

# RENOVATION OF GALEHOUSE (A BUILDING), MCLEOD (S BUILDING), AND NATURAL SCIENCES (N BUILDING)

Cape Fear Community College Wilmington, North Carolina SCO #17-18154-01A; NCCCS #2352 BMG Project No. 2018023.00

The following items supplement, change, delete or add to the Construction Documents as though repeated in full therein. All general conditions, special conditions, etc., as originally specified shall apply to these items.

#### 1. PRE-BID MEETING

A Pre-Bid Meeting was held on Tuesday, August 25, 2020. Meeting minutes and a sign-in sheet are attached to the end of this Addendum No. 1.

#### 2. REQUESTS FOR INFORMATION

- a. All requests for information (RFI's) shall be submitted to the Architect in writing no later than 10:00 am EST, Wednesday, September 2, 2020. Questions received after this time will not be considered.
- b. Requests for Substitutions must be submitted to the Architect in writing no later than 10:00 am EST, Wednesday, September 2, 2020. Substitutions received after this time will not be considered.
- c. Formal RFI and Requests for Substitutions responses will be issued via addenda.

### **BID RFI 001**

a. Can copper pro-press joints be used in lieu of copper sweat joints? Response: To be answered via future Addendum.

#### **BID RFI 002**

a. What are the chances of this bid date getting extended from the advertised date of 9/10? We are interested in this project but feel as if the timing could be too tight for a renovation project?

Response: We are not aware of another substantial institutional bid affecting multiple bidders and conflicting with the current bid date, and we have not received multiple extension requests. For these reasons, the bid date will remain as scheduled on, Thursday, September 10, 2020, at 3:00PM.

#### 3. PROJECT MANUAL

The following specification(s) have been added or revised and are attached to this addendum in PDF format:

- a. SUPPLEMENTARY INSTRUCTIONS TO BIDDERS AND SUPPLEMENTARY GENERAL CONDITIONS: REVISED. Liquidated Damages has been revised to \$440.00 per calendar day in excess of the contract time.
- b. FORM OF PROPOSAL: REVISED. Alternate No. 10 revised to reflect generator to be furnished and installed by Contractor.
- c. SECTION 012300 ALTERNATES: REVISED. Alternate No. 10 revised to reflect generator to be furnished and installed by Contractor.

#### **ADDENDUM NO. 1**

RENOVATION OF GALEHOUSE (A BUILDING), MCLEOD (S BUILDING), AND NATURAL SCIENCES (N BUILDING)

2018023.00

d. SECTION 087100 - DOOR HARDWARE: REVISED. Door Hardware Set 1.0 has been revised.

#### 4. DRAWINGS

The following drawing(s) have been added or revised and are attached to this addendum in PDF format:

- a. S101 FIRST FLOOR PLAN ENLARGED STAIR PLANS, SECTIONS AND DETAILS: REVISED. Plan has been revised to show the corridor revision on the 1st floor where chase was removed and corridor was straightened out.
- b. AD101 FIRST FLOOR DEMOLITION PLAN: REVISED. Door shown to be demolished.
- c. A101 FIRST FLOOR CONSTRUCTION PLAN: REVISED. Door tags added.
- d. A101A ALTERNATE 1 FIRST FLOOR CONSTRUCTION PLAN: REVISED. Note regarding alternate doors added.
- e. A102 SECOND FLOOR CONSTRUCTION PLAN AND ALTERNATE 2 PARTIAL FLOOR PLAN: REVISED. Door tags added.
- f. A103 THIRD FLOOR CONSTRUCTION PLAN: REVISED. Door tags added.
- g. A104 FOURTH FLOOR CONSTRUCTION PLAN: REVISED. Door tags added.
- h. A105 ROOF PLAN AND DETAILS: REVISED. Mechanical equipment revisions per revised mechanical drawings.
- i. A201A- ALTERNATE 1 FIRST FLOOR REFLECTED CEILING PLAN: REVISED. Emergency lighting removed per revised electrical drawings.
- j. A801 DOOR HARDWARE SCHEDULES: REVISED. Schedule revisions.
- k. A802 ALTERNATE DOOR AND FRAME SCHEDULE: REVISED. Missing alternate doors added to schedule.
- I. MD105 MECHANICAL DEMOLITION ROOF PLAN: REVISED. Existing ductless heat pump to remain.
- m. M-105 MECHANICAL ROOF PLAN: REVISED. Coordinate locations of new VFR heat pumps with existing ductless heat pump to remain. Add EUH in storage area.
- n. M-602 MECHANICAL SCHEDULES: REVISED. Electric Heater Schedule: Add EUH2.
- o. E003.1 BUILDING "A" DEMOLITION POWER RISER DIAGRAM AND NOTES: REVISED. Abbreviated Electrical Scope of Work Summary and Electrical Distribution System Notes.
- p. E009.2 ELECTRICAL PANEL SCHEDULES: REVISED. Added EUH2 to Panel "2NR" schedule.
- q. E106 BUILDING "A" FIRST FLOOR POWER PLAN: REVISED new secondary service termination location in new Panel "4MDP".
- r. E106A ALTERNATE 1 BUILDING "A" FIRST FLOOR POWER PLAN: REVISED new secondary service termination location in new Panel "4MDP".
- s. E110 BUILDING "A" ROOF POWER, LIGHTING AND SYSTEMS PLAN: REVISED. Added EUH2 location and branch circuit. Added existing ductless split unit location and branch circuit.
- t. E115 BUILDING "A" FIRST FLOOR LIGHTING PLAN AND SITE LIGHTING DETAILS: REVISED. Added switch transfer device locations.
- u. E115A ALTERNATE 1 BUILDING "A" FIRST FLOOR LIGHTING PLAN ND FIRST FLOOR MEZZANINE LIGHTING PLAN: REVISED. Add switch transfer device locations. Deleted Type "E" wall mounted emergency lighting fixtures in Corridor 112.
- v. E116 BUILDING "A" SECOND FLOOR AND SITE LIGHTING PLANS AND ALTERNATE 2 SECOND FLOOR LIGHTING PLAN: REVISED. Added switch transfer device locations.

#### **ADDENDUM NO. 1**

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2018023.00

- w. E117A ALTERNATE 3 BUILDING "A" THIRD FLOOR LIGHTING PLAN: REVISED. Added switch transfer device locations.
- x. E118A ALTERNATE 4 BUILDING "A" FOURTH FLOOR LIGHTING PLAN: REVISED. Added switch transfer device locations.

#### 5. HAZARDOUS MATERIAL ABATEMENT

Asbestos abatement will be performed by the Owner prior to construction. An asbestos abatement specification, prepared by Precision Environmental, Inc. is being provided for informational purposes only.

#### 6. ATTACHMENTS

- a. Pre-Bid Meeting Minutes
  - i. Pre-Bid Meeting Sign-In Sheet.
- b. Project Manual
  - i. SUPPLEMENTARY INSTRUCTIONS TO BIDDERS AND SUPPLEMENTARY GENERAL CONDITIONS
  - ii. FORM OF PROPOSAL
  - iii. SECTION 012300 ALTERNATES
  - iv. SECTION 087100 DOOR HARDWARE
- c. Drawings
  - i. S101
  - ii. AD101
  - iii. A101
  - iv. A101A
  - v. A102
  - vi. A103
  - vii. A104
  - viii. A105
  - ix. A201A
  - x. A801
  - xi. A802
  - xii. MD105
  - xiii. M-105
  - xiv. M-602
  - xv. E003.1 xvi. E009.2
  - xvii. E106
  - xviii. E106A
  - xix. E110
  - xx. E115
  - xxi. E115A
  - xxii. E116
  - xxiii. E117A
  - xxiv. E118A
- d. Asbestos Abatement Specification



August 25, 2020

Meeting Minutes
Cape Fear Community College
Renovations of Building A,S & N
Wilmington, North Carolina
SCO# 17-18154-01A
NCCCS# 2352
BMG Project No. 2018023.00

#### PRE-BID MEETING

#### Attendees:

See attached sign-in sheet

- 1) Meeting called to order by David Kanoy at 10:00am.
  - a. Opening comments
    - i. Important Dates
      - 1. All RFI's must be received by Wednesday, September 2, 2020 at 10:00 AM
      - 2. Final addendum to be issued on Thursday, September 3, 2020.
      - 3. Bid must be submitted by Thursday, September 10, 2020 at 3:00 PM and immediately thereafter publicly opened in Cape Fear Community College Union Station, Room 529.
    - ii. Bid Proposal Requirements
      - 1. MBE form
      - 2. Bid bond
      - 3. Performance/ payment bond
      - 4. Please refer to Proposal Form in bid documents for required forms and instructions
    - iii. Project Scope
      - 1. Most work to be in building A with minimal work in building S. Work to include architectural, electrical, plumbing, mechanical, with minor structural, civil, and fire protection.
      - 2. Review of base bid and alternate scope of work
      - 3. Please refer to drawings and provided documents to fully understand base bid and alternates requirements.
      - 4. Building A/ S connector there is an allowance to be included in the bid for this work.
- 2) Schedule
  - a. Cape Fear Community College would like construction to be completed by Fall 2021 allowing for **270** days for completion.
  - b. The contract contains a clause allowing an assessment of a sum of **\$440.00** dollars per day as liquidated damages for each calendar day the project construction is delayed beyond the adjustment scheduled completion date.

- 3) Questions/ Answers and General Project Walk-Through Notes
  - a. Does all power stay on during construction?
    - i. Will need to be coordinated depending on schedule for electrical renovations, but yes can be powered through shutdowns.
  - b. Will owner pay for power?
    - i. CFCC will keep utilities in their name
  - c. Working hours?
    - i. Intent is to provide 24 Hour access w/ exception to server room
  - d. Any way to simplify alternates?
    - i. No, this is the only way to bid the project at reasonable cost
  - e. Is the project awarded on base bid?
    - i. Project will be awarded on lowest bid for base bids and alternates
  - f. Asbestos abatement?
    - i. ACM report will be provided via addendum.
  - g. Extension request
    - i. bid extensions may be considered if there are requests from multiple bidders, or another substantial institutional bid affecting multiple bidders conflicts with the current bid date.
  - h. Phasing?
    - i. GC to provide schedule, including coordination for water/ power shutdowns.
  - i. Generator
    - i. Base bid will be owner furnished, contractor installed. Alternate is contractor furnished, contractor installed
  - j. Laydown area/ parking to be provided?
    - i. Parking will be offsite, but CFCC can provide 20-30 feet of space from entire length of loading dock as space to be utilized.
  - k. Hardware, furniture, cabinets to remain?
    - i. If anything is to be kept it will be removed from the space by CFCC, otherwise will be based on base bid and alternate construction documents.
  - I. Demand of public parking will be reduced due to building A being closed to public
  - m. Contact David Kanoy to get back into Building for future visits.
  - n. Access to roof through stair well. No roof hatch.

Respectfully Submitted,

Viva Ciay Vivian Chiang, Assoc. AIA

Designer

**End of Meeting Minutes** 

# **Attendees**



ARCHITECTURE PLANNING

PLANNING				
PROJECT:	CFCC Bldg ASN		Tuesday, August 25, 2020	
SCO ID NO:	17-18154-01A		2352	
PROJECT NO:	2018023.00	MEETING LOCATION:		
Name	Representing	Phone No.	Email Address	Initial
Bill Santoyl	MAGONS DIMO	910-538-0189	BSAN tondon	PACSONS. COM WA
ANDREW YOUM	TA WOODS	910 - 279 - 7900	> AYOUMO	TAWOODS COM
ROSTR CONNOR	Thomas Construction	910-799-229	5 ACCOMORDTH	ONUS CONSTRUCTION Grow
Whit Butler	Bordeaux Construction	919-270-1141	beneborakaux co	rstruction com WB
TRAVIS Symphes	Ren Reck Const	40-800-167	207 Represely pes le	mohenne (D) Comm
Rence Duncan	Poragon Building Corp	910-397-0933	rduncan @ paragon	wilminston. com
Jonathan Best	Daniels & Daniels Construction (	ompany 919-778-4525	estimating@dandd	cc. com
Alex Freman	Muter Construction	919-404-83	30 Building Bids Q1	Auter Construction. com
MEREDITH COLS	MONTEITH	91047057	47 mont @Mo	WIEITHCO.COM
BRIAN STAMP	MONTEITH	91079181	OI BSTAMP CA	AUNTE ITHCO, COM
Paul Thomason	JMThomoson	919522-0	878 Framp	son DIATho moson
JIM CLEMENTI	KEYSTONE RICLUC	910-431-120		Leystonerc.com
William Thompson	coldan Services LLC	252-341-242	William Ocoldan	services//c. com
BRUCE PRESWELL	CMC BUILDING	910-228-946	6 Spresneller	uch wildinging, com
Im Benson	CBHF	910-791-4000	x102 benson @ Ch	hengineers, com
Duncan McFadgen	MEAG	910 399 1125	V (1 0	Ladynengwegs, con

### Addendum No. 1 - Revised Liquidated Damages

# SUPPLEMENTARY INSTRUCTIONS TO BIDDERS AND SUPPLEMENTARY GENERAL CONDITIONS

The following Supplementary Instructions to Bidders and Supplementary General Conditions modify, delete from or add to the Instructions to bidders and General Conditions of the Contract Form OC-15 (Twenty-Fourth Edition, January 2013). Where any article of the Instructions to Bidders or General Conditions is modified or any paragraph, sub-paragraph or clause thereof is modified or deleted by these Supplements, the unaltered provisions of that article, paragraph, or sub-paragraph or clause shall remain in effect.

# MODIFICATIONS OF THE INSTRUCTIONS TO BIDDERS

ITEM 1 - PROPOSALS

# (ADD THE FOLLOWING PARAGRAPH AT THE END OF ITEM 1 AS FOLLOWS):

Bid shall be accompanied by completed E-Verify Affidavit, included at the end of this Section. Pursuant to Session Law 2013-418, Bidder shall fully comply with the U.S. Department of Homeland Security employee legal status E-Verify requirements.

# **MODIFICATIONS OF THE GENERAL CONDITIONS**

**ARTICLE 1 - DEFINITIONS** 

# (REVISE PARAGRAPH b. WITH THE FOLLOWING):

b. Revise as follows: The Owner is the Board of Trustees of Cape Fear Community College.

ARTICLE 10 - PERMITS, INSPECTIONS, FEES, REGULATIONS

#### (ADD PARAGRAPHS f., g., h. AND i. AS FOLLOWS):

- f. The Owner shall pay water and sewer impact/tap fees.
- g. Building permit fee, if any, shall be paid by Owner. Contractor is responsible to apply for building permit.
- h. E-Verify Compliance: Pursuant to Session Law 2013-418, Contractor shall fully comply with the U.S. Department of Homeland Security employee legal status E-Verify requirements for itself and all its subcontractors. Owner requires an affidavit attesting to Contractor's compliance. Violation of the provision, unless timely cured, shall constitute a breach of contract.
- i. Lien Agent Information Compliance: Pursuant to North Carolina Law, Contractor shall fully comply with the Lien Agent System requirements for itself and all its subcontractors. Violation of the provision, unless timely cured, shall constitute a breach of contract.

#### ARTICLE 23 - TIME OF COMPLETION, DELAYS, EXTENSION OF TIME

#### PARAGRAPH 23a. (ADD .1, .2, .3, and .4 AS FOLLOWS):

.1 The contractors shall commence work to be performed under this agreement on a date to be specified in a written Order to Proceed from the architect and shall complete all work as stated below:

Final Acceptance: All work of Cape Fear Community College, Renovations of Galehouse (A Building), McLeod (S Building), and Natural Sciences (N Building) Contract must be finally complete on or before the dates listed below:

# Final Acceptance - 270 Calendar Days after Notice to Proceed.

- .2 It is expressly understood and agreed by and between the Contractor and the Owner, that the Contract Time defined above for completion of the work is a reasonable time for completion of same, taking into consideration the average climatic range and usual industrial conditions prevailing in this locality.
- .4 In the event that the scope of the Project/Contract is increased or decreased under the provisions of other articles of the General Conditions, the time for completion shall be adjusted accordingly at the discretion of the Architect by written notice.

# ARTICLE 34 - MINIMUM INSURANCE REQUIREMENTS

#### (ADD THE FOLLOWING TEXT TO THE FIRST PARAGRAPH):

Verify that the insurance policy contract(s) include(s) the required cancellation provision. Provide insurance certificate(s) with language appropriately inserted in the insurance certificate block provided for Special Provisions, as follows: "Notwithstanding the preprinted cancellation provisions on this form, coverages afforded under the policies will not be cancelled, reduced in amount nor will any coverages be eliminated until at least thirty (30) days after mailing written notice, by certified mail, return receipt requested, to the insured and the Owner, of such alteration or cancellation."

END OF SUPPLEMENTARY INSTRUCTIONS TO BIDDERS AND SUPPLEMENTARY GENERAL CONDITIONS

# FORM OF PROPOSAL

Renovations of Galehouse (A Building), McLeod (S	Building), and Contract:
Natural Sciences (N Building)	
Cape Fear Community College	Bidder:
SCO-ID# 17-18154-01A; NCCCS # 2352	
principals is or are named herein and that no other person contract to be entered into; that this proposal is made with bid or proposal; and that it is in all respects fair and in goo he has examined the site of the work and the contract docuprior to the opening of bids; that he has satisfied himself re	person or persons interested in this proposal as principal or than herein mentioned has any interest in this proposal or in the out connection with any other person, company or parties making of faith without collusion or fraud. The bidder further declares that the unents relative thereto and has read all special provisions furnished elative to the work to be performed. The bidder further declares CGS 64, Article 2 in regard to E-Verification as required by Gen. Stat. § 143-129(j).
College in the form of contract specified below, to furnish means of transportation and labor necessary to complete the complete accordance with the plans, specifications and con North Carolina, Caper Fear Community College and Beck	ed to contract with <b>The Trustees of Cape Fear Community</b> all necessary materials, equipment, machinery, tools, apparatus, the construction of <b>Building A, S &amp; N Renovations</b> in full in ntract documents, to the full and entire satisfaction of the State of the Morgan Group, Inc.with a definite understanding that no money eneral Conditions and the contract documents, for the sum of:
SINGLE PRIME CONTRACT:	
Base Bid:	Dollars (\$)
General Subcontractor:	Plumbing Subcontractor:
Lic	Lic
Mechanical Subcontractor:	Electrical Subcontractor:
Lic	Lic
is accepted shall not substitute any person as subcontractor in the subcontractor's bid is later determined by the contractor to be no	subcontractors for the above subdivisions of work. A contractor whose be place of the subcontractor listed in the original bid, except (i) if the listed on-responsible or non-responsive or the listed subcontractor refuses to ent (ii) with the approval of the awarding authority for good cause shown by the
ALLOWANCES:	
I have included in my General Construction Work Base Baddenda.	id the Allowances as specified in Section 012100 and modifying
ALTERNATES:	
Should any of the alternates as described in the contract do amount to be "added to" or "deducted from" the base bid.	ocuments be accepted, the amount written below shall be the (Strike out "Add" or "Deduct" as appropriate.)
Alternate No. 1: First floor demolition and new construction and associated plumbing, mechanical, and electrical scope	ion as noted on sheets AD101A, AD201A, A101A, A201A, A301A.
(ADD/DEDUCT)	

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Alternate No. 1A: New lighting at first floor. Contingent upon	n acceptance of Alternate 1. Refer to sheet A201B.
(ADD/DEDUCT)	
Alternate No. 2: Second floor demolition and new construction of noted on sheets 2/AD102, 2/A102, 2/A202, and associated plumbi	
(ADD/DEDUCT)	
Alternate No. 3: Third floor new lighting and acoustic ceiling tile.	Refer to sheet A203A.
(ADD/DEDUCT)	
Alternate No. 4: Fourth floor new lighting and acoustic ceiling tile	. Refer to sheet A204A.
(ADD/DEDUCT)	
Alternate No. 5: Fire rated glazing at Stair S1 and Stair S2, floors 2	2-4. Refer to 6/A501.
(ADD/DEDUCT)	Dollars (\$)
Alternate No. 6: Wiremesh guardrails at Stair S1 and Stair S2, typi	ical all floors. Refer to sheet A502.
(ADD/DEDUCT)	
Alternate No. 7: Wall tile at restrooms as noted on drawings. (excl A301, A302, A303, A403, and A402.	uding restroom 207, see alternate 7A) Refer to sheets
(ADD/DEDUCT)	Dollars (\$)
Alternate No. 7A: Price wall tile for Restroom 207 separately. sheets A302 and A402.	Contingent upon acceptance of Alternate 2. Refer to
(ADD/DEDUCT)	
Alternate No. 8: Removal of existing floor finish, and application Refer to Demolition Keynote '12' on sheets AD101, AD102, AD1 A304.	
(ADD/DEDUCT)	
Alternate No. 9: The existing "S" Building General Electric AV-L main circuit breakers, rated 3,000 amperes, 480/277 volts, there phenomenant transformer vault will remain. The service busway is at service consisting of building wire and raceways. A new, multi-se breaker will replace the existing switchboard and be installed in the reconnection of the existing feeder busways and raceway feeders.	hase, four wires and is at the end of service life. The utility the end of service life and will be replaced with a parallel action main distribution switchboard with main circuit e same location as the existing switchboard to facilitate
(ADD/DEDUCT)	Dollars (\$)
Alternate No. 10: New generator to be furnished by and installed	by Contractor.
(ADD/DEDUCT)	Dollars (\$)
Alternate No. 11: New doors and hardware (existing frames to rem Keynote '11' on sheets AD101, AD101A, AD102, AD103, and Al	
(ADD/DEDUCT)	

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Alternate No. 12: In lieu of manufacturers specified as base bid, state the amount (cost difference) to be added to the base bid to provide door hardware by the following manufacturers (no substitutions), as indicated on Drawings and described in Specifications.

(ADD/DEDUCT)	Dollars (\$)
Alternate No. 12A: Mechanically Operated Exit Dev	rices by Corbin/Russwin.
(ADD/DEDUCT)	Dollars (\$)
Alternate No. 12B: Door Closers by LCN.	
(ADD/DEDUCT)	Dollars (\$)
Alternate No. 12C: Mortise Locks and Cylinders by	Corbin/Russwin.
(ADD/DEDUCT)	Dollars (\$)

The bidder further proposes and agrees hereby to commence work under this contract on a date to be specified in a written order of the designer and shall fully complete all work thereunder within the time specified in the Supplementary General Conditions Article 23. Applicable liquidated damages amount is also stated in the Supplementary General Conditions Article 23.

#### MINORITY BUSINESS PARTICIPATION REQUIREMENTS

<u>Provide with the bid</u> - Under GS 143-128.2(c) the undersigned bidder shall identify <u>on its bid</u> (Identification of Minority Business Participation Form) the minority businesses that it will use on the project with the total dollar value of the bids that will be performed by the minority businesses. <u>Also</u> list the good faith efforts (Affidavit A) made to solicit minority participation in the bid effort.

**NOTE**: A contractor that performs all of the work with its <u>own workforce</u> may submit an Affidavit (**B**) to that effect in lieu of Affidavit (**A**) required above. The MB Participation Form must still be submitted even if there is zero participation.

<u>After the bid opening</u> - The Owner will consider all bids and alternates and determine the lowest responsible, responsive bidder. Upon notification of being the apparent low bidder, the bidder shall then file within 72 hours of the notification of being the apparent lowest bidder, the following:

An Affidavit (C) that includes a description of the portion of work to be executed by minority businesses, expressed as a percentage of the total contract price, which is <u>equal to or more than the 10% goal</u> established. This affidavit shall give rise to the presumption that the bidder has made the required good faith effort and Affidavit **D** is not necessary;

# \* OR \*

<u>If less than the 10% goal</u>, Affidavit (**D**) of its good faith effort to meet the goal shall be provided. The document must include evidence of all good faith efforts that were implemented, including any advertisements, solicitations and other specific actions demonstrating recruitment and selection of minority businesses for participation in the contract.

**Note**: Bidders must always submit <u>with their bid</u> the Identification of Minority Business Participation Form listing all MB contractors, <u>vendors and suppliers</u> that will be used. If there is no MB participation, then enter none or zero on the form. Affidavit A **or** Affidavit B, as applicable, also must be submitted with the bid. Failure to file a required affidavit or documentation with the bid or after being notified apparent low bidder is grounds for rejection of the bid.

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# **Proposal Signature Page**

The undersigned further agrees that in the case of failure on his part to execute the said contract and the bonds within ten (10) consecutive calendar days after being given written notice of the award of contract, the certified check, cash or bid bond accompanying this bid shall be paid into the funds of the owner's account set aside for the project, as liquidated damages for such failure; otherwise the certified check, cash or bid bond accompanying this proposal shall be returned to the undersigned.

Respectfully submitted this day of		
(Name of fi	rm or corporation making bid)	
	_	
WITNESS:	By:Signature	
	C	
(Proprietorship or Partnership)	Name:Print or type	
(Propressions of Familians)	• •	
	Title (Owner/Partner/Pres.	./V.Pres)
	A 11	,
	Address	
ATTEST:		
By:	License No	
Title:	Federal I.D. No.	
(Corp. Sec. or Asst. Sec. only)		
	Email Address:	
(CORPORATE SEAL)		
Addendum received and used in computing bid:		
Addendum No. 1 Addendum No. 3	Addendum No. 5	Addendum No. 6
Addendum No. 2 Addendum No. 4	Addendum No. 6	Addendum No. 7

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# Addendum No. 1 - Revised Alternate No. 10 SECTION 012300 - ALTERNATES

#### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

A. Section includes administrative and procedural requirements for alternates.

#### 1.3 DEFINITIONS

- A. Alternate: An amount proposed by bidders and stated on the Bid Form for certain work defined in the Bidding Requirements that may be added to or deducted from the base bid amount if Owner decides to accept a corresponding change either in the amount of construction to be completed or in the products, materials, equipment, systems, or installation methods described in the Contract Documents.
  - 1. Alternates described in this Section are part of the Work only if enumerated in the Agreement.
  - 2. The cost or credit for each alternate is the net addition to or deduction from the Contract Sum to incorporate alternate into the Work. No other adjustments are made to the Contract Sum.

#### 1.4 PROCEDURES

- A. Coordination: Modify or adjust affected adjacent work as necessary to completely integrate work of the alternate into Project.
  - 1. Include as part of each alternate, miscellaneous devices, accessory objects, and similar items incidental to or required for a complete installation whether or not indicated as part of alternate.
- B. Notification: Immediately following award of the Contract, notify each party involved, in writing, of the status of each alternate. Indicate if alternates have been accepted, rejected, or deferred for later consideration. Include a complete description of negotiated modifications to alternates.
- C. Execute accepted alternates under the same conditions as other work of the Contract.
- D. Schedule: A schedule of alternates is included at the end of this Section. Specification Sections referenced in schedule contain requirements for materials necessary to achieve the work described under each alternate.

ALTERNATES 012300 - 1

#### PART 2 - PRODUCTS (Not Used)

#### PART 3 - EXECUTION

#### 3.1 SCHEDULE OF ALTERNATES

- A. Alternate No. 1: First floor demolition and new construction as noted on sheets AD101A, AD201A, A101A, A201A, A301A and associated plumbing, mechanical, and electrical scope.
  - 1. Alternate No. 1A: New lighting at first floor. Contingent upon acceptance of Alternate 1. Refer to sheet A201B.
- B. Alternate No. 2: Second floor demolition and new construction of the server suite (existing rooms 201, 202, 204, 205, 206) as noted on sheets 2/AD102, 2/A102, 2/A202, and associated plumbing, mechanical, and electrical scope.
- C. Alternate No. 3: Third floor new lighting and acoustic ceiling tile. Refer to sheet A203A.
- D. Alternate No. 4: Fourth floor new lighting and acoustic ceiling tile. Refer to sheet A204A.
- E. Alternate No. 5: Fire rated glazing at Stair S1 and Stair S2, floors 2-4. Refer to 6/A501.
- F. Alternate No. 6: Wiremesh guardrails at Stair S1 and Stair S2, typical all floors. Refer to sheet A502.
- G. Alternate No. 7: Wall tile at restrooms as noted on drawings. (excluding restroom 207, see alternate 7A) Refer to sheets A301, A302, A303, A403, and A402.
  - 1. Alternate No. 7A: Price wall tile for Restroom 207 separately. Contingent upon acceptance of Alternate 2. Refer to sheets A302 and A402.
- H. Alternate No. 8: Removal of existing floor finish, and application of new finish at Stair S1 and Stair S2, typical all floors. Refer to Demolition Keynote '12' on sheets AD101, AD102, AD103, and AD104; refer to sheets A301, A302, A303, and A304.
- I. Alternate No. 9: The existing "S" Building General Electric AV-Line main distribution switchboard is circa 1974, with two main circuit breakers, rated 3,000 amperes, 480/277 volts, there phase, four wires and is at the end of service life. The utility company transformer vault will remain. The service busway is at the end of service life and will be replaced with a parallel service consisting of building wire and raceways. A new, multi-section main distribution switchboard with main circuit breaker will replace the existing switchboard and be installed in the same location as the existing switchboard to facilitate reconnection of the existing feeder busways and raceway feeders. Refer to sheets E004.2 and E004.3.

# J. Alternate No. 10: New generator to be furnished and installed by Contractor.

K. Alternate No. 11: New doors and hardware (existing frames to remain) as noted on Door Schedule. Refer to Demolition Keynote '11' on sheets AD101, AD101A, AD102, AD103, and AD104; refer to sheet A801.

ALTERNATES 012300 - 2

- L. Alternate No. 12: In lieu of manufacturers specified as base bid, state the amount (cost difference) to be added to the base bid to provide door hardware by the following manufacturers (no substitutions), as indicated on Drawings and described in Specifications.
  - 1. Alternate No. 12A: Mechanically Operated Exit Devices by Corbin/Russwin.
  - 2. Alternate No. 12B: Door Closers by LCN.
  - 3. Alternate No. 12C: Mortise Locks and Cylinders by Corbin/Russwin.

END OF SECTION 012300

ALTERNATES 012300 - 3

#### Addendum No. 1 - Revised Door Hardware Set 1.0

SECTION 087100 - DOOR HARDWARE

#### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. This Section includes commercial door hardware for the following:
  - 1. Swinging doors.
- B. Door hardware includes, but is not necessarily limited to, the following:
  - 1. Mechanical door hardware.
- C. Related Sections:
  - 1. Division 08 Section "Hollow Metal Doors and Frames".
  - 2. Division 08 Section "Interior Aluminum Doors and Frames".
  - 3. Division 08 Section "Flush Wood Doors".
- D. Codes and References: Comply with the version year adopted by the Authority Having Jurisdiction.
  - 1. ANSI A117.1 Accessible and Usable Buildings and Facilities.
  - 2. ICC/IBC International Building Code.
  - 3. NFPA 70 National Electrical Code.
  - 4. NFPA 80 Fire Doors and Windows.
  - 5. NFPA 101 Life Safety Code.
  - 6. NFPA 105 Installation of Smoke Door Assemblies.
  - 7. State Building Codes, Local Amendments.
- E. Standards: All hardware specified herein shall comply with the following industry standards:
  - 1. ANSI/BHMA Certified Product Standards A156 Series
  - 2. UL10C Positive Pressure Fire Tests of Door Assemblies

#### 1.3 SUBMITTALS

- A. Product Data: Manufacturer's product data sheets including installation details, material descriptions, dimensions of individual components and profiles, operational descriptions and finishes.
- B. Door Hardware Schedule: Prepared by or under the supervision of supplier, detailing fabrication and assembly of door hardware, as well as procedures and diagrams. Coordinate the final Door

Hardware Schedule with doors, frames, and related work to ensure proper size, thickness, hand, function, and finish of door hardware.

- 1. Format: Comply with scheduling sequence and vertical format in DHI's "Sequence and Format for the Hardware Schedule."
- 2. Organization: Organize the Door Hardware Schedule into door hardware sets indicating complete designations of every item required for each door or opening. Organize door hardware sets in same order as in the Door Hardware Sets at the end of Part 3. Submittals that do not follow the same format and order as the Door Hardware Sets will be rejected and subject to resubmission.
- 3. Content: Include the following information:
  - a. Type, style, function, size, label, hand, and finish of each door hardware item.
  - b. Manufacturer of each item.
  - c. Fastenings and other pertinent information.
  - d. Location of door hardware set, cross-referenced to Drawings, both on floor plans and in door and frame schedule.
  - e. Explanation of abbreviations, symbols, and codes contained in schedule.
  - f. Mounting locations for door hardware.
  - g. Door and frame sizes and materials.
  - h. Warranty information for each product.
- 4. Submittal Sequence: Submit the final Door Hardware Schedule at earliest possible date, particularly where approval of the Door Hardware Schedule must precede fabrication of other work that is critical in the Project construction schedule. Include Product Data, Samples, Shop Drawings of other work affected by door hardware, and other information essential to the coordinated review of the Door Hardware Schedule.
- C. Shop Drawings: Details of electrified access control hardware indicating the following:
  - 1. Wiring Diagrams: Upon receipt of approved schedules, submit detailed system wiring diagrams for power, signaling, monitoring, communication, and control of the access control system electrified hardware. Differentiate between manufacturer-installed and field-installed wiring. Include the following:
    - a. Wiring instructions for each electronic component scheduled herein.
  - 2. Electrical Coordination: Coordinate with related sections the voltages and wiring details required at electrically controlled and operated hardware openings.
- D. Keying Schedule: After a keying meeting with the owner has taken place prepare a separate keying schedule detailing final instructions. Submit the keying schedule in electronic format. Include keying system explanation, door numbers, key set symbols, hardware set numbers and special instructions. Owner must approve submitted keying schedule prior to the ordering of permanent cylinders/cores.
- E. Informational Submittals:

- 1. Product Test Reports: Indicating compliance with cycle testing requirements, based on evaluation of comprehensive tests performed by manufacturer and witnessed by a qualified independent testing agency.
- F. Operating and Maintenance Manuals: Provide manufacturers operating and maintenance manuals for each item comprising the complete door hardware installation in quantity as required in Division 01, Closeout Submittals.

### 1.4 QUALITY ASSURANCE

- A. Manufacturers Qualifications: Engage qualified manufacturers with a minimum 5 years of documented experience in producing hardware and equipment similar to that indicated for this Project and that have a proven record of successful in-service performance.
- B. Installer Qualifications: A minimum 3 years documented experience installing both standard and electrified door hardware similar in material, design, and extent to that indicated for this Project and whose work has resulted in construction with a record of successful in-service performance.
- C. Door Hardware Supplier Qualifications: Experienced commercial door hardware distributors with a minimum 5 years documented experience supplying both mechanical and electromechanical hardware installations comparable in material, design, and extent to that indicated for this Project. Supplier recognized as a factory direct distributor by the manufacturers of the primary materials with a warehousing facility in Project's vicinity. Supplier to have on staff a certified Architectural Hardware Consultant (AHC) available during the course of the Work to consult with Contractor, Architect, and Owner concerning both standard and electromechanical door hardware and keying.
- D. Source Limitations: Obtain each type and variety of door hardware specified in this section from a single source unless otherwise indicated.
- E. Each unit to bear third party permanent label demonstrating compliance with the referenced standards.
- F. Keying Conference: Conduct conference to comply with requirements in Division 01 Section "Project Meetings." Keying conference to incorporate the following criteria into the final keying schedule document:
  - 1. Function of building, purpose of each area and degree of security required.
  - 2. Plans for existing and future key system expansion.
  - 3. Requirements for key control storage and software.
  - 4. Installation of permanent keys, cylinder cores and software.
  - 5. Address and requirements for delivery of keys.
- G. Pre-Submittal Conference: Conduct coordination conference in compliance with requirements in Division 01 Section "Project Meetings" with attendance by representatives of Supplier(s), Installer(s), and Contractor(s) to review proper methods and the procedures for receiving, handling, and installing door hardware.

- 1. Prior to installation of door hardware, conduct a project specific training meeting to instruct the installing contractors' personnel on the proper installation and adjustment of their respective products. Product training to be attended by installers of door hardware (including electromechanical hardware) for aluminum, hollow metal and wood doors. Training will include the use of installation manuals, hardware schedules, templates and physical product samples as required.
- 2. Inspect and discuss electrical roughing-in, power supply connections, and other preparatory work performed by other trades.
- 3. Review sequence of operation narratives for each unique access controlled opening.
- 4. Review and finalize construction schedule and verify availability of materials.
- 5. Review the required inspecting, testing, commissioning, and demonstration procedures
- H. At completion of installation, provide written documentation that components were applied to manufacturer's instructions and recommendations and according to approved schedule.

#### 1.5 DELIVERY, STORAGE, AND HANDLING

- A. Inventory door hardware on receipt and provide secure lock-up and shelving for door hardware delivered to Project site. Do not store electronic access control hardware, software or accessories at Project site without prior authorization.
- B. Tag each item or package separately with identification related to the final Door Hardware Schedule, and include basic installation instructions with each item or package.
- C. Deliver, as applicable, permanent keys, cylinders, cores, access control credentials, software and related accessories directly to Owner via registered mail or overnight package service. Instructions for delivery to the Owner shall be established at the "Keying Conference".

#### 1.6 COORDINATION

- A. Templates: Obtain and distribute to the parties involved templates for doors, frames, and other work specified to be factory prepared for installing standard and electrified hardware. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing hardware to comply with indicated requirements.
- B. Door Hardware and Electrical Connections: Coordinate the layout and installation of scheduled electrified door hardware and related access control equipment with required connections to source power junction boxes, low voltage power supplies, detection and monitoring hardware, and fire and detection alarm systems.
- C. Door and Frame Preparation: Doors and corresponding frames are to be prepared, reinforced and pre-wired (if applicable) to receive the installation of the specified electrified, monitoring, signaling and access control system hardware without additional in-field modifications.

#### 1.7 WARRANTY

A. General Warranty: Reference Division 01, General Requirements. Special warranties specified in this Article shall not deprive Owner of other rights Owner may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by Contractor under requirements of the Contract Documents.

- B. Warranty Period: Written warranty, executed by manufacturer(s), agreeing to repair or replace components of standard and electrified door hardware that fails in materials or workmanship within specified warranty period after final acceptance by the Owner. Failures include, but are not limited to, the following:
  - 1. Structural failures including excessive deflection, cracking, or breakage.
  - 2. Faulty operation of the hardware.
  - 3. Deterioration of metals, metal finishes, and other materials beyond normal weathering.
  - 4. Electrical component defects and failures within the systems operation.
- C. Standard Warranty Period: One year from date of Substantial Completion, unless otherwise indicated.
- D. Special Warranty Periods:
  - 1. Ten years for mortise locks and latches.
  - 2. Five years for exit hardware.
  - 3. Twenty five years for manual surface door closer bodies.
  - 4. Two years for electromechanical door hardware.

#### 1.8 MAINTENANCE SERVICE

A. Maintenance Tools and Instructions: Furnish a complete set of specialized tools and maintenance instructions as needed for Owner's continued adjustment, maintenance, and removal and replacement of door hardware.

#### PART 2 - PRODUCTS

#### 2.1 SCHEDULED DOOR HARDWARE

- A. General: Provide door hardware for each door to comply with requirements in Door Hardware Sets and each referenced section that products are to be supplied under.
- B. Designations: Requirements for quantity, item, size, finish or color, grade, function, and other distinctive qualities of each type of door hardware are indicated in the Door Hardware Sets at the end of Part 3. Products are identified by using door hardware designations, as follows:
  - 1. Named Manufacturer's Products: Product designation and manufacturer are listed for each door hardware type required for the purpose of establishing requirements.

    Manufacturers' names are abbreviated in the Door Hardware Schedule.
- C. Substitutions: Requests for substitution and product approval for inclusive mechanical and electromechanical door hardware in compliance with the specifications must be submitted in writing and in accordance with the procedures and time frames outlined in Division 01, Substitution Procedures. Approval of requests is at the discretion of the architect, owner, and their designated consultants.

