ADDENDUM NO. 2
FEBRUARY 2, 2023

Re: DAYTON ES REMODELING AND DEFERRED MAINTENANCE PROJECT, PHASE 1
PROJECT NO. 22064 - ANOKA BID NO. 23037B

TO ALL CONTRACTORS

The following are clarifications and/or changes to the Plans and Specifications dated January 12, 2023 for the above-named Project, to be Bid on February 9, 2023 @ 10:00 AM.

ENCLOSURE: **Certification Page.**
Architectural Attachment to Document 00 21 13. Revised Section 09 51 00.
Architectural Revision Drawings: A2.1, A3.2, A7.1, A11.1, and A13.1.
Mechanical Revision Drawings: MD1.1, MD1.2, M3.1, and M5.1.
Electrical Revised Section 28 31 00. Electrical Revision Drawing: E3.1

PRIOR APPROVALS OF SUBSTITUTIONS

Section	*Acceptable Manufacturer*
23 37 00	Krueger

INTRODUCTORY INFORMATION

1. Document 00 01 05 of the Project Manual:

   a. Refer to Certification Page, included as an enclosure with this Addendum.

2. Document 00 21 13 of the Project Manual:

   a. Refer to Attachment to Document 00 21 13, Questions and Answers Received During Bidding, included as an enclosure with this Addendum.

ARCHITECTURAL SPECIFICATIONS

3. Section 09 51 00 of the Specifications:

   a. ***Delete*** Section 09 51 00 in its entirety and replace with Revised Section 09 51 00, included as an enclosure with this Addendum. Refer to ***Bold*** and ***Italic*** items within Section.

ARCHITECTURAL DRAWINGS

4. Sheet A2.1 of the Drawings:

   a. Replace Sheet A2.1, with Revised Sheet A2.1, Revision 1, (clouded revision(s), included as an enclosure with this Addendum.

5. Sheet A3.2 of the Drawings:

   a. Replace Sheet A3.2, with Revised Sheet A3.2, Revision 1, (clouded revision(s), included as an enclosure with this Addendum.

6. Sheet A7.1 of the Drawings:

   a. Replace Sheet A7.1, with Revised Sheet A7.1, Revision 1, (clouded revision(s), included as an enclosure with this Addendum.

7. Sheet A11.1 of the Drawings:

   a. Replace Sheet A11.1, with Revised Sheet A11.1, Revision 1, (clouded revision(s), included as an enclosure with this Addendum.

8. Sheet A13.1 of the Drawings:

   a. Replace Sheet A13.1, with Revised Sheet A13.1, Revision 1, (clouded revision(s), included as an enclosure with this Addendum.

MECHANICAL DRAWINGS

9. Sheet MD1.1 of the Drawings:

   a. Replace Sheet MD1.1, with Revised Sheet MD1.1, Revision 1, (clouded revision(s), included as an enclosure with this Addendum.

10. Sheet MD1.2 of the Drawings:

    a. Replace Sheet MD1.2, with Revised Sheet MD1.2, Revision 1, (clouded revision(s), included as an enclosure with this Addendum.

11. Sheet M3.1 of the Drawings:

    a. Replace Sheet M3.1, with Revised Sheet M3.1, Revision 1, (clouded revision(s), included as an enclosure with this Addendum.

12. Sheet M5.1 of the Drawings:

    a. Replace Sheet M5.1, with Revised Sheet M5.1, Revision 1, (clouded revision(s), included as an enclosure with this Addendum.

ELECTRICAL SPECIFICATIONS

13. Section 28 31 00 of the Specifications:

    a. ***Delete*** Section 28 31 00 in its entirety and replace with Revised Section 28 31 00, included as an enclosure with this Addendum. Refer to ***Bold*** and ***Italic*** items within Section.

ELECTRICAL DRAWINGS

14. Sheet E3.1 of the Drawings:

    a. Replace Sheet E3.1, with Revised Sheet E3.1, Revision 1, (clouded revision(s), included as an enclosure with this Addendum.

END OF ADDENDUM

22064

DOCUMENT 00 01 05

CERTIFICATION PAGE

PROJECT:

DAYTON ELEMENTARY SCHOOL
REMODELING AND DEFERRED MAINTENANCE - PHASE 1
12000 South Diamond Lake Road
Dayton, Minnesota 55327

ARCHITECT'S CERTIFICATION:

I hereby certify that this Plan, Specification, or Report was prepared by me or under my direct supervision and that I am a duly Licensed Architect under the laws of the State of Minnesota.

Name David M. Maroney, AIA

Signature _____

Date January 12, 2023 License No. 20992

STRUCTURAL ENGINEER'S CERTIFICATION:

I hereby certify that this Plan, Specification, or Report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

Name Timothy G. LaBissoniere, PE

Signature _____

Date January 12, 2023 License No. 21387

MECHANICAL ENGINEER'S CERTIFICATION:

I hereby certify that this Plan, Specification, or Report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

Name Blayne J. Parkos, PE

Signature _____

Date January 12, 2023 License No. 46630

ELECTRICAL ENGINEER'S CERTIFICATION:

I hereby certify that this Plan, Specification, or Report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

Name Nicholas Achina, PE

Signature _____

Date January 12, 2023 License No. 40408

END OF DOCUMENT

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ATTACHMENT TO DOCUMENT 00 21 13

QUESTIONS AND ANSWERS RECEIVED DURING BIDDING

Questions received from bidders through purchquotes@ahschools.us, for bid number 23037B, and associated responses are provided for clarification to the bids, as of February 1, 2023.

1. **Question 1:** Please see attached submittal for Dayton Elementary for your review. (Substitution includes various electrical fixtures)

   a. Answer: Approved, Refer to Addendum No. 1.

2. **Question 2:** I have submitted a substitution request form for Dayton Remodeling. Attached is the completed form as well as the data sheet. (Substitution request is for Armstrong Fine Fissured ACT, Model No. 1833)

   a. Answer: Not approved. Submitted product's pattern differs visually from originally specified product.

END OF ATTACHMENT

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SECTION 09 51 00

ACOUSTICAL CEILINGS

PART 1 - GENERAL

1.01 SUMMARY

A. **Section Includes:**

1. Where ceilings are noted on the Room Finish Schedule to receive ACT, remove existing ceilings, grid, and trim in entirety, and provide new lay-in acoustical panel assemblies, ACT, at the same height.

2. Provide new ceiling grid suspension system where new ceiling assemblies are noted to be installed.

   a. Provide non-fire rated, direct-hung, galvanized steel, exposed, double-web, intermediate duty, suspended grid, unless otherwise noted.

3. Provide new metal trim members related to suspended ceiling grid where new ceiling assemblies are noted to be installed.

4. Provide fasteners and anchorage items required to secure ceiling grid suspension systems in place.

5. Provide selective removal of existing suspended acoustical tile ceiling system components which will be reinstalled, where indicated on Drawings and as may be required, to allow alterations work in existing building. Field verify existing conditions. Store removed ceiling system components in a protected location as coordinated with Contractor, and reinstall the removed system after all work required to be performed by other trades above or adjacent to the suspended ceiling has been completed. Modify system components as required to accommodate reinstallation adjacent to alterations construction. Dispose of components damaged during removal, storage, or reinstallation and provide new components which match existing as approved by Architect prior to installation.

6. Remove existing suspended acoustical tile ceiling system components which are to be reinstalled or remain that are damaged as a result of work related to this Project.

   a. Install new products which match the removed existing ceiling system components, obtained from the same manufacturer. If products to match the existing are no longer available, provide substitute products which match the existing as close as possible. Obtain Architect's approval before installing new substitute products.

7. Provide metal ceiling height transition trim at changes in suspended acoustical ceiling heights where noted on Drawings.

B. **Related Sections:**

1. Division 23: HVAC systems installed above and to be built into or penetrate suspended ceiling systems.
2. Division 26: Electrical fixtures and systems to be built into or attached to suspended ceiling systems.

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SECTION 09 51 00

1.02 REFERENCES

A. **ASTM International:**

1. ASTM A446, Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) by the Hot-Dip Process, Structural (Physical) Quality
2. ASTM A641, Standard Specification for Zinc-Coated (Galvanized) Carbon Steel Wire
3. ASTM C635, Standard Specification for Metal Suspension Systems for Acoustical Tile and Lay-in Panel Ceilings
4. ASTM C636, Standard Practice for Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-in Panels
5. ASTM E84, Standard Test Method for Surface Burning Characteristics of Building Materials
6. ASTM E119, Standard Test Method for Fire Tests of Building Construction and Materials
7. ASTM E413, Classification for Rating Sound Insulation
8. ASTM E1264, Standard Classification for Acoustical Ceiling Products

B. **Ceilings & Interior Systems Contractors Association (CISCA)**

1.03 SUBMITTALS

A. **General Requirements:** Provide submittals in accordance with Section 01 33 00.

B. **Shop Drawings:**

1. Show location of ceiling suspension system exposed grid T's .

2. Show locations of electrical light fixtures, and mechanical ceiling diffusers, registers, and grilles.

3. Coordinate shop drawings with Contract Drawings (Architectural, Electrical, and Mechanical). Notify Architect in writing of deviations on shop drawings from Contract Drawings.

C. **Product Data:** Submit manufacturer's product data for acoustical unit and suspension system product intended to be provided.

D. **Samples:** Submit one sample, not less than 6-inches square, of each acoustical unit type intended to be provided, including edge conditions.

1.04 QUALITY ASSURANCE

A. **Manufacturer Qualifications:**

1. All panel units and all components of suspension system shall be by one manufacturer.

2. Panel units and suspension system components used to patch existing acoustical ceiling systems shall match existing or be as otherwise approved by Architect.

B. **Installer Qualifications:** Installer shall be acceptable to, licensed by, or be an authorized agent of the acoustical ceiling system manufacturer and shall be responsible for the complete finished installation.

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C. **Fire Performance:** Comply with the following:

1. Surface Burning Characteristics: Tested in accordance with ASTM E84, UL listed and have suitable identification.

2. Fire Resistance Rating: Tested in accordance with ASTM E119 and listed in UL Fire Resistance Directory.

1.05 DELIVERY, STORAGE AND HANDLING

A. **Delivery:** Deliver products in manufacturer's original unopened packages/containers, with labels intact.

B. **Storage:** Store products to provide suitable protection against deleterious effects from exposure to moisture, direct sunlight, or other causes.

C. **Handling:** Handle products to prevent damage, especially to edges and corners of acoustical units.

D. **Installation Area Conditions:**

1. Before start of installation the following shall exist:

a. Do not install acoustical ceilings until work above ceilings, particularly mechanical, electrical and fire stopping work, has been completed, inspected and approved. Coordinate ceiling installation work with Mechanical and Electrical trades.

1.06 MAINTENANCE

A. **Maintenance Materials:**

1. Furnish to Owner for maintenance use, 2 percent of total quantity of each type of acoustical panel materials installed, but in no case less than (1) full package of each.

2. Provide maintenance materials obtained from same production run as panel material installed.

3. Provide in manufacturers standard packaging with suitable protection for storage, with identification labels intact, and clearly labeled as maintenance materials for storage.

PART 2 - PRODUCTS

2.01 MATERIALS

A. **General Requirements:** Provide acoustical system products in accordance with ASTM C635 and ASTM E1264.

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2.02 PANEL UNITS

A. **Mineral Fiber Panels - Fine Textured (ACT with SLT edge):** ***Provide where existing SLT/Tegular Edge Tile Ceilings are Being Patched.***

Paragraph A revised in Addendum No. 2

1. Acceptable Manufacturers: Subject to compliance with requirements of the Contract Documents, acceptable manufacturers are as follows, or approved equal.

    a. USG Interiors, Inc., "Radar Clima Plus No. 2220 with SLT edge"

2. Description:

    a. Size: 24-inches by 24-inches by 5/8-inch.
    b. Edge: Reveal SLT edge.
    c. Finish Color: White.
    d. Sag Resistance Warranty: 15 years.
    e. Ceiling Suspension System (Grid) Face Dimension: 15/16-inch.

3. Classification (Performance) Requirements: Complying with ASTM E1264.

    a. Ceiling Type and Form: Type III; Form 1.
    b. Ceiling Pattern: E1.
    c. Noise Reduction Coefficient (NRC) (ASTM C423): 0.55.
    d. Ceiling Attenuation Class (CAC) (ASTM E413 and ASTM E1414): 35.
    e. Fire Class: Class A flame spread rating (ASTM E84).

B. **Mineral Fiber Panels - Fine Textured (Square Edge):** ***Provide where existing square edge tile ceilings are being patched, and where new ACT ceilings are scheduled on the Room Finish Schedule and Reflected Ceiling Plans.***

Paragraph B revised in Addendum No. 2

1. Acceptable Manufacturers: Subject to compliance with requirements of the Contract Documents, acceptable manufacturers are as follows, or approved equal.

    a. USG Interiors, Inc., "Radar Clima Plus No. 2210"

2. Description:

    a. Size: 24-inches by 24-inches by 5/8-inch.
    b. Edge: Square
    c. Finish Color: White.
    d. Sag Resistance Warranty: 15 years.
    e. Ceiling Suspension System (Grid) Face Dimension: 15/16-inch.

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3. Classification (Performance) Requirements: Complying with ASTM E1264.

   a. Ceiling Type and Form: Type III; Form 1.
   b. Ceiling Pattern: E1.
   c. Noise Reduction Coefficient (NRC) (ASTM C423): 0.55.
   d. Ceiling Attenuation Class (CAC) (ASTM E413 and ASTM E1414): 35.
   e. Fire Class: Class A flame spread rating (ASTM E84).

2.03 CEILING SUSPENSION SYSTEMS (GRID) MATERIALS

A. **Non-Fire Rated, Direct-Hung, Exposed, Double-Web, Intermediate Duty, Suspension System:**

1. Acceptable Manufacturers: Subject to compliance with requirements of the Contract Documents, acceptable manufacturers are as follows or approved equal:

   a. Armstrong World Industries, Inc., "Prelude XL, 7300 System"
   b. CertainTeed Corporation, "Classic Stab System"
   c. Chicago Metallic Corporation, "200 Snap-Grid System"
   d. USG Interiors, Inc., "Donn DX Suspension System, 24 Series"

2. Structural Classification: ASTM C635, Intermediate Duty.

3. Material: Cold-rolled electro-galvanized or hot-dipped galvanized steel.

4. Finish: Factory applied baked paint, white color, unless noted otherwise.

5. Suspension System Face Width Dimension: 15/16-inch.

6. Edge Trim/Moldings: 24 gauge cold-rolled electro-galvanized or hot-dipped galvanized steel, with finish matching finish of adjacent exposed ceiling suspension system components. Provide channel or angle shape unless otherwise indicated on Drawings.

2.04 MISCELLANEOUS MATERIALS

A. **Attachment Devices:** Size anchors and intermediate support members for 5 times design load indicated in ASTM C635, Table I.

1. Hanger Wire: Not less than No. 12 gauge (SWG) galvanized (zinc coated) carbon steel complying with ASTM A641, unless otherwise specified.

B. **Furring Channels:** No. 16 MSG cold-rolled steel channels. 3-inches or 1 ½-inches deep as adequate to support ceiling system loads across spans required to accommodate building structure and mechanical systems within plenum spaces above suspended ceilings.

C. **Metal Ceiling Height Transition Trim:** Factory prefinished (painted) extruded aluminum vertical face trim, which is compatible with ceiling suspension system, at exposed edges of a suspended acoustical panel ceiling area where a transition in ceiling heights occurs.

1. Description: Extruded aluminum channel shaped trim member which attaches to and is compatible with ceiling grid which provides a vertical closure between (2) suspended acoustical panel ceilings which are at different heights.

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2. Acceptable Manufacturers: Subject to compliance with requirements of the Contract Documents, acceptable manufacturers are as follows or approved equal:

   a. Basis-of-Design Product: Requirements of these Specifications are based on the following product:

      1) Armstrong World Industries, Inc., "Axiom-Classic"

   b. Alternative Manufacturers: Subject to compliance with specified requirements and standards established by Basis-of-Design product, the following manufacturers are acceptable or others approved equal:

      1) Chicago Metallic Corporation
      2) Gordon, Inc.
      3) USG Interiors, Inc.
      4) CertainTeed Corporation

3. Size: Provide height of trim members as noted on Drawings. Where height required exceeds manufacturer's standard size trim members, stack trim members to meet height requirements. Provide accessories required and recommended by manufacturer for a complete and rigid installation.

4. Finish: Factory applied paint finish, white in color.

PART 3 - EXECUTION

3.01 EXAMINATION

A. **Project Site Verification of Conditions:**

1. Determine acceptability of substrates and conditions under which acoustical ceiling systems are to be installed.

2. Do not proceed with installation until detrimental conditions have been corrected. Start of installation indicates installer's acceptance of substrates and conditions.

3.02 PREPARATION

A. **Layout**: Layout ceiling system(s) in accordance with reflected ceiling plan(s) as approved by Architect.

1. Unless otherwise indicated or approved by Architect, layout ceiling system to balance border unit widths at opposite edges of spaces, with portions of tile units not less than 1/2 width of standard tile size.

B. **Coordination**: Coordinate layout and installation with other work supported by or penetrating through ceilings, including, as applicable; light fixtures and other electrical devices; heating, ventilating, and/or air conditioning; fire suppression system components; and partition systems.

C. **Product Conditioning**: Before start of acoustical ceiling unit installation, open packages and allow product to stabilize to environmental conditions of the installation area.

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3.03 INSTALLATION

A. **General Installation Requirements:**

1. Standards: Comply with requirements of the following:

   a. CISCA "Acoustical Ceilings: Use and Practice" and "Ceiling Systems Handbook".

   b. Applicable codes.

   c. Install ceiling suspension system in accordance with requirements of ASTM C636, except where product manufacturer has more stringent requirements, instructions, or recommendations, or except when more stringent requirements are specified.

2. Ceiling Layout: Refer to Reflected Ceiling Plan Drawings for location of ceiling layout.

3. Alignment: Install suspension system to be symmetrical within spaces and parallel to walls, unless otherwise indicated, as coordinated with and approved by Architect. Joints and exposed suspension system components shall be straight and in alignment.

4. Tolerances: Install acoustical tile suspension system, and acoustical tile to be level within 1/8-inch in 12 feet non-accumulating.

5. Furring Channels: Provide 3-inches or 1 1/2-inches deep channels as adequate to support ceiling system loads, including related mechanical and electrical products installed within the ceiling system, across spans which are required to accommodate building structure and mechanical systems located within plenum spaces above suspended ceilings.

6. Coordination With Lighting:

   a. Coordinate acoustical tile installation with light fixture layout to obtain a uniform pattern throughout building.

   b. Obtain Architects approval of proposed ceiling layout before starting installation.

   c. Make every effort to center joints between ceiling tile, or the whole tile, on adjacent light fixtures.

7. Additional Support/Hanger Wires: Provide completed installed ceilings having deflections of not more than 1/360 of suspension system spans.

   a. Provide one hanger wire attached to ceiling suspension system at not less than 2 diagonal corners at each recessed light fixture.

   b. Provide one additional hanger wire attached to ceiling suspension system for every 4 lineal feet of runners, for additional support at surface mounted light fixtures, curtains, and wherever else added support is necessary.

   c. Provide one hanger wire at each intersection of ceiling suspension system members adjacent to ceiling surface mounted and recess mounted projectors and projection screen(s).

8. Edge Trim/Moldings: Install wherever suspension system components meet vertical surfaces. Set trim in acoustical sealant. Secure trim to vertical substrate. Neatly miter corners.

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B. **Exposed Suspension System (Grid) Installation:**

1. Method of Installation: Suspend exposed suspension system (grid) from building structure above.

   a. Attach suspension system (grid) to steel joists, concrete structure, or other building structure, as indicated on Drawings.

   b. Where furring channels are required, clip ceiling suspension system to the suspended channels.

C. **Panel Installation in Exposed Suspension System:**

1. Lay tiles/panels in suspension system to lay flat and be supported on all edges.

2. Directional Patterned Tiles/Panels: Verify direction(s) to install pattern(s) with Architect.

3. Obtain acoustical ceiling units for installation from not less than three cartons to obtain a uniform distribution of surface variations.

4. Where partial acoustical units occur, field cut edges to match shape of standard factory cut reveal edges.

5. Neatly scribe acoustical ceiling units at abutting surfaces and at all penetrations or projections where edge trim/moldings are not acceptable.

3.04 ADJUSTMENTS

A. **Compliance:** Make adjustments in installed ceiling systems, if necessary, to ensure compliance with this specification and code requirements.

3.05 CLEANING

A. **General Requirements:**

1. Clean soiled or discolored unit surface after installation.

2. Touch-up scratches, abrasions, voids, and other defects in painted surfaces.

3. Remove improperly installed units and install properly.

4. Remove damaged panel units which cannot be properly cleaned or repaired and install new units.

5. Remove debris resulting from installation work from Project site.

END OF SECTION

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SECTION 28 31 00

NETWORKED FIRE ALARM AND MASS NOTIFICATION SYSTEM

PART 1 - GENERAL

1.01 SUMMARY

A. **Section Includes:** "Performance Based" UL rated system consisting of factory assembled components with specified warranty.

1. Provide complete tested, operating system as herein specified and noted on Drawings.

2. CAD Drawing files for Contractors use may be purchased as indicated in Section 26 00 00.

3. Fire alarm/mass communication system shall be independent of technology systems.

4. Coordinate fire alarm/mass communication components and panel locations with all trades, including technology systems when installed in technology rooms.

5. System shall be fully addressable, electrically supervised, expandable emergency evacuation and fire alarm system with power supplies and individual devices including alarm initiating devices, alarm notification appliances, control panels, auxiliary control devices (including sprinkler monitor.

6. Work to include the following:

   a. No existing devices are shown on the Drawings. It is the Contractor's responsibility to account for all existing devices.

   b. It shall be this Contractor's responsibility to provide a complete fire alarm and mass notification system without any shorts, ground faults, bad devices, etc., without any additional costs, over and above this Alternates price, to the Owner.

   c. This Contractor shall test the fire alarm system in entire complex. Any shorts, ground faults, bad devices, etc., shall be documented and a report given to both the Owner and the Architect.

      1) Price shall include fixing and/ or replacing any equipment and/or wiring found to be an issue.

      2) A complete test shall be performed again at the end of the project. Any shorts, ground faults, bad devices, etc. found at that time will be fixed and or replaced at no additional cost to the Owner.

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d. The Owner will be installing a new Notifier Voice Evacuation Panel in the Main Office where shown on the Drawings. Verify exact location with the Owner.

(Revised in Addendum No. 2)

e. This Contractor shall provide the following:

~~1) Add a mass notification system to the existing main fire alarm control panel.~~

~~2) Replace the existing annunciator panel with a new annunciator panel as specified.~~

~~3) Provide a new Notifier NFC-50/100 Voice Evacuation Panel in the Main Office where shown on the Drawings.~~

(Revised in Addendum No. 2)

4) All existing horn/strobe and strobe only devices shall be replaced with new speaker/strobe devices.

5) Provide additional speakers and speaker/strobe devices as required to obtain required coverage in all spaces.

6) Replace and/or provide new power supplies as required.

7) Replace and/or provide new cabling as required.

8) Where possible, use existing boxes and conduit.

9) Provide new fire alarm devices as shown on Sheet E4.2 of the Drawings.

f. It is this Contractor's responsibility to ensure all spaces meet the audibility and visibility requirements of the latest codes. The Owner shall not incur any additional costs to correct such an issue.

B. **Related Sections:**

1. Section 26 00 00: Electrical.
2. Section 26 00 10: Shop Drawings.
3. Section 26 05 33: Raceways and Boxes.
4. Section 26 29 13: Motor Controls.

C. **Final System Programming:**

1. Final system programming and certification shall be performed by Anoka-Hennepin School districts service provider ECSI. Contractor shall include all cost associated with this service.

1.02 PERMITS AND FEES

A. **General Requirements:** Include all costs for permits, fees, bonds, and Drawings required by authority having jurisdiction.

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1.03 SHOP DRAWINGS

A. Refer to Specification Section 26 00 10 for Shop Drawing requirements.

1.04 VENDOR QUALIFICATIONS

A. **General Requirements:** Shop Drawings shall include the following information:

1. Installation Contractor to have a minimum of 5 years experience in installation and service of fire alarm systems.

2. Three (3) references of Projects of comparable size and scope that have been completed within last 2 years. References shall include Project name, address, date of Substantial Completion, and name and telephone number of manager of system.

3. The installing company shall employ NICET (minimum Level II Fire Alarm Technology) technicians on site to guide the final check-out and to ensure the systems integrity.

4. Letters on manufacturer's or factory representative's letterhead verifying that Installation Contractor is an approved installation vendor of specified products.

B. **Certifications:**

1. Together with the shop drawing submittal, submit a certification from the major equipment manufacturer indicating that the proposed supervisor of the installation and the proposed performer of contract maintenance is an authorized representative of the major equipment manufacturer. Include names and addresses in the certification.

1.05 APPROVALS

A. The system shall have proper listing and/or approval from the following nationally recognized agencies: UL Underwriters Laboratories Inc.

B. The Fire Alarm Control Panel and all transponders shall meet the modular listing requirements of the ninth edition of UL Standard 864 (Control Units). Each subassembly, including all printed circuits, shall include the appropriate UL modular label. This includes all printed circuit board assemblies, power supplies, and enclosure parts. Systems that do not include modular labels may require return to the factory for system upgrades, and are not acceptable.

1.06 REFERENCES

A. **General Requirements:**

1. Installation shall conform to the requirements of all authorities having jurisdiction, and comply with the current edition of the following:

a. National Fire Protection Association (NFPA) - USA:

1)	No. 13	Sprinkler Systems
2)	No. 70	National Electric Code (NEC)
3)	No. 72-1996	National Fire Alarm Code
4)	No. 90A	Air Conditioning Systems
5)	No. 101	Life Safety Code

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b. Underwriters Laboratories Inc. (UL) - USA:

1)	No. 50	Cabinets and Boxes
2)	No. 268	Smoke Detectors for Fire Protective Signaling Systems
3)	No. 864	Control Units for Fire Protective Signaling Systems
4)	No. 268A	Smoke Detectors for Duct Applications.
5)	No. 521	Heat Detectors for Fire Protective
6)	No. 228	Door Closers-Holders for Fire Protective Signaling Systems.
7)	No. 464	Audible Signaling Appliances.
8)	No. 38	Manually Actuated Signaling Boxes.
9)	No. 346	Waterflow Indicators for Fire Protective Signaling Systems.
10)	No. 1481	Power supplies for Fire Protective Signaling Systems.
11)	No. 1971	Visual Notification Appliances.

c. ADA: Americans with Disabilities Act

d. Local and State Building Codes.

e. All requirements of the Authority Having Jurisdiction (AHJ).

1.07 COMPATIBILITY OF EQUIPMENT

A. **General Requirements:** Contractor shall provide components which perform and operate in accordance with requirements of Specifications without excessive or unusual service maintenance requirements.

1. Contractor shall provide adequate maintenance access for each device.

2. Performance of each device shall meet or exceed the requirements for the type of occupancy defined by local building codes and approved by the local Fire Marshal.

3. Increased costs to provide additions or revisions to equipment required by substitute (approved equal) equipment shall be the sole responsibility of Contractor.

1.08 SYSTEM DESCRIPTION

A. This Section of the Specification includes the furnishing, installation, and connection of an intelligent reporting, microprocessor controlled, addressable, fire detection and emergency voice alarm communication system. It shall include, but not be limited to, alarm initiating devices, alarm notification appliances, control panels, auxiliary control devices, annunciators, power supplies, and wiring as shown on the drawings and specified herein.

B. The fire alarm system shall comply with requirements of NFPA Standard 72 for Protected Premises Signaling Systems except as modified and supplemented by this specification. The system shall be electrically supervised and monitor the integrity of all conductors.

C. The system shall be an active/interrogative type system where each addressable device is repetitively scanned, causing a signal to be transmitted to the main fire alarm control panel (FACP) indicating that the device and its associated circuit wiring is functional. Loss of this signal at the main FACP shall result in a trouble indication as specified hereinafter for the particular input.

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D. The facility shall have an emergency voice alarm communication system. Digitally stored message sequences shall notify the building occupants that a fire or life safety condition has been reported. Message generator(s) shall be capable of automatically distributing up to eight (8) simultaneous, unique messages to appropriate audio zones within the facility based on the type and location of the initiating event. The Fire Command Center (FCC) shall also support Emergency manual voice announcement capability for both system wide or selected audio zones, and shall include provisions for the system operator to override automatic messages system wide or in selected zones.

E. The system and its components shall be Underwriters Laboratories, Inc. listed under the appropriate UL testing standard as listed herein for fire alarm applications and the installation shall be in compliance with the UL listing.

F. The system shall be designed such that each signaling line circuit (SLC) is limited to only 80% of its total capacity at initial installation.

G. **Basic Performance:**

1. Alarm, trouble and supervisory signals from all intelligent reporting devices shall be encoded on NFPA Style 4 (Class B) Signaling Line Circuits (SLC).

2. Initiation Device Circuits (IDC) shall be wired Class B (NFPA Style A) as part of an addressable device connected by the SLC Circuit.

3. Notification Appliance Circuits (NAC) shall be wired Class B (NFPA Style Y) as part of an addressable device connected by the SLC Circuit.

4. On Style 6 or 7 (Class A) configurations a single ground fault or open circuit on the system Signaling Line Circuit shall not cause system malfunction, loss of operating power or the ability to report an alarm.

5. Alarm signals arriving at the FACP shall not be lost following a primary power failure (or outage) until the alarm signal is processed and recorded.

