PERKINS EASTMAN

SUCF Project No. 291036-02
Rehab Administration Building Exterior
State University Construction Fund
State University College at Purchase

ADDENDUM NO. 2
2 October 2024

Prepared by:
Nicholas Wan AIA, Perkins Eastman, 115 Fifth Avenue, New York, NY 10003
(Architect of Record: Michael Nieminen, FAIA)

Introduction:
The following additions, deletions, and/or changes to these drawings and specifications for this project, shall become and are hereby made part of the Contract Documents. They change the original documents only in the manner and to the extent stated. Each bidder shall acknowledge receipt of this Addendum in the appropriate location on the bid proposal form.

This addendum consists of the following items attached,

Item 1: Drawing sheet T000

a. Change title for sheet MD101 to "*HVAC FIRST FLOOR DEMOLITION **AND REINSTALLATION** PLAN".*
b. Change title for sheet MD103 to "*HVAC THIRD FLOOR DEMOLITION **AND REINSTALLATION** PLAN".*
c. Change title for sheet PD100 to "*PLUMBING FIRST FLOOR DEMOLITION **AND REINSTALLATION** PLAN".*

Item 2: Drawing sheet AA-100

a. Change Keynote 3's quantity from 5,700 SF to *450 SF*. Keynote 3 applies to locations tagged with Keynotes 4 & 5, for ceiling removal per detail 4/A510.

Item 3: Drawing sheet AA-101

a. Change Keynote 3's quantity from 5,700 SF to *450 SF*. Keynote 3 applies to locations tagged with Keynotes 4 & 5, for ceiling removal per detail 4/A510.

Item 4: Drawing sheet A-603

a. On window schedule's note column, add "*New Framing and Interior Trim"* to these windows:
   101, 102, 109, 110
b. On window schedule's note column, add "*New Interior Trim"* to these windows:
   118, 119, 120, 121, 122, 129, 130, 131, 132, 133, 134, 135, 136, 137, 144

Item 5: Drawing sheet MD101

a. Change title for sheet MD101 to "*HVAC FIRST FLOOR DEMOLITION **AND REINSTALLATION** PLAN".*

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Item 6: Drawing sheet MD103

a. Change title for sheet MD103 to "*HVAC THIRD FLOOR DEMOLITION **AND REINSTALLATION** PLAN".*
b. Replace Sheet Note 3 to "*Disconnect, remove, and protect existing air cooled condenser units in order to perform roof work. Reinstall and reconnect units to resume operation at conclusion of work. Piping/conduit to be mounted to façade".*

Item 7: Drawing sheet PD001

a. Change title for sheet PD001 to "*PLUMBING FIRST FLOOR DEMOLITION **AND REINSTALLATION** PLAN".*

Item 8: Drawing sheet E001

a. Delete abbreviation for "*EC ELECTRICAL CONTRACTOR".*
b. Replace General Construction Note 13 to "*CONTRACTOR SHALL REFER TO AA-100 DRAWINGS FOR HAZARDOUS MATERIALS SCOPE AND NOTES".*

Item 9: Drawing sheet ED100

a. Change Key Note 1 to read "*CONTRACTOR SHALL PULL WIRE BACK… ".*

Item 10: Drawing sheet ED101

a. Change drawing scale from *"N.T.S."* to *1/8" = 1'-0".*

Item 11: Drawing sheet ED102

a. Change drawing scale from *"N.T.S."* to *1/8" = 1'-0".*

Item 12: Drawing sheet E100 - Replace with attached, bearing Revision title 'Addendum No. 2'. Focus of change is to add exhaust fan's electrical scope at Toilet Rooms 1001F and 1001G, correct reference at East Wing annotation to "sheet E.400", and North/Front door's photocell's final placement to be coordinated with Architect.

Item 13: Drawing sheet E101

a. Change drawing scale from *"N.T.S."* to *1/8" = 1'-0".*

Item 14: Specification Section 000110 Table of Contents

a. Change title for sheet MD101 to "*HVAC FIRST FLOOR DEMOLITION **AND REINSTALLATION** PLAN".*
b. Change title for sheet MD103 to "*HVAC THIRD FLOOR DEMOLITION **AND REINSTALLATION** PLAN".*
c. Change title for sheet PD100 to "*PLUMBING FIRST FLOOR DEMOLITION **AND REINSTALLATION** PLAN".*
d. Remove 265219 Emergency and Exit Lighting
b. Add 283111 FL - Digital, Addressable Fire-Alarm System

Item 15: Specification Section 260923 Lighting Control Devices – Replace specification pages 1,2,3,4 with attached specification pages 1,2,3,4, bearing header 'Addendum No. 2'. Bold font indicates insertions, and strikethroughs indicate deletions.

a. Modification to spec to include adding Outdoor Photo Electric Switches.

