Newkirk Novak Construction Partners
11200 West 79th Street
Lenexa, KS 66214
913.312.9535

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.

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PROJECT: N3-0645
COST CODE: 26-1000

Liberty Public Schools Technology Remodel
26-1000–Electrical Scope of Work – Add 03

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 coorindate they will be responsible for core drilling, saw cutting, etc. and patch back. There is to be no wall mounted conduit unless specifically noted.

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   e) This contractor is to provide any sleeves required for in-wall or underslab work.
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 progroamming 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 evaculation/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 conjunctionwith 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 liminted to, indicated or not indicated – hadicap 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.

Newkirk Novak Construction Partners
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PROJECT: N3-0645
COST CODE: 32-8000

Liberty Public Schools Technology Remodel
32-8000–Landscaping Scope of Work – Add 03

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:

Construction Manager: Newkirk Novak Construction Partners

Liberty School District - District Technology Remodel

Architect: Hollis Miller

Date: 11/1/2023

Question Issued By:	#	Discipline	Scope of Work	Date	Drawing / Detail #	Question	Response	Answered By	Date Answered	Issued Addendum
NNCP	1	MEP	Fire Suppression	10/19/2023		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.	See added information on sheet P101 and added specification section 212200 in Addendum 3.	Smith & Boucher	11/1/2023	Addendum 03
EMI	2	MEP	Ductwork	10/20/2023		I am looking for the Schedule for the ductwork pressure classifications and liner that are supposed to be on the drawings. I also don't see the registers & grills schedule either.	See added schedules on sheet ME302 in Addendum 3.	Smith & Boucher / Hollis + Miller	11/1/2023	Addendum 03
Royal Construction	5	Arch	Carpentry	10/26/2023		123200 - 1.5.A & B – There are no LEED requirements, so I am assuming that FSC materials are not required. Please confirm.	Refer to specification section 123200-2.3 for material requirements.	Hollis + Miller	11/1/2023	Addendum 03
Royal Construction	6	Arch	Carpentry	10/26/2023		Please confirm the notes in the documents that show "Casework NIC" are supplied and installed by owner.	Correct.	Hollis + Miller	11/1/2023	Addendum 03
EMI	7	MEP	Mechanical	10/26/2023		A801 it lists alternate #3. How much of the mechanical is to be excluded for this alternate. Duct, Registers, Boxes, Controls ?	See added information on sheet M101 in Addendum 3.	Smith & Boucher / Hollis + Miller	11/1/2023	Addendum 03
Royal Construction	8	Arch	Carpentry	10/26/2023		Will the solid surface windowsills stay or be removed in Alternates #2 & #3? The notes state that the new windows and blinds will remain, but mentions nothing about the sills.	See Addendum 03	Hollis + Miller	11/1/2023	Addendum 03
DH Pace	9	Arch	Doors / Frames	10/26/2023		081113 2.3 B.3 C&D Show two construction methods. What method is requested.	See Addendum 03	Hollis + Miller	11/1/2023	Addendum 03
DH Pace	10	Arch	Doors / Frames	10/26/2023		081113 2.3 C.3C Shows two construction methods. What method is requested.	See Addendum 03	Hollis + Miller	11/1/2023	Addendum 03
DH Pace	11	Arch	Doors / Frames	10/26/2023		081416 2.2 B.1 & 2 Shows two performance grades. What grade is requested.	See Addendum 03	Hollis + Miller	11/1/2023	Addendum 03
NNCP	13	MEP	MEP	10/31/2023		Please confirm all MEP work to follow arch direction of scope removal per A801.	See Addendum 03	Smith & Boucher / Hollis + Miller	11/1/2023	Addendum 03
NNCP	14	Arch	Toilet Partitions	11/1/2023		General Trades Contractors to Assume 66'' Toilet Partition Height	General Trades Contractors to Assume 66'' Toilet Partition Height	NNCP	11/1/2023	Addendum 03

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

DOCUMENT 000110 – TABLE OF CONTENTS

Revisions	Date
Addendum 03	**10.31.2023**

Project Name: Liberty School District - District Technology Remodel
Project No.: 23022
Site Address 1000 Kent Street
City, State Zip Liberty, Missouri 64068

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
8/31/2023

Architect-of-Record:
Hollis and Miller
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

25618 W 103rd St, Olathe, KS 66061
913.345.2127 smithboucher.com

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.
4. Fire-extinguishing clean agent.
5. Discharge nozzles.
6. Manifold and orifice unions.
7. Fire control panels.
8. Detection devices.
9. Manual stations.
10. Switches.
11. Alarm devices.

1.2 DEFINITIONS

A. EPO: Emergency Power Off.

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:
      a. Malleable-Iron Fittings: ASME B16.3, Class 300.
      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.
2. Manual pull-station circuit.
3. Alarm circuit.
4. Release 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 O_2.
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.
2. Support piping using supports and methods in accordance with NFPA 13.
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

	DESIGNATION	VAV1-01	VAV1-02	VAV1-03	VAV1-04	VAV1-05	VAV1-06	VAV1-07	VAV1-08	VAV1-09	VAV1-10	VAV1-11	VAV1-12	VAV2-01	VAV2-02	VAV2-03	VAV2-04	VAV2-05	VAV2-06	VAV2-07	VAV2-08	VAV2-09
	ASSOCIATED AIR HANDLING UNIT	AHU-1	AHU-1	AHU-1	AHU-1	AHU-1	AHU-1	AHU-1	AHU-1	AHU-1	AHU-1	AHU-1	AHU-1	AHU-2	AHU-2	AHU-2	AHU-2	AHU-2	AHU-2	AHU-2	AHU-2	AHU-2
UNIT	MANUFACTURER	PRICE	PRICE	PRICE	PRICE	PRICE	PRICE	PRICE	PRICE	PRICE	PRICE	PRICE	PRICE	PRICE	PRICE	PRICE	PRICE	PRICE	PRICE	PRICE	PRICE	PRICE
	MODEL NO.	SDV	SDV	SDV	SDV	SDV	SDV	SDV	SDV	SDV	SDV	SDV	SDV	SDV	SDV	SDV	SDV	SDV	SDV	SDV	SDV	SDV
	INLET SIZE	7	4	8	7	5	9	6	5	8	8	7	6	8	4	10	7	8	8	9	7	10
	DESIGN AIRFLOW (CFM)	550	200	625	425	300	850	325	300	625	725	550	325	600	200	1100	450	650	700	950	525	1100
	MIN. AIRFLOW (CFM)	275	100	250	85	90	425	65	210	125	220	220	100	300	40	220	135	195	350	570	265	440
	HEAT AIRFLOW (CFM)	275	175	525	400	300	650	150	210	550	450	450	275	350	175	825	350	550	350	600	375	625
ELEC. HT. COIL	COIL EAT (DEG. F)	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55
	UNIT LAT (DEG. F)	80	90	90	90	90	90	80	80	95	90	90	95	90	90	95	95	95	85	90	90	95
	HEATING KW	2.5	2.0	6.0	4.5	3.5	7.5	1.5	2.0	7.0	5.0	5.0	3.5	4.0	2.0	10.5	4.5	7.0	3.5	7.0	4.5	8.0
	CONTROL STEPS	SCR	SCR	SCR	SCR	SCR	SCR	SCR	SCR	SCR	SCR	SCR	SCR	SCR	SCR	SCR	SCR	SCR	SCR	SCR	SCR	SCR
ELECTRICAL/CONT.	VOLTS/PHASE	277/1	277/1	277/1	277/1	277/1	480/3	277/1	277/1	480/3	277/1	277/1	277/1	277/1	277/1	480/3	277/1	480/3	277/1	480/3	277/1	480/3
	PANEL & CIRCUIT	H1-8	H1-10	H1-12	H1-13	H1-14	H1-1,3,5	H1-15	H1-16	H1-2,4,6	H1-17	H1-18	H1-21	H2-14	H2-16	H2-1,3,5	H2-18	H2-2,4,6	H2-19	H2-7,9,11	H2-22	H2-8,10,12
	WIRE & CONDUIT	(2)#12,#12G,1/2"C	(2)#12,#12G,1/2"C	(2)#10,#10G,1/2"C	(2)#10,#10G,1/2"C	(2)#12,#12G,1/2"C	(4)#12,#12G,1/2"C	(2)#12,#12G,1/2"C	(2)#12,#12G,1/2"C	(4)#12,#12G,1/2"C	(2)#10,#10G,1/2"C	(2)#10,#10G,1/2"C	(2)#12,#12G,1/2"C	(2)#12,#12G,1/2"C	(2)#12,#12G,1/2"C	(4)#12,#12G,1/2"C	(2)#10,#10G,1/2"C	(4)#12,#12G,1/2"C	(2)#12,#12G,1/2"C	(4)#12,#12G,1/2"C	(2)#10,#10G,1/2"C	(4)#12,#12G,1/2"C
	OVERCURRENT DEVICE	20A/1P CB	20A/1P CB	30A/1P CB	25A/1P CB	20A/1P CB	20A/3P CB	20A/1P CB	20A/1P CB	20A/3P CB	25A/1P CB	25A/1P CB	20A/1P CB	20A/1P CB	20A/1P CB	20A/3P CB	25A/1P CB	20A/3P CB	20A/1P CB	20A/3P CB	25A/1P CB	20A/3P CB
	DISCONNECT	INTEGRAL	INTEGRAL	INTEGRAL	INTEGRAL	INTEGRAL	INTEGRAL	INTEGRAL	INTEGRAL	INTEGRAL	INTEGRAL	INTEGRAL	INTEGRAL	INTEGRAL	INTEGRAL	INTEGRAL	INTEGRAL	INTEGRAL	INTEGRAL	INTEGRAL	INTEGRAL	INTEGRAL
	CONTROL SEQUENCE	RE: DWGS	RE: DWGS	RE: DWGS	RE: DWGS	RE: DWGS	RE: DWGS	RE: DWGS	RE: DWGS	RE: DWGS	RE: DWGS	RE: DWGS	RE: DWGS	RE: DWGS	RE: DWGS	RE: DWGS	RE: DWGS	RE: DWGS	RE: DWGS	RE: DWGS	RE: DWGS	RE: DWGS
	REFERENCE DRAWING/DETAIL	M101	M101	M101	M101	M101	M101	M101	M101	M101	M101	M101	M101	M101	M101	M101	M101	M101	M101	M101	M101	M101
	REMARKS	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

