SECTION 00 90 02
BIDDING AND CONTRACT REQUIREMENTS
ADDENDUM NUMBER 2

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125 N. Halsted Street, Suite 301
Chicago, IL 60661
312.496.0000

To: Prospective Bidders

Issued: May 6, 2026

Re: ADDENDUM NUMBER (2) TO THE BIDDING DOCUMENTS FOR

Student Farm Renovations
Issued for Bid
Architect's Project Number: 25-037

This addendum forms a part of the bidding and contract documents and modifies the original bidding documents dated April 21, 2026. Acknowledge receipt of this addendum in the space provided on Bid Form. FAILURE TO DO SO MAY SUBJECT BIDDER TO DISQUALIFICATION.

ADDENDA TO THE PROJECT MANUAL

1. 00 41 13 – BID FORM
   A. **ADD** Allowance No. 2: AHJ Coordination Allowance of $50,000.00.
   B. Replace the previously issued specification section with the attached in its entirety.
2. 01 21 00 - ALLOWANCES
   A. **ADD** Allowance No. 2: Coordination with Local AHJ Allowance. Include an allowance of $50,000.
   B. Replace the previously issued specification section with the attached in its entirety.
3. 28 31 00 – FIRE ALARM AND DETECTION SYSTEMS
   A. **ADD** section 2.1.
   B. **ADD** section 2.2H.
   C. Replace the previously issued specification section with the attached in its entirety.

ADDENDA TO THE DRAWINGS

MECHANICAL

1. M1.01
   A. **REVISE** callout to gas meter to clarify meter is to be provided and installed by utility company.
2. M3.00
   A. **ADD** Sheet Notes 1 & 2.
   B. **REVISE** 1/M3.00 Fan – Kitchen with MAU – Gas Control diagram. Reference to FMCS removed and sequence updated.
   C. **REVISE** 4/M3.00 Unit Heater Control – Electric. Reference to BAS removed.
3. M4.00
   A. **REVISE** Unit Heater Schedule – Electric (UH) Note 1. Reference to BAS removed.
   B. **REVISE** Furnace Schedule Note 1 & 2. Reference to BAS removed & humidifier scope clarified.
   C. **REVISE** Make-up Air Unit Schedule (MAU) Note 1. Reference to BAS removed.

ELECTRICAL

1. E2.00
   A. **REVISE** 5/E2.00 – FIRE ALARM RISER DIAGRAM.

CLARIFICATIONS

1. Note that an additional coverage area for the sprinkler system will be required in the attic of the building. See below for general details and refer to forthcoming Addendum No. 3, planned for issuance on Friday 5/8/26 for additional details.
   A. The attic area covers the entire footprint of the building, for detail on height/roof pitch of attic refer to 5/A4.00 & 6/A4.00.
   B. A dry pipe system/zone will be added to the fire protection scope to serve the attic. This includes but is not limited to: Dry pipe valve, approx. 1HP riser mounted compressor, associated accessories/devices, piping, sprinklers, and associated fire alarm coordination.

2. PRE-BID RFI #1: Drawing M3.00 mentions a FMCS – Facility Monitoring and Control System. I don't see anything in the documents that lists a control contractor for this project. Can you find out who we need to contact for the control monitoring?
   A. RESPONSE: References to a FMCS/BAS on M3.00 diagrams are an error. Project intent is for equipment-level controls, MAU and kitchen exhaust fan controls shall be integrated with hood controls as required. Clarification of documents to be included in forthcoming addendum.

3. PRE-BID RFI #2: We didn't see any fire alarm manufacturer requirements in the specifications. Can you confirm the new FACP does not need to match the existing building manufacturer and does not need to be tied into the existing campus system?
   A. RESPONSE: The new FACP should match the existing campus standard, Notifier by Honeywell. The design intent is for a standalone system that will operate with the campus via a wireless communicator connecting the standalone FACP at the student farm building back to central campus. Refer to revised drawings and specs for additional clarification.

4. PRE-BID RFI #3: Regarding the removal of the existing underground secondary feeder, plan ED0.01, are we to remove the conduit and wire or just the wire?
   A. RESPONSE: Existing underground secondary wire shall be removed. Existing underground secondary conduit shall be abandoned in place.

5. PRE-BID RFI #4: Do contractors owe BIM modeling for this project?
   A. RESPONSE: Specific BIM Modeling and BIM coordination will not be required for this project. However the contractor is still responsible for providing coordination drawings for review with the A/E team prior to installation of systems as noted in Specification Section 01 31 00, Section 1.6 Coordination Drawings.

6. PRE-BID RFI #5: Do we need temporary office building on site? What is exact size and requirements? Please clarify.
   A. RESPONSE: No temporary office building or job site trailer is required. All project meetings will be held in a room TBD on campus.

7. PRE-BID RFI #6: Will plans or specs specific to the hood, walk-ins, and refrigeration be released prior to the due date? We would like to know if there is a floor in the walk-ins, where the compressor is to be located, type of ceiling in walk-in boxes. Similarly, are there hood specific drawings to quote from?
   A. RESPONSE: Refer to forthcoming addendum No. 3 for clarifications on accessories, construction types, finishes, and sizes for the walk-in fridge / freezer and the hood.

8. PRE-BID RFI #7: The drawing calls for and shows us installing the gas meter. This is typically installed by the gas company. Can you confirm that we are furnishing and installing this and if we are can I get a spec for it?
   A. RESPONSE: The intent is for the gas meter to be provided and installed by the utility company. Clarification will be included in forthcoming addenda.

9. PRE-BID RFI #8: Is there a concrete detail for the equipment pads at the exterior?
   A. RESPONSE: Refer to 7/M2.00 for detail

This addendum consists of 3 pages, excluding attachments.

END 00 90 02.

Attachments:

1. 00 41 13 – BID FORM
2. 01 21 00 - ALLOWANCES
3. 28 31 00 – FIRE ALARM AND DETECTION SYSTEMS
4. M1.01, M3.00, M4.00
5. E2.00

SECTION 00 41 13 - BID FORM

To: McHenry County College
8900 US Hwy 14
Crystal Lake, IL 60012

Project: Student Farm Renovations

Date: _____

Submitted by:

_____

_____

_____
(Full name and address)

PART 1 - OFFER

Having examined the site and having familiarized itself with the conditions affecting the cost of the work associated with the project and with the bidding documents, Bidder hereby proposes to perform everything required and to furnish all labor, materials, necessary tools, expendable equipment, and transportation services necessary to complete in a workmanlike manner the subdivision of work stated above in accordance with the bidding documents for the following sums:

Base Bid:

We have included, attached herewith, the Bid Bond as required by the Instructions to Bidders.

The Bidder agrees to perform the work for the lump sum amount of:

TOTAL BASE BID $_____ (in figures)

_____ (in words)

Allowances:

The undersigned hereby states that all allowance amounts, as described in Section 01 21 00, are included in the Total Base Bid proposal amount listed above.

ALLOWANCE NO. 1: Unforeseen Conditions Allowance of $25,000.00

ALLOWANCE NO. 2: AHJ Coordination Allowance of $50,000.00

Alternate Bids:

The undersigned hereby states the net amount of decrease or increase to the Lump Sum Base Bid for the following Alternates as described in Section 01 23 00.

ALTERNATE No. 1: Deduct from the Lump Sum Base Bid to eliminate the Liquidated Damages Clause from the Contract.

Total, Alternate No. 1: $ _____

ALTERNATE No. 2: Add to the Lump Sum Base Bid to add the water main connection between Building C and Building D. Added scope of work includes all work associated with demo, excavation, piping installation, backfill, and restoration of existing conditions. Base bid has no work in this area of the project.

Total, Alternate No. 2: $ _____

PART 3 - ACCEPTANCE

This offer shall be open to acceptance and is irrevocable for thirty (90) days from the Bid closing date.

If the bid is accepted by the Owner within the time period stated above, we will:

A. Execute the Agreement within ten (10) days of receipt of Notice of Award.

B. Furnish the required bonds within ten (10) days of receipt of Notice of Award in the form described in the Supplementary Conditions.

C. Furnish the required Certificate of Insurance within ten (10) days of receipt of Notice of Award in the form and amounts described in the Supplementary Conditions.

D. Commence work as established by the written Notice to Proceed.

If this Bid is accepted within the time stated, and we fail to commence the Work or we fail to provide the required Bonds(s), the Security Deposit shall be forfeited as damages to the Owner by reason of our failures.

In the event our Bid is not accepted within the time stated above, the required security deposit shall be returned to the undersigned, in accordance with the provisions of the Instructions to Bidders; unless a mutually satisfactory arrangement is made for its retention and validity for an extended period of time.

PART 4 - CONTRACT TIME

If the Bid is accepted, we will:

A. Complete the work in manner consistent to meet the requirements of the schedule.

B. Contractor has examined the Schedule included in these documents and takes no exception, or records the following exceptions:

_____

_____

PART 5 - CONTRACTOR’S FEES FOR CHANGES IN THE WORK

Lump Sum or Time and Materials Changes: We, the undersigned bidder, agree that the following percentages for overhead and profit shall be added to costs for the net amount of work added to, or deleted from, the contract by written lump sum or time and material change orders recommended by the Architect and approved by the Owner:

A. Contractor's direct net cost: 15%, with a minimum fee of one hundred dollars ($100.00).
B. On first-tier Subcontractor's net cost: 5%, with a minimum fee of fifty dollars ($50.00). Net cost includes all sub-subcontractors work, and excludes subcontractors (all tiers) overhead and profit amounts.

Note: Insurance, bond, and taxes are considered as job cost items and are included in the percentages listed above.

PART 6 - ADDENDA

The following Addenda have been received. The modifications to the Bid Documents noted therein have been considered and all costs thereto are included in the Bid Sum.

Addendum # ____ Dated _____ Addendum # ____ Dated _____

Addendum # ____ Dated _____ Addendum # ____ Dated _____

PART 7 - SUBCONTRACTORS

Identify below which work will be completed by the General Contractor's own forces and which work will be completed by first tier Subcontractors. Include Subcontractors name and estimated contract amount.

Scope of Work	GC/Sub.	Name	Est. Contract Amount
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

PART 8 - BID FORM SIGNATURE(S)

The Corporate Seal of:

_____
(Bidder – please print the full name of your Proprietorship or Corporation)

Was hereunto affixed in the presence of:

_____ _____
(Authorized signing officer) (Title)

(Seal)

END OF SECTION 00 41 13

SECTION 01 21 00 - ALLOWANCES

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 governing allowances.

B. Related Requirements:

1. Section 01 40 00 "Quality Requirements" for procedures governing the use of allowances for field testing by an independent testing agency.

1.3 DEFINITIONS

A. Allowance is a quantity of work or dollar amount established in lieu of additional requirements, used to defer selection of actual materials and equipment to a later date when direction will be provided to Contractor. If necessary, additional requirements will be issued by Change Order.

1.4 SELECTION AND PURCHASE

A. At the earliest practical date after award of the Contract, advise Architect of the date when final selection, or purchase and delivery, of each product or system described by an allowance must be completed by the Owner to avoid delaying the Work.

B. At Architect's request, obtain proposals for each allowance for use in making final selections. Include recommendations that are relevant to performing the Work.

C. Purchase products and systems selected by Architect from the designated supplier.

1.5 ACTION SUBMITTALS

A. Submit proposals for purchase of products or systems included in allowances in the form specified for Change Orders.

1.6 INFORMATIONAL SUBMITTALS

A. Submit invoices or delivery slips to show actual quantities of materials delivered to the site for use in fulfillment of each allowance.