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Item 16: Specification Section 263323 Central Battery Equipment for Emergency Lighting – Replace Page 9 with attached Page 9, bearing header 'Addendum No. 2'. Strikethroughs indicate deletions.

Item 17: Specification 283111 FL - Digital, Addressable Fire-Alarm System – Insert attached, bearing header 'Addendum No. 2'.

(End of Addendum Cover)

AUTOMATIC LIGHTING CONTROL SCHEDULE						
TAG	BASIS OF DESIGN		DESCRIPTION	SENSOR	VOLT.	NOTES
	MAKE	MODEL				
S_x	SENSOR SWITCH	sPODM	ON/OFF LOW VOLTAGE SWTICH	--	24V	1,2
PP	nLIGHT	nPP16 DS SERIES	POWER/RELAY PACK WITH 0-10V DIMMING	--	120V	1
IO	nLIGHT	nIO NLI	PHOTOCELL INTERFACE MODULE	--	15VDC	1
PS	nLIGHT	PS150	120/277 VOLTS TO 15VDC 150mA POWER SUPPLY	--	120V	3,4

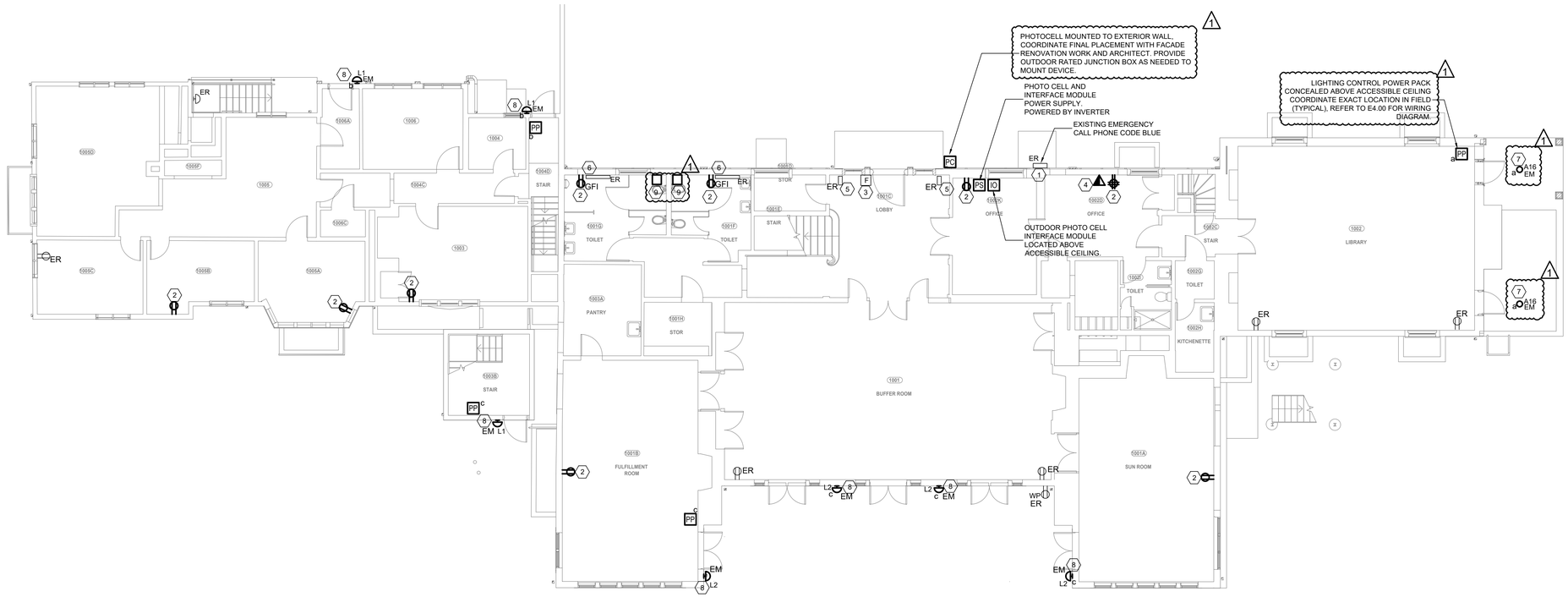
AUTOMATIC LIGHTING CONTROL SCHEDULE NOTES:
1. PROVIDE LOW VOLTAGE DIMMING POWER PACKS AS REQUIRED. nLIGHT MODEL: nPP 16DS.
2. PROVIDE CAT5e WIRING FROM POWER PACK TO PHOTO CELL INTERFACE MODULE TO POWER PACKS AS REQUIRED.
3. PROVIDE ALL LIGHTING CONTROL SWITCHES AND SENSORS WITH WHITE FINISH.
4. PROVIDE REQUIRED LOW VOLTAGE WIRING BETWEEN PS AND IO MODULES AND CAT 5 COMMUNICATION WIRING TO POWER PACKS.