AIR COOLED CONDENSING UNIT SCHEDULE

	DESIGNATION	ACCU-1	ACCU-2
	MANUFACTURER	TRANE	TRANE
	MODEL NO.	TTA180	TTA180
	NOMINAL TONNAGE	15	15
	SYSTEM	AHU-1	AHU-1
UNIT DATA	TOTAL COOLING @ 105°F AMBIENT (MBH)	185.4	185.4
	MIN EER @ AHRI	11.2	11.2
	COMPRESSORS QTY./ TYPE	2 / SCROLL	2 / SCROLL
	CIRCUITS	2	2
	REFRIGERANT	R410A	R410A
	WEIGHT (LBS)	705	705
	SIZE (H X W X L) (IN)	45-1/8"x46"x95-7/16"	45-1/8"x46"x95-7/16"
ELECTRICAL DATA	VOLTAGE/PHASE	480/3	480/3
	MCA	31	31
	MOCP	40	40
	PANEL & CIRCUIT	H1-20,22,24	H2-21,23,25
	WIRE & CONDUIT	(3)#8,#10G	(3)#8,#10G
	OVERCURRENT DEVICE	40A/3P CB	40A/3P CB
	DISCONNECT	60A/3P/NF	60A/3P/NF
	CONTROL	RE: DWGS	RE: DWGS
	REFERENCE DRAWING/DETAIL	M101	M101
	REMARKS	1, 2, 3, 4,5	1, 2, 3, 4,5

NOTES:
1: CAPACITY WHEN MATCHED WITH ASSOCATED AIR HANDLING UNIT.
2: FURNISH UNIT WITH HOT GAS BYPASS OPERATION.
3: FURNISH UNIT WITH UNPOWERED GFCI CONVENIENCE RECEPTACLE.
4: FURNISH WITH VAV CAPABILITY. CONTROL IS BY BMS CONTRACTOR, SAFETIES ARE BY MANUFACTURER.
5: MANUFACTURER TO PROVIDE REFRIGERANT SPECIALTIES.

FAN SCHEDULE

	DESIGNATION	EF-1	EF-2
	FAN TYPE	CEILING	CEILING
	SERVICE	RESTROOM	RESTROOM
	MANUFACTURER	GREENHECK	GREENHECK
	MODEL	SP-A390-VG	SP-A390-VG
UNIT DATA	CFM	225	225
	STATIC PRESSURE	0.3	0.3
	FAN RPM	1076	1076
	BRAKE HORSEPOWER	0.04	0.04
	MOTOR HORSEPOWER	1/15	1/15
	VOLTAGE/PHASE	120/1	120/1
	DRIVE	VARIGREEN	VARIGREEN
ELECT. DATA	PANEL & CIRCUIT	R5-7	R5-7
	WIRE & CONDUIT	(2)#12,#12G,1/2"C	(2)#12,#12G,1/2"C
	OVERCURRENT DEVICE	20A/1P CB	20A/1P CB
	DISCONNECT	20A/120V	20A/120V
	CONTROL	NOTE 1	NOTE 1
	REFERENCE DRAWING/DETAIL	M101	M101
	NOTES	---	---

NOTES:
1: EXHAUST FAN TO OPERATE DURING OCCUPIED HOURS OF ASSOCIATED AIR HANDLING UNIT. PROVIDE RELAYS ON FAN ELECTRICAL CIRCUITS TO ALLOW FOR CONTROL BY THE BMS.

COMPUTER ROOM AIR CONDITIONING UNIT SCHEDULE

INDOOR UNIT

	DESIGNATION	CRAC-01	CRAC-02	CRAC-03	CRAC-04	CRAC-05	CRAC-06
INDOOR UNIT	MANUFACTURER	SCHNEIDER	SCHNEIDER	SCHNEIDER	SCHNEIDER	SCHNEIDER	SCHNEIDER
	MODEL	ACRD100	ACRD100	ACRD100	ACRD100	ACRD100	ACRD100
	SERVICE	DATA CENTER	DATA CENTER	DATA CENTER	DATA CENTER	DATA CENTER	DATA CENTER
	CFM	2290	2290	2290	2290	2290	2290
	TOTAL CAPACITY (MBH)	325	325	325	325	325	325
	REFRIGERANT	R410A	R410A	R410A	R410A	R410A	R410A
	FILTER	MERV 8	MERV 8	MERV 8	MERV 8	MERV 8	MERV 8
	WEIGHT (LBS)	404	404	404	404	404	404
ELEC. DATA	VOLTAGE/PHASE	208/1	208/1	208/1	208/1	208/1	208/1
	MCA	25	25	25	25	25	25
	MOCP	40	40	40	40	40	40
	PANEL & CIRCUIT	MDP2-1,3	MDP2-2,4	MDP2-5,7	MDP2-6,8	MDP2-9,11	MDP2-10,12
	WIRE & CONDUIT	(2)#8,#10G,3/4"C	(2)#8,#10G,3/4"C	(2)#8,#10G,3/4"C	(2)#8,#10G,3/4"C	(2)#8,#10G,3/4"C	(2)#8,#10G,3/4"C
	OVERCURRENT DEVICE	40A/2P CB	40A/2P CB	40A/2P CB	40A/2P CB	40A/2P CB	40A/2P CB
	DISCONNECT	30A/2P/NF	30A/2P/NF	30A/2P/NF	30A/2P/NF	30A/2P/NF	30A/2P/NF
	CONTROL	T-STAT	T-STAT	T-STAT	T-STAT	T-STAT	T-STAT
	REFERENCE DRAWING/DETAIL	M101	M101	M101	M101	M101	M101
	REMARKS	1	1	1	1	1	1

OUTDOOR UNIT

	DESIGNATION	ACCU-01	ACCU-02	ACCU-03	ACCU-04	ACCU-05	ACCU-06
UNIT DATA	MANUFACTURER	SCHNEIDER	SCHNEIDER	SCHNEIDER	SCHNEIDER	SCHNEIDER	SCHNEIDER
	MODEL NO.	ACCED75214	ACCED75214	ACCED75214	ACCED75214	ACCED75214	ACCED75214
	AMBIENT TEMPERATURE	95°	95°	95°	95°	95°	95°
	WEIGHT (LBS)	180	180	180	180	180	180
ELEC DATA	VOLTAGE/PHASE	208/1	208/1	208/1	208/1	208/1	208/1
	MCA	15	15	15	15	15	15
	MOCP	15	15	15	15	15	15
	PANEL AND CIRCUIT	MDP2-13,15	MDP2-14,16	MDP2-17,19	MDP2-18,20	MDP2-21,23	MDP2-22,24
	WIRE AND CONDUIT	(2)#12,#12G,1/2"C	(2)#12,#12G,1/2"C	(2)#12,#12G,1/2"C	(2)#12,#12G,1/2"C	(2)#12,#12G,1/2"C	(2)#12,#12G,1/2"C
	OVERCURRENT DEVICE	15A/2P CB	15A/2P CB	15A/2P CB	15A/2P CB	15A/2P CB	15A/2P CB
	DISCONNECT	30A/2P/NF	30A/2P/NF	30A/2P/NF	30A/2P/NF	30A/2P/NF	30A/2P/NF
	REFERENCE DRAWING/DETAIL	M101	M101	M101	M101	M101	M101
	REMARKS	1	1	1	1	1	1

NOTE 1: UNIT PROVIDED BY OTHERS AND INSTALLED BY CONTRACTOR.

