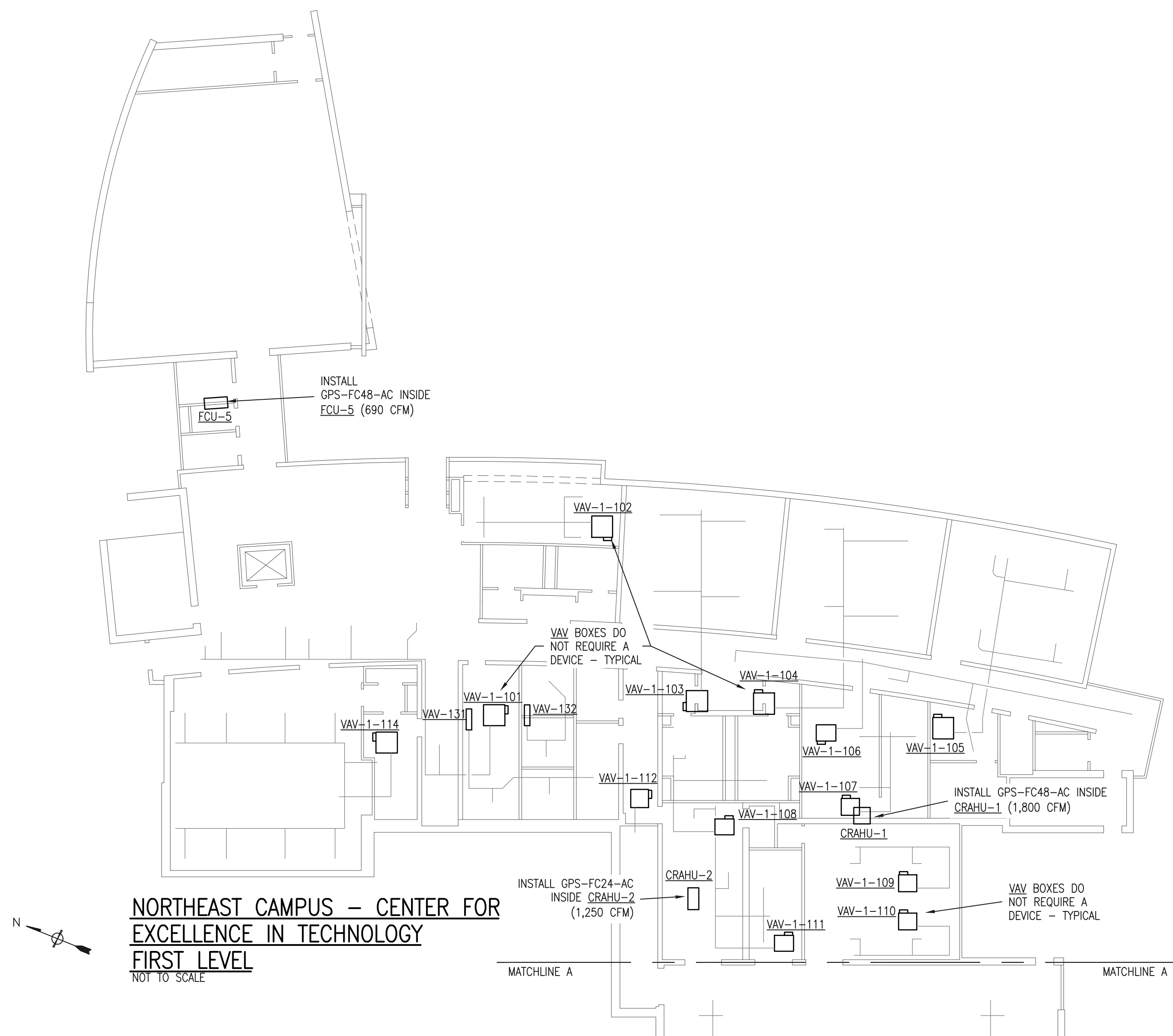
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BELTLINE CAMPUS
STUDENT CENTER
STUDENT SUPPORT

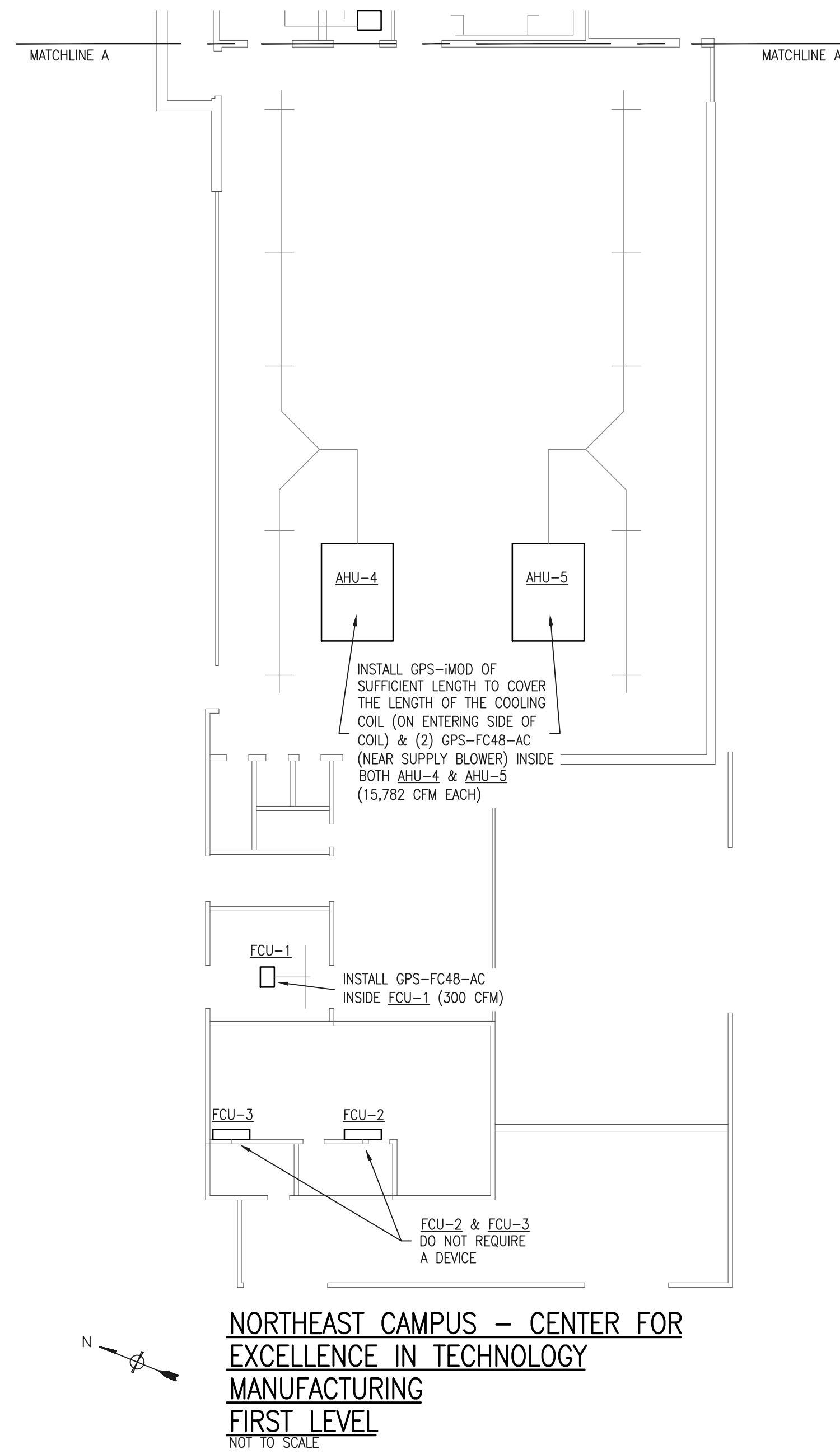
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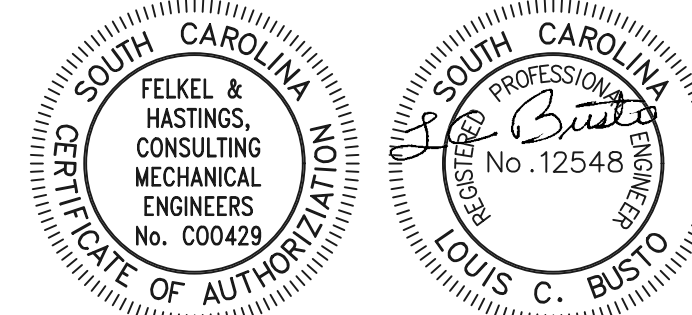
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NORTHEAST CAMPUS – CENTER FOR EXCELLENCE IN TECHNOLOGY FIRST LEVEL
NOT TO SCALE