KEY NOTES:

1. CONTRACTOR SHALL RE-INSTALL EMERGENCY CALL PHONE. SPLICE AND EXTEND EXISTING WIRING AS NEEDED AND PROVIDE NEW CONDUIT ALONG EXTERIOR WALL.
2. PROVIDE NEW RECEPTACLE OUTLET , BACK BOX, AND FACEPLATE. CONTRACTOR SHALL TEST THE EXISTING WIRE AND RE-INSTALL IT IF IT IS IN GOOD CONDITION. ANY DAMAGED BRANCH CIRCUITS SHALL BE REPLACED WITH NEW WIRES AS 2#12# +1#12G.
3. RE-INSTALL FIRE ALARM PULL STATION. CONTRACTOR SHALL ENSURE THAT RE-INSTALLATION DOES NOT DAMAGE OTHER DEVICES IN THE SIGNAL LINE CIRCUIT LOOP (SLC). PROVIDE ALL TESTING AND PROGRAMING AS NEEDED. EXISTING FIRE ALARM PANEL IS AN EST-3 LOCATED IN CELLAR.
4. PROVIDE NEW 4 PORT DATA OUTLET AND CONDUIT WITHIN NEW WALL TERMINATED ABOVE THE CEILING. RE-INSTALL DATA CABLES AND TERMINATE THEM WITHIN NEW OUTLET.
5. REINSTALL WALL SCONCES AND PROVIDE WIRING WITHIN REPLACEMENT WALL. PROVIDE NEW WIRING AND CONDUIT AS NEEDED AND COORDINATE RECONNECTION TO CONTROL SWITCH WITHIN THE SPACE.
6. RE-INSTALL WIRING TO BASEBOARD HEATERS. COORDINATE EXACT WIRING REQUIREMENT WITH MECHANICAL CONTRACTOR.
7. CONTRACTOR SHALL PROVIDE SPLICE BOX AND EXTEND EXISTING WIRING TO NEW DOWN LIGHTS. FIXTURE SHALL BE PROVIDED WITH INTEGRAL 90 MINUTE BATTERY BACKUP INSTEAD OF INVERTER CONNECTION.
8. PROVIDE POWER TO FIXTURE VIA INVERTER CIRCUIT #1. WIRING SHALL BE PROVIDED IN MINIMUM 3/4"C AS 2#10+1#10G. EXACT ROUTING SHALL BE FIELD COORDINATED WITH OTHER TRADES AND EXISTING SYSTEMS. WHERE CONDUIT ROUTING NEEDS TO BE SURFACE MOUNTED WITHIN INTERIOR OR EXTERIOR WALLS, ROUTING SHALL BE COORDINATED AND APPROVED BY ARCHITECT PRIOR TO INSTALLATION.
9. REINSTALL WIRING AND DISCONNECT SWITCH TO EXHAUST FAN. CONTRACTOR SHALL EXTEND AND OR REPLACE WIRING FROM SOURCE TO DEVICE AS NEEDED.

GENERAL NOTES

1. REFER TO E001.00 FOR SYMBOLS, ABBREVIATIONS & NOTES.
2. REFER TO E700.00 FOR DETAILS.
3. REFER TO ARCHITECTURAL DRAWINGS FOR EXACT LOCATIONS AND MOUNTING HEIGHTS OF LIGHTING FIXTURES.
4. FIXTURES LABELED "EM" SHALL BE CONNECTED TO INVERTER. REFER TO E400.00 FOR TYPICAL WIRING DETAIL.



3 E100.00 ADMIN BUILDING - FIRST FLOOR NEW WORK

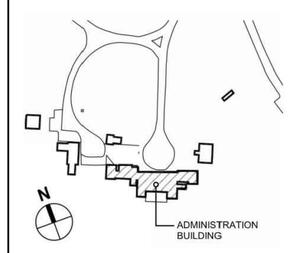
1/8" = 1'-0"

ISSUE:

BID DOCUMENTS

NO.	DATE	REVISION
1	10/2/24	ADDENDUM NO. 2

KEY PLAN



PROJECT TEAM:

Kliment Halsband Architects
- A Perkins Eastman Studio
115 Fifth Avenue, Third Floor, New York, NY 10003

Argus Architecture & Preservation
5 John Street, Waterford, NY 12188

A&J Consulting Engineering Services
164 Brighton Road, Clifton, NJ 07012

LERA Consulting Structural Engineers
40 Wall Street, 23rd Floor, New York, NY 10005

Grigg & Davis Engineers, PC
21 Crossway - Scarsdale, NY 10583

Rader Crews LLC
653 Carrol Street, Brooklyn, NY 11215

The Lighting Practice
115 Broadway, 5th Floor, New York, NY 10006

PW Grosser
630 Johnson Avenue, Bohemia, NY 11716

Trophy Point Construction Services
4588 South Park Avenue, Blasdell, NY 14219

Adelaide Environmental Health
1511 Route 22, Suite C24, Brewster, NY 10509

PROJECT:

