



Cheatham and Associates, P.A.
Consulting Engineers

ADDENDUM NO. 1
WRIGHTSBORO ELEMENTARY SCHOOL
BUILDING 500 KITCHEN & DINING HVAC RENOVATIONS
NEW HANOVER COUNTY SCHOOLS
WILMINGTON, NORTH CAROLINA
NHCS Project No. 21-9230
CAPA Project No. 20048

December 29, 2020

I. CONTRACT DOCUMENTS

- A. The Bid Procedure and Date remain the same. Bids will be received via email by the Office of Facility Planning & Construction, thru Cheatham and Associates, P.A., at klynch@cheatham-pa.com by **2:00 pm on January 7, 2021**.
- B. See attached for Section II-R Bid Form including Section II Attachments revised to indicate: "New Hanover County Schools will arrange for the Contractor to have 24/7 access to the site and Building 500 to work between the afternoon of April 1, 2021 and 10:00 a.m. on April 12, 2021."

The attached Section II-R Bid Form and Attachments dated December 29, 2020 is the only Bid Form that will be accepted.

II. TECHNICAL SPECIFICATIONS

- A. No changes.

III. DRAWINGS

- A. See attached revised drawing M-001 for exit/egress path note added to 1/M-001.
- B. See attached revised drawing E-101 with panel schedule added.

End of Addendum.

SECTION II-R

BID FORM

FOR: Wrightsboro Building 500 Kitchen and Dining HVAC Replacement
21-9230

TO: New Hanover County Schools
Facility Planning & Construction Department
6410 Carolina Beach Road
Wilmington, North Carolina 28412

FROM: _____
BIDDER

ADDRESS

CITY

STATE

ZIP

PHONE

FAX

EMAIL ADDRESS

1. BASE BID PROPOSAL:

Having become completely familiar with the local conditions affecting the cost of work at the place where work is to be executed, and having carefully examined the site conditions as they currently exist, and having carefully examined Bidding Documents prepared by Cheatham and Associates, P.A. Consulting Engineers and titled "Wrightsboro Building 500 Kitchen and Dining HVAC Replacement".

Dated December 14, 2020 together with any addenda to such Bidding Documents as listed hereinafter, the undersigned hereby proposes and agrees to provide all labor, materials, plant, equipment, transportation and other facilities as necessary and/or required to execute all of the work described by the aforesaid Bidding Documents for the lump sum consideration of: (Bidder shall write in the amount of the base bid here)

_____ Dollars (\$ _____)

Allowance _____ \$5,000.00

Total Base Bid _____

said amount being hereinafter referred to as the Total Base Bid or Total Base Bid Proposal.

2. ALTERNATES:

The undersigned proposes to perform alternates for stated additions to or deductions from the Base Bid. Additions and deductions shall include any modifications of work or additional work that undersigned may be required to perform by reason of the acceptance of any alternate. (Bidder shall write in the amounts for the alternates listed below)

ALTERNATE NO. 1: Duct cleaning as noted on sheet M-001.

Adjust Base Bid by ADDING _____
_____ Dollars (\$ _____)

ALTERNATE NO. 2: Furnish and install new exterior safety switch disconnects as noted on sheet E-101.

Adjust Base Bid by ADDING _____
_____ Dollars (\$ _____)

3. SUBCONTRACTOR LISTING

Bidders are requested to identify below the names of major subcontractors, including but not limited to contractors selected to perform the mechanical, electrical and plumbing portions of the work, and the subcontractors' respective bid prices for the work. This information is requested to be submitted at bid time.

Name of Subcontractor	Amount of Bid

4A. UNIT PRICES

No unit process used this project.

4B. ALLOWANCES

Total Base Bid includes all cash allowances listed below. Unused amounts will be credited to the Owner by Change Order at the end of the project.

Owner Allowance	\$ 5,000.00
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TOTAL OF ALLOWANCES: \$ 5,000.00.

5. SCHEDULE / WORKING HOURS

The following dates shall be adhered to unless modified by written agreement between Owner and Contractor, and executed as a Change Order to the Contract.

Notice to Proceed: Contract Activities	February 8, 2021
Notice to Proceed: Construction Activities on Site	April 1, 2021
Substantial Completion:	April 12, 2021
Final Completion:	April 26, 2021

Owner reserves the right to withhold Notice to Proceed by up to 30 days. Contractor may not begin work until a written Notice to Proceed is issued. For each day that the Notice to Proceed is withheld pursuant to this paragraph, the dates established for Substantial and Final Completion shall be adjusted. The Contractor shall not be entitled to additional compensation if the Owner withholds the issuance of the Notice to Proceed pursuant to this paragraph.

New Hanover County Schools will arrange for the Contractor to have 24/7 access to the site and Building 500 to work between the afternoon of April 1, 2021 and 10:00 a.m. on April 12, 2021.

6. MINORITY BUSINESSES:

Please circle the Ownership category of your firm:

Non-Minority / Black / Hispanic / Asian-American / American Indian / White Female / Socially & Economically Disadvantaged.

If Ownership is Minority Female (circle):

NO – Firm is not minority owned.

YES – Firm is minority-female owned.

Source of Ownership category (certification/ verification) (circle one):

Not Applicable / State of NC HUB / State of NC DOT / Local Agency / Federal Agency / Out-of State Agency / Self-Identified / Unknown

Each Bidder shall identify on its bid the minority businesses that it will use on the project and the corresponding total dollar value of the bid. (Bidder shall write in the names and subcontract amount of minority businesses used in bid)

Name of Minority Business	Subcontract Amount
TOTAL:	

In addition to the information above, the Bidder must complete and provide with the bid one of the following affidavits:

Affidavit A – Listing of Good Faith Efforts

This affidavit documents the good faith efforts of the Bidder and is to be submitted with the bid if the Bidder is subcontracting portions of the work.

Affidavit B – Intent to Perform Contract with Own Forces

This affidavit documents the intent of the Bidder to perform the contract with its own workforce and is to be submitted with the bid if the Bidder is not subcontracting portions of the work.

NOTE: The Bidder must include either Affidavit A or Affidavit B must be submitted with the bid. Failure to include either of these affidavits may result in declaring the bid non-responsive.

7. ADDENDA ACKNOWLEDGEMENT:

The undersigned acknowledges receipt of the following addenda: (Bidder to write in the number and date appearing on each addendum received)

Addendum No.	Date	Addendum No.	Date

8. **BID SECURITY:** Bid security is not required for this project.
9. The undersigned declares that the person or persons signing this Proposal is/are fully authorized to sign on behalf of the firm listed and to fully bind the firm listed to all the Proposal's conditions and provisions thereof.
10. It is agreed that no person or persons or company other than the firm listed below or as otherwise indicated has any interest whatsoever in this proposal or the contract that may be entered into as a result of the Proposal and that in all respects the proposal is legal and firm, submitted in good faith without collusion or fraud.
11. It is agreed that the undersigned has complied or will comply with all requirements of local, state, and national laws, and that no legal requirement has been or will be violated in making or accepting this Proposal, in awarding the contract to him and/or in the prosecution of the work required.
12. It is agreed that the undersigned shall provide any information deemed necessary by the Owner to establish the responsiveness and responsibility of the bidder.
13. The undersigned acknowledges that he has received a copy of the Owner–Contractor Agreement.

14. The following information is provided pursuant to the Contract Documents:

1. Legal Name of Firm:

a. If Firm is a corporation, state that corporation is organized under the laws of the State of _____ Please affix corporate seal to this Form of Bid.

b. If Firm is a partnership, state names of partners: _____

c. If Firm is an individual using a trade name, state name of individual: _____

2. North Carolina Contractor's License Number: _____

Respectfully submitted, this

_____ day of _____, 2021

(Signature) _____

(Name Typed) _____

(Title) _____

(SEAL IF BIDDER IS A CORPORATION)

END OF SECTION II – BID FORM

Enclosure

1. Either Affidavit A or B
2. Either Affidavit C or D

AFFIDAVIT A
Listing Of Good Faith Efforts

County of _____

Affidavit of _____
(Name of Bidder)

I have made a good faith effort to comply under the following areas checked:

Bidders must earn at least 50 points from the good faith efforts listed for their bid to be considered responsive.

- ☐ **1 – (10 pts)** Contacted minority businesses that reasonably could have been expected to submit a quote and that were known to the contractor, or available on State or local government maintained lists, at least 10 days before the bid date and notified them of the nature and scope of the work to be performed.
- ☐ **2 --(10 pts)** Made the construction plans, specifications and requirements available for review by prospective minority businesses, or providing these documents to them at least 10 days before the bids are due.
- ☐ **3 – (15 pts)** Broken down or combined elements of work into economically feasible units to facilitate minority participation.
- ☐ **4 – (10 pts)** Worked with minority trade, community, or contractor organizations identified by the Office of Historically Underutilized Businesses and included in the bid documents that provide assistance in recruitment of minority businesses.
- ☐ **5 – (10 pts)** Attended prebid meetings scheduled by the public owner.
- ☐ **6 – (20 pts)** Provided assistance in getting required bonding or insurance or provided alternatives to bonding or insurance for subcontractors.
- ☐ **7 – (15 pts)** Negotiated in good faith with interested minority businesses and did not reject them as unqualified without sound reasons based on their capabilities. Any rejection of a minority business based on lack of qualification should have the reasons documented in writing.
- ☐ **8 – (25 pts)** Provided assistance to an otherwise qualified minority business in need of equipment, loan capital, lines of credit, or joint pay agreements to secure loans, supplies, or letters of credit, including waiving credit that is ordinarily required. Assisted minority businesses in obtaining the same unit pricing with the bidder's suppliers in order to help minority businesses in establishing credit.
- ☐ **9 – (20 pts)** Negotiated joint venture and partnership arrangements with minority businesses in order to increase opportunities for minority business participation on a public construction or repair project when possible.
- ☐ **10 - (20 pts)** Provided quick pay agreements and policies to enable minority contractors and suppliers to meet cash-flow demands.

