ADDENDUM NO. 1
August 31, 2022

Re: HAMILTON ES HVAC REPLACEMENT
DEFERRED MAINTENANCE - PHASE 3
Anoka-Hennepin School District 11, Anoka, MN
ATS&R Project Number: 20050.2
Anoka Bid No. 23003B

TO ALL CONTRACTORS

The following are clarifications and/or changes to the Plans and Specifications dated August 18, 2022 for the above-named Project, to be Bid on September 15, 2022 @ 2:00 PM.

ENCLOSURE: ***Certification Page(s). Pre-Bid Sign In Sheet.***

Architectural: ***New*** Revised Section 01 11 00, ***New*** Section 12 32 16. ***Revision Drawings***: A2.1, A2.2, A3.1, A3.2, A11.1, A11.2, A11.3, and A11.4.

Mechanical: ***New*** Revised Section 23 25 00. ***Revision Drawings:*** M3.1, M4.1, M6.1, M9.1, and M10.2.

Electrical: ***New*** Revised Section 27 51 30.

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 11 13 of the Project Manual:

   a. Refer to Pre-Bid Meeting. The Sign-In Sheet is included as an enclosure with this Addendum For Informational Purposes Only.

ARCHITECTURAL SPECIFICATIONS

3. Section 01 11 00 of the Specifications:

   a. ***Delete*** Section 01 11 00 in its entirety and replace with ***New*** Revised Section 01 11 00, included as an enclosure with this Addendum. Refer to ***Bold and Italic*** items within Section.

4. Section 12 32 16 of the Specifications:

   a. ***Add New*** Section 12 32 16 in its entirety, included as an enclosure with this Addendum.

ARCHITECTURAL DRAWINGS

5. Sheet A2.1 of the Drawings:

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

6. Sheet A2.2 of the Drawings:

   a. Replace Sheet A2.2 with Sheet A2.2, Revision 1 (clouded revision(s), included as an enclosure with this Addendum.

7. Sheet A3.1 of the Drawings:

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

8. Sheet A3.2 of the Drawings:

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

9. Sheet A11.1 of the Drawings:

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

10. Sheet A11.2 of the Drawings:

    a. Replace Sheet A11.2 with Sheet A11.2, Revision 1 (clouded revision(s), included as an enclosure with this Addendum.

11. Sheet A11.3 of the Drawings:

    a. Replace Sheet A11.3 with Sheet A11.3, Revision 1 (clouded revision(s), included as an enclosure with this Addendum.

12. Sheet A11.4 of the Drawings:

    a. Replace Sheet A11.4 with Sheet A11.4, Revision 1 (clouded revision(s), included as an enclosure with this Addendum.

MECHANICAL SPECIFICATIONS

13. Section 23 25 00 of the Specifications:

    a. ***Delete*** Section 23 25 00 in its entirety and replace with ***New*** Revised Section 23 25 00, (***Refer to entire Section for Changes)***, included as an enclosure with this Addendum.

MECHANICAL DRAWINGS

14. Sheets M3.1 of the Drawings:

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

15. Sheets M4.1 of the Drawings:

    a. Replace Sheet M4.1 with Revision 1 to Sheet M4.1 (clouded revision(s), included as an enclosure with this Addendum.

16. Sheets M6.1 of the Drawings:

    a. Replace Sheet M6.1 with Revision 1 to Sheet M6.1 (clouded revision(s), included as an enclosure with this Addendum.

17. Sheets M9.1 of the Drawings:

    a. Replace Sheet M9.1 with Revision 1 to Sheet M9.1 (clouded revision(s), included as an enclosure with this Addendum.

18. Sheets M10.2 of the Drawings:

    a. Replace Sheet M10.2 with Revision 1 to Sheet M10.2 (clouded revision(s), included as an enclosure with this Addendum.

ELECTRICAL SPECIFICATIONS

19. Section 27 51 30 of the Specifications:

    a. ***Delete*** Section 27 51 30 in its entirety and replace with ***New*** Revised Section 27 51 30, (***Refer to entire Section for Changes),*** included as an enclosure with this Addendum.

END OF ADDENDUM

20050.2

DOCUMENT 00 01 05

CERTIFICATION PAGE

PROJECT:

HAMILTON ELEMENTARY SCHOOL
HVAC REPLACEMENT/DEFERRED MAINTENANCE - PHASE 3
1374 111th Avenue Northwest
Coon Rapids, Minnesota 55433

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 August 18, 2022 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 August 18, 2022 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 August 11, 2022 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 August 18, 2022 License No. 40408

END OF DOCUMENT

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PRE-BID MEETING

SIGN IN SHEET

ANOKA HENNEPIN SCHOOL DISTRICT 11

HAMILTON ELEMENTARY SCHOOL

HVAC REPLACEMENT AND DEFERRED MAINTENANCE – PHASE 3

BID DATE: September 15, 2022 @ 2:00 PM
PRE-BID MEETING: August 30, 2022 @ 4:00 PM
PROJECT NUMBER: 20050.2 – ANOKA BID NUMBER: 23003B

PRESENT: (Please write/print clearly – Thank You)

NAME	COMPANY	PHONE NO.	EMAIL ADDRESS
BEN WILLIAMSON	ATSR		
MIKE BESEKA	ATSR		
JACK PARKOS	PARKOS CONST	612-919-6962	OFFICE@PARKOSCONSTRUCTION.COM
Chad Parkos	Parkos Const	612-919-6964	OFFICE@Parkosconstruction.com
SCOTT LODICO	ENVIROBATE	612 363 7015	slodico@envirobate.com
Mat Bentz	Ebert Construction	612-986-2144	mbentz@ebertconst.com
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Theo Fryc	Painting by Nakusak	651-646-6999	theo@pbnmn.com
Adam Fechner	Dynamic Fire Protection	651-329-3605	adam.fechner@dynamicfireprotection.net
Jim Penzenstall	Lakes Area Electric	651-248-2354	Jim@Lakesareaelectric.net
Jake Volkman	Kellington	763 458 5051	jvolkman@kellington.com
Curt Maki	ISD #11		

Armstrong, Torseth, Skold and Rydeen, Inc. (ATS&R)

SECTION 01 11 00

SUMMARY OF WORK

PART 1 - GENERAL

1.01 SUMMARY

A. **Section Includes:**

1. Project Information.
2. Work Covered by Contract Documents:
   a. Work Includes
   b. Type of Contract
3. Contractor Access and Use of Existing Site.
4. Communications Between Workers and Staff, Students and Public
5. Specifications and Drawing Conventions.
6. Additional Requirements

1.02 PROJECT INFORMATION

A. **Project Identification:**

1.	Project Title:	**Hamilton Elementary School** **HVAC Replacement and Deferred Maintenance - Phase 3**
2.	Project Locations:	1374 111th Avenue Northwest Coon Rapids, Minnesota 55433
3.	Project Number:	20050.2

B. **Owner:**

1.	Name/Address:	Anoka-Hennepin School District 11 2727 North Ferry Street, Anoka, MN 55303

C. **Architect/Engineer:**

1.	Name/Address	Armstrong, Torseth, Skold & Rydeen, Inc. (ATS&R) 8501 Golden Valley Road, Suite 300 Minneapolis, MN 55427-4414
2.	Telephone Number:	763-545-3731
3.	Fax Number:	763-525-3289

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4. Representatives:

a.	Project Architect:	David A. Maroney, AIA
b.	Mechanical Engineer:	Blayne J. Parkos, PE
c.	Electrical Engineer:	Nicholas Achina, PE

D. **Architect's Consultants:**

1. Structural Engineer:

a.	Name/Address:	IMEG Corporation 12755 Highway 55, Suite 100 Minneapolis, MN 55441
b.	Telephone Number:	763-545-9196
c.	Fax Number:	763-541-0056
d.	Representative:	Timothy G. LaBissoniere, PE

1.03 WORK COVERED BY CONTRACT DOCUMENTS

A. **Work Includes:** The Work of the Project as defined by the Contract Documents consists of Hamilton Elementary School, HVAC Replacement and Deferred Maintenance – Phase 3, located at 1374 111th Avenue Northwest, Coon Rapids, Minnesota 55433, as represented in the Contract Documents prepared by Armstrong, Torseth, Skold & Rydeen, Inc., Architects and Engineers, Minneapolis, Minnesota and their Consultants.

B. **Type of Contract:** Project will be constructed under a Single Prime Contract.

C. **Related Work:** Testing, adjusting, and balancing work, related to mechanical systems will be performed under separate direct contracts with Owner.

1.04 WORK BY OWNER

A. **General:** Where specifically noted as "By Owner", "By Others", "NIC", "Not in contract", or similar, Owner will be responsible for providing (furnishing and installing as required by each item) certain items of work using their own forces or under separate contract(s). Cooperate fully with Owner so work may be carried out smoothly, without interfering with or delaying work under this Contract or work by Owner. Coordinate the Work of this Contract with work performed by Owner.

B. **Preceding Work:** Owner will perform the following work at Project site. Those operations are scheduled to be substantially complete before work under this Contract begins.

1. Remove existing furnishings and equipment to be retained by Owner which are within construction limit for Project.

C. **Hazardous Material Abatement:** Owner's forces will be performing removal of existing hazardous materials, at locations and dates noted on Drawings, refer to Sheet A1.1. Contractor shall coordinate their demolition and construction to not interfere with Owner's forces. The hazardous removal process may be affected by vibration and dust, and for example, shall not be concurrent with concrete floor polishing.

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~~D. **Casework:** Owner will furnish and install all new casework and related countertops, backsplash, filler panels, scribe strips where noted on Floor Plans and as shown on Casework Elevations. Provide in Contract sinks and fixtures noted in Owner provided casework as indicated in Mechanical Documents. Provide in Contract vinyl base as specified in Section 09 65 13 on Owner provided casework.~~

Paragraph D deleted in Addendum No. 1

E. **Commissioning, Testing and Balancing:** Commissioning, Testing, and Balancing of Mechanical Systems will be under Separate Contract by Owner.

1.05 CONTRACTOR'S ACCESS AND USE OF EXISTING SITE

A. **General:** Contractor shall have limited use of Project site for construction operations as indicated on Drawings by the Contract limits and as indicated by requirements of these Specifications.

B. **Owner Occupancy:**

1. During the entire construction period, the Owner will be occupying or using non-construction affected portions of the existing building and site.

2. Contractor shall confine operations at Project site and within existing building as coordinated with the Owner so that the Owner's operations are not impacted.

3. If Contractor's operations will affect Owner's operations and usage of site, Contractor shall give Owner ample notification to coordinate and schedule operations in order to minimize impact on Owner. Schedule work around Owner's occupancy schedule if possible to include scheduling work before or after the Owner's occupancy schedule, weekends, and when site and building are not occupied.

4. Project commencement and completion is during the summer, and therefore Contractor will have access to site during normal business hours, unless required to work around Owner's occupancy schedule.

C. **Site Access and Parking:**

1. Coordinate site access and parking restrictions for Project related personnel with Owner.

2. Project personnel shall use designated driveways to access site and park in designated locations only.

D. **Delivery of Materials:**

1. Coordinate with Owner, site access points, drive routes, delivery time restrictions, and delivery locations with Owner.

2. Keep driveways, parking areas, loading areas, and entrances serving premises clear and available to Owner, Owner's staff, and emergency vehicles at all times.

3. Schedule deliveries at times when Owner's operations will be least impacted and minimize use of driveways and entrances by construction operations.

4. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.

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E. **Building Access:**

1. Construction personnel shall use only designated and Owner approved entrances for access into driveway.

2. Construction personnel shall be restricted to designated access routes within existing building to access areas of work.

3. Maintain building exits and exit routes as required by governing authorities.

4. If Contractor finds it necessary to perform work during times when the Owner is not occupying the building, coordinate and make arrangements with the Owner to obtain access. Contractor shall maintain building security.

F. **Storage of Materials On-Site:**

1. Exterior storage of materials shall be within enclosed containers if possible.

2. When a construction fenced area is noted, store construction materials within fenced area.

3. Exterior storage of materials, if required, shall be in area noted on Drawings or as coordinated and approved by Owner if a designated location has not been pre-determined.

4. Consolidate material storage to minimize space required.

5. If possible, do not have materials delivered to site before they are needed for installation.

6. If Owner will allow storage of materials within building, coordinate with Owner specific location(s) for interior storage which will minimize disruption of Owner's operations and protect building occupants from injury and access to materials.

7. Contractor is responsible for the protection and safekeeping of products and equipment stored on Project site, and for using means and methods that will protect the Owner's personnel and public from injury.

8. Store and protect materials and equipment using means and methods which will protect products from damage as required by product manufacturers.

G. **Temporary Facilities:** Refer to Specification Section 01 50 14 for requirements and restrictions associated with temporary facilities.

H. **Waste and Trash Removal:**

1. Owner's existing on-site trash receptacles shall not be used for disposal of construction related waste and trash.

2. Contractor shall provide appropriate trash receptacles to receive waste materials generated by construction operations as specified.

3. Contractor to coordinate, with Owner, location(s) that are acceptable for dumpsters or trash receptacles.

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I. **Identification of Construction Personnel**: Construction related personnel shall maintain visible employer identification badges at all times while on Project site.

J. **Tobacco/Drug/Alcohol/Fire Arm Restrictions:**

1. Entire site to be tobacco free, drug free, alcohol free, and fire arm free.

2. Smoking tobacco, chewing tobacco, drugs, alcohol, and fire arms shall not be brought on or used on Owner's property at any time.

3. Owner's property is defined as the area within the property line around the entire school site.

4. Contractor shall be responsible for posting signs and enforcement of these requirements.

K. **Damage to Owner's Property**:

1. Contractor is responsible for protecting from damage caused by construction operations the existing Project site, building, and building contents which are beyond the construction limits for the Project and site to remain unaffected by the Work.

2. Repair or replace existing finishes, fixtures, materials, equipment, and construction which is to remain and was intended to be unaffected by the Work, which is damaged during construction operations associated with the Project.

3. Patching or replacement of Owner's existing property that was to remain but that is damaged by the Work shall be equal to or a better quality than the condition or quality of the property that was damaged, or shall be restored to match surrounding existing conditions before damage occurred as acceptable to Owner and Architect/Engineer.

L. **Existing Utility Interruptions**: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after providing temporary utility services in accordance with requirements indicated:

1. Notify Owner not less than (2) days in advance of proposed utility interruptions.

2. Obtain Owner's written permission before proceeding with utility interruptions.

M. **Noise, Vibration, and Odors**: Coordinate with Owner, operations that may result in high levels of noise and vibration, odors, or other disruption to Owner occupancy with Owner.

1. Notify Owner not less than (2) days in advance of proposed disruptive operations.

2. Obtain Owner's written permission before proceeding with disruptive operations.

N. **Condition of Existing Building:**

1. Maintain portions of existing building affected by construction operations in a weathertight condition throughout construction period.