#### 2.2 HANGING DEVICES

- A. Hinges: ANSI/BHMA A156.1 certified butt hinges with number of hinge knuckles and other options as specified in the Door Hardware Sets.
  - 1. Quantity: Provide the following hinge quantity:
    - a. Two Hinges: For doors with heights up to 60 inches.
    - b. Three Hinges: For doors with heights 61 to 90 inches.
    - c. Four Hinges: For doors with heights 91 to 120 inches.
    - d. For doors with heights more than 120 inches, provide 4 hinges, plus 1 hinge for every 30 inches of door height greater than 120 inches.
  - 2. Hinge Size: Provide the following, unless otherwise indicated, with hinge widths sized for door thickness and clearances required:
    - a. Widths up to 3'0": 4-1/2" standard or heavy weight as specified.
    - b. Sizes from 3'1" to 4'0": 5" standard or heavy weight as specified.
  - 3. Hinge Weight and Base Material: Unless otherwise indicated, provide the following:
    - a. Exterior Doors: Heavy weight, non-ferrous, ball bearing or oil impregnated bearing hinges unless Hardware Sets indicate standard weight.
    - b. Interior Doors: Standard weight, steel, ball bearing or oil impregnated bearing hinges unless Hardware Sets indicate heavy weight.
  - 4. Hinge Options: Comply with the following:
    - a. Non-removable Pins: Provide set screw in hinge barrel that, when tightened into a groove in hinge pin, prevents removal of pin while door is closed; for the all outswinging lockable doors.
  - 5. Manufacturers:
    - a. Hager Companies (HA) CB Series.
    - McKinney Products; ASSA ABLOY Architectural Door Accessories (MK) TA Series.
    - c. Stanley Hardware (ST) CB Series.

#### 2.3 DOOR OPERATING TRIM

- A. Flush Bolts and Surface Bolts: ANSI/BHMA A156.3 and A156.16, Grade 1, certified.
  - 1. Flush bolts to be furnished with top rod of sufficient length to allow bolt retraction device location approximately six feet from the floor.
  - 2. Furnish dust proof strikes for bottom bolts.
  - 3. Surface bolts to be minimum 8" in length and U.L. listed for labeled fire doors and U.L. listed for windstorm components where applicable.
  - 4. Provide related accessories (mounting brackets, strikes, coordinators, etc.) as required for appropriate installation and operation.

- 5. Manufacturers:
  - a. Door Controls International (DC).
  - b. Rockwood Products; ASSA ABLOY Architectural Door Accessories (RO).
  - c. Trimco (TC).
- B. Coordinators: ANSI/BHMA A156.3 certified door coordinators consisting of active-leaf, hold-open lever and inactive-leaf release trigger. Model as indicated in hardware sets.
  - 1. Manufacturers:
    - a. Door Controls International (DC).
    - b. Rockwood Products; ASSA ABLOY Architectural Door Accessories (RO).
    - c. Trimco (TC).
- C. Door Push Plates and Pulls: ANSI/BHMA A156.6 certified door pushes and pulls of type and design specified in the Hardware Sets. Coordinate and provide proper width and height as required where conflicting hardware dictates.
  - 1. Push/Pull Plates: Minimum .050 inch thick, size as indicated in hardware sets, with beveled edges, secured with exposed screws unless otherwise indicated.
  - 2. Door Pull and Push Bar Design: Size, shape, and material as indicated in the hardware sets. Minimum clearance of 2 1/2-inches from face of door unless otherwise indicated.
  - 3. Offset Pull Design: Size, shape, and material as indicated in the hardware sets. Minimum clearance of 2 1/2-inches from face of door and offset of 90 degrees unless otherwise indicated.
  - 4. Fasteners: Provide manufacturer's designated fastener type as indicated in Hardware Sets.
  - 5. Manufacturers:
    - a. Hiawatha, Inc. (HI).
    - b. Rockwood Products; ASSA ABLOY Architectural Door Accessories (RO).
    - c. Trimco (TC).

#### 2.4 CYLINDERS AND KEYING

- A. General: Cylinder manufacturer to have minimum (10) years' experience designing secured master key systems and have on record a published security keying system policy.
- B. Source Limitations: Obtain each type of keyed cylinder and keys from the same source manufacturer as locksets and exit devices, unless otherwise indicated.
  - 1. Manufacturers:
    - a. Corbin Russwin Hardware (RU).
    - b. No Substitution.
- C. Cylinders: Original manufacturer cylinders complying with the following:
  - 1. Mortise Type: Threaded cylinders with rings and cams to suit hardware application.

- 2. Rim Type: Cylinders with back plate, flat-type vertical or horizontal tailpiece, and raised trim ring.
- 3. Bored-Lock Type: Cylinders with tailpieces to suit locks.
- 4. Mortise and rim cylinder collars to be solid and recessed to allow the cylinder face to be flush and be free spinning with matching finishes.
- 5. Keyway: Manufacturer's Standard.
- D. Permanent Cores: Manufacturer's standard; finish face to match lockset; complying with the following:
  - 1. Removable Cores: Core insert, removable by use of a special key, and for use with only the core manufacturer's cylinder and door hardware. Provide removable core (small or large format) as specified in Hardware Sets.
- E. Keying System: Each type of lock and cylinders to be factory keyed.
  - 1. Conduct specified "Keying Conference" to define and document keying system instructions and requirements.
  - 2. Furnish factory cut, nickel-silver large bow permanently inscribed with a visual key control number as directed by Owner.
  - 3. Existing System: Key locks to Owner's existing system.
- F. Key Quantity: Provide the following minimum number of keys:
  - 1. Change Keys per Cylinder: Two (2)
  - 2. Master Keys (per Master Key Level/Group): Five (5).
  - 3. Construction Keys (where required): Ten (10).
  - 4. Construction Control Keys (where required): Two (2).
- G. Construction Keying: Provide temporary keyed construction cores.
- H. Key Registration List (Bitting List):
  - 1. Provide keying transcript list to Owner's representative in the proper format for importing into key control software.
  - 2. Provide transcript list in writing or electronic file as directed by the Owner.

#### 2.5 MECHANICAL LOCKS AND LATCHING DEVICES

- A. Mortise Locksets, Grade 1 (Heavy Duty): ANSI/BHMA A156.13, Series 1000, Operational Grade 1 certified. Locksets are to be manufactured with a corrosion resistant steel case and be field-reversible for handing without disassembly of the lock body.
  - 1. Extended cycle test: Locks to have been cycle tested in ordinance with ANSI/BHMA 156.13 requirements to 10 million cycles.
  - 2. Manufacturers:
    - a. Corbin Russwin Hardware (RU) ML2000 Series.
    - b. Sargent Manufacturing (SA) 8200 Series.
    - c. Schlage (SC) L9000 Series.

#### 2.6 LOCK AND LATCH STRIKES

- A. Strikes: Provide manufacturer's standard strike with strike box for each latch or lock bolt, with curved lip extended to protect frame, finished to match door hardware set, unless otherwise indicated, and as follows:
  - 1. Flat-Lip Strikes: For locks with three-piece antifriction latchbolts, as recommended by manufacturer
  - 2. Extra-Long-Lip Strikes: For locks used on frames with applied wood casing trim.
  - 3. Aluminum-Frame Strike Box: Provide manufacturer's special strike box fabricated for aluminum framing.
  - 4. Double-lipped strikes: For locks at double acting doors. Furnish with retractable stop for rescue hardware applications.
- B. Standards: Comply with the following:
  - 1. Strikes for Mortise Locks and Latches: BHMA A156.13.
  - 2. Strikes for Bored Locks and Latches: BHMA A156.2.
  - 3. Strikes for Auxiliary Deadlocks: BHMA A156.36.
  - 4. Dustproof Strikes: BHMA A156.16.

#### 2.7 CONVENTIONAL EXIT DEVICES

- A. General Requirements: All exit devices specified herein shall meet or exceed the following criteria:
  - 1. At doors not requiring a fire rating, provide devices complying with NFPA 101 and listed and labeled for "Panic Hardware" according to UL305. Provide proper fasteners as required by manufacturer including sex nuts and bolts at openings specified in the Hardware Sets.
  - 2. Where exit devices are required on fire rated doors, provide devices complying with NFPA 80 and with UL labeling indicating "Fire Exit Hardware". Provide devices with the proper fasteners for installation as tested and listed by UL. Consult manufacturer's catalog and template book for specific requirements.
  - 3. Except on fire rated doors, provide exit devices with hex key dogging device to hold the pushbar and latch in a retracted position. Provide optional keyed cylinder dogging on devices where specified in Hardware Sets.
  - 4. Devices must fit flat against the door face with no gap that permits unauthorized dogging of the push bar. The addition of filler strips is required in any case where the door light extends behind the device as in a full glass configuration.
  - 5. Lever Operating Trim: Where exit devices require lever trim, furnish manufacturer's heavy duty escutcheon trim with threaded studs for thru-bolts.
    - a. Lock Trim Design: As indicated in Hardware Sets, provide finishes and designs to match that of the specified locksets.
    - b. Where function of exit device requires a cylinder, provide a cylinder (Rim or Mortise) as specified in Hardware Sets.
  - 6. Vertical Rod Exit Devices: Where surface or concealed vertical rod exit devices are used at interior openings, provide as less bottom rod (LBR) unless otherwise indicated. Provide dust proof strikes where thermal pins are required to project into the floor.

- 7. Narrow Stile Applications: At doors constructed with narrow stiles, or as specified in Hardware Sets, provide devices designed for maximum 2" wide stiles.
- 8. Dummy Push Bar: Nonfunctioning push bar matching functional push bar.
- 9. Extended cycle test: Devices to have been cycle tested in ordinance with ANSI/BHMA 156.3 requirements to 9 million cycles.
- 10. Rail Sizing: Provide exit device rails factory sized for proper door width application.
- 11. Through Bolt Installation: For exit devices and trim as indicated in Door Hardware Sets.
- B. Conventional Push Rail Exit Devices (Heavy Duty): ANSI/BHMA A156.3, Grade 1 certified panic and fire exit hardware devices furnished in the functions specified in the Hardware Sets. Exit device latch to be stainless steel, pullman type, with deadlock feature.
  - 1. Manufacturers:
    - a. Corbin Russwin Hardware (RU) ED4000 / ED5000 Series.
    - b. Sargent Manufacturing (SA) 80 Series.
    - c. Von Duprin (VD) 35A/98 XP Series.
- C. Tube Steel Removable Mullions: ANSI/BHMA A156.3 removable steel mullions with malleable-iron top and bottom retainers and a primed paint finish.
  - 1. Provide keyed removable feature where specified in the Hardware Sets.
  - 2. Provide stabilizers and mounting brackets as required.
  - 3. Provide electrical quick connection wiring options as specified in the hardware sets.
  - 4. Manufacturers:
    - a. Corbin Russwin Hardware (RU) 700/900 Series.
    - b. Sargent Manufacturing (SA) 980S Series.
    - c. Von Duprin (VD) 9954 Series.

#### 2.8 DOOR CLOSERS

- A. All door closers specified herein shall meet or exceed the following criteria:
  - 1. General: Door closers to be from one manufacturer, matching in design and style, with the same type door preparations and templates regardless of application or spring size. Closers to be non-handed with full sized covers including installation and adjusting information on inside of cover.
  - 2. Standards: Closers to comply with UL-10C for Positive Pressure Fire Test and be U.L. listed for use of fire rated doors.
  - 3. Cycle Testing: Provide closers which have surpassed 15 million cycles in a test witnessed and verified by UL.
  - 4. Size of Units: Comply with manufacturer's written recommendations for sizing of door closers depending on size of door, exposure to weather, and anticipated frequency of use. Where closers are indicated for doors required to be accessible to the physically handicapped, provide units complying with ANSI ICC/A117.1.
  - 5. Closer Arms: Provide heavy duty, forged steel closer arms unless otherwise indicated in Hardware Sets.
  - 6. Closers shall not be installed on exterior or corridor side of doors; where possible install closers on door for optimum aesthetics.

- 7. Closer Accessories: Provide door closer accessories including custom templates, special mounting brackets, spacers and drop plates as required for proper installation. Provide through-bolt and security type fasteners as specified in the hardware sets.
- B. Door Closers, Surface Mounted (Large Body Cast Iron): ANSI/BHMA A156.4, Grade 1 surface mounted, heavy duty door closers with complete spring power adjustment, sizes 1 thru 6; and fully operational adjustable according to door size, frequency of use, and opening force. Closers to be rack and pinion type, one piece cast iron body construction, with adjustable backcheck and separate non-critical valves for closing sweep and latch speed control.

#### 1. Manufacturers:

- a. Corbin Russwin Hardware (RU) DC8000 Series.
- b. LCN Closers (LC) 4040XP Series.
- c. Norton Door Controls (NO) 9500 Series.
- d. Sargent Manufacturing (SA) 281 Series.

#### 2.9 SURFACE MOUNTED CLOSER HOLDERS

- A. Electromagnetic Door Holders: Certified ANSI A156.15 electromagnetic door holder/releases with a minimum 20 to 40 pounds holding power and single coil construction able to accommodate.12VDC, 24VAC, 24VDC and 120VAC. Coils to be independently wound, employing an integral fuse and armatures to include a positive release button.
  - 1. Manufacturers:
    - a. Rixson (RF) 980/990 Series.
    - b. Sargent Manufacturing (SA) 1560 Series.

#### 2.10 ARCHITECTURAL TRIM

#### A. Door Protective Trim

- 1. General: Door protective trim units to be of type and design as specified below or in the Hardware Sets.
- 2. Size: Fabricate protection plates (kick, armor, or mop) not more than 2" less than door width (LDW) on stop side of single doors and 1" LDW on stop side of pairs of doors, and not more than 1" less than door width on pull side. Coordinate and provide proper width and height as required where conflicting hardware dictates. Height to be as specified in the Hardware Sets.
- 3. Where plates are applied to fire rated doors with the top of the plate more than 16" above the bottom of the door, provide plates complying with NFPA 80. Consult manufacturer's catalog and template book for specific requirements for size and applications.
- 4. Protection Plates: ANSI/BHMA A156.6 certified protection plates (kick, armor, or mop), fabricated from the following:
  - a. Stainless Steel: 300 grade, 050-inch thick.
- 5. Options and fasteners: Provide manufacturer's designated fastener type as specified in the Hardware Sets. Provide countersunk screw holes.

# 6. Manufacturers:

- a. Hiawatha, Inc. (HI).
- b. Rockwood Products; ASSA ABLOY Architectural Door Accessories (RO).
- c. Trimco (TC).

#### 2.11 DOOR STOPS AND HOLDERS

- A. General: Door stops and holders to be of type and design as specified below or in the Hardware Sets
- B. Door Stops and Bumpers: ANSI/BHMA A156.16, Grade 1 certified door stops and wall bumpers. Provide wall bumpers, either convex or concave types with anchorage as indicated, unless floor or other types of door stops are specified in Hardware Sets. Do not mount floor stops where they will impede traffic. Where floor or wall bumpers are not appropriate, provide overhead type stops and holders.
  - 1. Manufacturers:
    - a. Hiawatha, Inc. (HI).
    - b. Rockwood Products; ASSA ABLOY Architectural Door Accessories (RO).
    - c. Trimco (TC).
- C. Overhead Door Stops and Holders: ANSI/BHMA A156.6, Grade 1 certified overhead stops and holders to be surface or concealed types as indicated in Hardware Sets. Track, slide, arm and jamb bracket to be constructed of extruded bronze and shock absorber spring of heavy tempered steel. Provide non-handed design with mounting brackets as required for proper operation and function.
  - 1. Manufacturers:
    - a. Glynn Johnson (GJ).
    - b. Rixson Door Controls (RF).
    - c. Sargent Manufacturing (SA).

#### 2.12 ARCHITECTURAL SEALS

- A. General: Thresholds, weatherstripping, and gasket seals to be of type and design as specified below or in the Hardware Sets. Provide continuous weatherstrip gasketing on exterior doors and provide smoke, light, or sound gasketing on interior doors where indicated. At exterior applications provide non-corrosive fasteners and elsewhere where indicated.
- B. Smoke Labeled Gasketing: Assemblies complying with NFPA 105 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for smoke control ratings indicated, based on testing according to UL 1784.
  - 1. Provide smoke labeled perimeter gasketing at all smoke labeled openings.

- C. Fire Labeled Gasketing: Assemblies complying with NFPA 80 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for fire ratings indicated, based on testing according to UL-10C.
  - 1. Provide intumescent seals as indicated to meet UL10C Standard for Positive Pressure Fire Tests of Door Assemblies, and NPFA 252, Standard Methods of Fire Tests of Door Assemblies.
- D. Sound-Rated Gasketing: Assemblies that are listed and labeled by a testing and inspecting agency, for sound ratings indicated.
- E. Replaceable Seal Strips: Provide only those units where resilient or flexible seal strips are easily replaceable and readily available from stocks maintained by manufacturer.

#### F. Manufacturers:

- 1. National Guard Products (NG).
- 2. Pemko Products; ASSA ABLOY Architectural Door Accessories (PE).
- 3. Reese Enterprises, Inc. (RE).

#### 2.13 FABRICATION

A. Fasteners: Provide door hardware manufactured to comply with published templates generally prepared for machine, wood, and sheet metal screws. Provide screws according to manufacturers recognized installation standards for application intended.

#### 2.14 FINISHES

- A. Standard: Designations used in the Hardware Sets and elsewhere indicate hardware finishes complying with ANSI/BHMA A156.18, including coordination with traditional U.S. finishes indicated by certain manufacturers for their products.
- B. Provide quality of finish, including thickness of plating or coating (if any), composition, hardness, and other qualities complying with manufacturer's standards, but in no case less than specified by referenced standards for the applicable units of hardware
- C. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.

#### PART 3 - EXECUTION

#### 3.1 EXAMINATION

A. Examine scheduled openings, with Installer present, for compliance with requirements for installation tolerances, labeled fire door assembly construction, wall and floor construction, and other conditions affecting performance.

B. Notify architect of any discrepancies or conflicts between the door schedule, door types, drawings and scheduled hardware. Proceed only after such discrepancies or conflicts have been resolved in writing.

#### 3.2 PREPARATION

- A. Hollow Metal Doors and Frames: Comply with ANSI/DHI A115 series.
- B. Wood Doors: Comply with ANSI/DHI A115-W series.

#### 3.3 INSTALLATION

- A. Install each item of mechanical and electromechanical hardware and access control equipment to comply with manufacturer's written instructions and according to specifications.
  - 1. Installers are to be trained and certified by the manufacturer on the proper installation and adjustment of fire, life safety, and security products including: hanging devices; locking devices; closing devices; and seals.
- B. Mounting Heights: Mount door hardware units at heights indicated in following applicable publications, unless specifically indicated or required to comply with governing regulations:
  - 1. Standard Steel Doors and Frames: DHI's "Recommended Locations for Architectural Hardware for Standard Steel Doors and Frames."
  - 2. Wood Doors: DHI WDHS.3, "Recommended Locations for Architectural Hardware for Wood Flush Doors."
  - 3. Where indicated to comply with accessibility requirements, comply with ANSI A117.1 "Accessibility Guidelines for Buildings and Facilities."
  - 4. Provide blocking in drywall partitions where wall stops or other wall mounted hardware is located.
- C. Retrofitting: Install door hardware to comply with manufacturer's published templates and written instructions. Where cutting and fitting are required to install door hardware onto or into surfaces that are later to be painted or finished in another way, coordinate removal, storage, and reinstallation of surface protective trim units with finishing work specified in Division 9 Sections. Do not install surface-mounted items until finishes have been completed on substrates involved.
- D. Thresholds: Set thresholds for exterior and acoustical doors in full bed of sealant complying with requirements specified in Division 7 Section "Joint Sealants."
- E. Storage: Provide a secure lock up for hardware delivered to the project but not yet installed. Control the handling and installation of hardware items so that the completion of the work will not be delayed by hardware losses before and after installation.

#### 3.4 FIELD QUALITY CONTROL

A. Field Inspection: Supplier will perform a final inspection of installed door hardware and state in report whether work complies with or deviates from requirements, including whether door hardware is properly installed, operating and adjusted.

#### 3.5 ADJUSTING

A. Initial Adjustment: Adjust and check each operating item of door hardware and each door to ensure proper operation or function of every unit. Replace units that cannot be adjusted to operate as intended. Adjust door control devices to compensate for final operation of heating and ventilating equipment and to comply with referenced accessibility requirements.

#### 3.6 CLEANING AND PROTECTION

- A. Protect all hardware stored on construction site in a covered and dry place. Protect exposed hardware installed on doors during the construction phase. Install any and all hardware at the latest possible time frame.
- B. Clean adjacent surfaces soiled by door hardware installation.
- C. Clean operating items as necessary to restore proper finish. Provide final protection and maintain conditions that ensure door hardware is without damage or deterioration at time of owner occupancy.

#### 3.7 DEMONSTRATION

A. Instruct Owner's maintenance personnel to adjust, operate, and maintain mechanical and electromechanical door hardware.

#### 3.8 DOOR HARDWARE SETS

- A. The hardware sets represent the design intent and direction of the owner and architect. They are a guideline only and should not be considered a detailed hardware schedule. Discrepancies, conflicting hardware and missing items should be brought to the attention of the architect with corrections made prior to the bidding process. Omitted items not included in a hardware set should be scheduled with the appropriate additional hardware required for proper application and functionality.
- B. The supplier is responsible for handing and sizing all products and providing the correct option for the appropriate door type and material where more than one is presented in the hardware sets. Quantities listed are for each pair of doors, or for each single door.

# **Hardware Sets**

# **Set: 1.0**

Doors: 111A, 111B

Description: Rated Classroom Function Exit

3 Hinge (heavy weight)	T4A3786 NRP	US26D	MK
1 Exit Device (passage)	ED5200A L910ET	<u>630</u>	<u>RU</u>
1 Interchangeable Core	CR8000- Factory GMK	626	RU
1 Surface Closer	DC8200 A10 M54	689	RU

# RENOVATION OF GALEHOUSE (A BUILDING), MCLEOD (S BUILDING), AND NATURAL SCIENCES (N BUILDING)

SCO #17-18154-01A; NCCCS #2352

1 Kick Plate K1050 8" High US32D RO
1 Electromagnetic Holder 998M 689 RF \$
1 Gasketing S88BL x Head & Jambs PE

2018023.00

Notes: Perimeter gasket by frame manufacturer.

Wall magnets are tied to fire alarm system & release at smoke activation.

# **Set: 2.0**

Doors: 127A

Description: Exterior Storeroom Function + Closer / Holder

6 Hinge	TA2314 NRP	US32D	MK
1 Security Storeroom Lock	ML2059 LWA CT6	630	RU
1 Interchangeable Core	CR8000- Factory GMK	626	RU
2 Surface Closer	DC8210 A5	689	RU
1 Threshold	1715AK WS10SS x Opening Width		PE
1 Gasketing	303AS TKSP x Head & Jambs		PE
2 Sweep	315CN TKSP x Door Width		PE

# **Set: 3.0**

Doors: 109, 205, 305

Description: Rated Passage Function Exit

4 Hinge (heavy weight)	T4A3786 NRP	US26D	MK
1 Exit Device (passage)	ED5200A L910ET	630	RU
1 Surface Closer	DC8210 A4 M54	689	RU
1 Kick Plate	K1050 8" High	US32D	RO
1 Wall Stop	406	US32D	RO
1 Gasketing	S88BL x Head & Jambs		PE
3 Silencer	608-RKW		RO

# **Set: 4.0**

Doors: 200A, 200B, 300A, 300B

Description: Rated Passage Function Exit + Magnetic Holders

3 Hinge (heavy weight)	T4A3786 NRP	US26D	MK
1 Exit Device (passage)	ED5200A L910ET	630	RU
1 Surface Closer	DC8210 A4 M54	689	RU

# RENOVATION OF GALEHOUSE (A BUILDING), MCLEOD (S BUILDING), AND

NATURAL SCIENCES (N BUILDING)

SCO #17-18154-01A; NCCCS #2352

1 Kick Plate K1050 8" High US32D RO 1 Electromagnetic Holder 998M 689 RF 4 1 Gasketing S88BL x Head & Jambs PE

2018023.00

Notes: Wall magnets are tied to fire alarm system & release at smoke activation.

# **Set: 5.0**

Doors: 001.1, 014.1

Description: Rated Passage Rated Exit Pair + Magnetic Wall Holders

6 Hinge (heavy weight)	T4A3786 NRP	US26D	MK
1 Removable Mullion	CR907BKM 7'		RU
1 Exit Device (exit only)	ED5200A EO	630	RU
1 Exit Device (passage)	ED5200A L910ET	630	RU
1 Interchangeable Core	CR8000- Factory GMK	626	RU
1 Cylinder Housing	CR1070-114-	626	RU
1 Conc Overhead Stop	6-X36	630	RF
2 Surface Closer	DC8200 A10 M54	689	RU
2 Electromagnetic Holder	998M	689	RF 4
1 Gasketing	S88BL x Head & Jambs		PE
1 Mullion Gasketing	5110BL x Door Height		PE

# **Set: 6.0**

Doors: 006A

Description: Electrical Room / Storeroom Function Exit - NEC

3	Hinge	TA2714 NRP	US26D	MK
1	Exit Device (storeroom)	ED5200A L957ET CT6	630	RU
1	Interchangeable Core	CR8000- Factory GMK	626	RU
1	Surface Closer	DC8210 A4 M54	689	RU
1	Gasketing	S88BL x Head & Jambs		PE

#### **Set: 7.0**

Doors: 127, 201, 202, 217, 302.1, 310 Description: Classroom Function

4 Hinge	TA2714 NRP	US26D	MK
1 Classroom Lock	ML2055 LWA CT6	630	RU
1 Interchangeable Core	CR8000- Factory GMK	626	RU
1 Wall Stop	406	US32D	RO

3 Silencer 608-RKW RO

# **Set: 8.0**

Doors: 208, 209, 210, 216, 302, 307, 308, 309, 311, 316, 316.1

Description: Classroom Function + O H Stop

4 Hinge	TA2714 NRP	US26D	MK
1 Classroom Lock	ML2055 LWA CT6	630	RU
1 Interchangeable Core	CR8000- Factory GMK	626	RU
1 Surf Overhead Stop	9-X36	652	RF
3 Silencer	608-RKW		RO

# Set: 9.0

Doors: 006, 013, 211, 301

Description: Classroom Function + Closer + O H Stop

3 Hinge (heavy weight)	T4A3786 NRP	US26D	MK
1 Classroom Lock	ML2055 LWA CT6	630	RU
1 Interchangeable Core	CR8000- Factory GMK	626	RU
1 Surf Overhead Stop	9-X36	652	RF
1 Surface Closer	DC8200	689	RU
1 Kick Plate	K1050 8" High	US32D	RO
1 Gasketing	S88BL x Head & Jambs		PE

#### **Set: 10.0**

Doors: 008, 112, 120.1, 120.2, 207

Description: Classroom Function + Closer

3 Hinge (heavy weight)	T4A3786 NRP	US26D	MK
1 Classroom Lock	ML2055 LWA CT6	630	RU
1 Interchangeable Core	CR8000- Factory GMK	626	RU
1 Surface Closer	DC8200 M54	689	RU
1 Kick Plate	K1050 8" High	US32D	RO
1 Wall Stop	406	US32D	RO
1 Gasketing	S88BL x Head & Jambs		PE

# **Set: 11.0**

Doors: 006B, 010, 104, 105, 106, 113.2, 120A, 120B, 120C, 120D, 121, 122, 129, 130, 131, 207A,

207B, 207C, 207D

Description: Office Function

3 Hinge	TA2714 NRP	US26D	MK
1 Office Lock	ML2051 LWA CT6	630	RU
1 Interchangeable Core	CR8000- Factory GMK	626	RU
1 Wall Stop	406	US32D	RO
3 Silencer	608-RKW		RO

# **Set: 12.0**

Doors: 112A, 112B, 112C, 128, 211A, 211B, 211C, 211D, 301A, 301B

Description: Office Function + Closer + Gaskets

3 Hinge	TA2714 NRP	US26D	MK
1 Office Lock	ML2051 LWA CT6	630	RU
1 Interchangeable Core	CR8000- Factory GMK	626	RU
1 Surface Closer	DC8200 M54	689	RU
1 Kick Plate	K1050 8" High	US32D	RO
1 Wall Stop	406	US32D	RO
1 Gasketing	S88BL x Head & Jambs		PE

# **Set: 13.0**

Doors: 113.1, 114

Description: Office Function + Closer + Gaskets

3 Hinge	TA2714 NRP	US26D	MK
1 Office Lock	ML2051 LWA CT6	630	RU
1 Interchangeable Core	CR8000- Factory GMK	626	RU
1 Surf Overhead Stop	9-X36	652	RF
1 Surface Closer	DC8200	689	RU
1 Kick Plate	K1050 8" High	US32D	RO
1 Gasketing	S88BL x Head & Jambs		PE

# **Set: 14.0**

Doors: 107, 132

Description: Privacy Function + Closer

4 Hinge	TA2314 NRP	US32D	MK
1 Privacy Lock	ML2060 LWA M19V	630	RU
1 Surface Closer	DC8200 M54	689	RU
1 Kick Plate	K1050 8" High	US32D	RO

1 Wall Stop	406	US32D	RO
1 Gasketing	S88BL x Head & Jambs		PE

# **Set: 15.0**

Doors: 002, 003, 015, 016, 110, 116, 123, 206, 212, 306, 312

Description: Push-Pull + Closer

3 Hinge (heavy weight)	T4A3786 NRP	US26D	MK
1 Push Plate	70F CSK	US32D	RO
1 Pull Plate	111x70C CSK	US32D	RO
1 Surface Closer	DC8200 M54	689	RU
1 Kick Plate	K1050 8" High	US32D	RO
1 Wall Stop	406	US32D	RO
3 Silencer	608-RKW		RO

# **Set: 16.0**

Doors: 006C, 008A, 008B, 102 Description: Storeroom Function

3	Hinge	TA2714 NRP	US26D	MK
1	Storeroom Lock	ML2057 LWA CT6	630	RU
1	Interchangeable Core	CR8000- Factory GMK	626	RU
1	Wall Stop	406	US32D	RO
3	Silencer	608-RKW		RO

# **Set: 17.0**

Doors: 006D, 009, 011, 215, 315 Description: Storeroom Function

3	Hinge	TA2714 NRP	US26D	MK
1	Storeroom Lock	ML2057 LWA CT6	630	RU
1	Interchangeable Core	CR8000- Factory GMK	626	RU
1	Surf Overhead Hold Open	9-X26	652	RF
3	Silencer	608-RKW		RO

# **Set: 18.0**

Doors: 101, 103

Description: Storeroom Function + Closer

3 Hinge TA2714 NRP US26D MK

1 Storeroom Lock	ML2057 LWA CT6	630	RU
1 Interchangeable Core	CR8000- Factory GMK	626	RU
1 Surface Closer	DC8200 M54	689	RU
1 Kick Plate	K1050 8" High	US32D	RO
1 Wall Stop	406	US32D	RO
3 Silencer	608-RKW		RO

Notes: Furnish perimeter gaskets in lieu of silencers at fire and smoke rated openings.

# **Set: 19.0**

Doors: 108, 124, 204, 213, 304, 313 Description: Storeroom Function + Closer

6 Hinge	TA2714 NRP	US26D	MK
2 Flush Bolt	555	US26D	RO
1 Dust Proof Strike	570	US26D	RO
1 Storeroom Lock	ML2057 LWA CT6	630	RU
1 Interchangeable Core	CR8000- Factory GMK	626	RU
1 Surface Closer	DC8200	689	RU
2 Kick Plate	K1050 8" High	US32D	RO
2 Wall Stop	406	US32D	RO
1 Gasketing	S88BL x Head & Jambs		PE
1 Astragal Seal	S771BL 7'		PE
1 Astragal	357SS TKSP x Door Height		PE

Notes: Install closer on active leaf - room side.

# **Set: 20.0**

Doors: 017

Description: Storeroom Function + Closer + Gaskets

3 Hinge	TA2714 NRP	US26D	MK
1 Storeroom Lock	ML2057 LWA CT6	630	RU
1 Interchangeable Core	CR8000- Factory GMK	626	RU
1 Surface Closer	DC8200 M54	689	RU
1 Kick Plate	K1050 8" High	US32D	RO
1 Wall Stop	406	US32D	RO
1 Gasketing	S88BL x Head & Jambs		PE

### **Set: 21.0**

Doors: 004, 018

Description: Storeroom Function + Closer + Gaskets

3 Hinge	TA2714 NRP	US26D	MK
1 Storeroom Lock	ML2057 LWA CT6	630	RU
1 Interchangeable Core	CR8000- Factory GMK	626	RU
1 Surface Closer	DC8210 M54	689	RU
1 Wall Stop	406	US32D	RO
1 Gasketing	S88BL x Head & Jambs		PE

### **Set: 22.0**

Doors: X114.1, X120.1D

Description: Coiling Counter Shutter

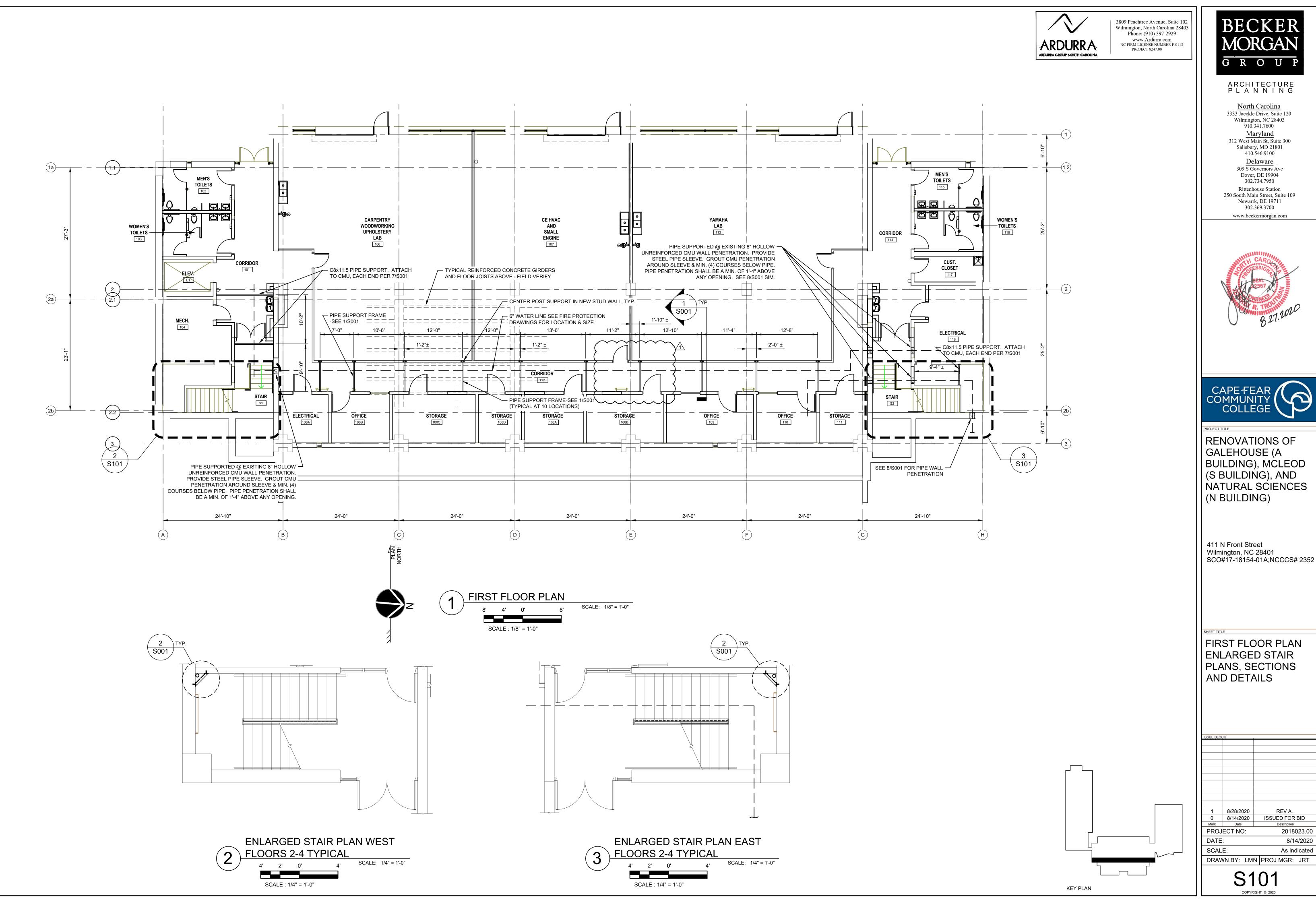
1 Interchangeable Core	CR8000- Factory GMK	626	RU
1 Cylinder Housing	CR1070-114-	626	RU

Notes: Coordinate cylinder requirements with door supplier.

Balance of hardware by door manufacturer.