SUCF #291036-02
Rehab Adminstration
Building Exterior

State University College at Purchase
Purchase, NY 10577

DRAWING TITLE:

ADMIN BUILDING - EXTERIOR NEW WORK

SCALE: AS NOTED

DATE:
10 SEPTEMBER 2024

DRAWING NO.:
E100.00

STATE OF NEW YORK · JITENDRA K. AGRAWAL · 071758 · LICENSED PROFESSIONAL ENGINEER

A & J PROJECT No. 2301B

SECTION 260923

LIGHTING CONTROL DEVICES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Outdoor Photoelectric switches.
2. ~~Standalone daylight-harvesting switching controls.~~
3. ~~Indoor occupancy sensors.~~
4. ~~Outdoor motion sensors.~~
5. ~~Lighting contactors.~~
6. ~~Emergency shunt relays.~~

B. Related Requirements:

1. ~~Section 262726 "Wiring Devices" for wall-box dimmers, wall-switch occupancy sensors, and manual light switches.~~

C. Related Work:

1. Section 017419 – Construction and Demolition Waste Management Disposal.

1.2 RELATED DOCUMENTS

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

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Shop Drawings: Show installation details for occupancy and light-level sensors.

1. Interconnection diagrams showing field-installed wiring.
2. Include diagrams for power, signal, and control wiring.

1.4 INFORMATIONAL SUBMITTALS

A. Field quality-control reports.

1.5 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: For each type of lighting control device to include in emergency, operation, and maintenance manuals.

PART 2 - PRODUCTS

~~2.1 INDOOR OCCUPANCY SENSORS~~

~~A. Bryant Electric~~
~~Cooper Industries, Inc~~
~~Hubbell Building Automation~~
~~Intermatic, Inc~~
~~Leviton Manufacturing~~
~~Lithonia Lighting~~
~~Wattstopper~~

2.2 OUTDOOR PHOTOELECTRIC SWITCHES

Bryant Electric
Cooper Industries, Inc
Hubbell Building Automation
Intermatic, Inc
Leviton Manufacturing
Lithonia Lighting
Wattstopper

A. Description: Solid state, with SPST dry contacts rated for 1000-VA inductive to operate connected relay, contactor coils, or microprocessor input; complying with UL 773A.

1. Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
2. Light-Level Monitoring Range: 1.5 to 10 fc, with an adjustment for turn-on and turn-off levels within that range, and a directional lens in front of the photocell to prevent fixed light sources from causing turn-off.
3. Time Delay: Fifteen second minimum, to prevent false operation.
4. Surge Protection: Metal-oxide varistor.
5. Mounting: Twist lock complies with NEMA C136.10, with base-and-stem mounting or stem-and-swivel mounting accessories as required to direct sensor to the north sky exposure.

B. Description: Solid state, with SPST dry contacts rated for 1800 VA, to operate connected load, complying with UL 773.

1. Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
2. Light-Level Monitoring Range: 1.5 to 10 fc with an adjustment for turn-on and turn-off levels within that range.
3. Time Delay: Thirty-second minimum, to prevent false operation.
4. Lightning Arrester: Air-gap type.
5. Mounting: Twist lock complying with NEMA C136.10, with base.

~~C. General Requirements for Sensors: Wall- or ceiling-mounted, solid-state indoor occupancy sensors with a separate power pack.~~

~~1. Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.~~
~~2. Operation: Unless otherwise indicated, turn lights on when coverage area is occupied, and turn them off when unoccupied; with a time delay for turning lights off, adjustable over a minimum range of 1 to 15 minutes.~~
~~3. Sensor Output: Contacts rated to operate the connected relay, complying with UL 773A. Sensor is powered from the power pack.~~

4. Power Pack: Dry contacts rated for 20A at 120- and 277-V ac, for 13-A tungsten at 120-V ac, and for 1 hp at 120-V ac. Sensor has 24-V dc, 150-mA, Class 2 power source, as defined by NFPA 70.
5. Mounting:

    a. Sensor: Suitable for mounting in any position on a standard outlet box.
    b. Relay: Externally mounted through a 1/2-inch knockout in a standard electrical enclosure.
    c. Time-Delay and Sensitivity Adjustments: Recessed and concealed behind hinged door.

6. Indicator: Digital display, to show when motion is detected during testing and normal operation of sensor.
7. Bypass Switch: Override the "on" function in case of sensor failure.
8. Automatic Light-Level Sensor: Adjustable from 2 to 200 fc; turn lights off when selected lighting level is present.