2. Repair damage caused by construction operations.

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1.06 COMMUNICATIONS BETWEEN WORKERS AND STUDENTS, STAFF, AND PUBLIC

A. **Communications With Students:** No communication between workers and students on Project site shall take place. Questions or comments initiated by students shall be ignored. If a problem develops with a student or group of students, report problem to Project Superintendent, who in turn shall report it to School District representative.

B. **Communications With Staff and Public:** Questions and comments initiated by staff or public shall be referred to School District representative. Be polite but do not make any attempts to answer questions or respond to comments initiated by staff or public.

1.07 SPECIFICATION AND DRAWING CONVENTIONS

A. **Specification Content:** Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:

1. Imperative mood and streamlined language are generally used in the Specifications. The words "shall", "shall be", or "shall comply with", depending on the context, are implied where a colon (:) is used within a sentence or phrase.

2. Specification requirements are to be performed by Contractor unless specifically stated otherwise.

B. **Division 01 - General Requirements:** Requirements of Sections in Division 01 apply to the Work of all sections in the Specifications.

C. **Drawing Coordination:** Requirements for materials and products identified on Drawings are described in detail in the Specifications. One or more of the following are used on Drawings to identify materials and products:

1. Terminology: Materials and products are identified by the typical generic terms used in the individual Specification sections.

2. Abbreviations: Materials and products are identified by abbreviations, which are defined in Section 01 42 13 of the Specifications.

1.08 MISCELLANEOUS PROVISIONS

A. **Hazardous Materials:**

1. Architect will have no duty to discover, detect or investigate the presence of hazardous materials at or near the Project site at any time prior to, during or after the design or construction of the Project.

2. Should Contractor know, detect or suspect the presence of a hazardous material at or near the Project site, Contractor shall inform Owner.

3. Upon Contractor's notification, Owner will provide appropriate action, including but not limited to, verification of the presence of hazardous materials and determining proper procedures that will be used to deal with the hazardous materials.

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B. **Advertising:** Contractors, Subcontractors, Suppliers, and Vendors or agents thereof associated with the Work of the project shall not use in their external advertising, marketing programs or other promotional efforts, any data, pictures, or other representation of the District except on the specific, written authorization, in advance, of the District's Department of Public Relations.

C. **Health and Safety Requirements:** Workers shall follow applicable health and safety requirements from authorities having jurisdiction, including Federal CDC guidelines, Minnesota Department of Health guidelines, and State of Minnesota Executive Orders.

PART 2 - PRODUCTS Not Used

PART 3 - EXECUTION Not Used

END OF SECTION

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SECTION 12 32 16

PLASTIC LAMINATE FACED CASEWORK

PART 1 - GENERAL

1.01 SUMMARY

A. **Section Includes:**

1. Provide prefabricated and custom plastic laminate faced casework where noted, including plastic laminate mechanical chases and plywood surfaced soffits, walls, and miscellaneous fabrications.

2. Provide plastic laminate faced filler panels, scribe strips, and trim required for a complete installation.

3. Provide plastic laminate faced countertops on plastic laminate faced casework, unless otherwise indicated.

    a. Provide 3mm PVC edging on vertical edges of countertops where noted on Drawings.

    b. Provide backsplashes and endsplashes on plastic laminate faced countertops unless noted otherwise on Drawings.

4. Provide Project site constructed plywood sub-bases for support of floor mounted cabinet units as specified in this Section.

    a. Cabinet base height to be 4 1/2 inches, in order to accommodate vinyl base specified under Section 09 65 13.

5. Provide accessory materials related to plastic laminate faced casework as specified in this Section.

6. Provide hardware for plastic laminate faced casework as specified.

7. Provide aluminum edge trim where specifically noted on Drawings, and where specified within this Section.

8. Provisions Related to Mechanical Systems to be Built Into Casework:

    a. Provide holes/openings required to allow for fixtures and other mechanical related components to be built into, on, or through casework cabinets, countertops, and backsplashes. Coordinate size and location of holes/openings with Mechanical Contractor.

    b. Provide access panels in casework cabinets if needed to allow access to concealed mechanical components. Coordinate the need for access panels and their sizes and locations with Mechanical Contractor as approved by Architect.

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9. Provisions Related to Electrical and Communication Systems to be Built Into Casework:

   a. Before start of casework manufacture and related Project site electrical installation work, coordinate with Electrical Contractor location of where electrical and Communication systems will be installed in building structure in relationship to each casework unit requiring connection to them.

   b. Provide holes/openings required to allow for electrical and communication system components to be built into, on, or through casework cabinets, countertops, and backsplashes.

      1) Coordinate with Electrical Contractor:

         a) Size and location of holes/openings required.

         b) Raceways to be constructed within casework cabinets to accommodate routing of Project site installed electrical and communication system components by Electrical Contractor.

   c. Provide access panels in casework cabinets if needed to allow access to concealed electrical and communication system components. Coordinate the need for access panels and their sizes and locations with Electrical Contractor as approved by Architect.

B. **Related Sections:**

1. Section 09 21 16: Blocking within steel stud framed walls for fastening casework.
2. Section 09 65 13: Resilient base on casework.

C. **Related Work:**

1. Mechanical: After casework has been delivered, uncrated, set in place, fitted, trimmed, leveled, and anchored by casework supplier, Mechanical Contractor shall install plumbing products and make connections to service utility lines.

   a. Refer to Related Installation Work By Mechanical Contractor paragraph under "Installation" Article in Part 3 of this Section.

2. Electrical: Concurrent with casework installation, Electrical Contractor shall:

   a. Provide conduit/raceways and related boxes within casework, for wiring to electrical power and communication system devices, as coordinated with casework supplier.

   b. Provide wiring in conduit/raceways within casework.

   c. Provide electrical and communication system devices and cover plates.

   d. Provide all wiring connections.

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1.02 REFERENCES

A. **American National Standards Institute (ANSI)**: ANSI A208.1, Mat-Formed Wood Particleboard

B. **Americans With Disabilities Act (ADA)**: ADA Accessibility Guidelines for Buildings and Facilities

C. **National Electrical Manufacturers Association (NEMA)**: NEMA LD3, High-Pressure Decorative Laminates

1.03 DEFINITIONS

A. **Definition of Cabinet Components by Surface Visibility:**

1. Exposed Surfaces:

   a. Surfaces visible when drawers and solid (non-glazed) doors are closed.

   b. Interior surfaces of open units.

   c. Bottoms of cabinets 42 inches or more above finish floor.

   d. Tops of cabinets less than 78 inches above finish floor, or are visible from an upper floor or occupied space after installation.

   e. Front edges of cabinet body members visible through a gap greater than 1/8 inch with doors and drawers closed.

   f. Surfaces visible when fixed appliances are installed.

2. Semi-Exposed Surfaces:

   a. Surfaces on interior of cabinet which are visible when doors are open.

   b. Bottoms of cabinets 30 inches to 42 inches above finish floor.

   c. Front edges of shelving behind doors.

3. Concealed Surfaces:

   a. Surfaces not visible after installation.

   b. Bottoms of cabinets less than 30 inches above finished floor.

   c. Tops of cabinets over 78 inches above finished floor which are not visible from an upper level or raised floor area within the room or adjacent spaces.

   d. Stretchers, blocking, and components concealed by drawers.

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1.04 SYSTEM DESCRIPTION

A. **Design Requirements:**

1. Casework to be flush overlay construction with hinged doors and drawer fronts overlaying cabinet body (ends/sides/stiles, top rail, intermediate rails, and bottom rail).

    a. Conceal vertical and horizontal case shell members (stiles and rails) behind doors and drawer fronts.

2. Design of doors and drawer fronts to be square edge and square corners.

3. Within front of each cabinet and at connection to adjacent cabinets, provide not more than a 1/8-inch wide reveal between pairs of doors, between doors and drawers, between drawers, and between doors and drawers and adjacent trim and filler panels.

4. Support separate individual floor mounted casework units (cabinets), and groups of adjacent floor mounted casework units, on a separate sub-base. Sub-base to be continuous under all units of a group. Project site fabricate sub-bases using materials furnished by casework supplier. Casework units supported by integral end panels for each individual cabinet extending down to floor are not acceptable, unless otherwise indicated or approved for a specific casework unit design.

5. Interior of casework units shall be flush and easily cleanable.

6. Base cabinets with double (paired) swinging doors shall provide full access to complete interior without center vertical post, unless a standard referenced casework unit has a center vertical divider or one is specifically indicated to be provided in a modified standard unit.

7. Drawers are to be modular in order to be interchangeable with similar drawers and are to be easily removable in field without the use of special tools.

8. Concealed shelving, behind closed doors, to be pressure fused laminate on particleboard core, with PVC front and back edging.

9. Exposed shelving to be 1-inch plywood core surfaced top and bottom with plastic laminate, and all edges covered with either PVC edging or plastic laminate edging to match face of shelves.

B. **Americans with Disabilities Act (ADA) Design Requirements:** Where specifically indicated on Architectural Drawings as "ADA", including a General Note, or included as part of casework manufacturer's referenced model number, casework units shall comply with special requirements of Federal Register Volume 56, No. 144, Rules and Regulations.

1.05 SUBMITTALS

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

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B. **Shop Drawings:**

1. Provide 1/4" = 1'-0" plan drawings of casework layouts with elevations of casework keyed into Plans.

2. Provide 1/2" = 1'-0" or larger elevation drawings of individual units and of banks of casework units which indicate countertop and backsplash materials, utilities required, filler and closure panels, dimensions, shelving, and accessories.

3. Provide cross sections of casework, details, anchor placements, tolerances, and clearances, and location and sizes of sinks, type and location of faucets and other fixtures, and other items to be installed in, on, or through countertops and backsplashes.

4. Indicate relationship of units to surrounding walls, windows, doors, and other adjacent and affected building components.

5. Indicate countertop and backsplash materials, countertop edge profile, backsplash profile, sink cutouts, and methods of attaching and joining countertops.

6. Provide rough-in utility plan drawings for coordination with trades.

7. Indicate all casework and countertop materials and construction.

8. Show cabinet-cut details and dimensions for casework and countertops.

9. Indicate plastic laminate surfaced countertops and backsplashes, include locations of sinks, fixtures, and all other items to be installed in countertops and backsplashes.

C. **Product Data:**

1. Specifications:

   a. Submit complete specifications for products being provided which confirm products comply with requirements of Project Specifications.

   b. Highlight deviations. If no deviations are identified, it is Architect's assumption that products strictly comply with specified requirements.

2. Manufacturer's Data: Submit manufacturer's data for each component and item of equipment and accessory specified.

D. **Samples for Color Selection:** For selection by Architect, submit manufacturer's color charts and samples which show full range of colors and finishes available for each prefinished material exposed to view, to include, but not be limited to, casework, work surfaces, edging materials, and accessories.

1.06 QUALITY ASSURANCE

A. **Source Limitations:** Obtain casework and related components through one source, from a single casework manufacturer, except where accessory items are specified to be manufactured by other than the casework manufacturer.

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B. **Product Designations on Drawings:**

1. Drawings indicate casework sizes, designs, configurations, features, and certain accessories which come standard with a particular item of casework by referencing a specific manufacturer's catalog numbers. Unless otherwise modified on Drawings or in Specifications, catalog description constitutes specific requirements for each type of cabinet.

2. Other manufacturers products not referenced, but which are approved as equivalent to manufacturer's products referenced, are obligated to provide casework equivalent in sizes, design, configurations, features, and quality, and which include accessories comparable to those provided as a part of casework units referenced on Drawings as approved by Architect.

C. **Installer Qualifications:**

1. Direct employee of casework manufacturer, direct employee of local authorized casework dealer, or installer approved by casework manufacturer.

2. Installers must be factory trained and certified, and shall perform installation work under the supervision of manufacturer's representative.

D. **Regulatory Requirements:**

1. Work and materials shall meet requirements of authorities having jurisdiction.

2. Provide products which comply with governing VOC requirements.

E. **Fire Performance Characteristics of Upholstered Seating**: Provide upholstered seating which comply with the following requirements, or approved equal:

1. Padding: New polyurethane foam with an average burn length not exceeding 8 inches and average flame time after removal of flame source not exceeding (15) seconds, with drippings from test specimen not continuing to flame for more than (5) seconds after falling when tested vertically in accordance with Federal Test Method Standard 191, Method 5903.2, or approved equal.

2. Fabric: Provide fabric in accordance with requirements of 16 CFR, Part 1610, Class I.

1.07 DELIVERY, STORAGE, AND HANDLING

A. **Delivery:**

1. Schedule delivery of casework and equipment so that spaces to receive casework are sufficiently complete, environmental requirements have been met, and after sufficient time has been allowed to condition casework to environmental conditions of installation area before beginning installation.

2. Protect casework during transit and reject casework damaged in transit.

B. **Off Project Site Storage**: If storage of casework is required, store casework under cover in a ventilated building, not exposed to extreme temperature and humidity changes, at conditions similar to those that will be in Project areas where units will be installed.

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1.08 PROJECT CONDITIONS

A. **Environmental Requirements:** Do not deliver casework to Project site until following conditions have been met:

1. Windows and doors are installed and building is enclosed, secure, and weathertight.

2. Wet-work such as concrete, masonry, and drywall finishing, is complete and dry.

3. Heating, ventilating, and air conditioning (HVAC) systems are operating and will maintain temperature and relative humidity levels intended for Owner occupancy during remainder of construction period.

4. Ceilings and overhead mechanical and electrical work have been installed.

5. Painting is complete.

B. **Field Dimensions:**

1. Casework supplier shall be responsible for details and dimensions which are controlled by site conditions and shall indicate, on Shop Drawings, required field dimensions beyond supplier's control.

2. Casework supplier shall coordinate with other working trades to establish and maintain field dimensions.

3. Verify that each casework item will be capable of passing through building openings and arriving at designated installation location. Indicate recommended changes on Shop Drawings for items too large for passage.

4. Provide fillers and scribes to allow for Project site trimming and fitting.

C. **Field Measurements for Countertops:**

1. Verify dimensions of countertops by field measurements after base cabinets are installed, but before countertop fabrication is complete.

2. Coordinate fabrication schedule with construction progress to avoid delaying Work.

1.09 SEQUENCING

A. **Coordination:** Coordinate layout and installation of blocking and reinforcement required in steel stud framed walls/partitions for attachment and support of casework.

1.10 WARRANTY

A. **Special Warranty:** Plastic laminate faced casework manufacturer shall provide written warranty against defects caused during manufacturing and installation of casework, including countertops, for a period of not less than 5 years following date of Substantial Completion of Project.

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PART 2 - PRODUCTS

2.01 MANUFACTURERS

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

1. Basis-of-Design Product: Requirements of these Specifications are based on casework meeting the design, quality of materials, sizes, configurations, features, workmanship, and function of the casework specified and implied by reference to the following manufacturer and product, and as shown on Drawings, regardless of alternative or approved manufacturer's "product standards", unless approved by Architect, in writing, prior to bidding:

   a. TMI Systems Design Corporation, Dickinson, ND, "Trimline Casework"

2. 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:

   a. Andersen Cabinets, Inc., North St. Paul, MN
   b. Case Systems, Inc., Midland, MI
   c. Northwest Cabinets, Inc., Bemidji, MN
   d. Northern Woodwork, Inc., Thief River Falls, MN
   e. Stevens Industries, Inc., Teutopolis, IL
   f. The Calmar Manufacturing Company, Calmar, IA, "Tru-Bilt Casework"

B. **Cabinet Designations on Drawings:** Drawings refer to catalog numbers of TMI Systems Design Corporation and are used to describe design, shape, size, and quality of casework desired.