SPLIT SYSTEM A/C UNIT SCHEDULE

INDOOR UNIT

	DESIGNATION	ITAC-1
UNIT DATA	MANUFACTURER	TRANE
	MODEL	TPKA0A0241KA70A
	SERVICE	IT
	TYPE	WALL MOUNTED
	CFM	775
	TOTAL COOLING CAP (MBH)	24
	TOTAL HEATING CAP (MBH)	---
ELEC. DATA	VOLTAGE/PHASE	208/1
	PANEL AND CIRCUIT	NOTE 1
	WIRE AND CONDUIT	(2)#12,#12G,1/2"C
	OVERCURRENT DEVICE	NOTE 1
	DISCONNECT	NOTE 1
	CONTROLS	THERMOSTAT

OUTDOOR UNIT

	DESIGNATION	ITCU-1
UNIT DATA	MANUFACTURER	TRANE
	MODEL NO.	TRUYA0241HA70NA
	TOTAL COOLING CAP (MBH)	24
	TOTAL HEATING CAP (MBH) @ 17°F	---
	SEER	21.4
	HSPF	---
	AMBIENT AIR TEMP (°F.)	95.0
ELEC DATA	VOLTAGE/PHASE	208/1
	PANEL AND CIRCUIT	R5-17,19
	WIRE AND CONDUIT	(2)#10, #10G., 1/2"C.
	MCA	19
	MOCP	25
	OVERCURRENT DEVICE	25A/2P CB
	DISCONNECT	30A/NF NEMA 3R
	REMARKS	1,2,3,4

NOTES:
1: INDOOR UNIT CIRCUITED THROUGH OUTDOOR UNIT. PROVIDE MOTOR RATED TOGGLE SWITCH DISCONNECT ADJACENT TO INDOOR UNIT.
2: PROVIDE UNIT WITH DIGITAL WALL THERMOSTAT
3: PROVIDE UNIT WITH CONDENSATE PUMP AND DRAIN PAN LEVEL SENSOR.
4: PROVIDE UNIT WITH LOW AMBIENT WIND BAFFLES.

AIR HANDLING UNIT SCHEDULE

	DESIGNATION	AHU-1	AHU-2
UNIT	MANUFACTURER	TRANE	TRANE
	MODEL NO.	TWE180	TWE180
	SYSTEM	SOUTH	NORTH
SUPPLY FAN	CFM	5600	5300
	OUTSIDE AIR - CFM	890	1100
	TOTAL STATIC PRESSURE (IN. W.C.)	1.5	1.5
	FAN RPM	1100	1100
	BRAKE HORSEPOWER	4.1	4.1
	MOTOR HORSEPOWER	5	5
	VOLTAGE/ PHASE	480/3	480/3
	FAN SIZE/ TYPE	2 15x15 CENTR.	2 15x15 CENTR.
DX COOLING COIL	FACE AREA (SQ. FT.)(MIN.)	16.3	16.3
	ENT. AIR (DB/WB)	78.3/67.0	78.3/67.0
	LVG. AIR (DB/WB)	55/54	55/54
	FINS/ MIN. ROWS	4/14	4/14
	TOTAL COOLING CAPACITY (MBH) (NOTE 1)	185.4	185.4
	SENSIBLE COOLING CAPACITY (MBH) (NOTE 1)	141.6	141.6
HEATING COIL	ENT. AIR (DB)	57	54.2
	LVG. AIR (DB)	60	60
	TOTAL HEATING CAPACITY (KW)	10	10
	STAGES OF HEATING	1	1
	VOLTAGE/ PHASE	480/3	480/3
FILTER	TYPE	MERV 13	MERV 13
	SIZE	15"x20"x2"	15"x20"x2"
ELEC. HTG COIL/ CONTROL DATA	PANEL & CIRCUIT	H1-7,9,11	H2-13,15,17
	WIRE & CONDUIT	(3)#10,#10G,3/4"C	(3)#10,#10G,3/4"C
	OVERCURRENT DEVICE	25A/3P CB	25A/3P CB
	DISCONNECT	30A/3P/NF	30A/3P/NF
	CONTROL SEQUENCE	RE: DWGS	RE: DWGS
	REFERENCE DRAWING/DETAIL	M101	M101
	REMARKS	1,2	1,2

NOTES:
1: CAPACITY WHEN PAIRED WITH ASSOCIATED OUTDOOR CONDENSING UNIT. REFER TO AIR COOLED CONDENSING UNIT SCHEDULE.
2: PROVIDE WITH MIXING BOX FOR AIR SIDE ECONOMIZER CONTROL.

DUCTWORK SCHEDULE

SERVICE	DUCT SHAPE	SMACNA REQUIREMENTS: CLASSIFICATION	SEAL CLASS	LEAKAGE CLASS	OTHER REQUIREMENTS
SUPPLY AIR DUCTS CONNECTED TO CONSTANT VOLUME, SINGLE ZONE VAV PACKAGED ROOFTOP UNITS, SINGLE ZONE PACKAGED ROOFTOP UNITS AND DOWNSTREAM OF TERMINAL UNITS.	RECTANGULAR	2" WG POSITIVE	B	12	1/2", 3LB DENSITY LINER
	ROUND (CONCEALED)	4" WG POSITIVE SPIRAL SEAM	B	3	INSULATED - SEE SCHEDULE
	ROUND (EXPOSED)	4" WG POSITIVE SPIRAL SEAM	B	3	
SUPPLY DUCTS CONNECTED TO VAV AIR HANDLING UNITS UPSTREAM OF TERMINAL UNITS	RECTANGULAR	4" WG POSITIVE	A	6	INSULATED - SEE SCHEDULE
	ROUND	4" WG POSITIVE SPIRAL SEAM	B	3	INSULATED - SEE SCHEDULE
EXHAUST DUCTS TO THE INLET OF THE FAN	RECTANGULAR OR ROUND	2" WG POSITIVE	B - RECTANGULAR A - ROUND	12 - RECTANGULAR 3 - ROUND	
RETURN AIR DUCTWORK	RECTANGULAR	2" WG NEGATIVE	B	12	1/2", 3LB DENSITY LINER

NOTES:
1: SEE DUCTWORK INSULATION SCHEDULE FOR REQUIREMENTS ON DUCT INSULATION

DUCTWORK INSULATION SCHEDULE

SERVICE	INSULATION
EXPOSED DUCTWORK AS FOLLOWS:	1-1/2", 3 LB. RIGID FIBERGLASS BOARD, VAPPOR BARRIER FACED,
MEDIUM PRESSURE SUPPLY AIR (RECTANGULAR)	WITH HEAVY DUTY FOIL-SCRIM-KRAFT FACING AND PAINTABLE JACKET.
CONCEALED DUCTWORK AS FOLLOWS:	1-1/2", 1.5 LB. FIBERGLASS BLANKET, VAPPOR BARRIER FACED,
MEDIUM PRESSURE SUPPLY AIR (ROUND AND RECTANGULAR)	WITH HEAVY DUTY FOIL-SCRIM-KRAFT FACING.
ALL ROUND SUPPLY AIR AND UNLINED BRANCH TAKE-OFFS FOR ROUND DUCTS	

NOTES:
1: SEE DUCTWORK SCHEDULE FOR ITEMS THAT ARE TO BE LINED.

GRILLE, REGISTER & DIFFUSER SCHEDULE

PLAN MARK	MANUFACTURER MODEL NUMBER	SERVICE	MOUNT TYPE	VOLUME DAMPER	MATERIAL	COLOR	NOTES
SD-1	PRICE SPD	SUPPLY	SURFACE	YES	STEEL	WHITE	1
SD-2	PRICE 510	SUPPLY	DUCT	YES	STEEL	WHITE	1
RG-1	PRICE 530	RETURN	SURFACE	NO	STEEL	WHITE	1

NOTES:
1: REFER TO PLANS FOR SIZES.

UNIT HEATER SCHEDULE - ELECTRIC

	DESIGNATION	EUH-01	EUH-02
	HEATER TYPE	BASEBOARD	BASEBOARD
	LOCATION	VESTIBULE	VESTIBULE
	MOUNTING	FLOOR	FLOOR
	MANUFACTURER	INDEECO	INDEECO
	MODEL	BCSI 01750C	BCSI 01750C
UNIT DATA	CFM	---	---
	LENGTH	76.9 IN	76.9 IN
	HEATER KW	1.75	1.75
	VOLTAGE/PHASE	208/1	208/1
ELEC./CTRL. DATA	PANEL & CIRCUIT	R5-2,4	R5-6,8
	WIRE & CONDUIT	(2)#12, #12G., 1/2" C.	(2)#12, #12G., 1/2" C.
	OVERCURRENT DEVICE	15A/2P CB	15A/2P CB
	DISCONNECT	INTEGRAL	INTEGRAL
	CONTROL	INTEGRAL TSTAT	INTEGRAL TSTAT
	REFERENCE DWG/DETAIL	M101	M101
	REMARKS	1	1

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Structure # 2006031333

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Construction Documents

District Technology Remodel
Liberty School District
1000 Kent Street
Liberty, Clay County, MO 64068

REVISIONS:

#	Description	Date
3	ADDENDUM 3	10/31/23

STATE OF MISSOURI
RYAN JEROD DIEDIKER
NUMBER PE-2015006511
REGISTERED PROFESSIONAL ENGINEER
8/31/23

JOB NO: 23022
DRAWN BY: S&B
CHECKED BY: RJD
DATE: 08.31.2023

smith & boucher engineers
25618 west 103rd St olathe, ks 66061
phone 913.345.2127 fax 913.345.0617
project number 2314706