6. Speaker circuits may be controlled by NAC outputs built into the amplifiers, which shall function as addressable points on the Digital Audio Loop.

7. Notification Appliance Circuits (NAC) speaker circuits shall be arranged such that there is a minimum of one speaker circuit per floor of the building or smoke zone which ever is greater.

8. Audio amplifiers and tone generating equipment shall be electrically supervised for normal and abnormal conditions.

9. Notification Appliance Circuits (NAC) speaker circuits and control equipment shall be arranged such that loss of any one (1) speaker circuit will not cause the loss of any other speaker circuit in the system.

10. Speaker circuits shall be arranged such that there is a minimum of one speaker circuit per smoke zone.

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11. Speaker circuits shall be electrically supervised for open and short circuit conditions. If a short circuit exists on a speaker circuit, it shall not be possible to activate that circuit.

12. Audio amplifiers and tone generating equipment shall be electrically supervised for abnormal conditions. Digital amplifiers shall provide built-in speaker circuits, field configurable as four Class B (Style Y), or two Class A (Style Z) circuits.

13. Digital amplifiers shall be capable of storing up to two minutes of digitally recorded audio messages and tones. The digital amplifiers shall also be capable of supervising the connection to the associated digital message generator, and upon loss of that connection shall be capable of one of the following system responses:

    a. The digital amplifier shall automatically broadcast the stored audio message.

    b. The digital amplifier shall switch to a mode where a local bus input on the digital amplifier will accept an input to initiate a broadcast of the stored message. This bus input shall be connected to a NAC on a local FACP for the purpose of providing an alternate means of initiating an emergency message during a communication fault condition.

    c. Speaker circuits shall be either 25 VRMS or 70VRMS. Speaker circuits shall have 20% space capacity for future expansion or increased power output requirements.

    d. Two-way emergency telephone (Fire Fighter Telephone) communication shall be supported between the Audio Command Center and up to seven (7) remote Fire Fighter's Telephone locations simultaneously on a telephone riser.

    e. Means shall be provided to connect FFT voice communications to the speaker circuits in order to allow voice paging over the speaker circuit from a telephone handset.

    f. The digital audio message generator shall be of reliable, non-moving parts, and support the digital storage of up to 32 minutes of tones and emergency messages, shall support programming options to string audio segments together to create up to 1000 messages, or to loop messages and parts of messages to repeat for pre-determined cycles or indefinitely.

H. **Basic System Functional Operation:**

1. When a fire alarm condition is detected and reported by one of the system initiating devices, the following functions shall immediately occur:

    a. The System Alarm LED shall flash.

    b. A local piezo electric signal in the control panel shall sound.

    c. The 640-character LCD display shall indicate all information associated with the fire alarm condition, including the type of alarm point and its location within the protected premises.

    d. Printing and history storage equipment shall log the information associated each new fire alarm control panel condition, along with time and date of occurrence.

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e. All system output programs assigned via control-by-event interlock programming to be activated by the particular point in alarm shall be executed, and the associated system outputs (notification appliances and/or relays) shall be activated.

f. The audio portion of the system shall sound the proper audio signal (consisting of tone, voice, or tone and voice) to the appropriate zones.

I. **Software Modifications:**

1. Provide the services of a factory trained and authorized technician to perform all system software modifications, upgrades or changes. Response time of the technician to the site shall not exceed 4 hours.

2. Provide all hardware, software, programming tools and documentation necessary to modify the fire alarm system on site. Modification includes addition and deletion of devices, circuits, zones and changes to system operation and custom label changes for devices or zones. The system structure and software shall place no limit on the type or extent of software modifications on-site. Modification of software shall not require power-down of the system or loss of system fire protection while modifications are being made.

J. **System Capacity and General Operation:**

1. The control panel shall be capable of expansion via up to 10 SLC modules. Each module shall support a maximum of 318 analog/addressable devices for a maximum system capacity of 3180 points. The system shall be capable of 3072 annunciation points per system regardless of the number of addressable devices.

2. The Fire Alarm Control Panel shall include a full featured operator interface control and annunciation panel that shall include a backlit 640-character liquid crystal display, individual, color coded system status LEDs, and a QWERTY style alphanumeric keypad for the field programming and control of the fire alarm system. Said LCD shall also support graphic bit maps capable of displaying the company name and logo of either the owner or installing company.

3. All programming or editing of the existing program in the system shall be achieved without special equipment and without interrupting the alarm monitoring functions of the fire alarm control panel.

4. The FACP shall be able to provide the following software and hardware features:

5. Pre-signal and Positive Alarm Sequence: The system shall provide means to cause alarm signals to only sound in specific areas with a delay of the alarm from 60 to up to 180 seconds after start of alarm processing. In addition, a Positive Alarm Sequence selection shall be available that allows a 15-second time period for acknowledging an alarm signal from a fire detection/initiating device. If the alarm is not acknowledged within 15 seconds, all local and remote outputs shall automatically activate immediately.

6. Smoke Detector Pre-alarm Indication at Control Panel: To obtain early warning of incipient or potential fire conditions, the system shall support a programmable option to determine system response to real-time detector sensing values above the programmed setting. Two levels of Pre-alarm indication shall be available at the control panel: alert and action.

7. Alert: It shall be possible to set individual smoke detectors for pre-programmed pre-alarm thresholds. If the individual threshold is reached, the pre-alarm condition shall be activated.

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8. Action: If programmed for Action and the detector reaches a level exceeding the pre-programmed level, the control panel shall indicate an action condition. Sounder bases installed with either heat or smoke detectors shall automatically activate on action Pre-Alarm level, with general evacuation on Alarm level.

9. The system shall support a detector response time to meet world annunciation requirements of less than 3 seconds.

10. Device Blink Control: Means shall be provided to turn off detector/module LED strobes for special areas.

11. NFPA 72 Smoke Detector Sensitivity Test: The system shall provide an automatic smoke detector test function that meet the requirements of NFPA 72.

12. Programmable Trouble Reminder: The system shall provide means to automatically initiate a reminder that troubles exist in the system. The reminder will appear on the system display and (if enabled) will sound a piezo alarm.

13. On-line or Off-line programming: The system shall provide means to allow panel programming either through an off-line software utility program away from the panel or while connected and on-line. The system shall also support upload and download of programmed database and panel executive system program to a Personal Computer/laptop.

14. History Events: The panel shall maintain a history file of the last 4000 events, each with a time and date stamp. History events shall include all alarms, troubles, operator actions, and programming entries. The control panels shall also maintain a 1000 event Alarm History buffer, which consists of the 1000 most recent alarm events from the 4000 event history file.

15. Smoke Control Modes: The system shall provide means to perform FSCS mode Smoke Control to meet NFPA-92A and 90B and HVAC mode to meet NFPA 90A.

16. The system shall provide means for all SLC devices on any SLC loop to be auto programmed into the system by specific address. The system shall recognize specific device type ID's and associate that ID with the corresponding address of the device.

17. Drill: The system shall support means to activate all silenceable fire output circuits in the event of a practice evacuation or "drill". If enabled for local control, the front panel switch shall be held for a minimum of 2 seconds prior to activating the drill function.

18. Passwords and Users: The system shall support two password levels, master and user. Up to 9 user passwords shall be available, each of which may be assigned access to the programming change menus, the alter status menus, or both. Only the master password shall allow access to password change screens.

19. Two Wire Detection: The system shall support standard two wire detection devices.

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20. Block Acknowledge: The system shall support a block Acknowledge for Trouble Conditions.

21. Sensitivity Adjust: The system shall provide Automatic Detector Sensitivity Adjust based on Occupancy schedules including a Holiday list of up to 15 days.

22. Environmental Drift Control: The system shall provide means for setting Environmental Drift Compensation by device. When a detector accumulates dust in the chamber and reaches an unacceptable level but yet still below the allowed limit, the control panel shall indicate a maintenance alert warning. When the detector accumulates dust in the chamber above the allowed limit, the control panel shall indicate a maintenance urgent warning.

23. Custom Action Messages: The system shall provide means to enter up to 100 custom action messages of up to 160 characters each. It shall be possible to assign any of the 100 messages to any point.

24. Print Functions: The system shall provide means to obtain a variety of reports listing all event, alarm, trouble, supervisory, or security history. Additional reports shall be available for point activation for the last Walk Test performed, detector maintenance report containing the detector maintenance status of each installed addressable detector, all network parameters, all panel settings including broad cast time, event ordering, and block acknowledge, panel timer values for Auto Silence, Silence Inhibit, AC Fail Delay time and if enabled, Proprietary Reminder, and Remote Reminder timers, supervision settings for power supply and printers, all programmed logic equations, all custom action messages, all non-fire and output activations (if pre-programmed for logging) all active points filtered by alarms only, troubles only, supervisory alarms, prealarms, disabled points and activated points, all installed points filtered by SLC points, logic zones, annunciators, releasing zones, special zones, and trouble zones.

25. Local Mode: If communication is lost to the central processor the system shall provide added survivability through the intelligent loop control modules. Inputs from devices connected to the SLC and loop control modules shall activate outputs on the same loop when the inputs and outputs have been set with point programming to participate in local mode or when the type codes are of the same type: that is, an input with a fir alarm type code shall activate an output with a fire alarm type code.

26. Read status preview - enabled and disabled points: Prior to re-enabling points, the system shall inform the user that a disabled device is in the alarm state. This shall provide notice that the device must be reset before the device is enabled thereby avoiding activation of the notification circuits.

27. Custom Graphics: When fitted with an LCD display, the panel shall permit uploading of a custom bit-mapped graphic to the display screen.

28. Multi-Detector and Cooperating Detectors: The system shall provide means to link one detector to up to two detectors at other addresses on the same loop in cooperative multi-detector sensing. There shall be no requirement for sequential addresses on the detectors and the alarm event shall be a result or product of all cooperating detectors chamber readings.

29. Tracking/Latching Duct (ion and photo): The system shall support both tracking and latching duct detectors either ion or photo types.

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30. ACTIVE EVENT: The system shall provide a Type ID called FIRE CONTROL for purposes of air-handling shutdown, which shall be intended to override normal operating automatic functions. Activation of a FIRE CONTROL point shall cause the control panel to (1) initiate the monitor module Control-by-Event, (2) send a message to the panel display, history buffer, installed printer and annunciators, (3) shall not light an indicator at the control panel, (4) Shall display ACTIVE on the LCD as well a display a FIRE CONTROL Type Code and other information specific to the device.

31. NON-FIRE Alarm Module Reporting: A point with a type ID of NON-FIRE shall be available for use for energy management or other non-fire situations. NON-FIRE point operation shall not affect control panel operation nor shall it display a message at the panel LDC. Activation of a NON-FIRE point shall activate control by event logic but shall not cause any indication on the control panel.

32. Security Monitor Points: The system shall provide means to monitor any point as a type security.

33. One-Man Walk Test: The system shall provide both a basic and advanced walk test for testing the entire fire alarm system. The basic walk test shall allow a single operator to run audible tests on the panel. All logic equation automation shall be suspended during the test and while annunciators can be enabled for the test, all shall default to the disabled state. During an advanced walk test, field-supplied output point programming will react to input stimuli such as CBE and logic equations. When points are activated in advanced test mode, each initiating event shall latch the input. The advanced test shall be audible and shall be used for pull station verification, magnet activated tests on input devices, input and output device and wiring operation/verification.

34. Control By Event Functions: CBE software functions shall provide means to program a variety of output responses based on various initiating events. The control panel shall operate CBE through lists of zones. A zone shall become listed when it is added to a point's zone map through point programming. Each input point such as detector, monitor module or panel circuit module shall support listing of up to 10 zones into its programmed zone map.

35. Permitted zone types shall be general zone, releasing zone and special zone. Each output point (control module, panel circuit module) can support a list of up to 10 zones including general zone, logic zone, releasing zone and trouble zone. It shall be possible for output points to be assigned to list general alarm. Non-Alarm or Supervisory points shall not activate the general alarm zone.

36. 1000 General Zones: The system shall support up to 1000 general purpose software zones for linking inputs to outputs. When an input device activates, any general zone programmed into that device's zone map will be active and any output device that has an active general zone in its map will be active. It shall also be possible to use general zone as arguments in logic equations.

37. 1000 Logic Equations: The system shall support up to 1000 logic equations for AND, OR, NOT, ONLY1, ANYX, XZONE or RANGE operators that allow conditional I/O linking. When any logic equation becomes true, all output points mapped to the logic zone shall activate.

38. 10 trouble equations per device: The system shall provide support for up to 10 trouble equations for each device, which shall permit programming parameters to be altered, based on specific fault conditions. If the trouble equation becomes true, all output points mapped to the trouble zone shall activate.

39. Control-By-Time: A time based logic function shall be available to delay an action for a specific period of time based upon a logic input with tracking feature. A latched version shall also be available. Another version of this shall permit activation on specific days of the week or year with ability to set and restore based on a 24 hour time schedule on any day of the week or year.

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40. Multiple agent releasing zones: The system shall support up to 10 releasing zones to protect against 10 independent hazards. Releasing zones shall provide up to three cross-zone and four abort options to satisfy any local jurisdiction requirements.

41. Alarm Verification, by device, with timer and tally: The system shall provide a user-defined global software timer function that can be set for a specific detector or indicating panel module input. The timer function shall delay an alarm signal for a user-specified time period and the control panel shall ignore the alarm verification timer if another alarm is detected during the verification period. It shall also be possible to set a maximum verification count between 0 and 20 with the "0" setting producing no alarm verification. When the counter exceeds the threshold value entered, a trouble shall be generated to the panel.

42. When a fire alarm condition is detected and reported by one of the system initiating devices or appliances, the following functions shall immediately occur:

    a. The system alarm LED shall flash.

    b. A local piezo-electric audible device in the control panel shall sound a distinctive signal.

    c. The 640-character backlit LCD display shall indicate all information associated with the fire alarm condition, including the type of alarm point and its location within the protected premises.

    d. Printing and history storage equipment shall log and print the event information along with a time and date stamp.

    e. All system outputs assigned via preprogrammed equations for a particular point in alarm shall be executed, and the associated system outputs (alarm notification appliances and/or relays) shall be activated.

43. When a trouble condition is detected and reported by one of the system initiating devices or appliances, the following functions shall immediately occur:

    a. The system trouble LED shall flash.

    b. A local piezo-electric audible device in the control panel shall sound a distinctive signal.

    c. The 640-character backlit LCD display shall indicate all information associated with the trouble condition, including the type of trouble point and its location within the protected premises.

    d. Printing and history storage equipment shall log and print the event information along with a time and date stamp.

    e. All system outputs assigned via preprogrammed equations for a particular point in trouble shall be executed, and the associated system outputs (trouble notification appliances and/or relays) shall be activated.

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44. When a supervisory condition is detected and reported by one of the system initiating devices or appliances, the following functions shall immediately occur:

    a. The system trouble LED shall flash.

    b. A local piezo-electric audible device in the control panel shall sound a distinctive signal.

    c. The 640-character backlit LCD display shall indicate all information associated with the supervisory condition, including the type of trouble point and its location within the protected premises.

    d. Printing and history storage equipment shall log and print the event information along with a time and date stamp.

    e. All system outputs assigned via preprogrammed equations for a particular point in trouble shall be executed, and the associated system outputs (notification appliances and/or relays) shall be activated.

K. **Operator Control:**

1. Acknowledge Switch:

    a. Activation of the control panel acknowledge switch in response to new alarms and/or troubles shall silence the local panel piezo electric signal and change the alarm and trouble LEDs from flashing mode to steady-ON mode. If multiple alarm or trouble conditions exist, depression of this switch shall advance the LCD display to the next alarm or trouble condition. In addition, the FACP shall support Block Acknowledge to allow multiple trouble conditions to be acknowledged with a single depression of this switch.

    b. Depression of the Acknowledge switch shall also silence all remote annunciator piezo sounders.

2. Signal Silence Switch: Depression of the Signal Silence switch shall cause all programmed alarm notification appliances and relays to return to the normal condition. The selection of notification circuits and relays that are silence able by this switch shall be fully field programmable within the confines of all applicable standards. The FACP software shall include silence inhibit and auto-silence timers.

3. Drill Switch: Depression of the Drill switch shall activate all programmed notification appliance circuits. The drill function shall latch until the panel is silenced or reset.

4. System Reset Switch: Depression of the System Reset switch shall cause all electronically latched initiating devices to return to their normal condition. Initiating devices shall re-report if active. Active notification appliance circuits shall not silence upon Reset. Systems that de-activate and subsequently re-activate notification appliance circuits shall not be considered equal. All programmed Control-By-Event equations shall be re-evaluated after the reset sequence is complete if the initiating condition has cleared. Non-latching trouble conditions shall not clear and re-report upon reset.

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5. Lamp Test: The Lamp Test switch shall activate all local system LEDs, light each segment of the liquid crystal display and display the panel software revision for service personal.

6. Scroll Display Keys: There shall be Scroll Display keys for FIRE ALARM, SECURITY, SUPERVISORY, TROUBLE, and OTHER EVENTS. Depression of the Scroll Display key shall display the next event in the selected queue allowing the operator to view events by type.

7. Print Screen: Depression of the PRINT SCREEN switch shall send the information currently displayed on the 640-character display to the printer.

L. **Central Processing Unit:**

1. The Central Processing Unit shall communicate with, monitor, and control all other modules within the control panel. Removal, disconnection or failure of any control panel module shall be detected and reported to the system display by the Central Processing Unit.

2. The Central Processing Unit shall contain and execute all control-by-event (including Boolean functions including but not limited to AND, OR, NOT, ANYx, and CROSSZONE) programs for specific action to be taken if an alarm condition is detected by the system. Such control-by-event programs shall be held in non-volatile programmable memory, and shall not be lost with system primary and secondary power failure.

3. The Central Processing Unit shall also provide a real-time clock for time annotation, to the second, of all system events. The time-of-day and date shall not be lost if system primary and secondary power supplies fail.

4. The CPU shall be capable of being programmed on site without requiring the use of any external programming equipment. Systems that require the use of external programmers or change of EPROMs are not acceptable.

5. Consistent with UL864 standards, the CPU and associated equipment are to be protected so that voltage surges or line transients will not affect them.

6. Each peripheral device connected to the CPU shall be continuously scanned for proper operation. Data transmissions between the CPU and peripheral devices shall be reliable and error free. The transmission scheme used shall employ dual transmission or other equivalent error checking techniques.

7. The CPU shall provide an EIA-232 interface between the fire alarm control panel and the UL Listed Electronic Data Processing (EDP) peripherals.

8. The CPU shall provide two EIA-485 ports for the serial connection to annunciation and control subsystem components.

9. The EIA-232 serial output circuit shall be optically isolated to assure protection from earth ground.

10. The CPU shall provide one high-speed serial connection for support of network communication modules.

11. The CPU shall provide double pole relays for FIRE ALARM, SYSTEM TROUBLE, SUPERVISORY, and SECURITY. The SUPERVISORY and SECURITY relays shall provide selection for additional FIRE ALARM contacts.

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M. System Expansion: Design the main FACP and required components so that the system can be expanded in the future (to include the addition of twenty percent more circuits or zones) without disruption or replacement of the existing control panel. This shall include hardware capacity, software capacity and cabinet space.

N. **Addressable Devices - General:**

1. Addressable devices shall provide an address-setting means using rotary decimal switches. Addressable devices that require the address be programmed using a programming utility are not an allowable substitute.

2. Addressable devices shall use simple to install and maintain decade (numbered 0 to 15) type address switches. Devices which use a binary address or special tools for setting the device address, such as a dip switch are not an allowable substitute.

3. Detectors shall be Analog and Addressable, and shall connect to the fire alarm control panel's Signaling Line Circuits.

4. Addressable smoke and thermal detectors shall provide dual (2) status LEDs. Both LEDs shall flash under normal conditions, indicating that the detector is operational and in regular communication with the control panel, and both LEDs shall be placed into steady illumination by the control panel, indicating that an alarm condition has been detected. If required, the flashing mode operation of the detector LEDs can be programmed off via the fire control panel program.

5. The fire alarm control panel shall permit detector sensitivity adjustment through field programming of the system. Sensitivity can be automatically adjusted by the panel on a time-of-day basis.

6. Using software in the FACP, detectors shall automatically compensate for dust accumulation and other slow environmental changes that may affect their performance. The detectors shall be listed by UL as meeting the calibrated sensitivity test requirements of NFPA Standard 72, Chapter 7.

7. The detectors shall be ceiling-mount and shall include a separate twist-lock base which includes a tamper proof feature.

8. The following bases and auxiliary functions shall be available:

   a. Sounder base rated at 85 DBA minimum.

   b. Form-C Relay base rated 30VDC, 2.0A.

   c. Isolator base.

9. The detectors shall provide a test means whereby they will simulate an alarm condition and report that condition to the control panel. Such a test may be initiated at the detector itself (by activating a magnetic switch) or initiated remotely on command from the control panel.

10. Detectors shall also store an internal identifying type code that the control panel shall use to identify the type of device (example: ION, PHOTO, THERMAL).

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O. **Equipment and Material, General:**

1. All equipment and components shall be new, and the manufacturer's current model. The materials, appliances, equipment and devices shall be tested and listed by a nationally recognized approvals agency for use as part of a protected premises protective signaling (fire alarm) system. The authorized representative of the manufacturer of the major equipment, such as control panels, shall be responsible for the satisfactory installation of the complete system.

2. All equipment and components shall be installed in strict compliance with each manufacturer's recommendations. Consult the manufacturer's installation manuals for all wiring diagrams, schematics, physical equipment sizes, etc. before beginning system installation. Refer to the riser/connection diagram for all specific system installation/termination/wiring data.

3. All equipment shall be attached to walls and ceiling/floor assemblies and shall be held firmly in place (e.g., detectors shall not be supported solely by suspended ceilings). Fasteners and supports shall be adequate to support the required load.

P. **Wire:**

1. Wiring shall be in accordance with local, state and national codes (e.g., NEC Article 760) and as recommended by the manufacturer of the fire alarm system. Number and size of conductors shall be as recommended by the fire alarm system manufacturer, but not less than 18 AWG (1.02 mm) for initiating device circuits, signaling line circuits, and notification appliance circuits.

2. All wire and cable shall be listed and/or approved by a recognized testing agency for use with a protective signaling system.

3. Wire and cable not installed in conduit shall have a fire resistance rating suitable for the installation as indicated in NFPA 70 (e.g., FPLR).
4. The system shall permit the use of IDC and NAC wiring in the same conduit with the multiplex communication loop.

5. All field wiring shall be completely supervised. In the event of a primary power failure, disconnected standby battery, removal of any internal modules, or any open circuits in the field wiring; a trouble signal will be activated until the system and its associated field wiring are restored to normal condition.

6. All analog voice speaker and analog telephone circuits shall use twisted/shielded pair to eliminate cross talk.

Q. **Terminal Boxes, Junction Boxes and Cabinets:**

1. All boxes and cabinets shall be UL listed for their intended purpose.

2. Initiating circuits shall be arranged to serve like categories (manual, smoke, waterflow). Mixed category circuitry shall not be permitted except on signaling line circuits connected to intelligent reporting devices.

3. The fire alarm control panel shall be connected to a separate dedicated branch circuit, maximum 20 amperes. This circuit shall be labeled at the main power distribution panel as FIRE ALARM. Fire alarm control panel primary power wiring shall be 12 AWG. The control panel cabinet shall be grounded securely to either a cold water pipe or grounding rod.

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R. **Main Fire Alarm Control Panel or Network Node:**

1. The main FACP Central Console shall contain a microprocessor based Central Processing Unit (CPU). The CPU shall communicate with and control the following types of equipment used to make up the system: intelligent addressable smoke and thermal (heat) detectors, addressable modules, control circuits, and notification appliance circuits, local and remote operator terminals, printers, annunciators, and other system controlled devices.

2. In conjunction with intelligent Loop Control Modules and Loop Expander Modules, the main FACP shall perform the following functions:

   a. Supervise and monitor all intelligent addressable detectors and monitor modules connected to the system for normal, trouble and alarm conditions.

   b. Supervise all initiating signaling and notification circuits throughout the facility by way of connection to addressable monitor and control modules.

   c. Detect the activation of any initiating device and the location of the alarm condition. Operate all notification appliances and auxiliary devices as programmed. In the event of CPU failure, all SLC loop modules shall fallback to degrade mode. Such degrade mode shall treat the corresponding SLC loop control modules and associated detection devices as conventional two-wire operation. Any activation of a detector in this mode shall automatically activate associated Notification Appliance Circuits.

   d. Visually and audibly annunciate any trouble, supervisory, security or alarm condition on operator's terminals, panel display, and annunciators.

S. **System Display:**

1. The system display shall provide all the controls and indicators used by the system operator and may also be used to program all system operational parameters.

2. The display assembly shall contain, and display as required, custom alphanumeric labels for all intelligent detectors, addressable modules, and software zones.

3. The system display shall provide a 640-character backlit alphanumeric Liquid Crystal Display (LCD). It shall also provide ten Light-Emitting-Diodes (LEDs), that indicate the status of the following system parameters: AC POWER, FIRE ALARM, PREALARM, SECURITY, SUPERVISORY, SYSTEM TROUBLE, OTHER EVENT, SIGNALS SILENCED, POINT DISABLED, and CPU FAILURE.

4. The system display shall provide a QWERTY style keypad with control capability to command all system functions, entry of any alphabetic or numeric information, and field programming. Two different password levels with up to ten (one Master and nine User) passwords shall be accessible through the display interface assembly to prevent unauthorized system control or programming.

5. The system display shall include the following operator control switches: ACKNOWLEDGE, SIGNAL SILENCE, RESET, DRILL, and LAMP TEST. Additionally, the display interface shall allow scrolling of events by event type including, FIRE ALARM, SECURITY, SUPERVISORY, TROUBLE, and OTHER EVENTS. A PRINT SCREEN button shall be provided for printing the event currently displayed on the 640-character LCD.

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6. Loop (Signaling Line Circuit) Control Module:

   a. The Loop Control Module shall monitor and control a minimum of 318 intelligent addressable devices. This includes 159 intelligent detectors (Ionization, Photoelectric, or Thermal) and 159 monitor or control modules.

   b. The Loop Control Module shall contain its own microprocessor and shall be capable of operating in a local/degrade mode (any addressable device input shall be capable of activating any or all addressable device outputs) in the unlikely event of a failure in the main CPU.

   c. The Loop Control Module shall provide power and communicate with all intelligent addressable detectors and modules on a single pair of wires. This SLC Loop shall be capable of operating as a NFPA Style 6 (Class B) circuit.

7. The SLC interface board shall be able to drive an NFPA Style 6 twisted unshielded circuit up to 12,500 feet in length. The SLC Interface shall also be capable of driving an NFPA Style 6, no twist, no shield circuit for limited distances determined by the manufacturer. In addition, SLC wiring shall meet the listing requirements for it to exit the building or structure. "T"-tapping shall be allowed in either case.

8. The SLC interface board shall receive analog or digital information from all intelligent detectors and shall process this information to determine whether normal, alarm, or trouble conditions exist for that particular device. Each SLC Loop shall be isolated and equipped to annunciate an Earth Fault condition. The SLC interface board software shall include software to automatically maintain the detector's desired sensitivity level by adjusting for the effects of environmental factors, including the accumulation of dust in each detector. The analog information may also be used for automatic detector testing and the automatic determination of detector maintenance requirements.

T. **Enclosures:**

1. The control panel shall be housed in a UL-listed cabinet suitable for surface or semi-flush mounting. The cabinet and front shall be corrosion protected, given a rust-resistant prime coat, and manufacturer's standard finish.

2. The back box and door shall be constructed of 0.060 steel with provisions for electrical conduit connections into the sides and top.

3. The door shall provide a key lock and include a transparent opening for viewing all indicators. For convenience, the door shall have the ability to be hinged on either the right or left-hand side.

4. The control unit shall be modular in structure for ease of installation, maintenance, and future expansion.

U. **Digital Voice Command Center:**

1. The Digital Voice Command Center located with the FACP, shall contain all equipment required for all audio control, emergency telephone system control, signaling and supervisory functions. This shall include speaker zone indication and control, telephone circuit indication and control, digital voice units, microphone and main telephone handset.

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2. Function: The Voice Command Center equipment shall perform the following functions:

3. Operate as a supervised multi-channel emergency voice communication system.

4. Operate as a two-way emergency telephone system control center.

5. Audibly and visually annunciate the active or trouble condition of every speaker circuit and emergency telephone circuit.

6. Audibly and visually annunciate any trouble condition for digital tone and voice units required for normal operation of the system.

7. Provide all-call Emergency Paging activities through activation of a single control switch.

8. As required, provide vectored paging control to specific audio zones via dedicated control switches.

9. Provide a factory recorded "library" of voice messages and tones in standard WAV. File format, which may be edited and saved on a PC running a current Windows® operating system.

10. Provide a software utility capable of off-line programming for the VCC operation and the audio message files. This utility shall support the creation of new programs as well as editing and saving existing program files. Uploading or downloading the VCC shall not inhibit the emergency operation of other nodes on the fire alarm network.

11. Support an optional mode of operation with four analog audio outputs capable of being used with UL 864 fire-listed analog audio amplifiers and SCL controlled switching.

12. The Digital Voice Command shall be modular in construction, and shall be capable of being field programmable without requiring the return of any components to the manufacturer and without requiring use of any external computers or other programming equipment.

13. The Digital Voice Command and associated equipment shall be protected against unusually high voltage surges or line transients.

V. **Power Supply:**

1. The Addressable Main Power Supply shall operate on 120/240 VAC, 50/60 Hz, and shall provide all necessary power for the FACP.