B. Submit time sheets and other documentation to show labor time and cost for installation of allowance items that include installation as part of the allowance.

C. Coordinate and process submittals for allowance items in same manner as for other portions of the Work.

1.7 LUMP-SUM ALLOWANCES

A. Allowance shall include cost to Contractor of specific products and materials ordered by Owner or selected by Architect under allowance and shall include taxes, freight, and delivery to Project site.

B. Unless otherwise indicated, Contractor's costs for receiving and handling at Project site, labor, installation, overhead and profit, and similar costs related to products and materials ordered by Owner or selected by Architect under allowance shall be included as part of the Contract Sum and not part of the allowance.

C. Unused Materials: Return unused materials purchased under an allowance to manufacturer or supplier for credit to Owner, after installation has been completed and accepted.

1. If requested by Architect, retain and prepare unused material for storage by Owner. Deliver unused material to Owner's storage space as directed.

1.8 UNIT-COST ALLOWANCES

A. Allowance shall include cost to Contractor of specific products and materials ordered by Owner or selected by Architect under allowance and shall include taxes, freight, and delivery to Project site.

B. Unless otherwise indicated, Contractor's costs for receiving and handling at Project site, labor, installation, overhead and profit, and similar costs related to products and materials ordered by Owner or selected by Architect under allowance shall be included as part of the Contract Sum and not part of the allowance.

C. Unused Materials: Return unused materials purchased under an allowance to manufacturer or supplier for credit to Owner, after installation has been completed and accepted.

1. If requested by Architect, retain and prepare unused material for storage by Owner. Deliver unused material to Owner's storage space as directed.

1.9 QUANTITY ALLOWANCES

A. Allowance shall include cost to Contractor of specific products and materials ordered by Owner or selected by Architect under allowance and shall include taxes, freight, and delivery to Project site.

B. Unless otherwise indicated, Contractor's costs for receiving and handling at Project site, labor, installation, overhead and profit, and similar costs related to products and materials ordered by Owner or selected by Architect under allowance shall be included as part of the Contract Sum and not part of the allowance.

C. Unused Materials: Return unused materials purchased under an allowance to manufacturer or supplier for credit to Owner, after installation has been completed and accepted.

1. If requested by Architect, retain and prepare unused material for storage by Owner. Deliver unused material to Owner's storage space as directed.

1.10 CONTINGENCY ALLOWANCES

A. Use the contingency allowance only as directed by Architect for Owner's purposes and only by Change Orders that indicate amounts to be charged to the allowance.

B. Contractor's overhead, profit, and related costs for products and equipment ordered by Owner under the contingency allowance are included in the allowance and are not part of the Contract Sum. These costs include delivery, installation, taxes, insurance, equipment rental, and similar costs.

C. Change Orders authorizing use of funds from the contingency allowance will include Contractor's related costs and reasonable overhead and profit.

D. At Project closeout, credit unused amounts remaining in the contingency allowance to Owner by Change Order.

1.11 ADJUSTMENT OF ALLOWANCES

A. Allowance Adjustment: To adjust allowance amounts, prepare a Change Order proposal based on the difference between purchase amount and the allowance, multiplied by final measurement of work-in-place where applicable. If applicable, include reasonable allowances for cutting losses, tolerances, mixing wastes, normal product imperfections, and similar margins.

1. Include installation costs in purchase amount only where indicated as part of the allowance.
2. If requested, prepare explanation and documentation to substantiate distribution of overhead costs and other markups.
3. Submit substantiation of a change in scope of Work, if any, claimed in Change Orders related to unit-cost allowances.
4. Owner reserves the right to establish the quantity of work-in-place by independent quantity survey, measure, or count.

B. Submit claims for increased costs because of a change in scope or nature of the allowance described in the Contract Documents, whether for the purchase order amount or Contractor's handling, labor, installation, overhead, and profit.

1. No change to Contractor's indirect expense is permitted for selection of higher- or lower-priced materials or systems of the same scope and nature as originally indicated.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine products covered by an allowance promptly on delivery for damage or defects. Return damaged or defective products to manufacturer for replacement.

3.2 PREPARATION

A. Coordinate materials and their installation for each allowance with related materials and installations to ensure that each allowance item is completely integrated and interfaced with related work.

B. See Construction Manager's "Scope of Work" documents for allowances to be included by each Contractor.

3.3 SCHEDULE OF ALLOWANCES

A. ALLOWANCE NO. 1: Unforeseen Condition Allowance: Include an allowance of $25,000.00.

B. ALLOWANCE NO. 2: AHJ Coordination Allowance: Include an allowance of $50,000.00.

END OF SECTION 01 21 00

SECTION 28 31 01 - FIRE ALARM AND DETECTION SYSTEMS ADDRESSABLE

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Fire alarm and detection systems.

1.2 RELATED WORK

A. Section 26 05 53 - Electrical Identification: Refer to electrical identification for color and identification labeling requirements.

1.3 QUALITY ASSURANCE

A. Manufacturer: Company specializing in smoke detection and fire alarm systems with ten years' experience.

B. Installer: A factory-authorized Electrical or Security Contractor licensed with the State and local jurisdiction with five years' experience in the design, installation, and maintenance of fire alarm systems by that manufacturer.

C. Qualifications: The person managing/overseeing the preparation of shop drawings and the system installation/programming/testing shall be trained and certified by the system manufacturer and shall be Fire Alarm Certified by NICET, minimum Level 2. This person's name and certification number shall appear on the start-up and testing reports.

1.4 REFERENCES

A. NFPA 72 - National Fire Alarm and Signaling Code

B. NFPA 101 - Life Safety Code

C. UL 2017 - General Purpose Signaling Devices and Systems

D. UL 217 / 268 - Standard for Smoke Alarms / Smoke Detectors for Fire Alarm Systems

1.5 SUBMITTALS

A. Submit shop drawings and product data under provisions of Section 26 05 00 and as noted below.

1. Failure to comply with all the following and all the provisions in 26 05 00 will result in the shop drawing submittal being rejected without review.
2. Failure to submit the fire alarm without all requirements fulfilled in a single comprehensive submittal will be grounds to require a complete resubmittal.

B. Provide product catalog data sheets as shop drawings.

1. Provide a product catalog data sheet for each item shown on the Electrical Symbols List and for each piece of equipment that is not shown on the drawings, but required for the operation of the system.

2. Where a particular Electrical Symbols List item has one or more variations (such as those denoted by subscripts, etc.) a separate additional product catalog data sheet shall be provided for each variation that requires a different part number to be ordered. The corresponding Electrical Symbols List symbol shall be shown on the top of each sheet.
3. Where multiple items and options are shown on one data sheet, the part number and options of the item to be used shall be clearly denoted.

C. Submit CAD Floor Plans as Shop Drawings:

1. The complete layout of the entire system, device addresses, auxiliary equipment, and manufacturer's wiring requirements shall be shown.
2. A legend or key shall be provided to show which symbols shown on the submittal floor plans correspond with symbols shown on the Contract Documents.

D. About all fire alarm circuits, provide the following: manufacturer's wiring requirements (manufacturer, type, size, etc.) and voltage drop calculations.

E. Provide installation and maintenance manuals under provisions of Section 26 05 00.

F. Submit manufacturer's certificate that system meets or exceeds specified requirements.

G. Provide information on the system batteries as follows: total battery capacity, total capacity used by all devices on this project, total available future capacity.

H. Submit photocopy proof of NICET certification of the person overseeing the preparation of drawings and installation/testing.

I. When required to comply with local or state regulatory reviews, the fire alarm submittal shall have a Professional Engineer's stamp and signature of the state in which the project is completed. NOTE: The Architect/Engineer cannot stamp and seal submittal drawings not prepared under their supervision.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Deliver products to site under provisions of Section 26 05 00.

B. Store and protect products under provisions of Section 26 05 00.

1.7 REGULATORY REQUIREMENTS

A. System: UL or FM Global listed.

B. Conform to requirements of NFPA 101.

C. Conform to requirements of Americans with Disabilities Act (ADA).

D. Conform to UL 864 Fire Alarm, UL 1076 Security, UL2017 General Signaling, and UL 2572 Mass Notification Communications.

1.8 SYSTEM DESCRIPTION

A. Performance Statement: This specification section and the accompanying fire alarm specific design documents describe the minimum material quality, required features, and operational requirements of the system. These documents do not convey every wire that must be installed and every equipment connection that must be made. Based on the equipment described and the performance required of the system, as presented in these documents, the Vendor and the Contractor are solely responsible for determining all wiring, programming and miscellaneous equipment required for a complete and operational system.

B. This section of the specifications includes the furnishing, installation and connection of the microprocessor controlled, intelligent reporting, fire alarm equipment required to form a complete coordinated system that is ready for operation. It shall include, but is not limited to, alarm initiating devices, emergency communication systems,control panels, auxiliary control devices, annunciators, power supplies, and wiring as indicated on the drawings and specified herein.

C. Fire Alarm System: NFPA 72; Automatic and manual fire alarm system, non-coded, analog-addressable with automatic sensitivity control of certain detectors, multiplexed signal transmission.

D. System Supervision: Provide electrically supervised system, with supervised Signal Line Circuit (SLC) and Notification Appliance Circuit (NAC). Occurrence of single ground or open condition in initiating or signaling circuit places circuit in TROUBLE mode. Component or power supply failure places system in TROUBLE mode.

E. Alarm Reset: Key-accessible RESET function resets alarm system out of ALARM if alarm initiating circuits have cleared.

F. Lamp Test: Manual LAMP TEST function causes alarm indication at each zone at fire alarm control panel and at annunciator panels.

G. Drawings: Only device layouts and some equipment have been shown on the contract drawings. Wiring and additional equipment to make a complete and functioning system has not been shown, but shall be submitted on the shop drawings.

1.9 PROJECT RECORD DOCUMENTS

A. Submit documents under the provisions of Section 26 05 00.

B. Include location of end-of-line devices.

C. Provide a CAD drawing of each area of the building (minimum scale of 1/16" = 1'-0") showing each device on the project and its address. The devices shall be shown in their installed location and shall be labeled with the same nomenclature as is used in the fire alarm panel programming.

1.10 OPERATION AND MAINTENANCE DATA

A. Submit data under provisions of Section 26 05 00.

B. Include operating instructions, and maintenance and repair procedures.

C. Include results of testing of all devices and functions.

D. Include manufacturer's representative's letter stating that system is operational.

E. Include the CAD floor plan drawings.

F. Include shop drawings as reviewed by the Architect/Engineer and the local Authority Having Jurisdiction.

1.11 DOCUMENT STORAGE CABINET

A. The cabinet shall have all fire alarm system documents, including record drawings, wiring diagrams, operation manuals, etc. A legend sheet permanently attached to the door shall contain system passwords and inspection logs. The enclosure shall also provide two (2) key ring holders for system keys and a location for a standard size business card with service contact information.

1. The cabinet will have, permanently and securely mounted inside, a digital flash memory device with a minimum of 4 GB of storage capacity and a standard USB B connector for uploading and downloading electronic versions of record documents and system programming information.

B. The cabinet shall be red in color with an identification label reading "FIRE ALARM DOCUMENTS". Refer to Identification Section 26 05 53. The cabinet shall be lockable.[Minimum cabinet size shall be 14" x 14" x 48".]