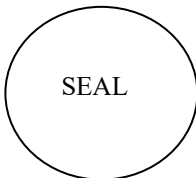
The undersigned, if apparent low bidder, will enter into a formal agreement with the firms listed in the Identification of Minority Business Participation schedule conditional upon scope of contract to be executed with the Owner.

The undersigned hereby certifies that he or she has read the terms of the minority business commitment and is authorized to bind the bidder to the commitment herein set forth.

Date: _____ Name of Authorized Officer: _____

Signature: _____

Title: _____



State of North Carolina, County of _____

Subscribed and sworn to before me this _____ day of _____ 20____

Notary Public _____

My commission expires _____

AFFIDAVIT B
Intent To Perform Contract With Own Forces

County of _____

Affidavit of _____
(Name of Bidder)

I hereby certify that it is our intent to perform 100% of the work required for the _____
_____ contract.
(Name of Project)

In making this certification, the Bidder states that the Bidder does not customarily subcontract elements of this type project, and normally performs and has the capability to perform and will perform all elements of the work on this project with his/her own current work forces; and

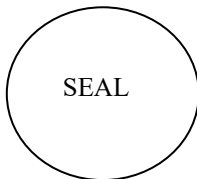
The Bidder agrees to provide any additional information or documentation requested by the owner in support of the above statement.

The undersigned hereby certifies that he or she has read this certification and is authorized to bind the Bidder to the commitments herein contained.

Date: _____ Name of Authorized Officer: _____

Signature: _____

Title: _____



State of North Carolina, County of _____

Subscribed and sworn to before me this _____ day of _____ 20 _____

Notary Public _____

My commission expires _____

AFFIDAVIT C
Portion of the Work to be Performed by Minority Firms

County of _____

(Note: this form is to be submitted ONLY by the apparent lowest responsible, responsive bidder. This form is not to be included with bid.)

If the portion of the work to be executed by minority businesses as defined in GS143-128.2(g) is equal to or greater than 10% of the bidders total contract price, then the Bidder must complete this affidavit.
Either Affidavit C or Affidavit D shall be provided by the apparent lowest responsible, responsive Bidder within **72 hours** after notification of being low Bidder.

Affidavit of _____ I do hereby certify that
(Name of Bidder)

on the _____
(Project Name)

Project ID# _____ Amount of Bid \$ _____

I will expend a minimum of _____% of the total dollar amount of the contract with minority business enterprises. Minority businesses will be employed as construction subcontractors, vendors, suppliers or providers of professional services. Such work will be subcontracted to the following firms listed below. Attach additional sheets if required.

Name and Phone Number	*Minority Category	Work description	Dollar Value

*Minority categories: Black, African American (**B**), Hispanic (**H**), Asian American (**A**),

American Indian (**I**), Female (**F**) Socially and Economically Disadvantaged (**D**)

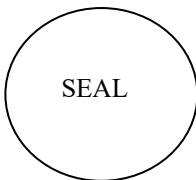
Pursuant to GS143-128.2(d), the undersigned will enter into a formal agreement with Minority Firms for work listed in this schedule conditional upon execution of a contract with the Owner. Failure to fulfill this commitment may constitute a breach of the contract.

The undersigned hereby certifies that he or she has read the terms of this commitment and is authorized to bind the bidder to the commitment herein set forth.

Date: _____ Name of Authorized Officer: _____

Signature: _____

Title: _____



State of North Carolina, County of _____

Subscribed and sworn to before me this _____ day of _____ 20____

Notary Public _____

My commission expires _____

AFFIDAVIT D
Good Faith Efforts

County of _____

(Note: this form is to be submitted ONLY by the apparent lowest responsible, responsive bidder. This form is not to be included with bid.)

If the goal of 10% participation by minority business **is not** achieved, the Bidder must complete this affidavit.
Either Affidavit C or Affidavit D shall be provided by the apparent lowest responsible, responsive Bidder within **72 hours** after notification of being low Bidder.

Affidavit of: _____
(Name of Bidder)

I do certify the attached documentation as true and accurate representation of my good faith efforts. Attach additional sheets if required

Name and Phone Number	Minority Category	Work description	Dollar Value

*Minority categories: Black, African American (**B**), Hispanic (**H**), Asian American (**A**) American Indian (**I**), Female (**F**), Socially and Economically Disadvantaged (**D**)

Documentation of the Bidder's good faith efforts to meet the goals set forth in these provisions. Examples of documentation include, but are not limited to, the following evidence:

- A. Copies of solicitations for quotes to at least three (3) minority business firms from the source list provided by the State for each subcontract to be let under this contract (if 3 or more firms are shown on the source list). Each solicitation shall contain a specific description of the work to be subcontracted, location where bid documents can be reviewed, representative of the Prime Bidder to contact, and location, date and time when quotes must be received.
- B. Copies of quotes or responses received from each firm responding to the solicitation.
- C. A telephone log of follow-up calls to each firm sent a solicitation.
- D. For subcontracts where a minority business firm is not considered the lowest responsible sub-bidder, copies of quotes received from all firms submitting quotes for that particular subcontract.
- E. Documentation of any contacts or correspondence to minority business, community, or contractor organizations in an attempt to meet the goal.
- F. Copy of pre-bid roster.
- G. Letter documenting efforts to provide assistance in obtaining required bonding or insurance for minority business.
- H. Letter detailing reasons for rejection of minority business due to lack of qualification.

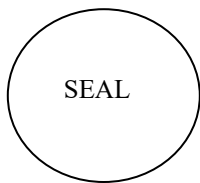
I. Letter documenting proposed assistance offered to minority business in need of equipment, loan capital, lines of credit, or joint pay agreements to secure loans, supplies, or letter of credit, including waiving credit that is ordinarily required.

Failure to provide the documentation as listed in these provisions may result in rejection of the bid and award to the next lowest responsible and responsive bidder.