2. The Addressable Main Power Supply shall provide the required power to the CPU using a switching 24 VDC regulator and shall incorporate a battery charger for 24 hours of standby power using dual-rate charging techniques for fast battery recharge.

3. The Addressable Main Power Supply shall provide a battery charger for 24 hours of standby using dual-rate charging techniques for fast battery recharge. The supply shall be capable of charging batteries ranging in capacity from 7-200 amp-hours within a 48-hour period.

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4. The Addressable Main Power Supply shall provide a very low frequency sweep earth detect circuit, capable of detecting earth faults.

5. The Addressable Main Power Supply shall be power-limited per UL864 requirements.

W. **Field Charging Power Supply (FCPS):**

1. The FCPS is a device designed for use as either a remote 24 volt power supply or used to power Notification Appliances.

2. The FCPS shall offer up to 6.0 amps (4.0 amps continuous) of regulated 24 volt power. It shall include an integral charger designed to charge 7.0 amp hour batteries and to support 60 hour standby.

3. The Field Charging Power Supply shall have two input triggers. The input trigger shall be a Notification Appliance Circuit (from the fire alarm control panel) or a relay. Four outputs (two Style Y or Z and two style Y) shall be available for connection to the Notification devices.

4. The FCPS shall include an attractive surface mount backbox.

5. The Field Charging Power Supply shall include the ability to delay the AC fail delay per NFPA requirements.

6. The FCPS include power limited circuitry, per 1995 UL standards.

X. **System Circuit Supervision:**

1. The FACP shall supervise all circuits to intelligent devices, transponders, annunciators and peripheral equipment and annunciate loss of communication with these devices. The CPU shall continuously scan above devices for proper system operation and upon loss of response from a device shall sound an audible trouble, indicate which device or devices are not responding and print the information in the history buffer and on the printer.

2. Transponders that lose communication with the CPU shall sound an audible trouble and light an LED indicating loss of communications.

3. Sprinkler system valves, standpipe control valves, PIV, and main gate valves shall be supervised for off-normal position.

4. All speaker and emergency phone circuits shall be supervised for opens and shorts. Each transponder speaker and emergency phone circuit shall have an individual ON/OFF indication (green LED).

Y. **Field Wiring Terminal Blocks:**

1. All wiring terminal blocks shall be the plug-in/removable type and shall be capable of terminating up to 12 AWG wire. Terminal blocks that are permanently fixed to the PC board are not acceptable.

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Z. **Audio Amplifiers:**

1. The Audio Amplifiers will provide Audio Power (@25 Volts RMS) for distribution to speaker circuits.

2. Multiple audio amplifiers may be mounted in a single enclosure, either to supply incremental audio power, or to function as an automatically switched backup amplifier(s).

3. The audio amplifier shall include an integral power supply, and shall provide built-in LED indicators for the following conditions:

   a. Earth Fault on DAP A (Digital Audio Port A)
   b. Earth Fault on DAP B (Digital Audio Port B)
   c. Audio Amplifier Failure Detected Trouble
   d. Active Alarm Bus input
   e. Audio Detected on Aux Input A
   f. Audio Detected on Aux Input B
   g. Audio Detected on Firefighter's Telephone Riser
   h. Receiving Audio from digital audio riser
   i. Short circuit on speaker circuit 1
   j. Short circuit on speaker circuit 2
   k. Short circuit on speaker circuit 3
   l. Short circuit on speaker circuit 4
   m. Data Transmitted on DAP A
   n. Data Received on DAP A
   o. Data Transmitted on DAP B
   p. Data Received on DAP B
   q. Board failure
   r. Active fiber optic media connection on port A (fiber optic media applications)
   s. Active fiber optic media connection on port B (fiber optic media applications)
   t. Power supply Earth Fault
   u. Power supply 5V present
   v. Power supply conditions - Brownout, High Battery, Low Battery, Charger Trouble

4. The audio amplifier shall provide the following built-in controls:

   a. Amplifier Address Selection Switches
   b. Signal Silence of communication loss annunciation Reset
   c. Level adjustment for background music
   d. Enable/Disable for Earth Fault detection on DAP A
   e. Enable/Disable for Earth Fault detection on DAP A
   f. Switch for 2-wire/4-wire FFT riser

5. Adjustment of the correct audio level for the amplifier shall not require any special tools or test equipment.

6. Includes audio input and amplified output supervision, back up input, and automatic switch over function, (if primary amplifier should fail).

7. System shall be capable of backing up digital amplifiers.

8. One-to-one backup shall be provided by either a plug-in amplifier card or a designated backup amplifier of identical model as the primary amplifier.

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9. One designated backup amplifier shall be capable of backing up multiple primary amplifiers mounted in the same or adjacent cabinets.

10. Multi-channel operation from a single amplifier shall be supported by the addition of an optional plug-in amplifier card.

AA. **Audio Message Generator (Prerecorded Voice)/Speaker Control:**

1. Each initiating zone or intelligent device shall interface with an emergency voice communication system capable of transmitting a prerecorded voice message to all speakers in the building.

2. Actuation of any alarm initiating device shall cause a prerecorded message to sound over the speakers. The message shall be repeated four (4) times. Pre- and post-message tones shall be supported.

3. A built-in microphone shall be provided to allow paging through speaker circuits.

4. System paging from emergency telephone circuits shall be supported.

5. The audio message generator shall have the following indicators and controls to allow for proper operator understanding and control:

   a. LED Indicators:
   b. Lamp Test
   c. Trouble
   d. Off-Line Trouble
   e. Microphone Trouble
   f. Phone Trouble
   g. Busy/Wait
   h. Page Inhibited
   i. Pre/Post Announcement Tone

6. Controls with associated LED Indicators:

AB. **Speaker Switches/Indicators:**

1. The speaker circuit control switches/indicators shall include visual indication of active and trouble status for each speaker circuit in the system.

2. The speaker circuit control panel shall include switches to manually activate or deactivate each speaker circuit in the system.

3. Emergency Two-Way Telephone Control Switches/Indicators

4. The emergency telephone circuit control panel shall include visual indication of active and trouble status for each telephone circuit in the system.

5. The telephone circuit control panel shall include switches to manually activate or deactivate each telephone circuit in the system.

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AC. **Field Programming:**

1. The system shall be programmable, configurable and expandable in the field without the need for special tools, laptop computers, or other electronic interface equipment. There shall be no firmware changes required to field modify the system time, point information, equations, or annunciator programming/information.

2. It shall be possible to program through the standard FACP keyboard all system functions.

3. All field defined programs shall be stored in non-volatile memory.

4. Two levels of password protection shall be provided in addition to a key-lock cabinet. One level shall be used for status level changes such as point/zone disable or manual on/off commands (Building Manager). A second (higher-level) shall be used for actual change of the life safety program (installer). These passwords shall be five (5) digits at a minimum. Upon entry of an invalid password for the third time within a one minute time period an encrypted number shall be displayed. This number can be used as a reference for determining a forgotten password.

5. The system programming shall be "backed" up via an upload/download program, and stored on compatible removable media. A system back-up disk shall be completed and given in duplicate to the building owner and/or operator upon completion of the final inspection. The program that performs this function shall be "non-proprietary", in that, it shall be possible to forward it to the building owner/operator upon his or her request.

6. The installer's field programming and hardware shall be functionally tested on a computer against known parameters/norms which are established by the FACP manufacturer. A software program shall test Input-to-Output correlations, device Type ID associations, point associations, time equations, etc. This test shall be performed on an IBM-compatible PC with a verification software package. A report shall be generated of the test results and two copies turned in to the engineer(s) on record.

AD. **Specific System Operations:**

1. Smoke Detector Sensitivity Adjust: Means shall be provided for adjusting the sensitivity of any or all analog intelligent smoke detectors in the system from the system keypad or from the keyboard of the video terminal. Sensitivity range shall be within the allowed UL window.

2. Alarm Verification: Each of the Intelligent Addressable Smoke Detectors in the system may be independently selected and enabled to be an alarm verified detector. The alarm verification function shall be programmable from 5 to 50 seconds and each detector shall be able to be selected for verification during the field programming of the system or anytime after system turn-on. Alarm verification shall not require any additional hardware to be added to the control panel. The FACP shall keep a count of the number of times that each detector has entered the verification cycle. These counters may be displayed and reset by the proper operator commands.

AE. **System Point Operations:**

1. Any addressable device in the system shall have the capability to be enabled or disabled through the system keypad or video terminal.

2. System output points shall be capable of being turned on or off from the system keypad or the video terminal.

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3. Point Read: The system shall be able to display the following point status diagnostic functions without the need for peripheral equipment. Each point shall be annunciated for the parameters listed:

   a. Device Status.
   b. Device Type.
   c. Custom Device Label.
   d. Software Zone Label.
   e. Device Zone Assignments.
   f. Analog Detector Sensitivity.
   g. All Program Parameters.

AF. **System Status Reports: Upon command from an operator of the system, a status report will be generated and printed, listing all system statuses:**

1. System History Recording and Reporting: The fire alarm control panel shall contain a history buffer that will be capable of storing up to 4000 system events. Each of these events will be stored, with time and date stamp, until an operator requests that the contents be either displayed or printed. The contents of the history buffer may be manually reviewed; one event at a time, and the actual number of activations may also be displayed and or printed. History events shall include all alarms, troubles, operator actions, and programming entries.

2. The history buffer shall use non-volatile memory. Systems which use volatile memory for history storage are not acceptable.

3. Automatic Detector Maintenance Alert: The fire alarm control panel shall automatically interrogate each intelligent system detector and shall analyze the detector responses over a period of time.

4. If any intelligent detector in the system responds with a reading that is below or above normal limits, then the system will enter the trouble mode, and the particular Intelligent Detector will be annunciated on the system display, and printed on the optional system printer. This feature shall in no way inhibit the receipt of alarm conditions in the system, nor shall it require any special hardware, special tools or computer expertise to perform.

5. The system shall include the ability (programmable) to indicate a "pre-alarm" condition. This will be used to alert maintenance personal when a detector is at 80% of its alarm threshold in a 60 second period.

AG. **Speakers:**

1. All speakers shall operate on 25 VRMS or with field selectable output taps from 0.5 to 2.0 Watts.

2. Speakers in corridors and public spaces shall produce a nominal sound output of 84 dBA at 10 feet (3m).

3. Frequency response shall be a minimum of 400 HZ to 4000 HZ.

4. The back of each speaker shall be sealed to protect the speaker cone from damage and dust.

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AH. **Audible/Visual Combination Devices:**

1. Shall meet the applicable requirements of Section A listed above for audibility.

2. Shall meet the requirements of Section B listed above for visibility.

3. Strobe lights shall meet the requirements of the ADA, UL Standard 1971, be fully synchronized, and shall meet the following criteria:

   a. The maximum pulse duration shall be 2/10 of one second.

   b. Strobe intensity shall meet the requirements of UL 1971.

   c. The flash rate shall meet the requirements of UL 1971

4. Strobes: Provide unique strobes to alert hearing-impaired occupants. Mass Notification Strobes shall be a component fo an emergency messaging notification type appliance that includes speakers, fire alarm strobes, and mass notification strobes.

AI. **Waterflow Indicator:**

1. Waterflow Switches shall be an integral, mechanical, non-coded, non-accumulative retard type.

2. Waterflow Switches shall have an alarm transmission delay time which is conveniently adjustable from 0 to 60 seconds. Initial settings shall be 30-45 seconds.

3. All waterflow switches shall come from a single manufacturer and series.

4. Waterflow switches shall be provided and connected under this section but installed by the mechanical contractor.

5. Where possible, locate waterflow switches a minimum of one (1) foot from a fitting which changes the direction of the flow and a minimum of three (3) feet from a valve.

AJ. **Sprinkler and Standpipe Valve Supervisory Switches:**

1. Each sprinkler system water supply control valve riser, zone control valve, and standpipe system riser control valve shall be equipped with a supervisory switch. Standpipe hose valves, and test and drain valves shall not be equipped with supervisory switches.

2. PIV (post indicator valve) or main gate valves shall be equipped with a supervisory switch.

3. The switch shall be mounted so as not to interfere with the normal operation of the valve and adjusted to operate within two revolutions toward the closed position of the valve control, or when the stem has moved no more than one-fifth of the distance from its normal position.

4. The supervisory switch shall be contained in a weatherproof aluminum housing, which shall provide a 3/4 inch (19 mm) conduit entrance and incorporate the necessary facilities for attachment to the valves. The switch housing shall be finished in red baked enamel.

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5. The entire installed assembly shall be tamper proof and arranged to cause a switch operation if the housing cover is removed, or if the unit is removed from its mounting.

6. Valve supervisory switches shall be provided and connected under this section and installed by mechanical contractor.

AK. **Alphanumeric LCD Type Annunciator:**

1. The alphanumeric display annunciator shall be a supervised, remotely located back-lit LCD display containing a minimum of eighty (80) characters for alarm annunciation in clear English text.

2. The LCD annunciator shall display all alarm and trouble conditions in the system.

3. An audible indication of alarm shall be integral to the alphanumeric display.

4. The display shall be UL listed for fire alarm application.

5. It shall be possible to connect up to 32 LCD displays and be capable of wiring distances up to 6,000 feet from the control panel.

6. The annunciator shall connect to a separate, dedicated "terminal mode" EIA-485 interface. This is a two-wire loop connection and shall be capable of distances to 6,000 feet. Each terminal mode LCD display shall mimic the main control panel.

7. The system shall allow a minimum of 32 terminal mode LCD annunciators. Up to 10 LCD annunciators shall be capable of the following system functions: Acknowledge, Signal Silence and Reset, which shall be protected from unauthorized use by a key switch or password.

8. The LED annunciator shall offer an interface to a graphic style annunciator and provide each of the features listed above.

AL. **Universal Digital Alarm Communicator Transmitter (UDACT). The UDACT is an interface for communicating digital information between a fire alarm control panel and an UL-Listed central station.**

1. The UDACT shall be compact in size, mounting in a standard module position of the fire alarm control cabinet. Optionally, the UDACT shall have the ability for remote mounting, up to 6,000 feet from the fire alarm control panel. The wire connections between the UDACT and the control panel shall be supervised with one pair for power and one pair for multiplexed communication of overall system status. Systems that utilize relay contact closures are not acceptable.

2. The UDACT shall include connections for dual telephone lines (with voltage detect), per UL/NFPA/FCC requirements. It shall include the ability for split reporting of panel events up to three different telephone numbers.

3. The UDACT shall be completely field programmable from a built-in keypad and 4 character red, seven segment display.

4. The UDACT shall be capable of transmitting events in at least 15 different formats. This ensures compatibility with existing and future transmission formats.

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5. Communication shall include vital system status such as:

   a. Independent Zone (Alarm, trouble, non-alarm, supervisory)
   b. Independent Addressable Device Status
   c. AC (Mains) Power Loss
   d. Low Battery and Earth Fault
   e. System Off Normal
   f. 12 and 24 Hour Test Signal
   g. Abnormal Test Signal (per UL requirements)
   h. EIA-485 Communications Failure
   i. Phone Line Failure

6. The UDACT shall support independent zone/point reporting when used in the Contact ID format. In this format the UDACT shall support transmission of up to 2,040 points. This enables the central station to have exact details concerning the origin of the fire or response emergency.

7. An IP Communicator option shall be available to interface to the UDACT and be capable of transmitting signals over the internet/intranet to a compatible receiver.

AM. **Addressable Manual Fire Alarm Box (Manual Station):**

1. Addressable manual fire alarm boxes shall, on command from the control panel, send data to the panel representing the state of the manual switch and the addressable communication module status. They shall use a key operated test-reset lock, and shall be designed so that after actual emergency operation, they cannot be restored to normal use except by the use of a key.

2. All operated stations shall have a positive, visual indication of operation and utilize a key type reset.

3. Manual fire alarm boxes shall be constructed of Lexan with clearly visible operating instructions provided on the cover. The word FIRE shall appear on the front of the stations in raised letters, 1.75 inches (44 mm) or larger.

AN. **Intelligent Photoelectric Smoke Detector:**

1. The detectors shall use the photoelectric (light-scattering) principal to measure smoke density and shall, on command from the control panel, send data to the panel representing the analog level of smoke density.

AO. **Intelligent Duct Smoke Detector:**

1. The smoke detector housing shall accommodate either an intelligent ionization detector or an intelligent photoelectric detector, of that provides continuous analog monitoring and alarm verification from the panel.

2. When sufficient smoke is sensed, an alarm signal is initiated at the FACP, and appropriate action taken to change over air handling systems to help prevent the rapid distribution of toxic smoke and fire gases throughout the areas served by the duct system.

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AP. **Addressable Dry Contact Monitor Module:**

1. Addressable monitor modules shall be provided to connect one supervised IDC zone of conventional alarm initiating devices (any N.O. dry contact device) to one of the fire alarm control panel SLCs.

2. The IDC zone shall be suitable for Style D or Style B operation. An LED shall be provided that shall flash under normal conditions, indicating that the monitor module is operational and in regular communication with the control panel.

3. For difficult to reach areas, the monitor module shall be available in a miniature package and shall be no larger than 2-3/4 inch (70 mm) x 1-1/4 inch (31.7 mm) x 1/2 inch (12.7 mm). This version need not include Style D or an LED.

4. For multiple dry contact monitoring a module shall be available that provides 10 Style B or 5 Style D input circuits.

AQ. **Addressable Control Module:**

1. Addressable control modules shall be provided to supervise and control the operation of one conventional NACs of compatible, 24 VDC powered, polarized audio/visual notification appliances.

2. The control module NAC may be wired for Style Z or Style Y (Class A/B) with a current rating of 2 Amps for Style Z and 3 Amps for Style Y. For speaker applications the module is rated for 50 watts at 25 or 70.7.

3. Audio/visual power shall be provided by a separate supervised power circuit from the main fire alarm control panel or from a supervised UL listed remote power supply.

4. The control module shall be suitable for pilot duty applications and rated for a minimum of 0.6 amps at 30 VDC.

5. For multiple circuit control a module shall be available that provides 6 Style B or 3 Style D control circuits.

AR. **Addressable Relay Module:**

1. Addressable Relay Modules shall be available for HVAC control and other building functions. The module shall provide two form C relays rated at up to 3 Amps resistive and up to 2.0 Amps inductive. The relay coil shall be magnetically latched to reduce wiring connection requirements, and to insure that 100% of all auxiliary devices energize at the same time on the same pair of wires.

2. For multiple relay control a module shall be available that provides 6 programmable Form-C relays.

AS. **Battery:**

1. Shall be 12 volt, Gell-Cell type.

2. Battery shall have sufficient capacity to power the fire alarm system for not less than twenty-four hours plus 5 minutes of alarm upon a normal AC power failure.

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3. The batteries are to be completely maintenance free. No liquids are required. Fluid level checks refilling, spills and leakage shall not be required.

AT. **External Battery Charger:**

1. Shall be completely automatic, with constant potential charger maintaining the battery fully charged under all service conditions. Charger shall operate from a 120/240-volt 50/60 hertz source.

2. Shall be rated for fully charging a completely discharged battery within 48 hours while simultaneously supplying any loads connected to the battery.

3. Shall have protection to prevent discharge through the charger.

4. Shall have protection for overloads and short circuits on both AC and DC sides.

AU. **Building Lockdown System Description:**

1. The system shall include pushbuttons mounted where shown on the drawings to activate the building lock down system. The buttons shall be clearly labeled to indicate their building lockdown function.

2. The building lockdown system shall consist of pushbutton assemblies, interfaces to the building security system, interface to the District data network.

3. The pushbuttons shall be located in the administration area where shown on the Drawings. The under desk activated pushbutton shall be mounted under the desk top where shown on the drawings. The switch shall be recessed to prevent accidental activation of the switch. Activation of any of the pushbuttons shall:

   a. Partition the building by automatically releasing all doors held open by magnetic hold opens.

   b. The fire alarm/mass notification system shall upon notification of a lockdown:

      1) Activate visual strobes throughout the building.
      2) Activate prerecorded announcements throughout the building.
      3) Send a signal to the building security system.

   c. Upon receipt of a building lockdown signal, the building security system shall:

      1) Cause all of the exterior card readers to go into the lock down mode where only the highest level of cards are approved for access.
      2) Automatically send emails and text messages to Smart phones or tablets to alert the School District personnel upon activation of the building lock down system.

4. Cancellation of the building lock down status shall only be permitted through the integrated fire alarm/mass notification system software. A password shall be required.

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PART 2 - PRODUCTS

2.01 MANUFACTURER

A. **Acceptable Manufacturers:** Subject to compliance with requirements of the Contract Documents, the acceptable manufacturer is as follows to be compatible with District standards:

1. Notifier

2.02 SYSTEM REQUIREMENTS

A. **Transient Protection:**

1. Provide transient protection for all devices in accordance with UL 864.

B. **Distributed Networked Fire Alarm System:** Expandable Emergency Evacuation Fire Alarm system with individual intelligent devices that include, but are not limited to, alarm initiating devices, alarm notification appliances, control panels, auxiliary control devices (including sprinkler monitor modules), annunciators, and power supplies, all devices shown on Drawings and wiring, conduit, and equipment specified herein.

2.03 CONTROL EQUIPMENT

A. **General Requirements:**

1. Provide all upgrades as required to connect all devices as shown on the Drawings, plus 20 percent future capacity.

2. Replace existing fire alarm control panel batteries sized by the manufacturer as required for existing and new devices. Provide battery calculations to the "Authority Having Jurisdiction" and include them in the O&M manuals.

~~2.04 VOICE EVACUATION CONTROL PANEL (1 Required)~~

~~A. General Requirements:~~

~~1. First Command Emergency Communication System (NFC). System shall contain all components necessary for a complete voice evacuation and mass notification system. NFC shall consist of the following units and components:~~

~~a. System cabinet.~~

~~1) Surface mount box with inner door and door, texture finished in black color.~~

~~b. Power Supply Module (PM-9) with batteries.~~

~~1) Power-saving switching technology using no step-down transformers.~~

~~2) 9-amp continuous-rated output to supply all power necessary under normal and emergency conditions for INCC Command Center Modules.~~

~~3) Intelligent battery charger with capacity to charge up to 55 amp-hour batteries while under full load.~~

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c. Microphone Assembly (INCC-MIC):

1) Noise canceling microphone with push-to-talk button.

2) Microphone shall be complete with mounting cabinet for mounting on inner door of INCC.

2. Panel shall contain voice communication as follows :

a. Provide one-way voice communication and tone generating capabilities.

b. A central audio control module shall be provided for the necessary alarm message/tone generation, main and remote microphone connections, music inputs and mixer/pre-amplifier circuits. Continuous supervision shall be provided. Audio outputs shall have individual gain control.

c. A hand-held, push-to-talk microphone shall be provided recessed within a protective panel-mounted enclosure. The microphone shall be a dynamic communication type with a frequency range of 200 Hz to 4000 Hz and shall be equipped with five foot coiled cable. An LED indicator shall be provided to indicate microphone push-to-talk button has been pressed and speaker circuits are ready for transmission. Microphone shall be supervised from disconnection.

d. An audio control switch module shall be furnished to provide manual selection of the audio functions. These switches and associated LED indicators shall be supervised from disarrangement or failure.

e. Audio power amplifiers shall be furnished with self-contained filtered 24VDC power supply, transformer and, amplifier monitor circuits. Amplifiers shall provide a 25 VRMS output with a frequency response of 120Hz to 12,000Hz. Provide a sufficient quantity of amplifiers to operate all system speakers simultaneously plus ten(10) percent space capacity.

f. Speaker circuits shall be supplied which are capable of supplying audio signals at 25 VRMS supplied by the system amplifiers. Supervision for open, short or ground fault conditions shall be provided. Individual and distinct trouble indications shall be provided for each fault. Provide one circuit for each zone or area of distinct communication.

g. Tones: Field selectable digitized tones for alarm or auxiliary requirements shall be available. Tone requirements are as follows.

1) The Slow Whoop shall be a slowly ascending tone from 200 to 830 HZ in 2.5 seconds.

2) The Wail shall ascend and descend from 600 to 940 HZ.

3) The Beep shall be a 470 HZ tone. The time duration shall be 0.7 seconds on and 0.7 seconds off.

4) The Horn shall be a Temporal 470 HZ tone. (STANDARD)

5) The Stutter shall be a 470 HZ tone which is on for 100 milliseconds and off for 100 milliseconds.

6) The Chime shall be a 700 HZ tone with a 1.5 second delay time.

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7) The Coded Horn shall be a 470 HZ tone designed specifically for use on a coded system.

8) The Hi/Lo shall be a free running tone with a high frequency of 544 HZ and a low frequency of 440 HZ. The "on time" (Hi) shall be 100 milliseconds while the "off time" (Lo) is 400 milliseconds.

h. A pre-recorded digitized voice message capability shall be provided for automatic transmission to building occupants during alarm conditions. Two (2) messages shall be provided, one for alarm, one for testing. This message player shall not rely on a tape or other mechanical means of transmitting the evacuation message. Those systems that do use tape players must provide a backup player designed to automatically operate should the primary device jam or otherwise fail to operate. A standard evacuation message shall be provided under this contract however, the message player must be capable of transmitting a customized message 24 seconds long (minimum).

1) A self-contained speaker will provide testing of the message(s) without disturbing the occupants of the facility.

i. Automatic Voice Evacuation Sequence

1) The audio alarm signal shall consist of an alarm tone for a maximum of 10 seconds followed by automatic pre-selected voice evacuation messages. At the end of each voice evacuation message, the alarm tone shall resume. The alarm tones shall sound until the alarm silence switch at the fire alarm control panel has been operated.

2) All audio alarm operations (speaker circuit selection and alarm tone/voice message timing variations) shall be activated by the system software so that any required future changes to the evacuation sequence can be facilitated by authorized personnel without any component rewiring.

j. Manual Voice Paging Sequence

1) The system shall be configured to allow selective voice paging. Upon activation of any speaker manual control switch, two (2) seconds of tone shall sound over the speakers indicating an impending voice message will occur.

2) If any speaker manual control switches are activated, the control panel operator shall be able to make announcements via the push-to-talk paging microphone over the preselected speakers.

3) Facility for total building evacuation and paging shall be provided to allow for activation of speakers. This shall be accomplished by the means of an "All Circuit" switch.

3. First Command Emergency Communication System (NFC) shall be a Notifier NFC-50/100, surface mounted in Main Office Workroom in location shown on the Drawings.

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~~2.05 LIQUID CRYSTAL DISPLAY REMOTE SERIAL ANNUNCIATOR (1 Required)~~

~~A. General Requirements:~~

~~1. 80 character LCD (liquid crystal display) with LCD test switch and alarm silence, system reset, alarm initiate switches, and "Power On" LED.~~

~~2. LCD units mount in recessed wall box. Provide required wiring from fire alarm control panel to LCD annunciator.~~

~~3. Provide area map and frame at each annunciator(s) as specified in this section.~~

(Revised in Addendum No. 2)

2.06 AUTOMATIC DETECTION

A. **Addressable Smoke Detector:** Furnish and install addressable photoelectric smoke detector with automatic environmental compensation that performs a self-test daily. Detectors shall have a minimum of 3 sensitivity levels.

1. Detectors shall be UL listed, Standard 268, and shall be documented compatible with control equipment to which it is connected. Detectors shall obtain their operating power from fire alarm panel supervised detection loop. Operating voltage shall be 24 VDC (nominal).

2. Detector Base shall be interchangeable and compatible with ionization detectors. Their light source shall be pulsed infrared LED for low power consumption under standby conditions at 24 VDC. Removal of detector head shall cause trouble signal to be generated at fire alarm control panel.

3. Each detector shall have flashing status indicating LED for visual supervision. When detector is actuated, flashing LED will latch on steady and at full brilliance. The detector may be reset by actuating fire alarm control panel reset switch.

4. To minimize nuisance alarms, voltage and RF transient suppression techniques shall be employed as well as smoke verification circuit and insect screen.

5. Where ceiling mounted smoke detectors including duct detector control other wiring, auxiliary contacts (size as required) shall be provided with relay detector base and shall control the following:

   a. Coiling Counter Doors
   b. Overhead Coiling Doors
   c. Smoke/Fire Dampers
   d. Roof Smoke Hatch

B. **Duct Detectors:** Analog addressable photoelectric smoke type as specified. Duct detectors shall be furnished, wired, and installed in ducts by Electrical Contractor in openings in ducts provided by Mechanical Contractor. Mechanical Contractor shall provide mounting space for detectors as coordinated by the Electrical Contractor.

C. **Duct Detector Locations:** Locations indicated on Drawings are approximate. Actual locations shall be coordinated between both Electrical and Mechanical Contractors considering both operation requirements and maintenance accessibility.

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D. **Duct Detector Control:** Each duct type detector shall have two sets of contacts (one set of closed contacts shall be wired in starter control circuit of each respective air handling motor).

E. **Duct detectors shall be as follows:**

1. Duct Smoke Detectors shall be addressable with software programmable 10A relay with environmental compensation. Locate duct smoke detectors within five feet of each fire/smoke damper.

2. Detectors shall be designed to ignore invisible airborne particles or smoke densities that are below factory set alarm point. No radioactive materials shall be used.

3. Detector construction shall consist of a mounting base with twist-lock detecting head. Contacts between base and head shall be of the bifurcated type using spring-type, self-wiping contacts. Removal of detector head shall interrupt the supervisory circuit of fire alarm detection loop and cause a trouble signal at fire alarm control panel.