C. **Deviations:** Manufacturers shall inform Architect, in writing, of deviations of materials or equipment specified or noted on Drawings. Manufacturers shall obtain written approval of deviations, from Architect, 7 days prior to Bid Date.

2.02 MATERIALS

A. **Plastic Laminate:**

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

   a. Formica Corporation
   b. Nevamar
   c. Wilsonart International, Inc.

2. Color Selection:

   a. Countertops: Equivalent of Wilsonart, Casual Linnen (4944-38), with matching PVC edging.
   b. Cabinets: Architect has option to select from any of the following (3) colors, in multiple colors, if desired:
      1) Equivalent of Wilsonart, Golden Oak Woodgrain (7888-60), with Bannister Oak Woodgrain PVC edging.
      2) Equivalent of Wilsonart, Wild Cherry (7054-60), with matching PVC edging.
      3) Equivalent of Wilsonart, Kengsinton Maple (10776-60), with matching PVC edging.

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3. Applicable Standards: Plastic laminate shall meet requirements of NEMA Standard LD3-2000 as specified.

4. Grade HGS: General Purpose type, 0.048-inch thick, high pressure decorative type, meeting requirements of NEMA Standard HGS48 in accordance with Publication LD3-2000.

5. Grade HGP: Post-forming type, 0.039-inch thick, high pressure decorative type, meeting requirements of NEMA Standard HGP39 in accordance with Publication LD3-2000.

6. Grade VGS: General purpose type, 0.028-inch thick, high pressure decorative type, meeting requirements of NEMA Standard VGS28 in accordance with Publication LD3-2000.

7. Grade VGL: General purpose type, 0.030-inch thick, high pressure decorative type, meeting requirements of NEMA Standard VGL30 in accordance with Publication LD3-2000.

8. Grade CLS: Cabinet liner type, 0.020-inch thick, high pressure cabinet liner type, meeting requirements of NEMA Standard CLS20 in accordance with Publication LD3-2000.

9. Grade BKL: Backer type, 0.020-inch thick, high pressure backer type, meeting requirements of NEMA Standard BKL20 in accordance with Publication LD3-2000.

B. **Pressure Fused Laminate:**

1. Melamine resin impregnated, 120 gram PSM minimum, surface laminated to core under pressure in accordance with NEMA Test LD3-2000.

2. Meeting requirements of NEMA LD3-2000 VGS/VGS Standards and NEMA LD3-2000 CLS Standards.

3. White pressure fused laminate for cabinet interiors behind solid doors and behind drawers.

4. Balance back of pressure fused laminate at all concealed surfaces with phenolic backer. Unsurfaced coreboard not allowed.

C. **Particleboard Core:** 47-pound density, of balanced 3-ply construction with moisture content of not more than 8 percent, in accordance with ANSI A208.1-1999, Grade M-3.

D. **Fiberboard:**

1. Uniform, medium density conforming to ANSI A208.2, meeting the following minimum standards:

   a. Screw Holding, Face: 355 Pounds
   b. Screw Holding, Edge: 300 Pounds
   c. Modulus of Rupture: 4,500 psi
   d. Modulus of Elasticity: 500,000 psi
   e. Internal Bond: 100 psi

2. Fiberboard components to be of following minimum core thicknesses prior to lamination:

   a. 1/2 Inch: Drawer sides, subfront and back; drawer bottom stiffeners.

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E. **Hardboard**: 1/4-inch thick tempered hardboard with a smooth surface on both sides, complying with requirements of Commercial Standards CS-251 and Federal Specifications LLL-B-00810.

F. **Edging Material:**

1. PVC Edging:

a. Material: Solid, high impact, purified, color-through, acid resistant PVC.
b. Thicknesses: 3mm thick as specified for various locations.
c. Exposed Edges: Edges of edge banding to be radiused for a uniform appearance.
d. Outside Corners: Corners of edge banding to be radiused.
e. Color: Solid or wood grain as selected by Architect from manufacturer's colors with option to select more than (1) color. Refer to 2.02, A, 2 for descriptions of edging.
f. Application: Factory machine-apply edging using hot melt adhesives.

2.03 ACCESSORY MATERIALS

A. **Casework Unit Accessories**: Provide each casework unit complete with accessory items which are considered to be standard equipment by manufacturer whose product unit numbers are referenced on Drawings, unless indicated as being, or are required to be, deleted or added as a result of modification of a standard casework unit.

1. Factory or Project site install accessory items on or in each casework unit.

2. An approved equal manufacturer shall provide accessory items similar to those that would be provided by manufacturer of referenced units, as approved by Architect.

B. **Casework Hardware**:

1. Hinges: Heavy duty, five knuckle 2 3/4-inch institutional type hinge shall meet ANSI/BHMA A156.9 Grade 1 requirements. Mill ground, hospital tip, tight pin feature with all edges eased. Hinge to be full wrap around type of tempered steel .095 inch thick. Each hinge to have minimum 9 screws, #7, 5/8-inch FHMS to assure positive door attachment. Hinge to accommodate 13/16-inch thick laminated door and allow 270 degree swing.

a. Hinge Quantity: One pair per door up to 48-inch door height; 1 1/2 pair over 48-inch door height.

b. Hinge Finish: No. LH-301 with ChromeCoat Powder Finish

2. Concealed Hinges: Hinges shall be Hafele H-Series Hinge Category No. 316.32.640 fully concealed, nickel plated, self-closing, 175-degree swing, European style with 6-way adjustment. Hinge shall permit door to swing 175 degrees without binding. Doors under 36 inches high shall have (2) hinges; 36 inches to 72 inches high shall have (3) hinges; and over 72 inches high shall have (4) hinges. Doros shall be self-closing and fitted with silencer bumpers. Equivalent product by Grass America, Inc., or Blum.

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3. Pulls: Pulls shall be Liberty P61200-SO-A, 4 inches on center, brushed chrome finish.

4. Drawer Slides:

   a. Standard Box Drawer Slides: KV8400 or equal

   b. File Drawer Slides: KV8505 or equal

5. Adjustable Shelf Supports: KV255 steel standards and KV256 clips.

6. Locks: CompX National disc tumbler cam lock

   a. Dull chrome US26D (626) finish.

   b. Provide locks for doors and drawers where indicated on Drawings.

   c. Provide (2) keys for each separately keyed lock.

   d. Key all locks located in each separate room alike.

   e. Key locks in accordance with Owner's instructions.

   f. Provide master keys as directed.

   g. Locks shall engage metal strike plate.

   h. Locks shall not use double or triple bitted keys.

   i. Locks shall permit withdrawal of keys without locking.

7. Magnetic Catches: Provide catches having an opening resistance in compliance with requirements of the Americans with Disabilities Act (ADA).

   a. Catch housing to be molded in White.

   b. Provide (1) top-mounted magnetic catch for each base, wall, and tall cabinet door.

8. Door Silencer: Molded rubber with built-in air chambers to absorb impact when casework door is closed, designed to be inserted into a hole drilled in casework.

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

      1) H.B. Ives Company, Model No. 21

   b. Provide silencers for casework doors where indicated.

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9. Wardrobe Rod: 1 1/16-inch diameter rod.

10. Coat Hooks:

    a. Single Coat Hooks, Wall Mounted: Satin aluminum finish.

    b. Double Coat Hooks, Wall Mounted: Satin aluminum finish.

2.04 CONSTRUCTION/FABRICATION OF CASEWORK

A. **General Requirements**:

1. Core for Plastic Laminate Surfacing: Provide specified particleboard, unless otherwise approved by Architect.

2. Finish Materials For Enclosed Interiors and Concealed Areas of Casework: Unless otherwise indicated, provide either cabinet liner on core material or pressure fused laminate core material on all surfaces.

3. Assembly devices to be concealed, including on bottom of wall cabinets.

B. **Detailed Requirements for Cabinet Construction**:

1. Cabinet Tops and Bottoms:

    a. Provide solid sub-top for all base and tall cabinets.

    b. Exterior bottoms of wall cabinet to be vertical general purpose grade plastic laminate.

    c. Provide vertical general purpose grade plastic laminate on tops of cabinets more than 5 feet high up to 7 feet high; top of cabinets 7 feet high or more that are exposed to view from a higher elevation within installation room/space or adjacent rooms/spaces, including through windows/borrowed lights.

2. Cabinet Sides (Ends):

    a. Cover exposed exterior surface of cabinet sides (ends) with vertical general purpose grade plastic laminate.

3. Cabinet Interiors:

    a. Interiors Behind Solid (Non-glazed) Doors: Either cabinet liner or pressure fused laminate on all surfaces.

    b. Interiors in Open Cabinets: Vertical general purpose grade plastic laminate on all surfaces.

4. Cabinet Backs - Concealed:

    a. Casework Manufacturer Has Option to: Provide any or all of the following:

        1) Fully house cabinet back into sides, top, and bottom of cabinet, recessed 7/8-inch from cabinet rear. Apply a continuous bead of hot melt adhesive at joint between back and sides/top/bottom at rear (concealed side) of cabinet back.

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2) Solid 3/4-inch thick back secured to top, bottom, and sides of cabinet with glue, dowels, and screws in lieu of routing back into cabinet construction.

3) Provide full overlay (plant-on) back complying with AWI standards as follows: Not less than 1/2-inch thick particleboard attached to cabinet top, bottom, and sides using 1 1/2-inch length #8 low root, high thread (not "drywall" type) screws at not more than 8 inches on center. Conceal edges of backs at cabinet sides.

4) Optional Cabinet Back: 1/4-inch medium density fiberboard back in lieu of 1/2-inch particleboard. Backs are routed into top, bottom, and sides of cabinet and a 3/4-inch particleboard hang rail dowel pinned and glued to cabinet sides.

b. Glue 3/4-inch thick hang/fastening rails to rear of cabinet back and mechanically fasten to cabinet sides. Provide not less than 2 at base cabinets, 2 at wall cabinets, and 3 at tall cabinets to provide extra rigidity and to facilitate installation.

5. Cabinet Backs - Exposed:

a. Cover exposed exterior surfaces with vertical general purpose grade plastic laminate and interior surface with cabinet liner or pressure fused laminate.

6. Access Panels:

a. Provide access panels in concealed backs and/or in bottom of casework where required to allow access to mechanical components such as cleanouts and valves.

b. Provide hinged access panels, within enclosed cabinet of same material as adjacent cabinet material or of metal, not less than 12 inches by 12 inches, with method of securing door in closed position.

c. Verify field conditions and coordinate locations and actual sizes required with Mechanical Contractor.

7. Doors And Drawer Fronts:

a. Doors and drawer fronts are to provide a flush overlay of the cabinet body.

b. Maintain a consistent space/reveal, of not more than 1/8 inch, between pairs of doors, between doors and drawer fronts, or between multiple drawer fronts, located within and between individual cabinets.

c. Doors and drawer fronts shall consist of not less than 3/4-inch thick particleboard core with vertical general purpose grade plastic laminate adhesively bonded on exterior surface and a pressure fused laminate balancing sheet core or cabinet liner adhesively bonded on interior surface.

d. Band edges with 3 mm PVC edging.

8. Drawers:

a. Provide a separate drawer front applied to face of each drawer body sub-front.

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b. Drawer bodies shall be plastic laminate covered particleboard or polyester laminated fiberboard.

c. Dowel and glue drawer sides to front and back. Machine square and hold entire drawer under pressure while hot melt glueing and pinning drawer together.

d. Drawer Bottom: Not less than 1/4-inch hardboard housed into sub-front, sides, and back. Apply a continuous bead of hot melt adhesive at joint between bottom and back, sides, and front at underside of drawer to provide sealing and rigidity. Reinforce drawer bottoms with 1/2-inch by 4-inch front-to-back intermediate underbody stiffeners, hot melt glued and fastened. Provide drawer stiffeners as follows: (1) for 24-inch, (2) for 36-inch, (4) for 48-inch wide drawers.

e. Provide specified hardware for each drawer.

9. Vertical and Horizontal Dividers: One of the following as indicated by cabinet number on Drawings:

a. Natural hardboard 1/4-inch thick, smooth both faces. Secured in cabinet with molded plastic clips.

b. Pressure fused laminate 3/4-inch thickness. Secured in cabinet with molded plastic clips or dowels.

10. Cabinet Front Rails: Immediately behind all horizontal jointsand between multiple drawers, provide a body rail of not less than 3/4 inch by 6 inches by full width of cabinet, to maintain exact body dimensions, close off space/reveal between doors and drawers, and be a locator for lock strikes.

11. Separator Shelf: Provide a full shelf at separation between locked drawers and adjacent drawer or door cabinet below to prevent pilferage after removing drawer.

12. Edging Type Locations: Provide specified edging types at the following locations, unless otherwise indicated.

a. Door/Drawer front edges: Architect has option to select either or a combination of casework manufacturer's 3mm PVC standard solid colors and wood grain patterns.

b. Cabinet body edge, including door/drawer front spacer rail: FlatEdge PVC, color matched to door/drawer face.

c. Interior body component edging, interior dividers, top of drawer body, shelf: FlatEdge white PVC to match cabinet interior surface color.

d. Shelf Edges: Refer to Fixed and Adjustable Shelves paragraph for shelf edging requirements.

C. **Fixed And Adjustable Shelves:**

1. Shelf Surface Material:

a. Shelves Concealed Behind Solid (Non-Glazed) Doors: Either cabinet liner on both sides of particleboard core or pressure fused laminate on both sides of core.

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2. Shelf Edging:

   a. Cover front and back edges of shelves concealed behind solid doors with 1 mm PVC, in color as selected by Architect, cover side edges with vertical general purpose grade plastic laminate.

   b. Cover all edges of shelves in open cabinets with 1mm PVC edging.

D. **Workmanship**:

1. Adhere plastic laminate finish surface and balancing sheet (cabinet liner - CL20) material to core material under controlled conditions, by approved and regulated laminating methods to assure a premium lamination.

   a. Adhesives: Natural-setting hybrid P.V.A. Type III water resistant adhesives that cure through chemical reaction, containing no health or environmentally hazardous ingredients.

2. Accurately machine and bore cabinet parts for premium grade quality joinery construction utilizing automatic machinery to insure consistent sizing of modular components. Dowel side (end) panels to cabinet bottom and top members.

3. Construct cases square, plumb, and true.

4. No exposed fasteners.

2.05 COUNTERTOP FABRICATION

A. **General Requirements**: Use post forming grade plastic laminate for countertops with a coved corner to an integral backsplash.

