Liberty School District – Technology Remodel
Addendum No: 003
Description Narrative
November 01, 2023

This Addendum is issued to all registered plan holders pursuant to the Instructions to Bidders and Conditions of the Contract. This Addendum serves to clarify, revise, and supersede information in the Project Manual, Drawings, and previously issued Addenda. Portions of the Addendum affecting the Contract Documents will be incorporated into the Contract by enumeration of the Addendum in the Owner/Contractor Agreement.

The Bidder shall acknowledge receipt of this Addendum in the appropriate space on the Bid Form.

A. CONSTRUCTION MANAGER’S FRONT END MANUAL

Bid time and date change to November 6th, 2023 1:00pm

1.) Reissue Bid Scopes:
   26-1000 – Electrical – Add 03
   32-9000 – Landscaping – Add 03

B. OTHER

Answers to bidder questions.

C. SPECIFICATIONS

1. Please reference the attached Addendum No. 003 issued by Hollis+Miller dated November 01, 2023, for updates to Specifications.

D. DRAWINGS

1. Please reference the attached Addendum No. 003 issued by Hollis+Miller dated November 01, 2023, for updates to Drawings.

Please direct any questions regarding the information in this addenda and the project to Newkirk Novak Construction Partners.
Specific scope of work to be performed:

Provide all required labor, material, equipment, permits, freight, labor, and applicable taxes necessary for the Electrical Scope of Work complete as set forth in the drawings and specifications provided by Hollis + Miller Architects on August 31st, 2023, and all other applicable sections of the project manual and all other subcontract documents identified.

- Division 00
- Division 01
- 024100 – Selective Demolition (As Applies)
- 260010 - Supplemental Requirements for Electrical
- 260519 - Low-Voltage Electrical Power Conductors and Cables
- 260526 - Grounding and Bonding for Electrical Systems
- 260529 - Hangers and Supports for Electrical Systems
- 260533 - .13 Conduits for Electrical Systems
- 260533 - .16 Boxes and Covers for Electrical Systems
- 260536 - Cable Trays for Electrical Systems
- 260544 - Sleeves and Sleeve Seals for Electrical Raceways and Cabling
- 260553 - Identification for Electrical Systems
- 260923 - Lighting Control Devices
- 262416 - Panelboards
- 262716 - Electrical Cabinets and Enclosures
- 262726 - Wiring Devices
- 262816 - Enclosed Switches and Circuit Breakers
- 263213.13 - Diesel-Engine-Driven Generator Sets
- 263600 - Transfer Switches
- 265119 - LED Interior Lighting
- 280500 - Common Work Results for Electronic Safety and Security
- 280513 - Conductors and Cables for Electronic Safety and Security
- 283111 - Digital, Addressable Fire-Alarm System

JOB SPECIFIC SCOPE INCLUDES (but is not limited to):
1. All items per Master Scope of Work.
2. Provide all demolition as follows:
   a) Perform all cut, cap, make safe for demo activities.
   b) Make safe all devices in walls or ceilings for demo.
      ▪ Remove any electrical devices in walls/ceiling not called out to demo.
3. Provide conduit raceways and sleeves for the following systems, including but not limited to:
   a) Temperature Control
   b) Building Automation System
   c) Data / communications
   d) In-wall conduit and openings in masonry walls with masonry contractor. If this contractor fails to coordinate they will be responsible for core drilling, saw cutting, etc. and patch back. There is to be no wall mounted conduit unless specifically noted.
4. Fire Alarm System complete, including but not limited to:
   a) Furnish of duct detectors. Include final connection and testing. Installation to be my Mechanical Subcontractor.
   b) Provide and install all new audio/visible devices. If existing device is deemed re-usable by district, provide credit for new device.
   c) Testing of all systems
   d) System shall interface with security electronics systems. Coordinate with security electronics subcontractor. Provide fire alarm system programming and auxiliary contracts as required to allow for fire alarm annunciation/control from the security electronics control panels as specified.
   e) Provide input and output modules for all equipment that must be monitored/controlled for the purpose of smoke evacuation/pressurization.
   f) Provide all fire alarm wiring including control and monitoring wire from each input/output module to its corresponding piece of smoke evacuation equipment.
   g) Testing for fire alarm system in conjunction with HVAC contractor, electrical contractor and general contractor to verify accurate function of smoke evacuation/pressurization systems.
   h) Provide and connect magnetic door holds devices for control. Connect to fire alarm system for monitoring.
5. Electrical service to other MEPT systems, including but not limited to:
   a) Line voltage interlock wiring for mechanical system
   b) Starters and disconnect switches
   c) Unit heaters
   d) Plumbing fixtures
   e) Duct detectors
6. Provide AV system per the contract documents, including but not limited to:
   a) Cable tray
   b) Sleeves & sleeve seals
   c) Enclosures for underground data transition
   d) Boxes and conduit
   e) Cabling
   f) Devices
7. Provide and install all power requirements and electrical connections to all equipment, furnishings, etc. requiring electric power including but not limited to, indicated or not indicated – handicap assist door operators, magnetic hold-open devices, all disconnects, other systems requiring power, etc.
8. Provide and install all electronic security devices/systems as required by contract documents.
9. Install exterior diesel generator and pad mount transformer. Generator furnished by Owner and delivered to site.
   a) Provide hoisting / rigging as needed to set generator on pad.
10. Provide and install all access control devices, etc. complete.
11. Provide and install all video surveillance devices, etc. complete.
12. This contractor will be required to pull permits for all work as required.
13. Schedule and attend all necessary inspections associated with this scope of work.
14. Provide an allowance of $15,000 to be used as directed by construction manager. Any unused portions will be returned to the owner.