4. Detector housing couplings shall be slotted to ensure proper alignment of sampling and exhaust tubes.

5. Detector shall have alarm LED visible through transparent front cover. Detectors shall obtain their operating power from the supervised current in fire alarm loop

6. Remote Alarm/Test Station: Each duct detector shall be provided with a remote test station with pilot light indicator in flush stainless steel plate. Locate at door of mechanical room or in ceiling tile below unit when located above lay-in ceiling. Verify exact mounting location with Architect. Engrave each plate to indicate function.

7. Where duct detectors control fire/smoke dampers or fan motor, 2 additional auxiliary contacts rated at 10 amp, 150 volt, shall be furnished to control circuits.

8. Contractor shall review both Mechanical and Electrical drawings for fire/smoke damper locations.

2.07 SMOKE DOOR HOLDERS

A. **General Requirements:** Smoke door holders shall be electro-magnetic type designed to operate on 24 volts DC or AC and shall be furnished and located by General Contractor with conduit, wire, auxiliary relays, power supplies, and electrical connections by Electrical Contractor at doors indicated on Drawings. Electro-magnetic door holders shall be connected to auxiliary relay in fire alarm control panel so that they will be de-energized, thus allowing associated smoke doors to close when any fire alarm is sounded or upon power failure. The installation of electro-magnetic door holder units shall be done in accordance with manufacturer's recommendations and in cooperation with other contractors. Verify each exact location with General Contractor before installation.

2.08 SPRINKLERS

A. **Sprinkler Flow Indicators:** Furnished and installed by Sprinkler (Mechanical) Contractor. Electrical Contractor shall furnish and install all conduit and wire. Provide addressable monitor modules, and make connections as required to tie into fire alarm system.

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B. **Sprinkler Gate and P.I.V. Valves (Tamper Switches):** Furnish and install by Sprinkler (Mechanical) Contractor. Electrical Contractor shall connect flow and tamper switches to fire alarm system with addressable monitor module, as shown on Drawings. This devices shall show individual zone trouble condition and shall not initiate general alarm.

2.09 MANUAL STATIONS

A. **General Requirements:** Addressable Pull Stations, with dual action and key locking feature, with STI-4100 break glass cover.

2.10 HEAT DETECTOR

A. **Addressable Heat Detector:** 135-degree fixed temperature.

B. **Addressable Heat Detector:** 200-degree fixed high temperature, with addressable monitor module.

2.11 KITCHEN EXHAUST HOODS

A. **General Requirements:** Connect exhaust hood panel to fire alarm system using addressable monitor and control modules as required. Electrical Contractor shall connect a gas solenoid (solenoid by Mechanical Contractor) to hood extinguishing system control panel. Solenoid shall shut off gas only when fire suppression system is activated (or upon power failure), not on general alarm condition of fire alarm system.

2.12 FIRE SHUTTERS

A. **General Requirements:**

1. Fire Shutters: Fire Shutters shall be electric type designed to operate on 120 volts, furnished and installed by General Contractor with conduit, wire, and electrical connection by Electrical Contractor at locations indicated on Drawings.

    a. In each space containing a fire shutter, Electrical Contractor shall provide smoke detector(s), with auxiliary contacts, and a 120 volt disconnect at each shutter. Provide a 120 volt connection from the receptacle circuit in the room through smoke detector and disconnect to fire shutter. Shutter will automatically close upon general alarm or local detection of smoke.

    b. Installation shall be performed in accordance with manufacturer's recommendations and in cooperation with General Contractor.

2.13 SMOKE DAMPERS

A. **General Requirements:**

1. Independent Smoke/Fire Dampers: Independent smoke/fire dampers shall be electric type designed to operate on 120 volts, furnished and located by Mechanical Contractor with conduit, wire, and electrical connection by Electrical Contractor at locations indicated on Drawings.

    a. Electrical Contractor shall provide 120 volt disconnect switch at each damper and shall provide 120 volt circuit through control module or relay contacts in fire alarm system so damper will automatically close upon general alarm.

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b. Installation shall be performed in accordance with manufacturer's recommendations and in cooperation with Mechanical Contractor. Verify exact location with Mechanical Contractor before installation.

2. Air Handler System Dampers: Smoke isolation dampers and smoke/fire dampers required by an air handler shall be electric type designed to operate on air handler control voltage, furnished and located by Mechanical Contractor with wiring by the Mechanical Contractor

a. Electrical Contractor shall provide control module for damper control through contacts in fire alarm relay base. Smoke isolation dampers and smoke/fire dampers required by the air handler will be open only when the air handler is running and closed when the air handler is not running.

2.14 REMOTE INTERFACE MODULES

A. **Additional Addressable Monitor Modules:**

1. Addressable monitor modules shall be installed as required.

a. Provide 1 monitor module at each individual point as indicated on Drawings.

b. Provide 1 monitor module at each room protected with 200-degree heat detector. (Locate module in nearby area that has a normal 100 degree F room temperature.)

c. Provide 1 monitor module at each powered fire alarm device.

d. Provide 1 control module at each bell/strobe for siamese connection of sprinkler system. (Bell strobe to sound upon flow of water.)

e. Elevator Recall: Provide control modules in elevator equipment room and control wiring from modules to elevator controls for elevator fire alarm operation control. Program fire alarm system to provide signals to elevator controller. Locate modules within three feet of controller.

f. Elevator Power Shunt-Trip: Provide control module adjacent to shunt trip breaker. Program fire alarm system to provide signal to activate shunt trip breaker upon activation of heat detectors in elevator shaft/equipment room. Locate modules within three feet of Shunt-Trip.

g. Provide control modules for each horn and strobe circuit.

h. Provide control modules for each air handler within 3 feet of the air handler control panel and connect to the air handler. Coordinate with air handler installer.

i. Provide pilot relay with 120 volt 20 amp, or 24 volt 20 amp rated (voltage to be coordinated by Contractor) Form C, dry contacts for door holders and air handling unit shutdown.

j. Provide control module barrier for separating power-limited and non-power-limited wiring in the same enclosure.

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2.15 BUILDING LOCKDOWN PUSHBUTTON

A. **Under Desk Lock Down Pushbutton:**

1. Manufacturer: Security Door Controls or equal
2. Model Number: 15-2
3. Quantity: As shown on Drawings

2.16 ALARM NOTIFICATION UNITS

A. **Alarm Strobe Lights (Wall Mounted):**

1. Interior voice evacuation wall mounted strobe shall be an Exceder LED3 MNS Series strobe unit. Unit shall have a white lens strobe plate with clear strobe, labeled 'ALERT' in red letters. Strobe Candella rating must meet ADAAG, NFPA72 and ANSI 117.1 requirements for spacing, mounting height, and effective intensity.

2. U.L. listed guards to be installed on strobes in Gymnasiums and Locker Rooms, and where indicated by the Letter "G".

3. Strobes shall be furnished with appropriate hardware and boxes for complete installation. Verify requirements with vendor.

B. **Alarm Strobe Lights (Ceiling Mounted):**

1. Interior voice evacuation ceiling mounted strobe shall be an Exceder LED3 MNS Series strobe unit. Unit shall have a white lens strobe plate with clear strobe, labeled 'ALERT' in red letters. Strobe Candella rating must meet ADAAG, NFPA72 and ANSI 117.1 requirements for spacing of ceiling mounted devices, and effective intensity.

2. Strobes shall be furnished with appropriate hardware and boxes for complete installation. Verify requirements with vendor.

C. **Alarm Bell/Strobe:**

1. No Letter Designation: Exterior alarm bell with strobe light for flow alarm shall be (Wheelock) MTWP-24-R Series bell/strobe, weatherproof surface junction box.

2. Bell/strobe shall be furnished with appropriate hardware and boxes for complete installation. Verify requirements with vendor.

3. Set tone to bell on high output.

D. **Alarm Speaker/Strobe Combinations Units (Wall Mounted):**

1. Interior wall mounted voice evacuation speaker/strobe combination units shall consist of an Exceder LED3 MNS Speaker/Strobe, mounted in a white enclosure with clear strobe, labeled 'ALERT" in red letters. Unit shall be flush wall mounted.

2. Speaker to be rated at 1/8 watt through 8 watts field selectable. Batteries and amplifier to be sized for 2 watt tap.

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3. Strobe candela rating that must meet ADAAG, NFPA 72 and ANSI 117.1 requirements for spacing mounting height, and effective intensity.

4. U.L. listed guards to be installed on speaker/strobes in gymnasiums, field house, auditorium, corridor, cafeteria, and where indicated by the letter "G".

5. Speaker/strobes shall be furnished with appropriate hardware and boxes for complete installation. Verify requirements with vendor.

E. **Alarm Speaker/Strobe Combinations Units (Ceiling Mounted):**

1. Interior ceiling mounted voice evacuation speaker/strobe combination units shall consist of an Exceder LED3 HiFi Speaker/Strobe, mounted in a white enclosure with clear strobe, labeled "ALERT" in red letters. Unit shall be flush ceiling mounted.

2. Speaker to be rated at 1/8 watt through 8 watts field selectable. Batteries and amplifier to be sized for 2 watt tap.

3. Strobe candela rating that must meet ADAAG, NFPA 72 and ANSI 117.1 requirements for spacing mounting height, and effective intensity.

4. Speaker/strobes shall be furnished with appropriate hardware and boxes for complete installation. Verify requirements with vendor.

F. **Alarm Loud Speaker:**

1. Interior voice evacuation speaker shall be Wheelock ET70-24 Series.

2. Speaker to be rated at 1/8 watt through 8 watts (minimum) field selectable. Batteries and amplifier to be sized for 8 watt tap.

3. Mount speaker flush to the bottom side of joists.

4. Speaker shall be furnished with appropriate hardware and boxes for complete installation. Verify requirements with vendor.

2.17 FIRE ALARM REMOTE POWER SUPPLY

A. **General Requirements:** Provide remote signal power supplies as required. These power supplies shall be connected to a 120 volt unswitched power circuit and be complete with standby batteries and battery charger. Power supplies located throughout building as required to properly power system. Furnish and install smoke detector at each power supply location. Coordinate exact locations with Architect.

B. **Remote Transponder:** Provide as required.

1. Remote transponder shall be connected to a 120 volt unswitched power circuit. Furnish and install smoke detector at each remote transponder location. Coordinate exact location with Architect.

2. Remote transponders shall have all required components to provide audio signal to fire alarm speakers and other remote devices.

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2.18 FIRE ALARM ADDITIONAL INSTALLED DEVICES

A. **General Requirements**: Provide complete, including programming, spare devices as indicated in schedule below. Allow for 50 feet of conduit, wire and boxes required to install each device, cut and patch walls as required.

1. Spare Device Schedule:

Smoke Detectors	5
Pull Stations	1
Alarm Strobes	3
Alarm Speaker/Strobe	5
Duct Smoke Detectors	2
Addressable Monitor Module (Tamper and Flow Switches)	2
Addressable Control Modules	2
Smoke/Fire damper including 120 volt power connection, and smoke duct detector	2

2. Devices not used shall be turned over to the Owner for spares.

3. Owner and Architect shall have the right to substitute one spare device for another as long as the total number of spare devices is not exceeded.

PART 3 - EXECUTION

3.01 INSTALLATION

A. Installation shall be in accordance with the NEC, NFPA 72, local and state codes, as shown on the drawings, and as recommended by the major equipment manufacturer.

B. All conduit, junction boxes, conduit supports and hangers shall be concealed in finished areas and may be exposed in unfinished areas. Smoke detectors shall not be installed prior to the system programming and test period. If construction is ongoing during this period, measures shall be taken to protect smoke detectors from contamination and physical damage.

C. All fire detection and alarm system devices, control panels and remote annunciators shall be flush mounted when located in finished areas and may be surface mounted when located in unfinished areas.

D. Manual Pull Stations shall be suitable for surface mounting or semi-flush mounting as shown on the plans, and shall be installed not less than 42 inches, nor more than 48 inches above the finished floor.

E. Contractor to provide identification on ceilings for devices which may be located above. Identification shall consist of a permanent tag with a device name and point address.

F. Contractor shall furnish and install all wiring, conduit, junction boxes, and outlet boxes required for installation for a complete system. All wiring shall be color coded throughout and shall test free and clear of opens, grounds, and crosses between conductors.

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G. Equipment installation and wiring shall be as described above, as shown on Drawings and in accordance with detailed information furnished by equipment manufacturer. Manufacturer shall maintain full-time service organization. Supervision of final connection of wiring at fire alarm control panel and final checkout shall be provided.

H. Upon completion, supplier/installer shall furnish as-built Drawing indicating all devices with point address for Owner.

I. Install smoke detector heads not more than 2 weeks prior to final inspection to prevent dust contamination of the detector. Test detectors in place.

J. Provide connections from addressable modules (located by elevator controller) to fire alarm control panel required to operate elevator recall properly.

K. Provide unswitched 120 volt connection to coiling door or overhead door release mechanism from closest available power source through contact in smoke detector so door will automatically close when associated smoke detector goes into alarm. Door shall not close on general alarm or from power failure.

L. Provide unswitched 120 volt connection to roof hatch release mechanism from closest available power source through contact in smoke detector so roof hatch will automatically open when associated smoke detector(s) goes into alarm, or by key switch as shown on Floor Plans. Roof hatch shall not open on general alarm or from power failure.

M. Provide unswitched 120 volt connection and install disconnect to smoke fire damper from closest available power source through contact in smoke detector, or duct smoke detector, so smoke fire damper will automatically close when associated smoke detector or duct smoke detector goes into alarm. Damper shall not close on general alarm but will close on power failure.

3.02 FINAL CONNECTIONS AND ADJUSTMENTS

A. **General Requirements:**

1. Manufacturer's representative's supervision of final connections and system testing shall be provided as part of this Contract.

2. Contractor shall set alarm horn or horn/strobe sound output to 90 dBA plus/minus 1 dBA in classrooms, offices, conference rooms, and similar rooms; to 95 dBA plus/minus 1 dBA in corridors and hallways; and to 99 dBA plus/minus 1 dBA in Auditorium, gymnasiums, Cafeteria, and other such large spaces. Adjust settings as required by authority having jurisdiction. Resetting of device shall be at no additional cost to Owner.

3.03 TESTS AND INSPECTION

A. **General Requirements:**

1. Contractor shall provide a 100% test to NFPA and local authority requirements, and include all testing documentation.

2. In addition, within 1 week of end of warranty period, perform an additional annual test and replace all equipment not meeting acceptance criteria. Replaced elements shall be documented and documentation provided to Owner.

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B. **Testing:**

1. Before energizing the cables and wires, check for correct connections and test for short circuits, ground faults, continuity, and insulation.

2. Close each sprinkler system flow valve and verify proper supervisory alarm at the FACP.

3. Verify activation of all flow switches.

4. Open initiating device circuits and verify that the trouble signal actuates.

5. Open signaling line circuits and verify that the trouble signal actuates.

6. Open and short notification appliance circuits and verify that trouble signal actuates.

7. Ground initiating device circuits and verify response of trouble signals.

8. Ground signaling line circuits and verify response of trouble signals.

9. Ground notification appliance circuits and verify response of trouble signals.

10. Check presence and audibility of tone at all alarm notification devices.

11. Check installation, supervision, and operation of all intelligent smoke detectors during a walk test.

12. Each of the alarm conditions that the system is required to detect should be introduced on the system. Verify the proper receipt and the proper processing of the signal at the FACP and the correct activation of the control points.

3.04 SYSTEM ALTERATIONS AND MODIFICATIONS TESTING

A. **General Requirements:**

1. Prior to start of work, notify the Fire Marshall that system modifications work will start, and schedule testing in accordance with any requirements he may have.

   a. Document the "as-found" conditions.

   b. After all modifications have been completed (including temporary connections), fire alarm system shall be tested and results documented.

3.05 POST CONTRACT MAINTENANCE

1. Complete maintenance and repair service for the fire alarm system shall be available from a factory trained authorized representative of the manufacturer of the major equipment for a period of five (5) years after expiration of the guaranty.

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2. As part of the bid/proposal, include a quote for a maintenance contract to provide all maintenance, tests, and repairs described below. Include also a quote for unscheduled maintenance/repairs, including hourly rates for technicians trained on this equipment, and response travel costs for each year of the maintenance period. Submittals that do not identify all post contract maintenance costs will not be accepted. Rates and costs shall be valid for the period of five (5) years after expiration of the guaranty.

3. Maintenance and testing shall be on a semiannual basis or as required by the AHJ. A preventive maintenance schedule shall be provided by the contractor describing the protocol for preventive maintenance. The schedule shall include:

   a. Systematic examination, adjustment and cleaning of all detectors, manual fire alarm stations, control panels, power supplies, relays, waterflow switches and all accessories of the fire alarm system.

   b. Each circuit in the fire alarm system shall be tested semiannually.

   c. Each smoke detector shall be tested in accordance with the requirements of NFPA 72 Chapter 7.

3.06 WARRANTY AND SERVICE

A. **General Requirements:**

1. Supplier shall maintain full-time service organization and shall furnish as part of this Contract, all parts and labor to maintain and perform code required testing for one year after acceptance. Emergency maintenance shall be provided on-site within 6 hours of notification any time within this period. An additional acceptance test shall be performed at the end of this period and all components not meeting acceptance standards replaced.

2. Supplier shall reprogram the system, 6 months after Substantial Completion, to update room names and sensitivity levels of all devices. Supplier shall also provide Owner with complete report with name, locations, and sensitivity levels of all devices.

END OF SECTION

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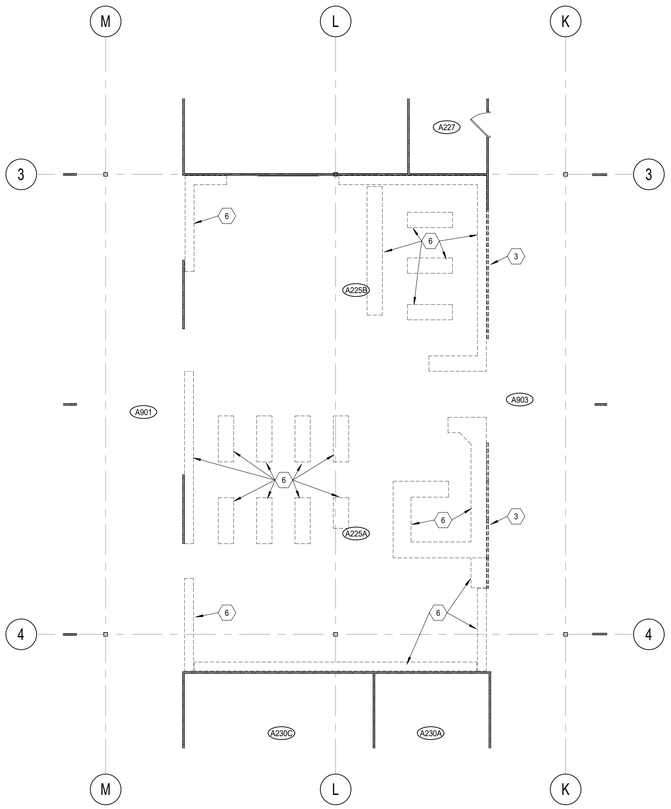
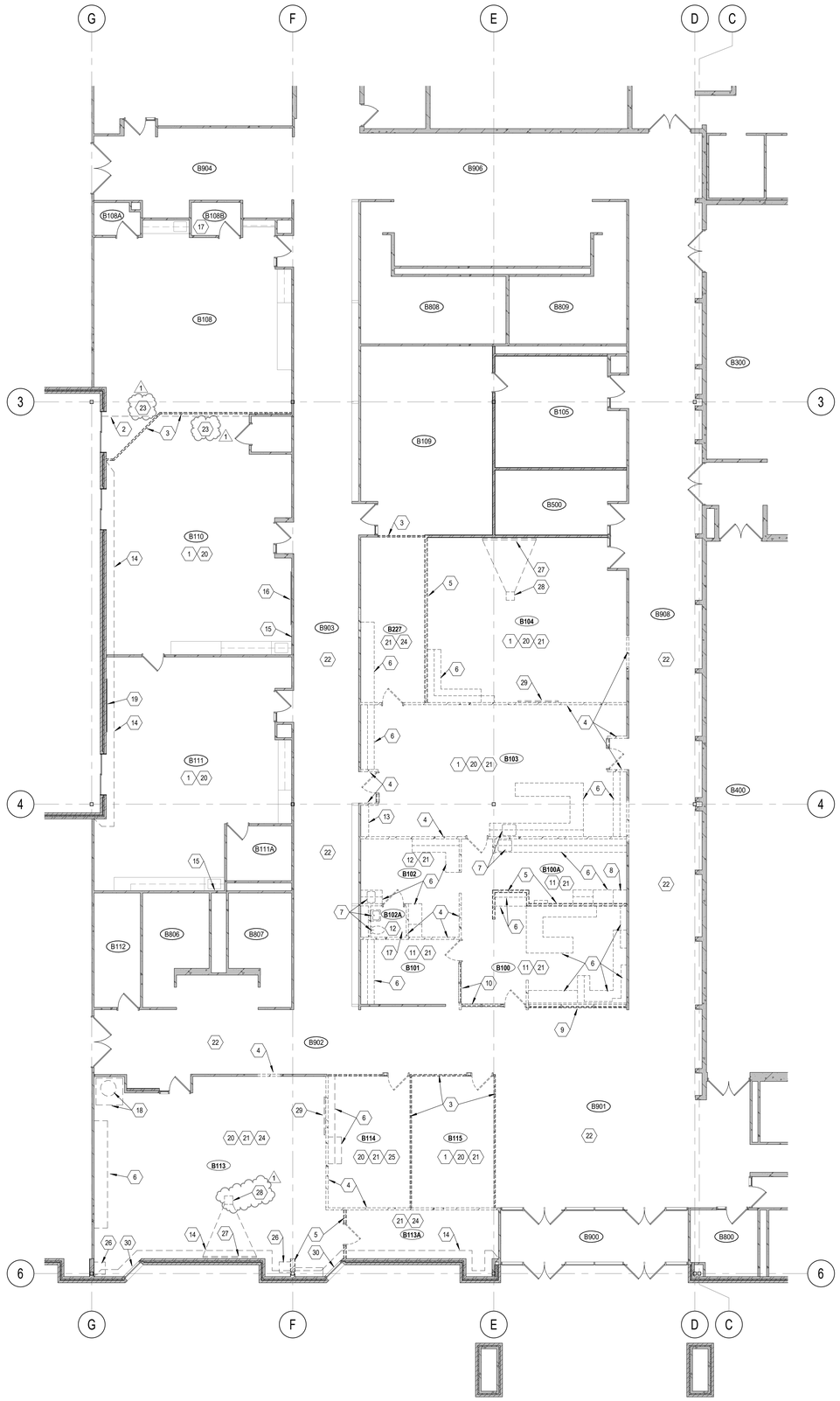


1 A2.1 **DEMOLITION PLAN AREA A**
1/8" = 1'-0"



2 A2.1 **DEMOLITION PLAN AREA B**
1/8" = 1'-0"

DEMOLITION PLAN GENERAL NOTES

1. REMOVE AND SALVAGE ALL OWNER REQUIRED EQUIPMENT AND FIXTURES PRIOR TO COMMENCEMENT OF DEMOLITION.
2. AT AREAS OF DEMOLITION, CONTRACTOR TO PATCH ADJACENT SURFACES TO MATCH EXG. PATCHED AND EXG SURFACES TO BE FLUSH AND PREPARED AS REQ'D TO RECEIVE NEW FINISHES.
3. REMOVE DEVICES AND ASSOCIATED CONDUIT, WIRING, SUPPORTS, ETC NO LONGER IN SERVICE IN AREAS OF WORK. PATCH SURFACES AS REQ'D FOR NEW FINISHES OR PATCH TO MATCH EXG FINISHES.
4. SEE A13.1 FOR NEW ACT AREAS. REMOVE EXG ACT IN THESE AREAS UON. SALVAGE ACT AND GRID AS REQ'D FOR PATCHING, SEE A13.1 FOR LOCATIONS.
5. SEE OTHER DRAWINGS FOR ADDITIONAL DEMOLITION WORK.
6. DASHED DOORS AND FRAMES TO BE REMOVED, SALVAGE DOOR HARDWARE FOR REINSTALLATION.

DEMOLITION PLAN NOTES

1. REMOVE VCT FLOORING AND VINYL BASE THIS ROOM.
2. REMOVE VCT FLOORING TO DASHED LINE.
3. REMOVE DEMOUNTABLE PARTITION, SALVAGE FOR REINSTALLATION.
4. REMOVE CMU PARTITION. SEE FLOOR PLAN FOR DIMENSIONS WHERE PARTIALLY REMOVED. PATCH ADJ SURFACES AS REQ'D FOR NEW FINISH, MATCH EXG CONSTRUCTION.
5. REMOVE GBD PARTITION. PATCH ADJ SURFACES AS REQ'D FOR NEW FINISH, MATCH EXG CONSTRUCTION.
6. REMOVE CABINETS AND CASEWORK, PATCH FLOORS AND WALLS AS REQ'D FOR NEW FINISH, MATCH EXG CONSTRUCTION.
7. REMOVE PLUMBING FIXTURE, PATCH FLOORS AND WALLS AS REQ'D FOR NEW FINISH, MATCH EXG CONSTRUCTION, SEE MECH.
8. REMOVE CONC ENCASED SAFE, PATCH FLOORS AND WALLS AS REQ'D FOR NEW FINISH, MATCH EXG CONSTRUCTION.
9. REMOVE STOREFRONT, PATCH ADJ SURFACES AS REQ'D FOR NEW FINISH, MATCH EXG CONSTRUCTION.
10. REMOVE HM WINDOW FRAME, PATCH ADJ SURFACES AS REQ'D FOR NEW FINISH, MATCH EXG CONSTRUCTION.
11. REMOVE CARPET AND VINYL BASE THIS ROOM. PREPARE SURFACES FOR NEW FINISH.
12. REMOVE FLOOR TILE AND BASE TILE THIS ROOM, PATCH FLOORS AND WALLS AS REQ'D FOR NEW FINISH, MATCH EXG CONSTRUCTION.
13. REMOVE COAT RACK, PATCH ADJ SURFACES AS REQ'D FOR NEW FINISH, MATCH EXG CONSTRUCTION.
14. REMOVE VINYL FACED GBD.
15. REMOVE SOAP AND PAPER TOWEL DISPENSERS, RETURN TO OWNER.
16. REMOVE PROJECTION BOARD AND RELATED SUPPORTS. SALVAGE FOR REINSTALLATION AT SAME LOCATION. PATCH WALL AS REQ'D FOR NEW FINISH, MATCH EXG CONSTRUCTION.
17. REMOVE GBD CLG THIS ROOM.
18. REMOVE KILN AND KILN HOOD THIS ROOM, SALVAGE FOR RELOCATION.
19. REMOVE PROJECTION BOARD. SALVAGE FOR REINSTALLATION AT SAME LOCATION.
20. REMOVE MARKER BOARDS, TACK BOARDS, AND TACK STRIPS THIS ROOM. PATCH WALLS AS REQ'D FOR NEW FINISH AT WALLS TO REMAIN.
21. REMOVE ACT CEILING TILE AND GRID - ENTIRE ROOM.
22. REMOVE ACT CEILING TILE IN CORRIDOR AREAS, SEE REF CLG PLAN FOR EXTENTS.
23. REMOVE ACT CEILING TILE AND GRID AS REQD FOR DEMO OF PARTITION AND INSTALLATION OF NEW WALL - REINSTALL TO NEW WALL.
24. REMOVE VINYL BASE THIS ROOM.
25. REMOVE VCT, CARPET, AND VINYL BASE THIS ROOM.
26. REMOVE SINK, PAPER TOWEL DISPENSER, AND SOAP DISPENSER. RETURN DISPENSERS TO OWNER.
27. REMOVE PROJECTION BOARD AND RELATED SUPPORTS AND RETURN TO OWNER.
28. REMOVE PROJECTOR AND PROJECTOR BRACKET AND RETURN TO OWNER.
29. REMOVE ROLL DOWN AND RETURN TO OWNER.
30. REMOVE WINDOW BLINDS AND RETURN TO OWNER.