ME302

MECHANICAL AND ELECTRICAL - SCHEDULES

PROJECT NAME:
AUTOCAD FILE: LOCATION \ NAME:
LAST CORRECTION BY ◆ DATE ◆ TIME:
PLOTTED BY ◆ DATE ◆ TIME:
2314706 Liberty SD 2023 District Technology Remodel
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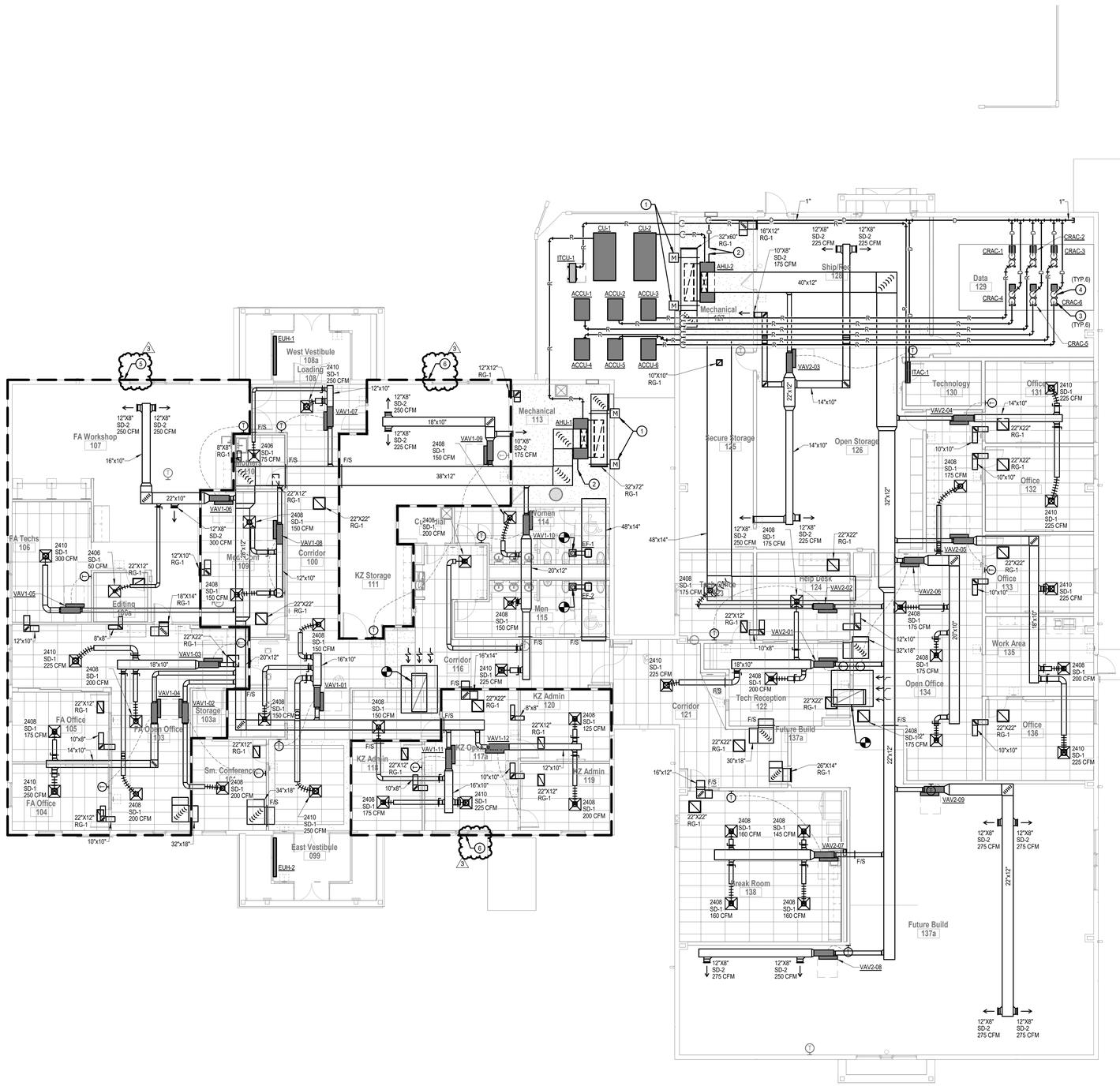
Bootyc Wednesday, November 1, 2023 9:45:14 AM
Booty, Charles Wednesday, November 1, 2023 9:46:22 AM



SHEET KEYNOTE LEGEND

PLAN NOTES:

1. MOTORIZED CONTROL DAMPERS FOR AIR-SIDE ECONOMIZER CONTROL.
2. TERMINATE CONDENSATE DRAIN OVER FLOOR DRAIN.
3. REFRIGERANT PIPING TO CRAC UNIT. INSTALL AND SIZE PER MANUFACTURERS INSTRUCTIONS.
4. CONDENSATE DRAIN TUBING DOWN TO CRAC UNIT.
5. ALTERNATE #2: DO NOT PROVIDE SUPPLY DIFFUSERS, FLEXIBLE DUCTS, OR RETURN GRILLES. PROVIDE ALL OTHER SCOPE SHOWN.
6. ALTERNATE #3: DO NOT PROVIDE SUPPLY DIFFUSERS, FLEXIBLE DUCTS, OR RETURN GRILLES. PROVIDE ALL OTHER SCOPE SHOWN.

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REVISIONS:

#	Description	Date
3	ADDENDUM 3	10/31/23

STATE OF MISSOURI
RYAN JEROD DIEDIKER
NUMBER 2009 - 20150043121
PROFESSIONAL ENGINEER
10/20/23

JOB NO: 23022
DRAWN BY: S&B
CHECKED BY: RJD
DATE: 08.31.2023

M101

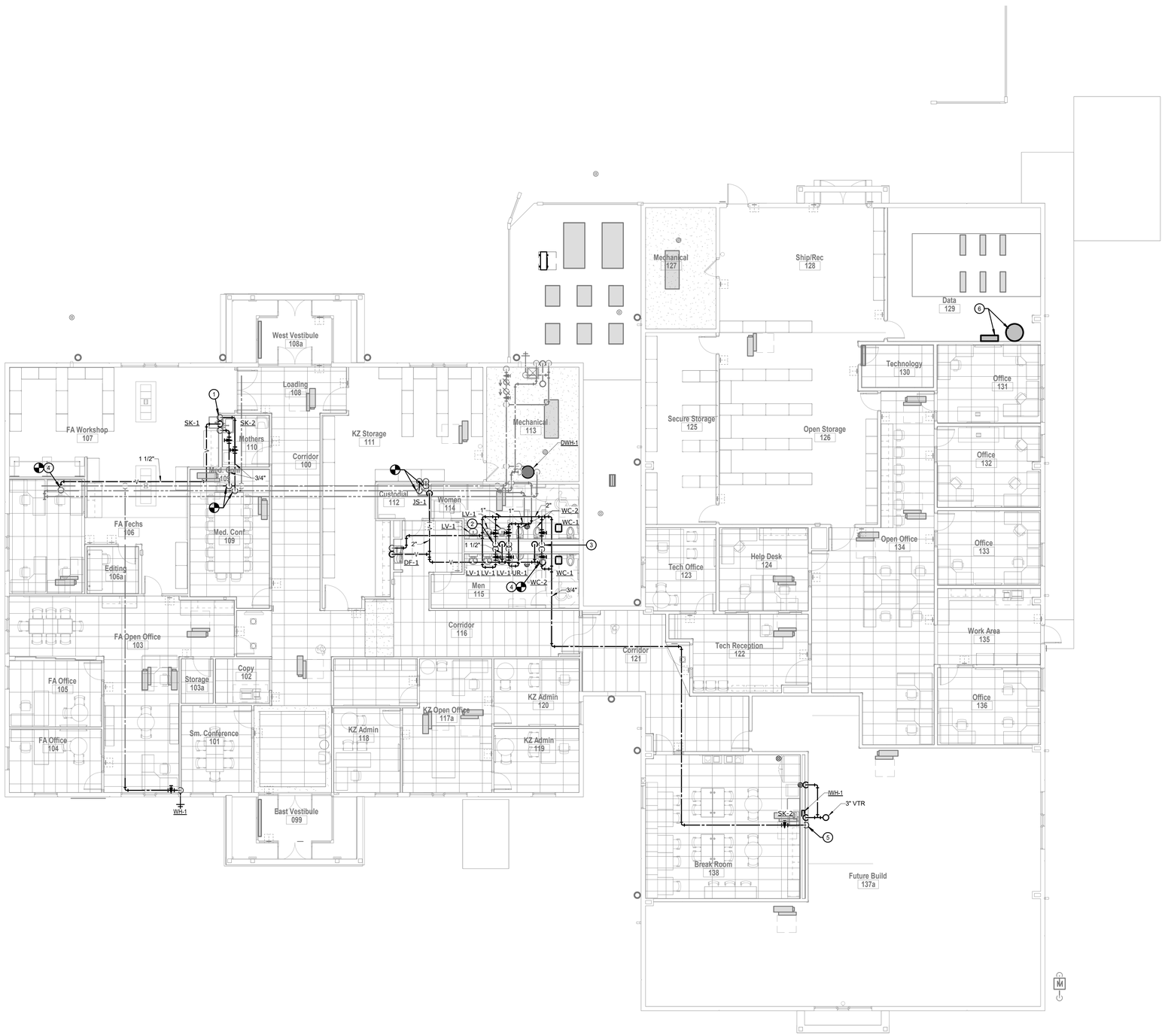
smith & boucher engineers
25618 west 103rd St olathe, ks 66061
phone 913.345.2127 fax 913.345.0617
project number:2314706