D. PIR Type: Ceiling mounted; detect occupants in coverage area by their heat and movement.

1. Detector Sensitivity: Detect occurrences of 6-inch- minimum movement of any portion of a human body that presents a target of not less than 36 sq. in.
2. Detection Coverage (Room): Detect occupancy anywhere in a circular area of 1000 sq. ft. when mounted on a 96-inch- high ceiling.
3. Detection Coverage (Corridor): Detect occupancy within 90 feet when mounted on a 10-foot- high ceiling.

E. Ultrasonic Type: Ceiling mounted; detect occupants in coverage area through pattern changes of reflected ultrasonic energy.

1. Detector Sensitivity: Detect a person of average size and weight moving not less than 12 inches in either a horizontal or a vertical manner at an approximate speed of 12 inches/s.
2. Detection Coverage (Small Room): Detect occupancy anywhere within a circular area of 600 sq. ft. when mounted on a 96-inch- high ceiling.
3. Detection Coverage (Standard Room): Detect occupancy anywhere within a circular area of 1000 sq. ft. when mounted on a 96-inch- high ceiling.
4. Detection Coverage (Large Room): Detect occupancy anywhere within a circular area of 2000 sq. ft. when mounted on a 96-inch- high ceiling.
5. Detection Coverage (Corridor): Detect occupancy anywhere within 90 feet when mounted on a 10-foot- high ceiling in a corridor not wider than 14 feet.
6. Dual-Technology Type: Ceiling mounted; detect occupants in coverage area using PIR and ultrasonic detection methods. The particular technology or combination of technologies that control on-off functions is selectable in the field by operating controls on unit.
7. Sensitivity Adjustment: Separate for each sensing technology.
8. Detector Sensitivity: Detect occurrences of 6-inch- minimum movement of any portion of a human body that presents a target of not less than 36 sq. in., and detect a person of average size and weight moving not less than 12 inches in either a horizontal or a vertical manner at an approximate speed of 12 inches/s.
9. Detection Coverage (Standard Room): Detect occupancy anywhere within a circular area of 1000 sq. ft. when mounted on a 96-inch- high ceiling.

2.3 SWITCHBOX-MOUNTED OCCUPANCY SENSORS

A. Bryant Electric
Cooper Industries, Inc
Hubbell Building Automation
Intermatic, Inc
Leviton Manufacturing
Lithonia Lighting
Wattstopper

B. General Requirements for Sensors: Automatic-wall-switch occupancy sensor, suitable for mounting in a single gang switchbox.

1. Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
2. Operating Ambient Conditions: Dry interior conditions, 32 to 120 deg F.
3. Switch Rating: Not less than 800-VA fluorescent at 120 V, 1200-VA fluorescent at 277 V, and 800-W incandescent.

C. Wall-Switch Sensor Tag WS1:

1. Standard Range: 180-degree field of view, field adjustable from 180 to 40 degrees; with a minimum coverage area of 2100 sq. ft.
2. Sensing Technology: Dual technology - PIR and ultrasonic.
3. Switch Type: SP, field selectable automatic "on," or manual "on" automatic "off."
4. Voltage: Dual voltage, 120 and 277 V; dual-technology type.
5. Ambient-Light Override: Concealed, field-adjustable, light-level sensor from 10 to 150 fc. The switch prevents the lights from turning on when the light level is higher than the set point of the sensor.
6. Concealed, field-adjustable, "off" time-delay selector at up to 30 minutes.
7. Concealed "off" time-delay selector at 30 seconds, and 5, 10, and 20 minutes.
   Adaptive Technology: Self-adjusting circuitry detects and memorizes usage patterns of the space and helps eliminate false "off" switching.

2.4 LIGHTING CONTACTORS

A. ABB
ASCO Power Technologies
Eaton
Leviton Manufacturing
Square D

B. Description: Electrically operated and mechanically held, combination-type lighting contactors with nonfused disconnect, complying with NEMA ICS 2 and UL 508.

1. Current Rating for Switching: Listing or rating consistent with type of load served, including tungsten filament, inductive, and high-inrush ballast (ballast with 15 percent or less total harmonic distortion of normal load current).
2. Fault Current Withstand Rating: Equal to or exceeding the available fault current at the point of installation.
3. Enclosure: Comply with NEMA 250.
4. Provide with control and pilot devices as scheduled, matching the NEMA type specified for the enclosure.

C. Interface with DDC System for HVAC: Provide hardware interface to enable the DDC system for HVAC to monitor and control lighting contactors.

1. Monitoring: On-off status.
2. Control: On-off operation.

2.5 EMERGENCY SHUNT RELAY

A. Lighting Control and Design
WattStopper
nLiGHT(Acuity Controls)

B. Description: Normally closed, electrically held relay, arranged for wiring in parallel with manual or automatic switching contacts; complying with UL 924.