B. **Fabrication of Plastic Laminate Covered Countertops**:

1. Post-forming grade plastic laminate bonded to particleboard core by hot press method. Balance underside with neutral color heavy gauge backing sheet. Provide tops in as long as practical continuous lengths. Provide field glued splines at joints. No joints closer than 24 inches on either side of a sink cutout.

2. Countertop Edging: 3mm thick PVC edge.

3. Backsplash:

   a. Provide a 4-inch height backsplash coved to countertop, unless otherwise indicated.

   b. Provide a backsplash (endsplash) at ends of cabinet countertops whenever they abut a vertical surface, such as a wall or adjacent tall cabinet.

   c. Backsplash (endsplash) at ends of cabinet countertops need not be coved into countertop, but provide a neat, tight and inconspicuous joint between backsplash and countertop. Seal joint tight with clear silicone sealant.

4. Provide cutouts in countertops and backsplashes for all built-in items such as fixtures, sinks, and other equipment. Coordinate locations and sizes with each item supplier as approved by Architect.

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PART 3 - EXECUTION

3.01 PREPARATION

A. **Coordination:** Provide coordination with Mechanical Contractor as specified under this Section.

B. **Examination:** Before installing casework, examine shop fabricated work for completion. Complete fabrication work if required or return to fabricating shop for completion.

C. **Conditioning:** Condition casework to average prevailing temperature and humidity conditions in installation areas before beginning installation.

3.02 INSTALLATION

A. **General Requirements:**

1. Install casework straight, level, and plumb.

2. Securely anchor casework in place.

3. Scribe and closely fit to adjacent work.

4. Cut and fit work around pipes, ducts, and penetrations.

5. Install all items complete and adjust all moving parts to operate properly.

6. Caulking: Install sealants where countertops and backsplashes/endsplashes abut dissimilar materials.

B. **Cabinet Sub-Base Installation:**

1. Provide Project site fabricated wood sub-bases for support of floor mounted cabinet units.

2. Construct sub-bases that are separate from the cabinets and are continuous under an entire group of adjacent cabinet units.

   a. Do not extend individual cabinet body sides to floor for support of casework unless otherwise indicated or approved for a specific cabinet design.

3. Construct sub-bases using materials furnished by casework manufacturer.

4. Provide ladder-type platform design sub-bases, which consist of front, back, and intermediate front to back connecting members.

   a. Locate intermediate members to be approximately centered on joint between adjacent cabinet units above.

5. Use water resistant exterior grade type plywood for sub-base members.

6. Construct sub-bases to conform to floor and wall conditions, and to form secure and level platforms for supporting cabinets.

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7. Securely attach sub-bases to floor substrate using concealed fasteners.

8. Securely attach cabinets to sub-bases using concealed fasteners.

C. **Related Installation Work By Mechanical Contractor:** Provide sinks with related sink drain, sink plug, and fixtures in plastic laminate surfaced countertops.

3.03 REPAIRING/ADJUSTING

A. **General Requirements:**

1. Repair damaged and defective casework where possible to eliminate defects functionally and visually. Where not possible to repair as approved by Architect, remove casework and install new.

2. Adjust joinery to provide uniform appearance.

3. Adjust casework and hardware so doors and drawers are centered in openings and operate smoothly without warp or bind.

4. Lubricate operating hardware as recommended by manufacturer.

3.04 CLEANING

A. **General Requirements:**

1. Clean casework exposed and semi-exposed surfaces.

2. Touch up factory-applied finishes to restore damaged or soiled areas.

3. Clean countertops with diluted dishwashing liquid and water, leaving tops free of grease and streaks. Use no wax or oils.

4. Remove shipping cartons and debris, and leave installation areas clean and ready for Owner's use at time of Substantial Completion.

3.05 PROTECTION OF FINISHED WORK

A. **General Requirements:**

1. Take precautions for protection of installed materials and fixtures from damage by work of other trades.

2. Protect work surfaces throughout construction period with 1/4-inch corrugated cardboard completely covering top and securely taped to edges.

3. Mark cardboard in large lettering "NO STANDING".

4. Remove products used to provide protection at time of Substantial Completion.

END OF SECTION

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SECTION 23 25 00

HVAC WATER TREATMENT

PART 1 - GENERAL

1.01 SUMMARY

A. **Section Includes:** Include labor, materials, equipment, and accessories necessary to furnish and install water treatment for heating, chilled and tertiary hot water/glycol supply and return piping.

1. Contractor shall test existing hot water heating system prior to doing any work for standing head pressure, percent glycol and for any oil in existing system. After work is completed restore system back to original concentration and pressure. Contractor shall store glycol drained from system to do construction changes. When refilling the system, Contractor shall filter the system per the requirements of this Section.

B. **Related Sections:**

1.	Section 23 00 00:	Heating, Ventilating, and Air-Conditioning (HVAC) - General Requirements
2.	Section 23 21 13.23:	Aboveground Hydronic Piping

1.02 SUBMITTALS

A. **Shop Drawings:** Submit a portfolio showing water treatment equipment to be used and quantity of water treatment per system for approval by Architect/Engineer.

B. **Chemical Test Kits:**

1. The Chemical supplier will provide basic water test equipment and the test, spare reagents for maintaining control of program standards in the heating or chilled water systems. Test Kits include the following:

   a. Reagents and apparatus for determination of inhibitor level.
   b. Reagents and apparatus for determination of pH, "P" and "M" alkalinity and chlorides.
   c. Apparatus for determination of microbiological colony population and biocide effectiveness.
   d. A hand held conductivity meter shall also be included.

C. **Test Results:**

1. Submit glycol strength test results for both the heating water/glycol solution and the chilled water/glycol solution.

2. Submit test results for flushing of the piping systems before water treatment is added to water treatment to the piping system.

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1.03 QUALITY ASSURANCE

A. **Regulatory Requirements:**

1. State Building Code
2. Local Codes and Ordinances
3. Local Authority having jurisdiction

1.04 WARRANTY

A. **General Requirements:** Replace glycol solution lost from system from any cause other than neglect by Owner during the first year of operation.

B. **Defects:** Thoroughly check system and make necessary corrections if system continually loses solution.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. **Ethylene Glycol:** Heating water system shall be provided with an industrially inhibited ethylene glycol based heat transfer fluid as manufactured for hydronic systems.

B. **Manufacturers:** Water Treatment/Chemical Suppliers.

1. Jay-Tec

2. Ecolab/Nalco

3. Apollo Water Services

4. Substitutions: NONE

2.02 CLOSED LOOP WATER BASED GLYCOL SYSTEMS

A. **Fluid Material:** The glycol fluid to be used in these systems shall meet the following requirements.

1. The fluid shall be industrially inhibited glycol (nitrate-based).

2. The fluid shall be easily analyzed for glycol concentration and inhibitor level, and shall be easily re-inhibited using inhibitors readily available from the fluid manufacturer.

3. A system containing more than 250 gallons of fluid, shall receive an annual analysis provided free of charge by the fluid manufacturer. Manufacturer shall also market convenient analytical test aids for use by the operator of the smaller systems.

4. The fluid shall meet the requirements of ASTM D1384 (less than 0.5 mils penetration per year for all system metals).

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B. **System Design Considerations:**

1. Automatic water make-up systems to prevent undetected dilution of the glycol solution shall not be used.

C. **Technical Data, Fluid Product Description:**

1. Composition by weight (50 percent glycol solution):

   a. Glycols: 95.5
   b. Inhibitors and water: 4.5
   c. Color: Colorless

2. Specific gravity at 60/60 degrees F: 1.05 - 1.60

3. pH of solution containing containing 50 percent glycol: 9.0 - 10.0

4. Reserve alkalinity, minimum: 10.6 ml

D. **Application:**

1. Systems: Provide glycol solution heat transfer system for:

   a. Chilled Glycol/Water Solution from Chiller - 30 Percent Glycol.

   b. Heated Glycol/Water Solution from Heat Exchanger - 30 Percent Glycol.

PART 3 - EXECUTION

3.01 PRE-OPERATIONAL SYSTEM CLEANOUT FOR HYDRONIC SYSTEMS

A. **Flushing and Cleaning of Piping Systems**: New and existing piping systems and appurtenances shall be cleaned with cleaner as recommended by Owner's chemical treatment representative to remove any iron deposits, oil-based coatings, mill scale and construction residues.

1. Follow manufacturers' directions regarding concentrations and equipment.

2. The contractor shall meter the water during the flushing process to determine the amount of glycol to be added.

3. The higher the cleaner concentration, the faster the results are achieved but for cost effectiveness, the maximum concentration of 10% is recommended for a period of 8 to 16 hours. For a 5% solution, recirculate for 48 hours. For a 10% solution, recirculate for 24 hours. The higher the temperaturem the more effective and efficient the compound works. The lowest temperature allowed should not fall below 68F (20C) and the maximum temperature allowed should not exceed 203F (95C).

4. The contractor shall meter the water during the flushing process to determine the amount of glycol to be added.

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B. **Heating Water Systems:** The heating piping and related heating equipment shall be thoroughly flushed out with precleaning chemicals, as called for above, designed to remove deposits such as pipe dope, oils, loose rust, mill scale and other extraneous materials.

1. Add recommended dosages of manufactured and blended pre-cleaner chemical products and circulate throughout the water system. Drain, fill and flush water systems until no foreign mater is observed and the total alkalinity of the rinse water is equal to that of the make-up water.

   a. Apply heat while circulating, slowly raising temperature to 160 Deg F and maintain for 12 hours minimum.

   b. Remove heat and circulate to 100 Deg F or less; drain systems as quickly as possible and refill with clean water.

   c. Circulate for 6 hours at design temperatures, then drain.

   d. Refill with clean water and repeat until system cleaner is removed.

2. Use neutralizer agents on recommendation of system cleaner supplier and approval of Architect/Engineer.

3. Flush Open systems and glycol filled closed systems with clean water for one hour minimum. Drain and completely refill.

4. Clean System Strainers Clean strainer screen (pump and coils) after each flush. Furnish and install new strainer screens prior to filling system for operation. Remove pump suction diffuser's start-up strainer after flushing is complete.

5. Clean System Strainers: The hydronic system installing contractor shall clean all strainers after Flush & Fill, after chemical cleaning and two weeks after the system has run at full flow with heat on (Prior to system being balanced). Contractor shall document strainer cleaning to Owners representative, Architect or engineer. Contractor will be assessed any follow-up system cleaning costs incurred by the owner during the first year due to the contractor's failure to properly clean the system.

C. **Closed Systems:**

1. Introduce closed system treatment through by-pass feeder when required or indicated by test.

2. Provide 3/4" water coupon rack around circulating pumps with space for 4 test specimens.

3. Provide sampling connection in the circulating water line including a 1/4" ball valve.

4. Provide chemical treatment to protect closed systems from corrosion.

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D. **Water Quality Tests:** At the conclusion of flushing and after hydronic system installer has verified that all system valves (shut-off, balancing and control) are open and prior to normal use of the systems, a minimum of (6) six water samples shall be drawn from various parts of the system, which shall be analyzed by an independent testing agency. Samples shall be drawn by the testing agency in the presence of the owners representative. This Contractor shall bare the cost of testing and/or retesting the water.

1. When project has multiple phases or sequences, the Contractor shall perform tests at the beginning of each phase or sequence and prior to making modifications or tie-ins to existing or previously installed piping systems to determine the following: correct glycol type and percentage, PH level, water quality (hardness) and presence of oil and grease in the piping system.

   a. Provide the Engineer/Owner with a Freon Extractable test for each system, to assure the Engineer/Owner that there are no oils and greases in the hydronic systems. This test shall be taken after all of the hydronic systems are in service and have been operating for a minimum of two weeks, and prior to adding glycol or inhibitors to the system.

   b. If the system is found to be contaminated, the contractor shall notify the Owners Representative for direction of corrective action. The contractor accepts responsibility for existing or previously installed systems if he fails to test systems prior to making modifications.

   c. Provide an EPA 413.1 test before modifying an existing glycol system to determine if oil and/or grease is present in the glycol piping system.

2. If tests indicate contamination above 0.8 parts per million of suspended black iron oxide, or other foreign material, the flushing shall be repeated and retested until the entire system complies.

3. The Contractor shall work in conjunction with the Owner's chemical treatment representative, the temperature control Contractor and the balancing Contractor to assure complete flushing has been accomplished.

4. When glycol is specified to be used in the system, the Contractor shall coordinate with the glycol supplier to assure water quality is met prior to filling with glycol.

3.02 SIDE STREAM FILTER OPERATION

A. After completion of the cleaning and flushing of the piping systems, the Contractor shall put the side stream filters in service. Contractor shall maintain filters and instruct the Owner on use and maintenance of the side stream filter until substantial completion.

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3.03 SYSTEM FILL PARAMETERS

A. The hydronic system height will determine the system fill and relief valve pressure settings for the building. This includes mechanical mezzanines and rooftop equipment. Refer to chart below for system height settings, All new boiler systems shall be filled to a minimum 30 PSI.

SYSTEM FILL PARAMETERS (PSI)				
HEATING	STORY	SYSTEM HEIGHT	MIN. FILL PRESSURE	RELIEF PRESSURE
V	1	<16 FEET	14	30
V	2	16.1 FT. TO 28 FT.	18	45
V	3	28.1 FT. TO 40 FT.	24	45
V	4	40.1 FT TO 55 FT.	30	60
COOLING		SYSTEM HEIGHT	FILL PRESSURE	RELIEF PRESSURE
V	1	<16 FEET	14	30
V	2	16.1 FT. TO 28 FT.	18	45
V	3	28.1 FT. TO 40 FT.	24	45
V	4	40.1 FT TO 55 FT.	30	60

3.04 GLYCOL SOLUTIONS INSTALLATION

A. **Piping:** Provide necessary piping for complete installation.

B. **System Preparation:** Thoroughly clean and flush system before adding glycol solution. Prior to final filling of system, perform water quality testing indicated above and submit reports to Engineer for record.

C. **System Fill:** Fill glycol to system through make-up line with pressure regulator to pressures listed above. Charge bladder expansion tanks air side to same pressureas fill pressure. Document pressures on expansion tank labels.

D. **Tests:** Perform tests determining strength of glycol solution before system is turned over to Owner. Provide test prior to end of first year of operation and replenish as required.

E. **System Fill:**

1. System Concentration: Contractor shall order and fill the system with a 5 percent greater concentration than the specified solution concentration to allow for water trapped in the system during flushing. The manufacturer's pre-mixed solution shall be complete with all buffers, and anti-foam agent as specified.

   a. When refilling system with stored existing glycol mixture, contractor shall filter fluid using a 25 micron filter.

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2. Venting System: Contractor shall vent system during the fill process. Before the fill, check to make sure ALL control valves are in the OPEN position. During the fill, continually check the valves. To ensure no loss of fluid, close vents off as the system fills up.

3. Fluid Installation: The following installation procedures shall be followed.

   a. Clean new systems with approved cleaner prior to the installation of the glycol fluid.

   b. Distilled or deionized water shall be used. The Contractor shall purchase prediluted solutions of industrially inhibited glycol fluid from the fluid manufacturer.