END OF SECTION 087100

DOOR HARDWARE 087100 - 22





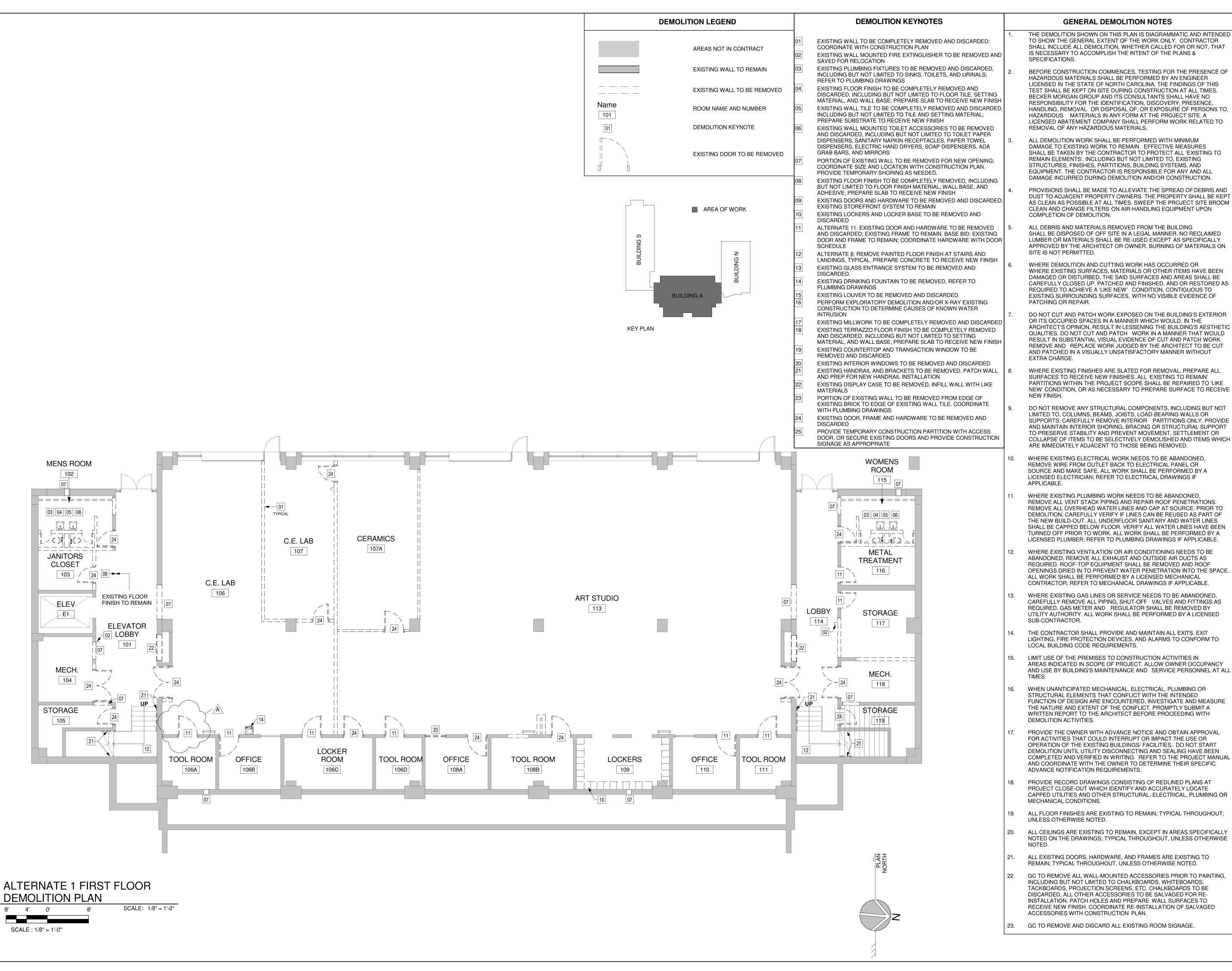


Wilmington, NC 28401 SCO#17-18154-01A;NCCCS# 2352

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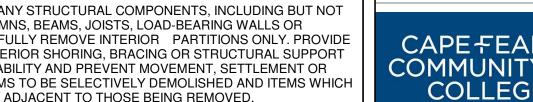
North Carolina 3333 Jaeckle Drive, Suite 120 Wilmington, NC 28403

<u>Delaware</u> 302.734.7950

Rittenhouse Station Newarrk, DE 19711







WHERE EXISTING ELECTRICAL WORK NEEDS TO BE ABANDONED. REMOVE WIRE FROM OUTLET BACK TO ELECTRICAL PANEL OR SOURCE AND MAKE SAFE. ALL WORK SHALL BE PERFORMED BY A LICENSED ELECTRICIAN; REFER TO ELECTRICAL DRAWINGS IF

WHERE EXISTING PLUMBING WORK NEEDS TO BE ABANDONED, REMOVE ALL VENT STACK PIPING AND REPAIR ROOF PENETRATIONS. REMOVE ALL OVERHEAD WATER LINES AND CAP AT SOURCE. PRIOR TO DEMOLITION, CAREFULLY VERIFY IF LINES CAN BE REUSED AS PART OF THE NEW BUILD-OUT. ALL UNDERFLOOR SANITARY AND WATER LINES SHALL BE CAPPED BELOW FLOOR. VERIFY ALL WATER LINES HAVE BEEN TURNED OFF PRIOR TO WORK. ALL WORK SHALL BE PERFORMED BY A

WHERE EXISTING VENTILATION OR AIR CONDITIONING NEEDS TO BE ABANDONED, REMOVE ALL EXHAUST AND OUTSIDE AIR DUCTS AS REQUIRED. ROOF-TOP EQUIPMENT SHALL BE REMOVED AND ROOF OPENINGS DRIED IN TO PREVENT WATER PENETRATION INTO THE SPACE. ALL WORK SHALL BE PERFORMED BY A LICENSED MECHANICAL

WHERE EXISTING GAS LINES OR SERVICE NEEDS TO BE ABANDONED CAREFULLY REMOVE ALL PIPING, SHUT-OFF VALVES AND FITTINGS AS REQUIRED. GAS METER AND REGULATOR SHALL BE REMOVED BY UTILITY AUTHORITY. ALL WORK SHALL BE PERFORMED BY A LICENSED

THE CONTRACTOR SHALL PROVIDE AND MAINTAIN ALL EXITS. EXIT LIGHTING, FIRE PROTECTION DEVICES, AND ALARMS TO CONFORM TO

LIMIT USE OF THE PREMISES TO CONSTRUCTION ACTIVITIES IN AREAS INDICATED IN SCOPE OF PROJECT. ALLOW OWNER OCCUPANCY AND USE BY BUILDING'S MAINTENANCE AND SERVICE PERSONNEL AT ALL

WHEN UNANTICIPATED MECHANICAL, ELECTRICAL, PLUMBING OR STRUCTURAL ELEMENTS THAT CONFLICT WITH THE INTENDED FUNCTION OF DESIGN ARE ENCOUNTERED, INVESTIGATE AND MEASURE THE NATURE AND EXTENT OF THE CONFLICT. PROMPTLY SUBMIT A WRITTEN REPORT TO THE ARCHITECT BEFORE PROCEEDING WITH

PROVIDE THE OWNER WITH ADVANCE NOTICE AND OBTAIN APPROVAL FOR ACTIVITIES THAT COULD INTERRUPT OR IMPACT THE USE OR OPERATION OF THE EXISTING BUILDINGS/ FACILITIES.. DO NOT START DEMOLITION UNTIL UTILITY DISCONNECTING AND SEALING HAVE BEEN COMPLETED AND VERIFIED IN WRITING. REFER TO THE PROJECT MANUAL AND COORDINATE WITH THE OWNER TO DETERMINE THEIR SPECIFIC

PROVIDE RECORD DRAWINGS CONSISTING OF REDLINED PLANS AT PROJECT CLOSE-OUT WHICH IDENTIFY AND ACCURATELY LOCATE CAPPED UTILITIES AND OTHER STRUCTURAL, ELECTRICAL, PLUMBING OR

ALL FLOOR FINISHES ARE EXISTING TO REMAIN; TYPICAL THROUGHOUT,

ALL CEILINGS ARE EXISTING TO REMAIN, EXCEPT IN AREAS SPECIFICALLY NOTED ON THE DRAWINGS; TYPICAL THROUGHOUT, UNLESS OTHERWISE

ALL EXISTING DOORS, HARDWARE, AND FRAMES ARE EXISTING TO

GC TO REMOVE ALL WALL-MOUNTED ACCESSORIES PRIOR TO PAINTING, INCLUDING BUT NOT LIMITED TO CHALKBOARDS, WHITEBOARDS, TACKBOARDS, PROJECTION SCREENS, ETC. CHALKBOARDS TO BE DISCARDED, ALL OTHER ACCESSORIES TO BE SALVAGED FOR RE-INSTALLATION. PATCH HOLES AND PREPARE WALL SURFACES TO RECEIVE NEW FINISH. COORDINATE RE-INSTALLATION OF SALVAGED



309 S Governors Ave Dover, DE 19904

250 South Main Street, Suite 109 302.369.3700

www.beckermorgan.com







PROJECT TITLE

**RENOVATIONS OF** GALEHOUSE (A BUILDING), MCLEOD (S BUILDING), AND NATURAL SCIENCES (N BUILDING)

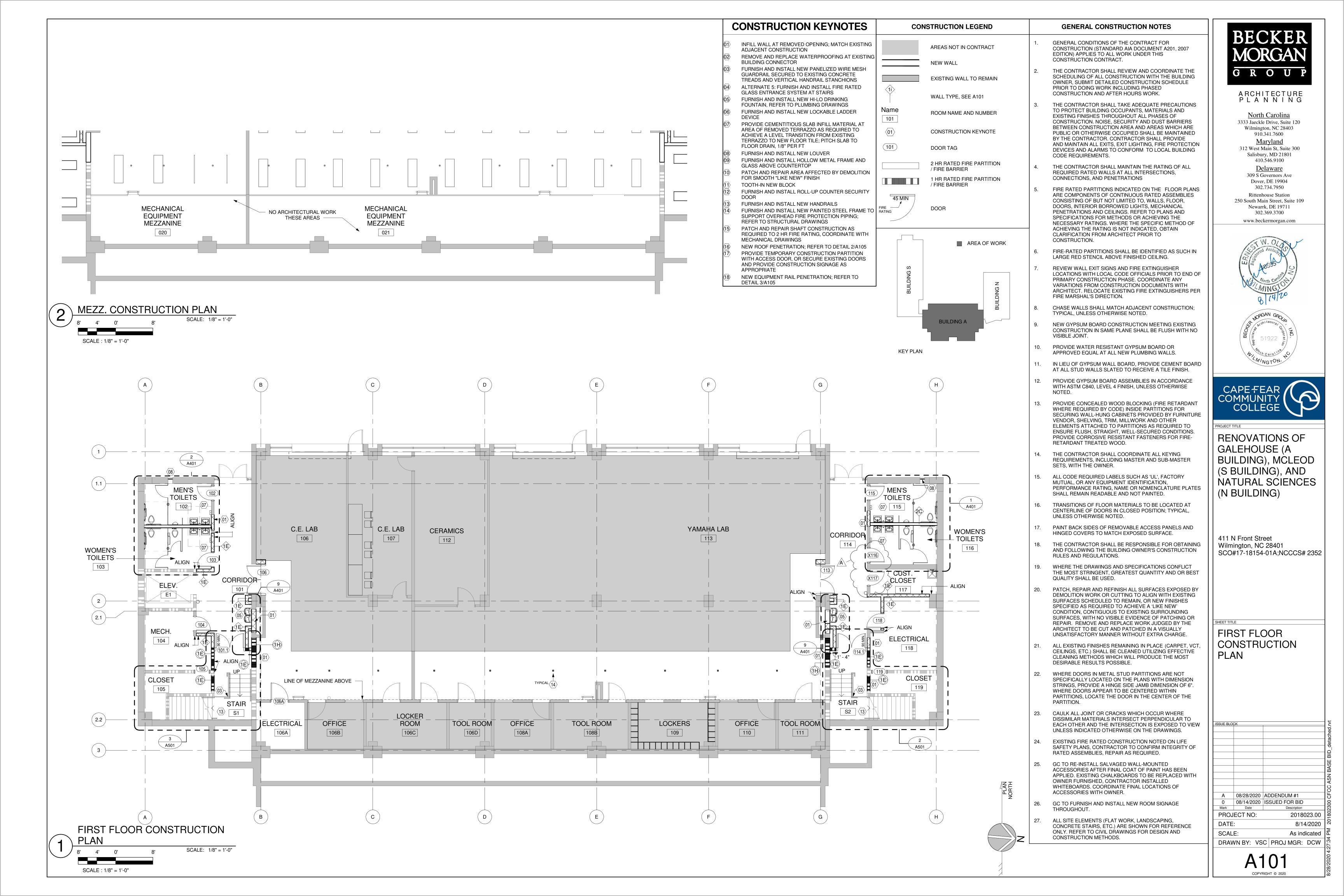
411 N Front Street Wilmington, NC 28401 SCO#17-18154-01A;NCCCS# 2352

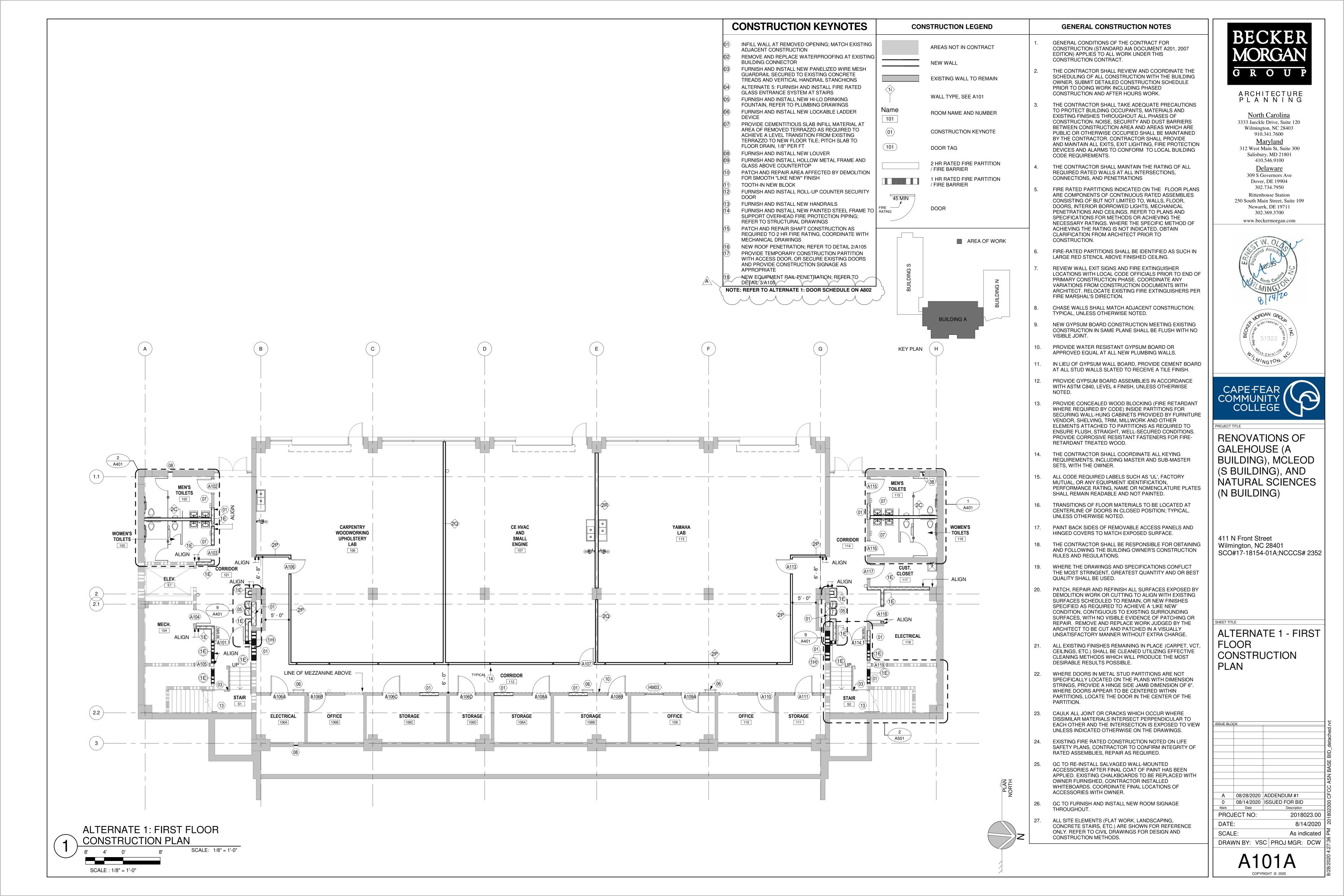
**ALTERNATE 1 FIRST** FLOOR DEMOLITION PLAN

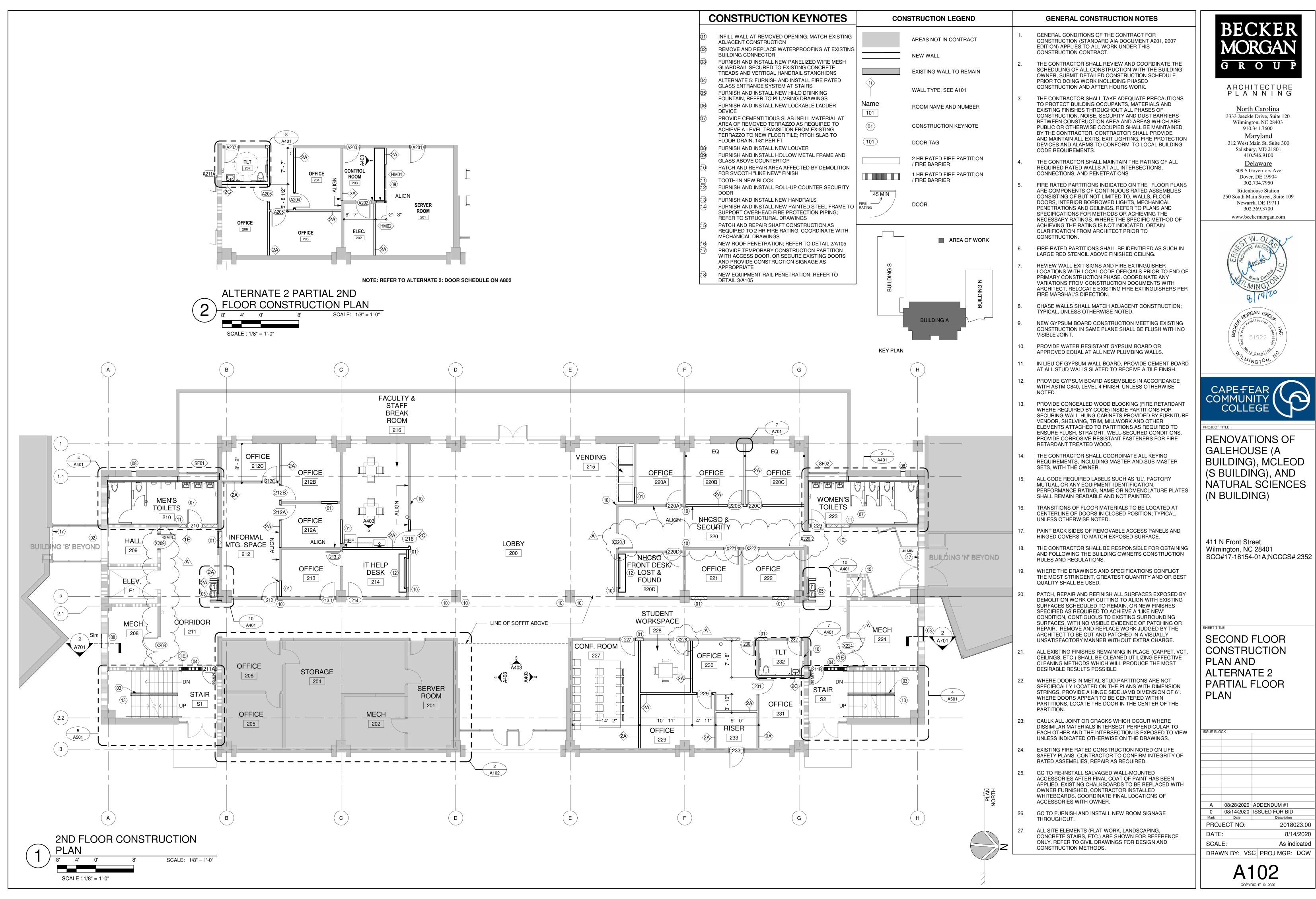
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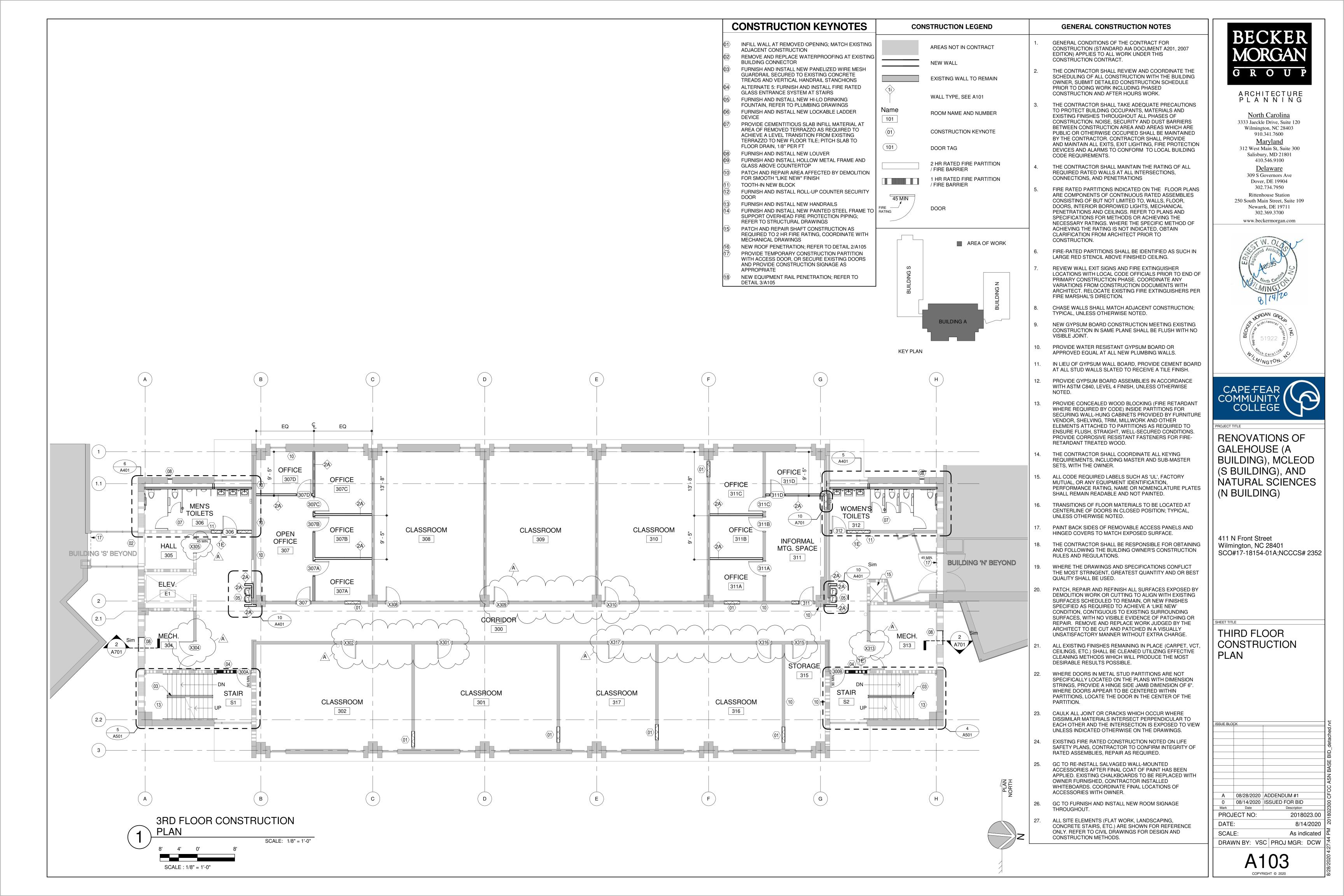
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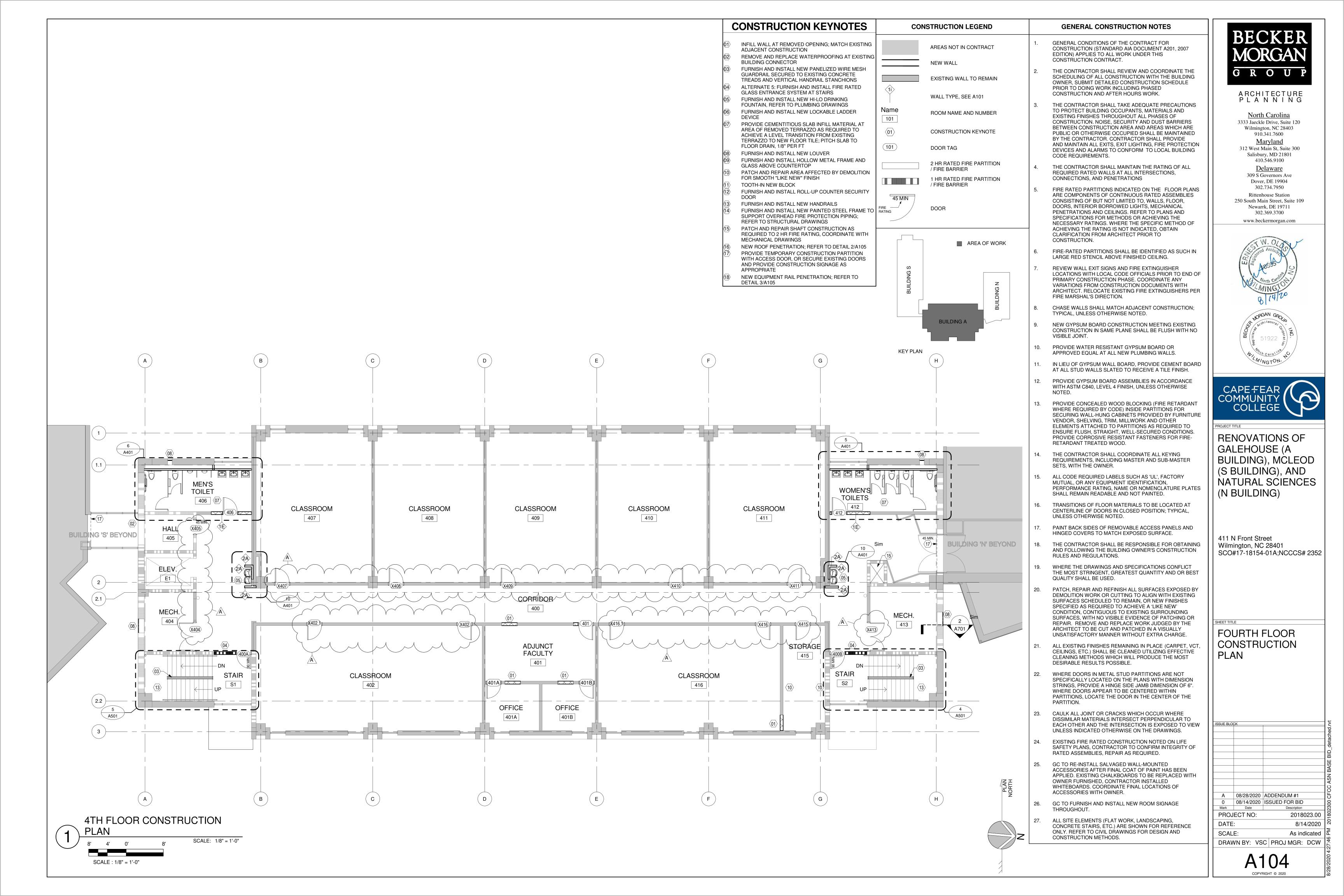


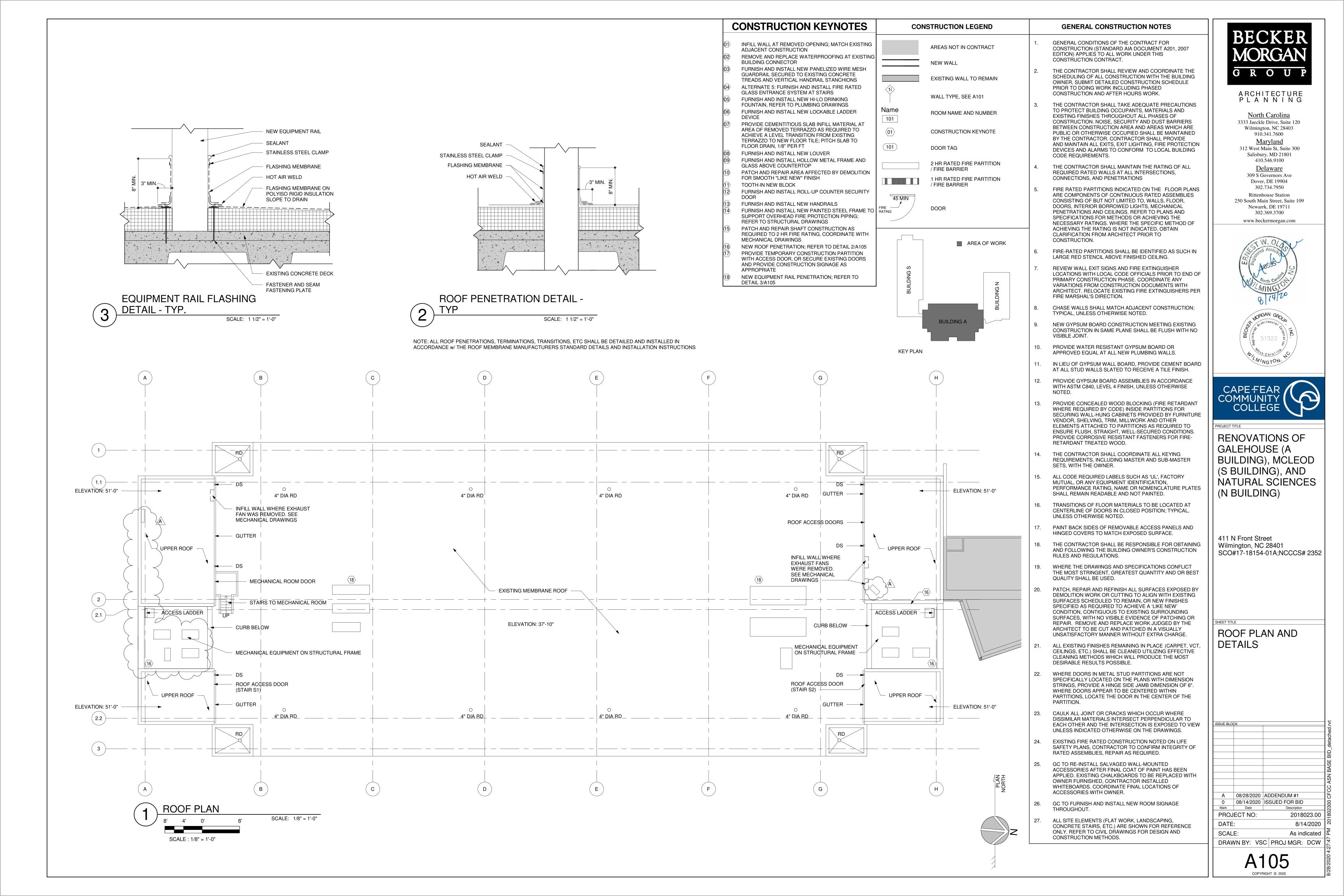


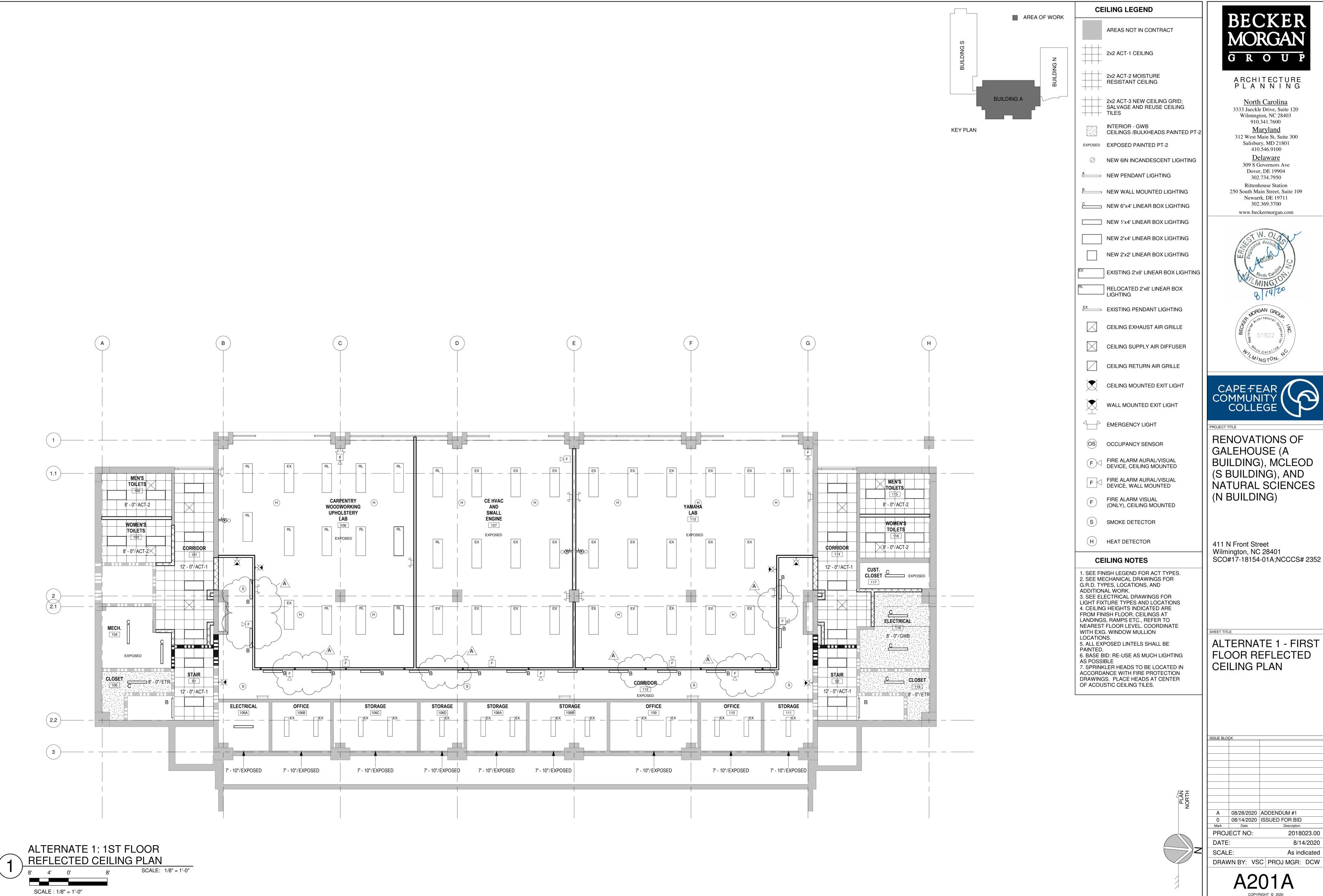


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G R O U P

ARCHITECTURE PLANNING North Carolina 3333 Jaeckle Drive, Suite 120 Wilmington, NC 28403 910.341.7600 **Maryland** 312 West Main St, Suite 300 Salisbury, MD 21801 410.546.9100 <u>Delaware</u> 309 S Governors Ave Dover, DE 19904

302.734.7950 Rittenhouse Station

250 South Main Street, Suite 109 Newarrk, DE 19711 302.369.3700

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PROJECT TITLE

RENOVATIONS OF GALEHOUSE (A BUILDING), MCLEOD (S BUILDING), AND NATURAL SCIENCES (N BUILDING)

411 N Front Street Wilmington, NC 28401 SCO#17-18154-01A;NCCCS# 2352

**ALTERNATE 1 - FIRST** FLOOR REFLECTED **CEILING PLAN** 

ISSUE BLOCK A 08/28/2020 ADDENDUM #1 0 08/14/2020 ISSUED FOR BID PROJECT NO: 2018023.00 8/14/2020

As indicated

3 HINGES (HEAVY WEIGHT) 1 EXIT DEVICE (PASSAGE) 1 INTERCHANGEABLE CORE 1 SUBFACE CLOSER 1 KICK PLATE 1 ELECTROMAGNETIC HOLDER 1 GASKETING

HARDWARE SCHEDULE

### **HARDWARE SET 2**

3 HINGES 1 SECURITY STOREROOM LOCK 1 INTERCHANGEABLE CORE 1 SURFACE CLOSER 1 THRESHOLD 1 GASKETING 1 SWEEP

### **HARDWARE SET 3**

3 HINGES (HEAVY WEIGHT) 1 EXIT DEVICE (PASSAGE) 1 SURFACE CLÒSER 1 KICK PLATE 1 WALL STOP 1 GASKETING

# 3 SILENCER **HARDWARE SET 4**

3 HINGES (HEAVY WEIGHT) 1 EXIT DEVICE (PASSAGE) 1 SURFACE CLÒSER 1 KICK PLATE 1 ELECTROMAGNETIC HOLDER 1 GASKETING

## **HARDWARE SET 5**

6 HINGES (HEAVY WEIGHT) 1 REMOVABLE MULLION 1 EXIT DEVICE (EXIT ONLY) 1 EXIT DEVICE (PASSAGE) 1 INTERCHANGEABLE CORE 1 CYLINDER HOUSING 1 CONC OVERHEAD STOP 2 SURFACE CLOSER 1 WALL STOP 2 ELECTROMAGNETIC HOLDER 1 GASKETING 1 MULLION GASKETING

# HARDWARE SET 6

3 HINGES, FULL MORTISE 1 EXIT DEVICE (STOREROOM) 1 INTERCHANGEABLE CORE 1 SURFACE CLOSER 1 GASKETING

# HARDWARE SET 7

4 HINGES 1 CLASSROOM LOCK 1 INTERCHANGEABLE CORE 1 WALL STOP 3 SILENCER

# HARDWARE SET 8

4 HINGES 1 CLASSROOM LOCK 1 INTERCHANGEABLE CORE 1 SURF OVERHEAD STOP 3 SILENCER

# **HARDWARE SET 9**

3 HINGES (HEAVY WEIGHT) 1 CLASSRÒOM LOCK 1 INTERCHANGEABLE CORE 1 SURF OVERHEAD STOP 1 SURFACE CLOSER 1 KICK PLATE 1 GASKETING

# HARDWARE SET 9.1

4 HINGES 1 CLASSROOM LOCK 1 INTERCHANGEABLE CORE 1 SURFACE CLOSER 1 KICK PLATE 1 WALL STOP 3 SILENCER

# **HARDWARE SET 10**

3 HINGES (HEAVY WEIGHT) 1 CLASSRÒOM LOCK 1 INTERCHANGEABLE CORE 1 SURFACE CLOSER 1 KICK PLATE 1 WALL STOP 1 GASKETING

# HARDWARE SET 10.1

6 HINGES (HEAVY WEIGHT) 1 FLUSH BOLT (AUTO SET) 1 DUST PROOF STRIKE 1 CLASSROOM LOCK 1 INTERCHANGEABLE CORE 1 COORDINATOR 2 MOUNTING BRACKET 2 SURFACE CLOSER 2 KICK PLATE 2 WALL STOP 1 ASTRAGAL 2 SILENCER

# HARDWARE SET 11

3 HINGES 1 OFFICE LOCK 1 INTERCHANGEABLE CORE 1 WALL STOP 3 SILENCER

# **HARDWARE SET 12**

3 HINGES 1 OFFICE LOCK 1 INTERCHANGEABLE CORE 1 SURFACE CLOSER 1 KICK PLATE

# **HARDWARE SET 13**

1 WALL STOP

1 GASKETING

3 HINGES 1 OFFICE LOCK 1 INTERCHANGEABLE CORE 1 SURF OVERHEAD CLOSER 1 SURFACE CLOSER 1 KICK PLATE 1 GASKETING

# **HARDWARE SET 14**

3 HINGES 1 PRIVACY LOCK 1 SURFACE CLOSER 1 KICK PLATE 1 WALL STOP 1 GASKETING

### HARDWARE SET 15

3 HINGES (HEAVY WEIGHT) 1 PUSH PLATE 1 PULL PLATE 1 SURFACE CLOSER 1 KICK PLATE 1 WALL STOP 3 SILENCER

## HARDWARE SET 16

3 HINGES, FULL MORTISE 1 STOREROOM LOCK 1 INTERCHANGEABLE CORE 1 WALL STOP 3 SILENCER

# **HARDWARE SET 17**

3 HINGES, FULL MORTISE 1 STOREROOM LOCK 1 INTERCHANGEABLE CORE 1 SURF OVERHEAD HOLD OPEN 3 SILENCER

### **HARDWARE SET 18**

3 HINGES 1 STOREROOM LOCK 1 INTERCHANGEABLE CORE 1 SURFACE CLOSER 1 KICK PLATE 1 WALL STOP 3 SILENCER

# **HARDWARE SET 19**

6 HINGES 2 FLUSH BOLTS 1 DUST PROOF STRIKE 1 STOREROOM LOCK 1 INTERCHANGEABLE CORE 1 SURFACE CLOSER 2 KICK PLATE 2 WALL STOP 1 GASKETING 1 ASTRAGAL SEAL 1 ASTRAGAL