C. The final version of the system database program shall be stored within the cabinet.

D. Locate cabinet in the[Fire Command Room] <Insert>.

1.12 WARRANTY

A. Provide one (1) year warranty on all materials and labor from Date of Substantial Completion.

B. Warranty requirements shall include furnishing and installing all software upgrades issued by the manufacturer during the one (1) year warranty period.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. **Notifier by Honeywell**

2.2 FACP-SF - FIRE ALARM CONTROL PANEL

A. Control Panel: Modular, power-limited electronic design. Provide surface wall-mounted enclosure as shown on plans. Enclosure shall be minimum 0.060 steel with provisions for electrical conduit connections into the sides and top. The door shall provide a key lock and shall include a glass or other transparent opening for viewing of all indicators.

B. Each Signaling Line Circuit (SLC loop) shall not be loaded over 80% of the maximum device capacity. For example, in the minimum system capacity column listed below, if the fire alarm manufacturer's system capacity of analog sensors per loop is 99 devices, then no more than 79 devices shall be wired on that loop. The minimum system capacity shall be as follows:

1. Minimum Total Addressable Points: 250
2. Minimum Total SLC Loops (including board, ready for field connections): 2

C. Central Processing Unit:

1. The central processing unit (CPU) shall communicate with the monitor and control all other modules in the panel. Removal, disconnection or failure of any control panel module shall be detected and reported to the CPU.
2. The CPU shall execute all control-by-event programs for specific action to be taken if a designated situation is detected in the system. A real-time system clock for time annotations on the display and printer shall be included.
3. All power for the unit shall be supervised and supplied by the FAP.

D. Display:

1. The board shall provide all controls and indicators used by the system operator and may also be used to program all control panel parameters.
2. The board shall provide an alphanumeric array for display of custom alphanumeric labels for all addressable points. It shall also provide indicators for AC Power, System Alarm, System Trouble, Display Trouble and Signal Silence.
3. Displayed descriptions of addressable points shall include actual room names/numbers selected by the Owner. This information shall be obtained prior to programming. Room names/numbers shown on floor plans shall not be used.
4. The board shall provide a touch key-pad with control capability to command all system functions and entry of any alphanumeric information. Twenty different passwords with four levels of security shall be supported to prevent unauthorized manual control or programming.

E. Memory: The CPU and display interface board shall be augmented by non-volatile field programmable memory. EPROM memory will also be allowed provided the memory is burned in with minimum expansion capability equal to the total system capacity of the panel. Memory shall not be lost upon primary and secondary power failure.

F. Power Supply:

1. Input power shall be 120 VAC, 60 Hertz. Output power shall be as noted on the device specifications and drawings. Each component of the fire alarm system requiring 120 VAC input power shall be served from a dedicatedd branch circuit. Provide two #12 conductors and one #12 ground in 3/4" conduit to a dedicated 20A/1P circuit breaker with a red handle and a manufacturer's standard handle lock-on device. Identify/label breaker and branch circuit in accordance with NFPA requirements and Specification Section 26 05 53.
2. Adequate to supply 125% of all control panel and peripheral power needs as well as 125% of power required for all external audio-visual devices. The power supply may be increased as needed by adding additional modular expansion power supplies. Over-current protections shall be provided on all power outputs.
3. All power supplies shall be designed and installed to meet UL and NFPA requirements for power-limited operation on all external initiating and indicating circuits.

4. The power supply shall provide integral charger for use with internal batteries. Battery capacity shall be sufficient for operation of the entire system for 24 hours in a non-alarm state followed by alarm mode for 15 minutes, plus 25% spare capacity for future devices.

G. Surge Protection:

1. All fire alarm control panels, NAC panels, etc. shall be provided with a surge protection device (SPD). The SPD shall be UL listed to Standard 1449 Rev 3. The unit should be clearly labeled in accordance with Identification Section 26 05 53. The SPD shall have thermal fuses to protect against fire in short circuit conditions. The unit shall provide visual indication that the unit is protecting and functioning.
2. Any communications or signaling circuits associated with the fire alarm system, which leave or enter a facility, shall be provided with a surge protection device. The devices shall be as recommended by the fire alarm system manufacturer.

H. IP-GSM Digital Cellular Fire Communicator:

1. Provide digital internet / cellular phone interface capable of fire alarm notification to the local fire department, fire protection agency, or monitoring service. Monitoring fees and initial connection charges are not part of this project.
2. Communicator shall convert fire alarm control panel phone outputs into Ethernet packets and transmit to GSM networks in area including 2G, 3G, and 4G.
3. Communication shall include system status including individual addressable device status, power loss, low battery and earth fault, and 24-hour test signal.
4. **Wireless communicator shall communicate to the main fire alarm control panel serving the campus. The main control panel is located in the police department area (notifier nfs2 - 3030). Provide all required hardware and programming to allow connection of the new FACP-SF.**

2.3 Fire Alarm Pathway Class and Survivability Level

A. Pathway Class:

1. Pathway Class B: Circuits NOT capable of transmitting an alarm beyond the location of the fault condition. Wiring of outgoing and return conductors is permitted to be run in the same conduit or cable.

2.4 SIGNALING LINE CIRCUIT DEVICES

A. Combination Devices: Subscripts identify combination type devices when applicable. Contractor shall provide the combination device or provide multiple device(s) to meet the functionality when the manufacturer does not offer the required functionality with a single device.

B. Signal Line Device(s):

1. Subscripts: Subscripts are used to define the device type, installation, and identify the device with a specific sequence of operation.

a. Device type as follows:

1) Candela Ratings:

a) ## = 15 Candela, 30 Candela; 75 Candela; 110 Candela; 177 Candela

C. FA-120; Smoke Detectors:

1. Subscripts are used to define the device type, installation, and identify the device with a specific sequence of operation.
2. Analog Photoelectric Type Sensor: Shall use the photoelectric principle to measure smoke density and send data to the control panel representing the analog level of smoke density measured.
3. Each smoke detector shall connect directly to an SLC loop, unless listed as stand alone.
4. Each detector shall be mounted, where shown on the drawings, on a twist-lock base with all mounting hardware provided. Provide a two-piece head/base design.
5. Each detector shall have a manual switching means to set the internal identifying code (address) of that detector, which the control panel shall use to identify its address with the type of sensor connected.
6. Dual alarm and power indicators shall be provided that flash under normal conditions and remain continuous under alarm or trouble conditions. Remote indicator terminals shall be provided. Provide a remote LED indicator device if detector is not visible from a floor standing position.
7. A test means shall be provided to simulate an alarm condition.

D. FA-122; Duct Smoke Detectors, Sampling Tube Type:

1. Subscripts are used to define the device type, installation, and identify the device with a specific sequence of operation.

    a. Duct-type smoke detectors shall use the same analog [photoelectric][ionization] sensor technology, with the same features specified for standard smoke detectors, except with additional features as specified below.
    b. Provide sampling tubes and mounting hardware to match the duct to which it is attached. Where the detector housing is larger than the duct height, Contractor shall fabricate a mounting bracket for the detector and attach according to the fire alarm manufacturer's recommendations.
    c. Provide a remote alarm LED indicator device (FA-241) or (FA-242) if detector is not visible from a floor-standing position. If detector is located above a suspended ceiling, mount remote indicator in ceiling directly below detector with a white single-gang faceplate labeled: Duct Smoke Detector.

E. FA-130; Manual Pull Stations:

1. Manual pull station, addressable, double action with plastic breakrod, reset key lock, semi-flush mount, red high abuse plastic or cast metal construction with white lettering. Provided with all necessary mounting hardware. Use surface mount only on precast concrete or structure.
2. Manual stations shall connect directly to an SLC loop. Stations shall provide address setting means using rotary decimal or DIP switches.
3. Where operation is noted as required below 32°F and/or above 120°F, a conventional device shall be installed with a unique monitor module located in the nearest available location, with maintained temperatures between 32°F and 120°F.

F. FA-140; Heat Detectors:

1. Subscripts are used to define the device type, installation, and identify the device with a specific sequence of operation.

a. Device types as follows:

1) F = Fixed Temp

2. Provide a two-piece head/base design, with a manual switching means to set the internal identifying code (address) of that detector, which the control panel shall use to identify its address with the type of sensor connected.
3. Heat detectors shall connect directly to SLC loops. Where fixed temperature or explosion proof detectors are used, one monitor module may be used to monitor all detectors in one room/area as shown on the drawings.
4. Detectors shall be mounted, where shown on the drawings, on a twist-lock base with all mounting hardware provided.
5. Provide a remote LED indicator device if detector is not visible from a floor-standing position.
6. Dual alarm and power indicators shall be provided that flash under normal conditions and remain continuous under alarm or trouble conditions. A connection for attachment of a remote indicator shall be provided.
7. A test means shall be provided to simulate an alarm condition.
8. Where operation is noted as required below 32°F and/or above 120°F, a conventional device shall be installed with a unique monitor module located in the nearest available location with maintained temperatures between 32°F and 120°F.
9. (F) 200°F fixed temperature. Provide a remote addressable monitor module to interface with addressable system as shown on the plans.

G. FA-160; Monitor Modules:

1. Subscripts are used to define the device type, installation, and identify the device with a specific sequence of operation.

a. Device types as follows:

1) Blank = Refer to Plans

2. Subscripts are used to define the device type, installation, and identify the device with a specific sequence of operation.
3. Monitor Module shall connect directly to an SLC loop and receive power from a separate 24 VDC circuit. It shall interface initiating devices with the control panel using Style D or Style B circuits. Contractor Option: Use an interface module (2-wire operation) for Style B circuits connected to normally-open dry contacts, such as a flow switch.
4. The module shall be mounted in an enclosure located in an accessible service location as near as possible to the device(s) being monitored, or where shown on the drawings. All mounting hardware shall be provided.
5. The module shall supply the required power to operate the monitored device(s).
6. The module shall provide address setting means using rotary decimal or DIP switches.

H. FA-161; Addressable Control Module:

1. Subscripts are used to define the device type, installation, and identify the device with a specific sequence of operation.

a. Device types as follows:

1) Blank = Refer to Plans

2. Relay that represents an addressable control point used primarily for the control of auxiliary devices as indicated on the drawings. Contractor to provide additional child relay(s), as required, rated for the electrical load being controlled (Contractor to match voltage, amps, etc.).
3. Relay shall connect directly to an SLC loop and receive power from a separate 24 VDC circuit.
4. The relay shall be mounted in an enclosure located in an accessible service location as near as possible to the device(s) being controlled, unless otherwise shown on the drawings. All mounting hardware shall be provided.
5. The relay shall supply 24 VDC power to the device(s) being controlled, unless otherwise indicated on the drawings.

2.5 NOTIFICATION APPLIANCE DEVICES

A. Combination Devices: Subscripts identify combination type devices when applicable. Contractor shall provide the combination device or provide multiple device(s) to meet the functionality when the manufacturer does not offer the required functionality with a single device.

B. Notification Appliance Device(s):

1. Subscripts: Subscripts are used to define the device type, installation, and identify the device with a specific sequence of operation.

a. Device types as follows:

1) Candela Ratings:

a) ## = 15 Candela; 30 Candela; 75 Candela; 110 Candela; 177 Candela

C. Notification Device(s):

1. Wall Mounted: Red housing with white lettering or pictogram.

D. FA-200; Visual Alarm Devices:

1. Wall or ceiling mounted, refer to plans.
2. High intensity (Candela rating as scheduled on the drawings) xenon strobe or equivalent under a lens. Candela rating shall be visible from exterior of the device.
3. The maximum pulse duration shall be 0.2 seconds with a maximum duty cycle of 40%. The flash rate shall be 1 Hz. Where more than two strobes are visible from any one location, the fire alarm visual devices shall be synchronized.
4. Device, housing, and backbox shall be UL listed for fire alarm/emergency applications.