Date: _____ Name of Authorized Officer: _____

Signature: _____

Title: _____

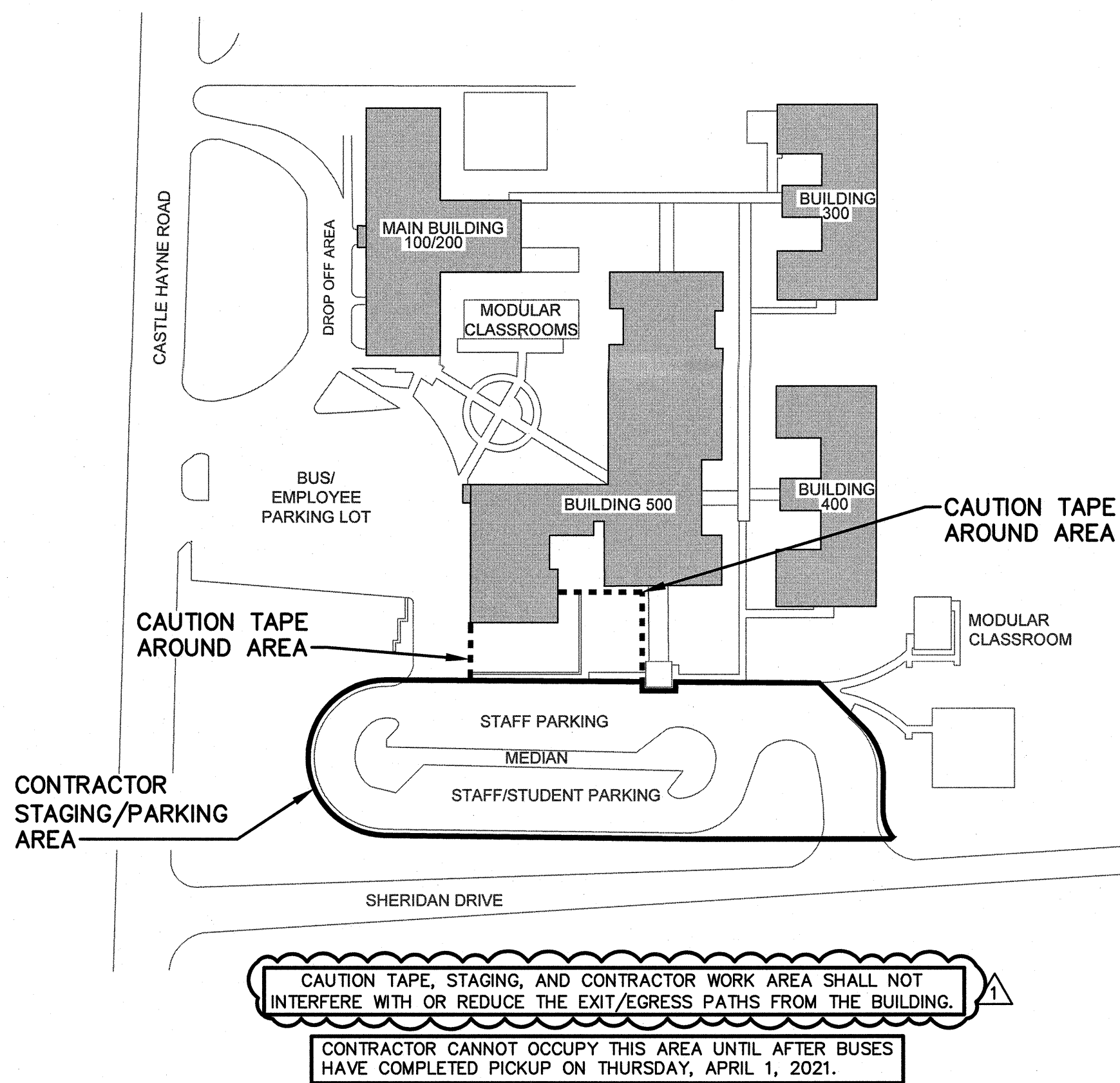
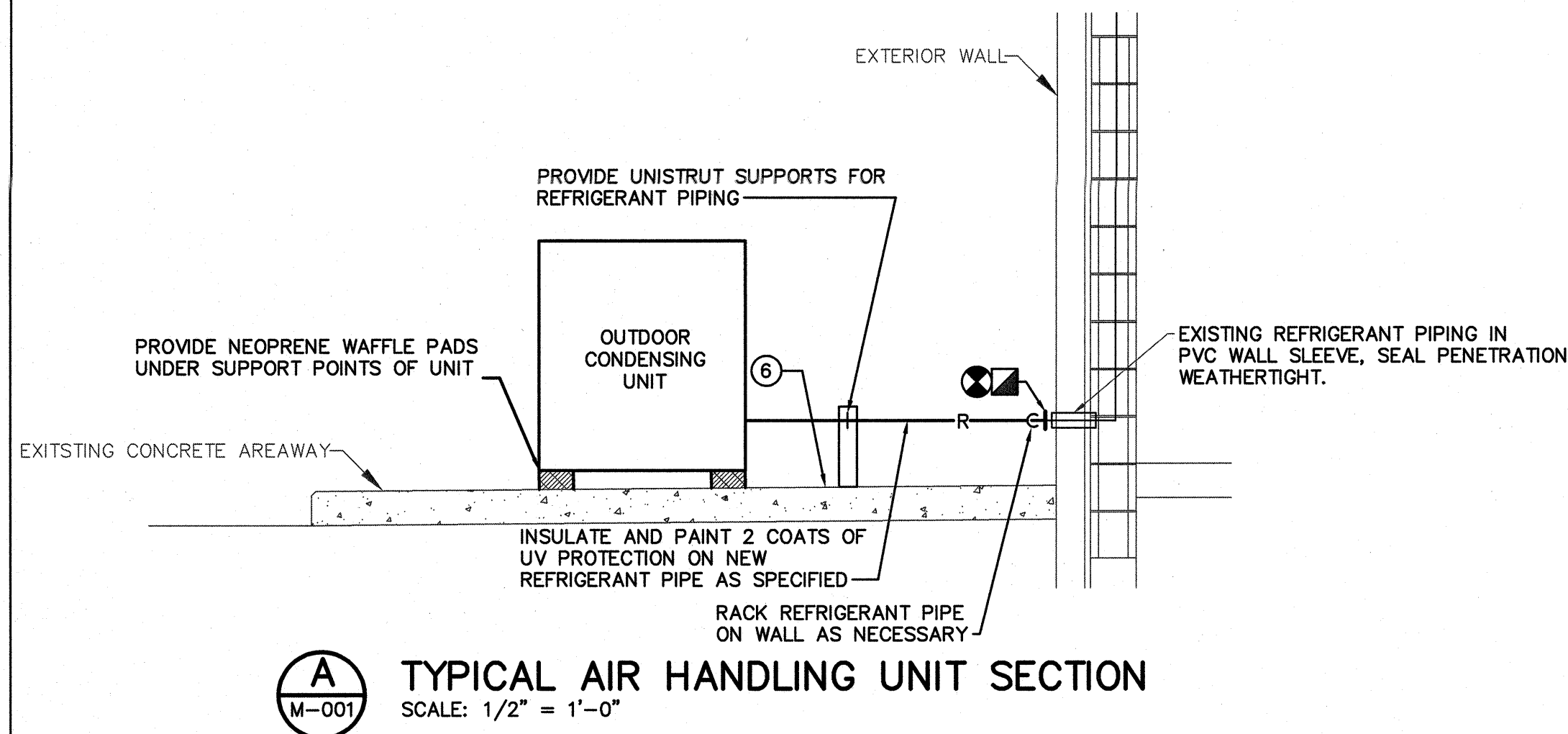


State of North Carolina, County of _____

Subscribed and sworn to before me this _____ day of _____ 20____

Notary Public _____

My commission expires _____



1 CONTRACTOR STAGING/PARKING AREA
SCALE: NONE

KEYED NOTES: THIS SHEET ONLY

- EXISTING REFRIGERANT PIPING, TO CONFIRM REUSE: PRESSURE TEST, CLEAN AND PURGE, PROVIDE NEW ACCESSORIES PER EQUIPMENT MANUFACTURER'S INSTALLATION INSTRUCTIONS. INSULATE NEW PIPING AS SPECIFIED.
- FILTER ACCESS IN AIR HANDLING UNITS.
- CONDENSATE TRAP.
- FLOAT SWITCH MOUNTED ON SIDE OF AUXILIARY CONDENSATE PAN TO DEENERGIZE UNIT IF WATER IS PRESENT IN THE PAN.
- HOT WATER PIPING AND REFRIGERANT PIPING TO BE INSTALLED SO IT DOES NOT BLOCK UNIT ACCESS PANELS.
- EXISTING PAD TO REMAIN AND BE REUSED.
- REUSE EXISTING CONCRETE PAD. CLEAN PAD AND PAINT OSHA APPROVED YELLOW.
- CONTRACTOR TO CHECK AND CONFIRM OPERATION OF MANUAL DAMPERS (MD'S) AND MOTOR OPERATED DAMPERS (MOD'S) AS PART OF THIS SCOPE OF WORK. IF FOUND TO BE NONFUNCTIONAL, DAMPER AND/OR ACTUATOR ON MOD WILL BE REPLACED AGAINST THE PROJECT'S ALLOWANCE OR BY CHANGE ORDER.
- AIR HANDLING UNIT MOUNTING SHALL BE SUCH TO ALIGN WITH EXISTING DUCTWORK.
- PROTECT DUCT MOUNTED SMOKE DETECTOR AND SAMPLING TUBE INSIDE OF EXISTING DUCT WITH PLASTIC COVERING DURING THE CONSTRUCTION PROCESS.
- CLEAN INTERIOR OF DUCTWORK. SEE ADDITIONAL NOTES, SPECIFICATION SECTION 230130, AND DESCRIPTION OF ALTERNATE. PROVIDE DUCT ACCESS DOORS AS NECESSARY TO FACILITATE CLEANING.