The following work is excluded:

1. Diesel Generator provided by Owner.
Specific scope of work to be performed:

Provide all required labor, material, equipment, permits, freight, labor, and applicable taxes necessary for the Landscaping Scope of Work complete as set forth in the drawings and specifications provided by Hollis + Miller Architects on August 31st, 2023 and all other applicable sections of the project manual and all other subcontract documents identified.

- Division 00
- Division 01

JOB SPECIFIC SCOPE INCLUDES (but is not limited to):

1. All items per Master Scope of Work.
2. Provide demo / removal of existing landscaping, mulch, and black dirt.
3. Provide import of new black dirt per project documents.
4. Provide all Landscaping as shown on drawings complete, including but not limited to:
   a) Provide temporary water and maintenance as specified to all areas that receive landscaping to establish growth.
5. Provide final grade / box grading of planting areas.

The Following Work is Excluded:
<table>
<thead>
<tr>
<th>Question Issued By</th>
<th>No.</th>
<th>Discipline</th>
<th>Scope of Work</th>
<th>Date</th>
<th>Drawing / Detail #</th>
<th>Question</th>
<th>Response</th>
<th>Answered By</th>
<th>Date Answered</th>
<th>Issued Addendum</th>
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<td>NNCP</td>
<td>1</td>
<td>MEP</td>
<td>Fire Suppression</td>
<td>10/19/2023</td>
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<td>It was NNCP’s understanding that a clean agent fire suppression system was needed in the new data center. If needed please provide design direction and specifications.</td>
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<td>Smith &amp; Boucher</td>
<td>11/1/2023</td>
<td>Addendum 03</td>
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<td>EMI</td>
<td>2</td>
<td>MEP</td>
<td>Airwork</td>
<td>10/20/2023</td>
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<td>I am looking for the schedule for the ductwork pressure classifications and items that are supposed to be on the drawings. Also don’t see the registers &amp; grills schedule either.</td>
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<td>Smith &amp; Boucher / Hollis + Miller</td>
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<td>Arch</td>
<td>Carpentry</td>
<td>10/26/2023</td>
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<td>E80100 - 1.5.A &amp; B - There are no LEED requirements, so I am assuming that FSC materials are not required. Please confirm.</td>
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<td>Please confirm the notes in the documents that show “Casework NIC” are supplied and installed by owner.</td>
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<td>Mechanical</td>
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<td>AB21 is 1st alternate #1. How much of the mechanical is to be excluded for this alternate. Duct, Registers, Boxes, Controls?</td>
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<td>10/26/2023</td>
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<td>Will the solid surface windowills stay or be removed in Alternates #2 &amp; #3? The notes state that the new windows and blinds will remain, but mentions nothing about the sills.</td>
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<td>10/26/2023</td>
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<td>081113 2.3.6.1 CAD Show two construction methods. What method is requested?</td>
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<td>Smith &amp; Boucher / Hollis + Miller</td>
<td>11/1/2023</td>
<td>Addendum 03</td>
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<td>081113 2.3.6.1 CAD Shows two construction methods. What method is requested?</td>
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<td>NNCP</td>
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<td>11/1/2023</td>
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<td>Please confirm all MEP work to follow arch direction on scope removal per bid.</td>
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<td>General Trades Contractors to Assume 66” Toilet Partition Height</td>
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ADDENDUM NO. 03