NORTHEAST CAMPUS – CENTER FOR EXCELLENCE IN TECHNOLOGY FIRST LEVEL
NOT TO SCALE



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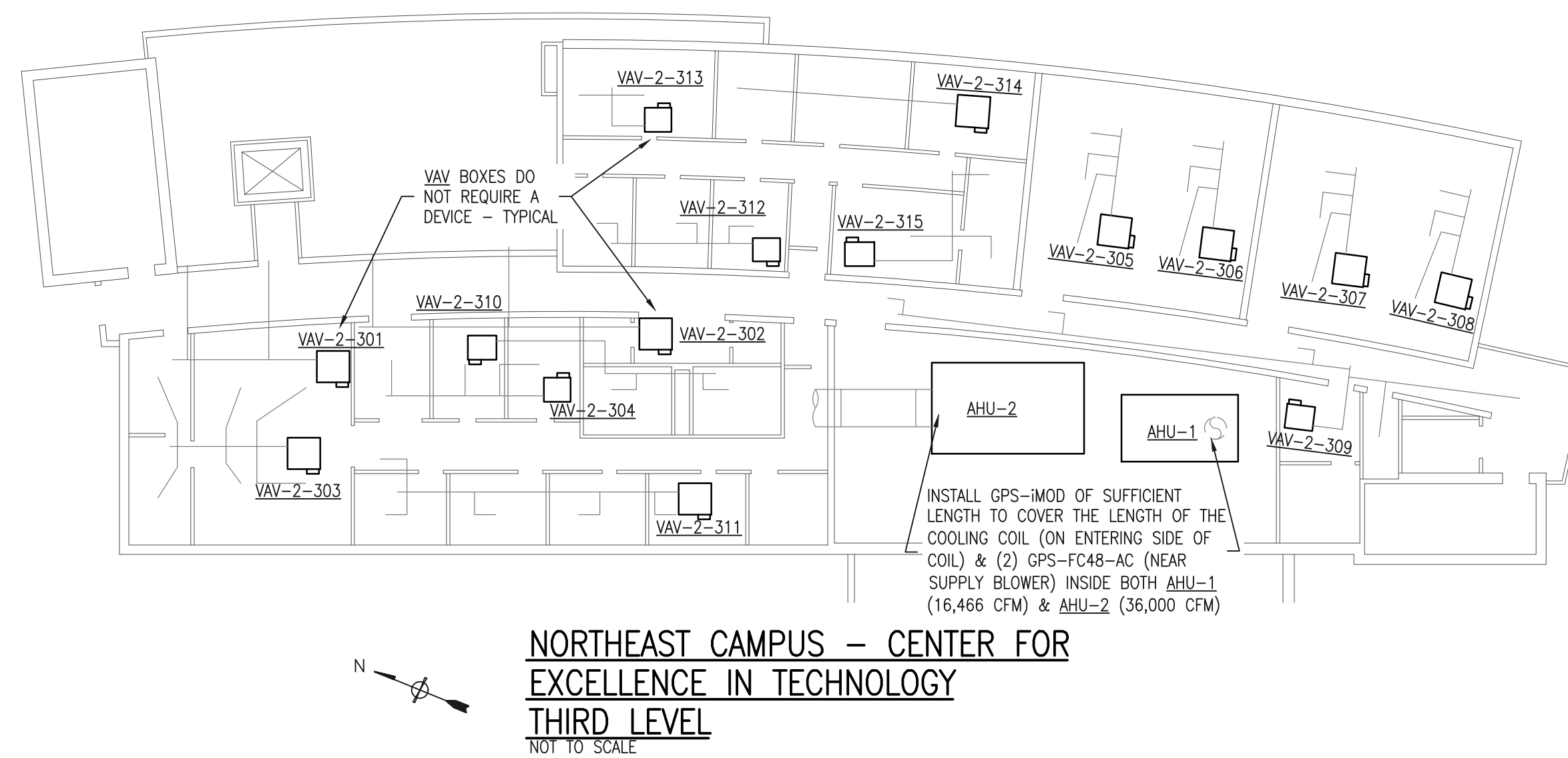
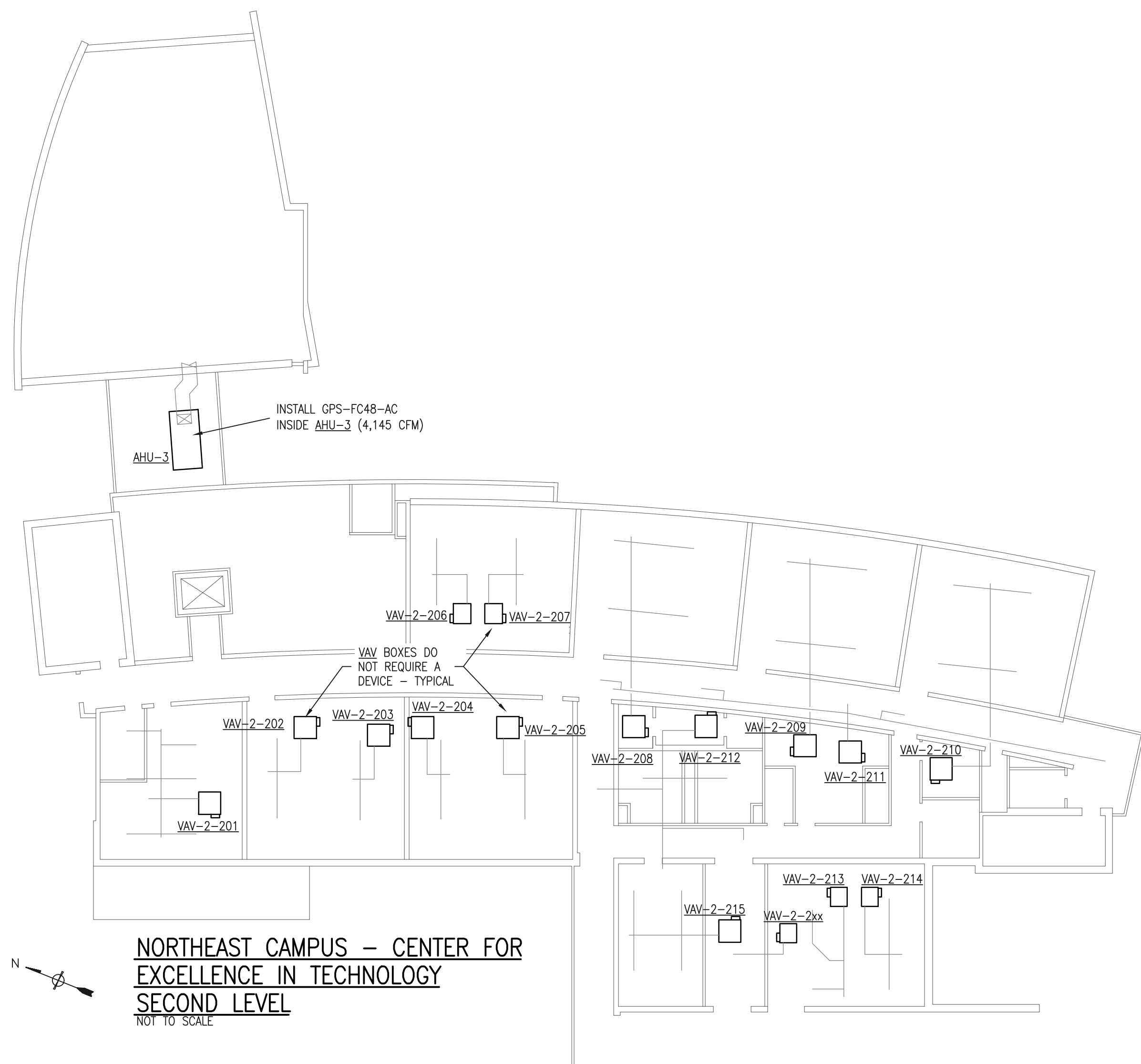
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FOR BELTLINE AND
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STATE PROJECT NO. H59-N191-FW