# **HARDWARE SET 20**

3 HINGES 1 STOREROOM LOCK 1 INTERCHANGEABLE CORE 1 SURFACE CLOSER 1 KICK PLATE 1 WALL STOP

# **HARDWARE SET 21**

1 GASKETING

3 HINGES 1 STOREROOM LOCK 1 INTERCHANGEABLE CORE 1 SURFACE CLOSER 1 WALL STOP 1 GASKETING

# **HARDWARE SET 22**

1 INTERCHANGEABLE CORE 1 CYLINER HOUSING

# **HARDWARE SET 23**

1 CASED OPENING

DOOR AND FRAME SCH	HEDULE													
			01	<b>7</b> -	DOOR	DECODIDEION			DECODIDATION	FRAME	DETAILO			
	Œ		프	<b>ZE</b>		DESCRIPTION			DESCRIPTION		DETAILS	•		
Ä	MBE	5	MID											
NAI	N.	\\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\	SN	누		BIAI	I		RIAI	Ŧ	_			
WOC	900	H H	PEZ	EIG	/PE	ATE	FINIS	PE	ATE	ISIN	EAD	AMB	HARDWARE	
<u>%</u>	Δ	<u> </u>	Ö	I		≥	正		Σ	<u>E</u>	Ι Ι		SET	REMARKS
1ST FLOOR														
STAIR MEN'S TOILETS	101.1 102	90 MIN	6' - 0" 3' - 0"	7' - 0" 7' - 0"	N2 F	SCWD SCWD	PT PT	В	HM HM	PT PT	H4 H3	J4 .14	5.0 15.0	MAGNETIC HOLD OPEN
WOMEN'S TOILETS	103	-	3' - 0"	7' - 0"	F	SCWD	PT	A	HM	PT	H2	J3	15.0	
MECH.	104	-	3' - 0"	7' - 0"	F	SCWD SCWD	PT PT	A	HM HM	PT PT	H3 H5	J4	21.0 23.0	CASED OPENING
CLOSET C.E. LAB	105 106		3' - 0" 6' - 0"	7' - 0" 7' - 0"	CO N2	SCWD	PT	A	HM	PT	H4	J5 J4	10.1	CASED OPENING
C.E. LAB	106A	-	3' - 8"	7' - 0"	F	SCWD	PT	A	HM	PT			6.0	
YAMAHA LAB STAIR	113	90 MIN	6' - 0" 6' - 0"	7' - 0" 7' - 0"	N2 N2	SCWD SCWD	PT PT	A B	HM HM	PT PT	H4 H4	J4 J4	10.1 5.0	MAGNETIC HOLD OPEN
MEN'S TOILETS	115	-	3' - 0"	7' - 0"	F	SCWD	PT	Ā	HM	PT	H3	J4	15.0	
ELECTRICAL CLOSET	118 119	-	3' - 0" 3' - 0"	7' - 0" 7' - 0"	F CO	SCWD SCWD	PT PT	A A	HM HM	PT PT	H2 H5	J3 	6.0 23.0	CASED OPENING
WOMEN'S TOILETS	X116	-	3' - 0"	7' - 0"	F	SCWD	PT	ETR	HM	PT	ETR	ETR	15.0	ALTERNATE 11: EXISTING OPENING, VERIFY DIMENSIONS IN FIELD
CUST. CLOSET	X117	-	3' - 0"	7' - 0"	F	SCWD	PT	ETR	НМ	PT	ETR	ETR	16.0	ALTERNATE 11: EXISTING OPENING, VERIFY DIMENSIONS IN FIELD
2ND FLOOR														
MEN'S TOILETS	210	-	3' - 0"	8' - 0"	FP	SCWD	ST	A	HM	PT	H1	J3	15.0	MACNIFTIC LICED OPEN, EVICTING OPENING, VEDIEV DIMENCIONO IN FIELD
STAIR STAIR	211A 211B	90 MIN 90 MIN	3' - 0" 3' - 0"	7' - 0" 7' - 0"	N N	SCWD SCWD	ST ST	A	HM HM	PT PT	H4 H4	J4 J4		MAGNETIC HOLD OPEN; EXISTING OPENING, VERIFY DIMENSIONS IN FIELD MAGNETIC HOLD OPEN; EXISTING OPENING, VERIFY DIMENSIONS IN FIELD
NFORMAL MTG. SPACE	212	-	3' - 0"	8' - 2"	GP	SCWD	ST	C	НМ	PT	H5	J5 (	10.0	
OFFICE OFFICE	212A 212B	-	3' - 0" 3' - 0"	7' - 0" 7' - 0"	G G	SCWD SCWD	ST ST	C	HM HM	PT PT	H5 H5	J5 J5	11.0	A
OFFICE	212C	-	3' - 0"	7' - 0"	G	SCWD	ST	С	НМ	PT	H5	J5	11.0	
OFFICE OFFICE	213.1 213.2	-	3' - 0" 3' - 0"	8' - 2" 7' - 0"	GP G	SCWD SCWD	ST ST	C	HM HM	PT PT	H5 H5	J5 J5	13.0	
T HELP DESK	213.2	-	3' - 0"	7 - 0 8' - 2"	GP	SCWD	ST	C	НМ	PT PT	H5	J5 (	13.0	
FACULTY & STAFF BREAK ROOM	216	-	3' - 0"	8' - 2"	NP	SCWD	ST	С	HM	PT	H5	J5	11.0	
OFFICE OFFICE	220A 220B	-	3' - 0" 3' - 0"	7' - 0" 7' - 0"	G G	SCWD SCWD	ST ST	C	HM HM	PT PT	H5 H5		11.0	
OFFICE	220C	-	3' - 0"	7' - 0"	G	SCWD	ST	С	HM	PT	H5	J5	11.0	
NHCSO FRONT DESK/ LOST & FOUND WOMEN'S TOILETS	220D 223	-	3' - 0" 3' - 0"	7' - 0" 8' - 0"	G FP	SCWD SCWD	ST ST	C A	HM HM	PT PT	H5 H1	J5 J3	11.0 15.0	
CONF. ROOM	227	-	3' - 0"	8' - 2"	GP	SCWD	ST	C	HM	PT	H5	J5	7.0	
OFFICE OFFICE	229	-	3' - 0" 3' - 0"	7' - 0" 8' - 2"	A G GP	SCWD SCWD	ST ST	C A C	HM ETR	PT PT	H5 ETR	J5 ETR	11.0 12.0	
OFFICE	231	-	3' - 0"	7' - 0"	G	SCWD	\$T_	C	ETR	PT	ETR	ETR	11.0	
TLT	232	-	3' - 0"	8' - 2"	FP	SCWD	S <sup>T</sup> T PT	C	HM	PT	H5	J5		CARD ACCESS
RISER MECH.	233 X208	-	3' - 0" 6' - 0"	7' - 0" 7' - 0"	F2	HM SCWD	PT	ETR	HM ETR	PT PT	H5 ETR	J5 ETR	2.0 19.0	ALTERNATE 11: EXISTING OPENING, VERIFY DIMENSIONS IN FIELD
HALL	X209	90 MIN	3' - 0"	7' - 6"	N	SCWD	ST	ETR	ETR	PT	ETR	ETR		ALTERNATE 11: EXISTING OPENING, VERIFY DIMENSIONS IN FIELD
NHCSO & SECURITY NHCSO & SECURITY	X220.1 X220.2	-	3' - 0" 3' - 0"	8' - 2" 8' - 2"	NP NP	SCWD SCWD	ST ST	ETR ETR	HM ETR	PT PT	ETR ETR	ETR ETR		ALTERNATE 11: EXISTING OPENING, VERIFY DIMENSIONS IN FIELD  ALTERNATE 11: EXISTING OPENING, VERIFY DIMENSIONS IN FIELD
OFFICE	X221	-	3' - 0"	7' - 0"	G	SCWD	ST	C	ETR	PT	ETR	ETR		ALTERNATE 11: EXISTING OPENING, VERIFY DIMENSIONS IN FIELD
OFFICE MECH	X222 X224	-	3' - 0" 6' - 0"	7' - 0" 7' - 0"	G F2	SCWD SCWD	ST ST	ETR ETR	ETR ETR	PT PT	ETR ETR	ETR ETR		ALTERNATE 11: EXISTING OPENING, VERIFY DIMENSIONS IN FIELD  ALTERNATE 11: EXISTING OPENING, VERIFY DIMENSIONS IN FIELD
STUDENT WORKSPACE	X224 X228	-	3' - 0"	8' - 2"	GP	SCWD	ST	C	HM	PT	H5	J5		ALTERNATE 11: EXISTING OPENING, VERIFY DIMENSIONS IN FIELD
DDD ELOOD														
BRD FLOOR STAIR	300A	90 MIN	3' - 0"	7' - 0"	N	SCWD	Н	A	НМ	PT	H4	J4	4.0	MAGNETIC HOLD OPEN; EXISTING OPENING, VERIFY DIMENSIONS IN FIELD
STAIR	300B	90 MIN	3' - 0"	7' - 0"	N	SCWD	PT	A	HM	PT	H4	J4		MAGNETIC HOLD OPEN; EXISTING OPENING, VERIFY DIMENSIONS IN FIELD
MEN'S TOILETS  OPEN OFFICE	306 307	-	3' - 0"	8' - 0" 8' - 2"	NP	SCWD SCWD	PT PT	C	HM HM	PT PT	H1 H5	J3 J5	15.0	
OFFICE	307A	-	3' - 0"	7' - 0"	G	SCWD	PT	С	НМ	PT	H5	J5	11.0	
OFFICE OFFICE	307B 307C	-	3' - 0" 3' - 0"	7' - 0" 7' - 0"	G	SCWD SCWD	PT PT	C	HM HM	PT PT	H5 H5	J5 J5	11.0	
OFFICE	307D	-	3' - 0"	7' - 0"	G	SCWD	PT	C	HM	PT	H5	J5	11.0	
NFORMAL MTG. SPACE OFFICE	311 311A	_	3' - 0" 3' - 0"	8' - 2" 7' - 0"	NP G	SCWD SCWD	PT PT	C	HM HM	PT PT	H5 H5	J5 J5	9.0	
OFFICE	311B	-	3' - 0"	7'-0"	G	SCWD	PT	C	HM	PT	H5	J5	11.0	
OFFICE	311C	-	3' - 0"	7' - 0"	G	SCWD	PT	C	HM	PT	H5	J5	11.0	
OFFICE WOMEN'S TOILETS	311D 312	-	3' - 0" 3' - 0"	7' - 0" 8' - 0"	G F	SCWD SCWD	PT PT	C A	HM HM	PT PT	H5 H1	J5 J3	11.0 15.0	
CLASSROOM	X301	-	3' - 0"	8' - 2"	NP	SCWD	PT	ETR	ETR	PT	ETR	ETR	7.0	ALTERNATE 11: EXISTING OPENING, VERIFY DIMENSIONS IN FIELD
CLASSROOM MECH.	X302 X304	-	3' - 0" 6' - 0"	8' - 2" 7' - 0"	NP F2	SCWD SCWD	PT PT	ETR ETR	ETR ETR	PT PT	ETR ETR	ETR ETR		ALTERNATE 11: EXISTING OPENING, VERIFY DIMENSIONS IN FIELD  ALTERNATE 11: EXISTING OPENING, VERIFY DIMENSIONS IN FIELD
HALL	X305	90 MIN	3' - 0"	7' - 6"	N	SCWD	PT	ETR	ETR	PT	ETR	ETR	3.0	ALTERNATE 11: EXISTING OPENING, VERIFY DIMENSIONS IN FIELD
CLASSROOM CLASSROOM	X308 X309	-	3' - 0" 3' - 0"	8' - 2" 8' - 2"	NP NP	SCWD SCWD	PT PT	ETR ETR	ETR ETR	PT PT	ETR ETR	ETR ETR		ALTERNATE 11: EXISTING OPENING, VERIFY DIMENSIONS IN FIELD ALTERNATE 11: EXISTING OPENING, VERIFY DIMENSIONS IN FIELD
CLASSROOM	X310	-	3' - 0"	8' - 2"	NP	SCWD	PT	ETR	ETR	PT	ETR	ETR		ALTERNATE 11: EXISTING OPENING, VERIFY DIMENSIONS IN FIELD
MECH.	X313	-	6' - 0"	7' - 0" 8' - 2"	F2 FP	SCWD	PT PT	ETR ETR	ETR ETR	PT PT	ETR	ETR ETR		ALTERNATE 11: EXISTING OPENING, VERIFY DIMENSIONS IN FIELD ALTERNATE 11: EXISTING OPENING, VERIFY DIMENSIONS IN FIELD
STORAGE CLASSROOM	X315 X316	-	3' - 0" 3' - 0"	8' - 2"	NP	SCWD SCWD	PT	ETR	ETR	PT	ETR ETR	ETR		ALTERNATE 11: EXISTING OPENING, VERIFY DIMENSIONS IN FIELD  ALTERNATE 11: EXISTING OPENING, VERIFY DIMENSIONS IN FIELD
CLASSROOM	X317	-	3' - 0"	8' - 2"	NP	SCWD	PT	ETR	ETR	PT	ETR	ETR	7.0	ALTERNATE 11: EXISTING OPENING, VERIFY DIMENSIONS IN FIELD
4TH FLOOR														
STAIR	400A	90 MIN	3' - 0"	7' - 0"	N	SCWD	PT	Α	НМ	PT	H4	J4		MAGNETIC HOLD OPEN; EXISTING OPENING, VERIFY DIMENSIONS IN FIELD
STAIR ADJUNCT FACULTY	400B 401	90 MIN	3' - 0" 3' - 0"	7' - 0" 8' - 2"	N FP	SWCD SCWD	PT PT	A C	HM HM	PT PT	H4 H5	J4 J5	9.1	MAGNETIC HOLD OPEN; EXISTING OPENING, VERIFY DIMENSIONS IN FIELD
OFFICE	401A	-	3' - 0"	7' - 0"	G	SCWD	PT	C	НМ	PT	H5	J5	11.0	
OFFICE MEN'S TOILET	401B 406	-	3' - 0" 3' - 0"	7' - 0" 7' - 0"	G	SCWD SCWD	PT PT	C A	HM HM	PT PT	H5 H1	J5 J3	11.0 15.0	
WOMEN'S TOILETS	406	-	3' - 0"	7' - 0"	F F	SCWD	PT	A	НМ	PT PT	H1	J3	15.0	
CLASSROOM	X402	-	3' - 0"	8' - 2"	FP	SCWD	PT	ETR	ETR	PT	ETR	ETR	8.0	ALTERNATE 11: EXISTING OPENING, VERIFY DIMENSIONS IN FIELD
CLASSROOM MECH.	X402.1 X404	-	3' - 0" 6' - 0"	8' - 2" 7' - 0"	FP F2	SCWD SCWD	PT PT	ETR ETR	ETR ETR	PT PT	ETR ETR	ETR ETR		ALTERNATE 11: EXISTING OPENING, VERIFY DIMENSIONS IN FIELD ALTERNATE 11: EXISTING OPENING, VERIFY DIMENSIONS IN FIELD
HALL	X405	90 MIN	3' - 0"	7' - 6"	N	SCWD	PT	ETR	ETR	PT	ETR	ETR	3.0	ALTERNATE 11: EXISTING OPENING, VERIFY DIMENSIONS IN FIELD
CLASSROOM CLASSROOM	X407 X408	-	3' - 0" 3' - 0"	8' - 2" 8' - 2"	FP FP	SCWD SCWD	PT PT	ETR ETR	ETR ETR	PT PT	ETR ETR			ALTERNATE 11: EXISTING OPENING, VERIFY DIMENSIONS IN FIELD ALTERNATE 11: EXISTING OPENING, VERIFY DIMENSIONS IN FIELD
CLASSROOM	X408 X409	-	3' - 0"	8' - 2" 8' - 2"	FP FP	SCWD	PT	ETR	ETR	PT PT	ETR			ALTERNATE 11: EXISTING OPENING, VERIFY DIMENSIONS IN FIELD  ALTERNATE 11: EXISTING OPENING, VERIFY DIMENSIONS IN FIELD
CLASSROOM	X410	-	3' - 0"	8' - 2"	FP	SCWD	PT	ETR	ETR	PT	ETR	ETR	7.0	ALTERNATE 11: EXISTING OPENING, VERIFY DIMENSIONS IN FIELD
CLASSROOM MECH.	X411 X413	-	3' - 0" 6' - 0"	8' - 2" 7' - 0"	FP F2	SCWD SCWD	PT PT	ETR ETR	ETR ETR	PT PT	ETR ETR	ETR ETR		ALTERNATE 11: EXISTING OPENING, VERIFY DIMENSIONS IN FIELD  ALTERNATE 11: EXISTING OPENING, VERIFY DIMENSIONS IN FIELD
STORAGE	X415	-	3' - 0"	8' - 2"	FP	SCWD	PT	ETR	ETR	PT	ETR	ETR	17.0	ALTERNATE 11: EXISTING OPENING, VERIFY DIMENSIONS IN FIELD
CLASSROOM	X416		3' - 0"	8' - 2"	FP	SCWD	PT	ETR	ETR	PT	ETR	ETR	8.0	ALTERNATE 11: EXISTING OPENING, VERIFY DIMENSIONS IN FIELD

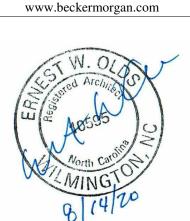


ARCHITECTURE PLANNING

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250 South Main Street, Suite 109 Newarrk, DE 19711

302.369.3700





PROJECT TITLE

**RENOVATIONS OF** GALEHOUSE (A BUILDING), MCLEOD (S BUILDING), AND NATURAL SCIENCES (N BUILDING)

411 N Front Street Wilmington, NC 28401 SCO#17-18154-01A;NCCCS# 2352

DOOR AND HARDWARE SCHEDULES

ISSUE BLOCK A 08/28/2020 ADDENDUM #1 
 0
 08/14/2020
 ISSUED FOR BID

 Mark
 Date
 Description
 PROJECT NO: 2018023.00 DATE: 8/14/2020 SCALE: 1/4" = 1'-0"

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DRAWN BY: VSC PROJ MGR: LML

<b>ALTERNATE 1 - FIRST FLO</b>	OOR DO	OOR SCH	HEDULE											
					DOOR					FRAME				
			Si	IZE		DESCRIPTION			DESCRIPTION		DET	AILS		
ROOM NAME	DOOR NUMBER	FIRE RATING	OPENING WIDTH	НЕІСНТ	ТҮРЕ	MATERIAL	FINISH	ТУРЕ	MATERIAL	FINISH	НЕАD	JAMB	HARDW SET	
ST FLOOR														
STAIR	A101.1	90 MIN	6' - 0"	7' - 0"	N2	SCWD	PT	В	HM	PT	H4	J4	5.0	MAGNETIC HOLD OPEN
MEN'S TOILETS	A102	-	3' - 0"	7' - 0"	F	SCWD	PT	А	НМ	PT	H3	J4	15.0	
VOMEN'S TOILETS	A103	-	3' - 0"	7' - 0"	F	SCWD	PT	А	HM	PT	H2	J3	15.0	
ECH.	A104	-	3' - 0"	7' - 0"	F	SCWD	PT	Α	HM	PT	H3	J4	21.0	
OSET	A105	-	3' - 0"	7' - 0"	CO	SCWD	PT	Α	HM	PT	H5	J5	23.0	CASED OPENING
ARPENTRY WOODWORKING UPHOLSTERY LAB	A106	-	3' - 0"	7' - 0"	N	SCWD	PT	Α	HM	PT	H6	J6	9.0	
LECTRICAL	A106A	-	3' - 8"	7' - 0"	F	SCWD	PT	ETR	HM	PT	ETR	ETR	6.0	EXISTING OPENING, VERIFY DIMENSIONS IN FIELD
FFICE	A106B	-	3' - 8"	7' - 0"	G	SCWD	PT	ETR	HM	PT	ETR	ETR	11.0	EXISTING OPENING, VERIFY DIMENSIONS IN FIELD
ORRIDOR	A106C	-	3' - 8"	7' - 0"	F	SCWD	PT	ETR	HM	PT	ETR	ETR	16.0	EXISTING OPENING, VERIFY DIMENSIONS IN FIELD
TORAGE	A106D	-	3' - 8"	7' - 0"	F	SCWD	PT	ETR	HM	PT	ETR	ETR	16.0	EXISTING OPENING, VERIFY DIMENSIONS IN FIELD
E HVAC AND SMALL ENGINE	A107	-	3' - 0"	7' - 0"	N	SCWD	PT	Α	HM	PT	H6	J6	9.1	
TORAGE	A108A	-	3' - 8"	7' - 0"	F	SCWD	PT	Α	HM	PT	ETR	ETR	16.0	EXISTING OPENING, VERIFY DIMENSIONS IN FIELD
TORAGE	A108B	-	3' - 8"	7' - 0"	F	SCWD	PT	Α	HM	PT	ETR	ETR	16.0	EXISTING OPENING, VERIFY DIMENSIONS IN FIELD
FFICE	A109A	-	3' - 8"	7' - 0"	G	SCWD	PT	Α	НМ	PT	H3	J4	11.0	EXISTING OPENING, VERIFY DIMENSIONS IN FIELD
FFICE	A110	-	3' - 8"	7' - 0"	G	SCWD	PT	ETR	НМ	PT	ETR	ETR	11.0	EXISTING OPENING, VERIFY DIMENSIONS IN FIELD
TORAGE	A111	-	3' - 8"	7' - 0"	F	SCWD	PT	ETR	НМ	PT	ETR	ETR	17.0	EXISTING OPENING, VERIFY DIMENSIONS IN FIELD
AMAHA LAB	A113	-	3' - 0"	7' - 0"	N	SCWD	PT	Α	НМ	PT	H6	J6	9.0	
TAIR	A114.1	90 MIN	6' - 0"	7' - 0"	N2	SCWD	PT	В	НМ	PT	H4	J4	5.0	MAGNETIC HOLD OPEN
EN'S TOILETS	A115	-	3' - 0"	7' - 0"	F	SCWD	PT	Α	НМ	PT	H3	J4	15.0	
OMEN'S TOILETS	A116	-	3' - 0"	7' - 0"	F	SCWD	PT	ETR	НМ	PT	ETR	ETR	15.0	EXISTING OPENING, VERIFY DIMENSIONS IN FIELD
UST. CLOSET	A117	-	3' - 0"	7' - 0"	F	SCWD	PT	ETR	HM	PT	ETR	ETR	16.0	EXISTING OPENING, VERIFY DIMENSIONS IN FIELD
ELECTRICAL	A118	-	3' - 0"	7' - 0"	F	SCWD	PT	Α	НМ	PT	H2	J3	6.0	
CLOSET	A119	-	3' - 0"	7' - 0"	CO	SCWD	PT	Α	HM	PT	H5	J5	23.0	CASED OPENING

					DOOR					FRAME			
			SI	ZE		DESCRIPTION			DESCRIPTION		DET	AILS	
ROOM NAME	DOOR NUMBER	FIRE RATING	OPENING WIDTH	НЕІСНТ	ТҮРЕ	MATERIAL	FINISH	ТҮРЕ	MATERIAL	FINISH	НЕАБ	JAMB	HARDWARE SET REMARKS
ND FLOOR													
SERVER ROOM	A201	-	3' - 0"	8' - 2"	FP	SCWD	ST	ETR	ETR	PT	ETR	ETR	18.0
LEC.	A202	-	3' - 0"	7' - 0"	F	SCWD	ST	С	HM	PT	H5	J5	18.0
ONTROL ROOM	A203	-	3' - 0"	8' - 2"	NP	SCWD	ST	С	HM	PT	H5	J5	18.0
FFICE	A204	-	3' - 0"	7' - 0"	G	SCWD	ST	С	HM	PT	H5	J5	11.0
FFICE	A205	-	3' - 0"	7' - 0"	G	SCWD	ST	С	HM	PT	H5	J5	11.0
FFICE	A206	-	3' - 0"	7' - 0"	G	SCWD	ST	С	HM	PT	H5	J5	11.0
_T	A207	_	3' - 0"	8' - 2"	FP	SCWD	ST	С	HM	PT	H5	J5	14.0 CARD ACCESS

					DOOR					FRAME				
			S	IZE		DESCRIPTION			DESCRIPTION		DET	AILS		
ROOM NAME	DOOR NUMBER	FIRE RATING	OPENING WIDTH	НЕІСНТ	ТҮРЕ	MATERIAL	FINISH	TYPE	MATERIAL	FINISH	НЕАБ	JAMB	HARDWARI SET	E REMARKS
ND FLOOR										,				
ΓAIR	A211A	90 MIN	3' - 0"	7' - 0"	FG	HM	PT	D	HM	PT	H4	J4	4.0	ALTERNATE 5: MAGNETIC HOLD OPEN; EXISTING OPENING, VERIFY DIMENSIONS IN
ΓAIR	A211B	90 MIN	3' - 0"	7' - 0"	FG	HM	PT	E	НМ	PT	H4	J4	4.0	ALTERNATE 5: MAGNETIC HOLD OPEN; EXISTING OPENING, VERIFY DIMENSIONS II
D FLOOR														
	A300A	90 MIN	3' - 0"	7' - 0"	FG	HM	PT	D	HM	PT	H4	J4	4.0	ALTERNATE 5: MAGNETIC HOLD OPEN; EXISTING OPENING, VERIFY DIMENSIONS I
TAIR	ASUUA	00 101111							HM	PT	H4		4.0	



ARCHITECTURE PLANNING

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Rittenhouse Station 250 South Main Street, Suite 109 Newarrk, DE 19711 302.369.3700

www.beckermorgan.com







PROJECT TITLE

RENOVATIONS OF
GALEHOUSE (A
BUILDING), MCLEOD
(S BUILDING), AND
NATURAL SCIENCES
(N BUILDING)

411 N Front Street
Wilmington, NC 28401
SCO#17-18154-01A;NCCCS# 2352

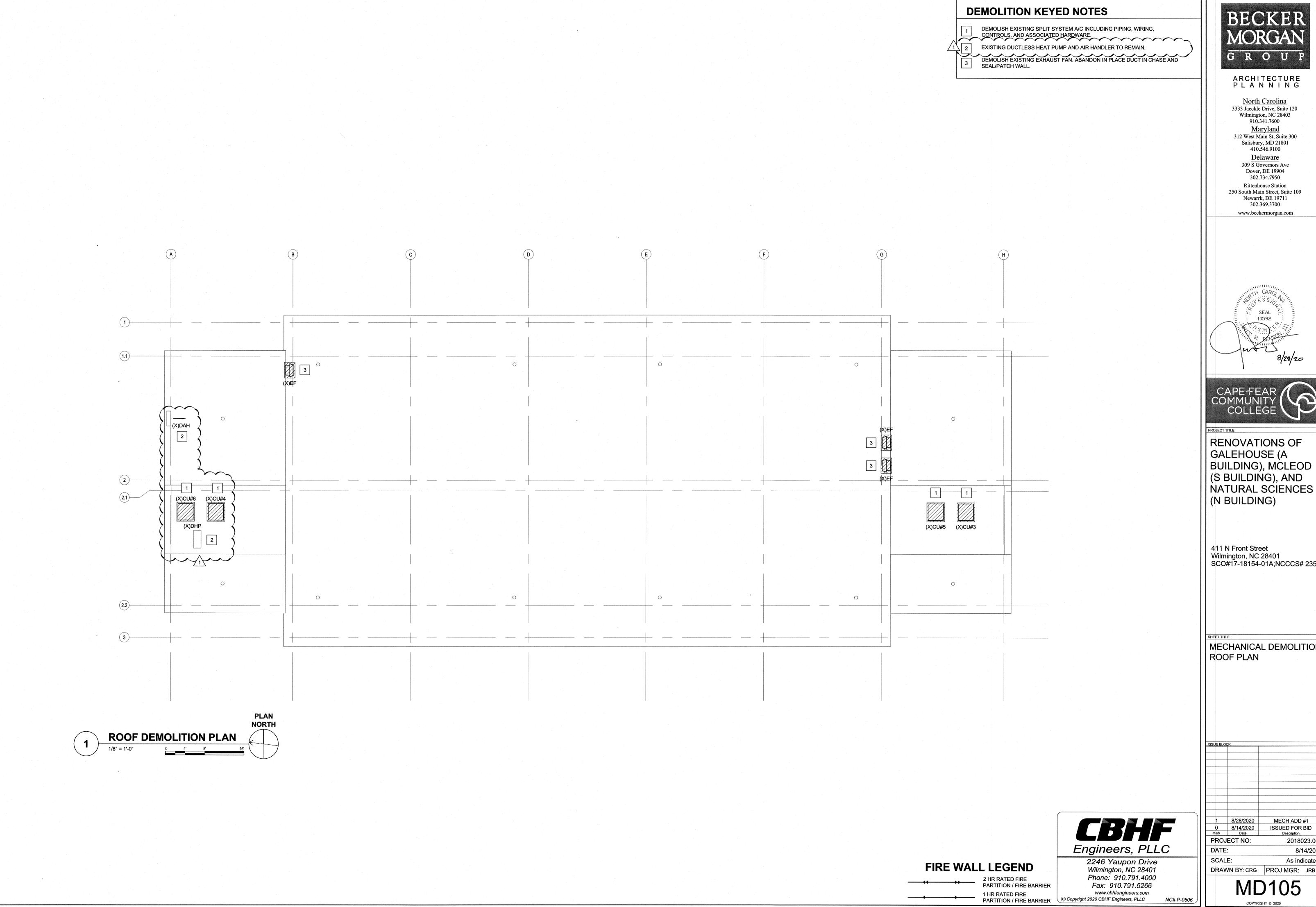
TITLE

ALTERNATE DOOR AND FRAME SCHEDULE

ISSUE BLO	СК	
Α	08/28/2020	ADDENDUM #1
0	08/14/2020	ISSUED FOR BID
Mark	Date	Description
PROJ	ECT NO:	2018023.00
DATE	:	8/14/2020
SCAL	E:	

A802

DRAWN BY: VSC PROJ MGR: DCW



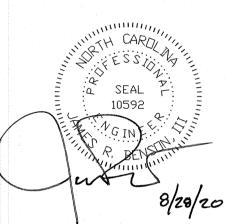


North Carolina 3333 Jaeckle Drive, Suite 120 Wilmington, NC 28403

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Rittenhouse Station 250 South Main Street, Suite 109 Newarrk, DE 19711 302.369.3700





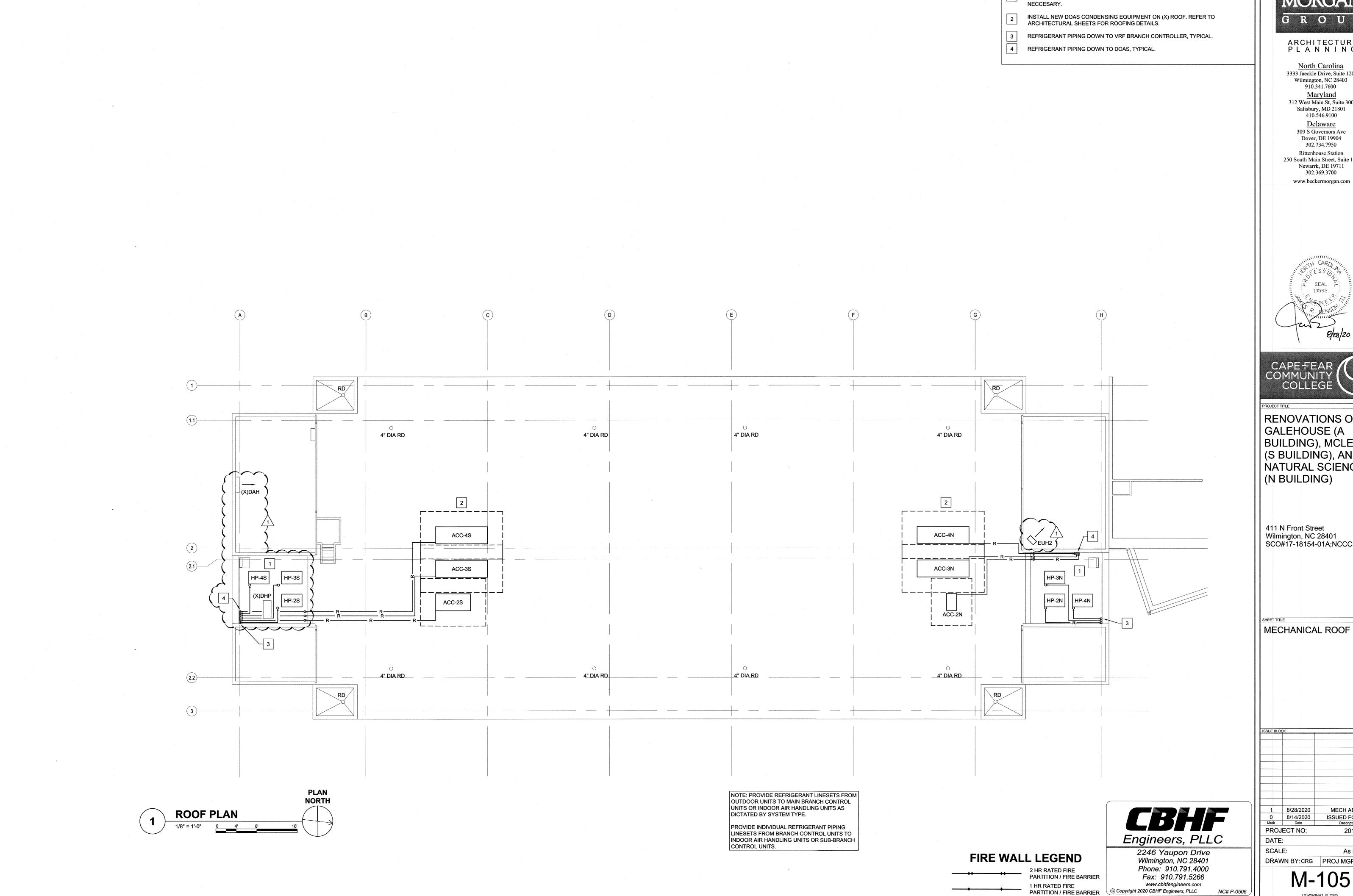
RENOVATIONS OF GALEHOUSE (A BUILDING), MCLEOD (S BUILDING), AND NATURAL SCIENCES

411 N Front Street
Wilmington, NC 28401
SCO#17-18154-01A;NCCCS# 2352

MECHANICAL DEMOLITION

2018023.00 8/14/2020 As indicated DRAWN BY: CRG PROJ MGR: JRB

MD105





**KEYED NOTES** 

INSTALL NEW VRF HEAT PUMPS ON (X) RACKS IN MECHANICAL EQUIPMENT AREA ON ROOF. PROVIDE ADDITIONAL STRUCTURE TO SUPPORT AS

ARCHITECTURE P L A N N I N G

North Carolina 3333 Jaeckle Drive, Suite 120 Wilmington, NC 28403 910.341.7600 Maryland 312 West Main St, Suite 300

Delaware 309 S Governors Ave Dover, DE 19904 302.734.7950 Rittenhouse Station 250 South Main Street, Suite 109 Newarrk, DE 19711 302.369.3700





RENOVATIONS OF GALEHOUSE (A BUILDING), MCLEOD (S BUILDING), AND NATURAL SCIENCES (N BUILDING)

411 N Front Street Wilmington, NC 28401 SCO#17-18154-01A;NCCCS# 2352

MECHANICAL ROOF PLAN

MECH ADD #1
ISSUED FOR BID
Description 2018023.00

As indicated DRAWN BY: CRG PROJ MGR: JRB

M-105

8/14/2020

RAWING	DRAWING	BASIS OF DESIGN	MODEL INDOOR UNIT	MODEL OUTDOOR	BRANCH CIRCUIT	ALTERNATE	ARI COOLIN	G 80/67/95	ARI HEATII		INDOOR UNIT				OUTDOOR	UNIT			NOTES	ACCESSORIES
ODE	CODE	MANUFACTURER		UNIT	CONTROLLER	APPROVED MANUFACTURERS			70/47	IEER	FAN	ELECTRICAL		WEIGHT	ELECTRICA	L		WEIGHT	+	
NDOOR)	(OUTDOOR)					WANUFACTURERS	TOTAL	SENS	TOTAL		SA MIN-MAX	VOLTAGE	MCA	1	VOLTAGE	MCA	МОСР			
							(MBH)	(MBH)	(MBH)	-	(CFM)	(V/PH/HZ)	(AMPS)	(LBS)	(V/PH/HZ)	(AMPS)	(AMPS)	(LBS)	1	
I-4N.1			TPLFYP012FM140A				12	.0	8.1	13.5	245-335		0.3	37		:				-
-4N.2			TPLFYP012FM140A				12	.0	8.1	13.5	245-335		0.3	37				-		
-4N.3			TPLFYP018FM140A				18	.0	15.4 2	20.0	315-460		0.5	37						*.
I-4N.4			TPLFYP018FM140A				18	.0	15.4	20.0	315-460		0.5	37						
I-4N.5			TPLFYP012FM140A				12	.0	8.1	13.5	245-335		0.3	37						
1-4N.6	HP-4N	TRANE/ MITSUBISHI	TPLFYP012FM140A	TURYP0964AN40AN	BC-4N.1	DAIKIN, SANYO	12	.0	8.1	13.5	245-335	208/1/60	0.3	37	460/3/60	32	35	580	1,2,3	A,B,C,D
I-4N.7	TP-4N	TRANE/ WITSUBISH	TPMFYP006BM140F	TORTFO904AN4OAN	DC-411.1	DAIRIN, OANTO	6	.0	5.1	6.7	230-307	200/1/00	0.3	38	400/3/00	32	33	300	1,2,0	Α,Β,Ο,Β
I-4N.8			TPLFYP012FM140A				12	.0	8.1	13.5	245-335		0.3	37						
-4N.9			TPLFYP012FM140A				12	.0	8.1	13.5	245-335		0.3	37						
-4N.10			TPLFYP012FM140A				12	.0	8.1	13.5	245-335		0.3	37						
-4N.11			TPLFYP005FM140A				5	.0	4.4	5.6	230-280		0.2	34						
1-4N.12			TPLFYP005FM140A		V V		5	.0	4.4	5.6	230-280	*.	0.2	34						
I-4S.1			TPLFYP012FM140A				12	.0	8.1	13.5	245-335		0.3	37						
l-4S.2			TPLFYP015FM140A				15	.0	9.9	17.0	265-390		0.4	37						
-4S.3			TPLFYP015FM140A				15	.0	9.9	17.0	265-390		0.4	37						
-4S.4			TPLFYP018FM140A				18	.0	15.4	20.0	315-460		0.5	37						
-4S.5			TPLFYP018FM140A				18	.0	15.4	20.0	315-460		0.5	37						
-4S.6	HP-4S	TDANE/MITCHBICH	TPLFYP012FM140A	TURYP0964AN40AN	BC-4S.1	DAIKIN, SANYO	12	.0	8.1	13.5	245-335	208/1/60	0.3	37	460/3/60	32	25	580	1,2,3	A,B,C,D
-4S.7	HP-45	TRANE/ MITSUBISHI	TPLFYP012FM140A	TURTPU904AN4UAN	DC-43.1	DAIRIN, SANTO	12	.0	8.1	13.5	245-335	200/1/00	0.3	37	460/3/60	32	35	360	1,2,0	A,B,C,D
-4S.8			TPMFYP006BM140F				6	.0	5.1	6.7	230-307		0.3	38						
4S.9			TPMFYP006BM140F				6	.0	5.1	6.7	230-307		0.3	38						
4S.10			TPLFYP005FM140A				5	.0	4.4	5.6	230-280		0.2	34						
4S.11			TPLFYP005FM140A				5	.0	4.4	5.6	230-280		0.2	34						
I-4S.12			TPLFYP005FM140A				5	.0	4.4	5.6	230-280		0.2	34	1					

2. WEIGHT INLCUDES GRILLE

ACCESSORIES: A. SEACOAST COATING PROTECTION ON OUTDOOR UNIT.