F. Prepare a harmonic analysis study and report complying with IEEE 399 and with NETA Acceptance Testing Specification.

3.2 INSTALLATION

A. Temporary Lifting Provisions: Remove temporary lifting eyes, channels, and brackets and temporary blocking of moving parts from enclosures and components.

B. Comply with NECA 1.

C. Wiring Method: Install cables in raceways and cable trays except within consoles, cabinets, desks, and counters and except in accessible ceiling spaces and in gypsum board partitions where unenclosed wiring method may be used for low-voltage control and alarm wiring. Conceal raceway and cables except in unfinished spaces.

1. Install plenum cable in environmental air spaces, including plenum ceilings.
2. ~~Comply with requirements for cable trays specified in Section 260536 "Cable Trays for Electrical Systems."~~
3. Comply with requirements for raceways and boxes specified in Section 260533 "Raceways and Boxes for Electrical Systems."

D. Wiring Method: Conceal conductors and cables in accessible ceilings, walls, and floors where possible.

E. Wiring within Enclosures: Bundle, lace, and train conductors to terminal points with no excess and without exceeding manufacturer's limitations on bending radii. Install lacing bars and distribution spools.

3.3 CONNECTIONS

A. Connections: Interconnect system components. Make connections to supply and load circuits according to manufacturer's wiring diagrams unless otherwise indicated.

B. Ground equipment according to Section 260526 "Grounding and Bonding for Electrical Systems."

1. Separately Derived Systems: Make grounding connections to grounding electrodes and bonding connections to metallic piping systems as indicated; comply with NFPA 70.

C. Connect wiring according to Section 260519 "Low-Voltage Electrical Power Conductors and Cables."

3.4 IDENTIFICATION

A. Identify central battery equipment, components, and control wiring. Comply with requirements for identification specified in Section 260553 "Identification for Electrical Systems."

1. Identify field-installed conductors, interconnecting wiring, and components; provide warning signs.

SECTION 283111

DIGITAL, ADDRESSABLE FIRE-ALARM SYSTEM

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section Includes:
1. Manual fire-alarm boxes.

1.3 DEFINITIONS

A. EMT: Electrical Metallic Tubing.

B. FACP: Fire Alarm Control Panel.

C. HLI: High Level Interface.

D. NICET: National Institute for Certification in Engineering Technologies.

E. PC: Personal computer.

F. VESDA: Very Early Smoke-Detection Apparatus.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of product, including furnished options and accessories.

1. Include construction details, material descriptions, dimensions, profiles, and finishes.
2. Include rated capacities, operating characteristics, and electrical characteristics.

B. Shop Drawings: For fire-alarm system.

1. Comply with recommendations and requirements in the "Documentation" section of the "Fundamentals" chapter in NFPA 72.
2. Include plans, elevations, sections, details, and attachments to other work.
3. Include details of equipment assemblies. Indicate dimensions, weights, loads, required clearances, method of field assembly, components, and locations. Indicate conductor sizes, indicate termination locations and requirements, and distinguish between factory and field wiring.
4. Include statement from manufacturer that all equipment and components have been tested as a system and meet all requirements in this Specification and in NFPA 72.
5. Include floor plans to indicate final outlet locations showing address of each addressable device. Show size and route of cable and conduits and point-to-point wiring diagrams.

C. General Submittal Requirements:

1. Submittals shall be approved by authorities having jurisdiction prior to submitting them to Architect.
2. Shop Drawings shall be prepared by persons with the following qualifications:

    a. Trained and certified by manufacturer in fire-alarm system design.
    b. NICET-certified, fire-alarm technician; Level III minimum.
    c. Licensed or certified by authorities having jurisdiction.

1.5 INFORMATIONAL SUBMITTALS

A. Qualification Data: For Installer.

B. Field quality-control reports.

1.6 Sample Warranty: For special warranty.

1.7 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: For fire-alarm systems and components to include in emergency, operation, and maintenance manuals.

1. In addition to items specified in Section 017823 "Operation and Maintenance Data," include the following:

    a. Comply with the "Records" section of the "Inspection, Testing and Maintenance" chapter in NFPA 72.
    b. Provide "Fire Alarm and Emergency Communications System Record of Completion Documents" according to the "Completion Documents" Article in the "Documentation" section of the "Fundamentals" chapter in NFPA 72.
    c. Complete wiring diagrams showing connections between all devices and equipment. Each conductor shall be numbered at every junction point with indication of origination and termination points.
    d. Riser diagram.
    e. Device addresses.
    f. Provide "Inspection and Testing Form" according to the "Inspection, Testing and Maintenance" chapter in NFPA 72, and include the following:

        1) Equipment tested.
        2) Frequency of testing of installed components.
        3) Frequency of inspection of installed components.
        4) Requirements and recommendations related to results of maintenance.
        5) Manufacturer's user training manuals.

    g. Manufacturer's required maintenance related to system warranty requirements.
    h. Abbreviated operating instructions for mounting at fire-alarm control unit and each annunciator unit.