ATSR

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CONSULTANTS

REVISIONS

REV NO	DESCRIPTION	DATE
1	ADDENDUM 2	2.2.23

Dayton Elementary School
Remodeling and Deferred Maintenance Phase 1
Anoka-Hennepin School District 11
12000 S. Diamond Lake Rd., Dayton, MN 55327

SIGNATURE / SEAL

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly licensed Architect under the laws of the State of Minnesota

Signature

David M. Maroney, AIA
Typed or printed name

JANUARY 12, 2023
Date

20992
License Number

KEYPLAN

DRAWN BY
RB

CHECKED BY
BP, SJF

ISSUED FOR
CONSTRUCTION DOCUMENTS

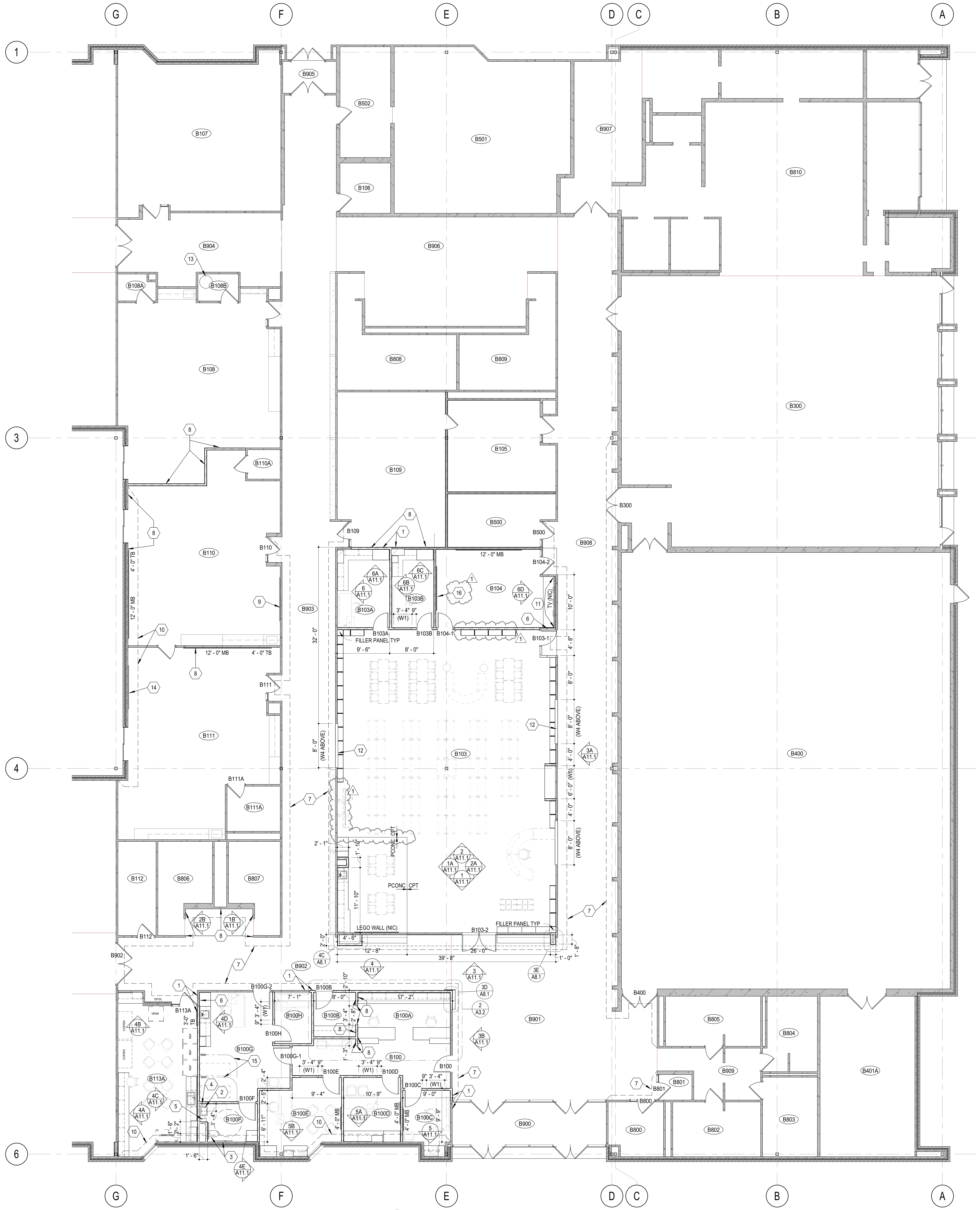
ISSUE DATE
JANUARY 12, 2023

SHEET NAME
DEMOLITION PLANS

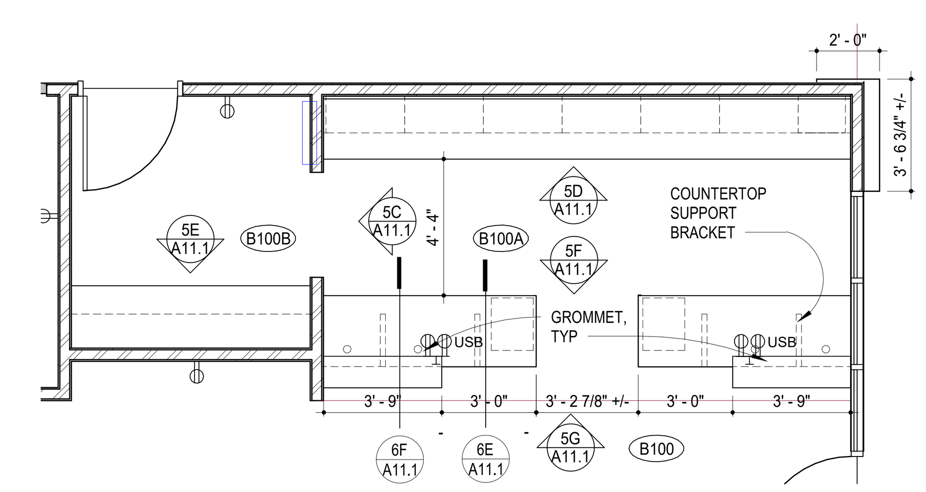
ATS&R PROJECT NO.
22064

REVISION NO.
1

SHEET NUMBER
A2.1



1 / A3.2 FIRST FLOOR PLAN AREA B
1/8" = 1'-0"



2 / A3.2 ENLARGED PLAN
1/4" = 1'-0"

DOOR SCHEDULE AREA B

DOOR NO.	NOMINAL SIZE	DOOR MTL	DOOR TYPE	FRAME MTL	FRAME TYPE	HEAD DETAIL	HDW	DR/FR LABEL	NOTES
B100	3' - 0" x 7' - 2" x 1 3/4"	AL	C	AL	1C/A8.1	3A/A8.1	1	--	--
B100B	3' - 0" x 7' - 0" x 1 3/4"	WD	D	HM	1A/A8.1	2A/A8.1	2	--	-
B100C	3' - 0" x 7' - 0" x 1 3/4"	WD	D	HM	1A/A8.1	2A/A8.1	3	--	-
B100D	3' - 0" x 7' - 0" x 1 3/4"	WD	D	HM	1A/A8.1	2A/A8.1	3	--	-
B100E	3' - 0" x 7' - 0" x 1 3/4"	WD	D	HM	1A/A8.1	2A/A8.1	3	--	-
B100F	3' - 0" x 7' - 0" x 1 3/4"	WD	D	HM	1A/A8.1	2A/A8.1	6	--	-
B100G-1	3' - 0" x 7' - 0" x 1 3/4"	WD	D	HM	1A/A8.1	2A/A8.1	3	--	-
B100G-2	3' - 0" x 7' - 0" x 1 3/4"	WD	D	HM	1A/A8.1	2A/A8.1	2	--	-
B100H	3' - 0" x 7' - 2" x 1 3/4"	WD	D	HM	1A/A8.1	3/A9.1	3	--	-
B103-1	3' - 0" x 7' - 0" x 1 3/4"	WD	D	HM	1A/A8.1	2A/A8.1	4	--	-
B103-2	(2) 3' - 0" x 7' - 2" x 1 3/4"	AL	C	AL	1B/A8.1	3A/A8.1	5	--	--
B103A	3' - 0" x 7' - 0" x 1 3/4"	WD	B	HM	1A/A8.1	2A/A8.1	3	--	-
B103B	3' - 0" x 7' - 0" x 1 3/4"	WD	D	HM	1A/A8.1	2A/A8.1	3	--	-
B104-1	3' - 0" x 7' - 0" x 1 3/4"	WD	D	HM	1A/A8.1	2A/A8.1	3	--	-
B104-2	3' - 0" x 7' - 0" x 1 3/4"	EXG	D	HM	EXG	EXG	7	--	1
B109	3' - 0" x 7' - 0" x 1 3/4"	EXG	D	HM	EXG	EXG	--	--	1
B110	3' - 0" x 7' - 0" x 1 3/4"	EXG	D	HM	EXG	EXG	7	--	1
B111	3' - 0" x 7' - 0" x 1 3/4"	EXG	D	HM	EXG	EXG	7	--	1
B111A	3' - 0" x 7' - 0" x 1 3/4"	EXG	D	HM	EXG	EXG	--	--	1
B112	3' - 0" x 7' - 0" x 1 3/4"	EXG	D	HM	EXG	EXG	--	--	1
B113A	3' - 0" x 7' - 0" x 1 3/4"	EXG	D	HM	EXG	EXG	7	--	1
B300	(2) 3' - 0" x 7' - 0" x 1 3/4"	EXG	D	HM	EXG	EXG	--	--	1
B400	(2) 3' - 0" x 7' - 0" x 1 3/4"	EXG	D	HM	EXG	EXG	--	--	1
B500	3' - 0" x 7' - 0" x 1 3/4"	EXG	D	HM	EXG	EXG	--	--	1
B800	3' - 0" x 7' - 0" x 1 3/4"	EXG	D	HM	EXG	EXG	7	--	1
B801	3' - 0" x 7' - 0" x 1 3/4"	EXG	D	HM	EXG	EXG	--	--	1
B902	(2) 3' - 8" x 7' - 0" x 1 3/4"	EXG	D	HM	EXG	EXG	--	--	1

DOOR SCHEDULE NOTES

1. EXISTING DOOR AND FRAME TO REMAIN - PAINT EXG HM DOOR FRAME , BOTH SIDES.

ROOM FINISH SCHEDULE AREA B

ROOM NO.	ROOM NAME	FLOOR	BASE	WALL MTL	WALL FIN	CEILING MTL	CEILING FIN	NOTES
B100	LOBBY	XVCT	VB	XCMU / PLAM / CT	PT	ACT	-	
B100A	RECEPTION	CPT	VB	GBD	PT	ACT	-	1
B100B	MAIL	CPT	VB	GBD	PT	ACT	-	
B100C	OFFICE	CPT	VB	XGBD / GBD	PT	ACT	-	
B100D	AP OFFICE	CPT	VB	XGBD / GBD	PT	ACT	-	
B100E	PRINCIPAL OFFICE	CPT	VB	XGBD / GBD	PT	ACT	-	
B100F	RESTROOM	PCT-2	PCT-1	PCT-3	--	VACT		5
B100G	NURSE	LVT	VB	GBD	PT	ACT		
B100H	OFFICE	LVT	VB	GBD	PT	ACT	-	
B103	LIBRARY	CPT / PCONC	VB	XCMU / GBD	PT	ACT	-	1
B103A	TECH PARA OFFICE	CPT	VB	XCMU / GBD	PT	ACT	-	
B103B	LIBRARIAN OFFICE	CPT	VB	XGBD / GBD	PT	ACT	-	
B104	MULTI PURPOSE ROOM	CPT	VB	XCMU / XGBD / GBD	PT	ACT	-	
B108	CLASSROOM	PCONC / XVCT	VB / XVB	XCMU / XGBD / GBD	PT / XPT			1,4
B109	CLASSROOM	X	XVB / VB	XCMU / XGBD / GBD	PT / PT			2
B110	CLASSROOM	PCONC	VB	XCMU	PT	ACT	-	1,4
B110A	QUIET ROOM	PCONC	XCMU	XCMU / XGBD / GBD	PT			
B111	CLASSROOM	PCONC	VB	XCMU / XGBD / GBD	PT	ACT	-	1
B113A	BREAK	PCONC	VB	XCMU / XGBD / GBD	PT			
B806	BOYS	XQT	X	XCMU	-	XGBD	PT	
B807	GIRLS	XQT	X	XCMU	-	XGBD	PT	
B808	GIRLS	XQT	X	XCMU	-			
B809	BOYS	XQT	X	XCMU	-			
B900	VESTIBULE	X	X	X	X	X		
B901	CORRIDOR	XVCT	X/PCT-1	XCMU / PLAM / CT	PCT-3 / CT / PT	ACT		3
B902	CORRIDOR	XVCT / XQT	X/PCT-1	XCMU / PLAM / CT	PCT-3 / CT / PT	ACT		3
B903	CORRIDOR	XVCT	X	XCMU / GBD	PT / PT	ACT		3
B905	VESTIBULE	X	X	X	X	X		
B908	CORRIDOR	XVCT	X	XCMU / XGBD / CMU / GBD	PT / PT	ACT		3,4

GENERAL FINISH SCHEDULE NOTES

1. PAINT HOLLOW METAL DOOR / WINDOW FRAMES LISTED IN DOOR SCHEDULE AND IN ROOMS WITH OTHER FINISH WORK. ALL HM DOORS, FRAMES, AND WINDOW FRAMES TO BE PT2 (BOTH SIDES) UON.
2. CENTER FLOOR FINISH TRANSITIONS BELOW DOOR WHERE APPLICABLE.
3. PROVIDE FLOOR TRANSITION STRIPS WHERE FLOORING CHANGE OCCURS AT THRESHOLDS OR WHERE NOTED ON PLAN.
4. "X" MATERIAL / FINISH PREFIX DENOTES EXISTING FINISH TO REMAIN.
5. REFER TO REFLECTED CEILING PLANS FOR CEILING HEIGHTS.
6. REFER TO PLANS AND ELEVATIONS FOR MORE DETAIL ON PLACEMENT OF FINISHES WHEN MULTIPLE MATERIALS ARE LABELED IN A SCHEDULE CELL.
7. ALL WALLS AND GBD SOFFITS TO BE PT1 UON.

FINISH SCHEDULE NOTES

1. PROVIDE ACCENT WALL PAINT. REFER TO FLOOR PLAN FOR LOCATIONS.
2. PAINT SOUTH WALL ONLY, MATCH EXG BASE AT NEW WALL.
3. REFER TO PLAN NOTE 7 FOR EXTENT OF BASE BID PAINTING IN CORRIDOR.
4. PATCH VCT AND VB TO MATCH EXISTING AS REQUIRED.
5. PROVIDE PCT-2 AT FLOOR (STACK BOND), PCT-1 AT BASE, AND PCT-3 AT WALLS. SEE 4E/A11.1 FOR WALL PATTERN.

FLOOR PLAN GENERAL NOTES

1. PATCH NEW AND EXG PENETRATIONS AT EXG FLOORS, WALLS, AND ROOF DECK IN AREAS OF WORK, MATCH EXG CONSTRUCTION AND FINISH, SEE MECH AND ELEC..
2. SEE A8.1 FOR DOOR AND DOOR FRAME TYPES.
3. SEE A8.1 FOR WINDOW TYPES INDICATED AS "W#" ON PLANS.
4. SEE A1.2 FOR HANDICAP ACCESSIBILITY REQUIREMENTS.
5. SEE A13.1 FOR GBD PARTITIONS ABOVE EXG CMU WALLS.
6. PROVIDE MARKER / TACK BOARDS (WIDTH INDICATED ON PLAN). REFER TO 7B / A8.1 FOR TYPICAL MOUNTING HEIGHT.

PARTITION GENERAL NOTES

1. NEW CMU WALLS 9'-0" HIGH UON, ALIGN TOP WITH EXG ADJACENT CMU WALLS.
2. PATCHED CMU OPENINGS TO BE TOOTHED IN AT JAMBS.
3. EXPOSED OUTSIDE CMU CORNERS TO BE BULLNOSED.
4. MATCH EXG MASONRY COURSING.
5. NEW MTL STUD WALLS FULL HEIGHT 3 5/8" MTL STUDS, 3 5/8" SOUND BATTS, 1 LAYER 5/8" ABUSE RESISTANT GBD EACH SIDE UON.
6. NEW MTL STUD CHASE WALLS FULL HEIGHT 3 5/8" MTL STUDS, 3 5/8" SOUND BATTS, 1 LAYER 5/8" ABUSE RESISTANT GBD ONE SIDE UON.
7. SEE 4 / A8.1 AND 5 / A8.1 FOR TYP MTL STUD DETAILS.
8. PROVIDE SEALANT AROUND PERIMETER OF STUD PARTITIONS WHERE ADJ MATERIAL IS NOT GBD.
9. DO NOT INSTALL JUNCTION BOXES BACK TO BACK AT STUD PARTITIONS.
10. PROVIDE PUTTY PADS AROUND JUNCTION BOXES AT STUD PARTITIONS.
11. PROVIDE CONCEALED FIRE RETARDANT WD BLKG FOR WALL HUNG ITEMS ON STUD PARTITIONS.
12. DIMENSIONS ARE TO FACE OF GBD UON.
13. PROVIDE 4'-0" HIGH CORNER GUARDS ON ALL OUTSIDE GBD CORNERS, MOUNT BOTTOM AT TOP OF WALL BASE.
14. AT METAL STUD WALLS, PROVIDE TILE BACKER BOARD IN LIEU OF GBD AT TILE LOCATIONS.
15. SEE A13.1 FOR PARTITION EXTENSIONS ABOVE EXG WALLS. (1)

FLOOR PLAN NOTES

1. ALIGN.
2. ADULT ACCESSIBLE SINK WITH MIRROR, SEE 2/A1.2.
3. ADULT ACCESSIBLE TOILET WITH GRAB BARS, SEE 2/A1.2.
4. ADULT ACCESSIBLE SOAP DISPENSER, SEE 2/A1.2
5. ADULT ACCESSIBLE PAPER TOWEL DISPENSER, SEE 2/A1.2.
6. GBD ON FURRING STRIPS, ALIGN WITH FACE OF ADJ GBD PARTITION.
7. PROVIDE PT1 AT WALLS AND PT2 AT HM DOORS, DOOR FRAMES, AND WINDOW FRAMES UON.
8. PROVIDE ACCENT PAINT ON ENTIRETY OF WALL.
9. REINSTALL EXG PROJECTION BOARD TIGHT TO WALL, MATCH EXG LOCATION. (1)
10. 5/8" MOLD RESISTANT GBD ON EXG STUDS TO STRUCTURE ABOVE. PROVIDE NEW OR PATCH EXG VAPOR BARRIER WHERE DAMAGED OR MISSING.
11. 5/8" GBD ON 2 1/2" WALL FURRING - FLOOR TO 4" ABOVE CEILING.
12. PATCH EXG 4" CMU WALL AT REMOVED DOOR OPENING, TOOTH IN JAMBS.
13. RELOCATED EXG KILN, INSTALL PER MFR RECOMMENDATIONS, SEE MECH AND ELEC.
14. REINSTALL EXG PROJECTION BOARD, MATCH EXG LOCATION. (1)
15. CURTAIN AND TRACK, 4'-4" X 6'-9", ANCHOR TO STRUC ABOVE.
16. PROJECTION BOARD, INSTALL TIGHT TO WALL, CENTER ON WALL, MOUNT BOTTOM AT 3'-0" AFF. (1)

EQUIPMENT COORDINATION SCHEDULE

ITEM	FURNISHED BY	INSTALLED BY	NOTES
PAPER TOWEL DISPENSER	OWNER	CONTRACTOR	1
SOAP DISPENSER	OWNER	CONTRACTOR	1
TELEVISION	OWNER	OWNER	
TELEVISION BRACKET	OWNER	OWNER	1
CLG MTD PROJECTOR	OWNER	CONTRACTOR	
CLG MTD PROJECTOR BRACKET	OWNER	CONTRACTOR	2
PROJECTION BOARD	OWNER	CONTRACTOR	1

EQUIPMENT COORDINATION SCHEDULE NOTES

1. CONTRACTOR TO PROVIDE IN WALL WD BLKG FOR WALL MTD ITEMS ON MTL STUD WALLS.
2. CONTRACTOR TO PROVIDE MISC STEEL SUPPORTS AS REQ'D FOR PROJECTOR BRACKET.

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REVISIONS

REV NO	DESCRIPTION	DATE
1	ADDENDUM 2	2.2.23

Dayton Elementary School
Remodeling and Deferred Maintenance Phase 1
Anoka-Hennepin School District 11
12000 S. Diamond Lake Rd., Dayton, MN 55327

SIGNATURE / SEAL

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly licensed Architect under the laws of the State of Minnesota.

Signature

David M. Maroney, AIA
Typed or printed name
JANUARY 12, 2023
Date
20992
License Number

KEYPLAN

DRAWN BY
RB, TC

CHECKED BY
BP, SJF

ISSUED FOR
CONSTRUCTION DOCUMENTS

ISSUE DATE
JANUARY 12, 2023

SHEET NAME
FLOOR PLAN AREA B

ATS&R PROJECT NO.
22064

REVISION NO.
1

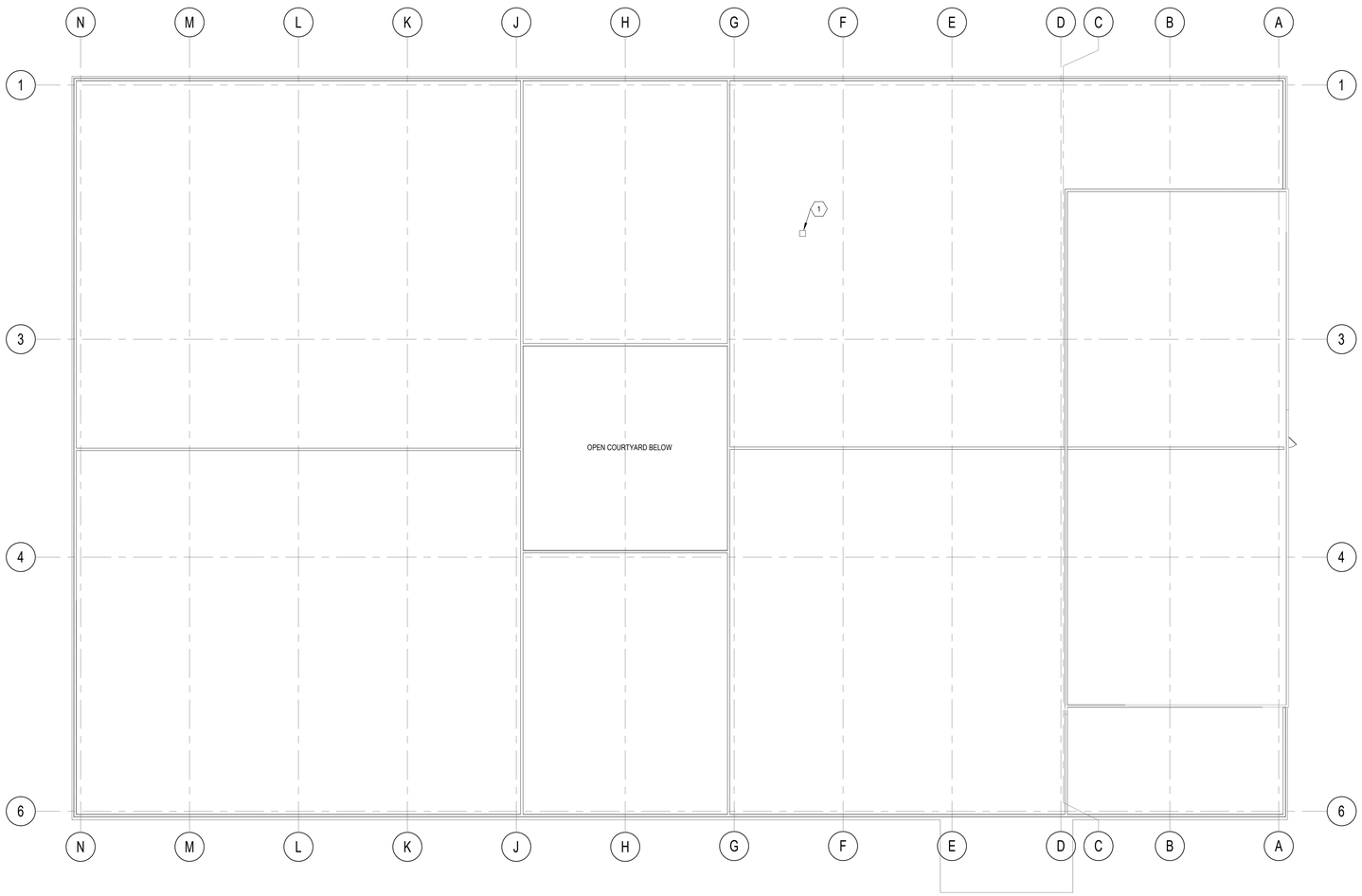
SHEET NUMBER
A3.2

ROOF PLAN NOTES

1. PATCH EXG BUILT UP ROOFING WHERE REQ'D BY NEW WORK, MATCH EXG (3 PLIES FIBERGLASS FELT, POLYESTER BASE SHEET, 1/2" FIBER BOARD INSULATION, ISOCYANURATE INSULATION).
2. REFER TO MECHANICAL AND ELECTRICAL DRAWINGS FOR LOCATIONS OF PIPE PENETRATIONS AND ROOF CURBS.

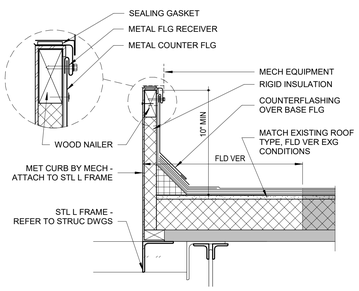
ROOF PLAN NOTES

1. CURB FOR KILN HOOD EXHAUST FAN, SEE DETAILS 2,2A/A7.1 AND MECH.

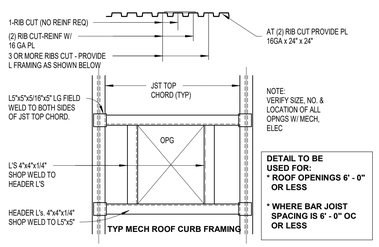


1 / A7.1 ROOF PLAN
1/16" = 1'-0"

NORTH



2 / A7.1 MECH EQUIPMENT CURB - TYP
1 1/2" = 1'-0"



2A / A7.1 STRUCT CURB FRAMING
3/4" = 1'-0"

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REVISIONS

REV NO	DESCRIPTION	DATE
1	ADDENDUM 2	2.2.23

Dayton Elementary School
Remodeling and Deferred Maintenance Phase 1
Anoka-Hennepin School District 11
12000 S. Diamond Lake Rd., Dayton, MN 55327

SIGNATURE / SEAL

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly licensed Architect under the laws of the State of Minnesota.

Signature
David M. Maroney, AIA
Typed or printed name
JANUARY 12, 2023
Date
20992
License Number

KEYPLAN

DRAWN BY
RB

CHECKED BY
BP

ISSUED FOR
CONSTRUCTION DOCUMENTS

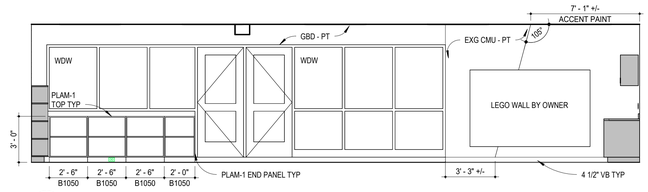
ISSUE DATE
JANUARY 12, 2023

SHEET NAME
ROOF PLAN

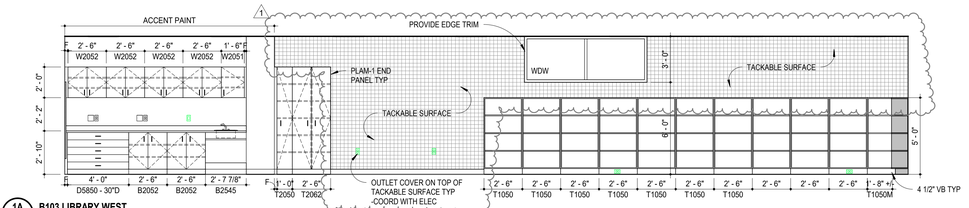
ATS&R PROJECT NO.
22064

REVISION NO.
1

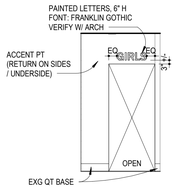
SHEET NUMBER
A7.1



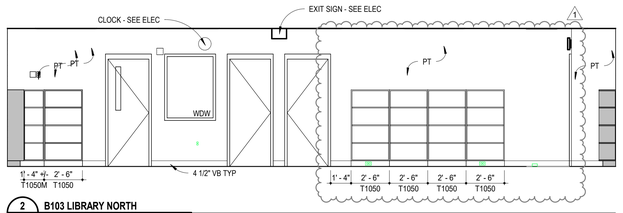
1 A11.1 B103 LIBRARY SOUTH
1/4" = 1'-0"



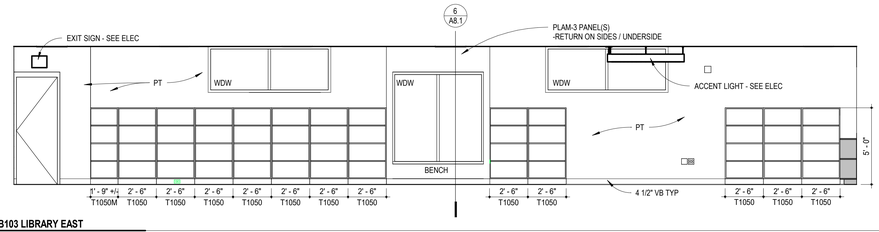
1A A11.1 B103 LIBRARY WEST
1/4" = 1'-0"



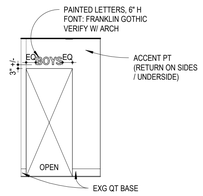
1B A11.1 B902 RESTROOM EAST
1/4" = 1'-0"



2 A11.1 B103 LIBRARY NORTH
1/4" = 1'-0"



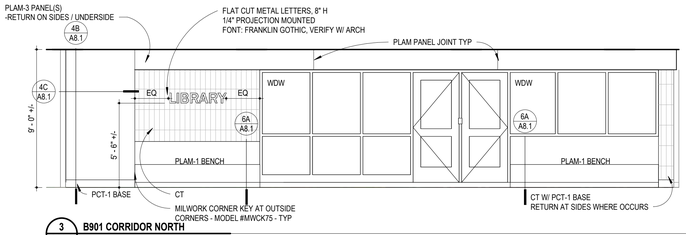
2A A11.1 B103 LIBRARY EAST
1/4" = 1'-0"



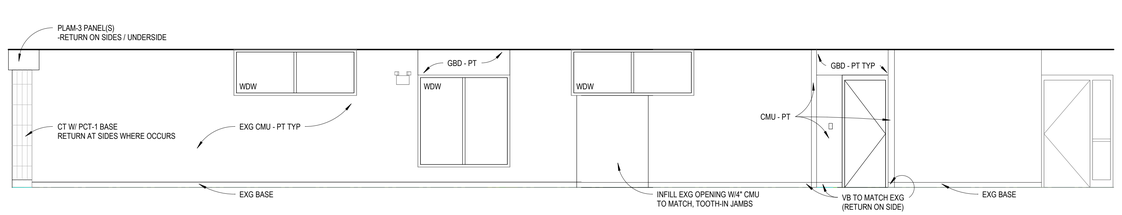
2B A11.1 B902 RESTROOM WEST
1/4" = 1'-0"

GENERAL CASEWORK NOTES:

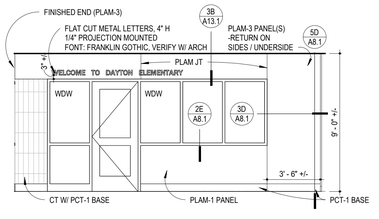
1. CASEWORK NUMBERS ARE LISTED WITH TMI CORPORATION (UON).
2. PROVIDE 4 1/2" VINYL BASE ON ALL EXPOSED SIDES OF CASEWORK (UON).
3. COUNTERTOPS TO BE PLAM-2 WITH 4" HT BACKSPLASH AND ENDSPLASH AT ALL VERTICAL SURFACES (UON).
4. USE SCRIBE STRIP ON ALL CABINETS WHERE CASEWORK MEETS WALLS.
5. ALL CASEWORK ENDS AND BACKS TO BE FINISHED WHERE EXPOSED TO VIEW.
6. MECHANICAL TO ROUGH-IN AND HOOK-UP FOR ALL SINKS AND FIXTURES PROVIDED BY CASEWORK MANUFACTURER.
7. ELECTRICAL CONTRACTOR SHALL PROVIDE CONNECTION TO ANY ELECTRICAL DEVICES PROVIDED BY CASEWORK MANUFACTURER.
8. CASEWORK SUPPLIER SHALL PROVIDE CUTOUT IN BACK OF CABINET AS NEEDED FOR MECH/ELEC ACCESS.
9. PROVIDE FILLER PANELS AT TOP, BOTTOM AND SIDES AS REQUIRED TO ENCLOSE SPACE. PANEL MATERIAL TO MATCH ADJACENT CASEWORK.
10. PROVIDE BLOCKING FOR CASEWORK LOCATED ON GBD/STUD WALLS.
11. CASEWORK CONTRACTOR SHALL INSTALL ALL APPLIANCES SUPPLIED BY OWNER AS NOTED ON CASEWORK/INTERIOR ELEVATIONS. MECH/ELEC TO PROVIDE CONNECTIONS AS REQUIRED.
12. PROVIDE LOCKS ON CABINETS WHERE NOTED ON ELEVATIONS.
13. BASE CABINETS TO BE 24"D (UON), UPPER/WALL CABINETS TO BE 13"D (UON), TALL CABINETS TO BE 24"D (UON).
14. CASEWORK INSTALLER TO PROVIDE STOP CHAINS WHERE NEEDED TO PROTECT CABINET DOOR AND HINGE.
15. CABINETS AND RECEPTION DESK TO BE PLAM-1 (UON).
16. BOOK CASE (T1050) TO BE 13" DEEP (UON), PROVIDE 3 ADJUSTABLE SHELVES AT 5'-0" HEIGHT, PROVIDE 1 ADJUSTABLE SHELF AT 3'-0" HEIGHT (PLAM-1 ALL SURFACES UON).