Issued: 10/31/2023

Project: Liberty | District Technology Remodel
1000 Kent Street, Liberty, MO 64068

Project No. 23022

Owner: Liberty Public Schools
8 Victory Lane
Liberty, MO 64068

Bidding Documents Issued: 10/17/2023 (dated 08/31/2023)

This Addendum includes these 2 pages and the following attachments:

Supplemental Information:
   n/a

Project Manual:
   Reissued Section 000110 “Table of Contents” consisting of 4 pages.
   Revised Section 081113 “Hollow Metal Doors and Frames”.
   Revised Section 081416 “Flush Wood Doors”.
   Refer to Smith & Boucher, MEP Addendum No. 3

Drawings:
   Revised Architectural Sheets: A801.
   Refer to Smith & Boucher, MEP Addendum No. 3

PROJECT MANUAL REVISIONS

A1 SECTION 000110 - TABLE OF CONTENTS
   A1.1 REPLACE existing Section 000110 “Table of Contents” with the attached revised Section 000110 “Table of Contents”, dated 10.31.2023.

A2 SECTION 081113 – HOLLOW METAL DOORS AND FRAMES
   A2.1 DELETE Clause 2.3.B.3.d in its entirety.
   A2.2 DELETE “Knocked down” from Clause 2.3.C.3.c.

A3 SECTION 081416 – FLUSH WOOD DOORS
   A3.1 DELETE Subparagraph 2.2.B.2 in its entirety.

P1 REFERENCE ATTACHED MEP ADDENDUM NO. 3
DRAWINGS REVISIONS

A4 SHEET A801 – ALTERNATES FLOOR PLAN (#2 + #3)

A4.1 REVISE the plan note in Floor Plan A1 pointing to Alternate #2 – Fine Arts Suite to include solid surface window sills in the base bid scope.

A4.2 REVISE the plan note in Floor Plan A1 pointing to Alternate #3 – Kid’s Zone Suite to include solid surface window sills in the base bid scope.

M1 REFERENCE ATTACHED MEP ADDENDUM NO. 3

E1 REFERENCE ATTACHED MEP ADDENDUM NO. 3

P1 REFERENCE ATTACHED MEP ADDENDUM NO. 3

END OF ADDENDUM NO. 03
INTRODUCTORY INFORMATION

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000110 Table of Contents 10.31.2023

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CONTRACTING REQUIREMENTS
(Refer to Construction Manager's Front End Manual for additional Contracting Requirements)

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<th>Original Issue</th>
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260923  Lighting Control Devices  10.10.2023
262416  Panelboards  10.10.2023
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**END OF TABLE OF CONTENTS**
ADDENUM No. 3

Liberty School District Technology Remodel
Smith & Boucher Project No. 2314706

10/31/2023

To Documents Titled: District Technology Remodel
Architect-of-Record: Hollis and Miller
8/31/2023
1828 Walnut Street Suite 922
Kansas City, MO 64108

The Contract Documents for the above referenced project and the Work covered thereby are modified as described herein.

SPECIFICATIONS
1. Section 212200 – Clean-Agent Fire-Extinguishing Systems
   a. Added section.

DRAWINGS
2. Sheet ME302 – MECHANICAL AND ELECTRICAL – SCHEDULES
   a. Added Ductwork Schedule, Ductwork Insulation Schedule, and Grille, Register & Diffuser Schedule.
3. Sheet M101 – HVAC PLAN – LEVEL 1
   a. Alternate scopes added.
4. Sheet P101 – PLUMBING PLAN – LEVEL 1
   a. Plan note number 6 updated.
5. Sheet E101 – LIGHTING PLAN – LEVEL 1
   a. Alternate scopes added.
6. Sheet E101 – LIGHTING PLAN – LEVEL 1
   a. Alternate scopes added.
7. Sheet E201 – POWER PLAN – LEVEL 1
   a. Alternate scopes added.
   b. Tag added to HVAC box VAV1-11.
8. Sheet LV101 – TELECOMUNICATIONS PLAN – LEVEL 1
   a. Alternate scopes added.
9. Sheet ES101 – ELECTRONIC SECURITY PLAN – LEVEL 1
   a. Alternate scopes added.
10. Sheet F101 – FIRE ALARM PLAN – LEVEL 1
    a. Alternate scopes added.