DUCT CLEANING - ALTERNATE NO. 1

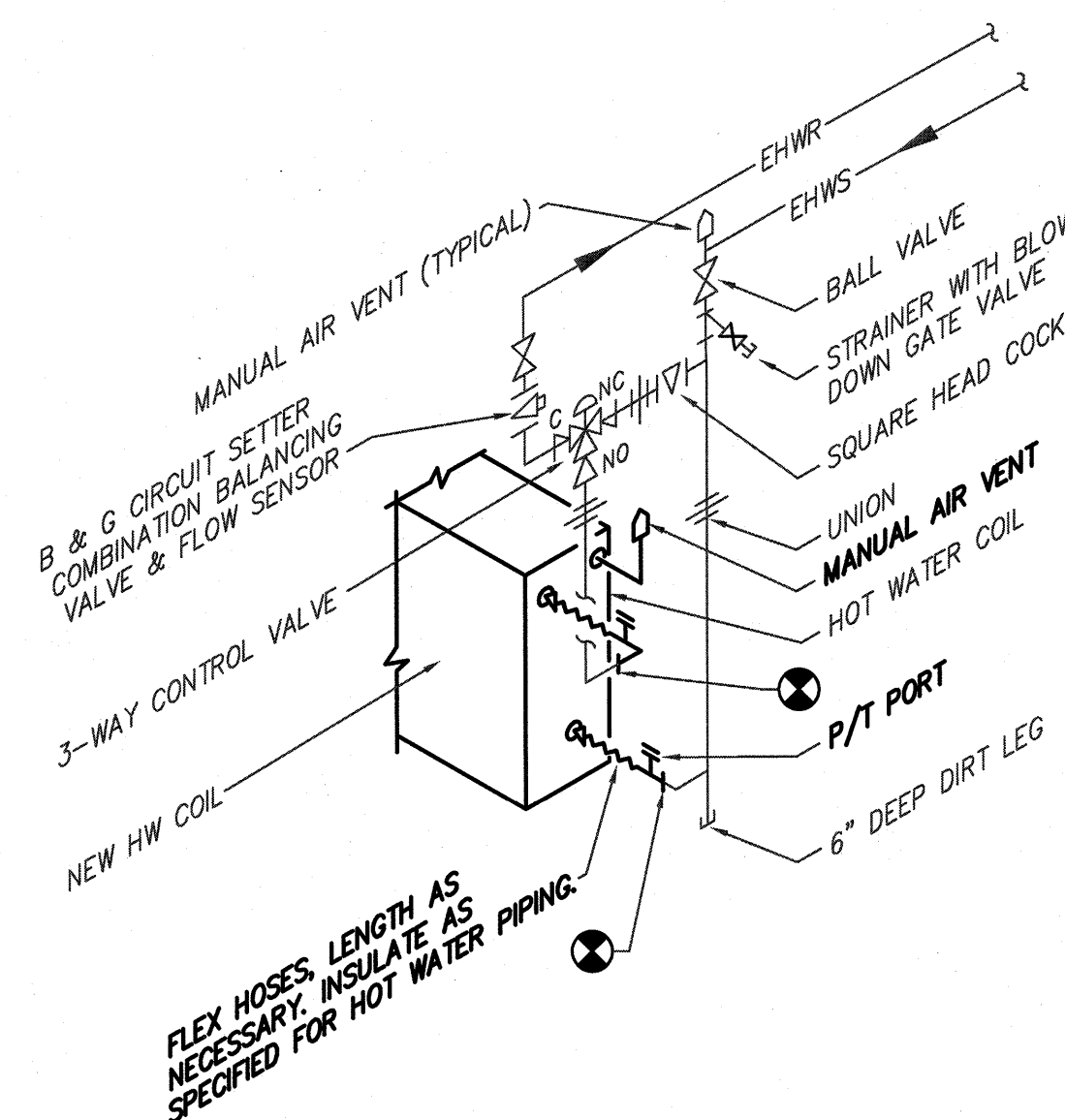
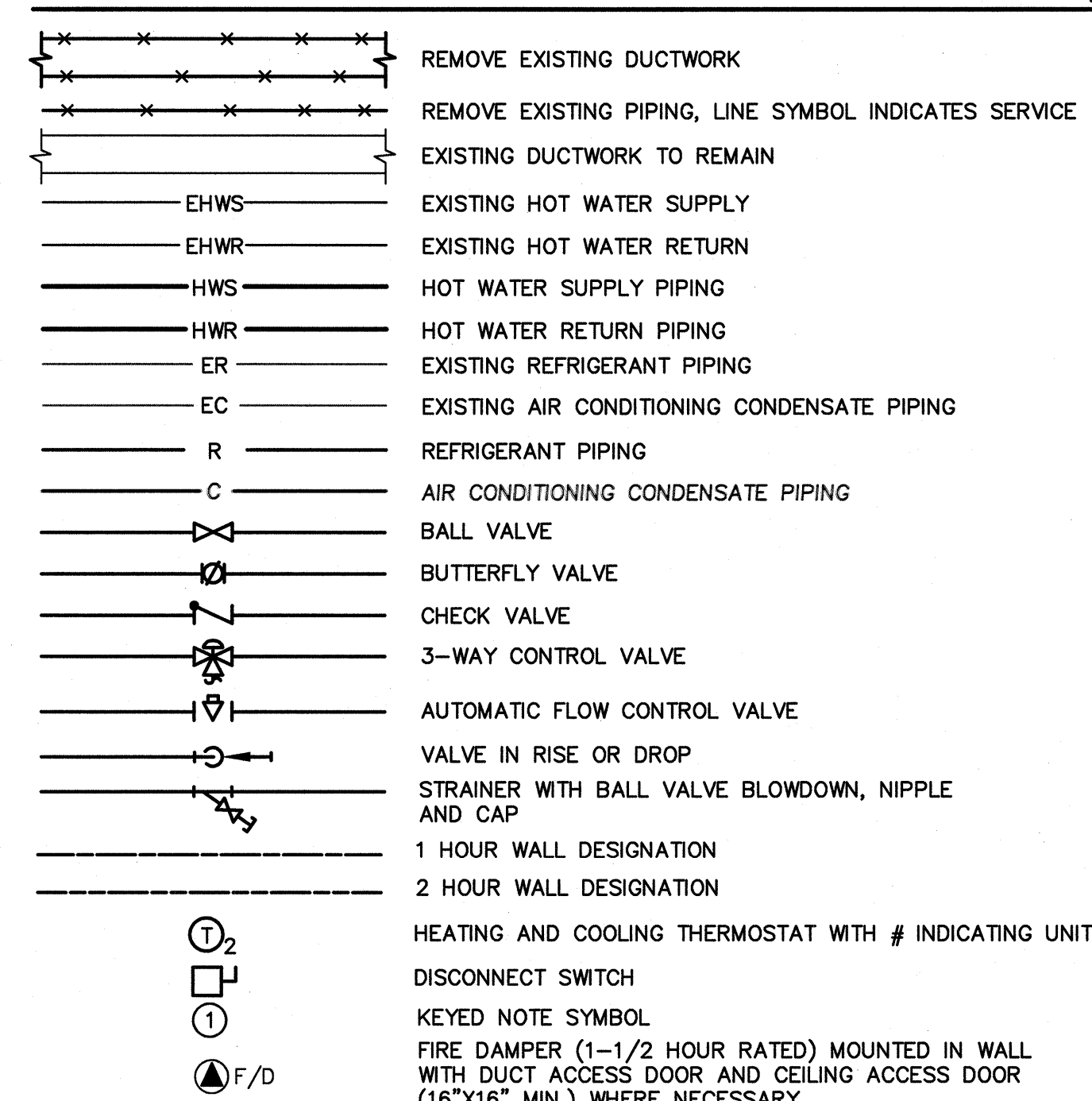
- CLEAN INTERIOR OF EXISTING DUCT SYSTEMS ASSOCIATED WITH AHU#17 AND AHU#18 TO REMAIN IN ACCORDANCE WITH NADCA ACR BY NADCA CERTIFIED SUBCONTRACTOR TO THE HVAC CONTRACTOR.
- SYSTEMS AND COMPONENTS TO BE CLEANED:
 - AIR DEVICES FOR SUPPLY AND RETURN AIR INCLUDING EXISTING REGISTERS, GRILLES, AND DIFFUSERS.
 - DUCTWORK:
 - SUPPLY AIR DUCTS, INCLUDING TURNING VANES AND REHEAT COILS, TO THE AIR-HANDLING UNIT.
 - RETURN AIR DUCTS TO THE AIR-HANDLING UNIT.
 - OUTSIDE AIR DUCTS TO THE AIR-HANDLING UNIT.
 - TRANSFER DUCTS.
- EXHAUST SYSTEMS ARE NOT A PART OF THE DUCT CLEANING SCOPE OF WORK.
- PROTECT NEW DUCTWORK, NEW AIR DEVICES, NEW HVAC UNITS AND THEIR COILS, ETC. DURING THE CLEANING PROCESS. DEENERGIZE EQUIPMENT DURING THE CLEANING PROCESS. ANY NEW WORK FOUND TO BE DIRTY AS A PART OF THE CLEANING PROCESS SHALL BE CLEANED IN ACCORDANCE WITH SECTION 230130.
- SEE SPECIFICATION SECTION 230130 FOR COMPLETE DESCRIPTION OF SCOPE OF WORK AND REQUIREMENTS.

B SPLIT SYSTEM AC UNIT WITH HOT WATER COIL
NO SCALE

SPLIT SYSTEM AIR CONDITIONING UNIT SCHEDULE											
AIR HANDLING UNIT SECTION						OUTDOOR CONDENSING SECTION					
SYMBOL	AIR QUANTITY		EXT. S.P. ①	ELECTRICAL		HEATING COIL ③		SYMBOL	ELECTRICAL		REMARKS
	TOTAL CFM	OUTSIDE CFM		FAN HP	VOLTAGE & PHASE	EAT F.	OTH-MBH GPM		MCA	MOCF	
AHU#17	5600	1125	1.30	5	208V-3ø	60.6	170.0 17.0 ⑤	1-1/4"	CU#17	74.0 100	208V-3ø 185.0 ④ 11.2 3-WAY
AHU#18	2700	1000	1.10	3	208V-3ø	52.6	120.0 12.0 ⑤	1-1/4"	CU#18	32.0 40	208V-3ø 90.0 ④ 11.4 3-WAY

- EXT. S.P. INCLUDES SUPPLY & RETURN AIR DUCTWORK, MERV 8 FILTERS IN ROOM RETURN AIR GRILLES, AND DUCT MOUNTED HEATING COILS.
- CAPACITY WHEN MATCHED WITH INDOOR SECTION AT AHRI CONDITIONS.
- BASED ON 180°F EWT AND 20°F WATER TEMPERATURE DROP. WATER PRESSURE DROP SHALL BE 10 FT. MAXIMUM FOR COIL PLUS CONTROL VALVE. COIL AIR PRESSURE DROP SHALL BE 0.40" WATER COLUMN MAXIMUM. HEATING COILS SHALL BE A MINIMUM OF TWO ROWS.
- DUAL COMPRESSOR DUAL CIRCUIT SYSTEM.
- TAB WATERFLOW TO NEW HOT WATER COIL.