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Mechanical Engineers
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NORTHEAST CAMPUS
CENTER FOR EXCELLENCE
IN TECHNOLOGY
FIRST LEVEL



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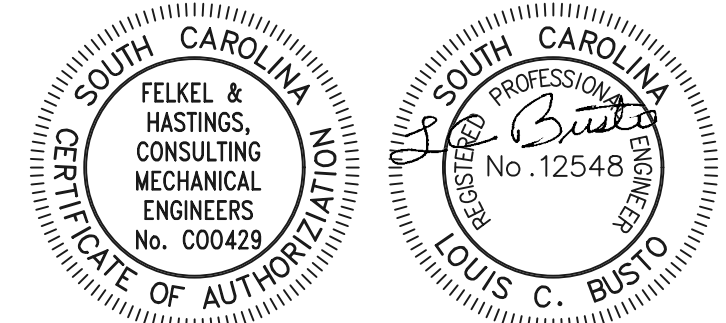
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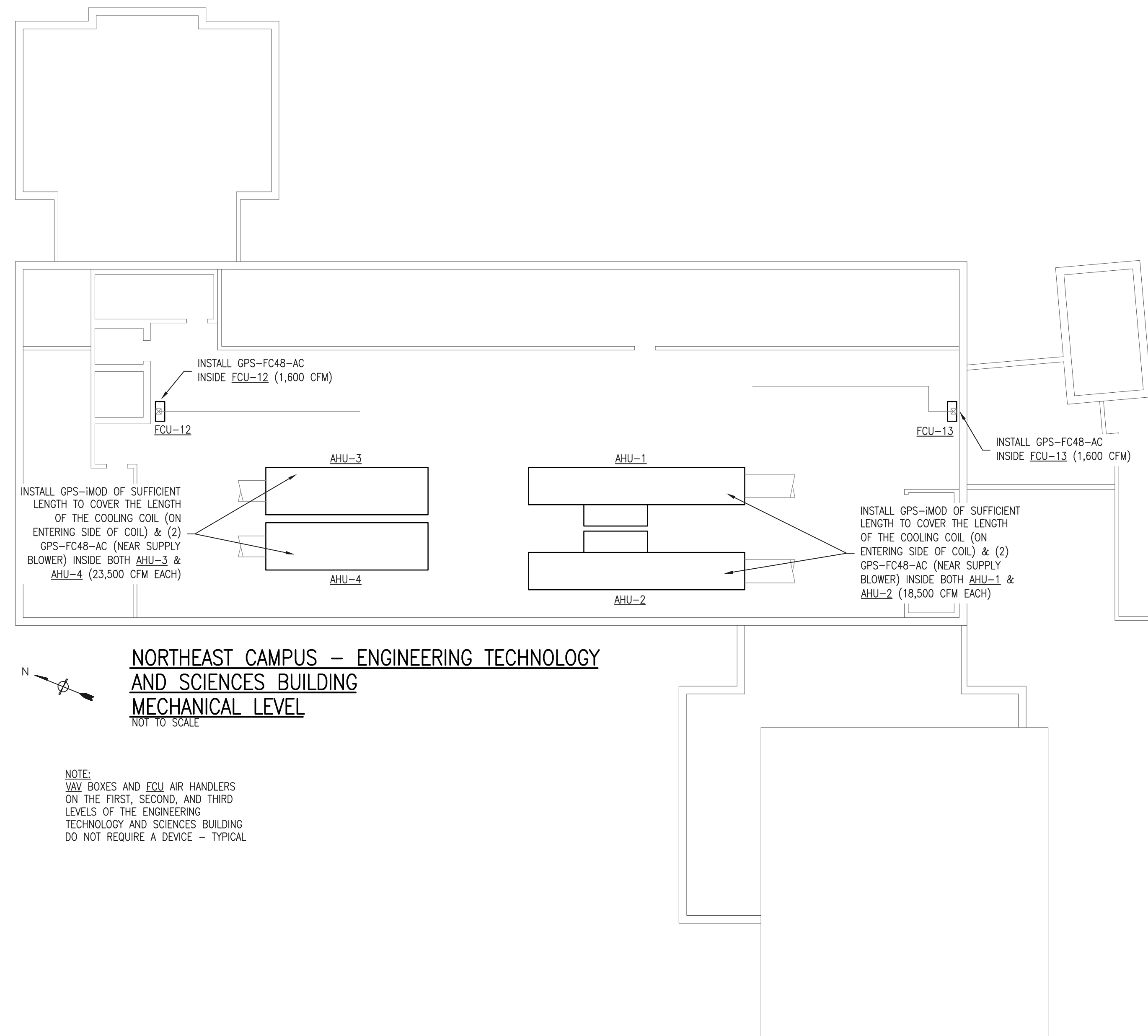
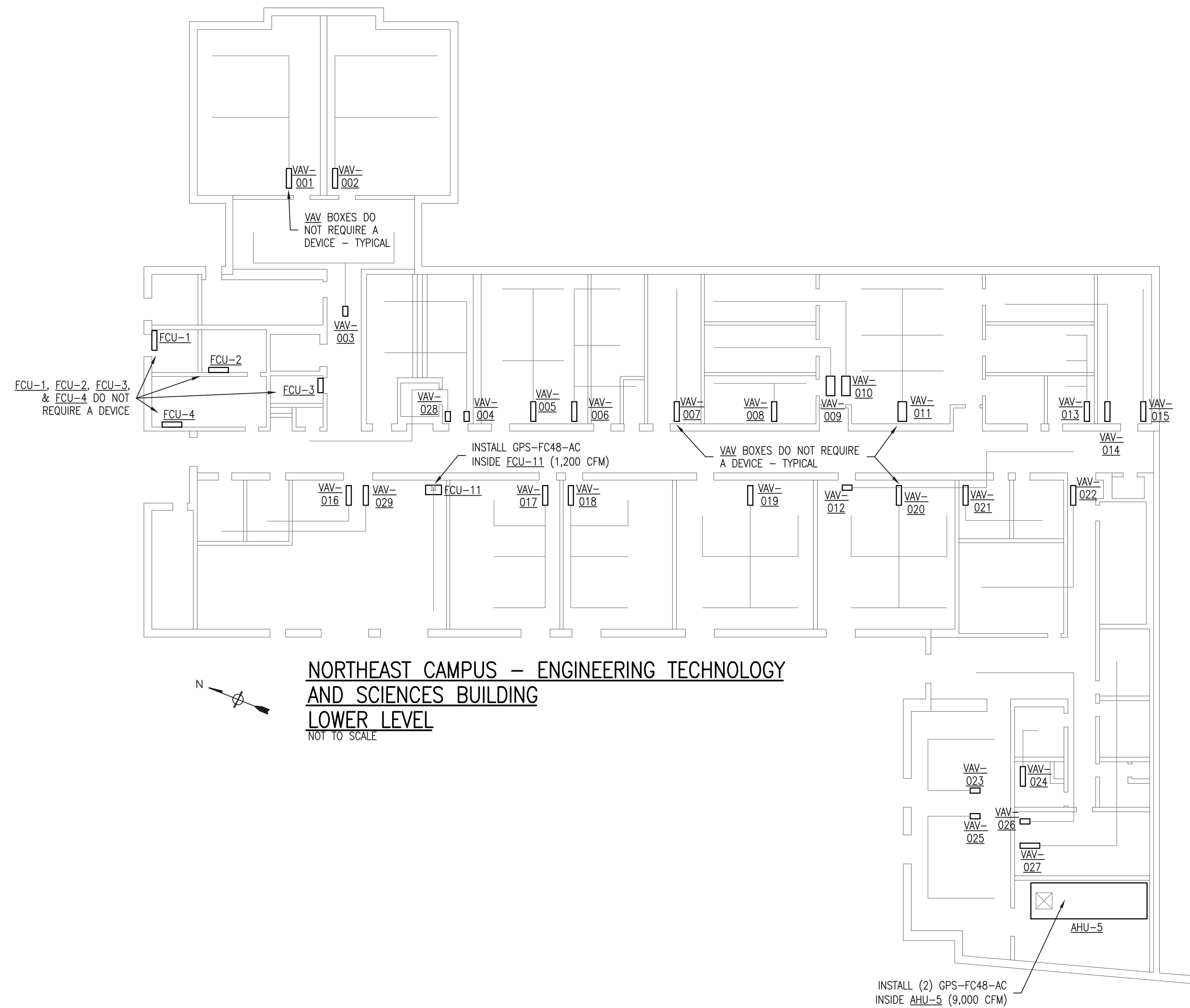
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NORTHEAST CAMPUS
CENTER FOR EXCELLENCE
IN TECHNOLOGY
SECOND & THIRD LEVEL