END OF MEP ITEMS FOR ADDENDUM NO. 3
SECTION 212200 - CLEAN-AGENT FIRE-EXTINGUISHING SYSTEMS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Pipe and fittings.
   2. Valves.
   3. Extinguishing-agent containers.
   5. Discharge nozzles.
   6. Manifold and orifice unions.
   7. Fire control panels.
   10. Switches.
   11. Alarm devices.

1.2 DEFINITIONS


1.3 ACTION SUBMITTALS

A. Product Data: For each type of product indicated.

B. Shop Drawings: Prepare in accordance with requirements of NFPA 2001, to include, but not be limited to, the following:
   1. Include plans, elevations, sections, and attachment details.
   2. Include design calculations.
   3. Include details of equipment assemblies. Indicate dimensions, weights, loads, manufacturer-required clearances, method of field assembly, components, and location and size of each field connection.
   4. Include diagrams for power, signal, and control wiring.
   5. Permit-Approved Documents: Working plans and hydraulic calculations approved by authorities having jurisdiction.

C. Delegated-Design Submittal: For clean-agent fire-extinguishing systems indicated to comply with performance and design criteria, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.

1.4 INFORMATIONAL SUBMITTALS

A. Coordination Drawings: Plans, or BIM model, drawn to scale, showing the items described in this Section, and coordinated with all building trades. Coordinate for enclosure integrity in accordance with NFPA 2001 requirements.

1.5 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: For clean-agent fire-extinguishing system to include in emergency, operation, and maintenance manuals.

1.6 MAINTENANCE MATERIAL SUBMITTALS

A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents. Deliver extra materials to Owner.
   1. Detection Devices: Not less than 20 percent of amount of each type installed.
   2. Container Valves: Not less than 10 percent of amount of each size and type installed.
   3. Nozzles: Not less than 20 percent of amount of each type installed.
   4. Extinguishing Agent: Not less than 100 percent of amount installed in largest hazard area. Include pressure-rated containers with valves.
PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by an NRTL, and marked for intended location and application.

B. UL Compliance: Provide equipment listed in UL's "Fire Protection Equipment Directory."

2.2 CLEAN-AGENT SYSTEMS

A. Manufacturers: Subject to compliance with requirements, provide products by the following:
   1. Fike Corporation.

B. Source Limitations: Obtain clean-agent systems from single source from single manufacturer.

C. Description: Clean-agent fire-extinguishing system shall be an engineered system for total flooding of the hazard area.

D. Delegated Design: Design clean-agent fire-extinguishing system and obtain approval from authorities having jurisdiction. Design system for Class A fires as appropriate for areas being protected, and include safety factor. Use clean agent indicated and in concentration suitable for normally occupied areas.

E. Performance Requirements, Discharge ECARO-25: Within 10 seconds and maintain 6.7 percent concentration by volume at 70 deg F for 10-minute holding time in hazard areas.

F. Verified Detection: Devices located in single zone. Sound alarm on activating single-detection device, and discharge extinguishing agent on actuating second-detection device.

G. System Operating Sequence for ionization smoke detectors or photoelectric smoke detectors or combination of ionization and photoelectric smoke detectors:
   1. Actuating First Detector: Visual indication on annunciator panel. Energize audible and visual alarms (slow pulse), shut down air-conditioning and ventilating systems serving protected area, close doors in protected area, and send signal to fire-alarm system.
   2. Extinguishing-agent discharge will operate audible alarms and strobe lights inside and outside the protected area.

H. Manual stations shall immediately discharge extinguishing agent when activated.

I. EPO: Will terminate power to protected equipment immediately on actuation.

J. Low-Agent Pressure Switch: Initiate trouble alarm if sensing less than set pressure.

K. Power Transfer Switch: Transfer from normal to standby power source.

2.3 PIPE AND FITTINGS

A. Piping, Valves, and Discharge Nozzles: Comply with types and standards listed in NFPA 2001, Section "Distribution," for charging pressure of system.

B. Steel Pipe: ASTM A53/A53M, Type S, Grade B or ASTM A106/A106M, Grade A and Grade B; Schedule 40, Schedule 80, and Schedule 160, seamless steel pipe.
   1. Threaded Fittings:
      b. Flanges and Flanged Fittings: ASME B16.5, Class 300 unless Class 600 is indicated.
      c. Fittings Working Pressure: 620 psig minimum.
      d. Flanged Joints: Class 300 minimum.
   2. Forged-Steel Welding Fittings: ASME B16.11, Class 3000, socket pattern.
   3. Steel, Grooved-End Fittings: FM Approved and NRTL listed, ASTM A47/A47M malleable iron or ASTM A536 ductile iron, with dimensions matching steel pipe and ends factory grooved in accordance with AWWA C606.