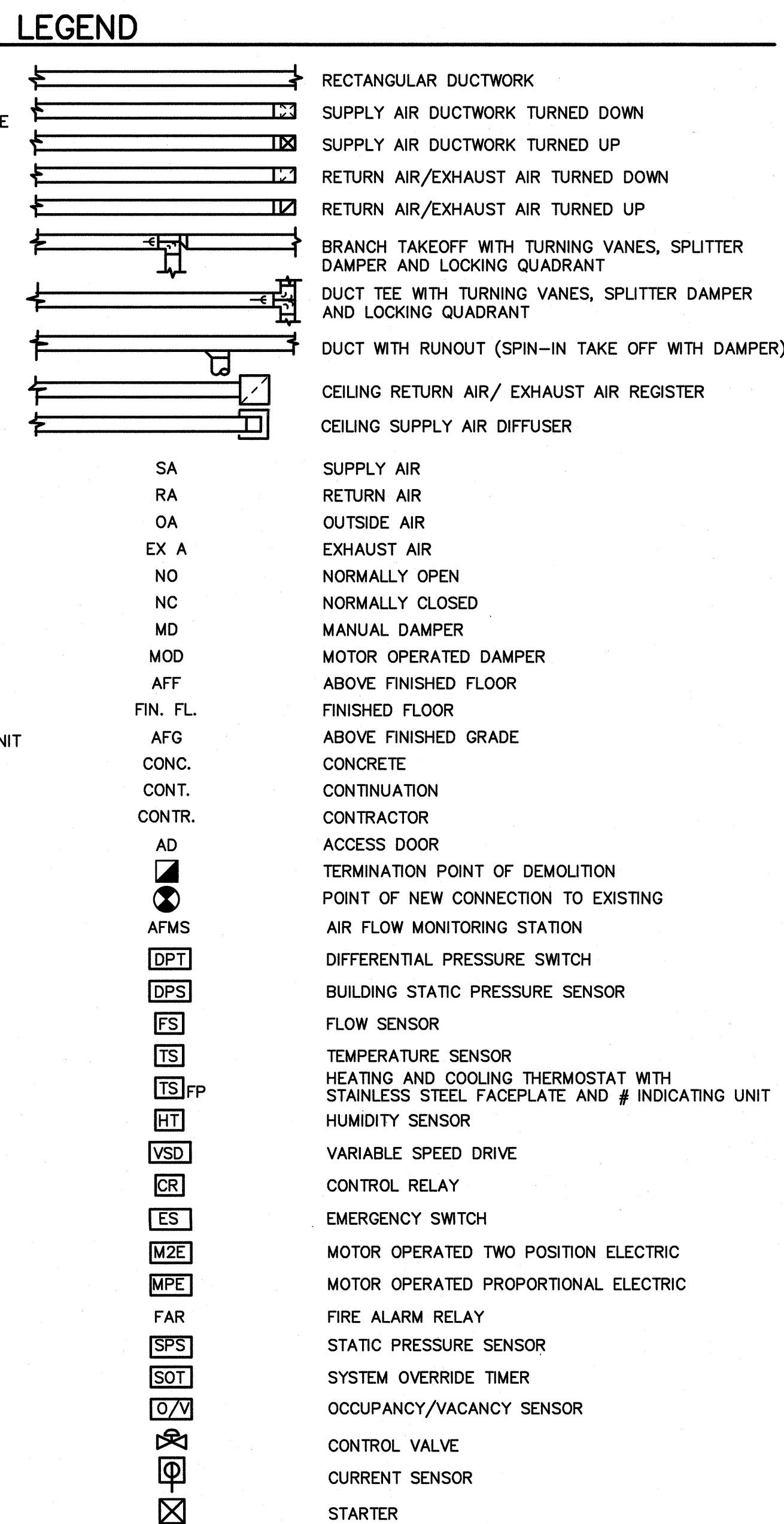
PIPE INSULATION THICKNESS SCHEDULE			
PIPE SIZE	INSULATION THICKNESS		REMARKS
	HOT WATER	REFRIGERANT	
3/4"	1-1/2"	1-1/2"	
1"	1-1/2"	1-1/2"	
1-1/4"	1-1/2"	1-1/2"	
1-1/2"	1-1/2"	1-1/2"	
2"	2"	1-1/2"	
2-1/2"	2"	1-1/2"	
3"	2"	1-1/2"	



C TYPICAL COIL PIPING DETAIL
SCALE: NONE

GENERAL NOTES:

- HVAC CONTRACTOR SHALL FIELD VERIFY ALL RELEVANT DIMENSIONS, CLEARANCES, LOCATIONS AND ELEVATIONS PRIOR TO ORDERING, FABRICATION, AND INSTALLATION OF HIS WORK. DISCREPANCIES OR INTERFERENCE SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT/ENGINEER AS SOON AS POSSIBLE. THE DRAWINGS DIAGRAMMATICALLY INDICATE THE GENERAL LOCATION OF DUCTS, PIPING AND EQUIPMENT AND DO NOT SHOW ALL SUPPORTS, OFFSETS, FITTINGS, BOLTS, CONNECTIONS, ETC. REQUIRED FOR A COMPLETE SYSTEM. WHILE THE DRAWINGS ARE TO BE FOLLOWED AS CLOSELY AS POSSIBLE, IF IT IS FOUND NECESSARY TO CHANGE THE LOCATION OF ANY WORK TO ACCOMMODATE THE CONDITIONS AT THE BUILDING, SUCH CHANGES SHALL BE MADE WITHOUT ADDITIONAL COST TO THE OWNER, AND AS DIRECTED BY THE ENGINEER, WHILE SOME OFFSETS MAY BE SHOWN ON THE DRAWINGS, THE DRAWINGS DO NOT SHOW ALL OFFSETS, SUPPORTS, ETC.
- ALL SUPPLY AND RETURN CONNECTIONS TO AHU SHALL BE MADE WITH A FLEXIBLE DUCT CONNECTION.
- PIPING, DUCTWORK, ETC., SHALL NOT BE SUPPORTED FROM BAR JOIST BRIDGING OR ROOFDECK. EQUIPMENT SUPPORTED BY BAR JOISTS SHALL HAVE SUPPORTS ATTACHED AS CLOSE AS POSSIBLE TO BAR JOIST PANEL POINTS. HVAC CONTRACTOR SHALL SUPPLY ANY AND ALL STRUCTURAL MEMBERS NECESSARY TO SUPPORT WORK BETWEEN BAR JOISTS, BEAMS, ETC.
- ALL DUCT JOINTS SHALL BE SEALED AS SPECIFIED.
- IN AREAS WITH GYPBOARD CEILINGS, HVAC CONTRACTOR SHALL INSTALL EQUIPMENT, DUCTWORK AND PIPE HANGERS PRIOR TO GYPBOARD INSTALLATION.
- HVAC CONTRACTOR/ CONTROLS CONTRACTOR SHALL COORDINATE WITH ELECTRICAL CONTRACTOR FOR PROVISIONS OF POWER TO ODC CONTROL SYSTEM CONTROL PANELS, CONTROLLERS, ETC. NOT SHOWN ON M OR E DRAWINGS. ELECTRICAL CONTRACTOR WILL PROVIDE POWER TO GENERAL POINTS, JUNCTION BOXES, ETC., AND POWER WIRING FROM THOSE POINTS TO EQUIPMENT SHALL BE BY THE HVAC CONTRACTOR/CONTROL CONTRACTOR.
- SEE SCHEDULES FOR PIPE SIZES TO EQUIPMENT NOT SHOWN ON DRAWINGS.
- SEE 1/M-001 FOR CONTRACTOR STAGING/PARKING AREA AND REQUIREMENTS FOR CORRODING OFF LIMITS OF CONSTRUCTION.
- EXISTING CENTRAL HOT WATER PLANT INCLUDING BOILER, PUMPS, AND AIR SEPARATOR TO REMAIN.
- KITCHEN DISHWASHER'S HOOD AND KITCHEN HOOD TO REMAIN - NO WORK.
- EXISTING EXHAUST FANS AND SYSTEMS FOR RESTROOMS, ETC. TO REMAIN - NO WORK.
- FLUSHING OF NEW HOT WATER PIPING WILL BE BY CONTRACTOR. CHEMICAL CLEANING AND TREATMENT OF SYSTEM WILL BE BY NHCS'S CHEMICAL TREATMENT CONTRACTOR AS DIRECTED BY NHCS.
- INTENT IS FOR CONTRACTOR TO ACCOMPLISH ALL WORK BY CAREFULLY REMOVING CEILING TILES AND WORKING THROUGH THE EXISTING CEILING GRID AS NECESSARY. DAMAGED CEILING GRID AND/OR TILES SHALL BE REPLACED BY THE CONTRACTOR.



MECHANICAL SYSTEMS, SERVICE SYSTEMS AND EQUIPMENT METHOD OF COMPLIANCE

- ☒ COMPLIANCE PER CHAPTER 4 NORTH CAROLINA ENERGY CONSERVATION CODE - SECTIONS C403.2 (MANDATORY), C403.3 ECONOMIZERS (PRESCRIPTIVE) AND C408 ADDITIONAL EFFICIENCY PACKAGE OPTIONS.
- ☐ COMPLIANCE PER CHAPTER 4 NORTH CAROLINA ENERGY CONSERVATION CODE - SECTIONS C403.2 (MANDATORY), C403.3 ECONOMIZERS (PRESCRIPTIVE), C403.4 HYBRONIC AND MULTIPLE ZONE (PRESCRIPTIVE) AND C408 ADDITIONAL EFFICIENCY PACKAGE OPTIONS.
- ☐ COMPLIANCE PER CHAPTER 4 NORTH CAROLINA ENERGY CONSERVATION CODE - SECTIONS C402.3, C403.2, C404, C405.2, C405.3, C405.5, C405.6 AND C407 TOTAL BUILDING PERFORMANCE. THE BUILDING ENERGY COST SHALL BE EQUAL TO OR LESS THAN 80 PERCENT OF THE STANDARD REFERENCE DESIGN BUILDING.
- ☐ COMPLIANCE PER ANSI/ASHRAE/IESNA 90.1-2013.
- ☐ COMPLIANCE PER NORTH CAROLINA SPECIFIC COMCHECK OR ASHRAE 90.1-2013 COMCHECK.