E. FA-211; Combination Audio Horn and Visual Alarm Device:

1. Wall or ceiling mounted, refer to plans.
2. Combine audio and visual components into a single device. Refer to the corresponding paragraphs above for requirements of each component.
3. (W) Weatherproof Audio/Visual Notification Device: Electronic horn with high intensity strobe, square housing, 75 Candela, suitable for wet locations. Provide with weatherproof back box.

a. Mounting: Semi-flush wall.
b. Conduit shall not be exposed.

2.6 NOTIFICATION APPLIANCE CIRCUIT PANEL (NAC)

A. As shown on the plans or as a Contractor's option if not shown, furnish and install NAC extender panels as necessary to provide remote power supply for notification appliance circuits (NAC). Contractor shall indicate quantity and locations of each NAC on the shop drawing submittals.

B. Each NAC shall be self-contained remote power supply with batteries, and battery charger mounted in a surface lockable cabinet. Battery capacity shall be sufficient for operation for[24][60] hours in a non-alarm state followed by alarm for 15 minutes, plus 25% spare capacity for future devices. Each NAC provides a minimum of up to 4 outputs, 2A continuous, or 6A full load total capacity.

C. Power for each NAC shall be from a local 120 VACcircuit. Provide two #12 conductors and one #12 ground in 1/2" conduit to each NAC from a dedicated 20A/1P circuit breaker with a red handle and a manufacturer's standard handle lock-on device. Coordinate panel and circuit number with the Architect/Engineer prior to installation.

D. NAC extender panels may be installed only in locations coordinated with the Architect/Engineer.

E. Mounting: Surface.

2.7 ANNUNCIATION

A. FA-242; Fire Alarm Remote Indicator and Test Switch:

1. Red LED type.
2. Key switch test selector.
3. Mounts flush to a single gang box.

2.8 CONNECTIONS TO AUXILIARY DEVICES PROVIDED BY OTHERS

A. FA-260; Flow Switch:

1. (FA-260) Connection to flow switch to monitor fire protection flow switch or discharge output contacts. Normally open dry contacts for fire alarm interface. Furnished and installed by MC; wired by EC.
2. Provide a dedicated monitor switch for each sprinkler flow switch.

B. FA-261; Tamper / Monitor Switch:

1. (FA-261) Connection to monitor switch to monitor fire protection system supervisory switches or output contacts. Normally open dry contacts for fire alarm interface. Furnished and installed by MC; wired by EC.
2. Tamper switches in the same room or system may be monitored by a single monitor switch when shown grouped on the plans.
3. Subscripts: Subscripts are used to define the device type, installation, and identify the device with a specific sequence of operation.
4. Device types as follows:

a. Blank = Refer to Plans
b. PIV = Post Indicator Valve

5. (PIV) Post Indicator Valve. Connection to post indicator valve for sprinkler system supervisory notification. Normally open dry contacts for fire alarm interface. Furnished and installed by MC; wired by EC. Provide surge protection device as recommended by the fire alarm system manufacturer on line entering/leaving the facility.

2.9 WIRING

A. Fire alarm wiring/cabling shall be furnished and installed by the Contractor in accordance with the manufacturer's recommendations and pursuant to National Fire Codes. Cabling shall be UL listed and labeled as complying with the Electrical Code for power-limited fire alarm signal service.

B. Fire Alarm Cable:

1. Manufacturers:

a. Comtran Corp.
b. Helix/HiTemp Cables, Inc.
c. Rockbestos-Suprenant Cable Corp.
d. West Penn Wire/CDT.
e. Radix.

PART 3 - EXECUTION

3.1 SEQUENCES OF FIRE ALARM OPERATION

A. General:

1. Refer to the Fire Alarm Operation Matrix on the drawings for basic requirements and system operation.
2. All system output programs assigned via control-by-event equations to be activated by the particular point in alarm shall be executed, and the associated system outputs (alarm notification appliances and/or relays) shall be activated.

B. Panel/Annunciator Alarm, Trouble, Supervisory Indication:

1. Appropriate system Alarm, Trouble, or Supervisory LED shall flash at the control panel, transponder, and annunciator locations.
2. A local signal in the control panel shall sound.
3. The LCD display shall indicate all information associated with the condition, including the name of the item, type of device and its location within the protected premises.
4. Printing and history storage equipment shall log the information associated with the fire alarm control panel (FAP) condition, along with the time and date.
5. Transmit the appropriate signal (supervisory, trouble, alarm) to the central station via the digital communicator.
6. Transmit the appropriate signal (supervisory, trouble, alarm) to the building automation system via addressable relays tied to contact monitors on the system.

C. Audible Alarms Sequence:

1. Audible alarms throughout the building shall sound.

D. Visual Alarms Sequence:

1. Visual alarms throughout the building shall flash.

E. Fire Protection Electric Sprinkler Bell Sequence:

1. The fire alarm shall utilize an addressable relay to energize the electric sprinkler bell upon activation of the flow switch.

F. Double Interlocked Preaction Sprinkler Activation Sequence:

1. The fire alarm system shall utilize an addressable relay to signal the double-interlock preaction sprinkler system to allow filling with water upon initiation of alarm in zone of sprinkler coverage.
2. Where there are multiple zones to the preaction system, a separate addressable relay shall be provided for each zone and the system shall be programmed to signal only the zone that is in the area of the fire. Coordinate with the fire protection system installer.
3. The fire alarm system shall utilize addressable monitor modules to monitor the control panel supervisory and trouble conditions.

G. Kitchen Hood Fire Suppression System Sequence:

1. The fire alarm system shall utilize an addressable relay to de-energize the hood supply fan controller.
2. The fire alarm system shall utilize an addressable monitor module to monitor the fire suppression system.

H. AHU and Mechanical Fan Shutdown Sequence:

1. The fire alarm system shall utilize addressable relays to de-energize all AHU motor controllers and mechanical fans. Coordinate other requirements with HVAC installer.
2. The fire alarm system shall directly shut down the AHU or mechanical fan through the local HVAC control device (i.e., variable frequency drive or motor starter).
3. Where a facility has more than one AHU or mechanical fan, each shall be shutdown individually based on input from initiation devices in the area served by the unit or designated for each air distribution system.
4. All AHUs and mechanical fans shall be shutdown simultaneously throughout the building.

3.2 INSTALLATION

A. Install system in accordance with manufacturer's instructions and referenced codes.

B. Fire Alarm Control Panel:

1. Install the control panel where shown on the drawings.
2. All expansion compartments, if required, shall be located at the control panel.

C. Devices:

1. General:

a. All ceiling-mounted devices shall be located where shown on the reflected ceiling and floor plans. If not shown on the reflected ceiling or reflected floor drawings, the devices shall be installed in the relative locations shown on the floor drawings in a neat and uniform pattern.
b. All devices shall be coordinated with luminaires, diffusers, sprinkler heads, piping and other obstructions to maintain a neat and operable installation. Mounting locations and spacing shall not exceed the requirements of NFPA 72.
c. Where the devices are to be installed in a grid type ceiling system, the detectors shall be centered in the ceiling tile.
d. The location of all fire alarm devices shall be coordinated with other devices mounted in the proximity. Where a conflict arises with other items or with architectural elements that will not allow the device to be mounted at the location or height shown, the Contractor shall adjust location of device so that new location meets all requirements in NFPA 72 and all applicable building codes.

2. Per the requirements of NFPA, detector heads shall not be installed until after the final construction cleaning unless required by the local Authority Having Jurisdiction (AHJ). If detector heads must be installed prior to final cleaning (for partial occupancy, to monitor finished areas or as otherwise required by the AHJ), they shall not be installed until after the fire alarm panel is installed, with wires terminated, ready for operation. Any detector head installed prior to the final construction cleaning shall be removed and cleaned prior to closeout.
3. Protection of Fire Alarm System:

a. A smoke detector shall be installed within the vicinity of the main fire alarm panel and every NAC extender panel per NFPA 72. A heat detector may be substituted when a smoke detector is not appropriate for the environment of installation.

4. Manual Pull Stations:

a. Stations shall be located where shown and at the height noted on the drawings.

5. Addressable Relays and Monitor Modules:

a. Modules shall be located as near to the respective monitor or control devices as possible, unless otherwise indicated on the drawings.
b. All modules shall be mounted in or on a junction box in an accessible location.
c. Where not visible from a floor standing position, a remote indicator shall be installed to allow inspection of the device status from a local floor standing location.

6. Notification Appliance Devices:

a. Devices shall be located where shown on the drawings.
b. Wall-mounted audio, visual and audio/visual alarm devices shall be mounted as denoted on the drawings.

D. Wiring:

1. Fire alarm wiring/cabling shall be provided by the Contractor in accordance with the manufacturer's recommendations and pursuant to National Fire Codes.
2. Wiring shall be installed in conduit. Refer to Identification Section 26 05 13 for color and identification requirements.
3. Fire Alarm Power Branch Circuits: Building wiring as specified in Section 26 05 13.

4. Notification Appliance Circuits shall provide the features listed below. These requirements may require separate circuits for visual and audible devices.

    a. Fire alarm temporal audible notification for all audio appliances.
    b. Synchronization of all visual devices where two or more devices are visible from the same location.
    c. Ability to silence audible alarm while maintaining visual device operation.

5. Notification Appliance Circuits shall not span floors.
6. No wiring other than that directly associated with fire alarm detection, alarm or auxiliary fire protection functions shall be in fire alarm conduits. Wiring splices shall be avoided to the extent possible, and if needed, they shall be made only in junction boxes, and enclosed by plastic wire nut type connectors. Transposing or changing color coding of wires shall not be permitted. All conductors in conduit containing more than one wire shall be labeled on each end, in all junction boxes, and at each device with "E-Z Markers" or equivalent. Conductors in cabinets shall be carefully formed and harnessed so that each drops off directly opposite to its terminal. Cabinet terminals shall be numbered and coded, and no unterminated conductors are permitted in cabinets or control panels. All controls, function switches, etc. shall be clearly labeled on all equipment panels.

E. Fire Alarm Cabling Color Code: Provide circuit conductors with insulation color coding as follows, or using colored tape at each conductor termination and in each junction box.

1. Power Branch Circuit Conductors: In accordance with Section 26 05 53.
2. Signaling Line Circuit: Overall red jacket with black and red conductors.
3. DC Power Supply Circuit: Overall red jacket with violet and brown conductors.
4. Notification Appliance Circuit: Overall red jacket with blue and white conductors.
5. Door Release Circuit: Gray conductors.
6. Central Station Trip Circuit: Orange conductors.
7. Central Station Fire Alarm Loop: Black and white conductors.

F. Devices surface mounted in finished areas shall be mounted on surface backboxes furnished by fire alarm equipment supplier. Backboxes shall be painted to match device, shall be the same shape and size as the device shall not have visible knockouts.

G. Make conduit and wiring connections to door release devices, sprinkler flow and pressure switches, sprinkler valve monitor switches, fire suppression system control panels, duct analog smoke detectors and all other system devices shown or noted on the Contract Documents or required in the manufacturer's product data and shop drawings.

3.3 FIELD QUALITY CONTROL

A. Field inspection and testing will be performed under provisions of Section 26 05 00.

B. Test in accordance with NFPA 72, Chapter 14 and local fire department requirements. Submit documentation with O & M manuals in accordance with Section 14.6 of the Code.