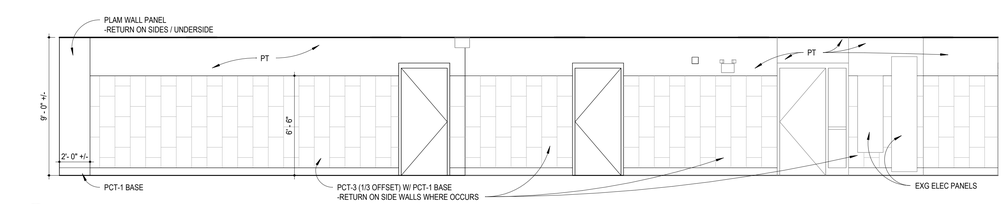
3 A11.1 B901 CORRIDOR NORTH
1/4" = 1'-0"



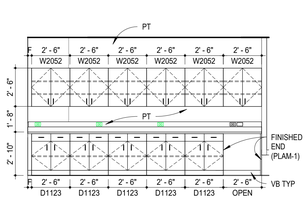
3A A11.1 B908 CORRIDOR WEST
1/4" = 1'-0"



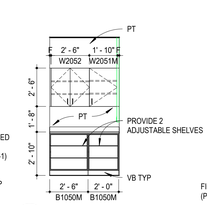
3B A11.1 B901 CORRIDOR WEST
1/4" = 1'-0"



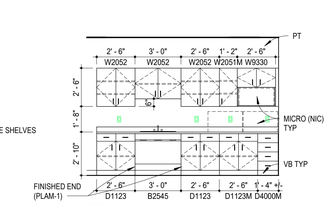
4 A11.1 B902 CORRIDOR SOUTH
1/4" = 1'-0"



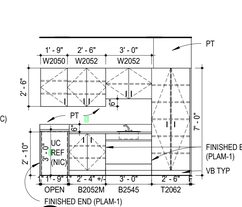
4A A11.1 B113A BREAK WEST
1/4" = 1'-0"



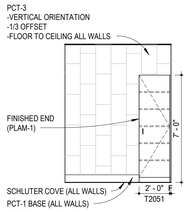
4B A11.1 B113A BREAK NORTH
1/4" = 1'-0"



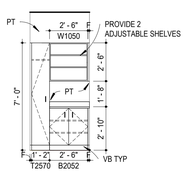
4C A11.1 B113A BREAK EAST
1/4" = 1'-0"



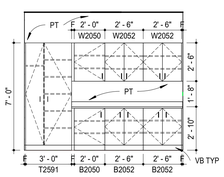
4D A11.1 B100G NURSE WEST
1/4" = 1'-0"



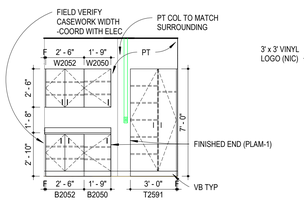
4E A11.1 B100F EAST
1/4" = 1'-0"



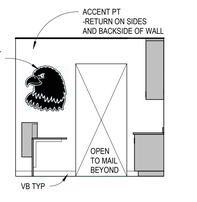
5 A11.1 B100C OFFICE SOUTH
1/4" = 1'-0"



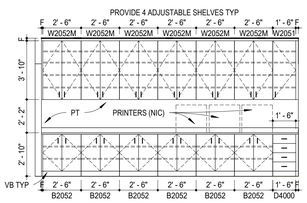
5A A11.1 B100D OFFICE SOUTH
1/4" = 1'-0"



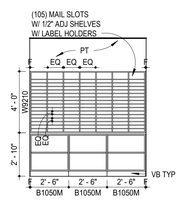
5B A11.1 B100E OFFICE SOUTH
1/4" = 1'-0"



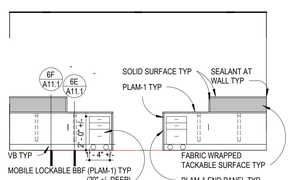
5C A11.1 B100A RECEPTION WEST
1/4" = 1'-0"



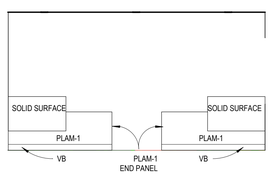
5D A11.1 B100A RECEPTION NORTH
1/4" = 1'-0"



5E A11.1 B100B MAIL SOUTH
1/4" = 1'-0"



5F A11.1 B100A RECEPTION SOUTH
1/4" = 1'-0"



5G A11.1 B100 LOBBY NORTH
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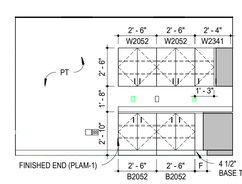
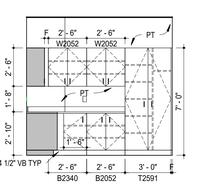


6 A11.1 B103A OFFICE WEST
1/4" = 1'-0"



6A A11.1 B103A OFFICE NORTH
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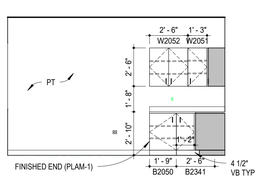
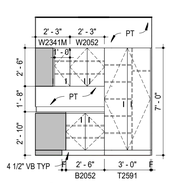


6B A11.1 B103B OFFICE WEST
1/4" = 1'-0"



6C A11.1 B103B OFFICE NORTH
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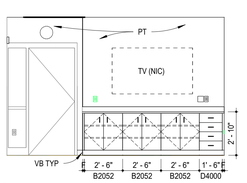
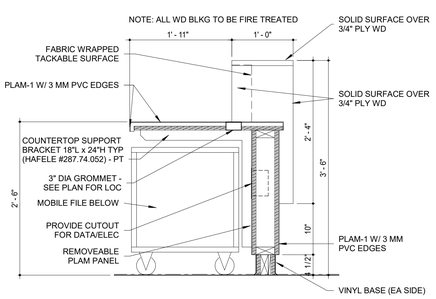
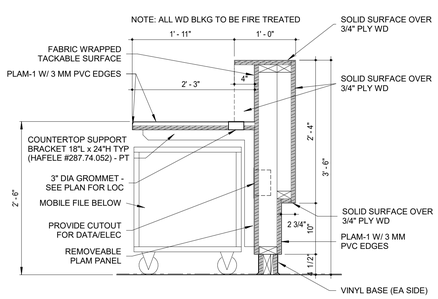


6D A11.1 B104 MULTI PURPOSE EAST
1/4" = 1'-0"



6E A11.1 CSWK - LOWER DESK SECT (TYP)
1" = 1'-0"



6F A11.1 CSWK - UPPER DESK SECT (TYP)
1" = 1'-0"

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FAX: 763 . 525 . 3289
WEB: www.atsr.com
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REVISIONS

REV NO	DESCRIPTION	DATE
1	ADDENDUM 2	2.2.23

Dayton Elementary School
Remodeling and Deferred Maintenance Phase 1
Anoka-Hennepin School District 11
12000 S. Diamond Lake Rd., Dayton, MN 55327

SIGNATURE / SEAL

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly licensed Architect under the laws of the State of Minnesota.

Signature
David M. Maroney, AIA
Typed or printed name
JANUARY 12, 2023
Date:
20992
License Number

KEYPLAN

DRAWN BY
RM

CHECKED BY
BP

ISSUED FOR
CONSTRUCTION DOCUMENTS

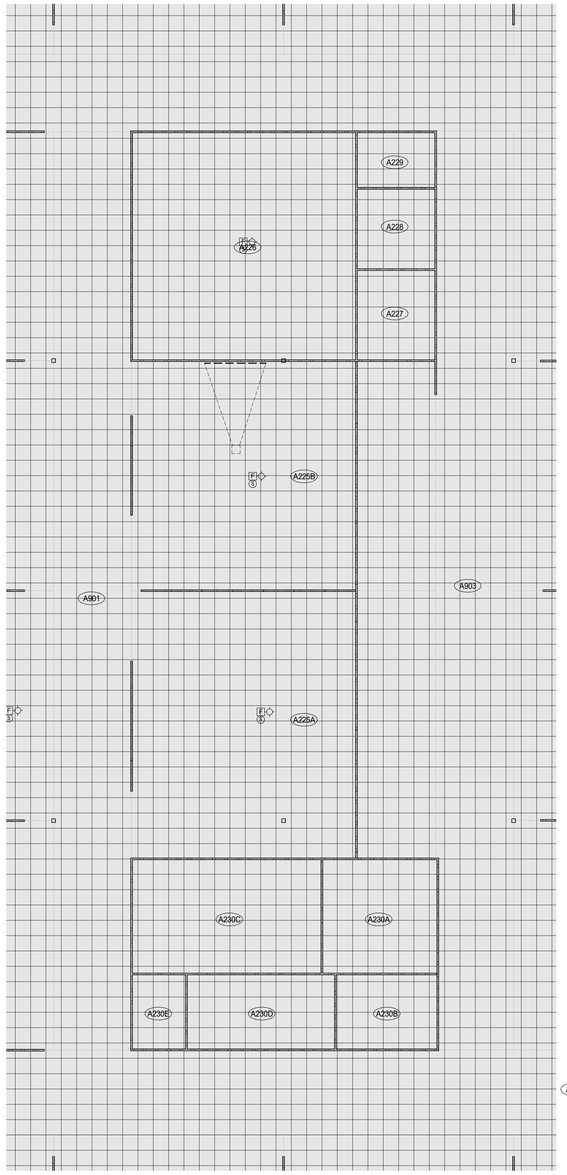
ISSUE DATE
JANUARY 12, 2023

SHEET NAME
INTERIOR ELEVATIONS

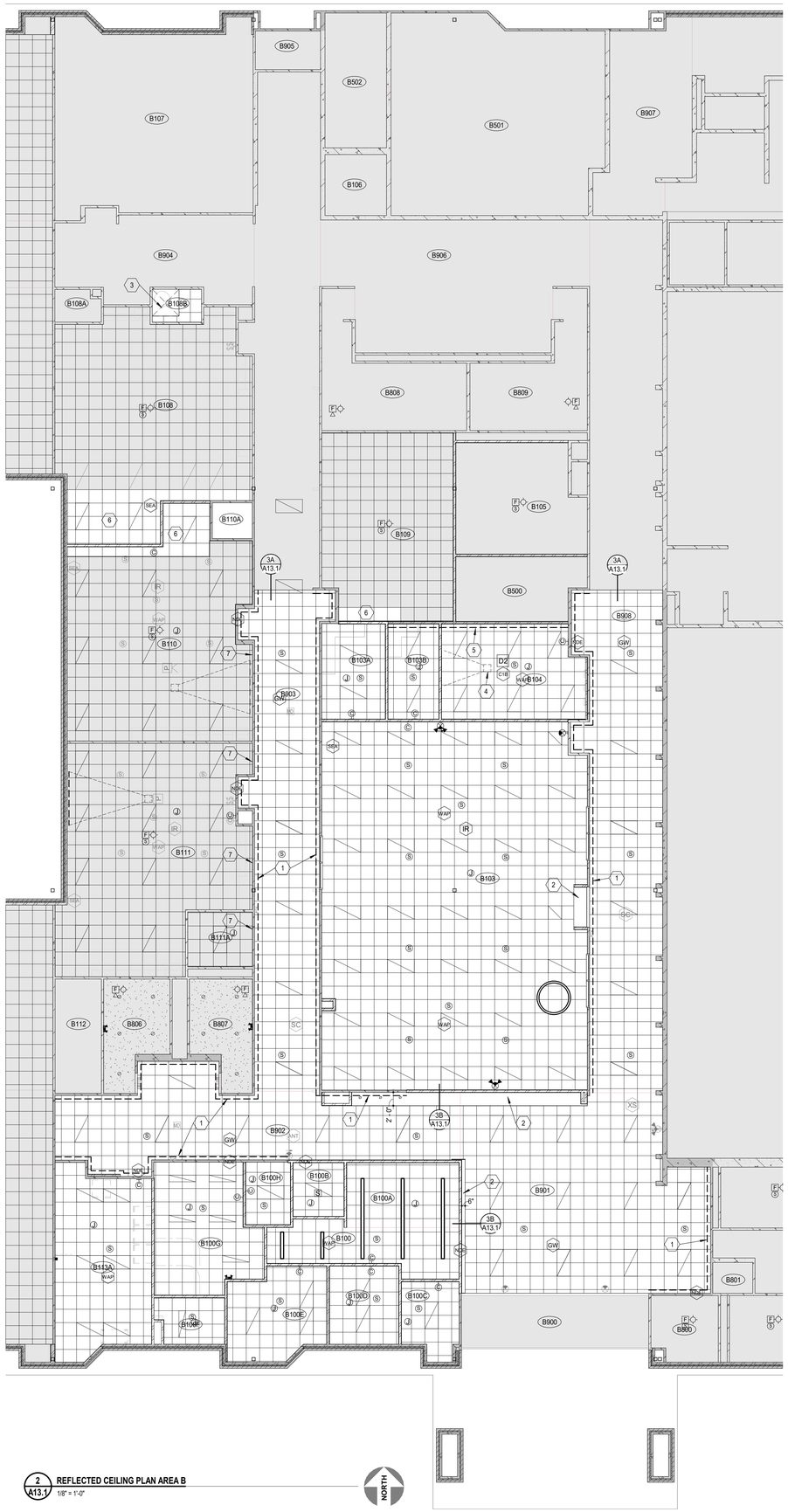
ATS&R PROJECT NO.
22064

REVISION NO.
1

SHEET NUMBER
A11.1



1 A13.1 **REFLECTED CEILING PLAN AREA A**
1/8" = 1'-0"



2 A13.1 **REFLECTED CEILING PLAN AREA B**
1/8" = 1'-0"

REFLECTED CEILING PLAN SYMBOLS

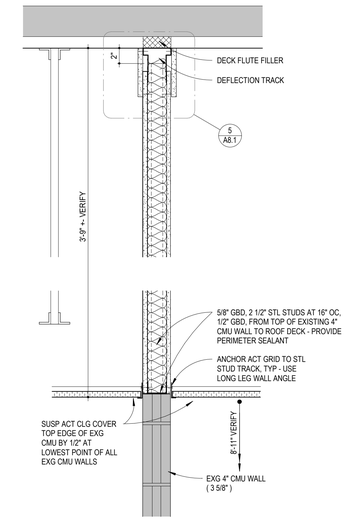
EXG CLG TO REMAIN THIS AREA, SEE ELEC AND MECH FOR AREAS OF WORK	LINEAR SUSPENDED LIGHT FIXTURE REFER TO ELEC DWGS
2' x 2' LAY-IN ACOUSTIC CEILING TILE (ACT) OR VINYL FACED CEILING TILE (VACT)	RECESSED LED LIGHT FIXTURE REFER TO ELEC DWGS
PLAS-GBD-STUCCO-EIFS (AS PER SCHEDULE) CJ - REFER TO DETAIL (CJ)	RECESSED OR SURFACE MOUNTED EMERGENCY LIGHT FIXTURE REFER TO ELEC DWGS
GYPSUM BOARD CEILING TILE	EXIT LIGHT (CLG / WALL) REFER TO ELEC DWGS
SUSPENDED GRID W/ WIRE MESH OR METAL CEILING TILE	LIGHT TRACK REFER TO ELEC DWGS
GRILLES, DIFFUSERS OR REGISTERS REFER TO MECH DWGS	FIRE ALARM SMOKE DETECTOR (S) REFER TO ELEC DWGS
LINEAR DIFFUSER REFER TO MECH DWGS	FIRE ALARM SPEAKER (S M / S M) (CLG / WALL) REFER TO ELEC DWGS
CHILLED BEAM REFER TO MECH DWGS	FIRE ALARM SPEAKER/STROBE (S M / S M) (CLG / WALL) REFER TO ELEC DWGS
RECESSED OR SURFACE MOUNTED LIGHT FIXTURE REFER TO ELEC DWGS	RECESSED OR SURFACE MOUNTED SPEAKER (S) REFER TO ELEC DWGS
EMERGENCY FIXTURE REFER TO ELEC DWGS	

REFLECTED CEILING PLAN GENERAL NOTES

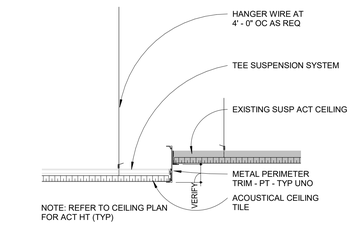
1. CLG GRIDS TO BE CENTERED IN ROOM UON.
2. SEE MECH AND ELEC FOR EXG CLG AREAS TO BE REMOVED AND REINSTALLED. CONTRACTOR TO REPLACE TILE AND GRID IF DAMAGED DURING CONSTRUCTION, MATCH EXG.
3. NEW CLGS 8'-11" AFF UON.
4. SEE ELEC PLANS FOR ELEC SYMBOLS NOT SHOWN IN SYMBOL LEGEND.

REFLECTED CEILING PLAN NOTES

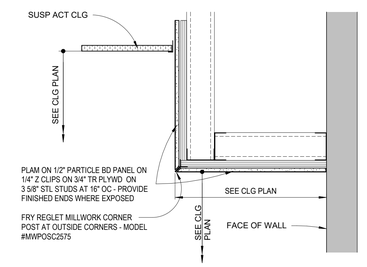
1. NEW GBD PARTITION ABOVE EXG CMU PARTITION, SEE 3 / A13.1. SIM ABOVE EXG GBD HEADERS. MODIFY EXG ACT CLG AS REQ'D BY NEW PARTITION, MATCH EXG.
2. PLAM SOFFIT AT 7'-4" AFF
3. REINSTALL EXG KILN HOOD, PROVIDE STL SUPPORTS AS REQ'D FOR INSTALLATION.
4. PROJECTOR AND PROJECTOR BRACKET, SEE EQUIPMENT COORDINATION SCHEDULE ON FLOOR PLANS.
5. EXTEND EXG GBD PARTITION TO DECK, MATCH EXG CONSTRUCTION, FILL STUD CAVITY WITH SOUND BATTS, PROVIDE SLIP CONNECTION AT ROOF DECK, SEE 5BA8.1.
6. PATCH WITH SALVAGED CEILING TILE AND GRID, OR PATCH WITH NEW TO MATCH EXG. (1)
7. PATCH EXG CLG TILE AND GRID AS REQ'D ALONG NEW WALL ABOVE EXG CMU. (MATCH EXG.) (1)



3 A13.1 **CEILING DETAIL TOP OF EXG WALL**
1 1/2" = 1'-0"



3A A13.1 **PREFINISHED METAL SOFFIT**
1 1/2" = 1'-0"



3B A13.1 **GBD SOFFIT**
1 1/2" = 1'-0"

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REV NO	DESCRIPTION	DATE
1	ADDENDUM 2	2.2.23

Dayton Elementary School
Remodeling and Deferred Maintenance Phase 1
Anoka-Hennepin School District 11
12000 S. Diamond Lake Rd., Dayton, MN 55327

SIGNATURE / SEAL

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly licensed Architect under the laws of the State of Minnesota.

Signature

David M. Maroney, AIA
Typed or printed name

JANUARY 12, 2023
Date

20992
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KEYPLAN

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CHECKED BY
BP, SJF

ISSUED FOR
CONSTRUCTION DOCUMENTS

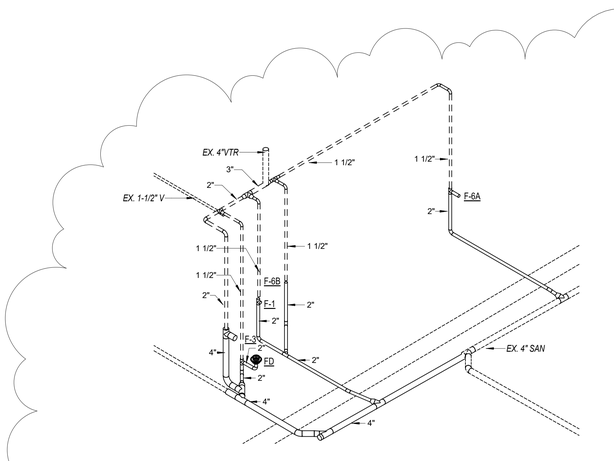
ISSUE DATE
JANUARY 12, 2023

SHEET NAME
REFLECTED CEILING PLANS

ATS&R PROJECT NO.
22064

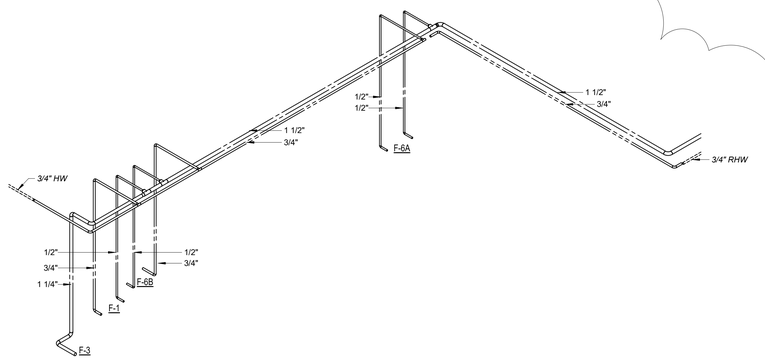
REVISION NO.
1

SHEET NUMBER
A13.1



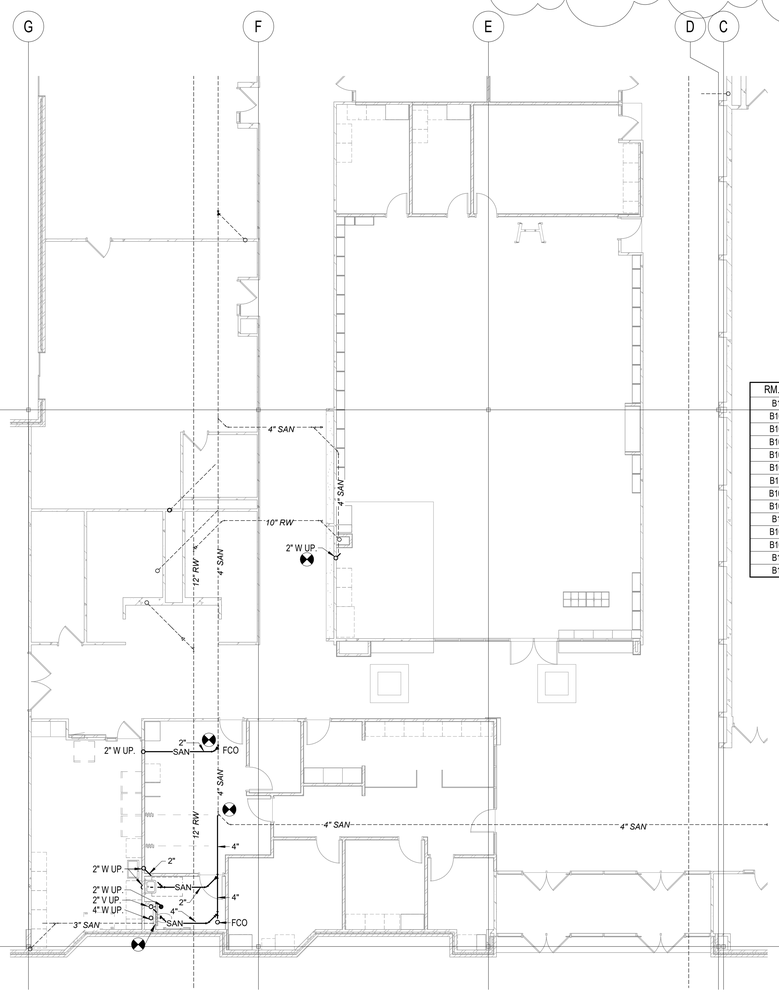
3 M3.1 WASTE AND VENT RISER DIAGRAM

NO SCALE



4 M3.1 DOMESTIC WATER RISER DIAGRAM

NO SCALE



2 M3.1 UNDERFLOOR PLUMBING PLAN

1/8" = 1'-0"

NORTH

PLUMBING FIXTURE SCHEDULE

Fix. No	DESCRIPTION	W	V	TW	CW	HW
F-1	LAVATORY - Manual Valve	1-1/2	1-1/2	---	1/2	1/2
F-3	WATER CLOSET - Wall - Manual	4	2	---	1-1/4	---
F-6	S. Sink - 1 Comp.	2	1-1/2	---	1/2	1/2
F-6A	S. Sink. - 1 Comp. w/ Wrist Blades	2	1-1/2	---	1/2	1/2
F-6B	S. Sink. - 2 Comp.	2	1-1/2	---	1/2	1/2

REFER TO ARCHITECTURAL ELEVATIONS FOR FIXTURE MOUNTING HEIGHTS

RM. NO.	NAME
B100	LOBBY
B100A	RECEPTION
B100B	MAIL
B100C	OFFICE
B100D	AP OFFICE
B100E	PRINCIPAL OFFICE
B100F	RESTROOM
B100G	NURSE
B100H	OFFICE
B103	LIBRARY
B103A	TECH PARA OFFICE
B103B	LIBRARIAN OFFICE
B104	MULTI PURPOSE ROOM
B105	CLASSROOM

RM. NO.	NAME
B106	OFFICE
B107	CLASSROOM
B108	CLASSROOM
B108A	STG
B108B	STG
B109	CLASSROOM
B110	CLASSROOM
B110A	QUIET ROOM
B111	CLASSROOM
B111A	RESTROOM
B112	ELEC
B113A	BREAK
B300	CAFETERIA