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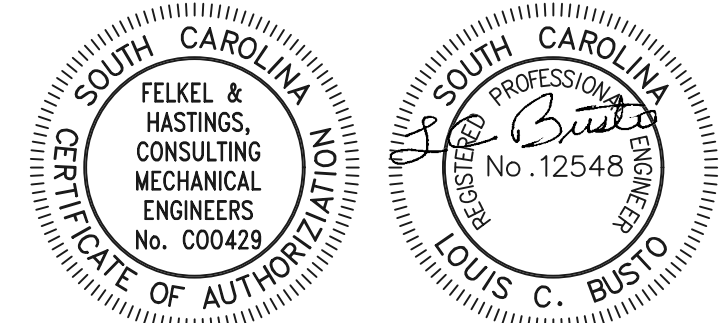
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NORTHEAST CAMPUS
ENGINEERING
TECHNOLOGY
AND SCIENCES BUILDING

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HVAC GENERAL NOTES

- COORDINATE WITH THE OWNER THE PHASING OF ALL WORK, ALONG WITH ANY SHUT DOWNS REQUIRED.
- REPAIR ANY HOLES AND DAMAGE TO EQUIPMENT AND DUCTWORK THAT OCCURS DURING THIS WORK.
- REPAIR ANY DAMAGE TO BUILDING ELEMENTS, SUCH AS CEILINGS, WALLS, AND ROOFS, THAT OCCURS DURING THIS WORK.
- FLOOR AND EQUIPMENT PLANS ARE BASED ON "AS-BUILT" PRINTS; SOME FIELD DISCREPANCIES MAY EXIST. IF THERE IS ANY DOUBT CONCERNING A PIECE OF EQUIPMENT SHOWN OR NOT SHOWN ON THESE PLANS, THE CONTRACTOR IS TO CONSULT THE ENGINEER PRIOR TO INSTALLATION OF AN AIR PURIFICATION DEVICE.

H V A C L E G E N D

AH-1	AIR HANDLER NO. 1
AHU-1	AIR HANDLER UNIT NO. 1
CRAHU-1	COMPUTER ROOM AIR HANDLER UNIT NO. 1
DAH-1	DUCTLESS AIR HANDLER NO. 1
DAHU-1	DUCTLESS AIR HANDLER UNIT NO. 1
DSS-1	DUCTLESS SPLIT SYSTEM NO. 1
FC-1	FAN COIL NO. 1
FCU-1	FAN COIL UNIT NO. 1
FPVAV-1	FAN-POWERED VARIABLE AIR VOLUME BOX NO. 1
IHP-1	INDOOR HEAT PUMP NO. 1
PAC-1	PACKAGED AIR CONDITIONER NO. 1
RTU-1	ROOFTOP UNIT NO. 1
SHP-1	SPLIT SYSTEM HEAT PUMP NO. 1
TWHP-1	THRU-THE-WALL HEAT PUMP NO. 1
VAV-1	VARIABLE AIR VOLUME BOX NO. 1
NPBI	NEEDLEPOINT BI-POLAR IONIZATION
	EXISTING DUCTWORK
	EXISTING EQUIPMENT

AIR PURIFICATION (NEEDLEPOINT BI-POLAR IONIZATION) SCHEDULE

GLOBAL PLASMA SOLUTIONS MODEL NO.	RATED AIRFLOW	PRESS. DROP	HUMIDITY RANGE	MINIMUM NEEDLE SPACING	VOLTAGE (AC)	WATTS	MINIMUM ION DENSITY (IONS/CC)	UNIT DIMENSIONS	UNIT WEIGHT (LBS)	TYPE OF EQUIPMENT SERVED	REMARKS
GPS-FC48-AC	0 TO 4,800 CFM	0.05" W.C.	0 TO 100% RH	--	24, 120, 208-240	10	400 MILLION	11.1"L x 1.84"W x 3.52"H	1.32	SPLIT SYSTEM AIR HANDLERS, AIR HANDLER UNITS, ROOFTOP UNITS, FAN COIL UNITS	1, 2, 3, 4, 5
GPS-IMOD	--	--	0 TO 100% RH	1 EVERY 1/2"	24, 120, 208-240	15	120 MILLION PER 1"	9.0"L x 3.25"W x 4.75"H	0.24 PER 6" SECTION	CENTRAL STATION AIR HANDLERS & ROOFTOP UNITS	1, 2, 3, 5, 6
GPS-CI-2	0 TO 2,400 CFM	--	0 TO 100% RH	--	24, 120, 208-240	7	160 MILLION	4.2"L x 1.1"W x 2.6"H	0.37	DUCTLESS INDOOR UNITS	1, 2, 3, 4, 5

- DEVICE SHALL BE CERTIFIED IN COMPLIANCE WITH UL 867-2007.
- DEVICE SHALL BE CERTIFIED "OZONE FREE" IN COMPLIANCE WITH UL 2998.
- FURNISH WITH INTEGRAL BAS ALARM CONTACTS.
- FURNISH WITH INTEGRAL SELF-CLEANING SYSTEM.
- FURNISH WITH MAGNETS FOR MOUNTING.
- IONIZATION BAR SHALL BE MODULAR AND DESIGNED TO COVER COOLING COIL IN 6" INCREMENTS.

OUTLINE SPECIFICATIONS

1. ALL WORK SHALL COMPLY WITH THE 2009 EDITION OF THE INTERNATIONAL ENERGY CONSERVATION CODE, THE 2021 EDITIONS OF THE INTERNATIONAL BUILDING CODE, INTERNATIONAL MECHANICAL CODE, INTERNATIONAL PLUMBING CODE, INTERNATIONAL FUEL GAS CODE, AND OTHER REQUIREMENTS OF NFPA, NATIONAL ELECTRICAL CODE, AND ALL OTHER AUTHORITIES HAVING JURISDICTION OVER THIS WORK.

2. THE CONTRACTOR SHALL PAY ALL FEES AND SECURE ALL LICENSES AND PERMITS REQUIRED FOR THE WORK INDICATED ON THE MECHANICAL DRAWINGS.

3. THE MECHANICAL CONTRACTOR AND HIS SUB-CONTRACTORS SHALL COOPERATE WITH THE OWNER TO MINIMIZE CONFLICTS, AND TO FACILITATE OWNER OPERATIONS. USE APPROPRIATE CONSTRUCTION BARRIERS SUCH AS SAW HORSES, PLASTIC BARRIER TAPE, WOODEN BARRIERS, ETC. AS APPLICABLE TO PROTECT OCCUPANTS DURING CONSTRUCTION. ANY DAMAGE TO OWNER'S PROPERTY SHALL BE REPAIRED OR REPLACED BY THE CONTRACTOR AT THE DISCRETION OF THE OWNER.