4. Heated Water System: Calculate system volume as installed. Determine quantity of glycol required to provide freeze protection to 9.4 degrees F. and burst protection to -20 degrees F. Verify quantity with glycol manufacturer.

5. System Mix: Fill each system with specified glycol solution and circulate for 24 hours to ensure complete mixing.

6. Freeze Point: Check actual freeze point of each solution with a hygrometer or refractometer. Add glycol to system to provide conditions specified above.

END OF SECTION

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SECTION 27 51 30

BUILDING PAGING AND INTERCOM SYSTEM

PART 1 - GENERAL

1.01 SUMMARY

A. The work includes providing new flush ceiling mounted speaker assemblies and new cable where shown on the Drawings.

1.02 SHOP DRAWINGS

A. Project Shop Drawings shall be submitted for review by the Architect's Technology Designer in PDF format.

B. The shop drawing shall be prepared specifically for this project and shall include the following:

1. Title sheet clearly defining the project name, address and telephone number of Contractor, date of submittal and subcontractors. The title sheet shall have blank space for Architect's review stamp.

2. Complete material list listing manufacturer, model number and description of all materials.

3. Certificates of certifications and training as described in each Specification Section.

4. Manufacturer's specification sheets for all equipment.

C. **Approval Stamp**: General design and layout is the only approval implied by the approval stamp. Anything called for in Specifications and not noted on Shop Drawings is to be complied with and the approval stamp on Shop Drawings does not relieve Contractor of responsibility for errors or omissions in Shop Drawings.

1.03 SYSTEM DESCRIPTION

A. Provide new speaker assemblies and speaker cabling as shown on the Drawings. The existing speaker cable of speakers being replaced shall be removed completely.

B. The existing speakers are wall mounted. These are being removed. The new speakers shall be flush ceiling mounted. Provide new cable from the speaker to the building paging system headend and connect to the circuit that room was previously connected to. Each classroom shall be cabled individually to the system headend. Corridor speakers shall be run as one circuit to the system headend. Speaker cable shall be shielded twisted pair with two 18 gauge stranded conductors and overall plenum rated jacket. Connect new cabling into the system headend electronics and test for proper operation.

C. The existing circuits and cabling of the remodeled rooms shall be tested for proper continuity as well as cleared of any opens, shorts and grounds prior to connecting to the intercom paging system central equipment. These were operating prior to construction. This test is to verify that the cables were not damaged during construction. Any damaged cables shall be repaired or replaced as required.

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D. **Ceiling Speaker:**

1. Lay-in ceiling speaker shall consist of a white 2 foot x 2 foot perforated grille, a speaker, combination 25/70 volt 5 watt transformer and integral back box.
2. The speaker shall be 8" (20.32 cm) in diameter and have a 5 oz. ceramic magnet.
3. The 8" speaker cone material shall be paper.
4. The speaker impedance shall be 8 ohms. The diameter of the voice coil shall be 3/4 inch (.34 cm) diameter.
5. The speaker shall be capable of handling 5 watts continuous power.
6. Sound pressure level at 1 meter on axis with a 1 watt input shall be 95 dB.
7. The frequency response shall be 70 Hz to 17 kHz.
8. The baffle shall be constructed with a single piece of perforated steel with a white baked on acrylic enamel finish.
9. The back box meets or exceeds A.S.T.M. E84 flame and smoke test and has a three hour burn rating (UL181).
10. The line transformer shall be capable of operating on a 25 or 70 volt lines speaker and provide five (5) volume adjustments.
11. The level adjustments shall range from 5 watts to .312 watts and be made via a rotary tap volume control that is accessible through the grille.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. **Acceptable Manufacturer:**

1. Valcom is the District standard and is the only acceptable manufacturer of the speaker.

B. **Speaker:**

1. Manufacturer: Valcom
2. Model Number: VE522B-2
3. Quantity: As shown on Drawings

C. **Speaker Cable:**

1. Manufacturer: West Penn
2. Model Number: 25293B
3. Quantity: As required

PART 3 - EXECUTION

3.01 INSTALLATION

A. The entire system shall be installed in a workmanlike manner, in accordance with approved manufacturers published wiring diagrams and instructions and these specifications.

B. All devices are to be protected throughout the entire project. All devices are to be kept free of construction dirt and debris during the entire project. The contractor will be responsible for replacing at no additional cost to the Owner any devices that are deemed dirty or unsuitable for use by the Owner and or Architect / Engineer throughout the entire project.

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3.02 TESTING

A. Test and verify all functions of the speakers are working properly.

END OF SECTION

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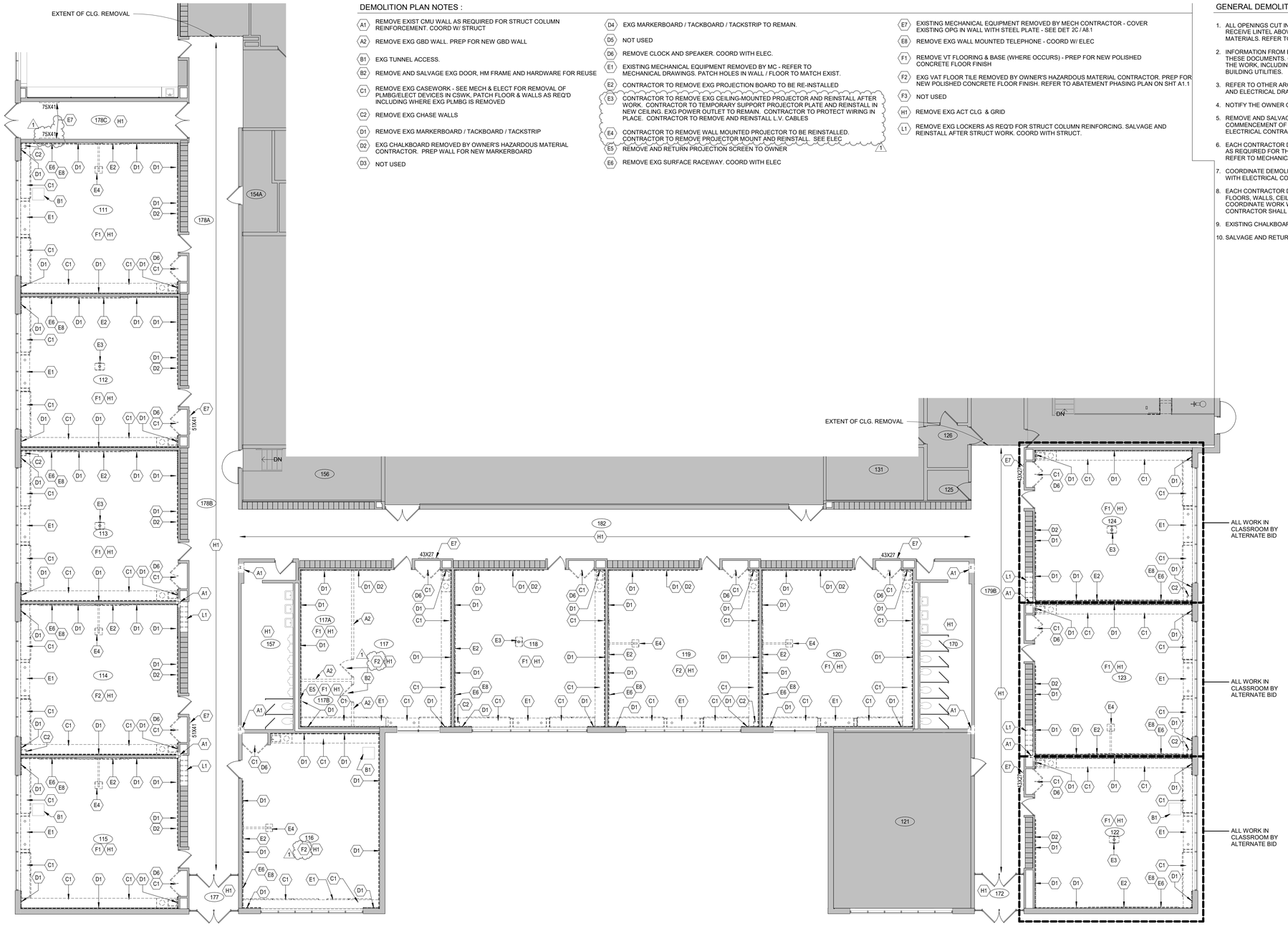

DEMOLITION PLAN NOTES :

- A1 REMOVE EXIST CMU WALL AS REQUIRED FOR STRUCT COLUMN REINFORCEMENT. COORD W/ STRUCT
- A2 REMOVE EXG GBD WALL. PREP FOR NEW GBD WALL
- B1 EXG TUNNEL ACCESS.
- B2 REMOVE AND SALVAGE EXG DOOR, HM FRAME AND HARDWARE FOR REUSE
- C1 REMOVE EXG CASEWORK - SEE MECH & ELECT FOR REMOVAL OF PLMBG/ELECT DEVICES IN CSWK, PATCH FLOOR & WALLS AS REQ'D INCLUDING WHERE EXG PLMBG IS REMOVED
- C2 REMOVE EXG CHASE WALLS
- D1 REMOVE EXG MARKERBOARD / TACKBOARD / TACKSTRIP
- D2 EXG CHALKBOARD REMOVED BY OWNER'S HAZARDOUS MATERIAL CONTRACTOR. PREP WALL FOR NEW MARKERBOARD
- D3 NOT USED
- D4 EXG MARKERBOARD / TACKBOARD / TACKSTRIP TO REMAIN.
- D5 NOT USED
- D6 REMOVE CLOCK AND SPEAKER. COORD WITH ELEC.
- E1 EXISTING MECHANICAL EQUIPMENT REMOVED BY MC - REFER TO MECHANICAL DRAWINGS. PATCH HOLES IN WALL / FLOOR TO MATCH EXIST.
- E2 CONTRACTOR TO REMOVE EXG PROJECTION BOARD TO BE RE-INSTALLED
- E3 CONTRACTOR TO REMOVE EXG CEILING-MOUNTED PROJECTOR AND REINSTALL AFTER WORK. CONTRACTOR TO TEMPORARY SUPPORT PROJECTOR PLATE AND REINSTALL IN NEW CEILING. EXG POWER OUTLET TO REMAIN. CONTRACTOR TO PROTECT WIRING IN PLACE. CONTRACTOR TO REMOVE AND REINSTALL L.V. CABLES
- E4 CONTRACTOR TO REMOVE WALL MOUNTED PROJECTOR TO BE REINSTALLED. CONTRACTOR TO REMOVE PROJECTOR MOUNT AND REINSTALL. SEE ELEC
- E5 REMOVE AND RETURN PROJECTION SCREEN TO OWNER
- E6 REMOVE EXG SURFACE RACEWAY. COORD WITH ELEC
- E7 EXISTING MECHANICAL EQUIPMENT REMOVED BY MECH CONTRACTOR - COVER EXISTING OPG IN WALL WITH STEEL PLATE - SEE DET 2C / A8.1
- E8 REMOVE EXG WALL MOUNTED TELEPHONE - COORD W/ ELEC
- F1 REMOVE VT FLOORING & BASE (WHERE OCCURS) - PREP FOR NEW POLISHED CONCRETE FLOOR FINISH
- F2 EXG VAT FLOOR TILE REMOVED BY OWNER'S HAZARDOUS MATERIAL CONTRACTOR. PREP FOR NEW POLISHED CONCRETE FLOOR FINISH. REFER TO ABATEMENT PHASING PLAN ON SHT A1.1
- F3 NOT USED
- H1 REMOVE EXG ACT CLG & GRID
- L1 REMOVE EXG LOCKERS AS REQ'D FOR STRUCT COLUMN REINFORCING. SALVAGE AND REINSTALL AFTER STRUCT WORK. COORD WITH STRUCT.

GENERAL DEMOLITION NOTES :

1. ALL OPENINGS CUT INTO EXISTING MASONRY WALLS SHALL BE LARGE ENOUGH TO RECEIVE LINTEL ABOVE AND MASONRY JAMBS AND SILL TO MATCH EXISTING ADJACENT MATERIALS. REFER TO FLOOR PLANS FOR FINISHED OPENING DIMENSIONS.
2. INFORMATION FROM EXISTING DRAWINGS HAVE BEEN USED IN THE PREPARATION OF THESE DOCUMENTS. CONTRACTORS SHALL VERIFY ALL INFORMATION RELATING TO THE WORK, INCLUDING BUT NOT LIMITED TO, THE LOCATION OF EXISTING BUILDING UTILITIES.
3. REFER TO OTHER ARCHITECTURAL DRAWINGS AND TO STRUCTURAL, MECHANICAL AND ELECTRICAL DRAWINGS FOR ADDITIONAL DEMOLITION AND ALTERATION INFORMATION.
4. NOTIFY THE OWNER OF THE PRESENCE OF HAZARDOUS MATERIAL(S) IN WORK AREAS.
5. REMOVE AND SALVAGE ALL DESIRED EQUIPMENT AND FIXTURES PRIOR TO COMMENCEMENT OF DEMOLITION. PROVIDE TEMPORARY LIGHTING AND POWER BY ELECTRICAL CONTRACTOR.
6. EACH CONTRACTOR DISCIPLINE SHALL SAWCUT NEW AND EXISTING MASONRY WALLS AS REQUIRED FOR THE INSTALLATION OF RECESSED MECH/ELEC EQUIPMENT. REFER TO MECHANICAL AND ELECTRICAL DRAWINGS FOR LOCATIONS.
7. COORDINATE DEMOLITION OF WALLS WHICH INCLUDE EXISTING ELECTRICAL PANELS WITH ELECTRICAL CONTRACTOR.
8. EACH CONTRACTOR DISCIPLINE SHALL SAWCUT AND REMOVE PORTIONS OF EXISTING FLOORS, WALLS, CEILINGS AND ROOF AS REQUIRED TO ACCOMODATE THEIR WORK. COORDINATE WORK WITH OTHER RELATED CONTRACTOR DISCIPLINES. GENERAL CONTRACTOR SHALL PATCH ADJACENT SURFACES TO MATCH.
9. EXISTING CHALKBOARD REMOVED BY OWNERS HAZARDOUS MATERIAL TYP.
10. SALVAGE AND RETURN FLAG AND POST TO OWNER FOR RE-INSTALLATION

1/A2.1 FIRST FLOOR DEMOLITION PLAN - PHASE 3
1/8" = 1'-0"

NORTH

ATSR
ARCHITECTURE ENGINEERING
PLANNING TECHNOLOGY
INTERIOR DESIGN LANDSCAPE ARCHITECTURE

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

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CONSULTANTS

REVISIONS

REV NO	DESCRIPTION	DATE
1	ADDENDUM 1	08/31/2022

HAMILTON ELEMENTARY SCHOOL
HVAC Replacement and Deferred Maintenance - Phase 3
Anoka-Hennepin schools I.S.D. No. 11
1374 111th Ave NW #4221
Coon Rapids, MN 55433

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.