3.4 MANUFACTURER'S FIELD SERVICES

A. Provide manufacturer's field services under provisions of Section 26 05 00.

B. Include services of the manufacturer's software programmer to write initial custom-user program (for Color Graphics Annunciation System).

C. Note that room numbers depicted on the architectural/engineering drawings will not necessarily reflect the actual room (signage) numbers that the Owner selects. Contractor and fire alarm manufacturer shall coordinate the actual room numbers as the Owner directs to identify each device. This list shall be a part of the floor plan record drawing to be turned in at the project closeout.

3.5 SYSTEM TRAINING

A. System training shall be performed under provisions of Section 26 05 00.

B. Minimum on-site training times shall be:

1. System Operators: 4 hours.

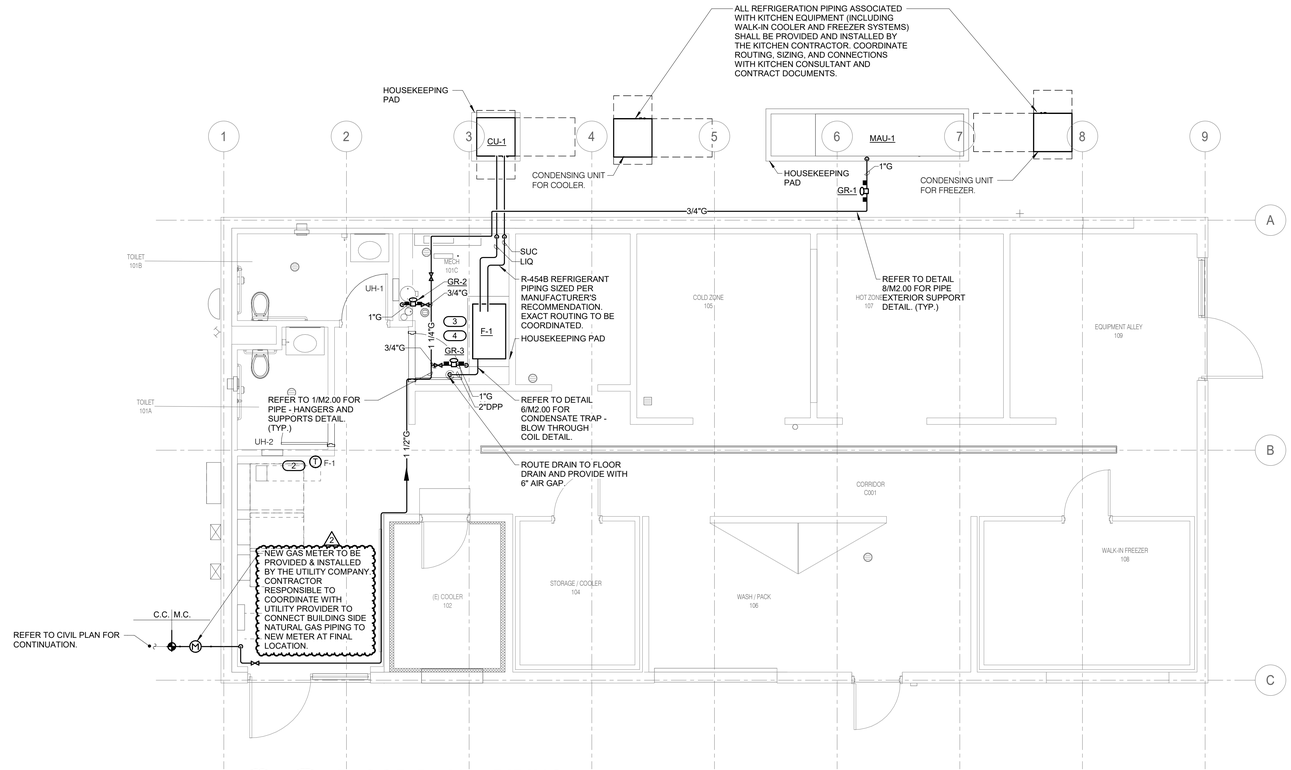
END OF SECTION 28 31 00

SHEET NOTES:

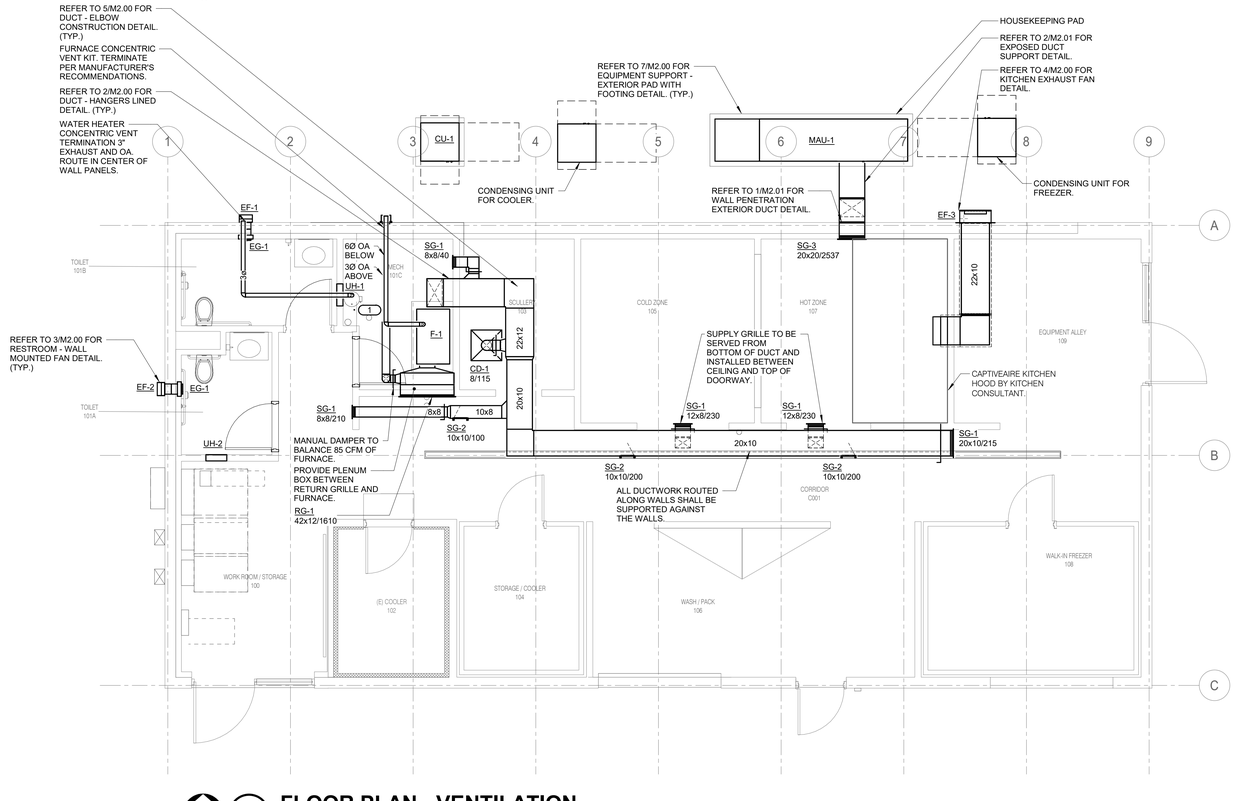
1. REFER TO ARCHITECTURAL ELEVATIONS FOR EXACT LOCATIONS OF ALL EXTERIOR WALL PENETRATIONS. COORDINATE ALL PENETRATIONS WITH ARCHITECTURAL AND RELATED TRADES PRIOR TO INSTALLATION.

KEYNOTES:

1. PROVIDE CONCENTRIC VENT TERMINATION KIT. INNER PIPE SERVES AS FLUE GAS EXHAUST; COMBUSTION AIR IS DRAWN THROUGH ANNULAR SPACE. SINGLE WALL PENETRATION ONLY. COORDINATE FINAL FLUE AND VENT CONNECTION WITH MANUFACTURER.
2. PROVIDE TEMPERATURE SENSOR AT LOCATION SHOWN. PROVIDE CONTROLS WIRING AS REQUIRED.
3. ROUTE ALL FURNACE COOLING COIL CONDENSATE DRAIN PIPING TO THE NEAREST FLOOR DRAIN IN THE MECHANICAL ROOM.
4. FURNACE TO BE MOUNTED ON A 4" HOUSEKEEPING PAD.



1 FLOOR PLAN - PIPING
1/4" = 1'-0"



2 FLOOR PLAN - VENTILATION
1/4" = 1'-0"

FOR REVIEW ONLY
NOT FOR CONSTRUCTION

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McHenry County College

Student Farm Renovations

8900 Northwest Hwy #14, Crystal Lake, IL 60012

DKA PROJECT NO: 25-037

KEY PLAN:

SHEET STATUS: 04/21/2026
ISSUED FOR BID

NO:	DESCRIPTION:	DATE:
1	ADDENDUM #1	05/01/2026
2	ADDENDUM #2	05/06/2026

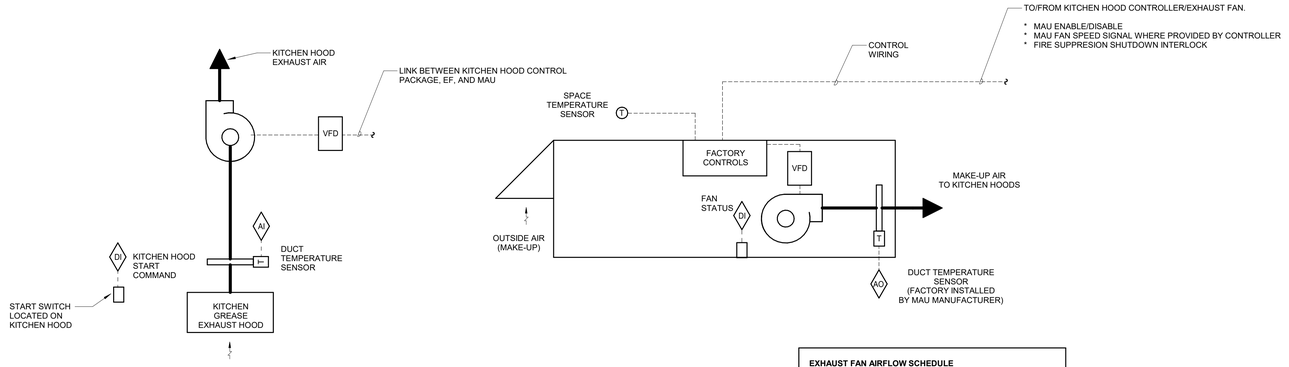
SHEET TITLE:
FLOOR PLANS - PIPING & VENTILATION

SHEET NUMBER:
M1.01

5/6/2026 1:39:37 PM

SHEET NOTES:

1. CONTRACTOR RESPONSIBLE TO PROVIDE ALL SENSORS, WIRING, RACEWAY, ETC. AS REQUIRED TO COMPLETE SCOPE OF WORK
2. CONTROL POINTS SHOWN ARE LOCAL TO EQUIPMENT UNLESS OTHERWISE NOTED. NO BAS OR FMCS CONNECTION REQUIRED.



KITCHEN HOOD EXHAUST FAN OPERATION:
KITCHEN HOOD EXHAUST FANS SHALL START FROM EITHER OF THE TWO FOLLOWING INPUTS:
- SWITCH ON ANY KITCHEN HOOD TURNED TO ON POSITION.
- ANY EXHAUST DUCT MOUNTED TEMP TRANSMITTER DETECTS AIR ABOVE SETPOINT (100°F ADJ.).
- ONCE A KITCHEN HOOD EXHAUST FAN IS ENERGIZED (VIA ANY INPUT) THE EXHAUST FAN SHALL CONTINUE TO OPERATE FOR A MIN. 20 MINUTE (ADJ.) TIME DURATION TO PREVENT SHORT CYCLING.