4. SCHEDULE ALL WORK TO ACCOMMODATE OWNER'S REQUIREMENTS. PRIOR TO BEGINNING WORK, PROVIDE OWNER WITH A DETAILED TIMELINE SCHEDULE & STAGING PLAN FOR EQUIPMENT INSTALLATION AND ASSOCIATED WORK. DO NOT BEGIN ANY WORK UNTIL RECEIVING APPROVAL OF THIS SCHEDULE & PLAN FROM THE OWNER.

5. NOTIFY OWNER A MINIMUM OF 72 HOURS PRIOR TO ANY NECESSARY UTILITY SHUTDOWNS.

6. THE CONTRACTOR SHALL REMOVE FROM THE PREMISES DAILY ALL DEBRIS AND TRASH FOR WHICH HE IS RESPONSIBLE.

7. ALL WORK INCLUDED UNDER THIS CONTRACT SHALL BE PERFORMED BY SKILLED AND CAPABLE WORKMEN UNDER COMPETENT SUPERVISION EMPLOYING THE LATEST AND BEST PRACTICES OF THE TRADES INVOLVED. ALL MATERIALS AND EQUIPMENT HERINAFTER SPECIFIED SHALL BE NEW AND FREE FROM FLAWS AND DEFECTS OF ANY NATURE.

8. CONTRACTOR IS URGED TO VISIT THE JOB SITE PRIOR TO SUBMITTING A BID FOR THIS WORK, IN ORDER TO FAMILIARIZE HIMSELF WITH ALL EXISTING CONDITIONS, AND TO VERIFY ALL ITEMS THAT ARE RELATED TO THIS CONTRACT.

9. IF EQUIPMENT TO BE SUPPLIED BY CONTRACTOR IS DIFFERENT THAN THE BASIS OF DESIGN EQUIPMENT THAT IS SPECIFIED IN PLANS OR SPECIFICATION, THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING WITH ALL DISCIPLINES ANY CHANGES NEEDED BECAUSE OF UNIT SIZE, ROOF OPENING SIZE, WEIGHT, LOCATION, ELECTRICAL SERVICE, ETC.

10. AIR PURIFICATION (NEEDLEPOINT BI-POLAR IONIZATION) DEVICES:

GPS AIR MODELS ARE THE BASIS OF DESIGN FOR NEEDLEPOINT BI-POLAR IONIZATION DEVICES. OTHER MANUFACTURERS OF ACCEPTABLE EQUIPMENT INCLUDE iWAVE AND BIOCLIMATIC.

THE BI-POLAR IONIZATION SYSTEM SHALL CONSIST OF BI-POLAR PLASMA GENERATOR AND INTEGRAL POWER SUPPLY.

THE AIR PURIFICATION TECHNOLOGY SHALL HAVE BEEN TESTED BY UL TO PROVE CONFORMANCE TO UL 867-2007 INCLUDING THE OZONE CHAMBER TESTING AND PEAK OZONE TEST FOR ELECTRONIC DEVICES.

THE DEVICES SHALL BE TESTED TO UL 2998 ENVIRONMENTAL STANDARD FOR CONFIRMATION OF NO OZONE. UL 2998 "OZONE FREE" CERTIFICATION IS REQUIRED.

THE DEVICES SHALL BE TESTED AND CERTIFIED TO MEET UL 2043 STANDARD FOR FIRE TEST FOR HEAT AND VISIBLE SMOKE RELEASE FOR DISCRETE PRODUCTS AND THEIR ACCESSORIES INSTALLED IN AIR-HANDLING SPACES.

THE DEVICES SHALL BE TESTED AND CERTIFIED TO COMPLY WITH FCC PART 18.

ION OUTPUT FROM THE DEVICES SHALL BE MEASURED IN IONS PER CUBIC CENTIMETER (IONS/CC) AND VERIFIABLE WITH FIELD INSTRUMENTATION PER THE MANUFACTURER'S INSTRUCTIONS. SUBSTITUTION OF PRODUCTS WITH MATHEMATICALLY CALCULATED, NOT MEASURED NOR MEASURABLE, IN FLOW IN IONS/SECOND ARE NOT ACCEPTABLE.

THE BI-POLAR IONIZATION SYSTEM SHALL BE CAPABLE OF:

- EFFECTIVELY KILLING MICROORGANISMS DOWNSTREAM OF THE BI-POLAR IONIZATION EQUIPMENT (MOLD, BACTERIA, VIRUS, ETC.).
- CONTROLLING GAS PHASE CONTAMINANTS GENERATED FROM HUMAN OCCUPANTS, BUILDING STRUCTURE AND FURNISHINGS.
- CAPABLE OF REDUCING STATIC SPACE CHARGES.
- EFFECTIVELY REDUCING SPACE PARTICLE COUNTS.

THE BI-POLAR IONIZATION SYSTEM SHALL OPERATE IN A MANNER SUCH THAT EQUAL AMOUNTS OF POSITIVE AND NEGATIVE IONS ARE PRODUCED. UNI-POLAR ION DEVICES SHALL NOT BE ACCEPTABLE. ALL IONIZERS PROVIDED SHALL BE AC TYPE IONIZERS WITH ONE ELECTRODE PULSING BETWEEN POSITIVE AND NEGATIVE.

THE DEVICE SHALL NOT REQUIRE PREHEAT PROTECTION WHEN THE RELATIVE HUMIDITY OF THE ENTERING AIR EXCEEDS 85%. RELATIVE HUMIDITY FROM 0 - 100% CONDENSING, SHALL NOT CAUSE DAMAGE, DETEIORATION OR DANGEROUS CONDITIONS WITHIN THE AIR PURIFICATION SYSTEM. AIR PURIFICATION SYSTEM SHALL BE CAPABLE OF WASH DOWN DUTY.

WIRING, CONDUIT AND JUNCTION BOXES SHALL BE INSTALLED WITHIN HOUSING PLENUMS IN ACCORDANCE WITH NEC NFPA 70.

MOUNT NEEDLEPOINT BI-POLAR ION GENERATOR WHERE INDICATED ON PLANS AND SCHEDULES.