B. ROOF MOUNTING RAILS AND ACCESSORIES.

C. WIRED WALL-MOUNTED REMOTE CONTROLLER WITH VANDAL PROOF ENCLOSURE.

D. BACNET INTERFACE FOR INTEGRATION INTO CFCC BMS.

RAWING COI	DE ASSOCIATE	DLOCATION	DESIGN BASIS MFR	MODEL	ALTERNATE	SYSTEM TYPE	CONDENSING	EFFIC	IENCY S	A/OA FAN			DX COO	LING	<del></del>		HG REH	EAT	· [	DX ELECTRIC	CAL		HEATING	T		HEATER EL	ECTRICA	\L	WEIGHT	NOTES	ACCESSORIES
	CONDENSII UNIT				APPROVED MFR		UNIT		S	A OA CFM) (CFM	ESP (IN H2O)	1	(MBH)	SENS (MBH)	EAT °F/°Fwb	LAT °F/°Fwb	TOTAL (MBH)	EAT L	LAT °E	1		MOCP (AMPS)	INPUT (KW)	EAT °E	LAT °E	VOLTAGE (V/PH/HZ)	MCA (AMPS)	MOCP (AMPS)			
OAS-2N	ACC-2N	2 MECH N	UNITED COOLAIR	OSAV3G4ASDTA06-T	VALENT, VENMAR	SPLIT SYSTEM	ACC-2N	LLIX	34	10 340	0.25	0.25	33.0	15.5	~	50.8/50.8	7.2	50.7	70.7	480/3/60	8.4	15.0	6.0	23.0	78.8	480/3/60	9.0	15.0	552	1,2,3	
OAS-2S	ACC-2S	2 MECH S	UNITED COOLAIR	OSAV5G4ASDTA10-T	VALENT, VENMAR	SPLIT SYSTEM	ACC-2S		57	70 570	0.50	0.50	57.9	27.0	92.0/79.0	49.0/49.0	12.3	49.0	69.0	480/3/60	12.8	20.0	10.0	23.0	78.4	480/3/60	15.0	20.0	769	1,2,3	
OAS-3N	ACC-2N	3 MECH N	UNITED COOLAIR	OSAV12G4ADTA25-T	VALENT, VENMAR	SPLIT SYSTEM	ACC-3N		14	75 1475	0.50	0.50	138.7	65.2	92.0/79.0	52.4/52.4	32.0	52.3	72.3	480/3/60	17.7	35.0	25.0	23.0	76.4	480/3/60	37.6	40.0	1126	1,2,3	
OAS-3S	ACC-3S	3 MECH S	UNITED COOLAIR	OSAV10G4ADTA20-T	VALENT, VENMAR	SPLIT SYSTEM	ACC-3S		12	270 1270	0.50	0.50	121.6	57.1	92.0/79.0	51.4/51.4	27.3	51.3	71.3	480/3/60	23.0	30.0	20.0	23.0	72.8	480/3/60	30.1	35.0	1104	1,2,3	
OAS-4N	ACC-4N	4 MECH N	UNITED COOLAIR	OSAV12G4ADTA25-T	VALENT, VENMAR	SPLIT SYSTEM	ACC-4N		15	05 1505	0.50	0.50	139.0	65.4	92.0/79.0	52.5/52.5	32.1	52.5	72.5	480/3/60	27.7	35.0	25.0	23.0	75.5	480/3/60	37.6	45.0	1126	1,2,3	
OAS-4S	ACC-4S	4 MECH S	UNITED COOLAIR	OSAV12G4ADTA25-T	VALENT, VENMAR	SPLIT SYSTEM	ACC-4S		14	170 1470	0.50	0.50	138.7	65.2	92.0/79.0	52.4/52.4	32.0	52.3	72.3	480/3/60	27.7	35.0	25.0	23.0	76.4	480/3/60	37.6	45.0	1126	1,2,3	

- ACCESSORIES: A. INSULATED FLOOR AND DRAIN PAN.
  - B. OA DAMPER WITH MOTOR ACTUATOR.

3. EFFICIENCY RATED IN ACCORDANCE WITH ANSI/AHRI STANDARD 340/360.

- C. SEPARATE POWER CONNECTIONS FOR DX COOLING AND ELECTRIC HEAT.D. MODULATING HOT GAS REHEAT.
- E. FILTERS: OUTDOOR INTAKE-2"MERV 8
- F. DIGITAL SCROLL MODULATING COMPRESSORS ON ALL CIRCUITS.
- G. MATCHING SCR CONTROLLED ACCESSORY ELECTRIC HEAT SECTION.
- I. 8" HIGH WIND RATED ROOF SUPPORT RAILS WITH SEALED ENGINEERING DOCUMENTATION FOR CONDENSING UNITS. COORDINATE WITH ARCHITECTURAL FOR ROOFING AND FLASHING DETAILS.
- H. BACNET INTERFACE FOR INTEGRATION INTO CFCC BMS.

DRAWING CODE	LOCATION	DESIGN BASIS MFR	MODEL	ALTERNATE APPROVED	, , ,	1	ELECTRICAL			WEIGHT	NOTES	ACCESSORIES
				MFR	COOLING (kw)	(RATED) HEATING (kw)	VOLTAGE (V/PH/HZ)	MCA (A)	MOCP (A)	(LBS)		
BC-1			TCMBG0106SJ11N4		0.086	0.04		0.52	15	76	1,2	1
BC-2N.1			TCMBM1012JA11N4		0.198	0.106		1.57	15	133	1,2	1
BC-2N.2		,	TCMBS0108KB11N4		0.122	0.061		0.74	15	69	1,2	1
BC-2S.1			TCMBM1012JA11N4		0.198	0.106		1.57	15	133	1,2	1
BC-2S.2	SEE PLANS	MITSUBISHI	TCMBS0108KB11N4	DAIKIN, SANYO	0.122	0.061	208/1/60	0.74	15	69	1,2	1
BC-3N	1		TCMBG1016SJ11N4		0.243	0.122		1.47	15	131	1,2	1
BC-3S			TCMBG1016SJ11N4		0.243	0.122		1.47	15	131	1,2	1
BC-4N	1		TCMBG1016SJ11N4		0.243	0.122		1.47	15	131	1,2	1
BC-4S			TCMBG1016SJ11N4		0.243	0.122		1.47	15	131	1,2	1
NOTES:	1. REFER T	O SPECIFICATIONS SE	CTION 238126.13 FOR F	URTHER INFORMATION.					-4			
	2. PROVIDE	E GRAVITY DRAIN CON	DENSATE PIPING AS IND	DICATED.								
ACCESSORIES:	A. SUCTIOI	N AND LIQUID LINES SE	RVICE ISOLATION VALV	ES FOR ALL PORTS.								

RAWING	ASSOCIATED	LOCATION	DESIGN BASIS	MODEL	ALTERNATE APPROVED	COOLIN	NG		ELECTRICA	AL CHARACT	ERIST	ICS	NOTES	ACCESSORIES
CODE	EVAPORATOR		MFR		MFR	TOTAL	SENS	COND EAT	VOLTAGE	FAN	MCA	МОСР	1	
						(MBH)	(MBH)	(°DF)	(V/PH/HZ)	QTY@FLA				
ACC-2N	DOAS2N-1	ROOF	UNITED COOLAIR	PBC5G4ASTA	VALENT, VENMAR	33.0	15.5	95.0	480/3/60	1@1.2	1.5	15		
ACC-2S	DOAS2S-1	ROOF	UNITED COOLAIR	PBC10G4ASTA	VALENT, VENMAR	57.9	27.0	95.0	480/3/60	2@1.2	2.7	15		
ACC-3N	DOAS3N-1	ROOF	UNITED COOLAIR	PBC23G4ATA	VALENT, VENMAR	138.7	65.2	95.0	480/3/60	3@1.2	3.9	15		
ACC-3S	DOAS3S-1	ROOF	UNITED COOLAIR	PBC21G4ATA	VALENT, VENMAR	121.6	57.1	95.0	480/3/60	3@1.2	3.9	15		
ACC-4N	DOAS4N-1	ROOF	UNITED COOLAIR	PBC23G4ATA	VALENT, VENMAR	139.0	65.4	95.0	480/3/60	3@1.2	3.9	15		
ACC-4S	DOAS4S-1	ROOF	UNITED COOLAIR	PBC23G4ATA	VALENT, VENMAR	138.7	65.2	95.0	480/3/60	3@1.2	3.9	15		
IOTES:	1. REFER TO SE	ECIFICATION	S SECTION 23 74 33	FOR FURTHER INFO	ORMATION.		<del>-1</del>							

DRAWING CODE	BASIS OF DESIGN	į.	ALTERNATE APPROVED	FAN TYPE	SERVICE	CAPACITIES	S			ELECTRIC	CAL			\$			NOTES	ACCESSORIE
	MANUFACTURER	DESIGN MODEL	MANUFACTURERS			AIRFLOW (CFM)	1	DRIVE ARRANGEMENT	FAN RPM	MOTOR MOTOR TYPE	MOTOR SIZE (W)	V/PH/HZ	MCA N	ИОСР		(LBS.)		
PV01-04	GREENHECK	SP-B150	TWIN CITY, PENNBARRY	CEILING-MOUNTED VENTILATORS	EXHAUST	140	0.30	DIRECT	963	1050 PSC	128	115/1/60	2.1	15	2.5	11	1,2,3	A
PV05-PV11	GREENHECK	SP-A410	TWIN CITY, PENNBARRY	CEILING-MOUNTED VENTILATORS	EXHAUST	280	0.30	DIRECT	906	1000 PSC	121	115/1/60	2.2	15	2.0	32	1,2,3	Α
PV11-PV12	GREENHECK	SP-A110	TWIN CITY, PENNBARRY	CEILING-MOUNTED VENTILATORS	EXHAUST	70	0.31	DIRECT	950	- PSC	17	115/1/60	0.6	15	0.9	17	1,2,3	Α
NOTES:	1. REFER TO SPEC	CIFICATION	SECTION 23 34 23 FOR FURT	THER INFORMATION.														
	2. WEIGHT INCLU	DES ACCESS	SORIES.															
	3. ON/OFF CONTR	OL VIA OCC	UPANCY SENSOR BY ELECT	TRICAL CONTRACTOR. COORDINATE R	EQUIREMEN	TS.												
ACCESSORIES:	A. SPEED CONTRO	OLLER FOR	BALANCING.															

ELECTR	IC HEATE	R SCHEDU	LE															-	
DRAWING CODE	LOCATION	DESIGN BASIS	MODEL	ALTERNATE	DESCRIPTION			ELECTRIC C	OIL	SUPPLY AIR			ELECTRICA	AL.			1	NOTES	ACCESSORIES
	100 de	MANUFACTURER		APPROVED MANUFACTURERS				CAPACITY	STEPS		TEMP	THROW		MCA	MOCP	(LBS)	HEIGHT (FT)		
			· ·	MANOI ACTORERS	TYPE	FAN	DISCHARGE	(W)		(CFM)	RISE (F)	(FT)	(V/PH/HZ)						
EUH1	RISER	MARKEL	E3055T2DWB	QMARK, INDEECO	WALL HEATER	PROPELLER	HORIZONTAL	1500	1	100	47.0	-	120/1/60	12.5	20	6	2	1	A,B
EUH2	ROOF STORAGE	MARKEL	F2F5103N	QMARK, INDEECO	UNIT HEATER	PROPELLER	HORIZONTAL	3300	1	400	26.0	12	208/3/60	9.2	15	25	9	1	A,B
NOTES:	1. REFER TO SPE	CIFICATION 23 83 00	FOR FURTHER INF	FORMATION.	,											-			
CCESSORIES:	A. INTEGRAL FAC	TORY INSTALLED TH	HERMOSTAT.																
	B. MATCHING WAI	LL MOUNT BRACKET	· •																



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SCALE: As indicated
DRAWN BY: CRG PROJ MGR: JRB

MC# P-0506

1 8/28/2020 0 8/14/2020 Mark Date PROJECT NO:

DATE:

MECH ADD #1
ISSUED FOR BID
Description

2018023.00

8/14/2020

BECKER MORGAN
GROUP

ARCHITECTURE
PLANNING

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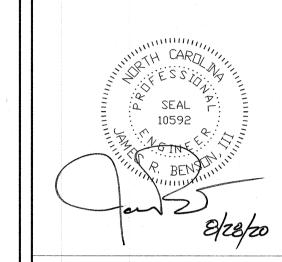
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PROJECT TITLE

RENOVATIONS OF GALEHOUSE (A BUILDING), MCLEOD (S BUILDING), AND NATURAL SCIENCES (N BUILDING)

411 N Front Street
Wilmington, NC 28401
SCO#17-18154-01A;NCCCS# 2352

HEET TITLE

MECHANICAL SCHEDULES



# ABBREVIATED ELECTRICAL SCOPE OF WORK SUMMARY AND ELECTRICAL DISTRIBUTION SYSTEM NOTES

- 1. SEE ARCHITECTURAL AND ELECTRICAL DRAWINGS AND SPECIFICATIONS FOR ADDITIONAL ELECTRICAL BASE AND ALTERNATE BIDS DESCRIPTIONS AND DETAILS.
- 2. ABBREVIATED ELECTRICAL SCOPE
- FIRST FLOOR:
- A. BASE BID EXCLUDES THE EXISTING SHOP AREAS AS SHOWN, BUT UPGRADES THE NORTH AND SOUTH ENTRANCE LOBBIES, TOILETS, ETC. SPACES. EXISTING SHADED SHOP AREA POWER DISTRIBUTION SYSTEM EQUIPMENT AND CIRCUITS, LIGHTING AND RECEPTACLES BRANCH CIRCUITS, AND MISCELLANEOUS AND HVAC POWER CIRCUITS SHALL REMAIN. EXISTING POWER DISTRIBUTION SYSTEM EQUIPMENT AND CIRCUITS, LIGHTING AND RECEPTACLES BRANCH CIRCUITS, AND MISCELLANEOUS AND HVAC POWER CIRCUITS IN THE NORTH AND SOUTH LOBBIES, TOILETS, MECHANICAL ROOMS, ETC. ON FLOOR 1 WILL BE DEMOLISHED AND REPLACED WITH NEW AS SHOWN.
- B. ALTERNATE 1 INCLUDES THE SHOP AREAS EXCLUDED IN THE BASE BID AND EXISTING LIGHTING FIXTURES REMAIN/ARE RELOCATED EXCEPT AS SHOWN.
- C. ALTERNATE 1A REPLACES EXISTING FLUORESCENT LIGHTING FIXTURES WITH NEW LED FIXTURES AS SHOWN ON THE DRAWINGS. SECOND FLOOR:
- A. BASE BID INCLUDES ALL WORK SHOWN ON THE DRAWINGS, BUT EXCLUDES RENOVATIONS TO THE EXISTING IT SERVICES AREA. B. ALTERNATE 2 INCLUDES THE IT SERVICES AREA RENOVATIONS.
- THIRD FLOOR: A. BASE BID SCOPE INCLUDES ALL WORK SHOWN ON THE DRAWINGS.
- B. ALTERNATE 3 REPLACES EXISTING CLASSROOM AND CORRIDOR FLUORESCENT LIGHTING FIXTURES WITH NEW LED FIXTURES AS SHOWN ON THE DRAWINGS. FOURTH FLOOR:
- A. BASE BID SCOPE INCLUDES ALL WORK SHOWN ON THE DRAWINGS.
- B. ALTERNATE 4 REPLACES EXISTING CLASSROOM AND CORRIDOR FLUORESCENT LIGHTING FIXTURES WITH NEW LED FIXTURES AS SHOWN ON THE DRAWINGS.

# EXISTING POWER DISTRIBUTION SYSTEM, PANELBOARDS AND BRANCH CIRCUITS NOTES

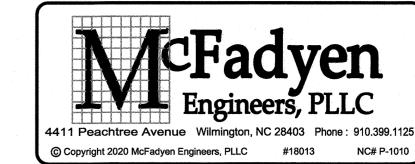
- 1. THE ELECTRICAL DISTRIBUTION SYSTEM, WITH THE EXCEPTION OF CERTAIN EXISTING COMPONENTS ON THE FIRST FLOOR IN THE BASE BID, INCLUDING THE FEEDER BUSWAY, POWER AND BRANCH CIRCUIT PANELBOARDS. FEEDER CONDUCTORS AND RACEWAYS. ETC., WILL BE REPLACED WITH A NEW SYSTEM. EXISTING POWER AND BRANCH CIRCUIT PANELBOARDS WILL BE REPLACED WITH NEW PANELBOARDS AS SHOWN ON THE DEMOLITION POWER RISER DIAGRAM (SHEETS E003 & E003.1), NEW WORK POWER RISER DIAGRAM (SHEETS E004 & E004.1), AND AS DETAILED BELOW.
- 2. ALTHOUGH MANY NEW BRANCH CIRCUITS ARE INCLUDED IN THE PROJECT, DETAILS OF WHICH VARY BY SPACE, SOME EXISTING BRANCH CIRCUITS (PRIMARILY LIGHTING AND RECEPTACLES) WILL REMAIN AND BE REFED BY NEW DISTRIBUTION EQUIPMENT. THE EXACT QUANTITY, ROUTINGS, LOADS AND CONDITION OF THE EXISTING BRANCH CIRCUITS TO REMAIN IS UNKNOWN. THE CONTRACTOR SHALL INVESTIGATE/TRACE EXISTING BRANCH CIRCUITS PRIOR TO DEMOLITION AND DETERMINE WHICH FEED EXISTING LOADS TO REMAIN. THE CONTRACTOR SHALL TAG AND DISCONNECT EXISTING BRANCH CIRCUITS TO REMAIN AT EXISTING PANELBOARDS, REMOVE PANELBOARD INTERIORS AND RETAIN THE ENCLOSURE AND TRIM AS A PULL/SPLICE BOX. RECONNECT THESE BRANCH CIRCUITS TO NEW PANELBOARD BRANCH CIRCUIT BREAKERS BY EXTENDING THE BRANCH CIRCUIT CONDUCTORS FROM EXISTING PANELBOARD ENCLOSURES TO THE CORRESPONDING NEW PANELBOARDS AS NOTED BELOW. SPARE CIRCUIT BREAKERS ARE PROVIDED IN NEW PANELBOARDS FOR THIS PURPOSE.

EXISTING PANELBOARD	BASE BID: MOVE SURVIVING BRANCH CIRCUITS TO PANELBOARD	ALTERNATE BID #1 SURVIVING BRANCH CIRCUITS TO PANELBOARD
FLOOR 1:		
4J	N/A	N/A
4J-UPS	N/A	N/A
4E	4MDP	N/A
4F	4MDP	N/A
4G	N/A	4S1
4H	N/A	4S1
41	N/A	4S1
2D	N/A	2S1
2E	N/A	2S1
2F	N/A	2S1
LOOR 2:		
В	2N2	N/A
4L	4N2	N/A
2C	2N2	N/A
4C	4N2	N/A
IT1	N/A	N/A
IT2	N/A	N/A
IT3	N/A	N/A
LOOR 3:		
	2S3	N/A
4M	4S3	N/A
2B	2N3	N/A
4B	4N3	N/A
LOOR 4:		
2N	2S4	N/A
4N	454	N/A
2A	2N4	N/A
4A	4N4	N/A
ROOF:		
2G	2SR	N/A
2H	2NR	N/A

- 3. PROVIDE SCREW CONNECTION, FEED-THROUGH, MODULAR TYPE DIN RAIL TERMINAL BLOCKS FOR TERMINATION AND EXTENSION OF CIRCUIT CONDUCTORS IN SPLICE BOXES AND PANELBOARD INTERIORS. TERMINAL BLOCKS SHALL BE RATED 30A, 300VAC MINIMUM, AND HIGHER AS REQUIRED BY CIRCUIT AMPACITY AND VOLTAGE, QUANTITY AS REQUIRED FOR PHASE, NEUTRAL AND EQUIPMENT GROUND CONDUCTORS. WIRENUT AND SIMILAR TERMINATIONS ARE NOT PERMITTED IN SPLICE BOXES OR PANELBOARD INTERIORS. ALL SPLICES SHALL BE CLEARLY LABELED AND NEATLY TRAINED AS JUDGED ACCEPTABLE BY THE ENGINEER.
- 4. FOR FIRST, THIRD AND FOURTH FLOOR ALTERNATES, AND SECOND FLOOR BASE BID AND ALTERNATE, EXISTING FLUORESCENT LIGHTING FIXTURES ARE REPLACED WITH NEW FIXTURES AND NEW BRANCH CIRCUIT CONDUCTORS AND RACEWAYS AS INDICATED ON THE DRAWINGS. THE CONTRACTOR MAY UTILIZE EXISTING LIGHTING BRANCH CIRCUIT HOMERUN RACEWAYS THAT ARE IN GOOD CONDITION AND PROPER SIZE. THE ARCHITECT/ENGINEER RESERVES THE RIGHT TO DISAPPROVE REUSE OF EXISTING RACEWAYS IF DEEMED UNSUITABLE FOR REUSE. REMOVE EXISTING LIGHTING BRANCH CIRCUIT CONDUCTORS AS REQUIRED AND EXTEND NEW CONDUCTORS IN NEW AND EXISTING RACEWAYS. INSTALL NEW HOMERUNS AND/OR CIRCUIT SEGMENTS AS REQUIRED. CONCEALED OVERHEAD. NEW CIRCUITS SHALL MATCH EXISTING AND BE NO LESS THAN #12 AWG WITH EQUIPMENT GROUND CONDUCTOR, OR LARGER AS REQUIRED BY LENGTH AND THE MINIMUM CONDUCTORS SIZE CHART ON SHEET E005. 5. MAINTAIN EXISTING PHASING OF BRANCH CIRCUITS
- 6. REPLACE CONDUCTORS OF EXISTING COMMON NEUTRAL MULTIWIRE BRANCH CIRCUITS WITH NEW CONDUCTORS AND INDIVIDUAL
- NEUTRALS. 7. WHERE REQUIRED, EXISTING SINGLE RECEPTACLES TO REMAIN MAY BE CONNECTED TO A NEW RECEPTACLE CIRCUIT WITH NEW MATCHING CONDUCTORS WHERE THE RESULTING TOTAL LOAD DOES NOT EXCEED 13 AMPERES FOR A 20 AMPERE CIRCUIT (USING 1.5A AS THE RECEPTACLE LOAD). SEE NOTE 6 BELOW.

# GENERAL NOTES

- 1. THE CONTRACTOR SHALL VISIT THE SITE AND BECOME FAMILIAR WITH THE EXISTING ELECTRICAL SYSTEMS, EXISTING ELECTRICAL AND MECHANICAL EQUIPMENT LOADS AND THE EXISTING BUILDING CONSTRUCTION. THE SUBMISSION OF THE PROPOSAL BY THE CONTRACTOR SHALL BE CONSIDERED EVIDENCE THAT HE OR HIS REPRESENTATIVE HAS VISITED THE SITE AND BUILDINGS AND NOTED THE LOCATION AND CONDITIONS UNDER WHICH THE WORK WILL BE PERFORMED AND THAT HE TAKES FULL RESPONSIBILITY OF ALL FACTORS GOVERNING HIS WORK. NO EXTRAS WILL BE CONSIDERED BECAUSE OF ADDITIONAL WORK NECESSITATED BY EXISTING JOB CONDITIONS THAT ARE NOT INDICATED ON THE DRAWINGS.
- 2. THE EXISTING ELECTRICAL SYSTEMS DEPICTED ON THESE DRAWINGS HAVE BEEN COMPILED BY THE ENGINEER FROM THE OWNER'S RECORD DRAWINGS AND LIMITED FIELD VERIFICATION OF THE EXISTING CONDITIONS FOR THE PURPOSE OF INDICATING THE WORK REQUIRED AND ARE BELIEVED TO BE CORRECT. NOTWITHSTANDING, THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS, POINTS OF ACCESS AND FIELD CONDITIONS AFFECTING HIS WORK. BEGINNING OF DEMOLITION MEANS THE CONTRACTOR ACCEPTS EXISTING CONDITIONS.
- 3. FIELD VERIFY EXISTING CONDITIONS AND INFORM THE ARCHITECT AND ENGINEER UPON DISCOVERING CONDITIONS SIGNIFICANTLY DIFFERENT FOR THOSE SHOWN ON THE DRAWINGS, OR THAT WILL AFFECT THE RENOVATION DESIGN.
- 4. THE CONTRACTOR SHALL FIELD VERIFY ALL EXISTING ELECTRICAL HVAC, RECEPTACLE, LIGHTING, ELEVATOR, ETC. LOADS TO REMAIN, INCLUDING LOADS NOT SHOWN ON THESE DRAWINGS, AND EXTEND CIRCUITS TO NEW PANELS AS REQUIRED USING MATCHING CONDUCTORS AND RACEWAYS.
- 5. ALL EXISTING RECEPTACLES AND DATA/TELEPHONE OUTLETS MAY NOT BE SHOWN. EXISTING FURNITURE AND EQUIPMENT LIMITS VISUALIZATION OF ALL DEVICES. EXISTING ELECTRICAL EQUIPMENT AND CIRCUITING WHERE SHOWN IS FOR CONVENIENCE PURPOSES ONLY. VERIFICATION OF EXISTING ELECTRICAL EQUIPMENT, EXISTING CIRCUITS TO REMAIN, WIRING DESTINATIONS. TERMINATIONS AND EXTENSION OF EXISTING CIRCUITS TO NEW LOADS AND/OR NEW AND EXISTING PANELBOARDS IS THE RESPONSIBILITY OF THE CONTRACTOR.
- 6. REPLACE EXISTING RECEPTACLES TO REMAIN WITH NEW DEVICES AND PLATES AS SPECIFIED IN SPECIFICATIONS SECTION 262726. 7. WHERE INDICATED, NEW RECEPTACLE AND LIGHTING LOADS MAY BE CONNECTED TO EXISTING GENERAL PURPOSE LIGHTING AND RECEPTACLE CIRCUITS WHERE THE RESULTING TOTAL LOAD DOES NOT EXCEED 13 AMPERES FOR A 20 AMPERE CIRCUIT. CONFIRM EXISTING CIRCUIT LOADS WITH ACTUAL FIELD MEASUREMENTS WITH ALL LIGHTING SWITCHED ON (IN THE CASE OF LIGHTING CIRCUITS), EXISTING EQUIPMENT NAMEPLATE DATA AND FIELD OBSERVATION OF DEVICE QUANTITIES USING 180 VA PER GENERAL USE RECEPTACLE. DO NOT EXCEED 80% OF BRANCH CIRCUIT RATINGS. DO NOT CONNECT NEW LOADS TO FIXED EQUIPMENT CIRCUITS. IF THE ABOVE PROCEDURE IS NOT ACCEPTABLE TO THE AUTHORITY HAVING JURISDICTION, REFER TO NEC ARTICLE 220.87 (1) EXCEPTION AND RECORD THE LOAD OF THE CIRCUIT AND PANELBOARD IN QUESTION FOR A MINIMUM OF 30 DAYS TO DETERMINE THE EXISTING LOAD AND FOLLOW THE REQUIREMENTS OF NEC ARTICLES 220.87 (2) AND (3) FOR LOADING. 8. MAINTAIN CONTINUITY OF ALL EXISTING CIRCUITS TO REMAIN OR PORTIONS THEREOF AFFECTED BY THIS WORK.
- 9. TRACE OUT EXISTING WIRING THAT IS TO BE RELOCATED, EXTENDED OR REMOVED AND PERFORM THE RELOCATION, EXTENSION OR REMOVAL WORK AS REQUIRED FOR A COMPLETE OPERATING AND SAFE SYSTEM.
- 10. ABANDONED POWER WIRING, RACEWAYS AND CONDUCTORS, SHALL BE REMOVED BACK TO THEIR SOURCE. REMOVE ABANDONED FEEDER CONDUCTORS AND CUT THE EXISTING FEEDER RACEWAYS FLUSH WITH THE FLOOR (AND CEILING, IF APPLICABLE) AND SEAL. REMOVE EXPOSED FEEDER RACEWAYS. REMOVE EXPOSED ABANDONED BRANCH CIRCUIT RACEWAYS. 11. THE ACCESSIBLE PORTIONS OF ABANDONED FREE RUN CABLES (VOICE, DATA, VIDEO, ALARM, ETC.) SHALL BE REMOVED.
- VERIFY THAT ABANDONED WIRING AND EQUIPMENT SERVE ONLY ABANDONED FACILITIES.
- 12. INSOFAR AS POSSIBLE, MATCH EXISTING EXPOSED DEVICES IN FINISHED AREAS IN TYPE, COLOR AND FINISH. 13. SOME EXISTING RECEPTACLE, LIGHTING OR OTHER LOADS MAY BE SERVED BY CIRCUITS INDICATED TO BE REMOVED. IF SUCH CONDITIONS ARE DISCOVERED, REQUEST THE ARCHITECT/ENGINEER PROVIDE A NEW SOURCE CIRCUIT FOR THE LOAD. DO NOT INDISCRIMINATELY CONNECT TO THE NEAREST CIRCUIT.





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**RENOVATIONS OF** GALEHOUSE (A BUILDING), MCLEOD (S BUILDING), AND NATURAL SCIENCES (N BUILDING)

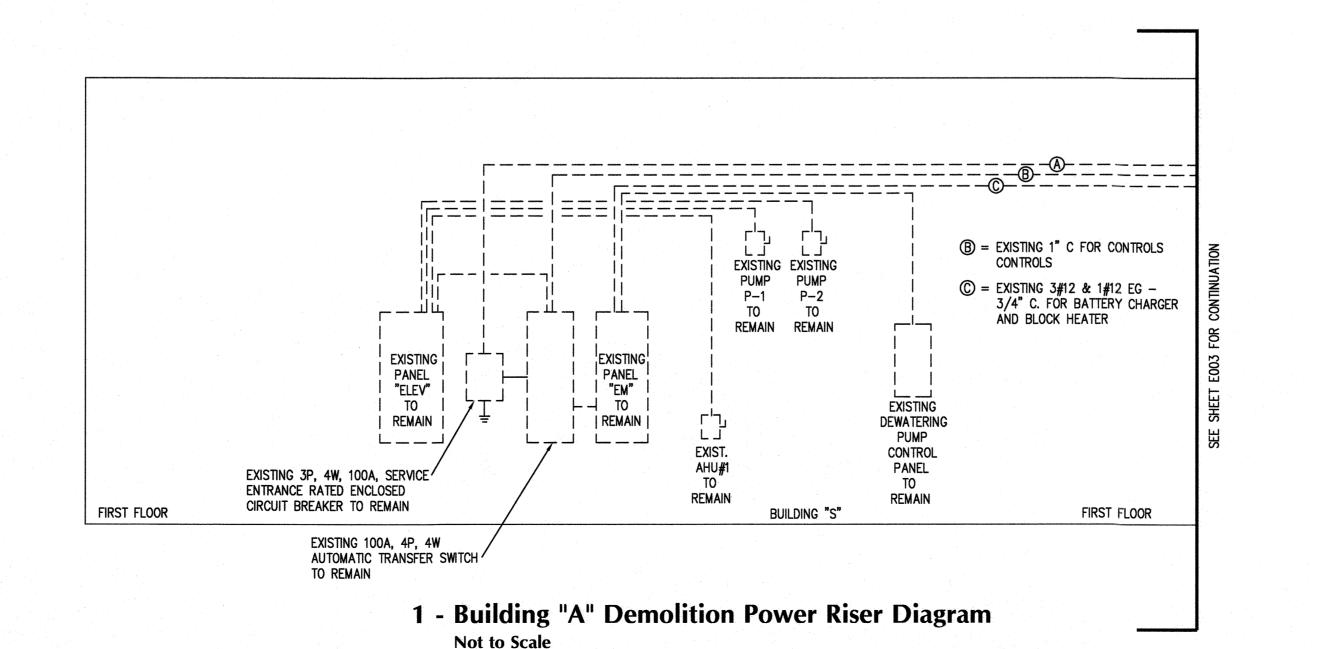
411 N Front Street Wilmington, NC 28401 SCO#17-18154-01A;NCCCS# 2352

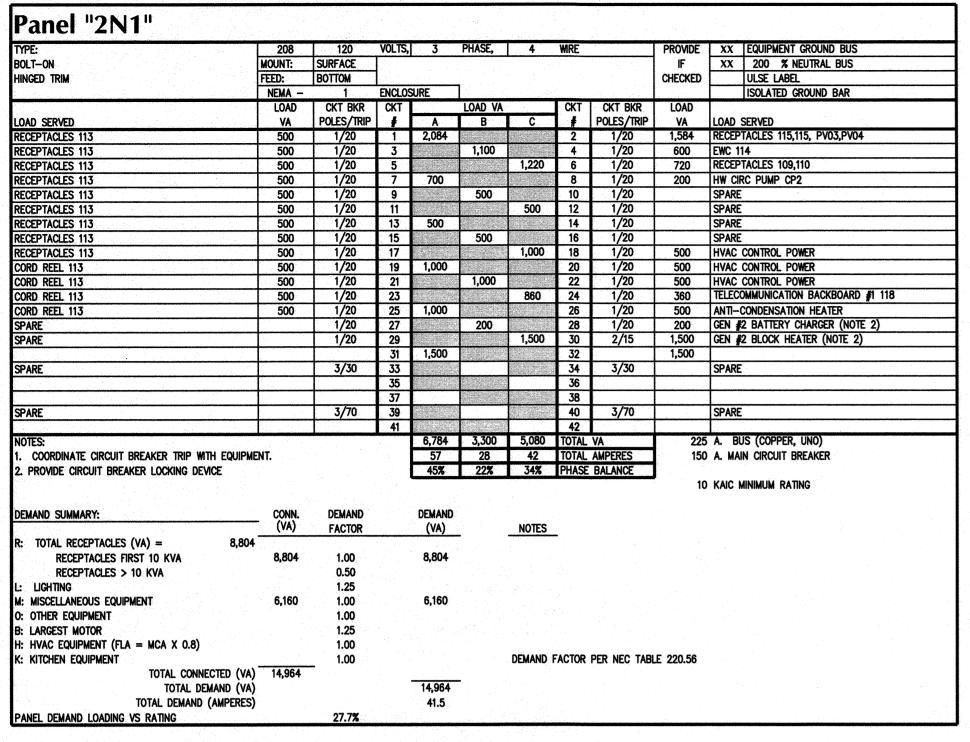
**BUILDING "A"** DEMOLITION POWER RISER DIAGRAM AND NOTES

	ISSUE BLO	CK	
1			
	Α	8/28/2020	ADDENDUM #1
	0	8/14/2020	ISSUED FOR BID
	Mark	Date	Description
	PROJ	ECT NO:	2018023.00

8/14/2020 As indicated DRAWN BY: WPJ PROJ MGR: RDM

E003.1





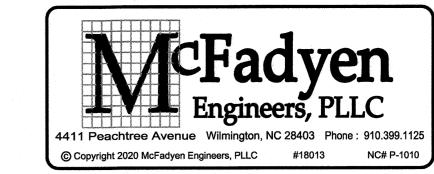
TYPE:	208	120	VOLTS,	3	PHASE,	4	WIRE		PROVIDE	XX	EQUIPMENT GROUND BUS
OLT-ON	MOUNT:	SURFACE	TOLIO,		TINOL	T	WILL		IF	XX	200 % NEUTRAL BUS
IINGED TRIM	FEED:	BOTTOM							CHECKED	- AA	ULSE LABEL
	NEMA -	1	ENCLOS	SURE	l i manti				011201125	-	ISOLATED GROUND BAR
	LOAD	CKT BKR	CKT		LOAD VA		CKT	CKT BKR	LOAD		
OAD SERVED	VA	POLES/TRIP	#	A	В	С	7 #	POLES/TRIP	VA	LOAD	SERVED
ECEPTACLE 233	180	1/20	1	1,440			2	1/20	1,260	RECEF	PTACLES 220,220A,220B,220C,220D,221,222
XTERIOR POLE LIGHT RECPTACLES THRU TS-2	900	1/20	3		1,980		4	1/20	1,080	RECEF	PTACLES 220,220A,220B,220C,220D,221,222
PARE		1/20	5			600	6	1/20	600	EWC 2	
PARE		1/20	7	1,000			8	1/20	1,000		NG MACHINE 200
PARE		1/20	9		1,000		10	1/20	1,000		NG MACHINE 200
PARE		1/20	11			1,000	12	1/20	1,000		NG MACHINE 200
PARE		1/20	13	1,332			14	1/20	1,332		PTACLES 227,228,229,230,231,232,233, PV12
PARE		1/20	15		1,260		16	1/20	1,260		PTACLES 227,228,229,230,231,232,233
PARE		1/20	17			500	18	1/20	500		CONTROL POWER
PARE		1/20	19	500			20	1/20	500		CONTROL POWER
PARE		1/20	21		500		22	1/20	500		CONTROL POWER
PARE	<u> </u>	1/20	23			224	24	2/20	224	BC-2	N.1 & CASSETTES
PARE		1/20	25	224			26		224	<u></u>	
PARE		1/20	27		166		28	2/20	166	BC-2	N.2 & CASSETTES
PARE		1/20	29			166	30		166		
		7/70	31				32	7 /70		0040	
PARE	-	3/30	33				34	3/30		SPAR	
	<u> </u>		35				36				
	ļ	7 /70	37				38	7 /70		CDAD	
PARE		3/70	39				40	3/70	· · · · · · · · · · · · · · · · · · ·	SPARI	
OTTO	<u> </u>		41	4,496	4,906	2,489	42 TOTAL	V/A	225	A D	US (COPPER, UNO)
OTES: COORDINATE CIRCUIT BREAKER TRIP WITH EQUIPME	TAIT			37	4,900	2,409		AMPERES			NN CIRCUIT BREAKER
. COORDINATE CIRCUIT BREAKER TRIP WITH EQUIPME	LN I.			38%	41%	21%		BALANCE	130	A. MA	IN CIRCUIT BREAKER
				30%	71/0	21/0	FINASE	DALANCE	10	KAIC	MINIMUM RATING
									10	KAIC	MINIMOM KATING
DEMAND SUMMARY:	CONN.	DEMAND		DEMAND							
LHIATO SOMMATT.	(VA)	FACTOR		(VA)		NOTES					
: TOTAL RECEPTACLES (VA) = 6,012		TROTOR		(47.7)	<del>-</del> . , , , ;	110.120					
RECEPTACLES FIRST 10 KVA	6,012	1.00		6,012							
RECEPTACLES > 10 KVA	9,512	0.50									
LIGHTING		1.25									
: MISCELLANEOUS EQUIPMENT	5,100	1.00		5,100							
OTHER EQUIPMENT		1.00									
LARGEST MOTOR		1.25									
: HVAC EQUIPMENT (FLA = MCA X 0.8)	779	1.00		779							
: KITCHEN EQUIPMENT		1.00				DEMAND	FACTOR	PER NEC TABI	E 220.56		
	11,891	_									
TOTAL CONNECTED (VA)	11.031										
TOTAL CONNECTED (VA) TOTAL DEMAND (VA)				11,891	≓ in the second second						
TOTAL CONNECTED (VA) TOTAL DEMAND (VA) TOTAL DEMAND (AMPERES)				11,891 33.0							