C. Pipe-Flange Gasket Materials: Suitable for chemical and thermal conditions of piping system contents.
1. ASME B16.21, nonmetallic, flat, asbestos-free, 1/8-inch-maximum thickness unless thickness or specific material is indicated.

D. Flange Bolts and Nuts: ASME B18.2.1, carbon steel.

E. Welding Filler Metals: Comply with AWS D10.12M/D10.12 for welding materials appropriate for wall thickness and chemical analysis of steel pipe being welded.

F. Steel, Keyed Couplings: UL 213, AWWA C606. approved or listed for clean-agent service, and matching steel-pipe dimensions. Include ASTM A536, ductile-iron housing, rubber gasket, and steel bolts and nuts.

2.4 VALVES

A. General Valve Requirements:
   1. UL listed or FM Approved for use in fire-protection systems.
   2. Compatible with type of clean agent used.

B. Container Valves: With rupture disc or solenoid and manual-release lever, capable of immediate and total agent discharge and suitable for intended flow capacity.

C. Valves in Sections of Closed Piping and Manifolds: Fabricate to prevent entrapment of liquid, or install valve and separate pressure relief device.

D. Valves in Manifolds: Check valve; installed to prevent loss of extinguishing agent when container is removed from manifold.

2.5 EXTINGUISHING-AGENT CONTAINERS

A. Description: Steel tanks complying with ASME Boiler and Pressure Vessel Code: Section VIII, for unfired pressure vessels. Include minimum working-pressure rating that matches system charging pressure, valve, pressure switch, and pressure gage.
   1. Finish: Manufacturer's standard color, enamel or epoxy paint.
   2. Manifold:
      a. Fabricate with valves, pressure switches, selector switch, and connections for main- and reserve-supply banks of multiple storage containers.
   3. Storage-Tank Brackets: Factory- or field-fabricated retaining brackets consisting of steel straps and channels; suitable for container support, maintenance, and tank refilling or replacement.

2.6 FIRE-EXTINGUISHING CLEAN AGENT

A. ECARO-25.
   1. Source Limitations: Obtain clean agents from single source from single manufacturer.

2.7 DISCHARGE NOZZLES

A. Description: Equipment manufacturer's standard one-piece brass or aluminum alloy of type, size, discharge pattern, and capacity required for application.

B. Material: Corrosion-resistant metal.

C. Stamped with orifice size and type.

2.8 FIRE CONTROL PANELS

A. Description: FM Approved or NRTL listed, including equipment and features required for testing, supervising, and operating fire-extinguishing system.

B. Power Requirements: 120/240 V ac; with electrical contacts for connection to system components and fire-alarm system, and transformer or rectifier as needed to produce power at voltage required for accessories and alarm devices.

C. Enclosure: NEMA ICS 6, Type 1, enameled-steel cabinet.
1. Mounting: Recessed flush with surface.

D. Supervised Circuits: Separate circuits for each independent hazard area.
   1. Detection circuits equal to required number of zones, or addressable devices assigned to required number of zones.
   3. Alarm circuit.
   5. EPO circuit.

E. Control-Panel Features:
   1. Electrical contacts for shutting down fans, activating dampers, and operating system electrical devices.
   2. Automatic switchover to standby power at loss of primary power.
   3. Storage container, low-pressure indicator.
   4. Service disconnect to interrupt system operation for maintenance with visual status indication on the annunciator panel.

F. Annunciator Panel: Graphic type showing protected, hazard-area plans, as well as locations of detectors and abort, EPO, and manual stations. Include lamps to indicate device-initiating alarm, electrical contacts for connection to control panel, and stainless steel or aluminum enclosure.

G. Standby Power: Sealed, valve-regulated, recombinant lead acid batteries with capacity to operate system for 24 hours and alarm for minimum of 15 minutes. Include automatic battery charger that has a varying charging rate between trickle and high depending on battery voltage, and that is capable of maintaining batteries fully charged. Include manual voltage control, dc voltmeter, dc ammeter, electrical contacts for connection to control panel, automatic transfer switch, and suitable enclosure.