MODEL GPS-FC48-AC:

EACH PLASMA GENERATOR WITH BI-POLAR IONIZATION OUTPUT SHALL INCLUDE THE REQUIRED NUMBER OF ELECTRODES AND POWER GENERATORS SIZED TO THE AIR HANDLING EQUIPMENT CAPACITY. A MINIMUM OF ONE ELECTRODE PAIR PER 4,800 CFM OF AIR FLOW SHALL BE PROVIDED. ALL HARDWARE REQUIRED FOR MOUNTING SHALL BE PROVIDED BY THE AIR PURIFICATION MANUFACTURER. BI-POLAR IONIZATION TUBES MANUFACTURED OF GLASS AND STEEL MESH SHALL NOT BE ACCEPTABLE DUE TO REPLACEMENT REQUIREMENTS, MAINTENANCE, PERFORMANCE OUTPUT REDUCTION OVER TIME, OZONE PRODUCTION AND CORROSION.

ELECTRODES SHALL BE MADE FROM CARBON FIBER TO PREVENT OXIDATION OVER TIME. INTERNAL CIRCUITRY SHALL BE PROVIDED TO SENSE AIR FLOW ACROSS THE ELECTRODE OUTPUT. IONIZATION SYSTEMS REQUIRING THE USE OF A MECHANICAL AIR PRESSURE SWITCH TO CYCLE THE ELECTRODES ONLY WHEN THE FAN IS OPERATING SHALL NOT BE ACCEPTABLE DUE TO HIGH FAILURE RATES AND PRESSURE SENSITIVITY.

ELECTRODES SHALL BE ENERGIZED WHEN THE MAIN UNIT DISCONNECT IS TURNED ON AND THE SUPPLY FAN IS OPERATING.

ELECTRODE PAIR SHALL PROVIDE A MINIMUM OF 200 MILLION IONS PER CUBIC CENTIMETER AS MEASURED AT 2 INCHES FROM THE IONIZATION GENERATOR.

EACH PLASMA GENERATOR SHALL BE PROVIDED WITH A SELF-CLEANING SYSTEM THAT IS FIELD PROGRAMMABLE TO CHANGE THE NUMBER OF DAYS BETWEEN THE CLEANING CYCLE. SYSTEMS WITHOUT A NO-MAINTENANCE, SELF-CLEANING SYSTEM SHALL NOT BE ACCEPTABLE.

EACH ELECTRODE PAIR SHALL BE DESIGNED WITH A BANANA STYLE PLUG SUCH THAT IT CAN BE FIELD REPLACED IF NECESSARY.

EACH PLASMA GENERATOR SHALL BE PROVIDED WITH AN INLINE ON/OFF SWITCH, UNIVERSAL VOLTAGE INPUT (24 VAC TO 240 VAC OR DC), MAGNETS FOR MOUNTING TO THE FAN INLET, REPLACEABLE CARBON FIBER EMITTERS AND A PROGRAMMABLE SELF-CLEANING SYSTEM.

THE DEVICE SHALL BE CAPABLE OF BEING POWERED BY 24 VAC TO 240 VAC WITHOUT THE USE OF AN EXTERNAL TRANSFORMER OR A SELECTOR SWITCH.

ALL PLASMA GENERATORS SHALL HAVE INTERNAL SHORT CIRCUIT PROTECTION, OVERLOAD PROTECTION, AND AUTOMATIC FAULT RESET CIRCUIT BREAKERS. SYSTEMS WITH MANUAL FUSES SHALL NOT BE ALLOWED.

ALL PLASMA DEVICES SHALL HAVE A MEANS TO INTERFACE WITH THE BAS SYSTEM. DRY CONTACTS SHALL BE PROVIDED TO PROVE THERE ARE IONS BEING PRODUCED. SYSTEMS PROVIDING INDICATION THAT POWER IS APPLIED TO THE PLASMA DEVICE, BUT NOT DIRECTLY SENSING THE POWER AT THE ION OUTPUT, SHALL NOT BE ACCEPTABLE.

THE CONTRACTOR SHALL FOLLOW ALL MANUFACTURER IOM INSTRUCTIONS DURING INSTALLATION.

MODEL GPS-IMOD:

EACH ALTERNATING CURRENT (AC) IONIZATION BAR WITH BI-POLAR IONIZATION OUTPUT SHALL INCLUDE A MINIMUM OF EIGHTEEN CARBON FIBER CLUSTER ION NEEDLES PER FOOT OF COIL FACE WIDTH. THE ENTIRE COOLING COIL WIDTH SHALL HAVE EQUAL DISTRIBUTION OF IONIZATION ACROSS THE FACE. SYSTEMS WITHOUT ION NEEDLES AT LEAST 0.50" (12.5MM) APART SHALL NOT BE ACCEPTABLE. THE PLASMA ELECTRODE SHALL REQUIRE NO MORE THAN 1.0" (25MM) IN THE DIRECTION OF AIRFLOW FOR MOUNTING. ALL HARDWARE REQUIRED FOR MOUNTING SHALL BE PROVIDED BY THE AIR PURIFICATION MANUFACTURER EXCEPT SELF-TAPPING SCREWS FOR THE POWER SUPPLY. BI-POLAR IONIZATION TUBES MANUFACTURED OF GLASS AND STEEL MESH SHALL NOT BE ACCEPTABLE DUE TO REPLACEMENT REQUIREMENTS, MAINTENANCE, AND PERFORMANCE OUTPUT REDUCTION OVER TIME, OZONE PRODUCTION AND CORROSION.

THE DEVICE SHALL BE CAPABLE OF MODULAR FIELD ASSEMBLY. ELECTRODES SHALL BE PROVIDED IN 6.0" (150MM) INCREMENTS, EPOXY FILLED FOR AN IP65 RATING AND UTILIZING BRASS CONNECTION HARDWARE THAT IS RECESSED INTO THE CONNECTION JOINT ONCE FULLY ENGAGED AND ASSEMBLED.

ELECTRODES SHALL BE ENERGIZED WHEN THE MAIN UNIT DISCONNECT IS TURNED ON AND SUPPLY FAN IS OPERATING.

THE IONIZATION OUTPUT SHALL BE A MINIMUM OF 120 MILLION IONS/CC PER INCH OF BAR AS MEASURED 1 INCH FROM THE COLD PLASMA NEEDLES.

DEVICE SHALL BE MOUNTED TO THE AIR ENTERING SIDE OF A COOLING COIL, AND THE DEVICE SHALL KEEP THE COOLING COIL FREE FROM PATHOGEN AND MOLD.

IONIZATION BARS SHALL BE PROVIDED WITH MAGNET MOUNTING KITS TO PREVENT PENETRATION INTO COOLING COILS.

IONIZATION BARS SHALL BE CONSTRUCTED OF UL 94V0 AND UL746C COMPOSITE MATERIAL.