INTEGRATE WITH HOOD CONTROLLER AS REQUIRED. INTERLOCKED MAU SHALL BE ENABLED WHEN THE FAN IS ENABLED. HOOD CONTROLLER TO BE PROVIDED AS PART OF THE KITCHEN HOOD EQUIPMENT PACKAGE BY KITCHEN EQUIPMENT CONTRACTOR.

MAU SEQUENCE OF OPERATION:
REFER TO SPECIFICATION SECTION 23 74 23.13 FOR A DESCRIPTION OF THE MAU AND CONTROLS PROVIDED BY THE MANUFACTURER. THE UNIT SHALL OPERATE BY PACKAGE CONTROLS TO MAINTAIN THE SPACE TEMPERATURE OF 70°F (ADJ.). SPACE TEMPERATURE SETPOINT SHALL BE SET AT THE MAU CONTROLLER. IN HEATING MODE THE UNIT SHALL PROVIDE A BURNER MODULATION SIGNAL (0-10V DC) BASED ON THE DIFFERENCE BETWEEN MEASURED DAT AND SETPOINT. THE MAU PACKAGE CONTROLS SHALL OPEN THE ASSOCIATED UNIT DAMPERS AND ENABLE HEATING BASED ON OUTSIDE AIR TEMPERATURE (E.G. T < 60°F). IN COOLING MODE THE HEATING OPERATION SHALL BE DISABLED AND THE COMPRESSORS SHALL BE ENABLED, MANUFACTURER SHALL MODULATE COMPRESSOR CAPACITY AND DISCHARGE AIR TEMPERATURE TO MEET SPACE SETPOINT.

INTEGRATE WITH HOOD CONTROLLER AS REQUIRED. INTERLOCKED MAU SHALL BE ENABLED WHEN THE FAN IS ENABLED. HOOD CONTROLLER TO BE PROVIDED AS PART OF THE KITCHEN HOOD PACKAGE BY KITCHEN EQUIPMENT CONTRACTOR.

ALARMS, INTERLOCKS AND SAFETIES:
AN ALARM SHALL BE GENERATED AT THE HOOD CONTROLLER IN THE EVENT OF THE FOLLOWING:
- EXHAUST FAN IS COMMANDED TO OPERATE AND THE CURRENT SENSING RELAY DETECTS INSUFFICIENT CURRENT DRAW.
- MAU IS COMMANDED TO RUN AND THE CURRENT STATUS SWITCH INDICATES INSUFFICIENT CURRENT.
- WHEN THE FIRE ALARM CONTROL PANEL INDICATES AN ALARM CONDITION THE EXHAUST FAN SHALL BE SHUT DOWN.

SHUTDOWN:
- WHEN THE EF IS SHUTDOWN THE INTERLOCKED MAU SHALL BE SHUTDOWN.
- MAU PACKAGE CONTROLS SHALL CLOSE THE UNIT DAMPERS, CLOSE THE HEATING GAS VALVES, AND DISABLE COMPRESSORS.

MODE OF OPERATION DURING FIRE:

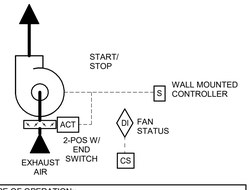
- NFPA 96 MUST BE FOLLOWED FOR OPERATING THE MAKE-UP AIR, GREASE HOOD EXHAUST FANS, MAIN GAS SOLENOID VALVE, AND POWER SUPPLY TO THE ELECTRICAL EQUIPMENT UNDER THE GREASE HOOD.
- WHEN THE KITCHEN FIRE SUPPRESSION SYSTEM (ANSUL SYSTEM) DETECTS A FIRE, IT WILL SEND A SIGNAL (THROUGH THE HARD WIRES) TO STOP THE GAS SOLENOID VALVE, TURN OFF THE MAKE-UP AIR SUPPLY TO THE GREASE HOODS, CUT THE POWER TO THE EQUIPMENT UNDERNEATH THE HOODS, AND RUN THE GREASE HOOD EXHAUST FANS AS REQUIRED BY NFPA 96

1 FAN - KITCHEN WITH MAU - GAS
NO SCALE

EXHAUST FAN AIRFLOW SCHEDULE

SYSTEM	EXHAUST CFM	MAU	MAU CFM	REMARKS
EF- 3	2637	MAU-1	2537	NOTES 1,2

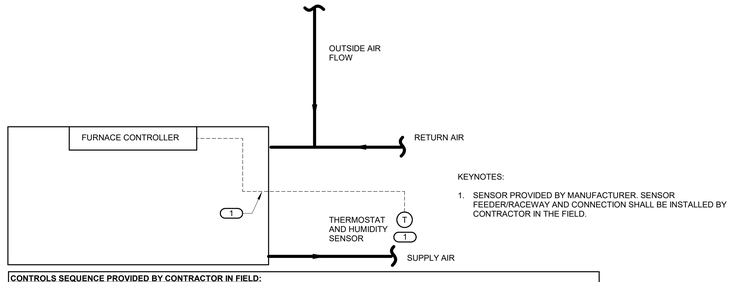
NOTES:
1. CORRESPONDING MAU SHALL BE INTERLOCKED TO OPERATE WHENEVER THE EXHAUST FAN IS TURNED ON.
2. EXHAUST EXCEEDS MAKE-UP TO MAINTAIN SPACE SLIGHTLY NEGATIVE.



SEQUENCE OF OPERATION:
FAN SHALL BE CONTROLLED BY MANUAL MOTOR STARTER (WALL MOUNTED CONTROLLER) PROVIDED BY MFR.

DAMPER SHALL BE HARDWIRED TO THE EXHAUST FAN'S STARTER TO OPEN WHEN FAN IS COMMANDED ON. WHETHER THE HAND-OFF-AUTO SWITCH IS IN THE HAND OR AUTO POSITION. THE HARDWIRED DAMPER ENDSWITCH (OR DAMPER ACTUATOR'S AUXILIARY SWITCH) SHALL ENERGIZE THE FAN STARTER ONCE THE DAMPER IS FULLY OPEN.

2 FAN - WALL MOUNTED CONTROLLER
NO SCALE



KEYNOTES:
1. SENSOR PROVIDED BY MANUFACTURER. SENSOR FEEDER/RACEWAY AND CONNECTION SHALL BE INSTALLED BY CONTRACTOR IN THE FIELD.

CONTROLS SEQUENCE PROVIDED BY CONTRACTOR IN FIELD:

BUILDING OCCUPANCY SCHEDULING:
FURNACE OCCUPANCY SCHEDULE SHALL BE COORDINATED WITH AND ADJUSTABLE BY BUILDING OWNER. PROVIDE CAPABILITY TO ADJUST

CONTROLS PROVIDED BY FURNACE MANUFACTURER:

FURNACE SYSTEM DESCRIPTION:
REFER TO SECTION 23 54 00 FOR A DESCRIPTION OF THE FURNACE AND THE CONTROLS PROVIDED BY THE FURNACE MANUFACTURER.

SEQUENCE OF OPERATION:
THE FURNACE FAN SHALL RUN AT SPEED AS DETERMINED BY FURNACE CONTROL SYSTEM.

SUPPLY FAN CONTROL:
SUPPLY FAN SHALL RUN CONTINUOUSLY WHEN OCCUPIED. WHEN UNOCCUPIED ALLOW FURNACE TO VARY FAN SPEED, SPEED TO BE CONTROLLED BY FURNACE CONTROLS.

VENTILATION CONTROL:
WHEN THE UNIT IS IN OCCUPIED MODE, THE FURNACE WILL RUN AT CONSTANT VOLUME. THE BALANCER WILL SET THE OUTDOOR AIR DAMPER TO ALLOW THE SCHEDULED OA TO THE FURNACE.

SUPPLY AIR CONTROL:
DISCHARGE AIR TEMPERATURE SHALL BE MODULATED AS REQUIRED TO MAINTAIN SPACE SETPOINT. WHENEVER THE SUPPLY AIR TEMPERATURE IS ABOVE SETPOINT, THE FOLLOWING SHALL OCCUR IN SEQUENCE:
- THE FURNACE SHALL MODULATE/STAGE GAS BURNER AND COMPRESSORS AS REQUIRED TO MEET SPACE SETPOOINT.
- THE COOLING EQUIPMENT SHALL BE ENABLED AND MODULATE AS REQUIRED TO MAINTAIN SETPOINT.

WHENEVER THE DISCHARGE AIR TEMPERATURE IS BELOW SETPOINT, THE FOLLOWING SHALL OCCUR IN SEQUENCE:
- IF THE DISCHARGE AIR TEMPERATURE IS MORE THAN 5°F (ADJ) BELOW SETPOINT, MFR SHALL MODULATE COOLING EQUIPMENT OFF.
- MODULATE GAS BURNER AS REQUIRED TO MAINTAIN SETPOINT.

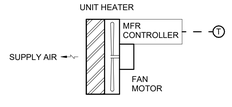
IN UNOCCUPIED MODE ALLOW 5F OF DRIFT ABOVE SETPOINT AND 10F DRIFT BELOW SETPOINT.

HUMIDITY CONTROL:

HUMIDIFER ACCESSORY PROVIDED WITH FURNACE SHALL BE ENABLED AND CONTROLLED BY FURNACE SYSTEM AS REQUIRED TO MANTAIN SPACE HUMIDITY SETPOINT

FURNACE SHALL CONTROL COOLING OPERATION AS REQUIRED TO IMPROVE LATENT REMOVAL AND MANTAIN SPACE HUMIDITY SETPOINT.

3 FURNACE SINGLE ZONE
NO SCALE



SEQUENCE OF OPERATION:

THE UNIT HEATER SHALL BE FURNISHED WITH A UNIT MOUNTED FAN SPEED SELECTOR SWITCH (OFF–HIGH–MED–LOW).

SPACE TEMPERATURE SETPOINT SHALL BE 68°F (ADJ.). WHEN THE SPACE TEMPERATURE DROPS BELOW SETPOINT, THE THERMOSTAT SHALL ACTIVATE THE UNIT HEATER. THE FACTORY CONTROLLER SHALL TURN ON THE FAN AND ENERGIZE THE ELECTRIC HEATER COIL TO MAINTAIN HOT AIR DISCHARGE TEMPERATURE. AFTER THE SPACE TEMPERATURE IS ABOVE THE SETPOINT FOR 10 CONSECUTIVE MINUTES (ADJ.), THE THERMOSTAT SHALL DISABLE THE UNIT HEATER. UNIT MOUNTED THERMOSTAT IS ACCEPTABLE

4 UNIT HEATER CONTROL - ELECTRIC
NO SCALE

FOR REVIEW ONLY
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REF. SCALE IN INCHES 0 1 2 3 — PROJECT #26000535.00

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DKA PROJECT NO: 25-037

KEY PLAN:

SHEET STATUS: 04/21/2026
ISSUED FOR BID

NO:	DESCRIPTION:	DATE:
2	ADDENDUM #2	05/06/2026

SHEET TITLE:
HVAC CONTROLS

SHEET NUMBER:
M3.00

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AIR TERMINAL SCHEDULE

NOTES:
1.CONTRACTOR SHALL DETERMINE PROPER BORDER TYPE TO MATCH CEILING CONSTRUCTION.
2.REFER TO DRAWINGS FOR NECK SIZE. ALL BRANCH DUCTWORK TO AIR TERMINALS SHALL BE NECK SIZE UNLESS NOTED OTHERWISE.