CLIMATE ZONE 3A
EXTERIOR DESIGN CONDITIONS
winter dry bulb: 28°F
summer dry bulb: 92°F DB/78°F WB
relative humidity: 50%

INTERIOR DESIGN CONDITIONS
winter dry bulb: 70°F
summer dry bulb: 75°F
relative humidity: 50%

BUILDING HEATING LOAD: BLOCK LOAD = 256.0 MBH - HVAC REPLACEMENT AREAS ONLY
BUILDING COOLING LOAD: BLOCK LOAD = 21.4 TONS - HVAC REPLACEMENT AREAS ONLY

MECHANICAL SPACING CONDITIONING SYSTEM
Unitary:
description of unit:
heating efficiency:
cooling efficiency:
heat output of unit:
cooling output of unit:
SEE SCHEDULES ON THIS SHEET

Boiler: EXISTING
total boiler output: If oversized, state reason.
Chiller: N/A
total chiller capacity: If oversized, state reason.

LIST EQUIPMENT EFFICIENCIES: SEE SCHEDULES ON THIS SHEET
EQUIPMENT SCHEDULES WITH MOTORS (MECHANICAL SYSTEMS)
motor horsepower:
number of phases:
minimum efficiency:
motor type:
of poles:
SEE SCHEDULES ON THIS SHEET

DESIGNER STATEMENT

To the best of my knowledge and belief, the design of this building complies with the mechanical systems, service systems and equipment requirements of the North Carolina Energy Code.
SIGNATURE:
NAME: Kenneth Lynch
TITLE: Professional Engineer

REVISION

DATE	DESCRIPTION
12/28/20	DPI REVIEW - ADD NO. 1

Great Expectations.
Every School, Every Child

WRIGHTSBORO ELEMENTARY SCHOOL BUILDING 500
KITCHEN/DINING HVAC RENOVATION

WRIGHTSBORO ELEMENTARY SCHOOL
2716 CASTLE HAYNE RD.
WILMINGTON, NC 28401

NHCS PROJECT#21-9230

CHEATHAM AND ASSOCIATES, P.A.
CONSULTING ENGINEERS
3412 ENTERPRISE DRIVE
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DRAWN BY	JEG, NAH
CHECKED BY	KL
JOB NUMBER	20048
SHEET	
M-001	
OF	4
DATE	DECEMBER 14, 2020

ELECTRICAL NOTES

- ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE AND REQUIREMENTS OF THE LOCAL AUTHORITY HAVING JURISDICTION.
- PERMITS FOR ELECTRICAL WORK SHALL BE OBTAINED BY AND PAID BY THE ELECTRICAL CONTRACTOR. THE ELECTRICAL CONTRACTOR SHALL PAY FOR ANY ADDITIONAL FEES FOR INSPECTIONS, TESTS, AND OTHER SERVICES AS REQUIRED FOR THE COMPLETION OF THE WORK.
- THE ELECTRICAL CONTRACTOR AND ANY OF HIS SUBCONTRACTORS SHALL VISIT THE PROJECT SITE TO WITNESS EXISTING CONDITIONS AND BECOME FAMILIAR WITH THE SCOPE OF THE WORK REQUIRED PRIOR TO SUBMITTING PROPOSALS. WORK REQUIRED BY EXISTING JOB CONDITIONS NOT INDICATED ON DRAWINGS SHALL BE INCLUDED IN THE BID.
- THE DRAWINGS AND SPECIFICATIONS ARE INTENDED TO RESULT IN THE PRODUCTION OF A COMPLETE AND FUNCTIONAL ELECTRICAL SYSTEM. THE ELECTRICAL CONTRACTOR SHALL PROVIDE ALL MATERIAL, LABOR, EQUIPMENT, AND OTHER SERVICES AS NECESSARY TO COMPLETE THE WORK.
- DISCREPANCIES IN THE DRAWINGS AND SPECIFICATIONS THAT WILL AFFECT THE WORK SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER, AND OWNER PRIOR TO SUBMITTING PROPOSALS. UNLESS NOTED OTHERWISE, ALL MATERIALS AND EQUIPMENT SHALL BE NEW AND INCLUDE A 3RD PARTY LABEL (I.E.: UL, CSA, ETL, ETC.) LISTING APPROVAL FOR ITS INSTALLED APPLICATION.
- REVIEW PLANS OF OTHER TRADES FOR COORDINATION OF WORK AND FOR RELATED AND ADJOINING WORK.
- PENETRATIONS OF EXTERIOR BUILDING WALLS, FLOORS, OR ROOFS SHALL BE SEALED WATERTIGHT. INTERIORS OF RACEWAY PENETRATIONS THROUGH EXTERIOR WALLS SHALL BE SEALED WITH NON-HARDENING ELECTRICAL PUTTY.
- CUTTING AND PATCHING TO INSTALL DEVICES AND EQUIPMENT SHALL BE PERFORMED WITH FINISHES RESTORED TO THEIR ORIGINAL CONDITION. SUCH WORK SHALL BE COMPLETED TO A DEGREE THAT IS ACCEPTABLE TO THE ENGINEER, AND OWNER.
- COORDINATE PRECISE LOCATION OF HVAC EQUIPMENT WITH THE MECHANICAL CONTRACTOR.
- FOR HVAC EQUIPMENT, VERIFY CIRCUIT BREAKER RATINGS, FUSE RATINGS, AND WIRE SIZES. IF RATINGS DIFFER FROM THOSE INDICATED ON THE DRAWINGS, NOTIFY THE ENGINEER AND OWNER FOR DIRECTION. PROVIDE OVERCURRENT PROTECTION IN ACCORDANCE WITH EQUIPMENT MANUFACTURER NAMEPLATE DATA. IF THE EQUIPMENT LISTING LABEL REQUIRES FUSED PROTECTION, ENSURE THAT FUSES IN A FUSED DISCONNECT SWITCH AT THE EQUIPMENT ARE SIZED AS INDICATED ON THE EQUIPMENT LABEL.
- IF HORSEPOWER OR LOAD RATINGS OF EQUIPMENT DIFFER FROM THOSE INDICATED ON THE DRAWINGS, NOTIFY THE ARCHITECT, ENGINEER, AND OWNER FOR DIRECTION.
- PROVIDE NATIONAL ELECTRICAL CODE REQUIRED CLEARANCES FOR ALL ELECTRICAL EQUIPMENT. COORDINATE RESOLUTION OF CONFLICTS WITH OTHER TRADES.
- NO MOUNTING HARDWARE SHALL BE ATTACHED TO ROOF DECKS. ATTACHMENTS SHALL BE MADE TO THE ROOF SUPPORTING STRUCTURE.
- WHERE WORKING IN EXISTING BUILDINGS, FACILITIES, OR STRUCTURES; PROTECT AND MAINTAIN IN OPERATION EXISTING LIFE SAFETY SYSTEMS, PUBLIC ADDRESS SYSTEMS, ELECTRICAL SYSTEMS, ETC. IF SHUTDOWNS ARE REQUIRED, NOTIFY THE ARCHITECT, ENGINEER, AND OWNER FOR COORDINATION WELL IN ADVANCE OF ANY SYSTEM SHUTDOWN. WHERE AN OUTAGE OF EXTENDED DURATION IS NOT ACCEPTABLE TO THE OWNER, PROVIDE TEMPORARY CONNECTIONS AS REQUIRED TO MAINTAIN SERVICE.
- WHERE WORKING IN EXISTING BUILDINGS, FACILITIES, OR STRUCTURES; WORK MAY BE REQUIRED TO BE PERFORMED WHILE REMAINING OCCUPIED BY OWNER STAFF. WORK SHALL BE COORDINATED WITH THE OWNER TO MINIMIZE DISRUPTION TO THE OWNER.
- WHERE WORKING IN EXISTING BUILDINGS, FACILITIES, OR STRUCTURES; EXISTING ABANDONED CIRCUITS USED TO CONNECT NEW LOADS IN THE SAME AREA SHALL BE CLEARLY IDENTIFIED ON AS-BUILT MAKE-UP DRAWINGS WITH REGARD TO PANEL-CIRCUIT AND CIRCUITRY ROUTING CONFIGURATION.
- ABANDONED CIRCUITRY (RACEWAY & CONDUCTORS) SHALL BE REMOVED IN ITS ENTIRETY FROM ITS SOURCE. ABANDONED LOW VOLTAGE CABLING SHALL BE REMOVED IN ITS ENTIRETY UNLESS OTHERWISE NOTED.