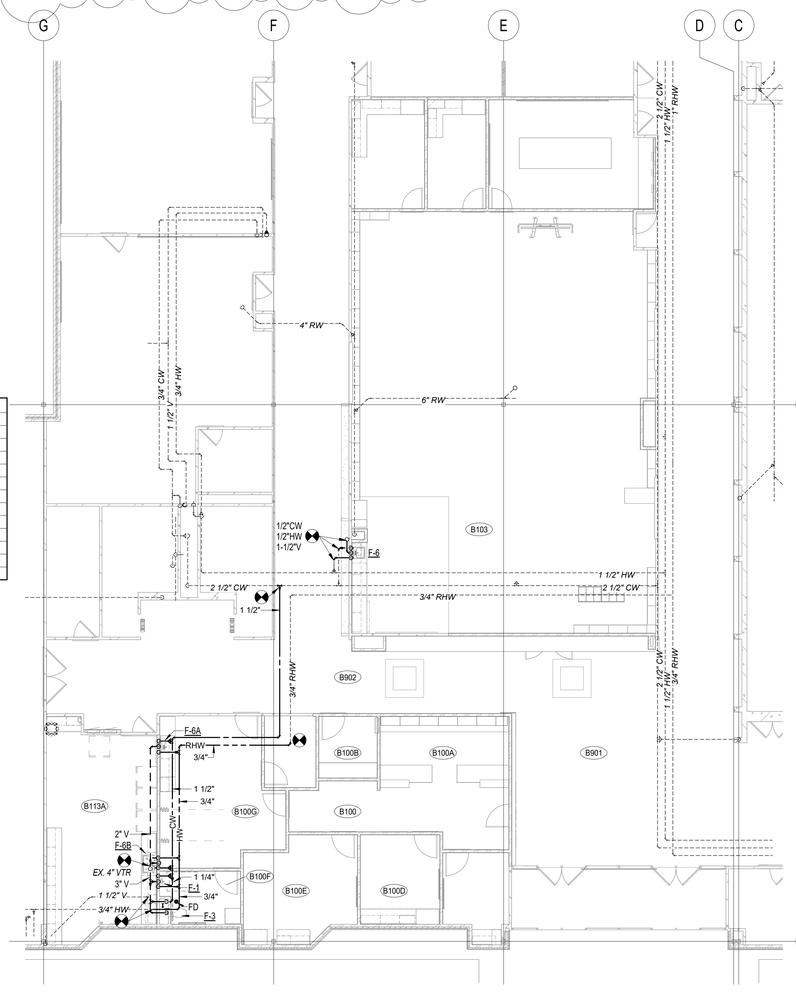
RM. NO.	NAME
B400	GYM
B401A	STORAGE
B500	CUSTODIAN
B501	MECH
B502	STG
B800	OFFICE
B801	STG
B802	MEN
B803	CUSTODIAN
B804	RESTROOM
B805	WOMEN
B806	BOYS
B807	GIRLS

RM. NO.	NAME
B808	GIRLS
B809	BOYS
B810	KITCHEN
B900	VESTIBULE
B901	CORRIDOR
B902	CORRIDOR
B903	CORRIDOR
B904	CORRIDOR
B905	VESTIBULE
B906	CORRIDOR
B907	CORRIDOR
B908	CORRIDOR
B909	CORRIDOR

GENERAL NOTES

1. ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE SPECIFIED.
2. COORDINATE ROOF DRAINS AND RAIN WATER LEADERS WITH DUCTWORK LOCATIONS.
3. VERIFY EXACT WALL LOCATIONS WITH ARCHITECTURAL PLANS.
4. ALL WORK SHALL MEET STATE AND LOCAL CODES.
5. MAXIMUM FLEXIBLE DUCT LENGTHS SHALL BE NO GREATER THAN FIVE FEET (5'-0"). SEE DETAILS.
6. ALL RETURN DIFFUSER BOOTS SHALL BE LINED WITH 1/2" FIBER-FREE DUCT LINER.
7. ALL TRANSFER DUCTS SHALL HAVE 1-INCH FIBER FREE DUCT LINER.
8. REFER TO REFLECTED CEILING PLANS FOR EXACT REGISTER, GRILLE AND DIFFUSER LOCATIONS.
9. THIS CONTRACTOR (SUB-CONTRACTOR) SHALL COORDINATE INSTALLATION OF THEIR WORK WITH OTHER CONTRACTORS AND RESOLVE ALL DISPUTES PRIOR TO INSTALLATION.
10. IN GENERAL: DUCTWORK SHALL RUN TIGHT TO, OR BETWEEN STRUCTURE, UNLESS OTHERWISE SPECIFIED.
11. VENTILATION CONTRACTOR SHALL ASCERTAIN LOCATION OF ALL ELECTRICAL PANELBOARD AND SHALL KEEP ALL PIPING AND DUCTWORK OUT OF AREA ABOVE THE PANELBOARDS AND FOR A MIN. DISTANCE OF 3'-6" IN FRONT OF, AND 1'-6" FROM EACH SIDE OF PANELBOARDS. THIS INCLUDES CONTROL PANELS FOR MECHANICAL EQUIPMENT.
12. PROVIDE TEST HOLES FOR ALL SUPPLY DUCTS NEAR AIR HANDLING UNITS.
13. (T) SEE SPECIFICATIONS FOR TEMPERATURE SENSOR TYPE AND CONTROL.
14. (M) INDICATES MOTORIZED DAMPER. SEE SPECIFICATIONS AND/OR CONTROL DIAGRAMS.
15. (FD) INDICATED COMBINATION FIRE/SMOKE DAMPER. SEE SPECIFICATIONS AND/OR CONTROL DIAGRAMS.
16. WHERE 45 DEGREE BRANCH TAKE-OFFS CANNOT BE USED, PROVIDE 90 DEGREE CONICAL TAKE-OFFS.
17. REFER TO MECHANICAL TITLE SHEET FOR EQUIPMENT SYMBOLOGY.
18. RUNOUT DUCTS TO VAV BOXES SHALL BE SAME SIZE AS BOX INLETS. WHEN BOX INLET IS AN ODD SIZE (5", 7" OR 9"), CONTRACTOR SHALL ROUND UP TO THE NEXT LARGER EVEN SIZE. SEE SCHEDULES FOR VAV BOX SIZING.
19. INSTALL MECHANICAL EQUIPMENT REQUIRING MAINTENANCE NO HIGHER 3'-0" ABOVE FINISHED CEILING UNLESS OTHERWISE NOTED ON PLAN. (THIS INCLUDES, BUT IS NOT LIMITED TO: FAN COILS, FAN-POWERED BOXES, COILS, REHEAT COILS & ETC.)
20. **EXISTING PLASTER CEILING REMOVAL:** CONTRACTOR SHALL REMOVE PORTIONS OF EXISTING PLASTER & LATH CEILING LOCATED ABOVE ACT CEILING IN CLASSROOMS AND CORRIDORS AS REQUIRED FOR NEW WORK. FIELD-VERIFY LOCATIONS REQUIRING THIS WORK. (TYP)
21. COORDINATE SPRAY FIREPROOFING WITH MECHANICAL & ELEC. HANGERS.
22. PIPING, DUCTWORK, EQUIPMENT & ALL OTHER RELATED MECHANICAL SYSTEM COMPONENTS SHALL BE HUNG FROM STRUCTURE. HANGING ANY MECHANICAL WORK FROM THE ROOF DECK IS NOT PERMITTED.

NOTE: ALL WORK MUST PROCEED CONSECUTIVELY AND IN COORDINATION WITH CONSTRUCTION SCHEDULES.



1 M3.1 FIRST FLOOR PLUMBING PLAN

1/8" = 1'-0"

NORTH

ATSR

ARCHITECTURE ENGINEERING
PLANNING TECHNOLOGY
INTERIOR DESIGN LANDSCAPE ARCHITECTURE

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REVISIONS

REV NO	DESCRIPTION	DATE
1	ADDENDUM #2	2/2/2023

Dayton Elementary School

Remodeling and Deferred Maintenance Phase 1

Anoka-Hennepin School District 11
12000 S. Diamond Lake Rd., Dayton, MN 55327

SIGNATURE / SEAL

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly licensed Professional Engineer under the laws of the State of Minnesota.

Signature

Blayne Parkos, PE
Typed or printed name

January 12, 2023
Date

46630
License Number

KEYPLAN

DRAWN BY
PGC

CHECKED BY
BJP

ISSUED FOR
CONSTRUCTION DOCUMENTS

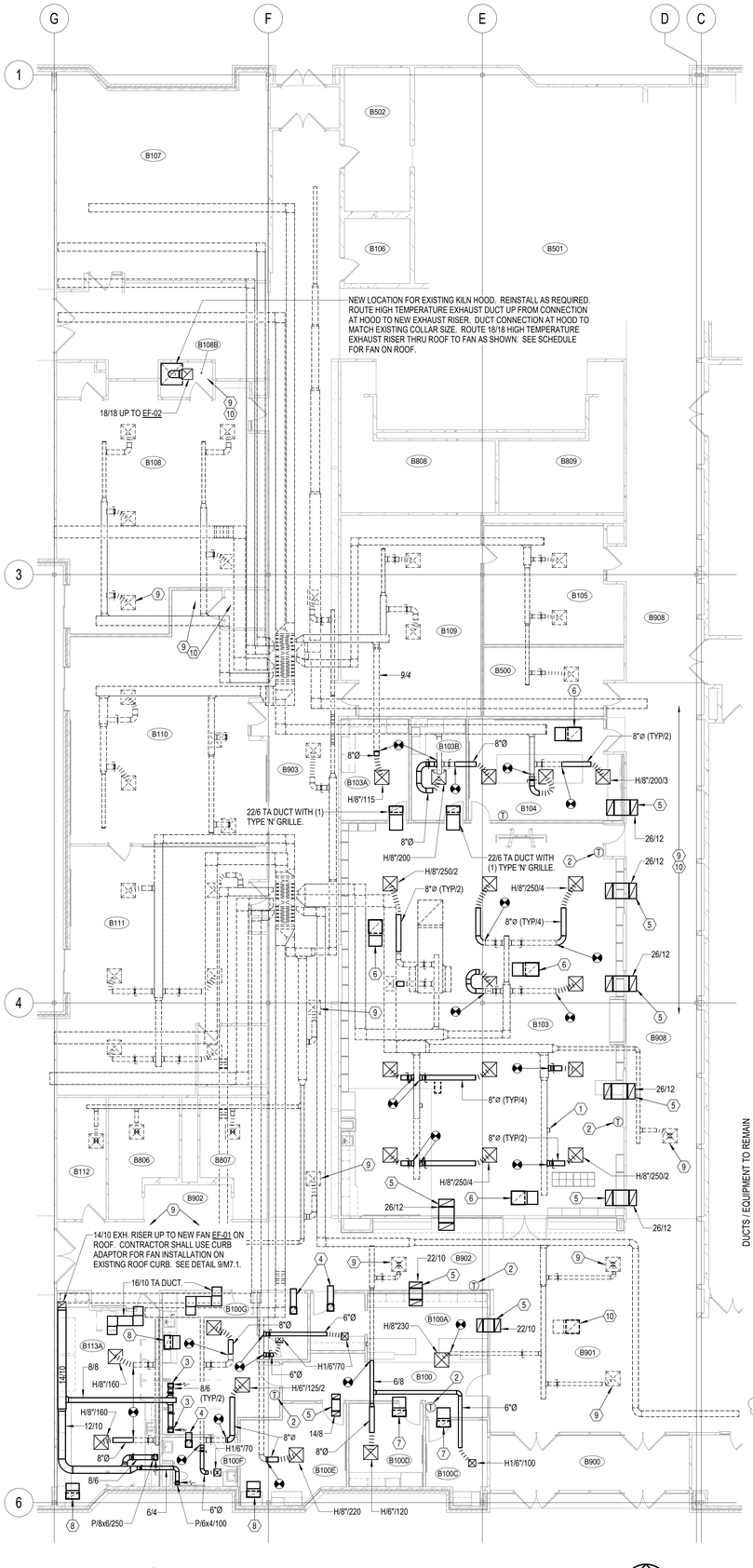
ISSUE DATE
JANUARY 12, 2023

SHEET NAME
PLUMBING PLANS

ATS&R PROJECT NO.
22064

REVISION NO.
1

SHEET NUMBER
M3.1



1 FIRST FLOOR HVAC PLAN
M5.1
1/8" = 1'-0"
NORTH

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3. VERIFY EXACT WALL LOCATIONS WITH ARCHITECTURAL PLANS.
4. ALL WORK SHALL MEET STATE AND LOCAL CODES.
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15. INDICATED COMBINATION FIRE/SMOKE DAMPER. SEE SPECIFICATIONS AND/OR CONTROL DIAGRAMS.
16. WHERE 45 DEGREE BRANCH TAKE-OFFS CANNOT BE USED, PROVIDE 90 DEGREE CONICAL TAKE-OFFS.
17. REFER TO MECHANICAL TITLE SHEET FOR EQUIPMENT SYMBOLOGY.
18. RUNOUT DUCTS TO VAV BOXES SHALL BE SAME SIZE AS BOX INLETS. WHEN BOX INLET IS AN ODD SIZE (5", 7" OR 9"), CONTRACTOR SHALL ROUND UP TO THE NEXT LARGER EVEN SIZE. SEE SCHEDULES FOR VAV BOX SIZING.
19. INSTALL MECHANICAL EQUIPMENT REQUIRING MAINTENANCE NO HIGHER 3'-0" ABOVE FINISHED CEILING UNLESS OTHERWISE NOTED ON PLAN. (THIS INCLUDES, BUT IS NOT LIMITED TO: FAN COILS, FAN-POWERED BOXES, COILS, REHEAT COILS & ETC.)
20. **EXISTING PLASTER CEILING REMOVAL**: CONTRACTOR SHALL REMOVE PORTIONS OF EXISTING PLASTER & LATH CEILING LOCATED ABOVE ACT CEILING IN CLASSROOMS AND CORRIDORS AS REQUIRED FOR NEW WORK. FIELD-VERIFY LOCATIONS REQUIRING THIS WORK. (TYP)
21. COORDINATE SPRAY FIREPROOFING WITH MECHANICAL & ELEC. HANGERS.
22. PIPING, DUCTWORK, EQUIPMENT & ALL OTHER RELATED MECHANICAL SYSTEM COMPONENTS SHALL BE HUNG FROM STRUCTURE. HANGING ANY MECHANICAL WORK FROM THE ROOF DECK IS NOT PERMITTED.

NOTE: ALL WORK MUST PROCEED CONSECUTIVELY AND IN COORDINATION WITH CONSTRUCTION SCHEDULES.

RM. NO.	NAME
B100	LOBBY
B100A	RECEPTION
B100B	MAIL
B100C	OFFICE
B100D	AP OFFICE
B100E	PRINCIPAL OFFICE
B100F	RESTROOM
B100G	NURSE
B100H	OFFICE
B103	LIBRARY
B103A	TECH PARA OFFICE
B103B	LIBRARIAN OFFICE
B104	MULTI PURPOSE ROOM
B105	CLASSROOM
B106	OFFICE
B107	CLASSROOM
B108	CLASSROOM
B108A	STG
B108B	STG
B109	CLASSROOM
B110	CLASSROOM
B110A	QUIET ROOM
B111	CLASSROOM
B111A	RESTROOM
B112	ELEC
B113A	BREAK
B300	CAFETERIA
B400	GYM
B401A	STORAGE
B500	CUSTODIAN
B501	MECH
B502	STG
B800	OFFICE
B801	STG
B802	MEN
B803	CUSTODIAN
B804	RESTROOM
B805	WOMEN
B806	BOYS
B807	GIRLS
B808	GIRLS
B809	BOYS
B810	KITCHEN
B900	VESTIBULE
B901	CORRIDOR
B902	CORRIDOR
B903	CORRIDOR
B904	CORRIDOR
B905	VESTIBULE
B906	CORRIDOR
B907	CORRIDOR
B908	CORRIDOR
B909	CORRIDOR

DUCTS / EQUIPMENT TO REMAIN

(example)

DUCTWORK & EQUIPMENT SHOWN DASHED ON THIS PLAN ARE EXISTING & SHALL REMAIN UNLESS OTHERWISE NOTED. ANY EQUIPMENT, DUCTWORK, PIPING OR RELATED SYSTEM ACCESSORIES NOT SHOWN ON THIS PLAN SHALL REMAIN UNLESS OTHERWISE NOTED.

NOTE: *EXISTING* DUCTWORK SIZING, AIR INLETS & OUTLET CFMs & EQUIPMENT TAGS ARE *SHOWN IN ITALICS*.

FIRE PROTECTION NOTE

F1 SPRINKLER CONTRACTOR TO REWORK THE EXISTING FIRE SPRINKLER SYSTEM FOR NEW & LOWERED CEILINGS & MECHANICAL WORK. INSTALL NEW FIRE SPRINKLER PIPE & HEADS AS REQUIRED FOR NEW WORK. WORK SHALL MEET ALL LOCAL & STATE CODES & SHALL BE COORDINATED WITH OTHER TRADES PRIOR TO START OF WORK. FIELD-VERIFY ALL EXISTING FIRE SPRINKLER SYSTEM LOCATIONS.

F2 REPLACE EXISTING SPRINKLER HEAD WITH NEW.

HAZARD OCCUPANCIES	
LIGHT	
DENSITY	.10 GPM
REMOTE AREA	1500 S.F.
MAX. HEAD SPACING	196 S.F.
TOTAL ZONE AREA	VERIFY
ORDINARY GROUP 2	
DENSITY	.20 GPM
REMOTE AREA	1500 S.F.
MAX. HEAD SPACING	130 S.F.
TOTAL ZONE AREA	VERIFY

GENERAL FIRE PROTECTION NOTES

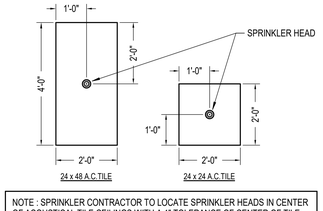
1. THE FIRE SPRINKLER SYSTEM DOCUMENTS ARE ISSUED AS PERFORMANCE DRAWINGS AND SPECIFICATIONS ONLY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE SPRINKLER SYSTEM DESIGN AND REWORK ON THIS PROJECT AS REQUIRED BY ALL STATE AND LOCAL CODES AND THE AUTHORITY HAVING JURISDICTION.
2. THE SPRINKLER CONTRACTOR SHALL BE RESPONSIBLE TO VERIFY AND PROVIDE ANY BACKFLOW PREVENTERS, DOUBLE-DETECTOR CHECK VALVES, RPZ'S, YARD P.I.V.'S, WALL P.I.V.'S, SHUT-OFFS OR OTHER DEVICES REQUIRED BY THE STATE OR LOCAL AUTHORITY ON THIS FIRE SERVICE.
3. REFER TO ARCHITECTURAL PLANS FOR ADDITIONAL INFORMATION REGARDING SPRINKLER HEAD LOCATIONS AND TYPES, UNLESS OTHERWISE NOTED.
4. THIS CONTRACTOR SHALL DETERMINE THE PIPE SIZING REQUIRED AND COORDINATE WORK WITH ALL OTHER TRADES. SHOULD A CONFLICT ARISE BETWEEN SPRINKLER SYSTEM AND ANOTHER TRADE, THE SPRINKLER PIPING SHALL BE REROUTED AT THIS CONTRACTORS EXPENSE.
5. THIS CONTRACTOR SHALL PREPARE HYDRAULIC CALCULATIONS BASED ON THE CONFIGURATION OF THE ACTUAL SYSTEM DESIGN AS SHOWN ON THIS CONTRACTOR'S SHOP DRAWINGS.
6. AUXILIARY DRAINS SHALL BE EQUIPPED WITH 1-INCH DRAIN VALVES. WHEN 5 OR MORE GALLONS ARE TRAPPED, THIS CONTRACTOR SHALL PROVIDE FIXED PIPING TO AN ADEQUATELY SIZED RECEPTOR WHICH IS CAPABLE OF ACCEPTING THE FULL FLOW OF THE DRAIN. WHEN LESS THAN 5 GALLONS ARE TRAPPED, A HOSE BIBB SHALL BE PROVIDED AT THE DRAIN VALVE.
7. AUXILIARY DRAINS SHALL NOT BE LOCATED ABOVE PLASTER OR GYPSUM BOARD CEILING SYSTEMS. ONLY BY A SPECIFIC WRITTEN INSTRUCTION FROM THE ARCHITECT/ENGINEER WILL A VARIANCE BE PROVIDED.
8. THIS CONTRACTOR SHALL BE FAMILIAR WITH ALL BUILDING CONDITIONS, BOTH EXISTING AND THOSE ILLUSTRATED ON THESE DOCUMENTS AS WELL AS THOSE WHICH CAN REASONABLY BE ANTICIPATED, INCLUDING, BUT NOT LIMITED TO, ARCHITECTURAL, ELECTRICAL, VENTILATION, PLUMBING AND OTHER SYSTEMS INVOLVED ON THIS PROJECT.
9. PROVIDE (2) INSPECTOR'S TEST STATIONS FOR EACH SYSTEM. ONE AT THE VALVE ASSEMBLY, AND THE OTHER AT A REMOTE LOCATION, AS PER LOCAL AND STATE CODES REQUIRE. SPRINKLER CONTRACTOR SHALL PROVIDE A PRECAST CONCRETE SPLASH BLOCK BELOW ALL INSPECTOR'S TEST AND DRAIN LINES THAT ARE ON THE OUTSIDE OF THE BUILDING.
10. ALL SPRINKLER SYSTEM PIPING SHALL BE CONCEALED ABOVE THE SUSPENDED CEILING SYSTEM, UNLESS NOTED OTHERWISE. WRITTEN AUTHORIZATIONS SHALL BE OBTAINED FROM THE ARCHITECT/ENGINEER PRIOR TO EXPOSING ANY PIPING IN ANY ROOM WHICH HAS A SUSPENDED CEILING.
11. THIS CONTRACTOR SHALL PROVIDE ALL ADDITIONAL SPRINKLER HEADS AS REQUIRED TO ENSURE AN APPROVED FIRE PROTECTION SYSTEM AT NO ADDITIONAL COST TO OWNER.
12. THIS CONTRACTOR SHALL ASCERTAIN LOCATION OF ALL ELECTRICAL PANEL BOARDS AND SHALL KEEP ALL PIPING OUT OF AREA ABOVE THE PANEL BOARDS AND FOR A DISTANCE OF 3'-6" IN FRONT OF AND 3'-6" FROM EACH SIDE OF PANEL BOARDS.
13. THE SPRINKLER CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFICATIONS OF THE EXISTING SYSTEM(S) FOR CODE COMPLIANCE. THE CONTRACTOR SHALL VERIFY THAT ALL SPRINKLER HEADS ARE NOT PART OF ANY RECALL. IF SPRINKLER HEADS ARE FOUND TO BE PART OF A RECALL, THE CONTRACTOR WILL INFORM THE OWNER AND THE OWNER WILL TAKE THE REQUIRED ACTION NECESSARY TO HAVE THE HEADS REMOVED AND NEW HEADS INSTALLED. ANY RECALL WORK SHALL NOT BE CONSIDERED PART OF THIS PROJECT.

HVAC SPECIFIC NOTES

1. PROVIDE INSULATED DUCT CAP.
2. NEW LOCATION FOR EXISTING TEMPERATURE SENSOR. REWIRE AS REQUIRED FOR PROPER FUNCTION. FIELD-VERIFY SYSTEM ZONE SERVING SPACE.
3. EXHAUST GRILLE SHALL BE TAGGED: P/8x6/150.
4. 10/6 TRANSFER AIR DUCT WITH TYPE 'N1' GRILLE. STUB DUCT THRU WALL AS SHOWN.
5. TRANSFER AIR DUCT. SIZE AS SHOWN. TURN OPEN ENDS OF DUCT UP TOWARDS STRUCTURE. MAINTAIN MIN. 8" CLEAR ABOVE OPENINGS FOR AIRFLOW.
6. RETURN AIR DIFFUSER BOOT WITH TYPE 'M' GRILLE.
7. 22/6 TRANSFER AIR DUCT WITH (1) TYPE 'N' GRILLE. STUB DUCT THRU WALL AS SHOWN.
8. RETURN AIR DIFFUSER BOOT WITH TYPE 'N' GRILLE.
9. SUPPORT EXISTING SUPPLY AIR TERMINALS ABOVE CEILING DURING NEW CEILING WORK. CLEAN AIR TERMINAL & RE-INSTALL AT SAME LOCATION IN NEW CEILING.
10. REMOVE & STORE EXISTING RETURN/EXHAUST GRILLES DURING NEW CEILING WORK. INCLUDE RETURN AIR DUCT BOOTS WHEN FOUND. CLEAN AIR TERMINAL & REINSTALL AT SAME LOCATION IN NEW CEILING.

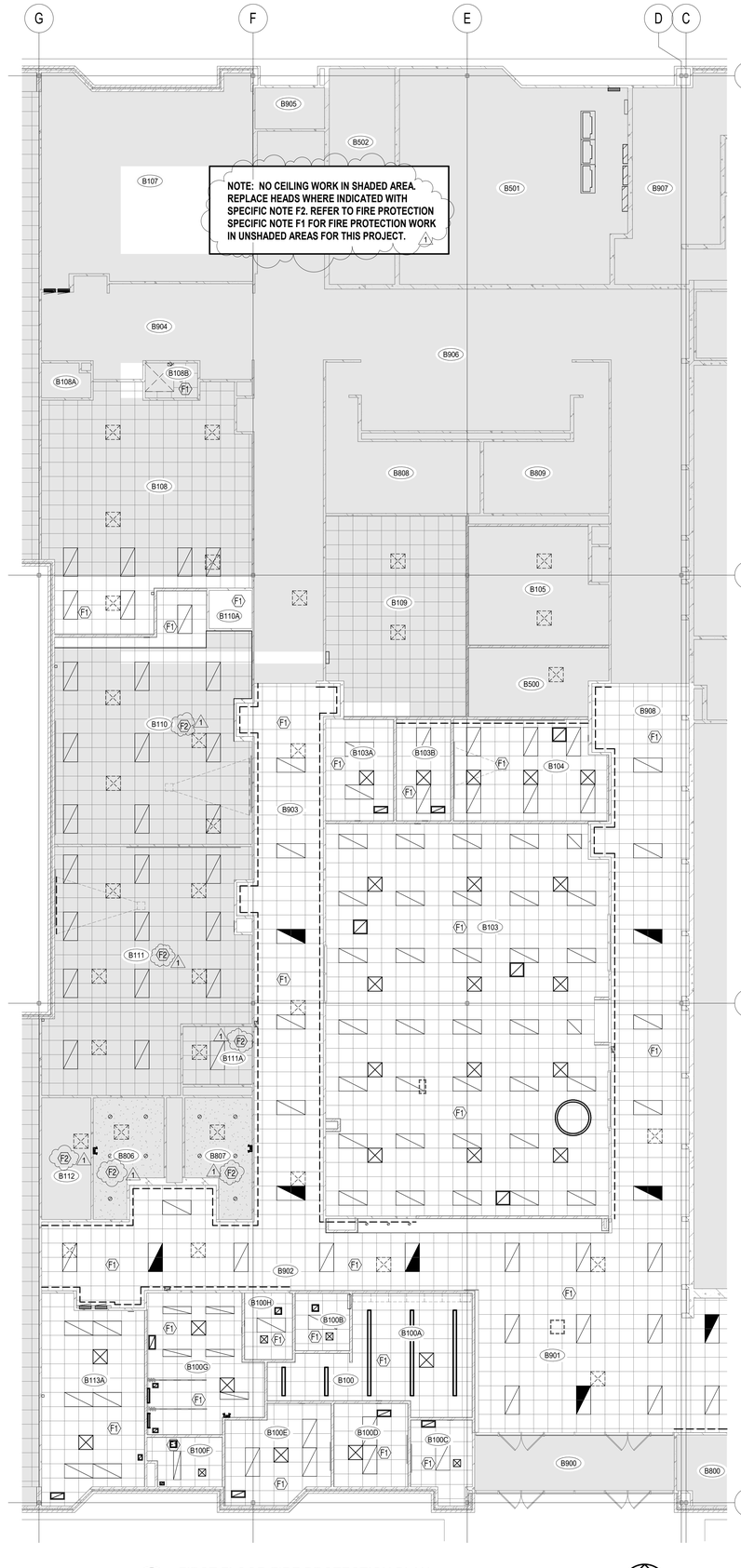
CEILING WORK BY MECHANICAL

REFER TO, AND COORDINATE WITH, ARCHITECTURAL DEMOLITION PLANS FOR CEILING REMOVAL AREAS. ALL OTHER CEILINGS REQUIRING REMOVAL, WHICH ARE NOT DESIGNATED FOR REMOVAL ON ARCHITECTURAL PLANS, SHALL BE REMOVED AND REINSTALLED BY DIVISION 23 CONTRACTOR (DIVISION 22 FOR PLUMBING & DIVISION 21 FOR FIRE PROTECTION. CONTRACTORS ARE RESPONSIBLE FOR REPLACING DAMAGED CEILING TILE AND/OR GRID COMPONENTS OCCURRING DURING THEIR WORK AT NO COST TO OWNER OR OTHER CONTRACTOR.



NOTE : SPRINKLER CONTRACTOR TO LOCATE SPRINKLER HEADS IN CENTER OF ACOUSTICAL TILE CEILINGS WITH A 1" TOLERANCE OF CENTER OF TILE.

3 ACT TILE SPRINKLER HEAD PLACEMENT
M5.1
NO SCALE



2 FIRST FLOOR FIRE PROTECTION PLAN
M5.1
1/8" = 1'-0"
NORTH

ATSR
ARCHITECTURE ENGINEERING
PLANNING TECHNOLOGY
INTERIOR DESIGN LANDSCAPE ARCHITECTURE
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REVISIONS

REV NO	DESCRIPTION	DATE
1	ADDENDUM #2	2/2/2023

Dayton Elementary School
Remodeling and Deferred Maintenance Phase 1
Anoka-Hennepin School District 11
12000 S. Diamond Lake Rd., Dayton, MN 55327

SIGNATURE / SEAL

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly licensed Professional Engineer under the laws of the State of Minnesota.