TAG NAME	TYPE	MATERIAL	FINISH	FACE SIZE (NOTE 1,2) WIDTH	FACE SIZE (NOTE 1,2) HEIGHT	BORDER (NOTE 3)	VOLUME DAMPER	MANUFACTURER	MODEL	NOTES
CD-1	PLAQUE	STEEL	WHITE	24"	24"	LAY-IN	No	TITUS	OMNII	
EG-1	PLAQUE	STEEL	WHITE	8"	8"	SURFACE MOUNT	Yes	FANTECH	MGE 8	METAL EXHAUST GRILLE,WALL MOUNT, DIRECT DUCT CONNECTION
RG-1	35 DEGREE DEFLECTION	STEEL	WHITE	42"	12"	SURFACE MOUNT	No	TITUS	350	LONG BLADES
SG-1	DOUBLE DEFLECTION	STEEL	WHITE	8"	8"	1 1/4"	No	TITUS	300	LONG FRONT BLADES
SG-2	DOUBLE DEFLECTION	ALUMINUM	WHITE	10'	10"	SURFACE MOUNT	Yes	TITUS	US300FL	
SG-3	PERFORATED	ALUMINUM	WHITE	20	20"	SURFACE MOUNT	No	TITUS	PAS-AA	PROVIDE WITH DEFLECTORS

UNIT HEATER SCHEDULE - ELECTRIC (UH)

NOTES:
1. PROVIDE ELECTRIC UNIT HEATER WITH FACTORY CONTROLS. (2)

TAG NAME	AREA SERVED	CONFIGURATION	CFM	STAGES	KW	ELECTRICAL VOLTS	PH	DISCONNECT BY (NOTE A)	DISCONNECT TYPE (NOTE B)	CONTROLLE R/STARTER BY (NOTE A)	SCCR	CONTROL DIAGRAM	MANUFACTURER	MODEL	NOTES
UH-1	TOILET 101A	ARCHITECTURAL WALL MOUNT	100	1	4	208	1	MFR	NF	MFR	5,000	4/M3.00	TRANE	UHAA-04	NOTE 1
UH-2	TOILET 101B	ARCHITECTURAL WALL MOUNT	100	1	4	208	1	MFR	NF	MFR	5,000	4/M3.00	TRANE	UHAA-04	NOTE 1

CONDENSING UNIT SCHEDULE - COOLING (CU)

NOTES:
1.UNIT SHALL INCLUDE FACTORY ECM inverter-driven compressor.

TAG NAME	SERVICE	TONNAGE IN (lb)	REFRIGERANT	SAT SUC TEMP °F	AMBIENT TEMP °F	NUMBER OF COMPRESSORS	NUMBER OF STAGES	NUMBER OF CIRCUITS	NUMBER OF FANS	RLA (AMP)	ELECTRICAL MCA	MOCP AMPS	VOLTS	PHASE	DISCONNECT BY (NOTE A)	DISCONNECT TYPE (NOTE B)	CONTROLLER/STARTER BY (NOTE A)	CONTROLLER/STARTER SCCR	MANUFACTURER	MODEL	NOTES
CU-1	F-1	257	R-454B	45	95	1	1	1	1	17.4	24	40	208	1	MFR	NF	MFR	5000	CARRIER	26VNA160W003	NOTE 1

FURNACE SCHEDULE

(2)

NOTES:
1. PROVIDE HIGH EFFICIENCY GAS FURNACE WITH FACTORY CONTROLS. COORDINATE FINAL OPERATION AND OCCUPIED SCHEDULE WITH OWNER.
2. PROVIDE WITH HUMIDITY CONTROL & BYPASS HUMIDIFER ACCESSORY (CARRIER HUMCLBP2417 OR EQUIVALENT) AS PART OF FURNACE PACKAGE.

TAG NAME	SERVICE	EXT S.P. IN. WG	FAN/BLOWER CFM (HIGH SPEED)	FAN/BLOWER HP	FAN/BLOWER RPM	ELECTRICAL VOLTAGE	ELECTRICAL PHASE	DISCONNECT BY (NOTE A)	DISCONNECT TYPE (NOTE B)	CONTROLLER/STARTER BY (NOTE A)	CONTROLLER/STARTER SCCR	HEATING STAGES	HEATING INPUT MBH	HEATING OUTPUT MBH	EVAPORATOR COIL LAT F°	EVAPORATOR COIL EAT DB °F	EVAPORATOR COIL EAT WB °F	EVAPORATOR COIL TOTAL MBH	AMBIENT AIR °F	MANUFACTURER	FURNACE MODEL	EVAPORATOR COIL MODEL	CONTROL DIAGRAM	NOTES
F-1	BUILDING	0.5	1,625	0.75	1100	115	1	EC	NF	MFR	5000	4	120	117	57	80	67	120	95	CARRIER	59MN7C120C24--22	CVAVA6024XMA	3/M3.00	NOTES 1, 2

FAN SCHEDULE

NOTES:
1. PROVIDE WITH STANDARD ONE FAN CONTROLLER TO ACHIEVE SEQUENCE OF OPERATION PER M2.01 CONTROL DIAGRAMS.
2. GREASE EXHAUST FAN TO BE GREASE RATED UL 762 ETC.
3. EXHAUST FAN FINISH TO MATCH PANELING.

TAG NAME	SERVICE	CFM DESIGN	TOTAL S.P. IN. WC	WHEEL DIA	DRIVE	FAN RPM	BACK DRAFT DAMPER TYPE	ELECTRICAL BHP (NOTE E)	MHP (NOTE E)	VOLTS	PH	DISCONNECT BY (NOTE A)	DISCONNECT TYPE (NOTE B)	CONTROLLER/STARTER BY (NOTE A)	CONTROLLER/STARTER TYPE (NOTE C)	MANUFACTURER	MODEL	CONTROL DIAGRAM	NOTES
EF-1	TOILET 101A	75	1.36	N/A	DIRECT	3457	GRAVITY	0.09	0.12	120	1	MFR	NF	MFR	ECM	FANTECH	#44860	2/M3.00	NOTE 3
EF-2	TOILET 101B	75	1.36	N/A	DIRECT	3457	GRAVITY	0.09	0.12	120	1	MFR	NF	MFR	ECM	FANTECH	#44860	2/M3.00	NOTE 3
EF-3	HOT ZONE 107	2,637	0.75	16"	DIRECT	1202	GRAVITY	0.66	0.78	120	1	MFR	NF	MFR	ECM	GREENHECK	CUE- 160- VG	1/M3.00	NOTES 1, 2

MAKE-UP AIR UNIT SCHEDULE (MAU)

NOTES:
(1) 1. PROVIDE FACTORY CONTROLS CAPABLE OF INTEGRATION WITH KITCHEN HOOD CONTROLS. UNIT TO OPERATE IN COORDINATION WITH EXHAUST SYSTEMS. FINAL AIRFLOW, DISCHARGE AIR TEMPERATURE, AND OCCUPIED SCHEDULE TO BE COORDINATED WITH OWNER.

TAG NAME	LOCATION	FAN CFM DESIGN	FAN EXT S.P. IN. WC	FAN DRIVE	FAN MOTOR HP	HEATING SECTION MBH INPUT	HEATING SECTION MBH OUTPUT	HEATING SECTION TURN DOWN	HEATING SECTION INLET PSIG	REFRIGERATION TYPE	REFRIGERATION EER	REFRIGERATION FLUID TYPE	COOLING SECTION MBH TOTAL	COOLING SECTION MBH SENSIBLE	COOLING SECTION EAT DB °F	COOLING SECTION EAT WB °F	COOLING SECTION LAT DB °F	COOLING SECTION LAT WB °F	COOLING SECTION MOTOR HP	ELECTRICAL VOLTS	ELECTRICAL PH	DISCONNECT BY [A]	DISCONNECT TYPE [B]	CNTLR/STARTER BY [A]	CNTLR/STARTER TYPE [C]	CNTLR/STARTER SCCR	EM PWR	FILTER FINAL A.P.D. IN. W.G.	CONTROL DIAGRAM	MANUFACTURER	MODEL	NOTES
MAU-1	HOT ZONE	2,537	1	DIRECT	1.5	238.3	219.2	1	0.5	R-454B	16.35	R-454B	96.7	68.1	95	78	68	68	1	208	3	MFR	NF	MFR	VFD	5,000	No	1.95	1/M3.00	GREENHECK	DGX-P116-H12-D1-8	NOTE 1

GAS REGULATOR SCHEDULE

TAG NAME	DESCRIPTION	MANUFACTURER AND MODEL
GR-1	GAS PRESSURE REGULATOR - CAST IRON BODY, INTERNAL PRESSURE RELIEF, THREADED CONNECTIONS, ADJUSTABLE PRESSURE SETTING, TIGHT SHUTOFF. 2PSI INLET PRESSURE, 7" - 10" OUTLET PRESSURE, 180 CFH CAPACITY, MINIMUM CONTROLLABLE FLOW OF 27 CFH.	FISHER, ITRON, SENSUS, MAXITROL
GR-2	GAS PRESSURE REGULATOR - CAST IRON BODY, INTERNAL PRESSURE RELIEF, THREADED CONNECTIONS, ADJUSTABLE PRESSURE SETTING, TIGHT SHUTOFF. 2PSI INLET PRESSURE, 7" - 10" OUTLET PRESSURE, 180 CFH CAPACITY, MINIMUM CONTROLLABLE FLOW OF 24 CFH. PROVIDE GAS REGULATOR WITH VENT LIMITING DEVICE.	MAXITROL VLIMITER OR APPROVED EQUIVALENT
GR-3	GAS PRESSURE REGULATOR - CAST IRON BODY, INTERNAL PRESSURE RELIEF, THREADED CONNECTIONS, ADJUSTABLE PRESSURE SETTING, TIGHT SHUTOFF. 2PSI INLET PRESSURE, 7" - 10" OUTLET PRESSURE, 150 CFH CAPACITY, MINIMUM CONTROLLABLE FLOW OF 20 CFH. PROVIDE GAS REGULATOR WITH VENT LIMITING DEVICE.	MAXITROL VLIMITER OR APPROVED EQUIVALENT

SCHEDULE GENERAL...

[A] DISCONNECT AND CNTLR/STARTER FURNISHED AND INSTALLED BY:
MFR = MANUFACTURER
EC = ELECTRICAL CONTRACTOR.
MC = FURNISHED BY MECHANICAL CONTRACTOR, INSTALLED BY ELECTRICAL CONTRACTOR.
MFR/EC = FURNISHED LOOSE BY MANUFACTURER INSTALLED BY ELECTRICAL CONTRACTOR.
TCC = TEMPERATURE CONTROL CONTRACTOR

[B] DISCONNECT TYPE:
CB = CIRCUIT BREAKER
F = FUSED
NF = NON-FUSED
PLUG = PLUG AND CORD

[C] CONTROLLER STARTER TYPE:
FV = FULL VOLTAGE
WYE = WYE-DELTA
SS = SOLID STATE (SOFT START)
MS = MANUAL STARTER
VFD = VARIABLE FREQUENCY DRIVE
VFD/B = VARIABLE FREQUENCY DRIVE WITH BYPASS
ECM = ELECTRONICALLY COMMUTATED MOTOR

NOTE: PROVIDE SHAFT GROUNDING ON MOTORS DRIVEN BY A VFD AS REQUIRED PER SPECIFICATIONS 22 05 13 AND 23 05 13.