Panel "2LS"	208	120	VOLTS,	3	PHASE,	4	WIRE		PROVIDE	XX	EQUIPMENT GROUND BUS
BOLT-ON	MOUNT:	SURFACE	<b>VOL 13,</b>		TIMOL	<del></del>	WILL		IF	XX	100 % NEUTRAL BUS
HINGED TRIM	FEED:	BOTTOM							CHECKED		ULSE LABEL
THOSE INM	NEMA -	1	ENCLOS	SURF	1				OFICONED	<u> </u>	ISOLATED GROUND BAR
	LOAD	CKT BKR	CKT		LOAD VA		CKT	CKT BKR	LOAD		FIGURATION STATE
LOAD SERVED	VA	POLES/TRIP	#	A	В	C	#	POLES/TRIP	VA	LOAD	SERVED
FIRE ALARM CONTROL PANEL	500	1/20	1	1,000			2	1/20	500		OF RESCUE ASSISTANCE SYSTEM
NAC POWER SUPPLY FIRST FLOOR	200	1/20	3		400		4	1/20	200	ELEVA	TOR CAB LIGHTS
NAC POWER SUPPLY SECOND FLOOR	200	1/20	5			1,200	6	1/20	1,000	GEN #	2 RECEPTACLE
NAC POWER SUPPLY THIRD FLOOR	200	1/20	7	400		1000	8	1/20	200	GEN #	2 Housing Lighting
NAC POWER SUPPLY FOURTH FLOOR	200	1/20	9		200		10	1/20		SPARE	
SPARE		1/20	11			V	12	1/20		SPARE	
SPARE		1/20	13				14	1/20		SPARE	
SPARE		1/20	15				16	1/20		SPARE	
SPARE		1/20	17				18	1/20		SPARE	
water and the control of the control				4 400		4 000	TOTAL				
NOTES:				1,400	600	1,200	TOTAL		8		JS (COPPER, UNO)
notes: 1. Provide circuit breaker handle locks for a				12	5	10	TOTAL	AMPERES	8		JS (COPPER, UNO) N CIRCUIT BREAKER
NOTES: 1. PROVIDE CIRCUIT BREAKER HANDLE LOCKS FOR A 2. QUANTITY OF NAC POWER SUPPLIES IS ESTIMATED							TOTAL		30	A. MA	N CIRCUIT BREAKER
notes: 1. Provide circuit breaker handle locks for a				12	5	10	TOTAL	AMPERES	30	A. MA	
NOTES:  1. PROVIDE CIRCUIT BREAKER HANDLE LOCKS FOR A 2. QUANTITY OF NAC POWER SUPPLIES IS ESTIMATED BREAKERS IF ADDITIONAL LOADS ARE REQUIRED.	). USE SPA	ARE CIRCUIT		12 44%	5	10	TOTAL	AMPERES	30	A. MA	N CIRCUIT BREAKER
NOTES: 1. PROVIDE CIRCUIT BREAKER HANDLE LOCKS FOR A 2. QUANTITY OF NAC POWER SUPPLIES IS ESTIMATED	O. USE SPA	RE CIRCUIT  DEMAND		12 44% DEMAND	5	10 38%	TOTAL	AMPERES	30	A. MA	N CIRCUIT BREAKER
NOTES:  1. PROVIDE CIRCUIT BREAKER HANDLE LOCKS FOR A 2. QUANTITY OF NAC POWER SUPPLIES IS ESTIMATED BREAKERS IF ADDITIONAL LOADS ARE REQUIRED.  DEMAND SUMMARY:	CONN. (VA)	ARE CIRCUIT		12 44%	5	10	TOTAL	AMPERES	30	A. MA	N CIRCUIT BREAKER
NOTES:  1. PROVIDE CIRCUIT BREAKER HANDLE LOCKS FOR A 2. QUANTITY OF NAC POWER SUPPLIES IS ESTIMATED BREAKERS IF ADDITIONAL LOADS ARE REQUIRED.  DEMAND SUMMARY:  R: TOTAL RECEPTACLES (VA) = 1,000	CONN.	DEMAND FACTOR		12 44% DEMAND (VA)	5	10 38%	TOTAL	AMPERES	30	A. MA	N CIRCUIT BREAKER
NOTES:  1. PROVIDE CIRCUIT BREAKER HANDLE LOCKS FOR A  2. QUANTITY OF NAC POWER SUPPLIES IS ESTIMATED BREAKERS IF ADDITIONAL LOADS ARE REQUIRED.  DEMAND SUMMARY:  R: TOTAL RECEPTACLES (VA) = 1,000 RECEPTACLES FIRST 10 KVA	CONN. (VA)	DEMAND FACTOR		12 44% DEMAND	5	10 38%	TOTAL	AMPERES	30	A. MA	N CIRCUIT BREAKER
NOTES:  1. PROVIDE CIRCUIT BREAKER HANDLE LOCKS FOR A  2. QUANTITY OF NAC POWER SUPPLIES IS ESTIMATED BREAKERS IF ADDITIONAL LOADS ARE REQUIRED.  DEMAND SUMMARY:  R: TOTAL RECEPTACLES (VA) = 1,000 RECEPTACLES FIRST 10 KVA RECEPTACLES > 10 KVA	CONN. (VA)	DEMAND FACTOR  1.00 0.50		12 44% DEMAND (VA) 1,000	5	10 38%	TOTAL	AMPERES	30	A. MA	N CIRCUIT BREAKER
NOTES:  1. PROVIDE CIRCUIT BREAKER HANDLE LOCKS FOR A  2. QUANTITY OF NAC POWER SUPPLIES IS ESTIMATED BREAKERS IF ADDITIONAL LOADS ARE REQUIRED.  DEMAND SUMMARY:  R: TOTAL RECEPTACLES (VA) = 1,000 RECEPTACLES FIRST 10 KVA RECEPTACLES > 10 KVA L: LIGHTING	CONN. (VA) 1,000	DEMAND FACTOR  1.00 0.50 1.25		12 44% DEMAND (VA) 1,000 500	5	10 38%	TOTAL	AMPERES	30	A. MA	N CIRCUIT BREAKER
NOTES:  1. PROVIDE CIRCUIT BREAKER HANDLE LOCKS FOR A 2. QUANTITY OF NAC POWER SUPPLIES IS ESTIMATED BREAKERS IF ADDITIONAL LOADS ARE REQUIRED.  DEMAND SUMMARY:  R: TOTAL RECEPTACLES (VA) = 1,000 RECEPTACLES FIRST 10 KVA RECEPTACLES > 10 KVA L: LIGHTING  M: MISCELLANEOUS EQUIPMENT	CONN. (VA)	DEMAND FACTOR  1.00 0.50 1.25 1.00		12 44% DEMAND (VA) 1,000	5	10 38%	TOTAL	AMPERES	30	A. MA	N CIRCUIT BREAKER
NOTES:  1. PROVIDE CIRCUIT BREAKER HANDLE LOCKS FOR A 2. QUANTITY OF NAC POWER SUPPLIES IS ESTIMATED BREAKERS IF ADDITIONAL LOADS ARE REQUIRED.  DEMAND SUMMARY:  R: TOTAL RECEPTACLES (VA) = 1,000 RECEPTACLES FIRST 10 KVA RECEPTACLES > 10 KVA L: LIGHTING  M: MISCELLANEOUS EQUIPMENT  O: OTHER EQUIPMENT	CONN. (VA) 1,000	DEMAND FACTOR  1.00 0.50 1.25 1.00 1.00		12 44% DEMAND (VA) 1,000 500	5	10 38%	TOTAL	AMPERES	30	A. MA	N CIRCUIT BREAKER
NOTES:  1. PROVIDE CIRCUIT BREAKER HANDLE LOCKS FOR A 2. QUANTITY OF NAC POWER SUPPLIES IS ESTIMATED BREAKERS IF ADDITIONAL LOADS ARE REQUIRED.  DEMAND SUMMARY:  R: TOTAL RECEPTACLES (VA) = 1,000 RECEPTACLES FIRST 10 KVA RECEPTACLES > 10 KVA L: LIGHTING  M: MISCELLANEOUS EQUIPMENT  O: OTHER EQUIPMENT  B: LARGEST MOTOR	CONN. (VA) 1,000	DEMAND FACTOR  1.00 0.50 1.25 1.00 1.00 1.25		12 44% DEMAND (VA) 1,000 500	5	10 38%	TOTAL	AMPERES	30	A. MA	N CIRCUIT BREAKER
NOTES:  1. PROVIDE CIRCUIT BREAKER HANDLE LOCKS FOR A 2. QUANTITY OF NAC POWER SUPPLIES IS ESTIMATED BREAKERS IF ADDITIONAL LOADS ARE REQUIRED.  DEMAND SUMMARY:  R: TOTAL RECEPTACLES (VA) = 1,000 RECEPTACLES FIRST 10 KVA RECEPTACLES > 10 KVA L: LIGHTING M: MISCELLANEOUS EQUIPMENT O: OTHER EQUIPMENT B: LARGEST MOTOR H: HVAC EQUIPMENT (FLA = MCA X 0.8)	CONN. (VA) 1,000	DEMAND FACTOR  1.00 0.50 1.25 1.00 1.00 1.25 1.00		12 44% DEMAND (VA) 1,000 500	5	10 38% NOTES	TOTAL	AMPERES BALANCE	30 10	A. MA	N CIRCUIT BREAKER
NOTES:  1. PROVIDE CIRCUIT BREAKER HANDLE LOCKS FOR A 2. QUANTITY OF NAC POWER SUPPLIES IS ESTIMATED BREAKERS IF ADDITIONAL LOADS ARE REQUIRED.  DEMAND SUMMARY:  R: TOTAL RECEPTACLES (VA) = 1,000 RECEPTACLES FIRST 10 KVA RECEPTACLES > 10 KVA L: LIGHTING M: MISCELLANEOUS EQUIPMENT O: OTHER EQUIPMENT B: LARGEST MOTOR H: HVAC EQUIPMENT (FLA = MCA X 0.8) K: KITCHEN EQUIPMENT	CONN. (VA) 1,000 400 1,800	DEMAND FACTOR  1.00 0.50 1.25 1.00 1.00 1.25		12 44% DEMAND (VA) 1,000 500	5	10 38% NOTES	TOTAL	AMPERES	30 10	A. MA	N CIRCUIT BREAKER
NOTES:  1. PROVIDE CIRCUIT BREAKER HANDLE LOCKS FOR A 2. QUANTITY OF NAC POWER SUPPLIES IS ESTIMATED BREAKERS IF ADDITIONAL LOADS ARE REQUIRED.  DEMAND SUMMARY:  R: TOTAL RECEPTACLES (VA) = 1,000 RECEPTACLES FIRST 10 KVA RECEPTACLES > 10 KVA L: LIGHTING M: MISCELLANEOUS EQUIPMENT O: OTHER EQUIPMENT B: LARGEST MOTOR H: HVAC EQUIPMENT (FLA = MCA X 0.8) K: KITCHEN EQUIPMENT  TOTAL CONNECTED (VA)	CONN. (VA)  1,000  400 1,800	DEMAND FACTOR  1.00 0.50 1.25 1.00 1.00 1.25 1.00		12 44% DEMAND (VA) 1,000 500 1,800	5	10 38% NOTES	TOTAL	AMPERES BALANCE	30 10	A. MA	N CIRCUIT BREAKER
NOTES:  1. PROVIDE CIRCUIT BREAKER HANDLE LOCKS FOR A 2. QUANTITY OF NAC POWER SUPPLIES IS ESTIMATED BREAKERS IF ADDITIONAL LOADS ARE REQUIRED.  DEMAND SUMMARY:  R: TOTAL RECEPTACLES (VA) = 1,000 RECEPTACLES FIRST 10 KVA RECEPTACLES > 10 KVA L: LIGHTING M: MISCELLANEOUS EQUIPMENT O: OTHER EQUIPMENT B: LARGEST MOTOR H: HVAC EQUIPMENT (FLA = MCA X 0.8) K: KITCHEN EQUIPMENT	CONN. (VA)  1,000  400 1,800	DEMAND FACTOR  1.00 0.50 1.25 1.00 1.00 1.25 1.00		12 44% DEMAND (VA) 1,000 500	5	10 38% NOTES	TOTAL	AMPERES BALANCE	30 10	A. MA	N CIRCUIT BREAKER

TYPE:	208	120	VOLTS,	3	PHASE,	4	WIRE		PROVIDE	XX	EQUIPMENT GROUND BUS
BOLT-ON	MOUNT:	SURFACE	102.10,		1111102	<u> </u>	Will SE		IF	XX	200 % NEUTRAL BUS
INGED TRIM	FEED:	BOTTOM	1						CHECKED		ULSE LABEL
INGED TRIM	NEMA -	1	ENCLOS	URF					OFFICIAL		ISOLATED GROUND BAR
	LOAD	CKT BKR	CKT	OIL	LOAD VA		CKT	CKT BKR	LOAD		
LOAD SERVED	VA	POLES/TRIP	#	Α	В	С	#	POLES/TRIP		LOAD	SERVED
EXISTING CLASSROOM RECEPTACLES	1,000	1/20	1	2,080	_		2	1/20			TACLES 311,311A,311B,311C,311D
EXISTING CLASSROOM RECEPTACLES	1,000	1/20	3		2,080		4	1/20			TACLES 311,311A,311B,311C,311D
EXISTING CLASSROOM RECEPTACLES	1,000	1/20	5			1,540	6	1/20	540	RECEP	TACLES 310
EXISTING CLASSROOM RECEPTACLES	1,000	1/20	7	1,540			8	1/20	540	RECEP	TACLES 309
EXISTING CLASSROOM O/H PROJECTOR	1,000	1/20	9		1,540		10	1/20	540	RECEP	TACLES 316
EXISTING CLASSROOM O/H PROJECTOR	1,000	1/20	11			1,540	12	1/20	540	RECEP	TACLES 317
EXISTING CLASSROOM O/H PROJECTOR	1,000	1/20	13	1,600			14	1/20	600	EWC 3	00
EXISTING CLASSROOM O/H PROJECTOR	1,000	1/20	15		1,000		16	1/20	٠.	SPARE	
SPARE		1/20	17			500	18	1/20	500	HVAC	CONTROL POWER
SPARE		1/20	19	500			20	1/20	500	HVAC	CONTROL POWER
SPARE		1/20	21		500		22	1/20	500	HVAC	CONTROL POWER
SPARE		1/20	23				24	1/20		SPARE	
SPARE		1/20	25				26	1/20		SPARE	
SPARE		1/20	27		495		28	2/15	495	BC-3N	I.1 & CASSETTES
SPARE		1/20	29			495	30		495		
			31				32				
SPARE		3/30	33				34	3/30		SPARE	
			35				36				
			37				38				
SPARE		3/70	39				40	3/70		SPARE	
			41				42				
NOTES:				5,720	5,615	4,075	TOTAL				JS (COPPER, UNO)
1. COORDINATE CIRCUIT BREAKER TRIP WITH EQUIPME	ENT.			48	47	34		AMPERES	150	A. MA	IN CIRCUIT BREAKER
				37%	36%	26%	PHASE	BALANCE			
									10	KAIC N	MINIMUM RATING
DEMAND SUMMARY:	CONN.	DEMAND		DEMAND							
	(VA)	FACTOR		(VA)		NOTES	_				
R: TOTAL RECEPTACLES (VA) = 12,320											
RECEPTACLES FIRST 10 KVA	10,000	1.00		10,000							
RECEPTACLES > 10 KVA	2,320	0.50		1,160							
L: LIGHTING		1.25									
M: MISCELLANEOUS EQUIPMENT	1,500	1.00		1,500							
D: OTHER EQUIPMENT		1.00									
B: LARGEST MOTOR		1.25									
H: HVAC EQUIPMENT (FLA = MCA X 0.8)	990	1.00		990							
		1.00				DEMAND	FACTOR	PER NEC TAB	LE 220.56		
TOTAL CONNECTED (VA)					•						
TOTAL CONNECTED (VA) TOTAL DEMAND (VA)				13,650							
		25.3%		13,650 37.9	•						

TYPE:	208	120	VOLTS,	3	PHASE,	4	WRE		PROVIDE	XX	EQUIPMENT GROUND BUS
BOLT-ON	MOUNT:	SURFACE	1						IF	XX	200 % NEUTRAL BUS
HINGED TRIM	FEED:	BOTTOM	1						CHECKED		ULSE LABEL
	NEMA -	1	ENCLOS	URE							ISOLATED GROUND BAR
	LOAD	CKT BKR	CKT		LOAD VA		CKT	CKT BKR	LOAD		
LOAD SERVED	VA	POLES/TRIP	#	A	В	С	#	POLES/TRIP	: VA		SERVED
EXISTING CLASSROOM RECEPTACLES	1,000	1/20	1 1	1,540			2	1/20			TACLES 410
EXISTING CLASSROOM RECEPTACLES	1,000	1/20	3		1,540		4	1/20	540		TACLES 411
EXISTING CLASSROOM RECEPTACLES	1,000	1/20	5			1,540	6	1/20	540		TACLES 416
EXISTING CLASSROOM RECEPTACLES	1,000	1/20	7	1,720			8	1/20	720		TACLES 401
EXISTING CLASSROOM O/H PROJECTOR	1,000	1/20	9		1,000		10	1/20			TACLES ON ROOF
EXISTING CLASSROOM O/H PROJECTOR	1,000	1/20	11			1,600	12	1/20	600	EWC 4	
EXISTING CLASSROOM O/H PROJECTOR	1,000	1/20	13	1,000			14	1/20		SPARE	
XISTING CLASSROOM O/H PROJECTOR	1,000	1/20	15		1,000		16	1/20		SPARE	
SPARE		1/20	17			500	18	1/20	500		CONTROL POWER
SPARE		1/20	19	500			20	1/20			CONTROL POWER
SPARE		1/20	21		500		22	1/20	500		CONTROL POWER
SPARE		1/20	23				24	1/20		SPARE	
SPARE		1/20	25				26	1/20		SPARE	
SPARE		1/20	27		313		28	2/15	313	BC-4N	l.1
SPARE		1/20	29			313	30		313		
			31	: .			32				
		3/30	33				34	3/30		SPARE	
			35		100		36			<u> </u>	
			37	1,952			38		1,952		
SPD		3/60	39		1,500		40	3/60		PANEL	. 2NR
			41			1,500	42		1,500		· · · · · · · · · · · · · · · · · · ·
NOTES:				6,712	5,853	5,453	TOTAL				JS (COPPER, UNO)
<ol> <li>COORDINATE CIRCUIT BREAKER TRIP WITH EQUIPMENT</li> </ol>	ENT.			56	49	45		AMPERES	150	A. MA	IN CIRCUIT BREAKER
			l	37%	32%	30%	PHASE	BALANCE			
			-						10	KAIC I	MINIMUM RATING
DEMAND SUMMARY:	CONN.	DEMAND		DEMAND							
	(VA)	FACTOR		(VA)	•	NOTES	_				
R: TOTAL RECEPTACLES (VA) = 10,340											
RECEPTACLES FIRST 10 KVA	10,000	1.00		10,000							
RECEPTACLES > 10 KVA	340	0.50		170							
: LIGHTING	452	1.25		565							
M: MISCELLANEOUS EQUIPMENT	3,000	1.00		3,000							
D: OTHER EQUIPMENT		1.00									
		1.25									
3: LARGEST MOTOR		1.00		626							
	626	1.00							E 000 E0		
H: HVAC EQUIPMENT (FLA = MCA X 0.8)	626	1.00				DEMAND I	FACTOR	PER NEC TAB	LE 220.56		
H: HVAC EQUIPMENT (FLA = MCA X 0.8)						DEMAND I	FACTOR	PER NEC TAB	LE 220.56		
H: HVAC EQUIPMENT (FLA = MCA X 0.8) K: KITCHEN EQUIPMENT	14,418		•	14,361	·	DEMAND I	FACTOR	PER NEC TAB	LE 220.56		
	14,418		- 12 - 12 - 12 - 12 - 12 - 12 - 12 - 12		· -	DEMAND I	FACTOR	PER NEC TAB	LE 220.56		

YPE:	208	120	VOLTS,	3	PHASE,	4	WIRE		PROVIDE	XX	EQUIPMENT GROUND BUS
	MOUNT:	SURFACE	10210,1		111100,	1 -	WINE		IF	XX	100 % NEUTRAL BUS
	FEED:	BOTTOM	· .						CHECKED	-AA	ULSE LABEL
INTOLD INIM	NEMA -	1	ENCLOS	URF	1.				OFFICE	-	ISOLATED GROUND BAR
	LOAD	CKT BKR	CKT	ONL	LOAD VA	<del></del>	CKT	CKT BKR	LOAD		
OAD SERVED	VA	POLES/TRIP	#	A	В	С	#	POLES/TRIP	VA	LOAD	SERVED
PARE		1/20	1	452	_		2	1/20	452		AND RECEPTACLES ON ROOF
PARE	<del>, , , , , , , , , , , , , , , , , , , </del>	1/20	3				4	1/20		SPARE	
PARE		1/20	5				6	1/20		SPARE	
PARE		1/20	7				8	1/20		SPARE	
PARE		1/20	9				10	1/20		SPARE	
PARE		1/20	11				12	1/20		SPARE	
PARE		1/20	13				14	1/20	-	SPARE	
PARE		1/20	15				16	1/20		SPARE	
PARE		1/20	17			500	18	1/20	500	HVAC	CONTROL POWER
PARE		1/20	19	500			20	1/20	500	HVAC	CONTROL POWER
PARE		1/20	21		500		22	1/20_	500		CONTROL POWER
PARE		1/20	23				24	1/20		SPARE	
PARE		1/20	25	1,100			26		1,100		
PARE		1/20	27		1,100		28	3/15	1,100	UNIT H	EATER EUH2
PARE		1/20	29			1,100	50		1,100		
IOTES:		,		2,052	1,600	1,600	TOTAL		Ŝ	A. B	IS (COPPER, UNU)
. COORDINATE CIRCUIT BREAKER TRIP WITH EQUIPMEN	IT.			17	13	13		AMPERES	60	A. MA	N CIRCUIT BREAKER
			4.0	39%	30%	30%	PHASE	BALANCE			
									10	KAIC N	MINIMUM RATING
	CONN.	DEMAND		DEMAND							
EMAND SUMMARY:	/111			(VA)		NOTES	_				
	(VA)	FACTOR			-		-				
: TOTAL RECEPTACLES (VA) =	(VA)		<del></del>		-						
: TOTAL RECEPTACLES (VA) = RECEPTACLES FIRST 10 KVA	(VA)	1.00			<b>-</b>						
: TOTAL RECEPTACLES (VA) =  RECEPTACLES FIRST 10 KVA  RECEPTACLES > 10 KVA		1.00 0.50									
: TOTAL RECEPTACLES (VA) =  RECEPTACLES FIRST 10 KVA  RECEPTACLES > 10 KVA  : LIGHTING	452	1.00 0.50 1.25		565	<b>-</b>						
: TOTAL RECEPTACLES (VA) = RECEPTACLES FIRST 10 KVA RECEPTACLES > 10 KVA : LIGHTING I: MISCELLANEOUS EQUIPMENT		1.00 0.50 1.25 1.00									
: TOTAL RECEPTACLES (VA) =  RECEPTACLES FIRST 10 KVA  RECEPTACLES > 10 KVA  : LIGHTING  I: MISCELLANEOUS EQUIPMENT  : OTHER EQUIPMENT	452	1.00 0.50 1.25 1.00 1.00		565							
: TOTAL RECEPTACLES (VA) =  RECEPTACLES FIRST 10 KVA  RECEPTACLES > 10 KVA  : LIGHTING  I: MISCELLANEOUS EQUIPMENT  I: OTHER EQUIPMENT  I: LARGEST MOTOR	452 1,500	1.00 0.50 1.25 1.00 1.00 1.25		565 1,500							
RECEPTACLES (VA) = RECEPTACLES FIRST 10 KVA RECEPTACLES > 10 KVA LIGHTING H: MISCELLANEOUS EQUIPMENT C: OTHER EQUIPMENT LARGEST MOTOR H: HVAC EQUIPMENT (FLA = MCA X 0.8)	452	1.00 0.50 1.25 1.00 1.00 1.25 1.00		565					T 000 TO		
R: TOTAL RECEPTACLES (VA) = RECEPTACLES FIRST 10 KVA RECEPTACLES > 10 KVA  : LIGHTING M: MISCELLANEOUS EQUIPMENT D: OTHER EQUIPMENT S: LARGEST MOTOR M: HVAC EQUIPMENT (FLA = MCA X 0.8) C: KITCHEN EQUIPMENT	452 1,500 3,300	1.00 0.50 1.25 1.00 1.00 1.25		565 1,500			FACTOR	per nec tabl	E 220.56		
E: TOTAL RECEPTACLES (VA) = RECEPTACLES FIRST 10 KVA RECEPTACLES > 10 KVA  : LIGHTING I: MISCELLANEOUS EQUIPMENT D: OTHER EQUIPMENT I: LARGEST MOTOR I: HVAC EQUIPMENT (FLA = MCA X 0.8) I: KITCHEN EQUIPMENT TOTAL CONNECTED (VA)	452 1,500	1.00 0.50 1.25 1.00 1.00 1.25 1.00		565 1,500 3,300			FACTOR	PER NEC TABI	E 220.56		
RECEPTACLES > 10 KVA  : LIGHTING  M: MISCELLANEOUS EQUIPMENT  D: OTHER EQUIPMENT  B: LARGEST MOTOR  H: HVAC EQUIPMENT (FLA = MCA X 0.8)  K: KITCHEN EQUIPMENT	452 1,500 3,300	1.00 0.50 1.25 1.00 1.00 1.25 1.00		565 1,500			FACTOR	PER NEC TABI	E 220.56		



Panel "2EM" 208 120 VOLTS, 3 PHASE, 4 MRE

MOUNT: SURFACE

FEED: BOTTOM PROVIDE XX EQUIPMENT GROUND BUS IF XX 100 % NEUTRAL BUS BOLT-ON CHECKED ULSE LABEL
ISOLATED GROUND BAR HINGED TRIM LOAD CKT BKR CKT LOAD VA CKT CKT BKR LOAD VA POLES/TRIP # A B C # POLES/TRIP VA LOAD SERVED 874 24 2/15 468 AH-2E.1 BC-2S.1 & CASSETTES 25 874 26 196 2/15 27 665 28 2/15 468 AH-2E.2 196 29 665 30 468 BC-2S.2 & CASSETTES 4,106 3,005 3,639 TOTAL VA 34 25 30 TOTAL AMPERES I. COORDINATE CIRCUIT BREAKER TRIP WITH EQUIPMENT. 100 A. MAIN CIRCUIT BREAKER 38% 28% 34% PHASE BALANCE 10 KAIC MINIMUM RATING DEMAND SUMMARY: DEMAND DEMAND FACTOR (VA) NOTES TOTAL RECEPTACLES (VA) = 4,572 4,572 RECEPTACLES FIRST 10 KVA 4,572 RECEPTACLES > 10 KVA LIGHTING : MISCELLANEOUS EQUIPMENT 3,100 1.00 D: OTHER EQUIPMENT 1.00 B: LARGEST MOTOR 1.25 3,078 3,078 H: HVAC EQUIPMENT (FLA = MCA X 0.8) 1.00 DEMAND FACTOR PER NEC TABLE 220.56 K: KITCHEN EQUIPMENT 1.00 TOTAL CONNECTED (VA) 10,750

10,750

29.8

TOTAL DEMAND (VA)
TOTAL DEMAND (AMPERES)

PANEL DEMAND LOADING VS RATING

TYPE:	208	120	VOLTS,	3	PHASE,	4	WIRE		PROVIDE	XX	EQUIPMENT GROUND BUS	
BOLT-ON	MOUNT:	SURFACE				<del></del>			IF	XX	100 % NEUTRAL BUS	
IINGED TRIM	FEED:	BOTTOM							CHECKED		ULSE LABEL	
	NEMA -	1	ENCLO	SURE	]						ISOLATED GROUND BAR	
	LOAD	CKT BKR	CKT		LOAD VA		CKT	CKT BKR	LOAD			
OAD SERVED	VA	POLES/TRIP	#	Α	В	С	#	POLES/TRIP	VA		SERVED	
PARE		1/20	1				2	1/20		SPARE		
PARE		1/20	3				4	1/20		SPARE		
PARE		1/20	5			468	6	2/15	468	AH-21	1.1	
	3,170		7	3,639			8		468			
P-2E1	3,170	3/50	9		3,639		10	2/15	468	AH-2	1.2	
	3,170		11			3,639	12		468			
			13				14					
PD		3/60	15				16	3/30		SPARE		
			17			·	18			1		
IOTES:												
				3,639	3,639	4,107	TOTAL				JS (COPPER, UNO)	
	IPMENT.			30	30	34	TOTAL	AMPERES			JS (COPPER, UNO) N CIRCUIT BREAKER	
	IPMENT.						TOTAL		100	A. MA	N CIRCUIT BREAKER	•
	IPMENT.			30	30	34	TOTAL	AMPERES	100	A. MA		
. COORDINATE CIRCUIT BREAKER TRIP WITH EQU		25.440		30 32%	30	34	TOTAL	AMPERES	100	A. MA	N CIRCUIT BREAKER	
. COORDINATE CIRCUIT BREAKER TRIP WITH EQU	CONN.	DEMAND		30 32% DEMAND	30	34 36%	TOTAL	AMPERES	100	A. MA	N CIRCUIT BREAKER	,
COORDINATE CIRCUIT BREAKER TRIP WITH EQUE  EMAND SUMMARY:		DEMAND FACTOR		30 32%	30	34	TOTAL	AMPERES	100	A. MA	N CIRCUIT BREAKER	
COORDINATE CIRCUIT BREAKER TRIP WITH EQUIPMENT OF THE PROPERTY	CONN.	FACTOR		30 32% DEMAND	30	34 36%	TOTAL	AMPERES	100	A. MA	N CIRCUIT BREAKER	
EMAND SUMMARY:  TOTAL RECEPTACLES (VA) =  RECEPTACLES FIRST 10 KVA	CONN.	FACTOR 1.00	an de seguina de casado	30 32% DEMAND	30	34 36%	TOTAL	AMPERES	100	A. MA	N CIRCUIT BREAKER	
EMAND SUMMARY:  TOTAL RECEPTACLES (VA) =  RECEPTACLES FIRST 10 KVA  RECEPTACLES > 10 KVA	CONN.	1.00 0.50		30 32% DEMAND	30	34 36%	TOTAL	AMPERES	100	A. MA	N CIRCUIT BREAKER	
EMAND SUMMARY:  TOTAL RECEPTACLES (VA) =  RECEPTACLES FIRST 10 KVA  RECEPTACLES > 10 KVA  LIGHTING	CONN.	1.00 0.50 1.25		30 32% DEMAND	30	34 36%	TOTAL	AMPERES	100	A. MA	N CIRCUIT BREAKER	
EMAND SUMMARY:  TOTAL RECEPTACLES (VA) = RECEPTACLES FIRST 10 KVA RECEPTACLES > 10 KVA LIGHTING MISCELLANEOUS EQUIPMENT	CONN.	1.00 0.50 1.25 1.00		30 32% DEMAND	30	34 36%	TOTAL	AMPERES	100	A. MA	N CIRCUIT BREAKER	
EMAND SUMMARY:  TOTAL RECEPTACLES (VA) = RECEPTACLES FIRST 10 KVA RECEPTACLES > 10 KVA LIGHTING MISCELLANEOUS EQUIPMENT OTHER EQUIPMENT	CONN.	1.00 0.50 1.25 1.00 1.00		30 32% DEMAND	30	34 36%	TOTAL	AMPERES	100	A. MA	N CIRCUIT BREAKER	
EMAND SUMMARY:  TOTAL RECEPTACLES (VA) = RECEPTACLES FIRST 10 KVA RECEPTACLES > 10 KVA LIGHTING MISCELLANEOUS EQUIPMENT OTHER EQUIPMENT LARGEST MOTOR	CONN. (VA)	1.00 0.50 1.25 1.00 1.00 1.25		30 32% DEMAND (VA)	30	34 36%	TOTAL	AMPERES	100	A. MA	N CIRCUIT BREAKER	
EMAND SUMMARY:  TOTAL RECEPTACLES (VA) = RECEPTACLES FIRST 10 KVA RECEPTACLES > 10 KVA LIGHTING MISCELLANEOUS EQUIPMENT OTHER EQUIPMENT LARGEST MOTOR HVAC EQUIPMENT (FLA = MCA X 0.8)	CONN.	1.00 0.50 1.25 1.00 1.00 1.25 1.00		30 32% DEMAND	30	34 36% NOTES	TOTAL PHASE	AMPERES BALANCE	100	A. MA	N CIRCUIT BREAKER	
DEMAND SUMMARY:  R: TOTAL RECEPTACLES (VA) = RECEPTACLES FIRST 10 KVA RECEPTACLES > 10 KVA LIGHTING M: MISCELLANEOUS EQUIPMENT D: OTHER EQUIPMENT R: LARGEST MOTOR H: HVAC EQUIPMENT (FLA = MCA X 0.8) K: KITCHEN EQUIPMENT	CONN. (VA)	1.00 0.50 1.25 1.00 1.00 1.25		30 32% DEMAND (VA)	30	34 36% NOTES	TOTAL PHASE	AMPERES	100	A. MA	N CIRCUIT BREAKER	
DEMAND SUMMARY:  R: TOTAL RECEPTACLES (VA) = RECEPTACLES FIRST 10 KVA RECEPTACLES > 10 KVA L: LIGHTING M: MISCELLANEOUS EQUIPMENT D: OTHER EQUIPMENT B: LARGEST MOTOR H: HVAC EQUIPMENT (FLA = MCA X 0.8) K: KITCHEN EQUIPMENT TOTAL CONNECTED (	CONN. (VA)  11,385 (VA) 11,385	1.00 0.50 1.25 1.00 1.00 1.25 1.00		30 32% DEMAND (VA)	30	34 36% NOTES	TOTAL PHASE	AMPERES BALANCE	100	A. MA	N CIRCUIT BREAKER	
DEMAND SUMMARY:  R: TOTAL RECEPTACLES (VA) = RECEPTACLES FIRST 10 KVA RECEPTACLES > 10 KVA L: LIGHTING M: MISCELLANEOUS EQUIPMENT O: OTHER EQUIPMENT B: LARGEST MOTOR H: HVAC EQUIPMENT (FLA = MCA X 0.8) K: KITCHEN EQUIPMENT TOTAL CONNECTED ( TOTAL DEMAND (	11,385 (VA) 11,385 (VA) 11,385	1.00 0.50 1.25 1.00 1.00 1.25 1.00		30 32% DEMAND (VA)	30	34 36% NOTES	TOTAL PHASE	AMPERES BALANCE	100	A. MA	N CIRCUIT BREAKER	
DEMAND SUMMARY:  R: TOTAL RECEPTACLES (VA) = RECEPTACLES FIRST 10 KVA RECEPTACLES > 10 KVA L: LIGHTING M: MISCELLANEOUS EQUIPMENT O: OTHER EQUIPMENT B: LARGEST MOTOR H: HVAC EQUIPMENT (FLA = MCA X 0.8) K: KITCHEN EQUIPMENT TOTAL CONNECTED (	11,385 (VA) 11,385 (VA) 11,385	1.00 0.50 1.25 1.00 1.00 1.25 1.00		30 32% DEMAND (VA)	30	34 36% NOTES	TOTAL PHASE	AMPERES BALANCE	100	A. MA	N CIRCUIT BREAKER	

NOTE: ARRANGE PANELBOARD BRANCH CIRCUIT BREAKERS AS SHOWN ON THE ABOVE

AND ELECTRICAL FLOOR PLANS IS REQUIRED IN ORDER TO AVOID CONFUSION DURING

DOCUMENTATION OF THE AS-BUILT CONDITIONS.

SCHEDULES. AGREEMENT OF CIRCUIT BREAKER (POLE) NUMBERS WITH THE PANEL SCHEDULES

CONSTRUCTION, REDRAWING THE CIRCUITRY FOR RECORD DRAWING PURPOSES AND ACCURATE



ARCHITECTURE PLANNING

North Carolina
3333 Jaeckle Drive, Suite 120
Wilmington, NC 28403
910.341.7600
Maryland
312 West Main St, Suite 300

Salisbury, MD 21801
410.546.9100

Delaware
309 S Governors Ave
Dover, DE 19904

302.734.7950
Rittenhouse Station
250 South Main Street, Suite 109
Newarrk, DE 19711
302.369.3700

www.beckermorgan.com





PROJECT TITLE

RENOVATIONS OF GALEHOUSE (A BUILDING), MCLEOD (S BUILDING), AND NATURAL SCIENCES (N BUILDING)

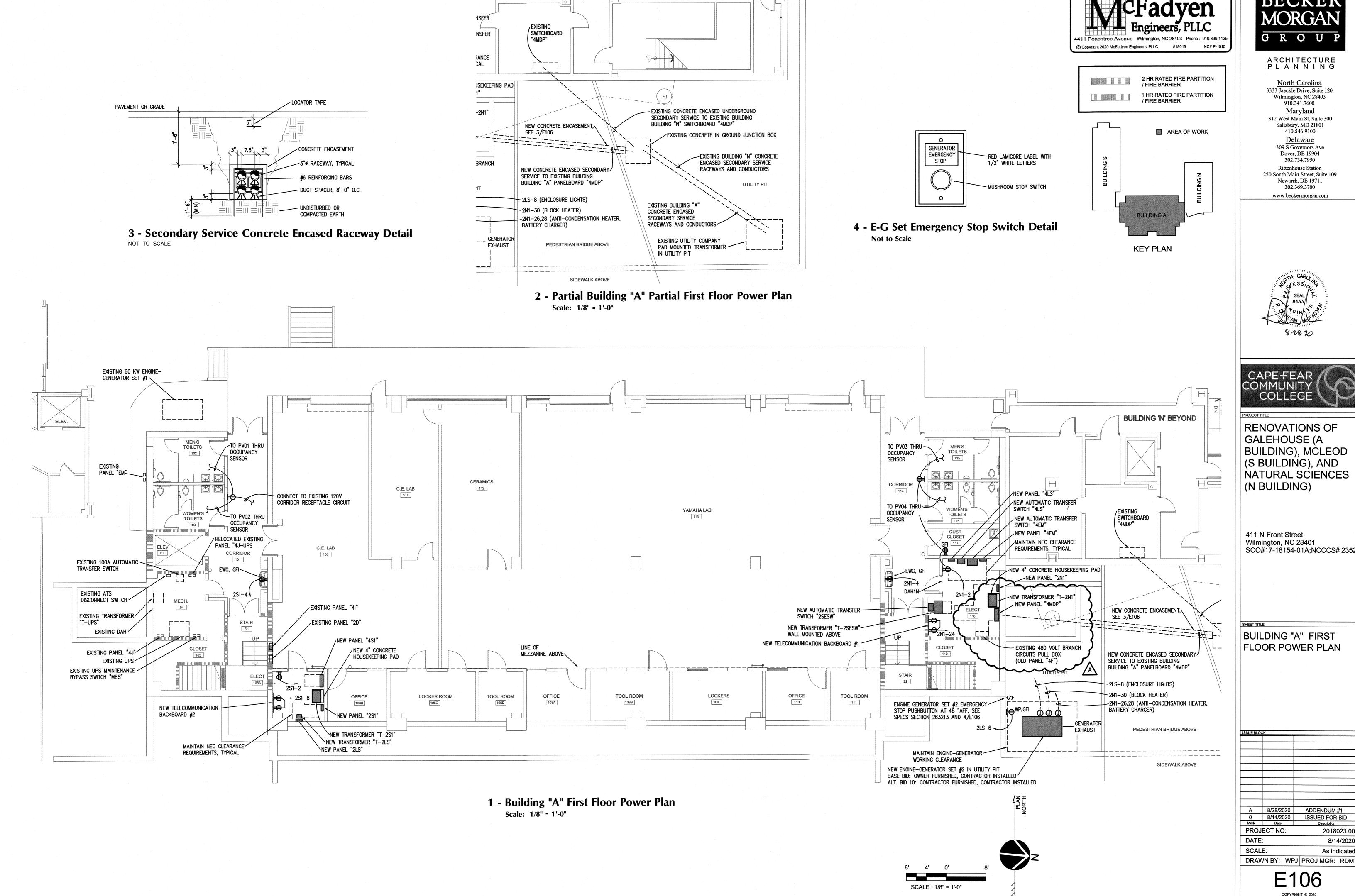
411 N Front Street Wilmington, NC 28401 SCO#17-18154-01A;NCCCS# 2352

SHEET TITLE

ELECTRICAL PANEL SCHEDULES

A 8/28/2020 ADDENDUM #1
0 8/14/2020 ISSUED FOR BID
Mark Date Description
PROJECT NO: 2018023.00
DATE: 8/14/2020
SCALE: As indicated

E009.2





ARCHITECTURE PLANNING

North Carolina 3333 Jaeckle Drive, Suite 120 Wilmington, NC 28403 910.341.7600 Maryland 312 West Main St, Suite 300 Salisbury, MD 21801 410.546.9100

Delaware 309 S Governors Ave Dover, DE 19904 302.734.7950 Rittenhouse Station 250 South Main Street, Suite 109

Newarrk, DE 19711 302.369.3700

COLLEGE

RENOVATIONS OF GALEHOUSE (A BUILDING), MCLEOD (S BUILDING), AND NATURAL SCIENCES (N BUILDING)

411 N Front Street Wilmington, NC 28401 SCO#17-18154-01A;NCCCS# 2352

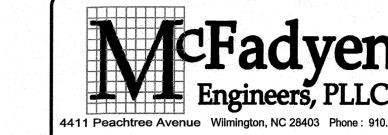
BUILDING "A" FIRST FLOOR POWER PLAN

A 8/28/2020 ADDENDUM #1 ISSUED FOR BID 2018023.00

As indicated

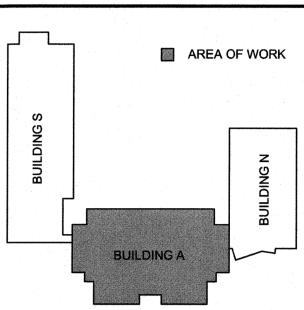
E106

8/14/2020

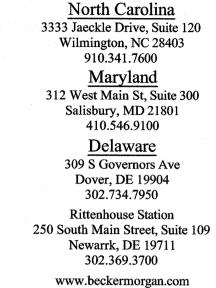


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**KEY PLAN** 



G R O U P

ARCHITECTURE PLANNING





RENOVATIONS OF GALEHOUSE (A BUILDING), MCLEOD (S BUILDING), AND NATURAL SCIENCES (N BUILDING)