2.9 DETECTION DEVICES

A. Description: Comply with NFPA 2001, NFPA 72, and UL 268; 24 V dc, nominal.

B. Ionization Detectors: Dual-chamber type, having sampling and referencing chambers, with smoke-sensing element.

C. Photoelectric Detectors: LED light source and silicon photodiode receiving element.

D. Signals to the Central Fire-Alarm Control Panel: Any type of local system trouble is reported to central fire-alarm control panel as a composite "trouble" signal. Alarms on each system zone are individually reported to central fire-alarm control panel as separately identified zones.

2.10 MANUAL STATIONS

A. Description: Surface FM Approved or NRTL listed, with clear plastic hinged cover, 120-V ac or low-voltage compatible with controls. Include contacts for connection to control panel.

B. Manual Release: "MANUAL RELEASE" caption, and red finish. Unit can manually discharge extinguishing agent with operating device that remains engaged until unlocked.

C. EPO Switch: "EPO" caption, with yellow finish.

2.11 SWITCHES

A. Description: FM Approved or NRTL listed, where available, 120-V ac or low-voltage compatible with controls. Include contacts for connection to control panel.
   1. Low-Agent Pressure Switches: Pneumatic operation.
   2. Power Transfer Switches: Key-operation selector, for transfer of release circuit signal from main supply to reserve supply.
   3. Door Closers: Magnetic retaining and release device or electrical interlock to cause door operator to drive the door closed.
2.12 ALARM DEVICES

A. Description: FM Approved or NRTL listed, low voltage, and surface mounting. Comply with requirements in Section 284621.11 "Addressable Fire-Alarm Systems" or Section 284621.13 "Conventional Fire-Alarm Systems" for alarm and monitoring devices.

B. Bells: Minimum 6-inch diameter.

C. Horns: 90 to 94 dBA.

D. Strobe Lights: Translucent lens, with "FIRE" or similar caption.

E. Oxygen Deficiency Monitor.
   1. Sampling Method and Range: Diffusion, zero to 25 percent O₂.
   2. 24 V dc.
   3. Wall mounted with bracket.
   4. Built-in audible alarm 90 dBA.
   5. Backlit LCD.
   6. 10-year no-calibration sensor.
   7. No maintenance required.
   8. Signal Outputs: Standard 4- to 20-mA analog.
   9. Connections for system control data acquisition system and/or programmable logic controller.
   10. Plus or minus 1 percent accuracy of full scale.
   11. Operating temperature of minus 40 to plus 122 deg F.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine areas and conditions, with Installer present, for compliance with enclosure integrity requirements, installation tolerances, and other conditions affecting performance of the Work in accordance with NFPA 2001.

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

3.2 CLEAN-AGENT SYSTEM INSTALLATION

A. Install clean-agent containers, piping, and other components level and plumb, in accordance with manufacturers' written instructions.

B. Grooved Piping Joints: Groove pipe ends in accordance with AWWA C606 dimensions. Assemble grooved-end steel pipe and steel, grooved-end fittings with steel, keyed couplings and lubricant in accordance with manufacturer's written instructions.

C. Install pipe and fittings, valves, and discharge nozzles in accordance with requirements listed in NFPA 2001, Section "Distribution."
   1. Install valves designed to prevent entrapment of liquid, or install pressure relief devices in valved sections of piping systems.
   3. Install control panels, detection system components, alarms, and accessories, in accordance with requirements listed in NFPA 2001, Section "Detection, Actuation, and Control Systems," as required for supervised system application.

3.3 PIPING CONNECTIONS

A. Drawings indicate general arrangement of piping, fittings, and specialties.

B. Where installing piping adjacent to equipment, allow space for service and maintenance.

3.4 ELECTRICAL CONNECTIONS

A. Connect wiring in accordance with Section 260519 "Low-Voltage Electrical Power Conductors and Cables."
B. Ground equipment in accordance with Section 260526 "Grounding and Bonding for Electrical Systems."

C. Install electrical devices furnished by manufacturer, but not factory mounted, in accordance with NFPA 70 and NECA 1.

D. Install nameplate for each electrical connection, indicating electrical equipment designation and circuit number feeding connection.

E. Connect electrical devices to control panel and to building's fire-alarm system. Electrical power, wiring, and devices are specified in Section 284621.11 "Addressable Fire-Alarm Systems" or Section 284621.13 "Conventional Fire-Alarm Systems."