[D] RPM LIMITATION
FAN RPM SHALL NOT EXCEED 110% OF SCHEDULED VALUE, WITH THE SCHEDULED WHEEL TYPE. SUBSTITUTION OF BI OR BIA FANS FOR FC IS ACCEPTABLE IF EFFICIENCY IS NOT LOWER.

[E] HORSEPOWER LIMITATION
NO EQUIPMENT SHALL BE SELECTED ABOVE 90% OF MOTOR NAME PLATE RATING.

[F] RPM DEVIATION
MUST BE WITHIN +/- 10% OF SCHEDULED RPM.

[G] CURB / PAD TYPE:
STD = STANDARD CURB
SAC = SOUND ATTENUATOR CURB
CONC = CONCRETE BASE (HOUSEKEEPING PAD)

[G] CURB / PAD BY:
MFR = MANUFACTURER
MC = MECHANICAL CONTRACTOR
GC = BY GENERAL CONTRACTOR

[H] CONTROL / SENSOR TYPE
1 = SENSOR ONLY
2 = SENSOR WITH ADJUSTMENT
3 = SENSOR WITH OVERRIDE
4 = SENSOR WITH ADJUSTMENT AND OVERRIDE.

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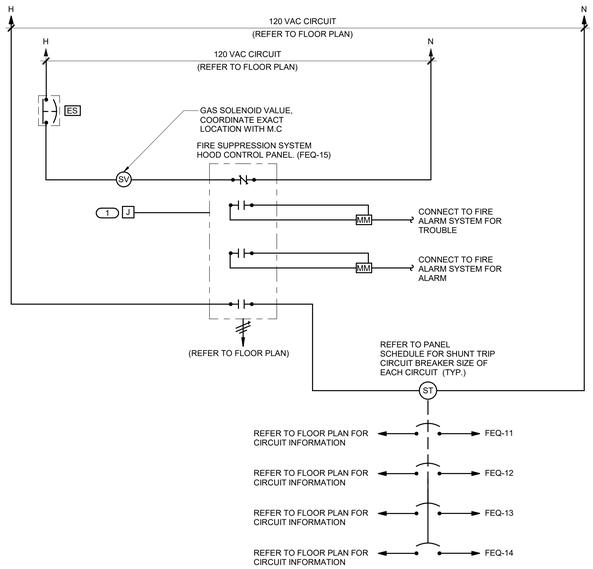


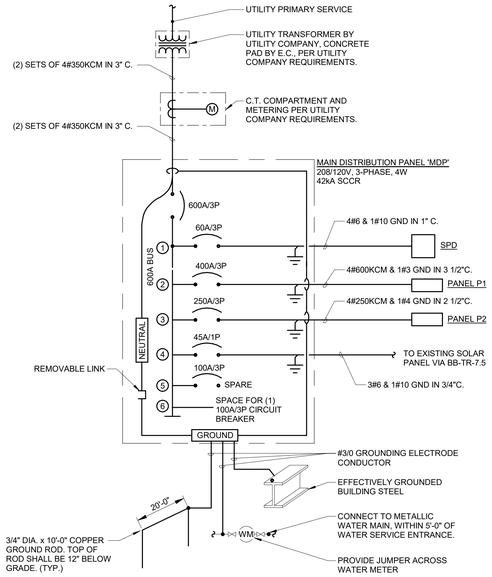
1 EXHAUST HOOD CONTROL DIAGRAM
NO SCALE

NOTES:

1. WIRING PER MANUFACTURER'S RECOMMENDATIONS. ALL WIRING SHALL BE INSTALLED IN CONDUIT.

KEYNOTES: (#)

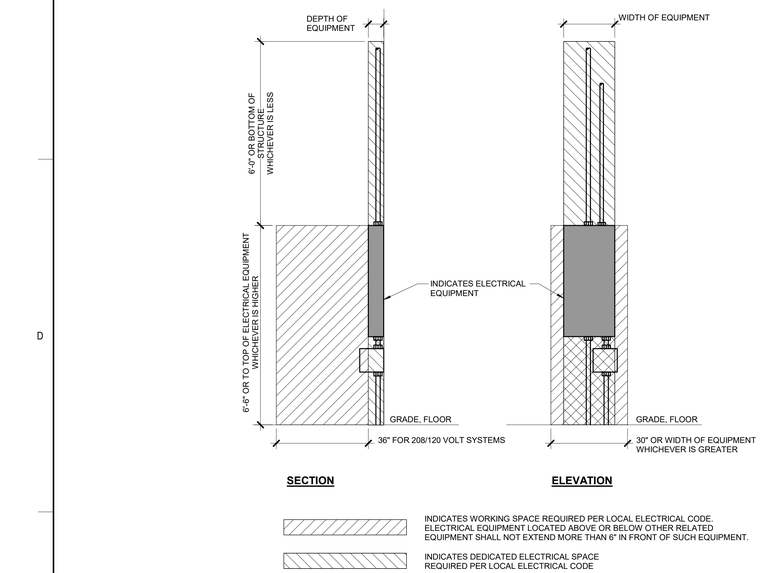
1. PROVIDE BACKBOX AND CONDUIT FOR MANUAL PULL STATION PROVIDED BY FOOD SERVICE EQUIPMENT SUPPLIER. COORDINATE EXACT LOCATION AND REQUIREMENTS WITH SERVICE EQUIPMENT SUPPLIER PRIOR TO INSTALLATION.



2 ONE LINE DIAGRAM
NO SCALE

ONE LINE DIAGRAM NOTES

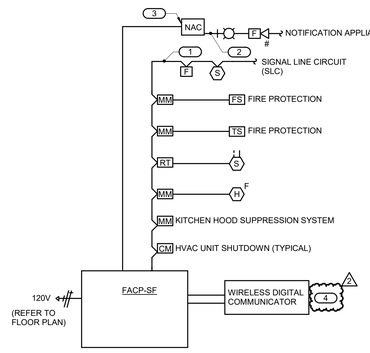
1. AIC RATINGS LISTED FOR EQUIPMENT ARE MINIMUM REQUIREMENTS FOR BUS BRACING AND DEVICE RATING. ALL EQUIPMENT SHALL BE FULLY RATED UNLESS SPECIFICALLY NOTED AS SERIES RATED.
2. (M) INDICATES KILOWATT-HOUR METER AS SUPPLIED BY UTILITY COMPANY.
3. INDICATES DIRECT CONNECTION OF GROUND CONDUCTOR TO GROUND BUS.
4. INDICATES CIRCUIT BREAKER, SIZE AS SPECIFIED.
5. INDICATES TRANSFORMER, SIZE AS SPECIFIED.
6. INDICATES O.Z. GEDNEY OR EQUAL GROUND BUSHING BONDED TO GROUND BUS WITH CONDUCTOR SIZED TO MAXIMUM FEEDER GROUND CAPACITY.



3 PANELBOARD EQUIPMENT CLEARANCES
NO SCALE

SYSTEM INPUTS \ SEQUENCE OF OPERATION		PANEL/ANNUNCIATOR ALARM INDICATION	PANEL/ANNUNCIATOR SUPERVISORY INDICATION	PANEL/ANNUNCIATOR TROUBLE INDICATION	AUDIBLE ALARMS SEQUENCE	VISUAL ALARMS SEQUENCE	MAU & MECHANICAL FAN SHUTDOWN SEQUENCE (CM)
FIRE ALARM PANEL, TRANSPONDER, NAC PANEL LOW BATTERY			X				
FIRE ALARM PANEL, TRANSPONDER, NAC PANEL BATTERY OR CHARGER FAILURE				X			
FIRE ALARM PANEL, TRANSPONDER, NAC PANEL ABNORMAL SWITCH OR CONTROL POSITION.			X				
FIRE ALARM PANEL, TRANSPONDER, NAC PANEL GROUND FAULT, OPEN CIRCUIT, SHORT CIRCUIT				X			
FIRE ALARM PANEL, TRANSPONDER, NAC PANEL AC POWER LOSS OR IRREGULARITY				X			
NOTIFICATION APPLIANCE CIRCUIT OR SLC LOOP GROUND FAULT, OPEN CIRCUIT, SHORT CIRCUIT				X			
INITIATING DEVICE FAILURE OR COMMUNICATION ERROR				X			
FIRE ALARM PANEL MANUAL FIRE DRILL			X		X	X	
MANUAL PULL STATION	(F)	X			X	X	
SMOKE DETECTOR	(S)	X			X	X	
HEAT DETECTOR	(H)F	X			X	X	
SMOKE DETECTOR FOR HVAC CONTROL	(S)TT						X
SPRINKLER SYSTEM FLOW SWITCH	FS	X			X	X	
SPRINKLER SYSTEM TAMPER SWITCH	TS		X				

4 FIRE ALARM OPERATION MATRIX
NO SCALE



NOTES:

1. THE RISER DIAGRAM IS INTENDED TO CONVEY THE TYPES OF FIRE ALARM CONNECTIONS AND SPECIFICALLY DOES NOT INDICATE QUANTITIES, NUMBER OF CIRCUITS REQUIRED OR DISTANCES.
2. THE COMPLETE FIRE ALARM SYSTEM SHALL MEET ALL APPLICABLE CODES AND MANUFACTURER'S RECOMMENDATIONS.
3. CONTRACTOR SHALL COORDINATE ALL WIRE SIZES, TYPES AND REQUIREMENTS WITH THE VENDOR PRIOR TO BID. REFER TO SPECIFICATIONS TO DETERMINE CIRCUIT STYLES AND IF CONDUIT IS REQUIRED OR PLENUM RATED CABLE IS ACCEPTABLE.
4. ALL +120VAC WIRING REQUIRED FOR OPERATION OF THE SYSTEM AS DESCRIBED IN THE CONSTRUCTION DOCUMENTS SHALL BE PROVIDED BY THE ELECTRICAL CONTRACTOR.
5. ALL NECESSARY RELAYS MAY NOT BE SHOWN ON THIS PLAN, BUT WHERE REQUIRED FOR PROPER OPERATION OF THE SYSTEM THEY SHALL BE PROVIDED BY THE CONTRACTOR.

KEYNOTES: (#)

1. REFER TO SPECIFICATION FOR REQUIREMENTS OF EACH INITIATION LOOP AND WIRING STYLE. REFER TO FLOOR PLANS FOR DEVICES AND THEIR LOCATIONS.
2. REFER TO SPECIFICATION FOR REQUIREMENTS OF EACH NOTIFICATION APPLIANCE CIRCUIT AND WIRING STYLE. REFER TO FLOOR PLANS FOR DEVICES AND THEIR LOCATIONS.
3. PROVIDE NOTIFICATION APPLIANCE EXTENDER PANELS AS REQUIRED. DETERMINATION OF NEED TO BE MADE BY FIRE ALARM VENDOR. REFER TO SPECIFICATIONS FOR REQUIREMENTS AND ACCEPTABLE MOUNTING LOCATIONS.
4. WIRELESS COMMUNICATOR SHALL COMMUNICATE TO THE MAIN FIRE ALARM CONTROL PANEL SERVING THE CAMPUS. THE MAIN CONTROL PANEL IS LOCATED IN THE POLICE DEPARTMENT AREA (NOTIFIER NFS2 - 3030). PROVIDE ALL REQUIRED HARDWARE AND PROGRAMMING TO ALLOW CONNECTION OF THE NEW FACP-SF.

5 FIRE ALARM RISER DIAGRAM
NO SCALE

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E2.00

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