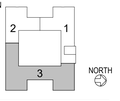
Signature

David M. Maroney, AIA
Typed or printed name

August 18, 2022
Date

20992
License Number

KEYPLAN



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CHECKED BY
DMM

ISSUED FOR
CONSTRUCTION DOCUMENTS

ISSUE DATE
AUGUST 18, 2022

SHEET NAME
FIRST FLOOR DEMOLITION PLAN

ATS&R PROJECT NO.
20050.2

REVISION NO.
1

SHEET NUMBER
A2.1

DEMOLITION PLAN NOTES :

- A1 REMOVE EXIST CMU WALL AS REQUIRED FOR STRUCT COLUMN REINFORCEMENT. COORD W/ STRUCT
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- E5 REMOVE AND RETURN PROJECTION SCREEN TO OWNER 1
- E6 REMOVE EXG SURFACE RACEWAY. COORD WITH ELEC
- E7 EXISTING MECHANICAL EQUIPMENT REMOVED BY MECH CONTRACTOR - COVER EXISTING OPG IN WALL WITH STEEL PLATE - SEE DET 2C / A8.1
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GENERAL DEMOLITION NOTES :

1. OWNER RESERVES THE RIGHTS TO ALL DEMOLISHED MATERIALS AND EQUIPMENT. CONFIRM AND COORDINATE WITH OWNER
2. EXISTING ROOM NUMBERS SHOWN ON DEMOLITION PLANS.
3. ALL OPENINGS CUT INTO EXISTING MASONRY WALLS SHALL BE LARGE ENOUGH TO RECEIVE LINTEL ABOVE AND MASONRY JAMBS AND SILL TO MATCH EXISTING ADJACENT MATERIALS. REFER TO FLOOR PLANS FOR FINISHED OPENING DIMENSIONS.
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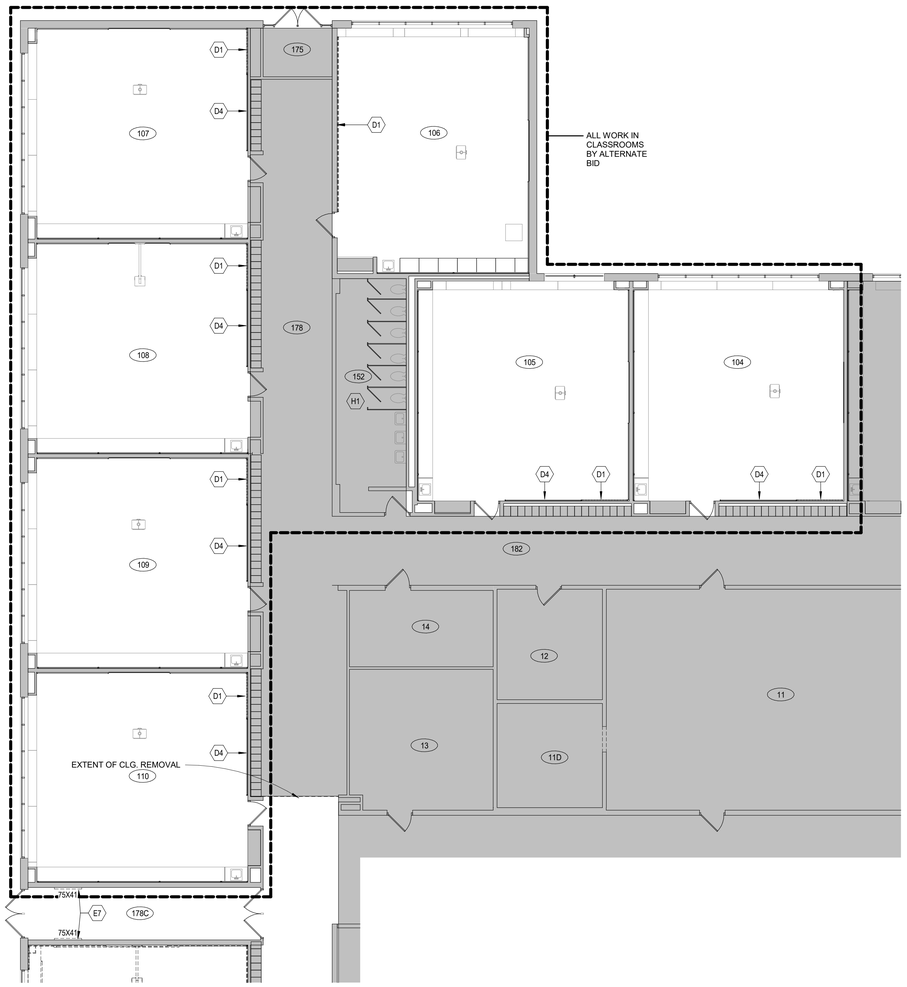

1 A2.2 FIRST FLOOR DEMOLITION PLAN - ALTERNATE BID
1/8" = 1'-0"

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HVAC Replacement and Deferred Maintenance - Phase 3
Anoka-Hennepin schools I.S.D. No. 11
1374 111th Ave NW #4221
Coon Rapids, MN 55433

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

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License Number

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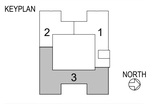

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ISSUED FOR
CONSTRUCTION DOCUMENTS

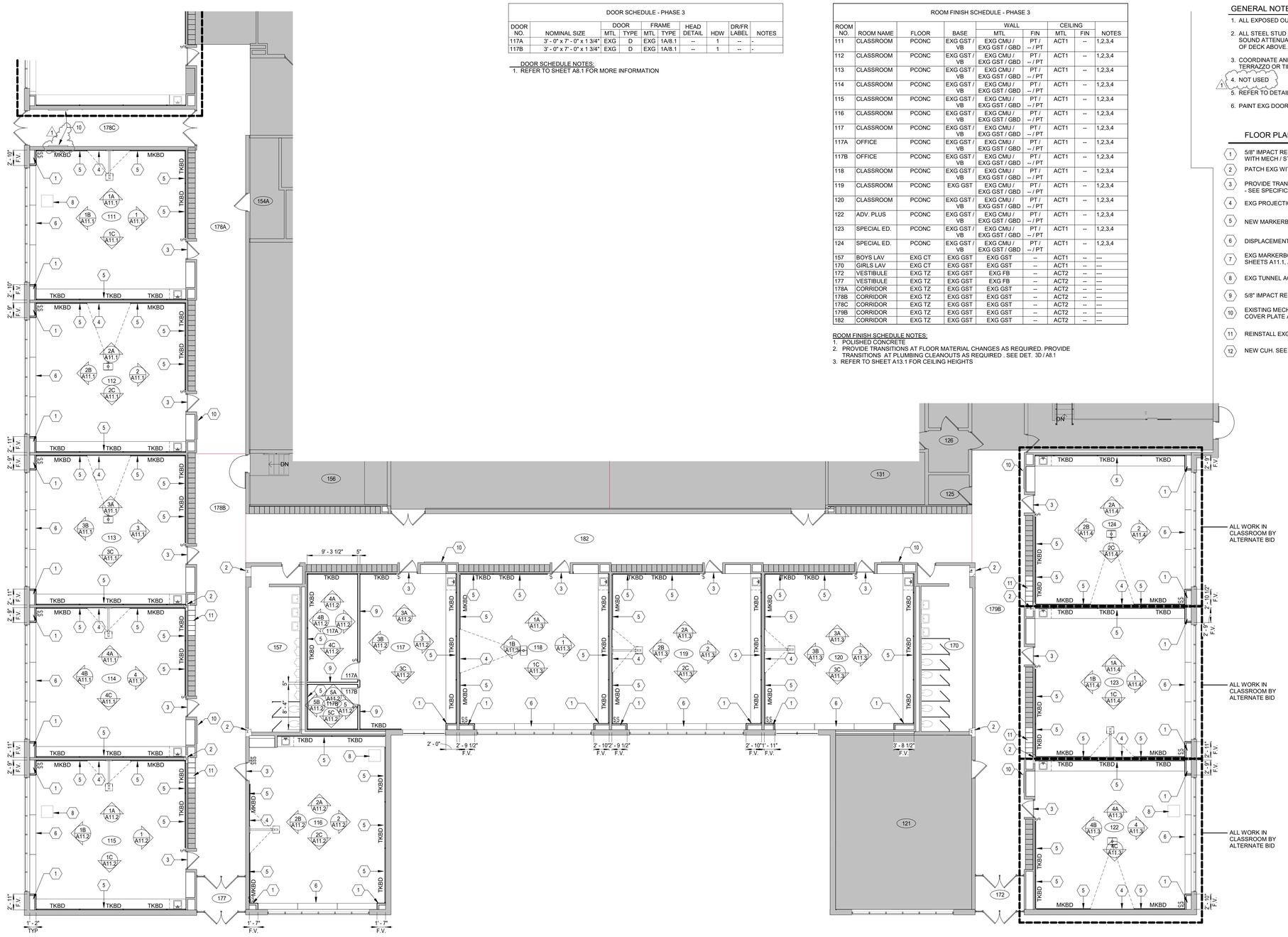
ISSUE DATE
AUGUST 18, 2022

SHEET NAME
FIRST FLOOR DEMOLITION PLAN

ATS&R PROJECT NO.
20050.2

REVISION NO.
1

SHEET NUMBER
A2.2



1 / A3.1 FIRST FLOOR - PHASE 3
1/8" = 1'-0"

NORTH

DOOR SCHEDULE - PHASE 3

DOOR NO.	NOMINAL SIZE	DOOR MTL	DOOR TYPE	FRAME MTL	FRAME TYPE	HEAD DETAIL	HDW	DR/FR LABEL	NOTES
117A	3' - 0" x 7' - 0" x 1 3/4"	EXG	D	EXG	1A/8.1	--	1	--	-
117B	3' - 0" x 7' - 0" x 1 3/4"	EXG	D	EXG	1A/8.1	--	1	--	-

DOOR SCHEDULE NOTES:
1. REFER TO SHEET A8.1 FOR MORE INFORMATION

ROOM FINISH SCHEDULE - PHASE 3

ROOM NO.	ROOM NAME	FLOOR	BASE	WALL MTL	WALL FIN	CEILING MTL	CEILING FIN	NOTES
111	CLASSROOM	PCONC	EXG GST / VB	EXG CMU / EXG GST / GBD	PT / -- / PT	ACT1	--	1,2,3,4
112	CLASSROOM	PCONC	EXG GST / VB	EXG CMU / EXG GST / GBD	PT / -- / PT	ACT1	--	1,2,3,4
113	CLASSROOM	PCONC	EXG GST / VB	EXG CMU / EXG GST / GBD	PT / -- / PT	ACT1	--	1,2,3,4
114	CLASSROOM	PCONC	EXG GST / VB	EXG CMU / EXG GST / GBD	PT / -- / PT	ACT1	--	1,2,3,4
115	CLASSROOM	PCONC	EXG GST / VB	EXG CMU / EXG GST / GBD	PT / -- / PT	ACT1	--	1,2,3,4
116	CLASSROOM	PCONC	EXG GST / VB	EXG CMU / EXG GST / GBD	PT / -- / PT	ACT1	--	1,2,3,4
117	CLASSROOM	PCONC	EXG GST / VB	EXG CMU / EXG GST / GBD	PT / -- / PT	ACT1	--	1,2,3,4
117A	OFFICE	PCONC	EXG GST / VB	EXG CMU / EXG GST / GBD	PT / -- / PT	ACT1	--	1,2,3,4
117B	OFFICE	PCONC	EXG GST / VB	EXG CMU / EXG GST / GBD	PT / -- / PT	ACT1	--	1,2,3,4
118	CLASSROOM	PCONC	EXG GST / VB	EXG CMU / EXG GST / GBD	PT / -- / PT	ACT1	--	1,2,3,4
119	CLASSROOM	PCONC	EXG GST	EXG CMU / EXG GST / GBD	PT / -- / PT	ACT1	--	1,2,3,4
120	CLASSROOM	PCONC	EXG GST / VB	EXG CMU / EXG GST / GBD	PT / -- / PT	ACT1	--	1,2,3,4
122	ADV. PLUS	PCONC	EXG GST / VB	EXG CMU / EXG GST / GBD	PT / -- / PT	ACT1	--	1,2,3,4
123	SPECIAL ED.	PCONC	EXG GST / VB	EXG CMU / EXG GST / GBD	PT / -- / PT	ACT1	--	1,2,3,4
124	SPECIAL ED.	PCONC	EXG GST / VB	EXG CMU / EXG GST / GBD	PT / -- / PT	ACT1	--	1,2,3,4
157	BOYS LAV	EXG CT	EXG GST	EXG GST	--	ACT1	--	---
170	GIRLS LAV	EXG CT	EXG GST	EXG GST	--	ACT1	--	---
172	VESTIBULE	EXG TZ	EXG GST	EXG FB	--	ACT2	--	---
177	VESTIBULE	EXG TZ	EXG GST	EXG FB	--	ACT2	--	---
178A	CORRIDOR	EXG TZ	EXG GST	EXG GST	--	ACT2	--	---
178B	CORRIDOR	EXG TZ	EXG GST	EXG GST	--	ACT2	--	---
178C	CORRIDOR	EXG TZ	EXG GST	EXG GST	--	ACT2	--	---
179B	CORRIDOR	EXG TZ	EXG GST	EXG GST	--	ACT2	--	---
182	CORRIDOR	EXG TZ	EXG GST	EXG GST	--	ACT2	--	---

ROOM FINISH SCHEDULE NOTES:
1. POLISHED CONCRETE
2. PROVIDE TRANSITIONS AT FLOOR MATERIAL CHANGES AS REQUIRED. PROVIDE TRANSITIONS AT PLUMBING CLEANOUTS AS REQUIRED . SEE DET. 3D / A8.1
3. REFER TO SHEET A13.1 FOR CEILING HEIGHTS

GENERAL NOTES :

1. ALL EXPOSED OUTSIDE CMU/GCMU/GLCMU CORNERS TO BE "BULLNOSED".
2. ALL STEEL STUD PARTITIONS TO BE 3 5/8" STEEL STUDS AT 16" OC WITH 5/8" GBD (EACH SIDE) AND SOUND ATTENUATION BATTS. STUDS, BATTS AND GBD TO CONTINUE FROM FLOOR TO UNDERSIDE OF DECK ABOVE. TYPICAL UNLESS OTHERWISE NOTED.
3. COORDINATE AND ALIGN CONCRETE SLAB CONTROL JOINTS WITH TERRAZZO OR TILE FLOOR JOINTS.
4. NOT USED
5. REFER TO DETAIL 3D / A8.1 FOR FLOOR FINISH TRANSITION DETAILS.
6. PAINT EXG DOOR FRAMES EA SIDE. COLOR TO MATCH EXG