1.8 QUALITY ASSURANCE

A. Installer Qualifications: Personnel shall be trained and certified by manufacturer for installation of units required for this Project.

B. Installer Qualifications: Installation shall be by personnel certified by NICET as fire-alarm Level II technician.

C. NFPA Certification: Obtain certification according to NFPA 72 by an NRTL (nationally recognized testing laboratory).

D. NFPA Certification: Obtain certification according to NFPA 72 by a UL-listed alarm company.

E. NFPA Certification: Obtain certification according to NFPA 72 in the form of a placard by an FM Global-approved alarm company.

F. NFPA Certification: Obtain certification according to NFPA 72 by.

1.9 PROJECT CONDITIONS

A. Perform a full test of the existing system prior to starting work. Document any equipment or components not functioning as designed.

B. Interruption of Existing Fire-Alarm Service: Do not interrupt fire-alarm service to facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary guard service according to requirements indicated:

1. Notify Owner no fewer than seven days in advance of proposed interruption of fire-alarm service.
2. Do not proceed with interruption of fire-alarm service without Owner's written permission.

C. Use of Devices during Construction: Protect devices during construction unless devices are placed in service to protect the facility during construction.

1.10 SEQUENCING AND SCHEDULING

A. Existing Fire-Alarm Equipment: Maintain existing equipment fully operational until new equipment has been tested and accepted. As new equipment is installed, label it "NOT IN SERVICE" until it is accepted. Remove labels from new equipment when put into service, and label existing fire-alarm equipment "NOT IN SERVICE" until removed from the building.

B. Equipment Removal: After acceptance of new fire-alarm system, remove existing disconnected fire-alarm equipment and wiring.

1.11 WARRANTY

A. Special Warranty: Manufacturer agrees to repair or replace fire-alarm system equipment and components that fail in materials or workmanship within specified warranty period.

1. Warranty Extent: All equipment and components not covered in the Maintenance Service Agreement.
2. Warranty Period: Five years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 SYSTEM DESCRIPTION

A. Source Limitations for Fire-Alarm System and Components: Components shall be compatible with, and operate as an extension of, existing system. Provide system manufacturer's certification that all components provided have been tested as, and will operate as, a system.

B. Noncoded, UL-certified addressable system, with multiplexed signal transmission and horn/strobe evacuation.

C. All components provided shall be listed for use with the selected system.

D. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

2.2 SYSTEMS OPERATIONAL DESCRIPTION

A. Fire-alarm signal initiation shall be by one or more of the following devices and system:

1. Manual stations.
2. Heat detectors.
3. Smoke detectors.
4. Duct smoke detectors.
5. Carbon monoxide detectors.
6. Combustible gas detectors.
7. Dry system pressure flow switch.

Fire-alarm signal shall initiate the following actions:

8. Continuously operate alarm notification appliances3
9. Identify alarm and specific initiating device at fire-alarm control unit**,** connected network control panels, off-premises network control panels, and remote annunciators.
10. Transmit an alarm signal to the remote alarm receiving station.
11. Activate voice/alarm communication system.
12. Switch heating, ventilating, and air-conditioning equipment controls to fire-alarm mode.
13. Close smoke dampers in air ducts of designated air-conditioning duct systems.
14. Activate emergency lighting control.
15. Record events in the system memory.
16. Record events by the system printer.

B. Supervisory signal initiation shall be by one or more of the following devices and actions:
1. User disabling of zones or individual devices.
2. Loss of communication with any panel on the network.

C. System trouble signal initiation shall be by one or more of the following devices and actions:

1. Open circuits, shorts, and grounds in designated circuits.
2. Opening, tampering with, or removing alarm-initiating and supervisory signal-initiating devices.
3. Loss of communication with any addressable sensor, input module, relay, control module, remote annunciator, printer interface, or Ethernet module.
4. Loss of primary power at fire-alarm control unit.
5. Ground or a single break in internal circuits of fire-alarm control unit.
6. Abnormal ac voltage at fire-alarm control unit.
7. Break in standby battery circuitry.
8. Failure of battery charging.
9. Abnormal position of any switch at fire-alarm control unit or annunciator.
10. Voice signal amplifier failure.
11. Hose cabinet door open.

D. System Supervisory Signal Actions:

1. Initiate notification appliances.
2. Identify specific device initiating the event at fire-alarm control unit, and remote annunciators.
3. Record the event on system printer.
4. After a time delay of 200 seconds, transmit a trouble or supervisory signal to the remote alarm receiving station.

5. Display system status on graphic annunciator.

2.3 MANUAL FIRE-ALARM BOXES

A. General Requirements for Manual Fire-Alarm Boxes: Comply with UL 38. Boxes shall be finished in red with molded, raised-letter operating instructions in contrasting color; shall show visible indication of operation; and shall be mounted on recessed outlet box. If indicated as surface mounted, provide manufacturer's surface back box.