PLAN NORTH TRUE NORTH

A1 | Scale 1/8" = 1'-0" | HVAC PLAN - LEVEL 1

HVAC PLAN - LEVEL 1

11/1/2023 9:47:34 AM



SHEET KEYNOTE LEGEND

GENERAL NOTES:

1. REFER TO SHEET P100 FOR PLUMBING GENERAL NOTES.

PLAN NOTES:

1. 1-1/2" VENT, 3/4" COLD WATER, AND 3/4" HOT WATER DOWN IN WALL. EXTEND TAPS TO EACH SINK AND SIZE PER PLUMBING FIXTURE SCHEDULE.
2. 1-1/2" VENT, 1" COLD WATER, AND 1" HOT WATER DOWN IN CHASE. EXTEND INDIVIDUAL TAPS TO EACH LAVATORY AND SIZE PER PLUMBING FIXTURE SCHEDULE.
3. 3" VENT AND 2" COLD WATER DOWN IN CHASE. EXTEND INDIVIDUAL TAPS TO EACH FIXTURE AND SIZE PER PLUMBING FIXTURE SCHEDULE.
4. CONNECT NEW VENT PIPE TO EXISTING VENT THROUGH ROOF.
5. 1-1/2" 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. 3
6. FURNISH AND INSTALL TOTAL FLOOD ECARO-25 CLEAN AGENT FIRE SUPPRESSION SYSTEM TO PROTECT ROOM 129 DATA. SYSTEM TO BE DELEGATED DESIGN.

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Structure # 2006031333

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Landscaping: 2006027139
Surveying: 2006027138
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Construction Documents

District Technology Remodel
Liberty School District
1000 Kent Street
Liberty, Clay County, MO 64068

REVISIONS:

#	Description	Date
3	ADDENDUM 3	10/31/23

STATE OF MISSOURI
RYAN JEROD DIEDIKER
NUMBER
10/20/23

JOB NO: 23022
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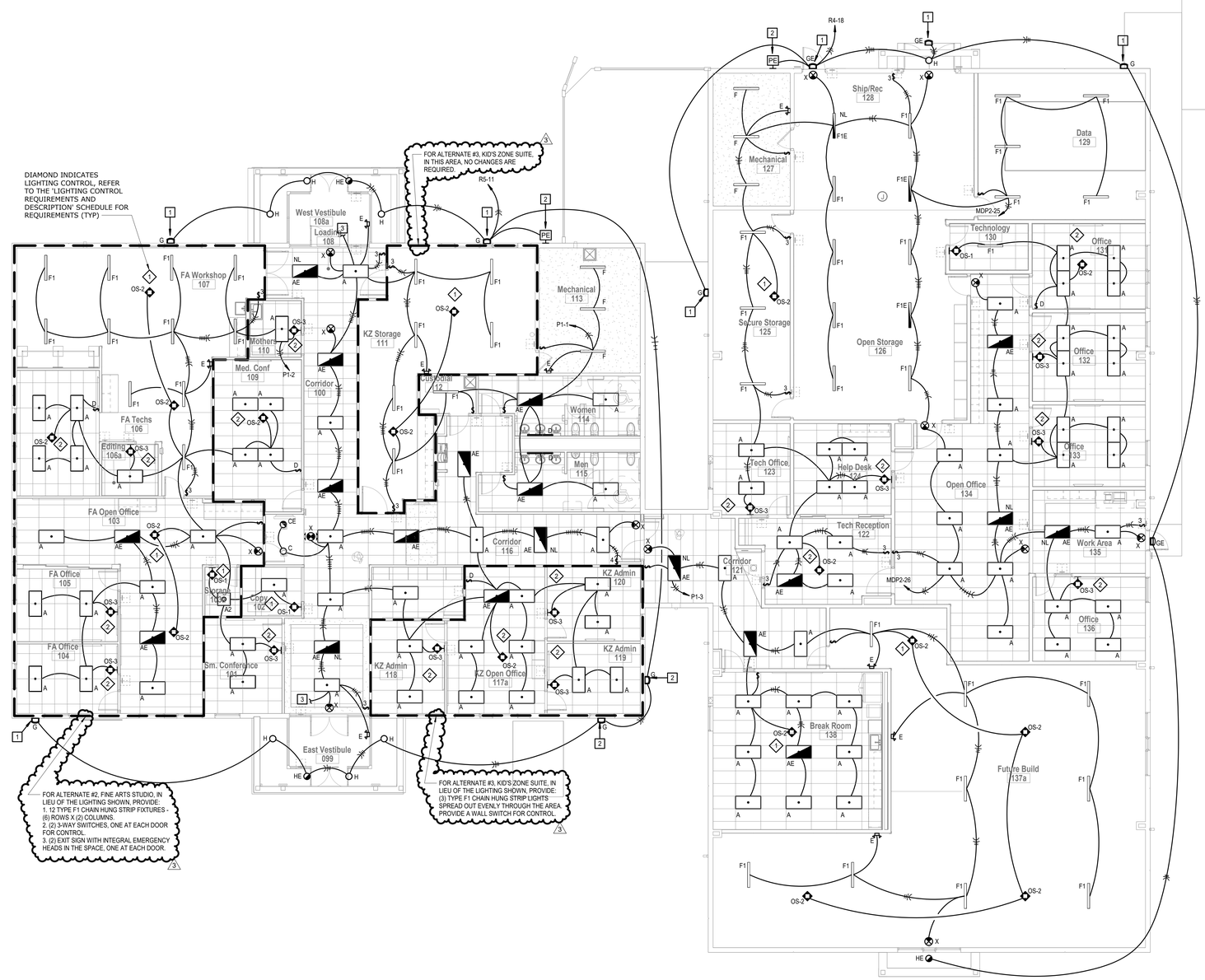
project number:2314706

A1 Scale 1/8" = 1'-0" PLUMBING PLAN - LEVEL 1

PLAN NORTH TRUE NORTH

PLUMBING PLAN - LEVEL 1

11/1/2023 9:47:41 AM



SHEET KEYNOTE LEGEND

PLAN NOTES:

1. INSTALL IN THE EXISTING BACKBOX FROM THE REMOVED LIGHT FIXURE AT THIS LOCATION. RE-CIRCUIT AS SHOWN.
2. MOUNT AT 10'-0" +/- AFF. CONNECT TO THE EXTERIOR LIGHT FIXTURES FOR CONTROL, PROVIDE AN UNSWITCHED CONDUCTOR FOR CONTROL OF EMERGENCY FIXTURES.
3. EXTEND AND CONNECT TO THE EXISTING VESTIBULE LIGHTS, MAINTAIN EXISTING CONTROLS.
4. PROVIDE CONNECTION TO THE NEW MONUMENT AND PHOTOCELL FOR CONTROL. REFER TO THE CIVIL SITE PLAN FOR SIGN LOCATION. COORDINATE ALL CONNECTION REQUIREMENTS WITH THE SIGN INSTALLER.

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STATE OF MISSOURI
RYAN JEROD DIEDIKER
NUMBER PE-2015008511
PROFESSIONAL ENGINEER
10/20/23