FLOOR PLAN NOTES

1. 5/8" IMPACT RESISTANT GBD ON 3 5/8" STL STUD CHASE. EXTEND 6" ABOVE ACT CEILING. COORD WITH MECH / STRUCT
2. PATCH EXG WITH CMU TO MATCH EXG. PAINT
3. PROVIDE TRANSITION BETWEEN TERRAZZO AND POLISHED CONCRETE - SEE SPECIFICATIONS, SEE DETAIL 3D / A8.1
4. EXG PROJECTION BOARD INSTALLED BY CONTRACTOR, COORDINATED INSTALLATION WITH OWNER
5. NEW MARKERBOARD / TACKBOARD. REFER TO INTERIOR ELEVATIONS - SHEETS A11.1, A11.2, A11.3, A11.4
6. DISPLACEMENT TERMINAL UNIT. SEE MECH
7. EXG MARKERBOARD / TACKBOARD / TACK STRIP TO REMAIN. REFER TO INTERIOR ELEVATION SHEETS A11.1, A11.2, A11.3, A11.4
8. EXG TUNNEL ACCESS COVER
9. 5/8" IMPACT RESISTANT GBD EA SIDE ON 3 5/8" STL STUDS. SEE DET. 3C / A8.1
10. EXISTING MECHANICAL EQUIPMENT REMOVED BY MECH CONTRACTOR - PROVIDE COVER PLATE AT REMOVED MECH UNIT. SEE MECH FOR MORE INFO AND DET 2C / A8.1
11. REINSTALL EXG LOCKERS AFTER STRUCT COLUMN REINF. SEE STRUCT
12. NEW CUH. SEE MECH

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FAX: 763 . 525 . 3289
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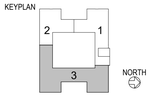
REVISIONS

REV NO	DESCRIPTION	DATE
1	ADDENDUM 1	08/31/2022

HAMILTON ELEMENTARY SCHOOL
HVAC Replacement and Deferred Maintenance - Phase 3
Anoka-Hennepin schools I.S.D. No. 11
1374 111th Ave NW #4221
Coon Rapids, MN 55433

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
August 18, 2022
Date
20992
License Number

KEYPLAN


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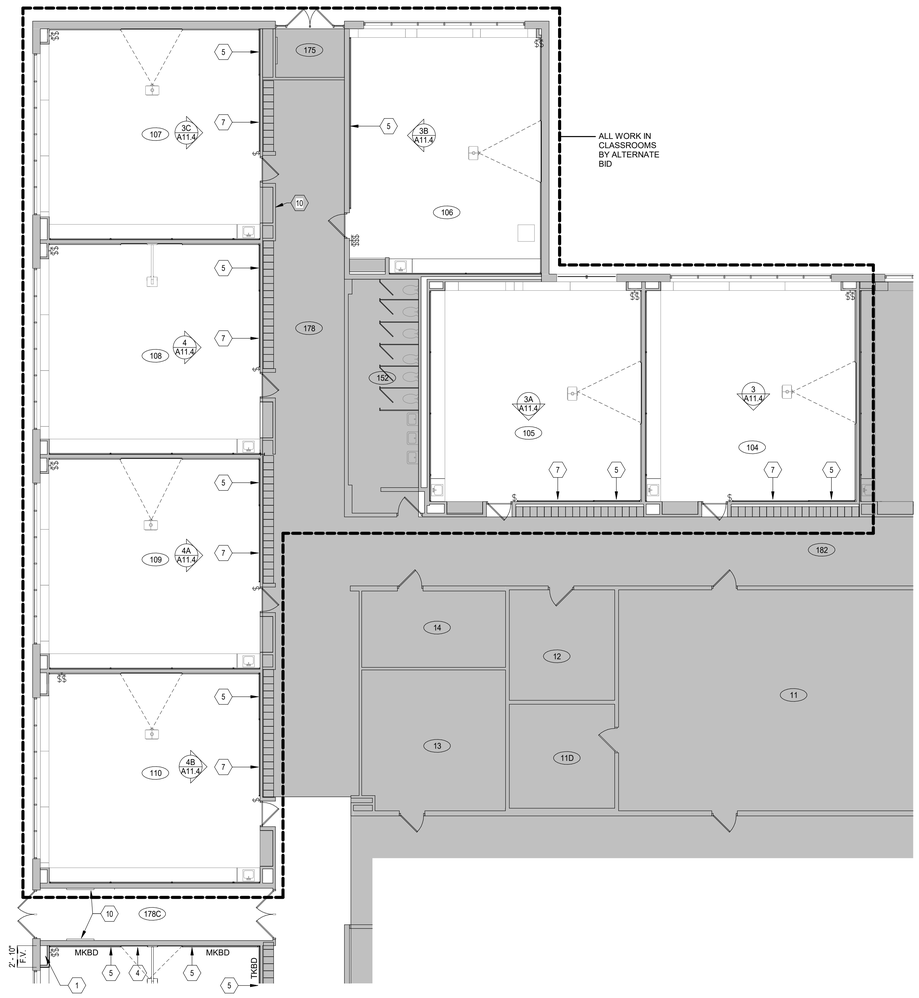
DMM
ISSUED FOR
CONSTRUCTION DOCUMENTS
ISSUE DATE
AUGUST 18, 2022
SHEET NAME
FIRST FLOOR PLAN
ATS&R PROJECT NO.
20050.2
REVISION NO.
1
SHEET NUMBER
A3.1



1 A3.2 FIRST FLOOR - ALTERNATE BID
1/8" = 1'-0"

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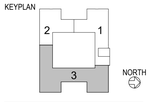

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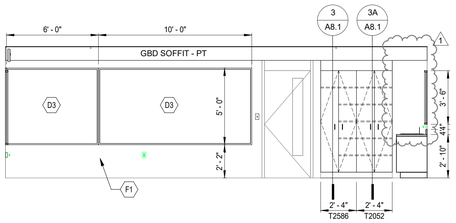
ISSUE DATE
AUGUST 18, 2022

SHEET NAME
FIRST FLOOR PLAN

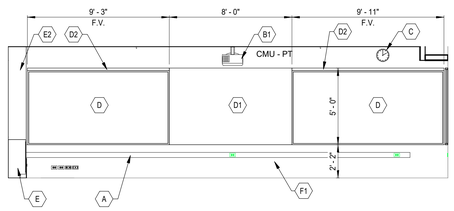
ATS&R PROJECT NO.
20050.2

REVISION NO.
1

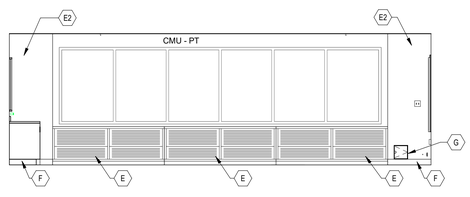
SHEET NUMBER
A3.2



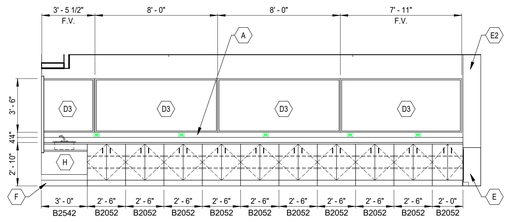
1 A11.1 **111-N**
1/4" = 1'-0"



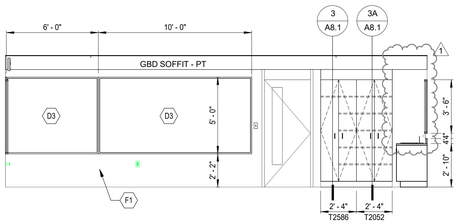
1A A11.1 **111-W**
1/4" = 1'-0"



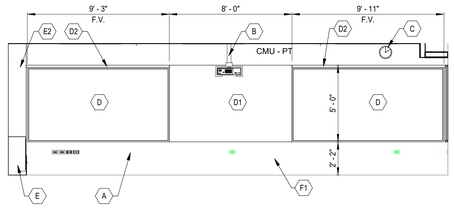
1B A11.1 **111-S**
1/4" = 1'-0"



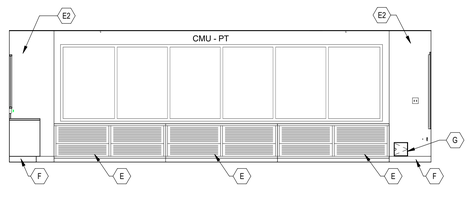
1C A11.1 **111-E**
1/4" = 1'-0"



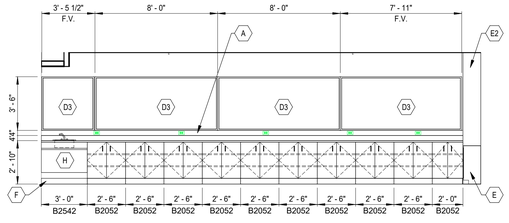
2 A11.1 **112-N**
1/4" = 1'-0"



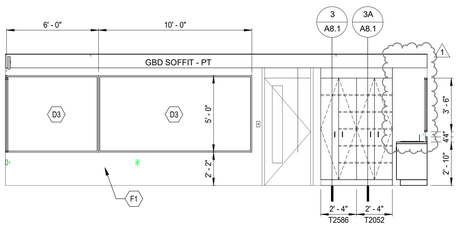
2A A11.1 **112-W**
1/4" = 1'-0"



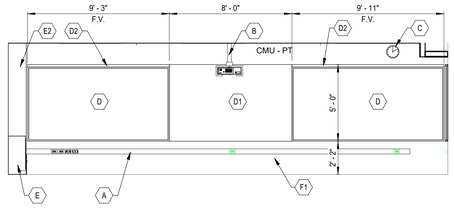
2B A11.1 **112-S**
1/4" = 1'-0"



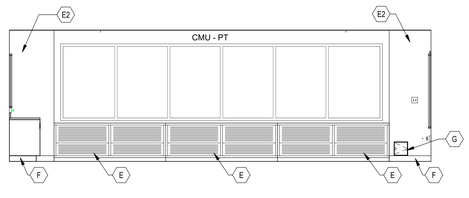
2C A11.1 **112-E**
1/4" = 1'-0"



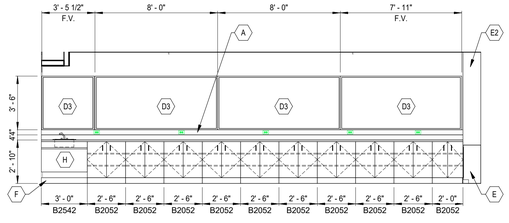
3 A11.1 **113-N**
1/4" = 1'-0"



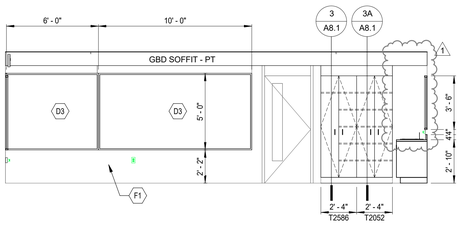
3A A11.1 **113-W**
1/4" = 1'-0"



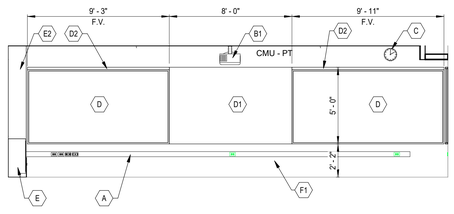
3B A11.1 **113-S**
1/4" = 1'-0"



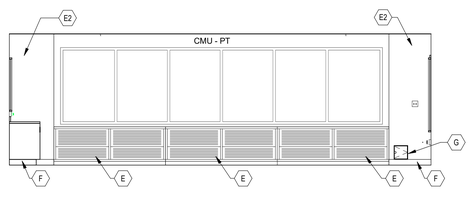
3C A11.1 **113-E**
1/4" = 1'-0"



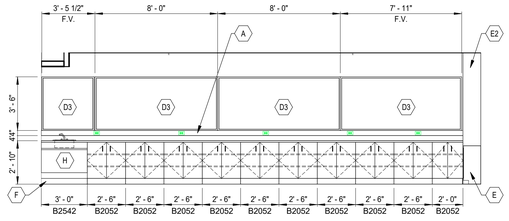
4 A11.1 **114-N**
1/4" = 1'-0"



4A A11.1 **114-W**
1/4" = 1'-0"



4B A11.1 **114-S**
1/4" = 1'-0"



4C A11.1 **114-E**
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 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. MECHICAL 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 23"D (UON), UPPER/WALL CABINETS TO BE 13"D (UON), TALL CABINETS TO BE 23"D (UON).
14. PROVIDE 4 1/2" TOE KICK UON.

INTERIOR ELEVATION NOTES

- A SURFACE RACEWAY, SEE ELEC
- B CONTRACTOR TO REMOVE AND REINSTALL EXG CLG MOUNTED PROJECTOR
- B1 CONTRACTOR TO REMOVE AND REINSTALL EXG WALL MOUNTED PROJECTOR
- C INSTALL WALL MOUNTED CLOCK, SEE ELEC
- D PROVIDE MARKERBOARD
- D1 EXG PROJECTION BOARD RE-INSTALLED BY GC
- D2 PROVIDE TACK STRIP
- D3 PROVIDE TACKBOARD
- D4 EXISTING TACKBOARD / MARKER BOARD, AND TACK STRIP TO REMAIN
- E NEW DISPLACEMENT TERMINAL UNIT - COORDINATE LOCATION WITH MECH
- E1 NOT USED
- E2 5/8" IMPACT RESISTANT GBD CHASE - PT
- F 4 1/2" VINYL BASE
- F1 EXG GST
- G 8 X 8 ACCESS PANEL. PRIME AND PAINT TO MATCH GBD CHASE. SEE MECH
- H ADA SINK - REFER TO DETAIL 2 / A8.1 FOR ADDITIONAL INFO

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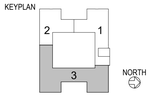

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ISSUE DATE
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SHEET NAME
INTERIOR ELEVATIONS

ATS&R PROJECT NO.
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SHEET NUMBER
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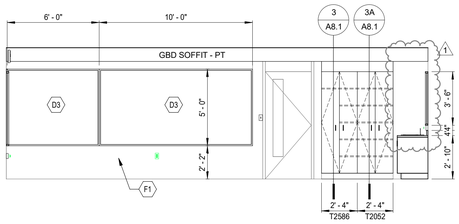
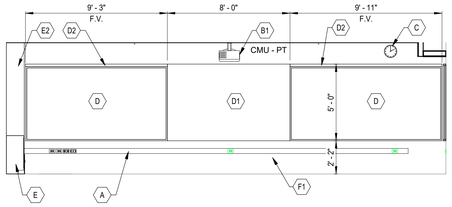
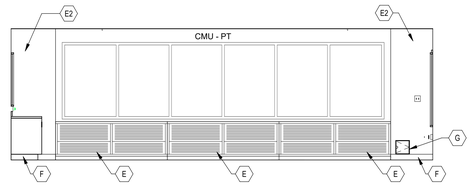


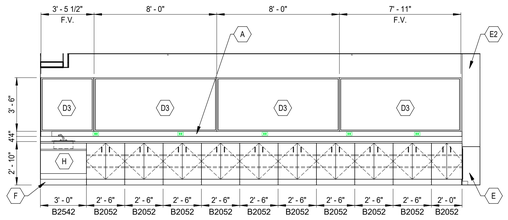
1 A11.2 115-N
1/4" = 1'-0"