1. Single-action mechanism, pull-lever type; with integral addressable module arranged to communicate manual-station status (normal, alarm, or trouble) to fire-alarm control unit.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine areas and conditions for compliance with requirements for ventilation, temperature, humidity, and other conditions affecting performance of the Work.

1. Verify that manufacturer's written instructions for environmental conditions have been permanently established in spaces where equipment and wiring are installed, before installation begins.

B. Examine roughing-in for electrical connections to verify actual locations of connections before installation.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 EQUIPMENT INSTALLATION

A. Comply with NFPA 72, NFPA 101, and requirements of authorities having jurisdiction for installation and testing of fire-alarm equipment. Install all electrical wiring to comply with requirements in NFPA 70 including, but not limited to, Article 760, "Fire Alarm Systems."

1. Devices placed in service before all other trades have completed cleanup shall be replaced.
2. Devices installed but not yet placed in service shall be protected from construction dust, debris, dirt, moisture, and damage according to manufacturer's written storage instructions.

B. Connecting to Existing Equipment: Verify that existing fire-alarm system is operational before making changes or connections.

1. Connect new equipment to existing control panel in existing part of the building.
2. Connect new equipment to existing monitoring equipment at the supervising station.
3. Expand, modify, and supplement existing monitoring equipment as necessary to extend existing monitoring functions to the new points. New components shall be capable of merging with existing configuration without degrading the performance of either system.

C. Manual Fire-Alarm Boxes:

1. Install manual fire-alarm box in the normal path of egress within 60 inches of the exit doorway.
2. Mount manual fire-alarm box on a background of a contrasting color.
3. The operable part of manual fire-alarm box shall be between 42 inches and 48 inches above floor level. All devices shall be mounted at the same height unless otherwise indicated.

3.3 PATHWAYS

A. Pathways above recessed ceilings and in nonaccessible locations may be routed exposed.

1. Exposed pathways located less than 96 inches above the floor shall be installed in EMT.

B. Pathways shall be installed in EMT.

C. Exposed EMT shall be painted red enamel.

3.4 FIELD QUALITY CONTROL

A. Field tests shall be witnessed by authorities having jurisdiction.

B. Manufacturer's Field Service: Engage a factory-authorized service representative to test and inspect components, assemblies, and equipment installations, including connections.

C. Perform tests and inspections.

D. Perform the following tests and inspections:

1. Visual Inspection: Conduct visual inspection prior to testing.

a. Inspection shall be based on completed record Drawings and system documentation that is required by the "Completion Documents, Preparation" table in the "Documentation" section of the "Fundamentals" chapter in NFPA 72.
b. Comply with the "Visual Inspection Frequencies" table in the "Inspection" section of the "Inspection, Testing and Maintenance" chapter in NFPA 72; retain the "Initial/Reacceptance" column and list only the installed components.

2. System Testing: Comply with the "Test Methods" table in the "Testing" section of the "Inspection, Testing and Maintenance" chapter in NFPA 72.
3. Factory-authorized service representative shall prepare the "Fire Alarm System Record of Completion" in the "Documentation" section of the "Fundamentals" chapter in NFPA 72 and the "Inspection and Testing Form" in the "Records" section of the "Inspection, Testing and Maintenance" chapter in NFPA 72.

E. Reacceptance Testing: Perform reacceptance testing to verify the proper operation of added or replaced devices and appliances.

F. Fire-alarm system will be considered defective if it does not pass tests and inspections.

G. Prepare test and inspection reports.

H. Maintenance Test and Inspection: Perform tests and inspections listed for weekly, monthly, quarterly, and semiannual periods. Use forms developed for initial tests and inspections.

I. Annual Test and Inspection: One year after date of Substantial Completion, test fire-alarm system complying with visual and testing inspection requirements in NFPA 72. Use forms developed for initial tests and inspections.

3.5 MAINTENANCE SERVICE

A. Initial Maintenance Service: Beginning at Substantial Completion, maintenance service shall include 12 months' full maintenance by skilled employees of manufacturer's designated service organization. Include preventive maintenance, repair or replacement of worn or defective components, lubrication, cleaning, and adjusting as required for proper operation. Parts and supplies shall be manufacturer's authorized replacement parts and supplies.

1. Include visual inspections according to the "Visual Inspection Frequencies" table in the "Testing" paragraph of the "Inspection, Testing and Maintenance" chapter in NFPA 72.
2. Perform tests in the "Test Methods" table in the "Testing" paragraph of the "Inspection, Testing and Maintenance" chapter in NFPA 72.
3. Perform tests per the "Testing Frequencies" table in the "Testing" paragraph of the "Inspection, Testing and Maintenance" chapter in NFPA 72.

END OF SECTION 283111