ABBREVIATIONS

AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AHU	AIR HANDLER UNIT
AIC	AMPS INTERRUPTING CAPABILITY
BKR	BREAKER
C	CONDUIT
C/B	CIRCUIT BREAKER
CLG	CEILING
CKT	CIRCUIT
CU	CONDENSING UNIT
CU	COPPER
DWG	DRAWING
EC	ELECTRICAL CONTRACTOR
EXSTG	EXISTING
G	EQUIPMENT GROUND
GEC	GROUNDING ELECTRODE CONDUCTOR
HP	HORSEPOWER
K	KILO (THOUSAND)
MC	MECHANICAL CONTRACTOR
MCB	MAIN CIRCUIT BREAKER
MFR	MANUFACTURER
N/A	NOT APPLICABLE
NEC	NATIONAL ELECTRICAL CODE
NEMA	NATIONAL ELECTRICAL MANUFACTURERS ASSOC.
NTS	NOT TO SCALE
SYS	SYSTEM
S/N	SOLID NEUTRAL
TYP	TYPICAL
UL	UNDERWRITERS LABORATORY
UNO	UNLESS NOTED OTHERWISE
V	VOLTS
VA	VOLT-AMPS

MISC. ELECTRICAL SYMBOL LEGEND

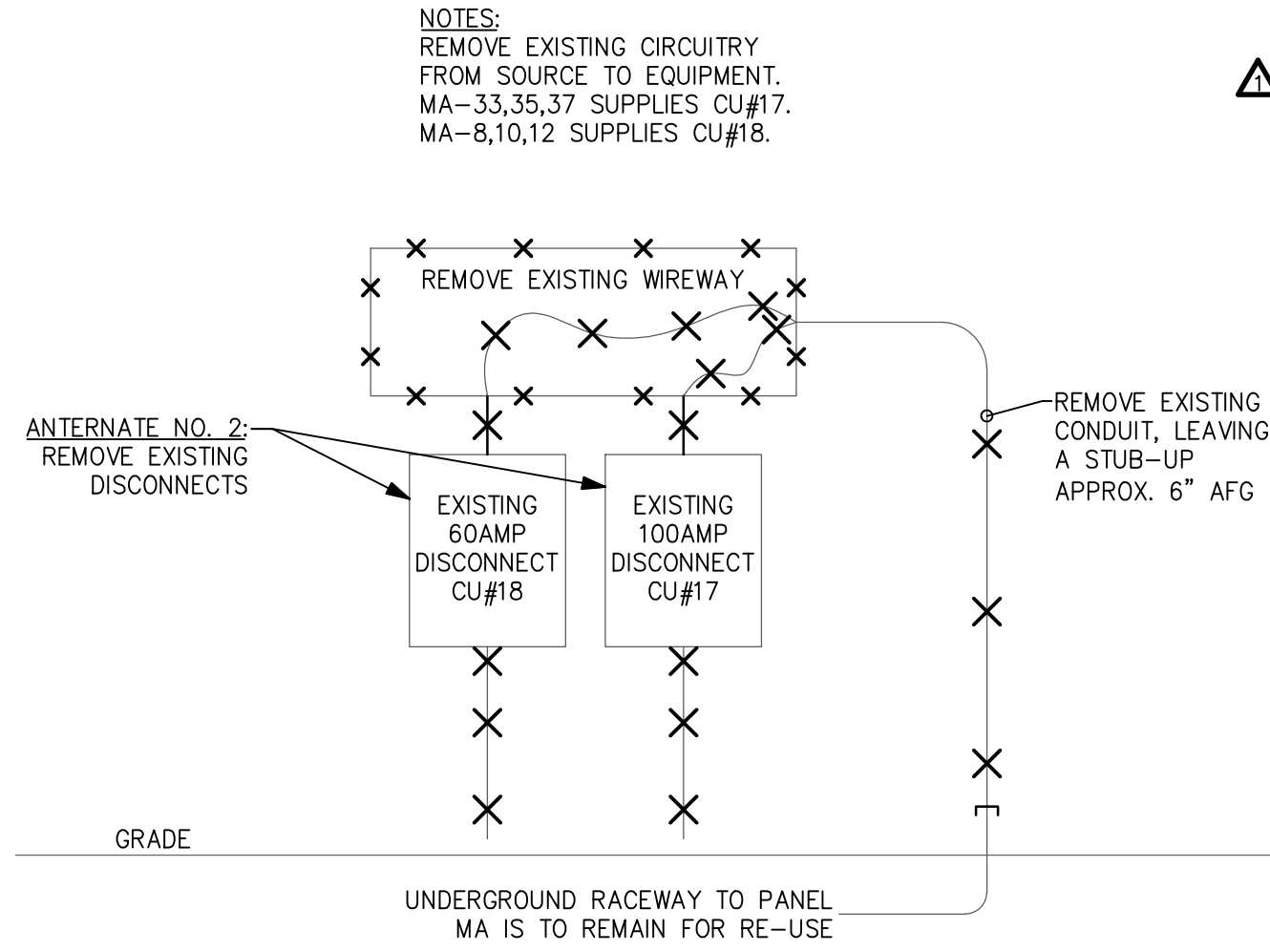
	EQUIPMENT CONNECTION
	SAFETY SWITCH DISCONNECT, HEAVY-DUTY, FUSED AT NAMEPLATE RATING OF EQUIPMENT SERVED, NEMA 1 INSIDE, NEMA 3R OUTSIDE (UNO), AMPERAGE AS INDICATED OR BASED ON SUPPLY CIRCUIT BREAKER RATING.
	PANELBOARD, SEE PANEL SCHEDULE
	HOMERUN DESIGNATION, #12 CONDUCTORS UNLESS NOTED OTHERWISE.
	EQUIPMENT GROUND CONDUCTOR
	PHASE CONDUCTOR
	NEUTRAL CONDUCTOR
	LETTER INDICATES ELEVATION OR DETAIL; NUMBER INDICATES PLAN OR SECTION
	SHEET NUMBER WHERE PLAN, SECTION, ELEVATION OR DETAIL IS DRAWN

DISCONNECT

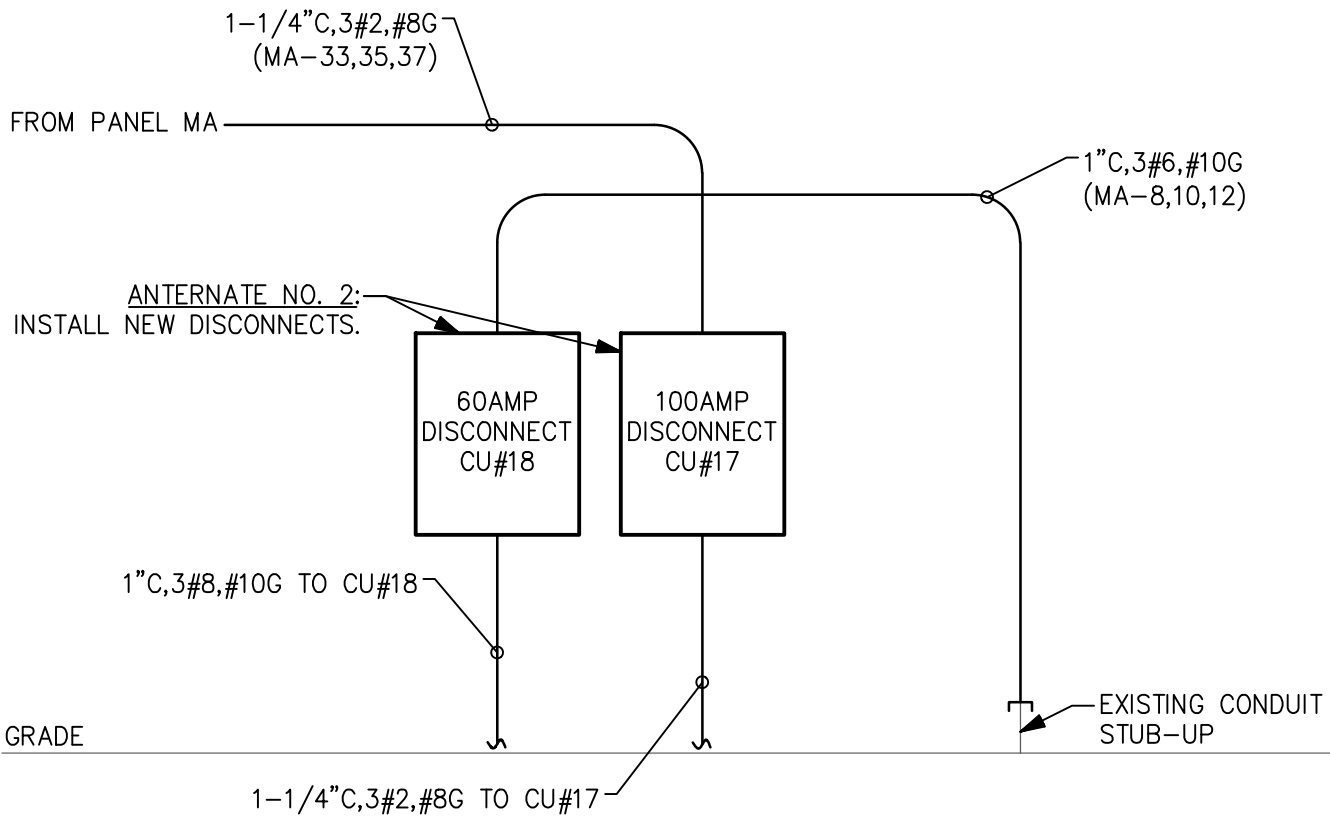
DISCONNECT DESIGNATION	DISCONNECT: DOAS #1
SOURCE DESIGNATION	SOURCE: PANEL 4M/CKT #
RATING DESIGNATION	RATING: 200 AMPS
VOLTAGE & PHASE DESIGNATION	VOLTAGE: 480V, 3PH, 3W

- NOTES:
- ENGRAVED PLASTIC FOR NAMEPLATE.
 - HIGH PERFORMANCE, DOUBLE COATED TAPE WITH ADHESIVE TO ATTACH LABELS. DESIGN BASIS: 3M #06383 OR APPROVED EQUIVALENT.
 - 3/8" ENGRAVED LETTERS EQUIPMENT NAME DESIGNATION AND 1/4" ENGRAVED LETTERS ON ALL OTHER DESIGNATIONS.