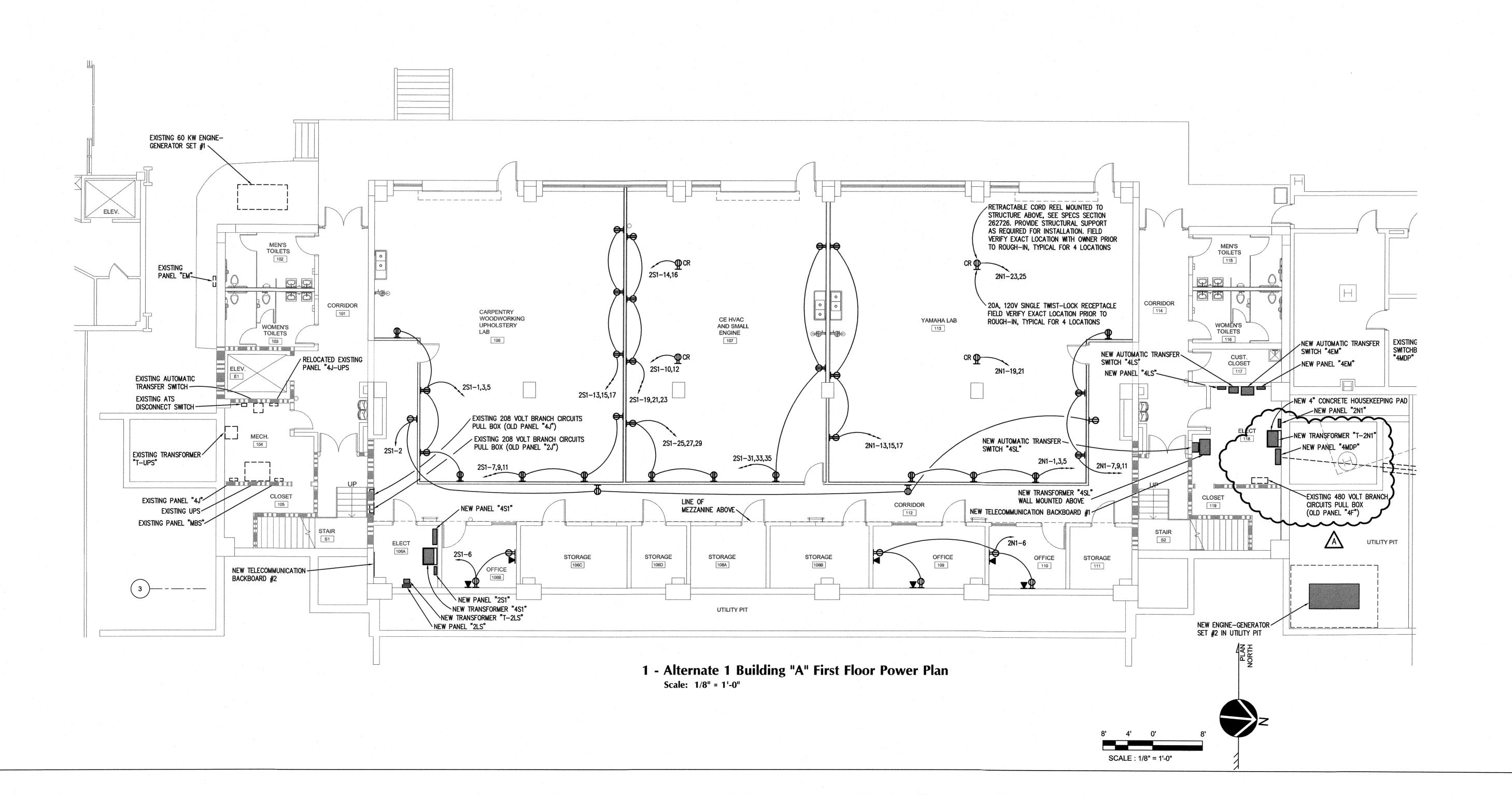
411 N Front Street Wilmington, NC 28401 SCO#17-18154-01A;NCCCS# 2352

ALTERNATE 1 BUILDING "A" FIRST FLOOR POWER PLAN

A 8/28/2020 0 8/14/2020 ISSUED FOR BID PROJECT NO: 2018023.00 8/14/2020

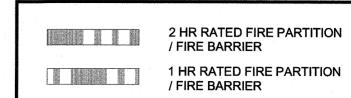
DRAWN BY: WPJ PROJ MGR: RDM E106A

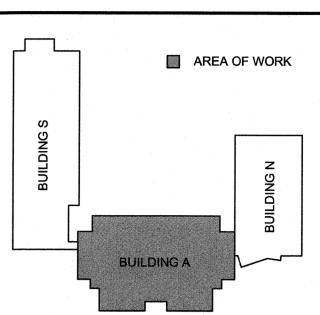
As indicated



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**KEY PLAN** 

8.28,20

BECKER

G R O U P

ARCHITECTURE PLANNING

North Carolina 3333 Jaeckle Drive, Suite 120

Wilmington, NC 28403 910.341.7600 Maryland 312 West Main St, Suite 300

Salisbury, MD 21801

309 S Governors Ave Dover, DE 19904

302.734.7950 Rittenhouse Station

250 South Main Street, Suite 109

Newarrk, DE 19711

302.369.3700

www.beckermorgan.com

410.546.9100 Delaware

RENOVATIONS OF GALEHOUSE (A BUILDING), MCLEOD (S BUILDING), AND NATURAL SCIENCES

(N BUILDING)

411 N Front Street Wilmington, NC 28401 SCO#17-18154-01A;NCCCS# 2352

SHEET TITLE BUILDING "A" ROOF POWER, LIGHTING AND SYSTEMS PLAN

A 8/28/2020 ADDENDUM #1 
 0
 8/14/2020
 ISSUED FOR BID

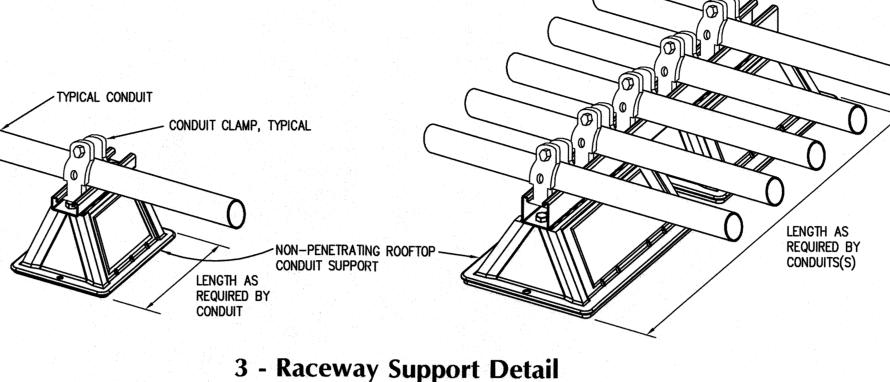
 Mark
 Date
 Description
 PROJECT NO: 2018023.00 DATE: 8/14/2020

As indicated

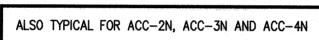
DRAWN BY: WPJ PROJ MGR: RDM E110

SCALE:

- CONDUIT CLAMP, TYPICAL TYPICAL CONDUIT CONDUIT CLAMP, TYPICAL REQUIRED BY NON-PENETRATING ROOFTOF CONDUITS(S) CONDUIT SUPPORT LENGTH AS REQUIRED BY CONDUIT



SCALE: NONE



CONNECT TO EQUIPMENT WITH

DETAIL AND REQUIREMENTS. SEE DETAIL 3/E110

MOUNTED ON EQUIPMENT

NON-PENETRATING ROOFTOP CONDUIT SUPPORT, SUPPORT LENGTH AS REQUIRED BY RACEWAYS AND PER MANUFACTURERS RECOMMENDATIONS. SUPPORT LOCATIONS INDICATED ARE REPRESENTATIVE ONLY. PROVIDE SUPPORTS AT LOCATIONS/INTERVALS AND INSTALL PER MANUFACTURER RECOMMENDATIONS. RACEWAYS SUPPORTS PROVIDED BY THE E.C.

AND INSTALLED BY THE G.C.. ADHERE RACEWAY SUPPORTS TO ROOF SURFACE PER ROOF MANUFACTURERS RECOMMENDATIONS. SEE SPECIFICATIONS SECTION 260529 FOR ADDITIONAL

STRUCTURE ABOVE, TYPICAL

NOTE: ALL CONDUCTORS INSTALLED ON THE ROOF

SHALL HAVE XHHW-2 INSULATION

FLEXIBLE RACEWAY, TYPICAL

ACC-4S

OFFSET RACEWAYS TO ACCOMODATE

ROOF ELEVATIONS

# 2 - Roof Conduit Support Plan SCALE: NONE

MOUNTED ON EQUIPMENT

STRUCTURE ABOVE, TYPICAL

HP-4SI

I HP-3S I

THP-2S I

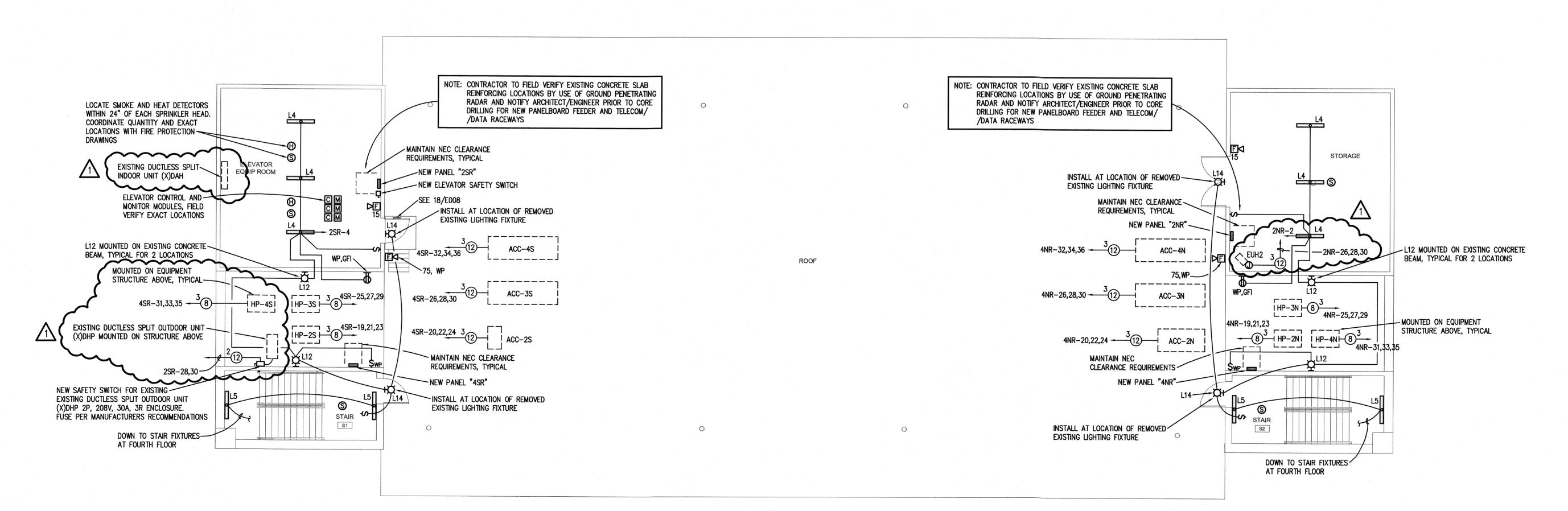
STAIR

S1

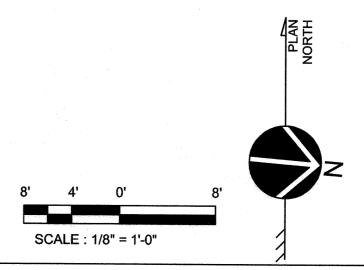
NEW RACEWAY

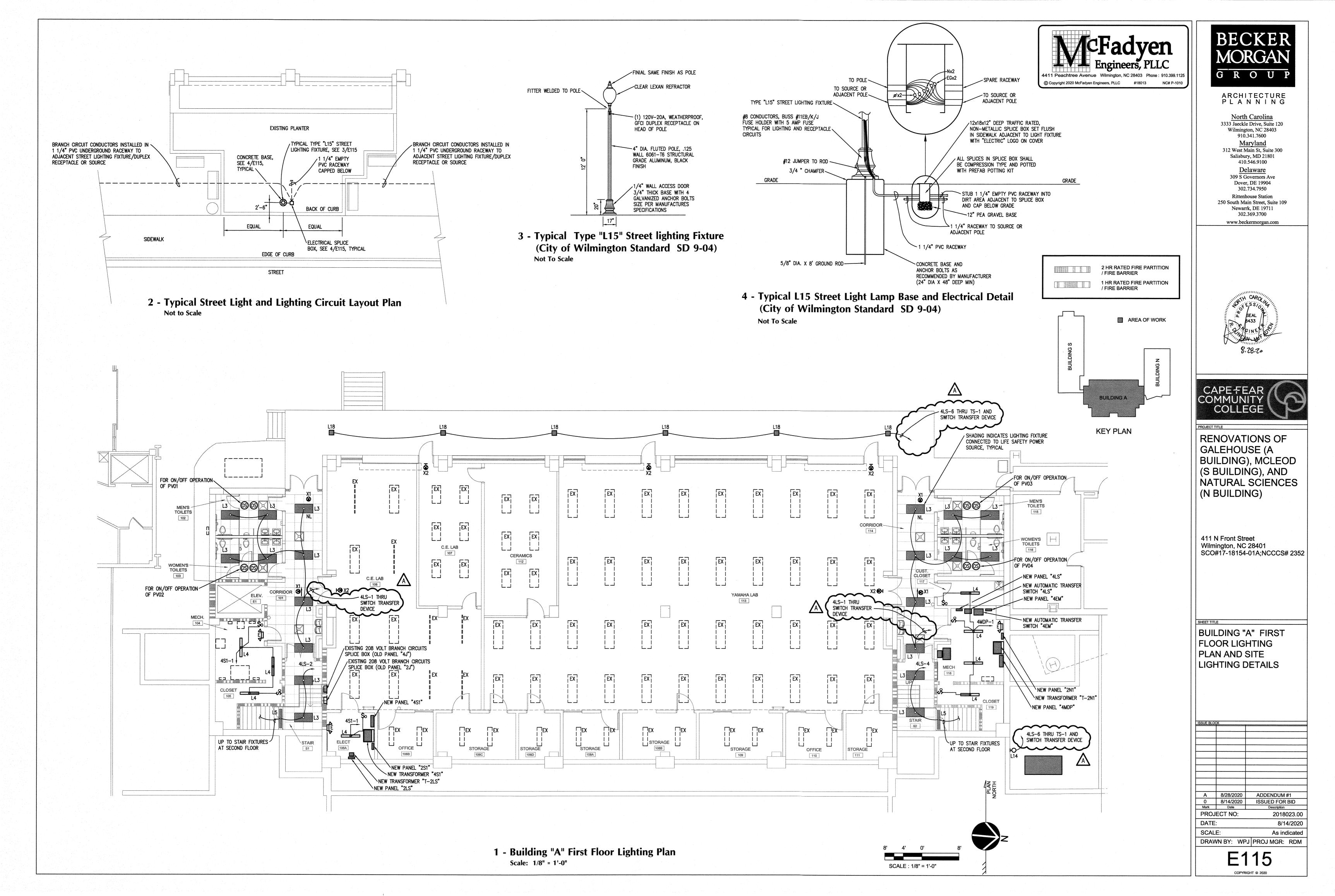
RACK ON ROOF ----

NEW PANEL "4SR"



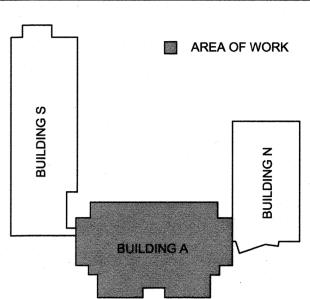
1 - Building "A" Roof Power, Lighting and Systems Plan Scale: 1/8" = 1'-0"







2 HR RATED FIRE PARTITION / FIRE BARRIER 1 HR RATED FIRE PARTITION / FIRE BARRIER 



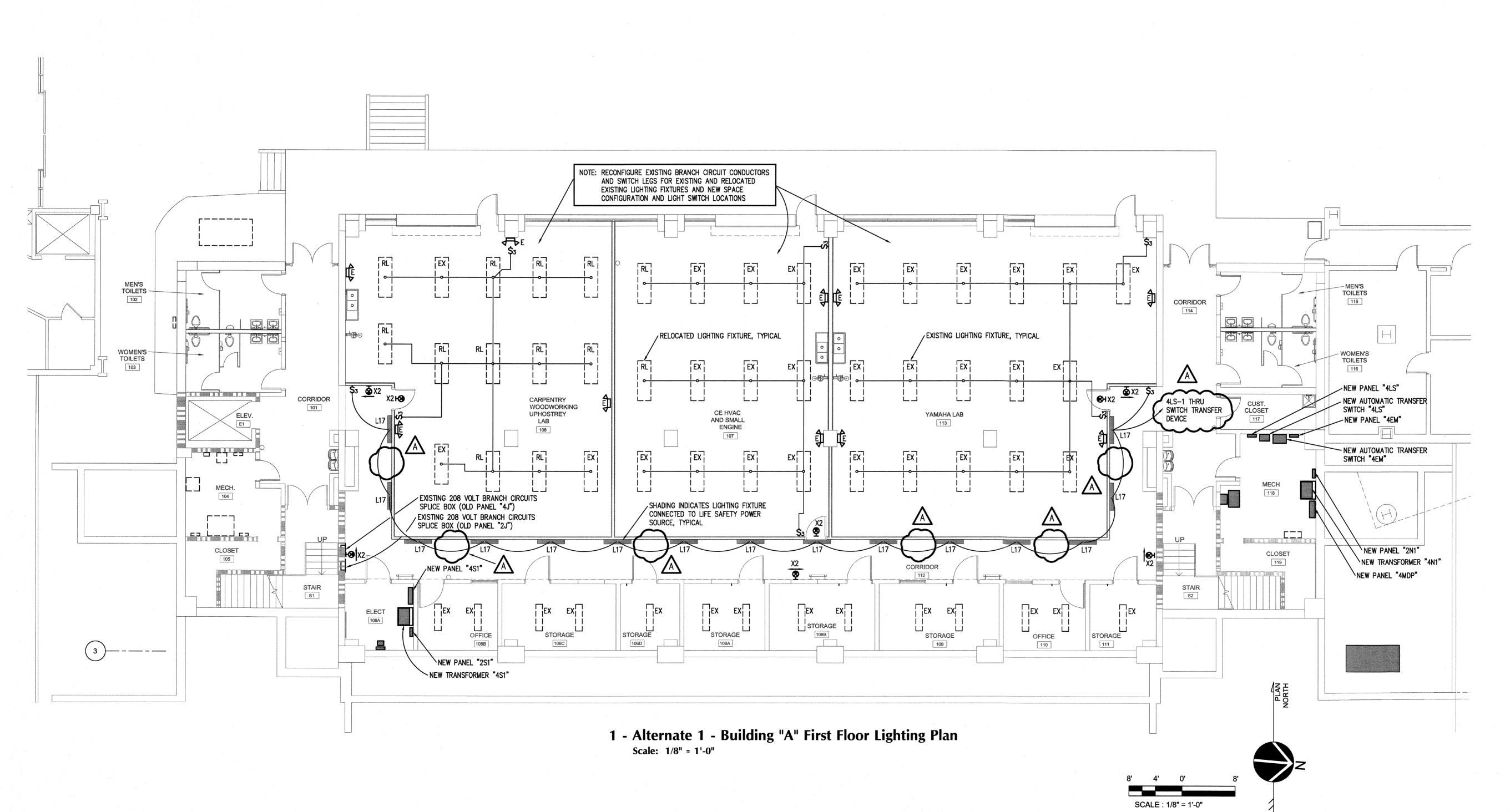
**KEY PLAN** 

2 - Alternate 1 - Building "A" First Floor Mezzanine Lighting Plan Scale: 1/8" = 1'-0"

LOCATED AT 48" AFF AT FIRST

FLOOR LEVEL

LOCATED AT 48" AFF AT FIRST FLOOR LEVEL



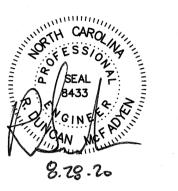
# BECKER G R O U P

ARCHITECTURE P L A N N I N G

North Carolina 3333 Jaeckle Drive, Suite 120 Wilmington, NC 28403 910.341.7600 Maryland 312 West Main St, Suite 300 Salisbury, MD 21801 410.546.9100 **Delaware** 309 S Governors Ave Dover, DE 19904

302.734.7950 Rittenhouse Station 250 South Main Street, Suite 109 Newarrk, DE 19711

302.369.3700 www.beckermorgan.com





**RENOVATIONS OF** GALEHOUSE (A BUILDING), MCLEOD (S BUILDING), AND NATURAL SCIENCES (N BUILDING)

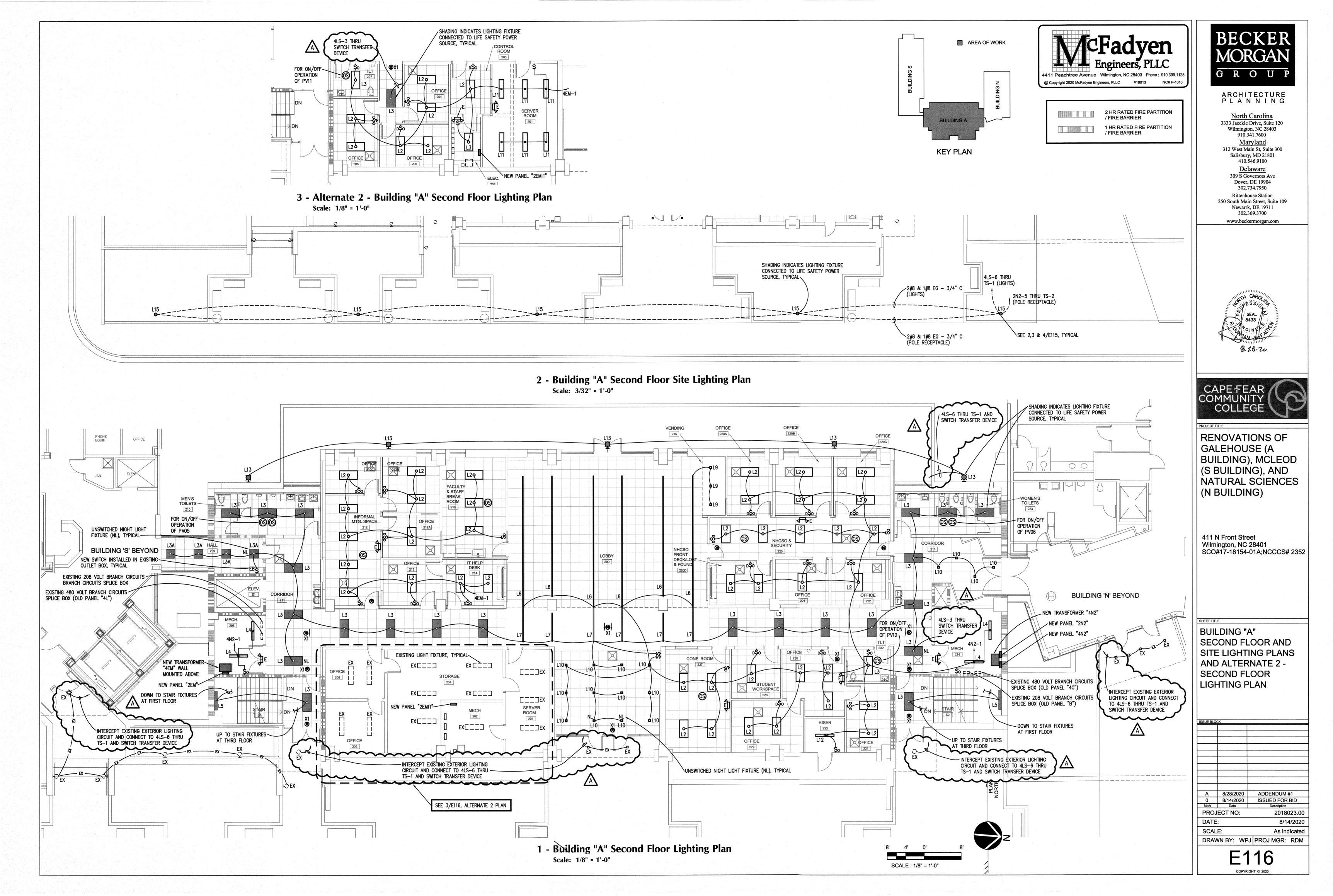
411 N Front Street
Wilmington, NC 28401
SCO#17-18154-01A;NCCCS# 2352

ALTERNATE 1 -BUILDING "A" FIRST FLOOR AND FIRST FLOOR MEZZANINE LIGHTING PLANS

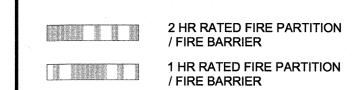
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Α	8/28/2020	ADDENDUM #1		
0	8/14/2020	ISSUED FOR BID		
Mark	Date	Description		
PROJECT NO:		2018023.00		

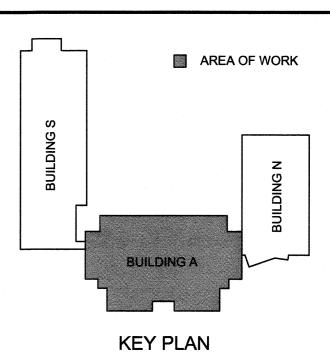
DATE: 8/14/2020 As indicated

DRAWN BY: WPJ PROJ MGR: RDM E115A











ARCHITECTURE PLANNING

North Carolina
3333 Jaeckle Drive, Suite 120
Wilmington, NC 28403
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Delaware

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Dover, DE 19904
302.734.7950
Rittenhouse Station
250 South Main Street, Suite 109
Newarrk, DE 19711

302.369.3700 www.beckermorgan.com





PROJECT TITLE

RENOVATIONS OF GALEHOUSE (A BUILDING), MCLEOD (S BUILDING), AND NATURAL SCIENCES (N BUILDING)

411 N Front Street Wilmington, NC 28401 SCO#17-18154-01A;NCCCS# 2352

SHEET TITLE

ALTERNATE 3 -BUILDING "A" THIRD FLOOR LIGHTING PLAN

A 8/28/2020 ADDENDUM #1

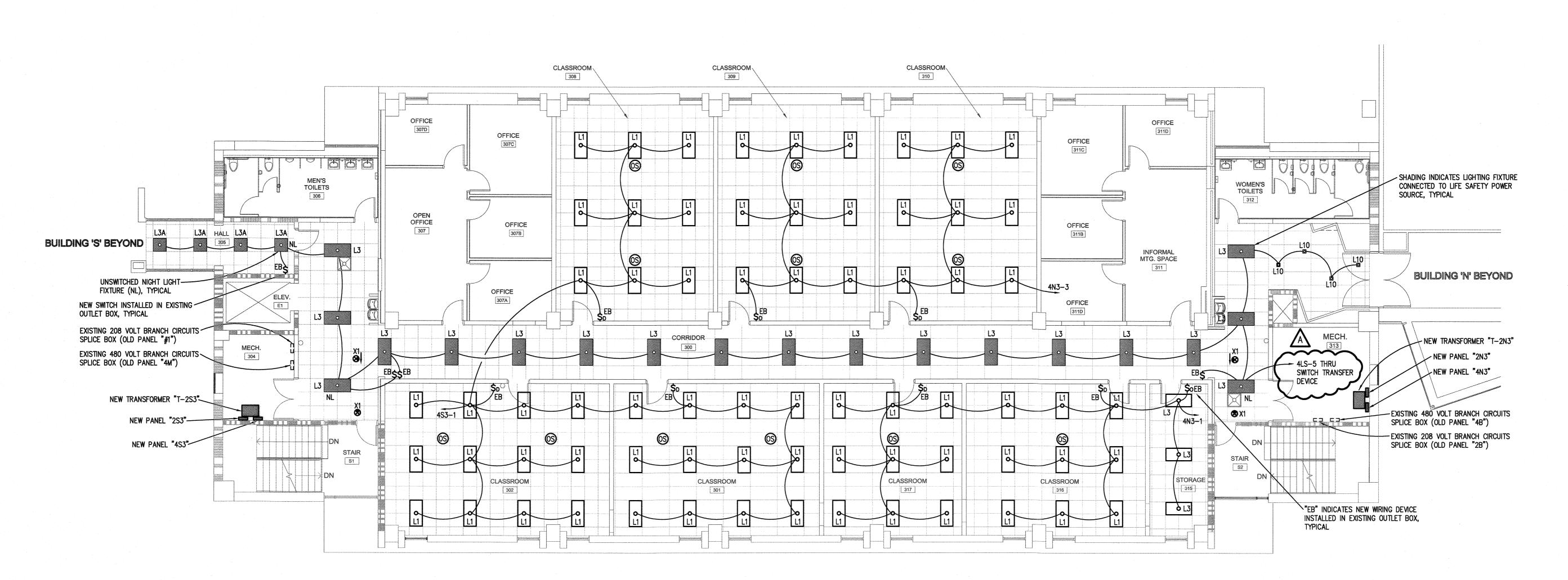
A 8/28/2020 ADDENDUM #1
0 8/14/2020 ISSUED FOR BID
Mark Date Description
PROJECT NO: 2018023.00

DATE: 8/14/2020

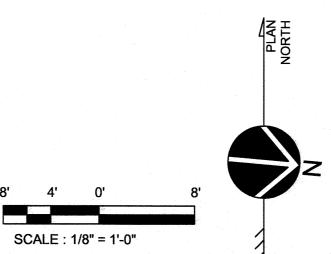
SCALE: As indicated

DRAWN BY: WPJ PROJ MGR: RDM

E117A

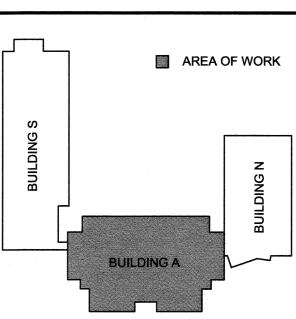




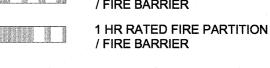


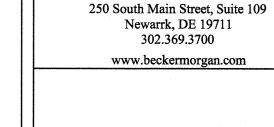






**KEY PLAN** 





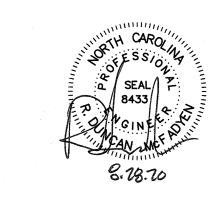
G R O U P

ARCHITECTURE P L A N N I N G

North Carolina 3333 Jaeckle Drive, Suite 120

Wilmington, NC 28403 910.341.7600 Maryland 312 West Main St, Suite 300 Salisbury, MD 21801

410.546.9100 <u>Delaware</u> 309 S Governors Ave Dover, DE 19904 302.734.7950 Rittenhouse Station





RENOVATIONS OF GALEHOUSE (A BUILDING), MCLEOD (S BUILDING), AND NATURAL SCIENCES (N BUILDING)

411 N Front Street
Wilmington, NC 28401
SCO#17-18154-01A;NCCCS# 2352

SHEET TITLE

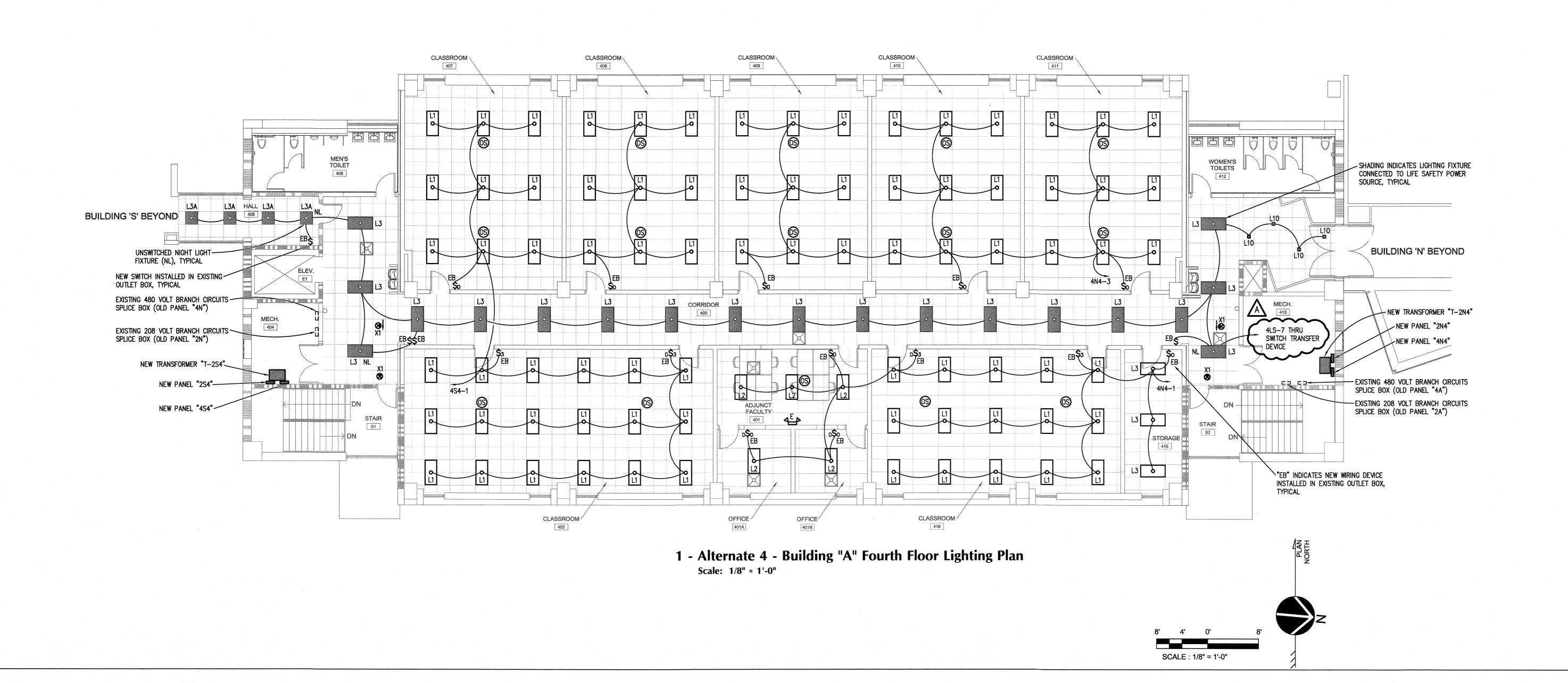
ALTERNATE 4 -BUILDING "A" FOURTH FLOOR LIGHTING

	ISSUE BLOCK			
-				
İ				
		A		
	Α	8/28/2020	ADDENDUM #1	
	0	8/14/2020	ISSUED FOR BID	
	Mark	Date	Description	
	PRO IECT NO:		2018022.00	

PROJECT NO: 2018023.00 8/14/2020 As indicated

DRAWN BY: WPJ PROJ MGR: RDM

E118A



# Cape Fear Community College Asbestos Abatement Project Building A

**Abatement Specifications** 

At: Cape Fear Community College

Bldg. A

411 N. Front St.

Wilmington, NC 28401

Prepared for: CAPE FEAR COMMUNITY COLLEGE

411 N. Front St. Wilmington, NC 28401

PEI Project No.: 5101-20-0002-1A

Date: May 14, 2020

Designer: Jonathan Guetta \_

NC Designer Accreditation #40364

Supervising Air Gary Alexander NC Accreditation #90090

Monitor:

Prepared by:



3802 Cherry Ave. Wilmington, NC 28403 Tel: (910) 763-3445 Fax: (910-763-3415

### 1.01 Scope of work

- A. This asbestos abatement project will consist of furnishing all labor, material, equipment, licenses and permits required to perform the following procedures within Cape Fear Community College, Building A (411 N. Front St, Wilmington, NC 28401):
  - Regulated removal of approximately twenty-one (21) asbestos containing Thermal System Insulation (TSI) elbows/fittings (various sizes) within Building A. 1<sup>st</sup> floor. (See drawing)
  - Regulated removal of approximately 1,400 sq. ft. of asbestos containing floor tile and associated mastic within the within Building  $A 2^{nd}$  floor. (See drawing)
  - Non regulated removal of approximately 870 sq. ft. of asbestos containing mastic associated with non-asbestos floor tile within Building A  $-2^{nd}$  floor. (See drawing)
  - Regulated removal of approximately 16,100 sq. ft. of asbestos containing floor tile and associated mastic within the within Building A  $-3^{rd}$  floor. (See drawing)
  - Regulated removal of approximately 1,700 sq. ft. of asbestos containing floor tile and associated mastic within the within Building  $A 4^{th}$  floor. (See drawing)
- B. The contractor shall be aware of all conditions of the Project and is responsible for verifying quantities and locations of all Work to be performed. Failure to do so shall not relieve the Contractor of its obligation to furnish all labor, materials, and permits necessary to perform the Work with no additional cost to the Owner.
- C. All Work shall be performed in strict accordance with this written specification and all governing Federal, State and Local Codes, rules and regulations. Where conflicts occur between written specifications and applicable Federal, State and Local Codes, rules and regulations, the more stringent shall apply.

### 1.02 Special Conditions

### Removal

- A. Asbestos abatement procedures involving all asbestos containing materials listed above shall take place utilizing regulated removal procedures (OSHA Class I and Class II).
- B. Regulated floor tile and associated mastic abatement shall take place within negative pressure enclosures (NPE). Abatement of asbestos containing floor tile and associated mastic shall take place in no more than three (3) NPEs.
- C. TSI elbow abatement shall take place utilizing glove bag removal methods.
- D. Non-regulated removal of asbestos containing mastic associated with non-asbestos floor tile shall take place within regulated areas without the requirement for an NPE.
- E. Non-asbestos floor tile associated with asbestos containing mastic shall be disposed of as asbestos containing waste.
- F. Poly splash guards shall be installed at all areas of mastic removal.
- G. Where floor tile is located below carpet, the carpet shall not be removed until the completion of the NPE for that area. Carpet may be disposed of as construction debris.

- H. All furniture/misc. materials shall be removed by Cape Fear Community College (CFCC) prior to the start of the project.
- I. The contractor shall remove existing cove base within all areas of flooring removal.
- J. HVAC systems within the work area shall be shut down and isolated prior to the start of removal procedures.
- K. A licensed electrician is required to conduct all electrical work which may include but is not limited to hard wiring abatement equipment. If a licensed electrician is required, an electrical permit must be applied for and submitted to CFCC prior to the start of work and proof must be submitted to CFCC following completion of work indicating that a county inspector has inspected and passed the electrical work. The final documentation from the county inspector must be submitted with the final invoice.
- L. Barricade tape and appropriate warning signs shall be placed at all entrances to the work area prior to the start of removal procedures.
- M. Each NPE shall have an attached decontamination unit (DECON) and waste load out. The DECON and Waste Load Out shall be constructed in accordance with OSHA 1926.1101.
- N. Each NPE shall be constructed of critical barriers covering all penetrations leading out of the work area (i.e. doors, windows, electrical outlets), ceiling poly covering all drop ceilings or porous ceilings within the work areas and sufficient negative air machines in order to achieve four (4) air changes per hour and -0.02 inches of water pressure differential as compared to areas outside of the NPE. Critical barriers shall be constructed of at least one layer of 6-mil poly sheeting.
- O. The contractor is responsible for the security of the building during the project. Negative air exhaust locations must be secured with plywood panels or approved equivalent.
- Mastic removal shall take place utilizing commercially available liquid mastic remover. P.
- Q. All layers of asbestos flooring and mastics shall be removed prior to the start of clearance air monitoring. Square footage estimates account for only one layer.
- R. TSI elbows shall be removed utilizing glovebag procedures. Glovebag procedures shall be conducted in accordance with OSHA 1926.1101 paragraph (g)(5)(2). (As per regulations, each glovebag removal shall be conducted utilizing 2 workers per glovebag.)
- S. Poly ground coverings shall be placed below each area of glovebag removal.
- Engineering controls shall remain in place until receipt of acceptable final clearance air monitoring results.
- U. If initial final clearance air sampling results reveal fiber concentration in excess of the accepted clearance criterion, the cost for additional daily monitoring as well as clearance monitoring will be absorbed by the contractor.
- V. Final clearance monitoring results shall be made available by 4:00pm the following business day following collection of the samples for the NPE.