JOB NO: 23022
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E101

A1 | Scale 1/8" = 1'-0" | LIGHTING PLAN - LEVEL 1

PLAN NORTH TRUE NORTH

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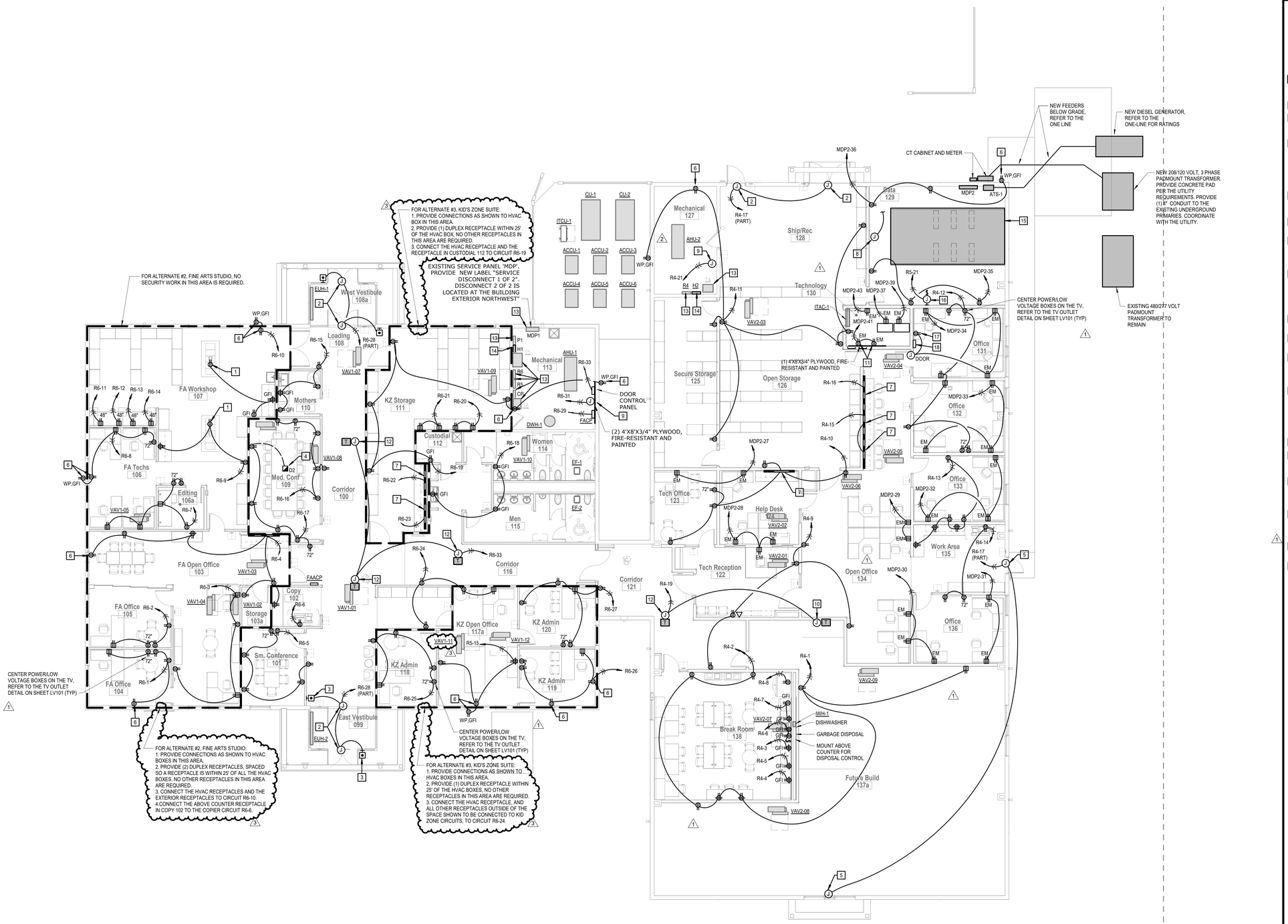
project number:2314706

LIGHTING PLAN - LEVEL 1



SHEET KEYNOTE LEGEND

GENERAL NOTES:

1. REFER THE EQUIPMENT SCHEDULES ON THE 'ME' SHEETS FOR CIRCUITING REQUIREMENTS TO MECHANICAL EQUIPMENT.
2. REFER TO THE FIRE ALARM PLAN FOR 120 VOLT CIRCUITING TO DOOR HOLDERS.

PLAN NOTES:

1. PROVIDE CORD REEL MOUNTED AT THE CEILING. FURNISH WITH (2) 20 AMP DUPLEX RECEPTACLES AND 25' #12/3 CORD, HUBBELL #HBL125123R220M1 OR SIMILAR.
2. CONNECT TO THE DOOR CONTROLLER/DOOR OPERATOR.
3. PROVIDE ROUGH IN AT 48" AFF FOR DOOR OPERATOR. EXTEND (1) 1/2" CONDUIT WITH PULL STRING TO EACH DOOR OPERATOR CONTROLLER.
4. PROVIDE WIREMOLD #RFB4-CI OR EQUAL CAST IRON, 4-GANG, MULTISERVICE FLOOR BOX SUITABLE FOR ON-GRADE INSTALLATION. FURNISH WITH GRAY COVER SUITABLE FOR FLOORING INSTALLED, 2 DUPLEX RECEPTACLES AND 2 DATA OUTLETS. EXTEND (1) 1" EMPTY CONDUIT WITH PULL STRING FROM BOX, BELOW FLOOR, AND UP THE WALL TO ABOVE THE CEILING FOR COMMUNICATIONS CABLING.
5. CONNECTION FOR FUTURE DOOR OPERATOR CONTROLLER. PROVIDE JUNCTION BOX ABOVE CEILING OR A MINIMUM OF 10' AFF.
6. REMOVE THE EXISTING DEVICE AT THIS LOCATION, PROVIDE NEW DEVICE AND PLATE. RE-CIRCUIT AS SHOWN.
7. PLUGMOLD MOUNTED 6" ABOVE COUNTER. PROVIDE WIREMOLD 2000 SERIES OR SIMILAR STEEL MULTIOUTLET SYSTEM WITH RECEPTACLES 12" ON CENTER, SINGLE CIRCUIT, WHITE FINISH. FURNISH IN THE LENGTH SHOWN.
8. PROVIDE GROUND CONNECTION TO THE ESD STATIC CONTROL FLOORING SYSTEM. EXTEND (1) #10 COPPER GROUND FROM THE GROUND BUS AT PANEL MDP2 TO THE COPPER STRIPPING AT THE FLOORING. COORDINATE CONNECTION LOCATION AND CONNECTION REQUIREMENTS WITH THE FLOORING MANUFACTURER'S INSTALLATION INSTRUCTIONS.
9. PROVIDE POWER TO DDC SYSTEM, COORDINATE LOCATION WITH THE HVAC CONTRACTOR.
10. PROVIDE POWER CONNECTION TO THE FIRE/SMOKE DAMPER. DAMPER TO BE CONTROLLED BY THE SMOKE DETECTOR.
11. PROVIDE CONNECTION TO THE DOOR CONTROL PANEL AND SECURITY PANEL. COORDINATE EXACT HEIGHT, LOCATION AND CONNECTION REQUIREMENTS WITH SECURITY CONTRACTOR.
12. PROVIDE POWER FOR FIRE/SMOKE DAMPERS AT THE COORIDOR RATED WALL PENETRATIONS. EXTEND CIRCUIT TO EACH DAMPER. REFER TO SHEET M101 FOR DAMPER LOCATIONS AND QUANTITIES. COORDINATE VOLTAGE WITH THE HVAC CONTRACTOR, PROVIDE TRANSFORMER AS REQUIRED. DAMPERS TO BE CONTROLLED BY THE CORRIDOR CEILING MOUNTED SMOKE DETECTORS.
13. EXISTING PANELBOARD/TRANSFORMER TO REMAIN.
14. REMOVE THE EXISTING PANELBOARD AT THIS LOCATION AND THE ASSOCIATED PANEL FEEDER. PROVIDE NEW PANEL AS SHOWN.
15. PROVIDE CONNECTION TO THE DATA CENTER POD POWER DISTRIBUTION UNIT (PDU). REFER TO THE ONE LINE FOR FEEDER SIZE. FIELD VERIFY THE EXACT PDU LOCATION WITH THE POD.
16. PROVIDE POWER TO THE DATA CENTER DRY CHEMICAL FIRE SUPPRESSION SYSTEM CONTROL PANEL/PUMP. COORDINATE CONNECTION REQUIREMENTS AND LOCATION WITH SYSTEM INSTALLER.
17. PROVIDE DUPLEX RECEPTACLE FOR DOOR CONTROL PANEL, COORDINATE EXACT LOCATION WITH OWNER.
18. GENERATOR ANNUCIATOR PANEL, MOUNT BELOW DOOR CONTROL PANEL.