TYPICAL NAMEPLATE DETAILS



ELECTRICAL DEMOLITION RISER AT CU's

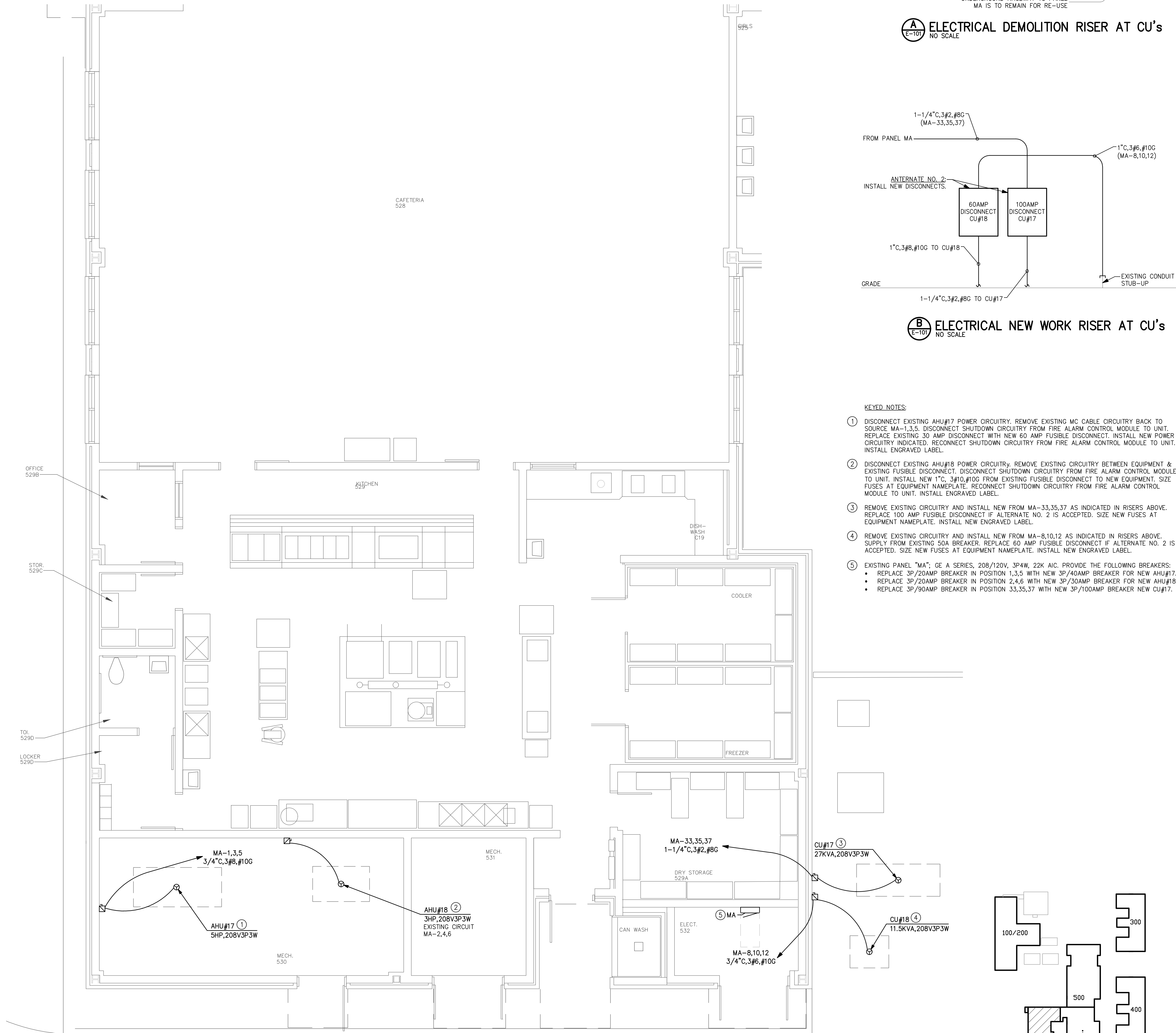


ELECTRICAL NEW WORK RISER AT CU's

KEYED NOTES:

- DISCONNECT EXISTING AHU#17 POWER CIRCUITRY. REMOVE EXISTING MC CABLE CIRCUITRY BACK TO SOURCE MA-1,3,5. DISCONNECT SHUTDOWN CIRCUITRY FROM FIRE ALARM CONTROL MODULE TO UNIT. REPLACE EXISTING 30 AMP DISCONNECT WITH NEW 60 AMP FUSIBLE DISCONNECT. INSTALL NEW POWER CIRCUITRY INDICATED. RECONNECT SHUTDOWN CIRCUITRY FROM FIRE ALARM CONTROL MODULE TO UNIT. INSTALL ENGRAVED LABEL.
- DISCONNECT EXISTING AHU#18 POWER CIRCUITRY. REMOVE EXISTING CIRCUITRY BETWEEN EQUIPMENT & EXISTING FUSIBLE DISCONNECT. DISCONNECT SHUTDOWN CIRCUITRY FROM FIRE ALARM CONTROL MODULE TO UNIT. INSTALL NEW 1" C, 3#10, #10G FROM EXISTING FUSIBLE DISCONNECT TO NEW EQUIPMENT. SIZE FUSES AT EQUIPMENT NAMEPLATE. RECONNECT SHUTDOWN CIRCUITRY FROM FIRE ALARM CONTROL MODULE TO UNIT. INSTALL ENGRAVED LABEL.
- REMOVE EXISTING CIRCUITRY AND INSTALL NEW FROM MA-33,35,37 AS INDICATED IN RISERS ABOVE. REPLACE 100 AMP FUSIBLE DISCONNECT IF ALTERNATE NO. 2 IS ACCEPTED. SIZE NEW FUSES AT EQUIPMENT NAMEPLATE. INSTALL NEW ENGRAVED LABEL.
- REMOVE EXISTING CIRCUITRY AND INSTALL NEW FROM MA-8,10,12 AS INDICATED IN RISERS ABOVE. SUPPLY FROM EXISTING 50A BREAKER. REPLACE 60 AMP FUSIBLE DISCONNECT IF ALTERNATE NO. 2 IS ACCEPTED. SIZE NEW FUSES AT EQUIPMENT NAMEPLATE. INSTALL NEW ENGRAVED LABEL.
- EXISTING PANEL "MA"; GE A SERIES, 208/120V, 3P4W, 22K AIC. PROVIDE THE FOLLOWING BREAKERS:
 - REPLACE 3P/20AMP BREAKER IN POSITION 1,3,5 WITH NEW 3P/40AMP BREAKER FOR NEW AHU#17.
 - REPLACE 3P/20AMP BREAKER IN POSITION 2,4,6 WITH NEW 3P/20AMP BREAKER FOR NEW AHU#18.
 - REPLACE 3P/90AMP BREAKER IN POSITION 33,35,37 WITH NEW 3P/100AMP BREAKER NEW CU#17.

MA		(EXISTING PANEL W/ 400A FEEDER)									
ROOM ELECT 532		VOLTS 208Y/120V 3P 4W				AIC 22,000					
MOUNTING SURFACE		BUS AMPS 400				MAIN BKR MLO					
FED FROM MDP		NEUTRAL 100%				LUGS STANDARD					
NOTE EXISTING GE A SERIES PANELBOARD											
CKT #	CKT BKR	CIRCUIT DESCRIPTION	LOAD KVA			CKT #	CKT BKR	CIRCUIT DESCRIPTION	LOAD KVA		
			A	B	C				A	B	C
1	40/3	(*) AHU#17	2.11			2	30/3	(*) AHU#18	1.33		
3				2.11		4				1.33	
5					2.11	6					1.33
7	30/3	SPD	0			8	50/3	CU#18	3.83		
9				0		10				3.83	
11					0	12					3.83
13	50/3	OUTDOOR FREEZER	1.8			14	30/3	OUTDOOR COOLER	1.2		
15				1.8		16				1.2	
17					1.8	18					1.2
19	20/2	FREEZER FAN	0.52			20	20/1	COOLER FAN	0.6		
21				0.52		22	-/1	SPACE		0	
23	20/1	FREEZER DEFROST			0.6	24	20/1	SHUNT FEED			0.1
25	-/1	SPACE	0			26	30/3	HOOD EXHAUST	1.3		
27	20/1	EWB		1.2		28				1.3	
29	20/1	BOILER CONTROLS			0.6	30					1.3
31	-/1	SPACE	0			32	20/1	LIGHTING	1.9	0.1	
33	100/3	(*) CU#17		9	9	34	20/1	LIGHTING CONTROL			0.52
35					9	36	20/2	PROOF CABINET	0.52		
37				9		38				0	
39	150/3	CU #12,13,14,15		10.8	10.8	40	-/3	UNUSABLE SPACE		0	0
41					10.8	42					
43						44					
TOTAL CONNECTED KVA BY PHASE									34.9	33.2	33.2
TOTAL CONNECTED AMPS BY PHASE									291	276	276
		CONN KVA	CALC KVA	(125%)			CONN KVA	CALC KVA	(50%>10)		
LIGHTING		2	2.5	(125%)	RECEPTACLES		0.7	0.7	(50%>10)		
LARGEST MOTOR		32.4	8.1	(25%)	CONTINUOUS		1.2	1.5	(125%)		
MOTORS		4.94	4.94	(100%)	HEATING		81.8	0	(0%)		
					COOLING		91.8	91.8	(100%)		
					TOTAL LOAD			110			
					BALANCED 3-PHASE LOAD			304 A			
(*) PROVIDE NEW BREAKER INDICATED											



ELECTRICAL POWER PLAN

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

KEY PLAN

REVISION

DATE	DESCRIPTION
12/28/23	DPI REVIEW COMMENT

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CHECKED BY	M. CIARRADCCA
JOB NUMBER	20048
SHEET	E-101
OF	
DATE	DECEMBER 14, 2020