THE MECHANICAL CONTRACTOR SHALL MOUNT THE PLASMA GENERATOR AND WIRE IT TO THE REMOTE MOUNT POWER SUPPLY USING THE CABLES PROVIDED BY THE AIR PURIFICATION MANUFACTURER. A 24 VAC, 115 VAC OR 208-230 VAC CIRCUIT SHALL BE PROVIDED TO THE PLASMA GENERATOR POWER SUPPLY PANEL. THE DEVICE SHALL BE CAPABLE OF BEING POWERED WITHOUT THE USE OF AN EXTERNAL TRANSFORMER. NO MORE THAN 15 WATTS SHALL BE REQUIRED PER POWER SUPPLY. EACH POWER SUPPLY SHALL BE CAPABLE OF POWERING UP TO 4 IONIZATION BARS OR A TOTAL OF 50 LINEAR FEET OF BAR(S). EACH PLASMA GENERATOR SHALL BE DESIGNED WITH FIBERGLASS HOUSING, LIQUID TIGHT FLEXIBLE CONDUIT AND A HIGH VOLTAGE QUICK CONNECTOR.

ALL PLASMA GENERATORS SHALL HAVE INTERNAL SHORT CIRCUIT PROTECTION, OVERLOAD PROTECTION, AND AUTOMATIC FAULT RESET. SYSTEMS REQUIRING FUSES SHALL NOT BE ACCEPTABLE.

THE PLASMA GENERATOR POWER SUPPLY SHALL HAVE INTERNAL CIRCUITRY TO SENSE THE IONIZATION OUTPUT AND PROVIDE DRY CONTACT ALARM STATUS TO THE BAS AS WELL AS A LOCAL "PLASMA ON" INDICATION LIGHT. THE CONTRACTOR SHALL FOLLOW ALL MANUFACTURER IOM INSTRUCTIONS DURING INSTALLATION.

MODEL GPS-CI-2:

EACH PLASMA GENERATOR WITH BI-POLAR IONIZATION OUTPUT SHALL INCLUDE THE REQUIRED NUMBER OF ELECTRODES AND POWER GENERATORS SIZED TO THE AIR HANDLING EQUIPMENT CAPACITY. ALL HARDWARE REQUIRED FOR MOUNTING SHALL BE PROVIDED BY THE AIR PURIFICATION MANUFACTURER. BI-POLAR IONIZATION SYSTEMS REQUIRING REPLACEMENT PARTS, INCLUDING GLASS TUBES, ARE NOT ACCEPTABLE. PROVIDE WITH RARE EARTH MAGNETS FOR EASE OF MOUNTING. INTERNAL OR EXTERNAL MAGNETS ARE ACCEPTABLE.

THE IONIZATION OUTPUT SHALL BE A MINIMUM OF 160 MILLION IONS PER CUBIC CENTIMETER AS MEASURED AT 2 INCHES FROM THE IONIZATION GENERATOR.

EACH PLASMA GENERATOR SHALL BE PROVIDED WITH A SELF-CLEANING FEATURE. SYSTEMS WITHOUT SELF-CLEANING SHALL NOT BE ACCEPTABLE.

THE MECHANICAL CONTRACTOR SHALL MOUNT THE PLASMA GENERATOR AND WIRE IT ACCORDING TO THE MANUFACTURER'S IOM. THE DEVICE SHALL BE CAPABLE OF BEING POWERED BY 24 VAC.

THE PLASMA GENERATOR POWER SUPPLY SHALL HAVE INTEGRAL BAS ALARM CONTACTS.

THE CONTRACTOR SHALL FOLLOW ALL MANUFACTURER IOM INSTRUCTIONS DURING INSTALLATION.

11. CONTROLS:

CONNECTION FROM THE AIR PURIFICATION DEVICE TO THE BUILDING AUTOMATION SYSTEM (BAS) SHALL BE BY CONTROL MANAGEMENT INC.

THE CONTROLS CONTRACTOR SHALL CONNECT EACH AIR PURIFICATION DEVICE FROM THE INTEGRAL ALARM RELAY TO THE OWNER'S BAS.

WHEN THE DEVICE IS POWERED AND OPERATING WITHOUT FAULT, THE BAS SHALL SHOW THE DEVICE AS OPERATIONAL.

WHEN THE DEVICE IS POWERED AND THERE IS A FAULT, THE DEVICE SHALL SEND AN ALARM TO THE BAS, AND THE BAS SHALL SHOW THE DEVICE AS FAULTY.

ALL CONTROL WIRING SHALL COMPLY WITH THE LATEST EDITION OF THE NATIONAL ELECTRICAL CODE. ALL CONTROL WIRING SHALL BE RUN IN CONDUIT.

12. ALL CONTROL ITEMS AND PIECES OF EQUIPMENT SHALL BE PERMANENTLY LABELED.

13. AS-BUILT PRINTS SHALL BE PROVIDED TO THE OWNER AT PROJECT CLOSEOUT.

14. CONTRACTOR SHALL PROVIDE COMPLETE OWNER TRAINING FOR ALL MECHANICAL COMPONENTS.

15. CONTRACTOR SHALL PROVIDE 2 COPIES OF THE OPERATIONS AND MAINTENANCE MANUALS TO THE OWNER PRIOR TO PROJECT CLOSEOUT.

16. CONTRACTOR SHALL PROVIDE 1 YEAR GUARANTEE ON ALL EQUIPMENT AND WORK.

REVISIONS

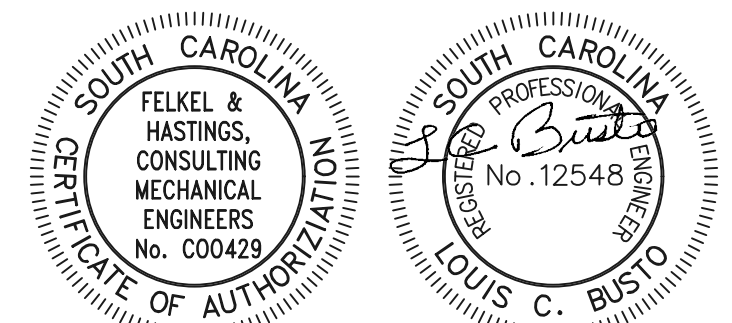
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MIDLANDS TECHNICAL COLLEGE
AIR QUALITY UPGRADES
FOR BELTLINE AND
NORTHEAST CAMPUS
STATE PROJECT NO. H59-N191-FW

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SCHEDULES, NOTES,
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