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Construction Documents

District Technology Remodel

Liberty School District

1000 Kent Street
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REVISIONS:

#	Description	Date
1	ADDENDUM 1	10/20/23
2	ADDENDUM 2	10/27/23
3	ADDENDUM 3	10/31/23

STATE OF MISSOURI
RYAN JEROD DIEDIKER
NUMBER A-2015004151
PROFESSIONAL ENGINEER
10/20/23

JOB NO: 23022
DRAWN BY: S&B
CHECKED BY: RJD
DATE: 08.31.2023

E201

POWER PLAN - LEVEL 1

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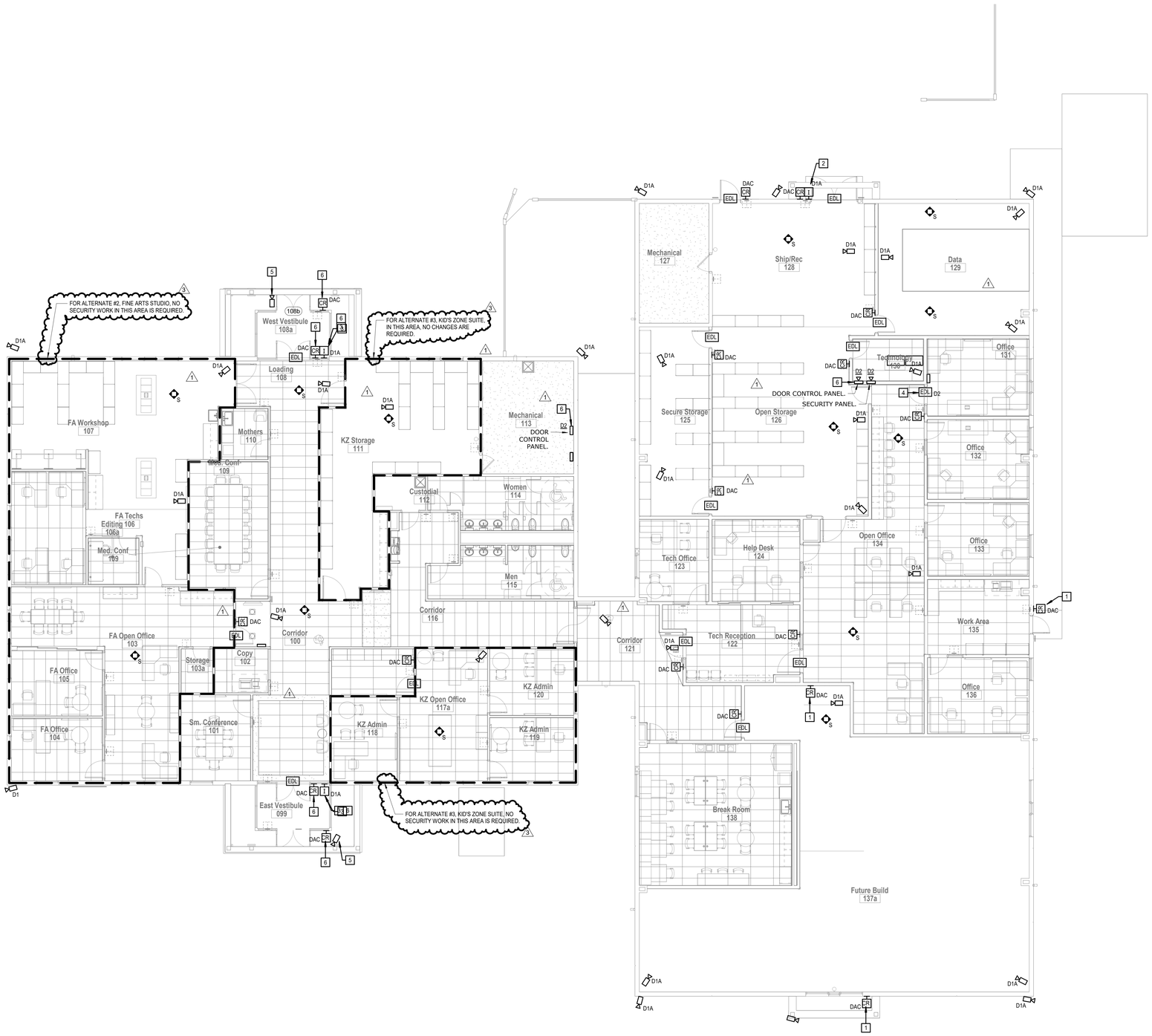
A1 | Scale 1/8" = 1'-0" | POWER PLAN - LEVEL 1

11/1/2023 9:48:19 AM



SHEET KEYNOTE LEGEND

PLAN NOTES:

1. PROVIDE 2"X4" BOX AT 48" AFF FOR FUTURE CARD READER. PROVIDE COMMUNICATIONS CABLING NOTED.
2. HELP DESK AND I.T. INTERCOM CALL STATION.
3. KID ZONE AND FINE ARTS INTERCOM CALL STATION.
4. CONNECT TO THE STAND ALONE DOOR CONTROLLER AT THE OFFICE 131 TEST BENCH, COORDINATE REQUIREMENTS WITH OWNER.
5. MOUNT DEVICE ON MULLION, ROUTE CABLING CONCEALED THROUGH MULLION.
6. EXTEND (1) 22 AWG 4 CONDUCTOR BARE CONDUCTOR, SHIELDED, PLENUM RATED CABLE, SMARTWIRE #0043430 OR SIMILAR, BETWEEN THE DOOR LOCK PANELS. COORDINATE EXACT PANEL LOCATIONS AND CONNECTION REQUIREMENTS WITH THE OWNER.

1

NETWORK CABLING NOTES:

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.

D1 = 1x CAT6
D2 = 2x CAT6
D3 = 3x CAT6
D4 = 4x CAT6
D2/2 = 2x CAT6 + 2x CAT6A
D1A = 1x CAT6 ABOVE CEILING
D2A = 2x CAT6 ABOVE CEILING
D3A = 3x CAT6 ABOVE CEILING
D4A = 4x CAT6 ABOVE CEILING
D2/2A = 2x CAT6 + 2x CAT6A ABOVE CEILING
D1/1A = 1x CAT6 + 1x CAT6A ABOVE CEILING
DAC = 1x ACCESS CONTROL WIRE, CONNECT TO THE DOOR CONTROLLER AND CARD READER. COORDINATE REQUIREMENTS WITH THE OWNER.

1

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A1 | Scale 1/8" = 1'-0" | ELECTRONIC SECURITY PLAN - LEVEL 1

PLAN NORTH TRUE NORTH

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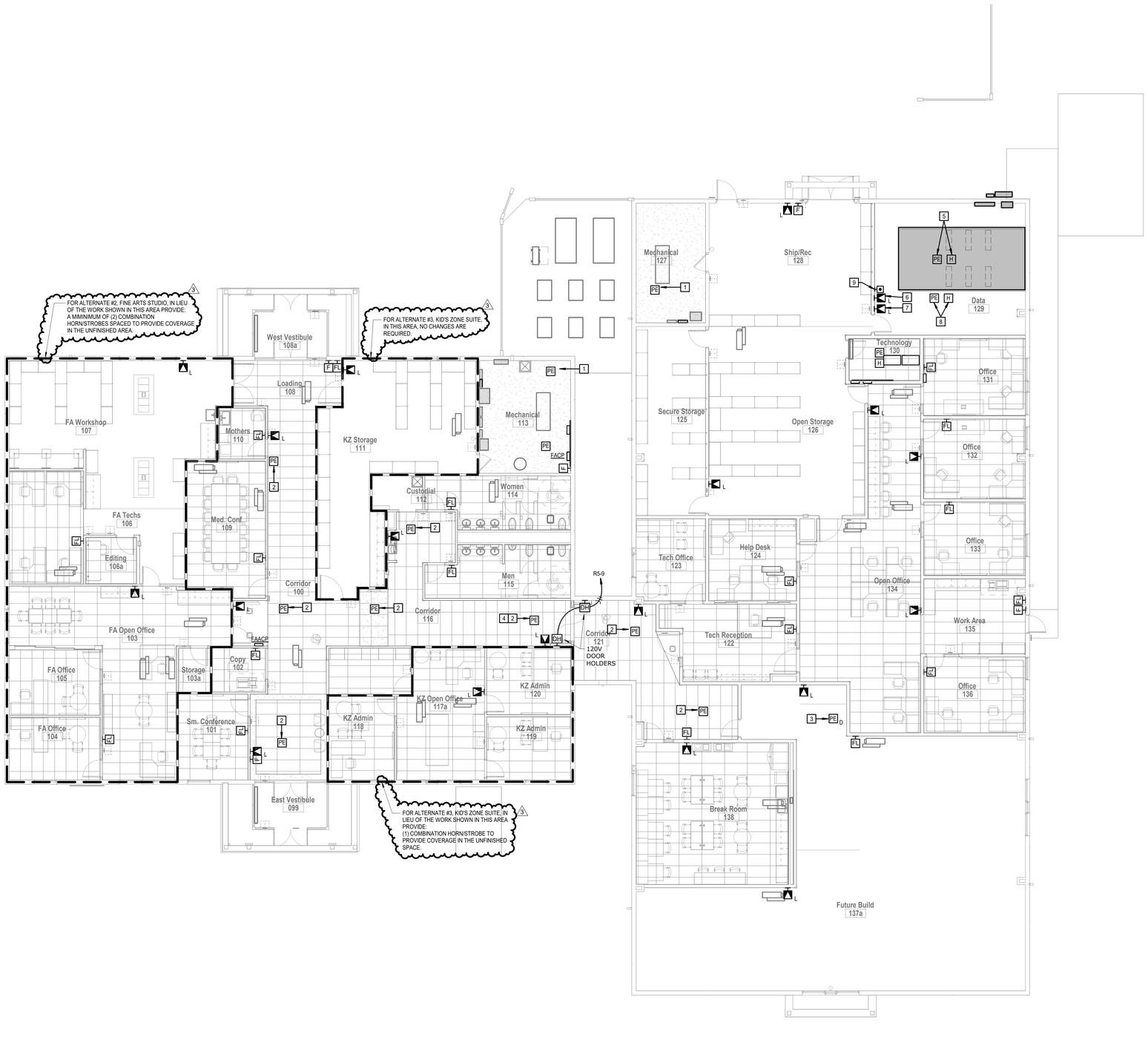
ELECTRONIC SECURITY PLAN - LEVEL 1