### GENERAL CONDITIONS

A. The campus will be occupied by staff, students and visitors during the project. The contractor shall insure that all personnel under his supervision remain in designated areas, refrain from smoking, and refrain from using owner's equipment (i.e. ladders, mops, broom, etc.).

PEI Project No.: 5101-20-0002-1A

- B. The contractor shall secure all equipment and materials prior to the end of each shift. No equipment or materials may be left unsecured outside of the facility.
- C. Equipment brought on site must be clean and in good working condition. Negative air machines must be sealed at both ends during transport to from each work area.
- D. Special care must be taken not to damage expansion joints and floor receptacles within the work areas. If the expansion joints/floor receptacles are damaged during the course of the project, they shall be repaired or replaced by the abatement contractor at CFCC's discretion.
- E. Special care must be taken not to damage doors and door hardware. If the hardware or doors are damaged, they shall be repaired or replaced by the abatement contractor at CFCC's discretion.
- F. The contractor shall maintain on site, all SDS sheets for all products to be used during abatement procedures.
- G. The asbestos waste chain of custody shall be submitted to CFCC's environmental consultant, Precision Environmental Inc. (3802 Cherry Ave., Wilmington, NC 28403), within 35 days of delivery of the waste to the landfill. (Original(s) only, photocopies or scanned copies shall not be accepted.)
- H. When completing the waste disposal chain of custody, please refer to the following: (1) Generator/Owner name and address (Cape Fear Community College, 411 N. Front St. Wilmington, NC 28401; (2) Generator/Owner telephone number (910-910-362-7695); (3) Generator/Owner representative (David Kanoy); (4) The specific location of where the asbestos containing material was removed as well as approximate quantities.
- I. All waste manifests, NHC final electrical inspection, and submittals shall be delivered to Precision Environmental Inc. at 3802 Cherry Ave., Wilmington, NC 28403.
- J. Final payment shall not be processed until receipt of submittals including the final waste manifest signed by the landfill.
- K. No vehicles are permitted to drive or park on concrete walkways.
- L. No vehicles are permitted to park on grass located on school property.
- M. Dumpsters or waste haulers may not be parked on concrete walkways.
- N. Any damage to concrete and/or asphalt shall be repaired at the contractor's expense.
- O. By submitting a bid for this project, the contractor understands that they are accepting the entire scope of work, schedule and potential for liquidated damages.

### 1.03 PERMITS AND COMPLIANCE

- A. The Contractor shall assume full responsibility and liability for compliance with all applicable Federal, State and Local regulations pertaining to Work practices, protection of Workers, authorized visitors to the site, persons, and property adjacent to the Work.
- B. Perform asbestos related Work in accordance with North Carolina Administrative Code Chapter 10-A Subchapter 41C – Occupational Health, 40 CFR Part 61, Subpart M – National Emission Standard for Asbestos (40 CFR 61-141-157), EPA 763.80, Part 763-Asbestos Subpart E – Asbestos Containing Materials In Schools, and all other applicable Federal, State and Local Rules and Regulations. Where more stringent requirements are specified, adhere to the more stringent requirements.
- C. The Contractor must maintain current licenses pursuant to North Carolina Health Hazards Control Unit (HHCU) and Federal regulatory agencies having jurisdiction over this Project, including the removal, handling, transport, and disposal of asbestos containing materials.

D. The Contractor must have and submit proof upon request that any persons employed by the Contractor to engage in or supervise Work during this Project have a valid HHCU issued asbestos Supervisor or Worker Accreditation.

- E. It is the sole responsibility of the Contractor to determine what, if any, patents are applicable to the Project. The Contractor shall pay all royalties and/or license fees. He shall defend all suits or claims for infringement of any patent rights and save the Owner, Architect, Engineer, Environmental Consultant, and Construction Manager harmless from loss, including attorney's fees, on account thereof.
- F. Failure to adhere to the Project Documents shall constitute a breach of the Contract and the Owner shall have the right to and may terminate the Contract provided, however, the failure of the Owner to so terminate shall not relieve the Contractor from future compliance.
- G. Failure of the Contractor to adhere to all applicable Federal, State and City rules may result in fines and penalties to the Owner, Contractor and/or the Environmental Consultant. The Contractor shall be responsible for payment of any fines issued to the Owner or the Environmental Consultant as result of the Contractor's failure to adhere to all applicable regulations.

### 1.04 SUBMITTALS

- A. Pre-contract Submittals: Within 5 days following award of the project, the contractor shall submit the following documentation.
  - 1. Preliminary Schedule: Provide an estimate of manpower to be utilized and the time required for completion of each phase of the Project. Include estimated size and number of crews and work shifts.
- B. Pre-Work Submittals: Within 10 days prior to the start of the project, the Contractor shall submit 2 copies of the documents listed below:
  - 1. Project Notifications/Permits: As required by Federal, State, and Local regulatory agencies together with proof of transmittal (i.e. certified mail return receipt).
  - 2. SDS sheets for all chemicals/products to be utilized during the project.
- C. Certificates documenting completion of EPA accredited training for all asbestos workers and supervisors assigned to this project.
- D. Project Close-out Submittals: Submit the following at the close out of the Project:
  - 1. **Originals** of all waste disposal manifests, shall be submitted within three (3) days after delivery, or as soon as possible thereafter. The manifests shall be signed by the landfill and shall certify the amount of ACM delivered.
  - 2. OSHA compliance air monitoring records conducted during the Work.
  - 3. Daily progress log.
  - 4. A list of all Workers used in the performance of the Project, including name, HHCU Accreditation number and expiration date of accreditation.
  - 5. For each Worker used in the performance of the Project, submit required employee statements including proof of Medical Examination, and proof of Respirator Fit Testing.
  - 6. NHC final electrical inspection (if applicable).

### 1.05 PRE-CONSTRUCTION CONFERENCE

- A. Prior to start of preparatory work under this Contract, the Contractor shall attend a preconstruction conference attended by Owner, Facility Personnel, and Environmental Consultant.
- B. Agenda for this conference shall include but not necessarily be limited to:
  - 1. Contractor's scope of Work, Work plan, and schedule to include number of Workers and

shifts.

- 2. Contractor's safety and health precautions including protective clothing and equipment and decontamination procedures.
- 3. Environmental Consultant's duties, functions, and authority.
- 4. Contractor's Work procedures including:
  - a. Methods of job site preparation and removal methods.
  - b. Respiratory protection.
  - c. Disposal procedures.
  - d. Cleanup procedures.
  - e. Fire exits and emergency procedures.
- 5. Contractor's required pre-work and on-site submittals, documentation, and postings.
- 6. Temporary utilities.
- 7. Storage of removed asbestos containing materials.
- 8. Waste disposal requirements and procedures.
- C. In conjunction with the conference the Contractor shall accompany the Owner and Environmental Consultant on a pre-construction walk-through documenting existing condition of finishes and furnishings, reviewing overall Work plan, location of fire exits, fire protection equipment, water supply and temporary electric tie-in.

### 1.06 APPLICABLE STANDARDS AND REGULATIONS

- A. The Contractor shall comply with the following codes and standards, except where more stringent requirements are shown or specified:
- B. Federal Regulations:
  - 1. 29 CFR 1910.1001, "Asbestos" (OSHA)
  - 2. 29 CFR 1910.1200, "Hazard Communication" (OSHA)
  - 3. 29 CFR 1910.134, "Respiratory Protection" (OSHA)
  - 4. 29 CFR 1910.145, "Specification for Accident Prevention Signs and Tags" (OSHA)
  - 5. 29 CFR 1926, "Construction Industry" (OSHA)
  - 6. 29 CFR 1926.1101, "Asbestos, Tremolite, Anthophylite, and Actinolite" (OSHA)
  - 7. 29 CFR 1926.500 "Guardrails, Handrails and Covers" (OSHA)
  - 8. 40 CFR 61, Subpart A, "General Provisions" (EPA)
  - 9. 40 CFR 61, Subpart M, "National Emission Standard for Asbestos" (EPA)
  - 10. 49 CFR 171-172, Transportation Standards (DOT)
- C. North Carolina Regulations:
  - 1. North Carolina Administrative Code Chapter 10-A Subchapter 41C
- D. Standards and Guidance Documents:
  - 1. American National Standard Institute (ANSI) Z88.2-80, Practices for Respiratory Protection
  - 2. ANSI Z9.2-79, Fundamentals Governing the Design and Operation of Local Exhaust Systems
  - 3. EPA 560/585-024, Guidance for Controlling Asbestos Containing Materials in Buildings (Purple Book)
  - 4. EPA 530-SW-85-007, Asbestos Waste Management Guidance

### 1.07 NOTICES

A. The Contractor shall provide notification of intent to commence asbestos abatement activities as indicated below.

1. At least ten (10) Working days prior to beginning abatement activities, send written notification to:

Health Hazards Control Unit NCDHHS- Division of Public Health 1912 Mail Service Center Raleigh, NC 27699-1912

### 1.08 PROJECT MONITORING AND AIR SAMPLING

- A. The Owner shall engage the services of an Environmental Consultant (the Consultant) who shall serve as the Owner's Representative in regard to the performance of the asbestos abatement Project and provide direction as required throughout the entire abatement period.
- B. The Contractor is required to ensure cooperation of its personnel with the Consultant for the air sampling and Project monitoring functions described below. The Contractor shall comply with all direction given by the Consultant during the course of the Project.
- C. The Consultant shall provide the following administrative services:
  - 1. Review and approve or disapprove all submittals, shop drawings, schedules, and samples.
  - 2. Assure that all notifications to governmental agencies by the Contractor are submitted in a timely manner.
  - 3. Review and approve the Contractor's OSHA compliance testing laboratory.
- D. The Consultant shall staff the Project with a trained and certified person(s) to act on the Owner's behalf at the job site.
  - 1. The Consultant shall be on-site at all times asbestos abatement procedures are taking place.
  - 2. The Consultant shall have the authority to direct the actions of the Contractor verbally and in writing to ensure compliance with the Project documents and all regulations. The Consultant shall have the authority to Stop Work when gross Work practice deficiencies or unsafe practices are observed, or when ambient fiber concentrations outside the removal area exceed 0.01 f/cc or background level.
    - a. Such Stop Work order shall be effective immediately and remain in effect until corrective measures have been taken and the situation has been corrected.
    - b. Standby time required to resolve the situation shall be at the Contractor's expense.
  - 3. The Consultant shall provide the following services:
    - a. Inspection of the Contractor's Work, practices, and procedures for compliance with all regulations and Project specifications.
    - b. Provide abatement Project air sampling as required by applicable regulations. Sampling will include during abatement and clearance sampling.
    - c. Verify daily that all Workers used in the performance of the Project are certified by the appropriate regulatory agency.
    - d. Monitor the progress of the Contractor's Work, and report any deviations from the schedule to the Owner.
    - e. Monitor, verify, and document all waste load-out operations.
    - f. Verify that the Contractor is performing personal air monitoring daily and that results are being returned and posted at the site as required, or that a valid negative exposure assessment is on site.

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4. The following minimum inspections shall be conducted by the Consultant. Additional inspections shall be conducted as required by Project conditions.

- a. Pre-Construction Inspection: The purpose of this inspection is to verify the existing conditions of the Work Area and to document these conditions are accurately documented by the Contractor.
- b. Pre-Commencement Inspection: The purpose of this inspection is to verify the integrity of each containment system prior to disturbance of any asbestos containing material. This inspection shall take place only after the Work Area is fully prepped for removal.
- c. Work Inspections: The purpose of this inspection is to monitor the Work practices and procedures employed on the Project and to monitor the continued integrity of the containment system. Inspections within the removal areas shall be conducted by the Consultant during all preparation, removal, and cleaning activities at least twice every Work shift. Additional inspections shall be conducted as warranted.
- d. Visual Clearance Inspection: The purpose of this inspection is to verify the Contractor's certification that all materials have been removed from the Work Area and the absence of all visible accumulations of debris in the Work Area. This inspection shall be conducted after the final cleaning, but before final air clearance testing.
- e. Post-Clearance Inspection: The purpose of this inspection is to ensure the complete removal of ACM, including debris, from the Work Area after satisfactory final clearance sampling and removal of all critical barriers and equipment from the Work Area.
- f. Punch List Inspection: The purpose of this inspection is to verify the Contractor's certification that all Work has been completed as contracted and the existing condition of the area prior to its release to the Owner.
- E. The Consultant shall provide abatement Project air sampling and analysis as required by applicable regulations. Sampling will include during-abatement, and clearance sampling.
  - 1. Unless otherwise required by applicable regulations, the Consultant shall have all during air samples analyzed by Phase Contrast Microscopy (PCM), and all final clearance air samples analyzed by Transmission Electron Microscopy (TEM).
  - 2. Air samples shall be collected as required by applicable regulations
  - 3. If the air sampling during abatement reveals airborne fiber levels at or above 0.01 fibers/cc or the background level (whichever is greater) outside the Work Area, then the Consultant shall issue an immediate Stop Work order. The Contractor shall then inspect the barriers for leakage and HEPA vacuum and wet clean the surface outside the Work Area. The Contractor shall bear the burden of any and all costs incurred by this delay.
  - 4. If final clearance air sampling reveals fiber concentrations equal or greater to 70 structures per millimeter squared per sample, the work area shall be re-cleaned and re-sampled. In the event of a clearance failure, the cost for additional sampling and analysis shall be absorbed by the contractor.
  - 5. Air monitoring activities shall be performed under the supervision of a licensed Supervising Air Monitor (SAM).
  - 6. The SAM shall be accredited per the Asbestos Hazard Management Program rules.
  - 7. The Air monitor shall be accredited as per the Asbestos Hazard Management program rules and work under the direct supervision of a SAM.

### 1.09 CONTRACTOR AIR SAMPLING

- A. In addition to the requirements of OSHA 1926.1101, the Contractor shall be required to perform personal air monitoring every Work shift during which abatement activities occur in order to determine that appropriate respiratory protection is being.
- B. The Contractor shall conduct air sampling that is representative of both the 8-hour time weighted average and 30-minute short-term exposures to indicate compliance with the permissible exposure and excursion limits.
- C. Results of personnel air sample analyses shall be available, verbally, within twenty-four (24) hours of sampling and shall be posted upon receipt. Written laboratory reports shall be delivered and posted at the Work site within 48 hour.
- D. The Contractor may submit a current, relative negative exposure assessment and post it at the job site in lieu of conducting daily personal air monitoring.

### 1.10 PROJECT SUPERVISOR

- A. The Contractor shall designate a full-time Project Supervisor who shall meet the following qualifications:
  - 1. The Project Supervisor shall hold NCDHHS-HHCU certification as an Asbestos Supervisor.
  - 2. The Project Supervisor shall meet the requirements of a "Competent Person" as defined by OSHA 1926.1101 and shall have a minimum of one year experience as a supervisor.
  - 3. The Project Supervisor must be able to read and write English fluently, as well as communicate in the primary language of the Workers.
  - 4. The Project Supervisor shall be a full time employee of the contractor.
- B. If the Project Supervisor is not on-site at any time whatsoever, all Work shall be stopped. The Project Supervisor shall remain on-site until the Project is complete.
- C. The Project Supervisor shall maintain the Project Log Book required by section 2.03 of the specifications.
- D. The Project Supervisor shall be responsible for the performance of the Work and shall represent the Contractor in all respects at the Project site. The Supervisor shall be the primary point of contact for the Consultant.

### 1.11 MEDICAL REQUIREMENTS

- A. Before exposure to airborne asbestos fibers, provide Workers with a comprehensive medical examination as required by 29 CFR 1910.1001, and 29 CFR 1926.1101.
  - 1. This examination is not required if adequate records show the employee has been examined as required by 29 CFR 1910.1001, and 29 CFR 1926.1101 within the past year.
  - 2. The same medical examination shall be given on an annual basis to employees engaged in an occupation involving asbestos fibers and within thirty (30) calendar days before or after the termination of employment in such occupations.
- B. As required by 29 CFR 1910.1001, and 29 CFR 1926.1101 maintain complete and accurate records of employees' medical examinations for a period of thirty (30) years after termination of employment and make records of the required medical examinations available for inspection and copying to: The Assistant Secretary of Labor for Occupational Safety and Health, the Director of the National Institute for Occupational Safety and Health (NIOSH), authorized representatives of either of them, and an employee's physician upon the request of the employee

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or former employee.

C. The Contractor shall furnish the Owner evidence of its firm's medical surveillance program required under 29 CFR 1910.1001, and 29 CFR 1926.1101.

### 1.12 TRAINING

- A. As required by applicable regulations, prior to assignment to asbestos Work instruct each employee with regard to the hazards of asbestos, safety and health precautions, and the use and requirements of protective clothing and equipment.
- B. Establish a respirator program as required by ANSI Z88.2 and 29 CFR 1910.134, and 29 CFR 1926.1101. Provide respirator training and fit-testing.

### 1.13 RESPIRATORY PROTECTION

- A. Select respirators from those approved by the National Institute for Occupational Safety and Health (NIOSH).
- B. Respirators shall be individually fit-tested to personnel under the direction of an Industrial Hygienist on a yearly basis. Fit-tested respirators shall be permanently marked to identify the individual fitted, and use shall be limited to that individual. Fit-test records shall be maintained on site for each employee.
- C. Where fiber levels permit, and in compliance with regulatory requirements, ½ face negative pressure respirators equipped with P-100 filter cartridges are the minimum allowable respiratory protection permitted to be utilized during gross removal operations.
- D. No respirators shall be issued to personnel without such personnel participating in a respirator training program.
- E. High Efficiency Particulate Air (HEPA) respirator filters shall be approved by NIOSH and shall conform to the OSHA requirements in 29 CFR 1910.134 and 29 CFR 1926.1101.
- F. A storage area for respirators shall be provided by the Contractor in the clean room side of the personnel decontamination enclosure where they will be kept in a clean environment.
- G. The Contractor shall provide and make available a sufficient quantity of respirator filters so that filter changes can be made as necessary during the Work day. Filters will be removed and discarded during the decontamination process. Filters cannot be reused. Filters must be changed if breathing becomes difficult.
- H. Filters used with negative pressure air purifying respirators shall not be used any longer than one eight (8) hour Work day.
- I. Any authorized visitor, Worker, or supervisor found in the Work Area not wearing the required respiratory protection shall be removed from the Project site and not be permitted to return.

### 1.14 DELIVERY AND STORAGE

- A. Deliver all materials to the job site in original packages with containers bearing manufacturer's name and label.
- B. The contractor must be on-site to accept deliver of any and all materials. *School employees will not accept delivery of contractor's materials.*
- C. Store all materials at the job site in a suitable and designated area.
  - 1. Store materials subject to deterioration or damage away from wet or damp surfaces and under cover
  - 2. Protect materials from unintended contamination.

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D. Remove damaged or deteriorated materials from the job site. Materials contaminated with asbestos shall be disposed of as asbestos debris as herein specified.

### 1.15 TEMPORARY UTILITIES

- A. All temporary devices and wiring used in the Work Area shall be capable of decontamination procedures including HEPA vacuuming and wet-wiping.
- B. All powered equipment shall utilize Ground Fault Circuit Interrupting (GFCI) receptacles.
- C. Utilize domestic water service, if available, from Owner's existing system. Provide hot water heaters with sufficient capacity to meet Project demands.

### **PART 2 PRODUCTS**

### 2.01 PROTECTIVE CLOTHING

- A. Provide personnel utilized during the Project with disposable protective whole body clothing, Head coverings, gloves and foot coverings. Make sleeves secure at the wrists and make foot coverings secure at the ankles by the use of tape, or provide disposable coverings with elastic wrists or tops.
- B. Provide sufficient quantities of protective clothing to assure a minimum of four (4) complete disposable outfits per day for each individual performing abatement Work.
- C. Eye protection and hard hats shall be provided and don at all times and made available for all personnel entering any Work Area.
- D. Authorized visitors shall be provided with suitable protective clothing, headgear, eye protection and footwear whenever they enter the Work Area.

### 2.02 SIGNS AND LABELS

- A. Provide warning signs and barrier tapes at all approaches to asbestos Work Areas. Locate signs at such distance that personnel may read the sign and take the necessary protective steps required before entering the area.
  - 1. Provide danger signs in vertical format conforming to 29 CFR 1926.1101, minimum 20" x 14" displaying the following legend:

DANGER
ASBESTOS CANCER AND LUNG DISEASE
HAZARD
AUTHORIZED PERSONNEL ONLY
RESPIRATORS AND PROTECTIVE CLOTHING
ARE REQUIRED IN THIS AREA

2. Provide barrier tape printed with black lettered, "DANGER ASBESTOS REMOVAL". Locate barrier tape across all corridors, entrances and access routes to asbestos Work Area. Install tape 3' to 4' from negative air exhaust.

- B. Provide asbestos danger labels affixed to all asbestos materials, scrap, waste, debris and other products contaminated with asbestos.
  - 1. Provide asbestos danger labels of sufficient size to be clearly legible, displaying the following legend:

DANGER
CONTAINS ASBESTOS FIBERS
MAY CAUSE CANCER
CAUSES DAMAGE TO LUNGS
DO NOT BREATHE DUST
AVOID CREATING DUST

2. Provide the following asbestos labels, of sufficient size to be clearly legible, for display on waste containers (bags or drums) which will be used to transport asbestos contaminated material in accordance with United States Department of Transportation:

HAZARD SUBSTANCE CLASS 9 NA2212, III RQ (ASBESTOS)

Transporter: Name and Telephone Generating Facility: Name and Address

Date Loaded

3. Generator identification information shall be affixed to each waste container indicating the following printed in indelible ink:

Generator Name: Facility Name: Facility Address:

#### 2.03 PROJECT LOG BOOK

- A. Provide a Project log book. Log book shall contain on title page the Project name, name, address and phone number of Owner; name, address and phone number of Environmental Consultant; name, address and phone number of Contractor; emergency numbers including, but not limited to local Fire/Rescue department.
- B. All entries into the log shall be made in non-washable, permanent ink. Under no circumstances shall pencil entries be permitted.
- C. All persons entering and exiting the Work Area shall sign the log and include name, HHCU Accreditation number, and time.
- D. The Project Supervisor shall document all Work performed daily and note all inspections required including but not limited to:
  - 1. Work stoppage due to high air results, as per ICR-56 Section 7.1(d), 8.1(c), 9.2(a)(2).
  - 2. Monometer readings (if required)
  - 3. Negative air (if required)
  - 4. Inspection of barriers
  - 5. Testing of barriers and enclosures
  - 6. Daily cleaning of enclosure

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- 7. Visual inspections by Consultant, to be documented by the Consultant along with the Supervisor, prior to clearance air sampling and for areas exempt for clearance sampling.
- 8. Final inspections.
- 9. Addition log entries to be recorded by the Supervisor include:
  - i. Name of Owner, Contractor and Consultant
  - ii. Name of Owner onsite representative/project manager and Consultant(s)
  - iii. Names of all supervisors and HHCU Accreditation numbers
  - iv. Names of all workers and HHCU Accreditation numbers
  - v. Names of individual or firm conducting OSHA sampling
  - vi. Laboratory analyzing samples and applicable NVLAP numbers
  - vii. Type and amount of ACM abated
  - viii. Project dates
  - ix. Type of respiratory protection used/worn
  - x. Daily activities
  - xi. Breaks and lunch times

#### 2.04 SCAFFOLDING AND LADDERS

- A. If required, provide all scaffolding and/or staging as necessary to accomplish the Work of this Contract. Scaffolding may be of suspension type or standing type such as metal tube and coupler, tubular welded frame, pole or outrigger type or cantilever type. The type, erection and use of all scaffolding and ladders shall comply with all applicable OSHA construction industry standards.
- B. Provide scaffolding and ladders as required by the Environmental Consultant for the purposes of performing required inspections.

## 2.05 SURFACTANT (AMENDED WATER)

A. If required, wet all asbestos-containing materials prior to removal with surfactant mixed and applied in accordance with manufactures specifications.

#### 2.06 ENCAPSULANT

Use of encapsulant is prohibited.

# 2.07 DISPOSAL BAGS, DRUMS, AND CONTAINERS

- A. Provide 6 mil polyethylene disposal bags printed with asbestos caution labels. Bags shall also be imprinted with U.S. Department of Transportation required markings.
- B. Provide 30 or 55 gallon capacity fiber or metal drums capable of being sealed air and water tight if asbestos waste has the potential to damage or puncture disposal bags. Affix asbestos caution labels on lids and at one-third points around drum circumference to assure ready identification.
- C. Containers and bags must be labeled with the names of the waste generator and the location at which the waste was generated in accordance with 40 CFR Part 61 NESHAPS.
- D. Labeled ACM waste containers or bags shall not be used for non-ACM waste or trash. Any material placed in labeled containers or bags, whether turned inside out or not shall be handled and disposed of as ACM waste.

## 2.08 HEPA VACUUM EQUIPMENT

- A. All dry vacuuming performed under this contract shall be performed with High Efficiency Particulate Air (HEPA) filter equipped industrial vacuums conforming to ANSI Z9.2.
- B. Provide tools and specialized equipment including scraping nozzles with integral vacuum hoods connected to a HEPA vacuum with flexible hose.

#### 2.09 POWER TOOLS

A. Any power tools used to drill, cut into, or otherwise disturb asbestos material shall be equipped with HEPA filtered local exhaust ventilation.

## 2.10 POLYETHYLENE SHEETING

- A. All polyethylene (plastic) sheeting used on the Project (including but not limited to sheeting used for critical and isolation barriers, fixed objects, walls, floors, ceilings, waste container) shall be at least 6 mil fire retardant sheeting.
- B. If required decontamination enclosure systems shall utilize at least 6 mil opaque fire retardant plastic sheeting.

#### PART 3 EXECUTION

# 3.01 GENERAL REQUIREMENTS

- A. Should the area beyond the Work Area(s) become contaminated with asbestos containing materials or elevated fiber levels, immediately stop Work and institute emergency procedures. Contaminated non-Work Areas shall be isolated and decontaminated in accordance with procedures established for asbestos removal. All costs incurred in decontaminating such non-Work Areas and the contents thereof shall be borne by the Contractor, at no additional cost to the Owner.
- B. HHCU certificates shall be on site prior to admittance of any Contractor's employees to the asbestos Work Area. Contractor shall compile and be able to provide upon request the medical approval, fit test reports, and other related records for all workers and supervisor performing the Work.
- C. Perform all asbestos removal Work using wet removal procedures. Mix and apply surfactant in accordance with manufacturer's written instructions. Dry removal procedures are not permitted.
- D. The following submittals, documentation, and postings shall be maintained on-site during abatement activities at a location approved by the Consultant:
  - 1. Original Accreditations issued by NC HHCU for all Supervisors and Workers actively participating on the project.
  - 2. Copies of all Accreditations issued by NC HHCU for all Supervisors and Workers involved with the Project who may not currently be at the project site.
  - 3. Copy of the Consultant/Air Sampling Technicians' daily log.
  - 4. Copy of all air sampling results, including method of analysis.
  - 5. Copy of all OSHA personal air monitoring results
  - 6. Project documents which include:
    - a. Asbestos surveys
    - b. Asbestos Abatement Specifications and Drawings

- c. Approved Abatement Work Plans
- 7. Copies of applicable regulations.
- 8. Safety Data Sheets of supplies/chemicals used on the Project.
- 9. List of emergency telephone numbers.
- 10. The supervisor's daily log book and entry/exit logs organized by date.
- 11. Worker entry/exit log
- 12. OSHA warning signs and warning tape. Signs must be posted in English, Spanish and the languages spoken by the workers.
- 13. Notice of the asbestos abatement/building occupant notice.
- 14. Waste records
- E. The Work Area must be vacated by building occupants prior to decontamination enclosure construction and Work Area preparation.

### 3.02 PERSONNEL DECONTAMINATION ENCLOSURE

- A. Provide a personnel DECON that is attached to the NPE. The DECON may not be located within the work areas.
- B. Access to the Work Area from the DECON will be from the clean room through an air-lock to the shower, through an air lock to the equipment room, to the Work Area.
- C. Provide a temporary shower with individual hot and cold water supplies and faucets. Provide a sufficient supply of liquid soap and shampoo.
- D. Shower water shall be drained, collected and filtered through a system with at least a 5.0 micron particle size collection capability containing a series of several filters with progressively smaller pore sizes to avoid rapid clogging of the system. The filtered waste water shall then be discharged in accordance with applicable codes and the contaminated filters disposed of as asbestos waste.
- E. The equipment room shall be used for the storage of tools and equipment. A container, lined with a labeled 6 mil plastic ACM waste bag for collection of contaminated clothing and one day supply of replacement filters in sealed containers shall be located in this room.
- F. The personal decontamination enclosure shall be cleaned and disinfected minimally at the end of each Work shift and as otherwise directed by the Consultant.

# 3.03 WASTE DECONTAMINATION ENCLOSURE (LOAD OUT)

- A. Provide a waste decontamination enclosure contiguous to the NPE. The decontamination enclosure shall be attached to the NPE and not located within it.
- B. The waste decontamination enclosure system shall consist of a holding area, air lock and a wash room with an airlock to the Work Area
- C. Where there is only one egress from the Work Area, the holding area of the waste decontamination enclosure system may branch off from the personnel decontamination enclosure equipment room, which then serves as the waste wash room.
- D. The waste wash room water shall be drained, collected, and filtered through a system with at least a 5.0 micron particle size collection capability containing a series of several filters with progressively smaller pore sizes to avoid rapid clogging of the system. The filtered waste water shall then be discharged in accordance with applicable codes and the contaminated filters disposed of as asbestos waste.

#### 3.04 WORK AREA ENTRY AND EXIT PROCEDURES

- A. Access to and from the asbestos Work Area is permitted only through the personnel DECON.
- B. Workers shall sign the entry/exit log upon every entry and exit.
- C. The following procedures shall be followed when entering the Work Area:
  - 1. Before entering the Work Area, Workers shall proceed to the clean room, remove all street clothes, and don protective clothing, equipment, and respirators.
  - 2. Workers shall proceed from the clean room through the shower room and the equipment room and into the Work Area.
- D. The following procedures shall be followed when exiting the Work Area:
  - 1. Before leaving the Work Area, gross asbestos contamination will be removed by brushing, wet cleaning and/or HEPA vacuuming.
  - 2. In the equipment room, Workers shall remove disposable clothing, but not respirators, and shall place clothing in plastic disposal bags for disposal as contaminated debris prior to entering the shower room.
  - 3. Workers shall shower thoroughly while wearing respirators, then wash respirator with soap and water prior to removal.
  - 4. Upon exiting the shower, Workers shall don new disposable clothing if the Work shift is to continue or street clothes to exit area. Under no circumstances shall Workers enter public non-Work Areas in disposable protective clothing.

## 3.05 WORK AREA PREPARATION

- A. Asbestos danger signs shall be posted at all approaches to the asbestos Work Area. Post all emergency exits as emergency exits only on the Work Area side, post with asbestos caution signs on the non-Work Area side. Provide all non-Work Area stairs and corridors accessible to the asbestos Work Area with warning tapes at the base of stairs and beginning of corridors. Warning tapes shall be in addition to caution signs.
- B. Shut down and lock out the work area heating, ventilating, and air conditioning systems.
- C. All surfaces and objects within the Work Area shall be pre-cleaned using HEPA vacuuming and/or wet-wiping methods. Dry sweeping and any other methods that raise dust shall be prohibited. ACM shall not be disturbed during pre-cleaning.
- D. Movable objects within the Work Area shall be HEPA vacuumed and/or wet-wiped and removed from the Work Area.
- E. All non-movable equipment in the Work Area shall be completely covered with 1 layer of polyethylene sheeting, at least 4 mil in thickness, and secured in place with duct tape and/or spray adhesive.
- F. Provide enclosure of the asbestos Work Area necessary to isolate it from unsealed areas of the building in accordance with the approved asbestos Work plan and as specified herein.
- G. Seal off all openings including but not limited to windows, diffusers, grills, electrical outlets and boxes, doors, floor drains, and any other penetrations of the Work Area enclosure, using 1 layer of at least 6 mil polyethylene sheeting to form a critical barrier.
- H. Isolation barriers shall be installed at all elevator openings in the Work Area. Elevator controls shall be modified so that elevators bypass the Work Area.

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#### 3.06 NEGATIVE AIR PRESSURE FILTRATION SYSTEM

- A. Provide a portable asbestos filtration system that develops a minimum pressure differential of negative 0.02 in. of water column within all full enclosure areas relative to adjacent unsealed areas and that provides a minimum of 4 air changes per hour in the Work Area during abatement.
- B. Such filtration systems must be operated 24 hours per day during the entire Project until the final cleanup is completed and satisfactory results of the final air samples are received from the laboratory.
- C. The system shall include a series of pre-filters and filters to provide High Efficiency Particulate Air (HEPA) filtration of particles down to 0.3 microns at 100% efficiency and below 0.3 microns at 99.9% efficiency. Provide sufficient replacement filters to replace pre-filters every 2 hours, secondary pre-filters every 24 hours, and primary HEPA filters every 600 hours of operation.
- D. A minimum of one additional filtration unit of at least the same capacity as the primary unit(s) shall be installed and fully functional to be used during primary unit (s) filter changing and in case of primary failure. There shall be at least one back-up unit for every five primary units.
- E. At no time will the units exhaust indoors, within ducts or, within 25 feet of a receptor, including but not limited to windows and doors, or adversely affect the air intake of the building.
- F. Upon electric power failure or shut-down of any filtration unit, all abatement activities shall stop immediately and only resume after power is restored and all filtration units are fully operating. For shut-downs longer than one hour, all openings into the Work Area, including the decontamination enclosures, shall be sealed.
- G. The Contractor shall provide either a manometer or other pressure differential measuring device and measure and record negative pressure differential across the Work Area barriers without interruption 24 hours per day as directed by the Environmental Consultant.

# 3.07 REMOVAL OF ASBESTOS CONTAINING MATERIALS

- A. Asbestos-containing materials shall be removed in accordance with the Contract Documents and all applicable Federal, State and Local rules and regulations and the approved Asbestos Work Plan.
- B. Perform cutting, drilling, abrading, or any penetration or disturbance of asbestos containing material in a manner to minimize the dispersal of asbestos fibers into the air. Use equipment and methods specifically designed to limit generation of airborne asbestos particles. All power operated tools used shall be provided with HEPA equipped filtered local exhaust ventilation.
- C. Upon removal of ACM from the substrate, the newly exposed surfaces shall be HEPA vacuumed and/or wet cleaned. Surfaces must be thoroughly cleaned using necessary methods and any required solvents to completely remove any adhesive, mastic, etc.
- D. All removed material shall be placed into 6 mil plastic disposal bags or other suitable container upon detachment from the substrate or whenever there is enough accumulation to fill a single bag or container. Maintain the surfaces of the Work Area free of accumulation of asbestos debris.
- E. Large components shall be wrapped in two layers of 6 mil polyethylene sheeting. Sharp components likely to tear disposal bags shall be placed in fiber drums or boxes and then wrapped with sheeting.
- F. Power or pressure washers will not be allowed to be used for asbestos removal or clean-up procedures.
- G. All construction and demolition debris determined by the owner's representative to be

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contaminated with asbestos shall be handled and disposed of as asbestos waste.

# 3.08 EQUIPMENT AND WASTE CONTAINER DECONTAMINATION AND REMOVAL PROCEDURES

- A. External surfaces of contaminated containers and equipment shall be cleaned by wet cleaning and/or HEPA vacuuming in the Work Area before moving such items into the waste decontamination enclosure system by persons assigned to this duty.
- B. The containers and equipment shall be removed from the work area by persons stationed in the Equipment room during waste removal operations. The external surfaces of containers and equipment shall be cleaned a second time by wet cleaning.
- C. The cleaned containers of asbestos material and equipment are to be dried of any excessive pooled or beaded liquid, placed in uncontaminated plastic bags or sheeting, as the item's physical characteristics demand, and sealed airtight.
- D. The clean recontainerized items shall be moved to the waste hauler.

#### 3.09 APPLICATION OF ENCAPSULANT

The use of encapsulant is not required this project

#### 3.10 WORK AREA DECONTAMINATION

- A. Following completion of gross abatement and after all accumulations of asbestos waste materials have been containerized, the following decontamination procedures shall be followed.
  - 1. All bagged asbestos waste and unnecessary equipment shall be decontaminated and removed from the Work Area.
  - 2. All surfaces in the Work Area shall be wet cleaned. A wet-purpose shop vacuum may be used to pick up excess liquid, and shall be decontaminated prior to removal from the Work Area.
  - 3. The Consultant shall conduct a visual inspection of the Work Area for cleanliness and completion of abatement.
  - 4. The Work Area shall be vacated until the area is dry from the final cleaning and no visible pools of water or condensation remains.
  - 5. Aggressive final clearance air sampling shall then be conducted by the owner's representative (Accredited NC Air Monitor).
  - 6. Upon receipt of satisfactory final clearance air sampling results, the negative air pressure equipment can then be shut down and decontamination areas and isolation and critical barriers removed.
- B. After isolation and critical barriers are removed, the owner's representative shall inspect the Work Area for cleanliness. If necessary, additional cleaning shall be performed by the Contractor as directed by the owner's representative.
- C. As a result of any visual inspection by the owner's representative, or should air sampling results indicate high fiber levels, the Contractor will clean or reclean the affected areas at no additional expense to the Owner.

#### PART 4 DISPOSAL OF ASBESTOS WASTE

## 4.01 APPLICABLE REGULATIONS

A. All asbestos waste shall be stored, transported and disposed of in accordance with the following regulations as a minimum:

- 1. US EPA NESHAPS 40 CFR 61
- 2. US EPA Asbestos Waste Management Guidance EPA/530-SW85

#### 4.02 TRANSPORTATION AND DISPOSAL SITE

- A. The Contractor's Hauler and Disposal Site shall be approved by the Owner or Owners representative.
- B. The Contractor shall give twenty-four (24) hour notification prior to removing any waste from the site. Waste shall be removed from the site only during normal Working hours unless otherwise specified. No waste may be taken from the site unless the Environmental Consultant is present and authorizes the release of the waste as described herein.
- C. The Contractor shall have the Hauler provide the estimated date and time of arrival at the Disposal Site.
- D. Unless specifically approved by the Owner, the Contractor shall not permit any off-site transfers of the waste or allow the waste to be transported or combined with any other off-site asbestos material. The Hauler must travel directly to the disposal site with no unauthorized stops.

#### 4.03 WASTE STORAGE CONTAINERS

- A. All waste containers shall be fully enclosed and lockable (i.e. enclosed dumpster, trailer, etc.). No open containers will be permitted on-site (i.e. open dumpster with canvas cover, etc.
- B. The container shall be plasticized and sealed with a minimum of one (1) layer of 6 mil polyethylene sheeting. Once on site, it shall be kept locked at all times, except during load out.
- C. While on-site, the container shall be labeled with EPA Danger signage:

DANGER
CONTAINS ASBESTOS FIBERS
MAY CAUSE CANCER
CAUSES DAMAGE TO LUNGS
DO NOT BREATHE DUST
AVOID CREATING DUST

- D. The container is not permitted to be loaded unless it is properly plasticized, has the appropriate danger signage affixed.
- E. The Owner may initiate random checks at the Disposal Site to insure that the procedures outlined herein are complied with.

\*\*\*END OF SECTION\*\*\*