3.5 CONTROL CONNECTIONS

A. Install control and electrical power wiring to field-mounted control devices.

B. Connect control wiring in accordance with Section 260523 "Control-Voltage Electrical Power Cables."

3.6 IDENTIFICATION

A. Identify system components and equipment. Comply with requirements for identification specified in Section 210553 "Identification for Fire-Suppression Piping and Equipment."

B. Identify piping, extinguishing-agent containers, other equipment, and panels in accordance with NFPA 2001.

C. Install signs at entry doors for protected areas to warn occupants that they are entering a room protected with a clean-agent fire-extinguishing system.

D. Install signs at entry doors to advise persons outside the room the meaning of horn(s), bell(s), and strobe light(s) outside the protected space.

3.7 FIELD QUALITY CONTROL

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

B. Tests and Inspections:
   1. After installing clean-agent fire-extinguishing system and after electrical circuitry has been energized, test for compliance in accordance with requirements listed in NFPA 2001, Section "Approval of Installation."
   2. Clean-agent fire-extinguishing system and associated protected enclosure will be considered defective if either does not pass required tests and inspections.
   3. Prepare test and inspection reports in accordance with requirements listed in NFPA 2001, Section "Installation Acceptance."

3.8 CLEANING

A. Each pipe section shall be cleaned internally after preparation and before assembly by means of swabbing, using a suitable nonflammable cleaner. Pipe network shall be free of particulate matter and oil residue before installing nozzles or discharge devices.

3.9 OPERATIONAL CONDITION SYSTEM FILLING

A. Preparation:
   1. Verify that clean-agent fire-extinguishing system and protected enclosure have passed all required tests and inspections in accordance with NFPA 2001.
   2. Verify that clean-agent fire-extinguishing piping system installation is completed and cleaned.
   3. Verify complete enclosure integrity.
   4. Verify operation of ventilation and exhaust systems.

B. Filling Procedures:
   1. Fill clean-agent fire-extinguishing containers with extinguishing agent, and pressurize to indicated charging pressure.
2. Install filled containers.
3. Energize circuits.
4. Adjust operating controls.

3.10 DEMONSTRATION

A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain clean-agent fire-extinguishing systems.

END OF SECTION 212200
### Variable Air Volume Terminal Schedule

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### AIR HANDLING UNIT SCHEDULE

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Please consider the environment before printing this.
VENT, 1" COLD WATER, AND 1" WC 1" HOT WATER DOWN IN VENT, 3/4" COLD WATER, AND 3/4" HOT WATER VENT AND 2" COLD WATER DOWN IN CHASE. EXTEND

1. REFER TO SHEET P100 FOR PLUMBING GENERAL NOTES.

2. 1 1/2" COLD WATER DOWN IN WALL. EXTEND TAPS TO EACH SINK AND SIZE PER PLUMBING FIXTURE SCHEDULE.

3. 1 1/2" INDIVIDUAL TAPS TO EACH FIXTURE AND SIZE PER PLUMBING FIXTURE SCHEDULE.

4. CONNECT NEW VENT PIPE TO EXISTING VENT THROUGH ROOF.

5. - 1/2" VENT AND 3/4" COLD WATER DOWN IN WALL. CONNECT 1/2" COLD WATER TO INSTANTANEOUS WATER HEATER AND CONNECT 1/2" HOT WATER FROM INSTANTANEOUS WATER HEATER TO SINK.

6. FURNISH AND INSTALL TOTAL FLOOD ECARO - 25 CLEAN AGENT FIRE SUPPRESSION SYSTEM TO PROTECT ROOM 129 DATA. SYSTEM TO BE DELEGATED DESIGN.
1. CIRCUITING REQUIREMENTS TO MECHANICAL EQUIPMENT.
   REFER TO THE FIRE ALARM PLAN FOR 120 VOLT CIRCUITING.

2. PLAN NOTES:
   PROVIDE CORD REEL MOUNTED AT THE CEILING. FURNISH WITH (2) 20 AMP DUPLEX RECEPTACLES AND 25' #12/3 CORD, CONNECT TO THE DOOR CONTROLLER/DOOR OPERATOR.
   PROVIDE ROUGH IN AT 48" AFF FOR DOOR OPERATOR. EXTEND TO THE ASSOCIATED PANEL FEEDER. PROVIDE NEW PANEL AS SHOWN.
   DISCONNECT 1 OF 2".
   DISCONNECT 2 OF 2 IS OPEN.
   REMOVE THE EXISTING DEVICE AT THIS LOCATION, PROVIDE DOOR CONTROL PANEL AND SECURITY PANEL. COORDINATE EXACT HEIGHT, LOCATION AND CONNECTION REQUIREMENTS WITH SECURITY MANUFACTURER'S INSTALLATION INSTRUCTIONS.