SHEET KEYNOTE LEGEND

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. INTEGRATE THE CORRIDOR SMOKE DETECTORS WITH THE DUCT MOUNTED FIRE/SMOKE DAMPERS FOR CONTROL. SMOKE DETECTORS TO CONTROL ALL FIRE/SMOKE DAMPERS AT THE ASSOCIATED CORRIDOR. CONNECT SMOKE DETECTORS TO THE FIRE ALARM CONTROL PANEL FOR MONITORING.
3. PROVIDE DUCT MOUNTED SMOKE DETECTOR FOR CONTROL OF THE FIRE/SMOKE DAMPER AT THIS LOCATION. CONNECT TO THE DAMPER FOR CONTROL AND TO THE FIRE ALARM CONTROL 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 ROOM. PROVIDE A NORMALLY CLOSED DRY CONTACT CONNECTION FROM THE BUILDING FIRE ALARM PANEL TO THE DROP-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 SMOKE DETECTOR OR HEAT DETECTOR. PROVIDE LABEL "DRY CHEMICAL FIRE SUPPRESSION".
7. HORN/STROBE CONNECTED TO THE BUILDING FIRE ALARM SYSTEM.
8. SMOKE DETECTOR AND HEAT DETECTOR TO CONTROL THE DRY CHEMICAL FIRE SUPPRESSION SYSTEM. CONNECT TO THE DRY CHEMICAL CONTROL PANEL FOR ACTIVATION. DRY CHEMICAL 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 HORN/STROBE IN THE ROOM ONLY. COORDINATE ALL REQUIREMENTS WITH THE FIRE SUPPRESSION SYSTEM INSTALLER.
9. PROVIDE MUSHROOM TYPE EMERGENCY SHUTOFF BUTTON TO SHUT OFF THE DRY CHEMICAL FIRE SUPPRESSION SYSTEM. COORDINATE ALL REQUIREMENTS WITH THE FIRE SUPPRESSION SYSTEM INSTALLER.

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#	Description	Date
3	ADDENDUM 3	10/31/23

STATE OF MISSOURI
RYAN JEROD DIEDIKER
NUMBER
PE-2015038511
PROFESSIONAL ENGINEER
10/20/23

JOB NO: 23022
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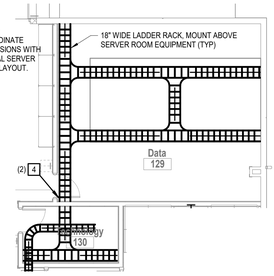
project number:2314706

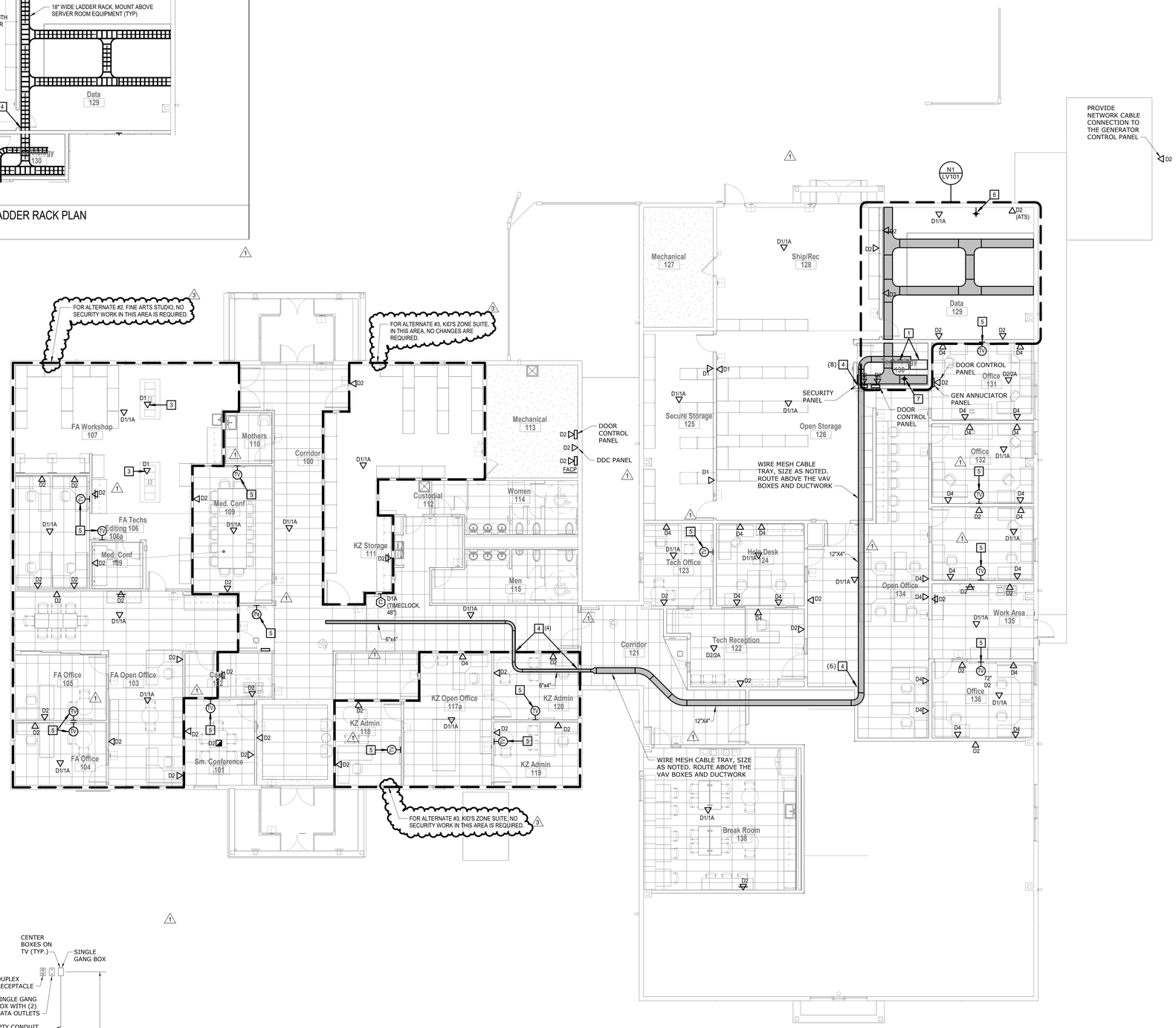
A1 | Scale 1/8" = 1'-0" | FIRE ALARM PLAN - LEVEL 1

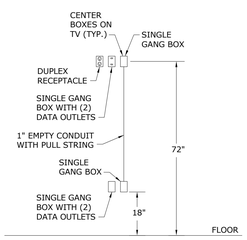
PLAN NORTH TRUE NORTH

FIRE ALARM PLAN - LEVEL 1



N1 Scale 1/8" = 1'-0" LADDER RACK PLAN





B4 TV OUTLET DETAIL
NOT TO SCALE

A1 Scale 1/8" = 1'-0" TELECOMMUNICATIONS PLAN - LEVEL 1

PLAN NORTH TRUE NORTH

SHEET KEYNOTE LEGEND

GENERAL NOTES:

1. REFER TO THE SECURITY PLAN FOR ADDITIONAL NETWORK CABLING REQUIREMENTS FOR SECURITY DEVICES.
2. REFER TO DETAIL SHEET LV301 FOR ADDITIONAL REQUIREMENTS.
3. REFER TO THE SPECIFICATIONS SECTION 270000 FOR COMMUNICATIONS SYSTEMS SCOPE OF WORK AND DETAILS. THAT SPECIFICATION WILL GOVERN FOR ANY DESCREPANCIES BETWEEN OTHER SPECIFICATIONS SECTIONS. THE MDF REFERENCED IN THAT DOCUMENT IS IN DATA 129, THE IDF IS IN TECHNOLOGY 130.

PLAN NOTES:

1. FLOOR MOUNTED 3-POST RACK. SIZE TO ACCOMMODATE THE DEVICES SHOWN PLUS 25%.
2. REFER TO THE POWER PLAN FOR NETWORK CABLING REQUIREMENTS TO THE FLOOR BOX IN THIS ROOM.
3. PROVIDE CAT6 CORD REEL MOUNTED AT THE CEILING, HUBBELL #ACA-CAT6 OR SIMILAR.
4. PROVIDE EZ PATH SERIES 22 FIRESTOP DEVICE AT RATED WALL PENETRATION, REFER TO THE FIRE STOP DETAILS. PROVIDE QUANTITY OF FIRESTOP DEVICES INDICATED IN PARENTHESIS.
5. REFER TO THE TV OUTLET DETAIL, THIS SHEET FOR LOW VOLTAGE REQUIREMENTS TO THE TV.
6. TELECOMMUNICATIONS MAIN GROUNDING BUS BAR, REFER TO THE DETAILS SHEET FOR REQUIREMENTS.
7. TELECOMMUNICATIONS GROUNDING BUS BAR, REFER TO THE DETAILS SHEET FOR REQUIREMENTS.

NETWORK CABLING NOTES:

'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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D3 = 3x CAT6
D4 = 4x CAT6
D2/2 = 2x CAT6 + 2x CAT6A
D1A = 1x CAT6 ABOVE CEILING
D2A = 2x CAT6 ABOVE CEILING
D3A = 3x CAT6 ABOVE CEILING
D4A = 4x CAT6 ABOVE CEILING
D2/2A = 2x CAT6 + 2x CAT6A ABOVE CEILING
D1/1A = 1x CAT6 + 1x CAT6A ABOVE CEILING

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10/20/23

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LV101

TELECOMMUNICATIONS PLAN - LEVEL 1

11/1/2023 9:48:05 AM