Signature
Blayne Parkos, PE
Typed or printed name
January 12, 2023
Date
46630
License Number

KEYPLAN

DRAWN BY
PGC
CHECKED BY
BJP
ISSUED FOR
CONSTRUCTION DOCUMENTS
ISSUE DATE
JANUARY 12, 2023
SHEET NAME
HVAC & FIRE PROTECTION PLANS
ATS&R PROJECT NO.
22064
REVISION NO.
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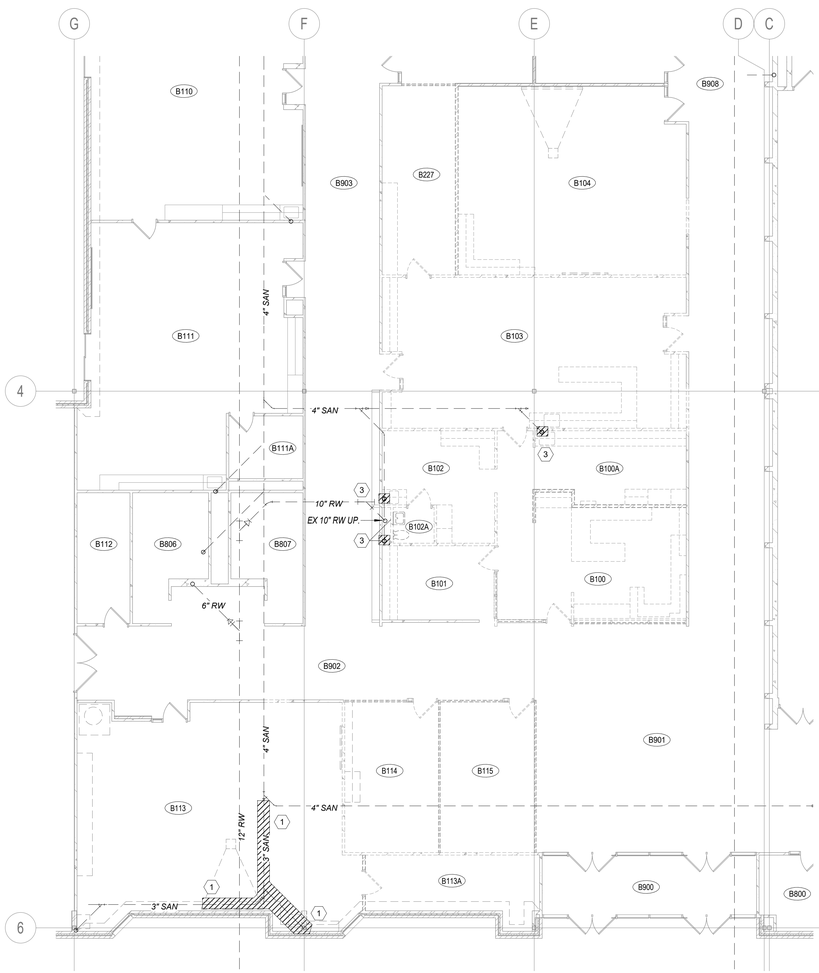
SHEET NUMBER
M5.1



1 MD1.1 UNDERFLOOR PLUMBING DEMOLITION PLAN

1/8" = 1'-0"

NORTH

RM. NO.	NAME
B100	LOBBY
B100A	RECEPTION
B100B	MAIL
B100C	OFFICE
B100D	AP OFFICE
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B112	ELEC
B113A	BREAK
B300	CAFETERIA
B400	GYM
B401A	STORAGE
B500	CUSTODIAN
B501	MECH
B502	STG
B800	OFFICE
B801	STG
B802	MEN
B803	CUSTODIAN
B804	RESTROOM
B805	WOMEN
B806	BOYS
B807	GIRLS
B808	GIRLS
B809	BOYS
B810	KITCHEN
B900	VESTIBULE
B901	CORRIDOR
B902	CORRIDOR
B903	CORRIDOR
B904	CORRIDOR
B905	VESTIBULE
B906	CORRIDOR
B907	CORRIDOR
B908	CORRIDOR
B909	CORRIDOR

NOTE:

HATCHING DENOTES MECHANICAL DUCTWORK AND/OR EQUIPMENT TO BE REMOVED.

ALL DASHED MECHANICAL EQUIPMENT ON THIS SHEET AND/OR MECH. EQUIPMENT NOT SHOWN SHALL REMAIN UNLESS OTHERWISE NOTED.

ALSO NOTE: EXIST. DUCTWORK SIZING & EQUIPMENT TAGS ARE SHOWN IN ITALICS.

- TYPICAL THIS SHEET -

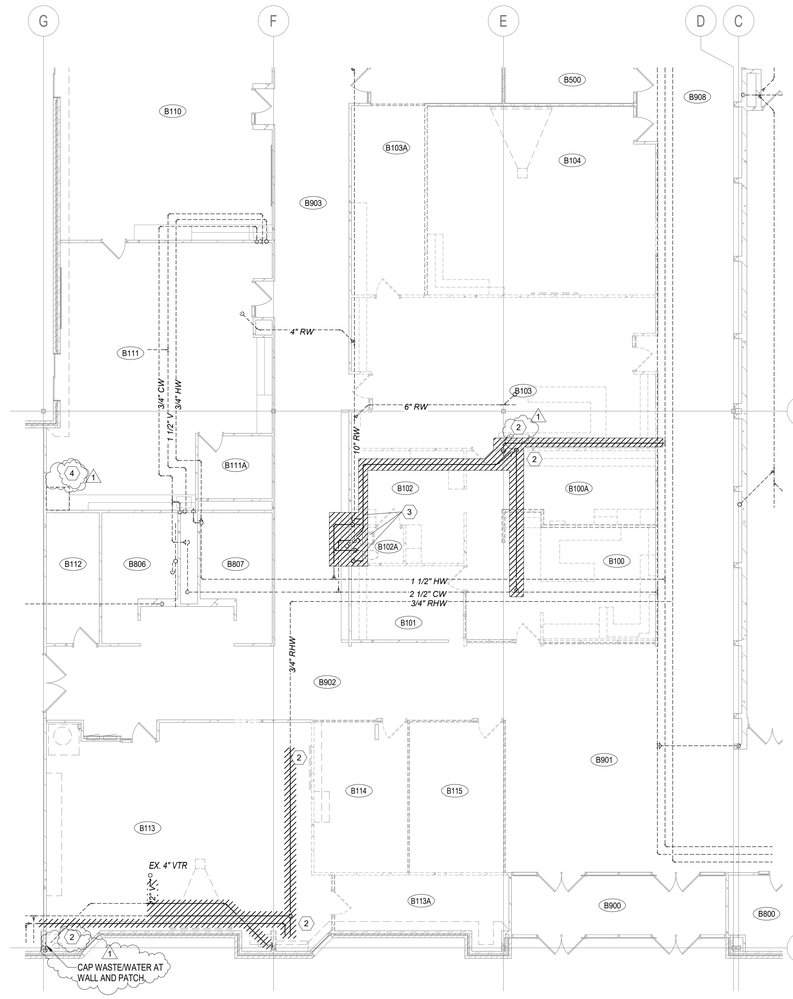
SPECIFIC NOTES:

1. REMOVE EXISTING WASTE PIPING BELOW FLOOR.
2. REMOVE EXISTING SINK AND ASSOCIATED WASTE, VENT AND WATER PIPING BACK TO MAINS. REMOVE RECIRC PIPING BACK TO POINT INIDCATED
3. REMOVE EXISTING PLUMBING FIXTURES AND WASTE/VENT PIPING BELOW FLOOR. REMOVE WATER PIPING BACK TO MAINS.
4. DISCONNET WATER/WASTE FROM WASHER. RECONNECT AFTER WORK IN ROOM IS COMPLETE.

GENERAL DEMOLITION NOTES:

1. IF HAZARDOUS MATERIALS ARE ENCOUNTERED, DO NOT PROCEED, BUT NOTIFY OWNER IMMEDIATELY.
2. WHEN PIPING AND/OR DUCTWORK IN INDICATED TO BE REMOVED, CONTRACTOR SHALL REMOVE ABANDONED DUCTWORK AND/OR PIPING IN ITS ENTIRETY. DO NOT ABANDON IN PLACE UNLESS INDICATED.
3. WHEN EQUIPMENT IS SHOWN TO BE REMOVED, THE CONTRACTOR SHALL DEMOLISH AND REMOVE ASSOCIATED EQUIPMENT INCLUDING BUT NOT LIMITED TO DUCTWORK, GRILLES, REGISTER, DIFFUSERS, TEMPERATURE SENSORS, PNEUMATIC TUBING, VALVES, FITTINGS, RELATED SENSORS, DAMPER AND ANCHORS, ETC..
4. WHEN PIPING OR INSULATED DUCTWORK IS REMOVED, CONTRACTOR SHALL REPAIR AND/OR REPLACE DAMAGED INSULATION. REPLACE INSULATION VOIDS WITH MATERIAL TO MATCH EXISTING THICKNESS AND TYPE. SEAL INSULATION JACKET AND INSULATE NEW PIPE CAPS.
5. CONTRACTORS SHALL FIELD VERIFY SIZE AND LOCATION OF ALL PIPING AND EQUIPMENT SHOWN ON DEMOLITION PLANS. SIZES AND LOCATION OF EQUIPMENT, DUCTWORK AND PIPING SHOWN PER ORIGINAL DOCUMENTS.
6. DEMOLISHED MATERIAL SHALL BE REMOVED AND DISPOSED OF IN COMPLIANCE WITH SPECIFICATIONS, FEDERAL, STATE AND LOCAL CODES.
7. CONTRACTOR SHALL GROUT ALL FLOOR OPENINGS THAT ARE NOT TO BE REUSED.
8. WHEN TEMPERATURE SENSORS ARE REMOVED, REMOVE RELATED AIR LINES/WIRING BACK TO SOURCE & CAP/CRIMP. PROVIDE COVER PLATE WHERE NEW SENSOR LOCATION IS OTHER THAN SHOWN ON PLAN. COORDINATE WITH NEW WORK DRAWINGS. FIELD-VERIFY ALL LOCATIONS.
9. TERMINATE HEATING TERMINAL UNIT PIPING REMOVED UNDER THIS PROJECT WITH BALL VALVES AND CAPS AT FLOWING MAIN. (TYPICAL)
10. REFER TO ARCHITECTURAL PLANS FOR WALL PATCHING.

NOTE: ALL NEW WORK MUST PROCEED CONSECUTIVELY AND IN COORDINATION WITH CONSTRUCTION SCHEDULES.



2 MD1.1 FIRST FLOOR PLUMBING DEMOLITION PLAN

1/8" = 1'-0"

NORTH

ATSR

ARCHITECTURE ENGINEERING
PLANNING TECHNOLOGY
INTERIOR DESIGN LANDSCAPE ARCHITECTURE

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MINNEAPOLIS, MINNESOTA 55427

TEL: 763 . 545 . 3731
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REVISIONS

REV NO	DESCRIPTION	DATE
1	ADDENDUM #2	2/2/2023

Dayton Elementary School

Remodeling and Deferred Maintenance Phase 1

Anoka-Hennepin School District 11
12000 S. Diamond Lake Rd., Dayton, MN 55327

SIGNATURE / SEAL

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly licensed Professional Engineer under the laws of the State of Minnesota.

Signature

Blayne Parkos, PE
Typed or printed name

January 12, 2023
Date

46630
License Number

KEYPLAN

DRAWN BY
PGC

CHECKED BY
BJP

ISSUED FOR
CONSTRUCTION DOCUMENTS

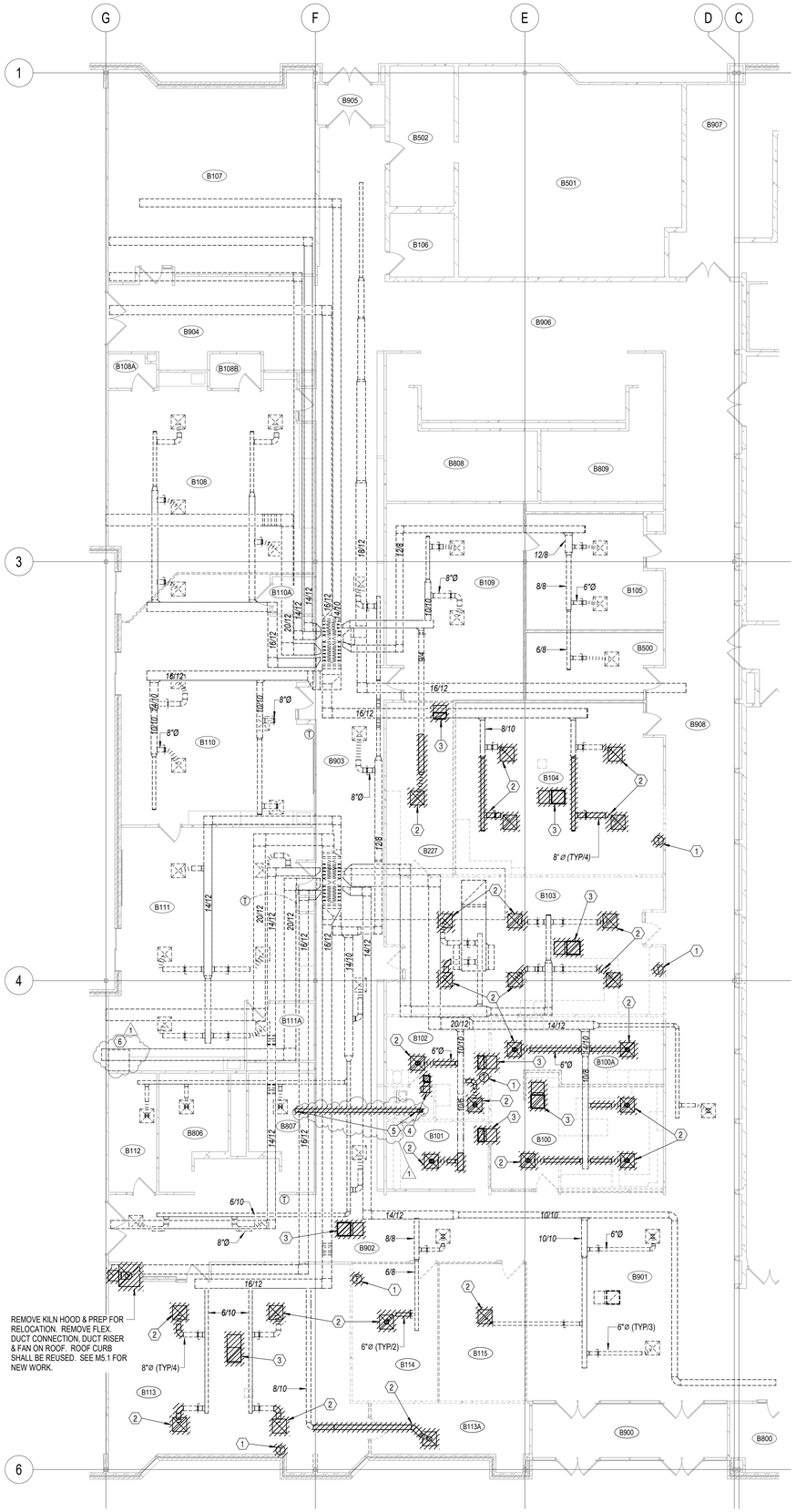
ISSUE DATE
JANUARY 12, 2023

SHEET NAME
PLUMBING DEMOLITION PLANS

ATS&R PROJECT NO.
22064

REVISION NO.
1

SHEET NUMBER
MD1.1



1 MD1.2 FIRST FLOOR HVAC DEMOLITION PLAN

1/8" = 1'-0"

NORTH

RM. NO.	NAME
B100	LOBBY
B100A	RECEPTION
B100B	MAIL
B100C	OFFICE
B100D	AP OFFICE
B100E	PRINCIPAL OFFICE
B100F	RESTROOM
B100G	NURSE
B100H	OFFICE
B103	LIBRARY
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B902	CORRIDOR
B903	CORRIDOR
B904	CORRIDOR
B905	VESTIBULE
B906	CORRIDOR
B907	CORRIDOR
B908	CORRIDOR
B909	CORRIDOR

NOTE:

HATCHING DENOTES MECHANICAL DUCTWORK AND/OR EQUIPMENT TO BE REMOVED.

ALL DASHED MECHANICAL EQUIPMENT ON THIS SHEET AND/OR MECH. EQUIPMENT NOT SHOWN SHALL REMAIN UNLESS OTHERWISE NOTED.

ALSO NOTE: EXIST. DUCTWORK SIZING & EQUIPMENT TAGS ARE SHOWN IN ITALICS.

- TYPICAL THIS SHEET -

GENERAL DEMOLITION NOTES

1. IF HAZARDOUS MATERIALS ARE ENCOUNTERED, DO NOT PROCEED, BUT NOTIFY OWNER IMMEDIATELY.
2. WHEN PIPING AND/OR DUCTWORK IS INDICATED TO BE REMOVED, CONTRACTOR SHALL REMOVE ABANDONED DUCTWORK AND/OR PIPING IN ITS ENTIRETY. DO NOT ABANDON IN PLACE UNLESS INDICATED.
3. WHEN EQUIPMENT IS SHOWN TO BE REMOVED, THE CONTRACTOR SHALL DEMOLISH AND REMOVE ASSOCIATED EQUIPMENT INCLUDING, BUT NOT LIMITED TO: DUCTWORK, GRILLES, REGISTERS, DIFFUSERS, TEMPERATURE SENSORS, PNEUMATIC TUBING, VALVES, FITTINGS, RELATED SENSORS, DAMPERS AND ANCHORS. ETC.
4. WHEN PIPING OR INSULATED DUCTWORK IS REMOVED, CONTRACTOR SHALL REPAIR AND/OR REPLACE DAMAGED INSULATION. REPLACE INSULATION VOIDS WITH MATERIAL TO MATCH EXCISTING THICKNESS AND TYPE. SEAL INSULATION JACKET AND INSULATE NEW PIPE CAPS.
5. CONTRACTORS SHALL FIELD-VERIFY SIZE AND LOCATIONS OF ALL PIPING AND EQUIPMENT SHOWN ON DEMOLITION PLANS. SIZES AND LOCATION OF EQUIPMENT. DUCTWORK AND PIPING SHOWN PER ORIGINAL
6. DOCUMENTS.
7. DEMOLISHED MATERIAL SHALL BE REMOVED AND DISPOSED OF IN COMPLIANCE WITH SPECIFICATIONS, FEDERAL, STATE AND LOCAL CODES.
8. CONTRACTOR SHALL GROUT ALL FLOOR OPENINGS THAT ARE NOT TO BE REUSED.
9. WHEN TEMPERATURE SENSORS ARE REMOVED, REMOVE RELATED AIR LINES/WIRING BACK TO SOURCE & CAP/CRIMP. PROVIDE COVER PLATE WHERE NEW SENSOR LOCATIONS IS OTHER THAN SHOWN ON PLAN.
10. COORDINATE WITH NEW WORK DRAWINGS. FIELD-VERIFY ALL LOCATIONS.

TERMINATE HEATING TERMINAL UNIT PIPING REMOVED UNDER THIS PROJECT WITH BALL VALVES AND CAPS AT FLOWING MAIN. (TYPICAL)

ALL WALL PATCHING ABOVE CEILING BY MECHANICAL. WALL PATCHING BELOW CEILING BY ARCH.

NOTE: ALL WORK MUST PROCEED CONSECUTIVELY AND IN COORDINATION WITH CONSTRUCTION SCHEDULES.

SPECIFIC NOTES

1. REMOVE TEMPERATURE SENSOR & PREP FOR RELOCATION. REMOVE WIRING BACK TO SOURCE & CAP.
2. REMOVE SUPPLY AIR DIFFUSER & PORTION OF BRANCH DUCTWORK AS REQUIRED FOR NEW WORK. SEE SHEET M5.1 FOR NEW WORK.
3. REMOVE RETURN AIR GRILLE & RELATED DUCT BOOT.
4. REMOVE TRANSFER AIR DUCT & RELATED GRILLE.
5. REMOVE EXHAUST AIR DUCT & RELATED GRILLE. CAP EXHAUST AT ACTIVE MAIN AIR TIGHT.
6. DISCONNECT VENT PIPING FROM DRYER AND RECONNECT ONCE WORK IN ROOM IS COMPLETE.

ATSR

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SHEET NAME
HVAC DEMOLITION PLANS

ATS&R PROJECT NO.
22064

REVISION NO.
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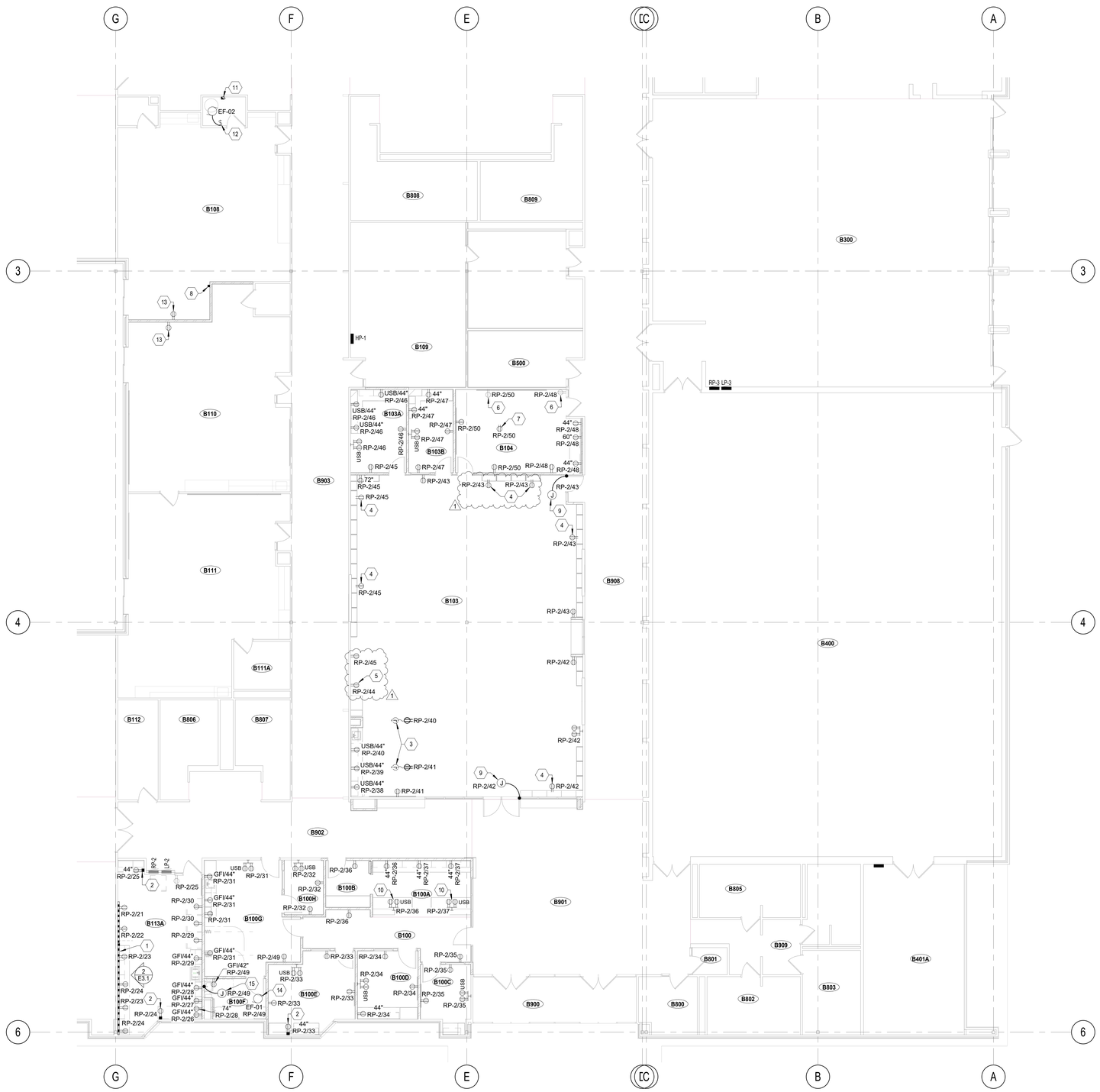
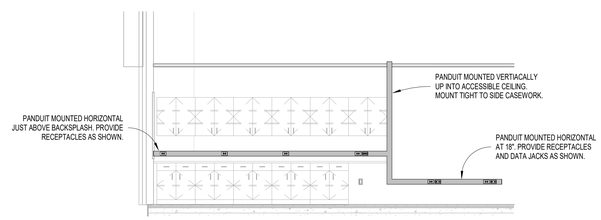
SHEET NUMBER

MD1.2



1 **POWER PLAN** E3.1 — 1/8" = 1'-0"



2 **B113A WEST WALL ELEVATION** E3.1 — 1/4" = 1'-0"

TYPICAL POWER TAG

RECEPTACLE TYPE — GFI48" / L104/1 — MOUNTING HEIGHT. IF NO HEIGHT NOTED THEN RECEPTACLE IS AT 18" — PANEL/CIRCUIT NUMBER

GENERAL NOTES

A. ENGRAVE THE PANEL NAME AND CIRCUIT NUMBER FEEDING ALL RECEPTACLES ON THE FACE OF THE COVERPLATE.

B. DEDICATED NEUTRALS FOR EACH BRANCH CIRCUIT. MINIMUM OF 3/4" CONDUIT FOR ALL CIRCUITS. 1/2" CONDUIT MAY BE USED FOR END OF RUN TO SINGLE DEVICE.

C. PROVIDE PANEL NAME AND CIRCUIT NUMBERS, OF ALL CIRCUITS CONTAINED IN JUNCTION BOX, ON THE FRONT OF ALL JUNCTION BOX COVERS.

KEYED SHEET NOTES

1. PANDUIT SURFACE MOUNTED JUST ABOVE BACKSPLASH. PROVIDE RECEPTACLES SHOWN. SEE DETAIL 2/E3.1.
2. RECEPTACLE MOUNTED IN VERTICAL PANDUIT.
3. RETRACTABLE CORD REEL SIMILAR TO KH INDUSTRIES CRA-8/15-T14G WITH 20' OF 14/3 SJ CORD AND (3) GROUNDED RECEPTACLES. MOUNT TO BOTTOM OF BAR JOIST AND PROVIDE GROMMET IN CEILING TILE FOR CORD. CONNECT TO CIRCUIT SHOWN. VERIFY EXACT LOCATION WITH ARCHITECT. TYPICAL OF 2.
4. RECEPTACLE SHALL BE FLUSH MOUNTED HORIZONTALLY IN THE CENTER OF THE TOE KICK OF CASEWORK.
5. PROVIDE RECEPTACLE FOR COMPUTER CHARGING CART.
6. MOUNT NEW RECEPTACLE IN EXISTING OUTLET BOX.
7. PROJECTOR - FLUSH MOUNT RECEPTACLE IN OPENING PROVIDED IN PROJECTOR MOUNTING PAN FURNISHED BY OWNER.
8. REINSTALL VERTICAL PANDUIT HERE. EXTEND/MODIFY CIRCUITING AS REQUIRED. SEE NOTE 25 ON SHEET ED.1.
9. PROVIDE JUNCTION BOX ABOVE ACCESSIBLE CEILING FOR ELECTRIC DOOR LOCK CONTROLLER. MAKE CONNECTION AS REQUIRED TO ELECTRIC DOOR LOCK.
10. FLUSH MOUNT IN BACK WALL OF CASEWORK IN CUTOUTS PROVIDED BY CASEWORK MANUFACTURERS.
11. KILN - PROVIDE A 60A/2P NON-FUSED DISCONNECT. ROUTE 3/4" C - 2 #6 & #10 GR TO A 60A/2P BREAKER IN PANEL DP-4. MAKE REQUIRED CONNECTION FROM DISCONNECT TO KILN.
12. KILN EXHAUST - PROVIDE A SINGLE POLE SWITCH WITH PILOT LIGHT. ROUTE 1/2" C - 2 #12 & #12 GR FROM A NEW 20A/1P BREAKER IN PANEL RP-1 THRU SWITCH TO EXHAUST FAN, MOTOR EF-02, LOCATED OF ROOF. DISCONNECT AT MOTOR FURNISHED BY DIVISION 23.
13. CONNECT TO EXISTING RECEPTACLE CIRCUIT IN ROOM.
14. TOILET EXHAUST FAN EF-01 LOCATED ON ROOF. CONNECT TO CIRCUIT SHOWN. DISCONNECT AT MOTOR FURNISHED BY DIVISION 23. CONTROLLED BY DIVISION 23.
15. PROVIDE JUNCTION BOX ABOVE ACCESSIBLE CEILING FOR SENSOR FAUCET CONTROL TRANSFORMER, FURNISHED BY DIVISION 22 CONTRACTOR. ROUTE CONDUIT TO FAUCET AND MAKE ALL CONNECTIONS AS REQUIRED. VERIFY EXACT LOCATION WITH DIVISION 22 CONTRACTOR.

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CONSULTANTS

REVISIONS

REV NO	DESCRIPTION	DATE
1	Addendum #2	02/02/2023

Dayton Elementary School

Remodeling and Deferred Maintenance Phase 1

Anoka-Hennepin School District 11
12000 S. Diamond Lake Rd., Dayton, MN 55327

SIGNATURE / SEAL

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly licensed Professional Engineer under the laws of the State of Minnesota.

Signature

Nicholas Achina, PE
Typed or printed name

January 12, 2023
Date

40408
License Number

KEYPLAN

DRAWN BY
RGE

CHECKED BY
N ACHINA

ISSUED FOR
CONSTRUCTION DOCUMENTS

ISSUE DATE
JANUARY 12, 2023

SHEET NAME
POWER PLAN

ATS&R PROJECT NO.
22064

REVISION NO.
1

SHEET NUMBER
E3.1