   PROVIDE DUPLEX RECEPTACLE FOR DOOR CONTROL PANEL, REQUIRED. DAMPERS TO BE CONTROLLED BY THE CORRIDOR PRIMARIES. COORDINATE LOCATION WITH THE HVAC CONTRACTOR.

   PROVIDE CONNECTION TO THE DOOR CONTROL PANEL AND SECURITY PANEL. COORDINATE EXACT HEIGHT, LOCATION AND CONNECTION REQUIREMENTS WITH SECURITY MANUFACTURER'S INSTALLATION INSTRUCTIONS.

   PROVIDE CONNECTION REQUIREMENTS AND LOCATION WITH SYSTEM MANUFACTURER'S INSTALLATION INSTRUCTIONS.

   PROVIDE POWER TO DDC SYSTEM, COORDINATE LOCATION WITH SYSTEM MANUFACTURER's INSTALLATION INSTRUCTIONS.

   PROVIDE CONNECTION TO THE DOOR CONTROL PANEL AND SECURITY PANEL. COORDINATE EXACT HEIGHT, LOCATION AND CONNECTION REQUIREMENTS WITH SECURITY MANUFACTURER's INSTALLATION INSTRUCTIONS.

   PROVIDE CONNECTION REQUIREMENTS AND LOCATION WITH SYSTEM MANUFACTURER's INSTALLATION INSTRUCTIONS.
PLAN NOTES:

CONNECT TO THE STAND ALONE DOOR CONTROLLER AT THE OFFICE 131 TEST BENCH, COORDINATE REQUIREMENTS WITH OWNER.

MOUNT DEVICE ON MULLION, ROUTE CABLING CONCEALED THROUGH MULLION.

EXTEND (1) 22 AWG 4 CONDUCTOR BARE CONDUCTOR, SHIELDED, PLENUM RATED CABLE, SMARTWIRE #0043430 OR SIMILAR, BETWEEN THE DOOR LOCK PANELS. COORDINATE CABLING TO TECHNOLOGY 130 AND TERMINATE AT THE PATCH PANELS.

DX' AT EACH DEVICE INDICATES THE NUMBER AND LOCATION OF COMMUNICATIONS CABLES AS FOLLOWS. EXTEND ALL CABLING TO TECHNOLOGY 130 AND TERMINATE AT THE PATCH PANELS.

FOR ALTERNATE #3, KID'S ZONE SUITE, IN THIS AREA, NO CHANGES ARE REQUIRED.

FOR ALTERNATE #3, KID'S ZONE SUITE, WEST VESTIBULE IN THIS AREA, NO CHANGES ARE REQUIRED.

DX' AT EACH DEVICE INDICATES THE NUMBER AND LOCATION OF COMMUNICATIONS CABLES AS FOLLOWS. EXTEND ALL CABLING TO TECHNOLOGY 130 AND TERMINATE AT THE PATCH PANELS.

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PLAN DEMOLITION NOTES:

1. Mount in the return duct of the air handling unit, connect to the AHU for shutdown and to the fire alarm system for monitoring.

2. Mount the corridor smoke detectors with the duct mounted fire/smoke dampers for control. Smoke associated corridor. Connect smoke detectors to the panel for monitoring.

3. Provide duct mounted smoke detector for control of panel for monitoring.

4. Connect smoke detector to door holders for control, connect to the fire alarm system for monitoring.

5. Mount smoke and heat detector at the ceiling of the away ceiling system controller at the data center pod. The dry contact shall open upon activation of the room smoke or heat detector.

6. Horn/strobe to alarm upon activation of the dry chemical fire suppression system. Connect to the dry chemical control panel for activation. Dry chemical suppression system shall only be activated only when both the smoke and heat detector are activated. Activation of either the smoke or heat detector shall alarm the dry chemical fire suppression system installer.

7. Provide mushroom type emergency shutoff button to shut off the dry chemical fire suppression system. Coordinate all requirements with the fire suppression system installer.

8. For alternate #2, fine arts studio, in lieu of the work shown in this area provide: (2) combination horn/strobe spaced to provide coverage in the unfinished area.

9. In this area, no changes are required.

10. For alternate #3, kid's zone suite, in lieu of the work shown in this area provide: a minimum of (2) combination horn/strobe in the unfinished area.