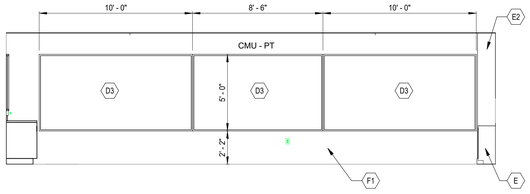
1A A11.2 115-W
1/4" = 1'-0"



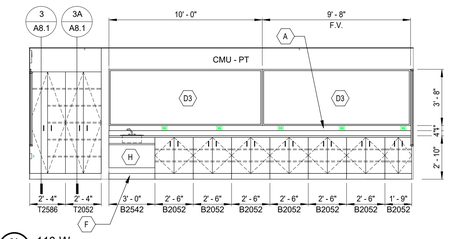
1B A11.2 115-S
1/4" = 1'-0"



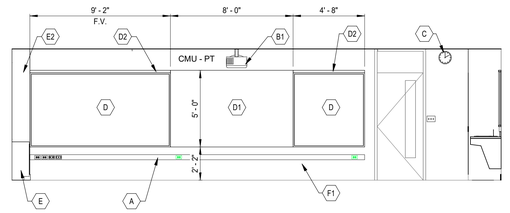
1C A11.2 115-E
1/4" = 1'-0"



2 A11.2 116-N
1/4" = 1'-0"



2A A11.2 116-W
1/4" = 1'-0"



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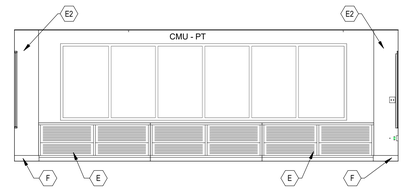
1/4" = 1'-0"



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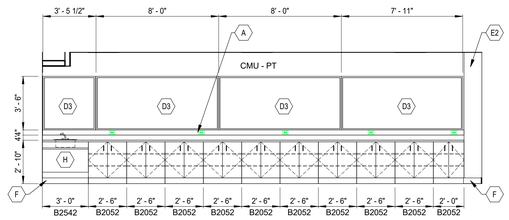

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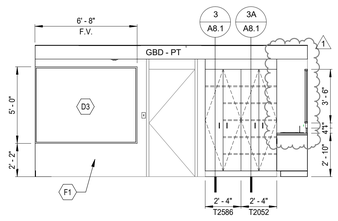

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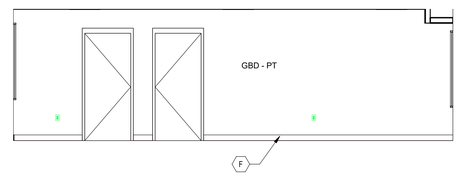
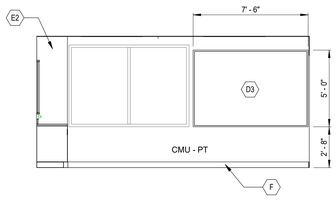
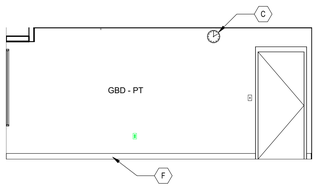


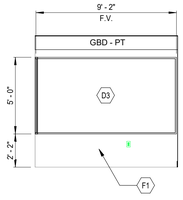
3B A11.2 117-S
1/4" = 1'-0"



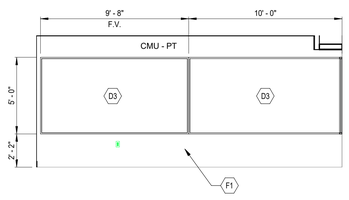
3C A11.2 117-E
1/4" = 1'-0"



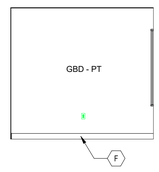
4 A11.2 117A-N
1/4" = 1'-0"



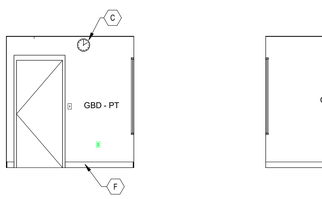
4A A11.2 117A-W
1/4" = 1'-0"



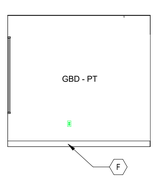
4B A11.2 117A-S
1/4" = 1'-0"



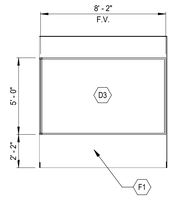
4C A11.2 117A-E
1/4" = 1'-0"



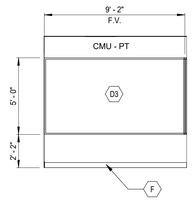
5 A11.2 117B-N
1/4" = 1'-0"



5A A11.2 117B-W
1/4" = 1'-0"



5B A11.2 117B-S
1/4" = 1'-0"



5C A11.2 117B-E
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 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. MECHICAL 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 23"D (UON), UPPER/WALL CABINETS TO BE 13"D (UON), TALL CABINETS TO BE 23"D (UON).
14. PROVIDE 4 1/2" TOE KICK UON.

INTERIOR ELEVATION NOTES

- A — SURFACE RACEWAY, SEE ELEC
- B — CONTRACTOR TO REMOVE AND REINSTALL EXG CLG MOUNTED PROJECTOR
- B1 — CONTRACTOR TO REMOVE AND REINSTALL EXG WALL MOUNTED PROJECTOR
- C — INSTALL WALL MOUNTED CLOCK, SEE ELEC
- D — PROVIDE MARKERBOARD
- D1 — EXG PROJECTION BOARD RE-INSTALLED BY GC
- D2 — PROVIDE TACK STRIP
- D3 — PROVIDE TACKBOARD
- D4 — EXISTING TACKBOARD / MARKER BOARD, AND TACK STRIP TO REMAIN
- E — NEW DISPLACEMENT TERMINAL UNIT - COORDINATE LOCATION WITH MECH
- E1 — NOT USED
- E2 — 5/8" IMPACT RESISTANT GBD CHASE - PT
- F — 4 1/2" VINYL BASE
- F1 — EXG GST
- G — 8 X 8 ACCESS PANEL. PRIME AND PAINT TO MATCH GBD CHASE. SEE MECH
- H — ADA SINK - REFER TO DETAIL 2 / A8.1 FOR ADDITIONAL INFO

ATSR
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INTERIOR DESIGN LANDSCAPE ARCHITECTURE

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

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CONSULTANTS

REVISIONS

REV NO	DESCRIPTION	DATE
1	ADDENDUM 1	08/31/2022

HAMILTON ELEMENTARY SCHOOL

HVAC Replacement and Deferred Maintenance - Phase 3

Anoka-Hennepin schools I.S.D. No. 11
1374 111th Ave NW #4221
Coon Rapids, MN 55433

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.

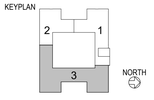
Signature

David M. Maroney, AIA
Typed or printed name

August 18, 2022
Date

20992
License Number

KEYPLAN



DRAWN BY
MB

CHECKED BY
DMM

ISSUED FOR
CONSTRUCTION DOCUMENTS

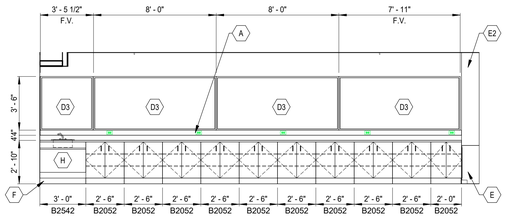
ISSUE DATE
AUGUST 18, 2022

SHEET NAME
INTERIOR ELEVATIONS

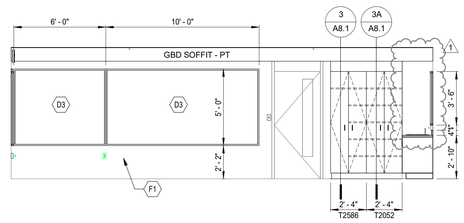
ATS&R PROJECT NO.
20050.2

REVISION NO.
1

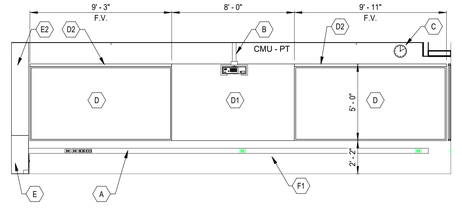
SHEET NUMBER
A11.2



1 A11.3 **118-N**
1/4" = 1'-0"



1A A11.3 **118-W**
1/4" = 1'-0"



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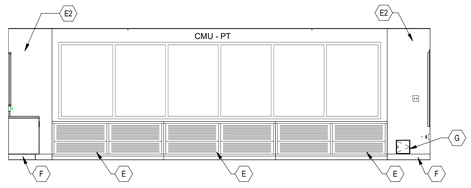
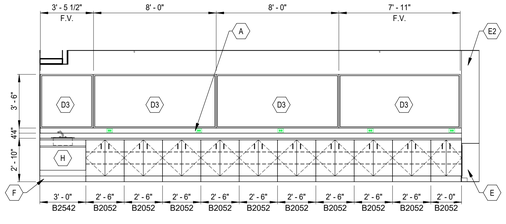
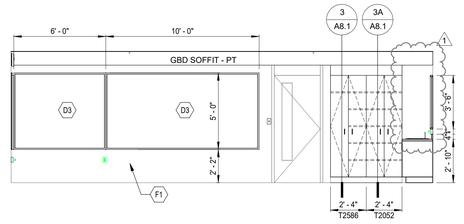
1/4" = 1'-0"



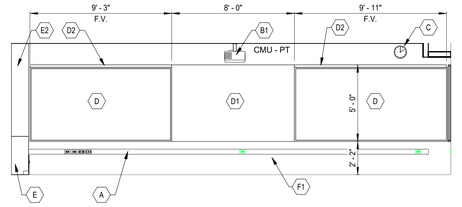
1C A11.3 **118-E**
1/4" = 1'-0"



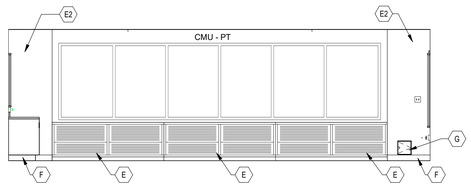
2 A11.3 **119-N**
1/4" = 1'-0"



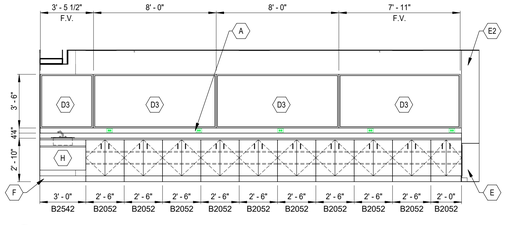
2A A11.3 **119-W**
1/4" = 1'-0"



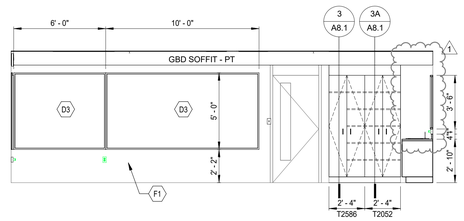
2B A11.3 **119-S**
1/4" = 1'-0"



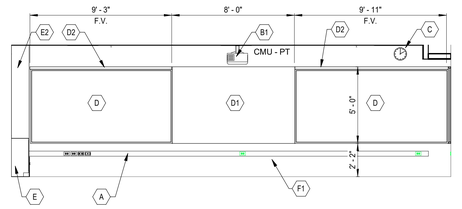
2C A11.3 **119-E**
1/4" = 1'-0"



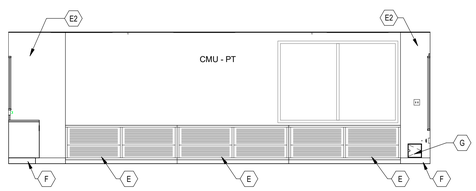
3 A11.3 **120-N**
1/4" = 1'-0"



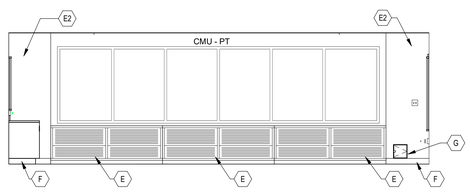
3A A11.3 **120-W**
1/4" = 1'-0"



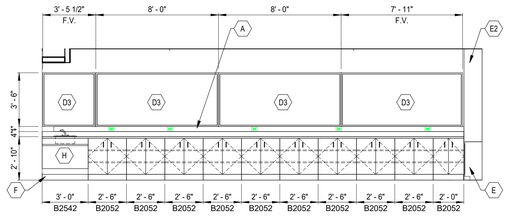
3B A11.3 **120-S**
1/4" = 1'-0"



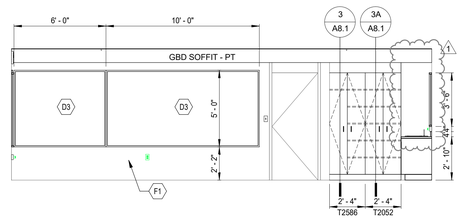
3C A11.3 **120-E**
1/4" = 1'-0"



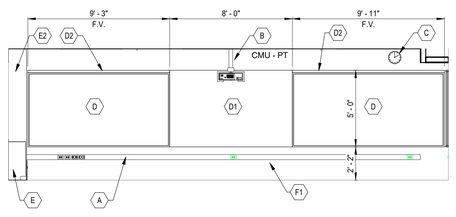
4 A11.3 **122-N**
1/4" = 1'-0"



4A A11.3 **122-W**
1/4" = 1'-0"



4B A11.3 **122-S**
1/4" = 1'-0"



4C A11.3 **122-E**
1/4" = 1'-0"

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- B1 CONTRACTOR TO REMOVE AND REINSTALL EXG WALL MOUNTED PROJECTOR
- C INSTALL WALL MOUNTED CLOCK, SEE ELEC
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- D1 EXG PROJECTION BOARD RE-INSTALLED BY GC
- D2 PROVIDE TACK STRIP
- D3 PROVIDE TACKBOARD
- D4 EXISTING TACKBOARD / MARKER BOARD, AND TACK STRIP TO REMAIN
- E NEW DISPLACEMENT TERMINAL UNIT - COORDINATE LOCATION WITH MECH
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- E2 5/8" IMPACT RESISTANT GBD CHASE - PT
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FAX: 763 . 525 . 3289
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CONSULTANTS

REVISIONS

REV NO	DESCRIPTION	DATE
1	ADDENDUM 1	08/31/2022

HAMILTON ELEMENTARY SCHOOL

HVAC Replacement and Deferred Maintenance - Phase 3

Anoka-Hennepin schools I.S.D. No. 11
1374 111th Ave NW #4221
Coon Rapids, MN 55433

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.

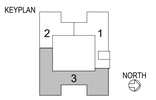
Signature

David M. Maroney, AIA
Typed or printed name

August 18, 2022
Date

20992
License Number

KEYPLAN



DRAWN BY
MB

CHECKED BY
DMM

ISSUED FOR
CONSTRUCTION DOCUMENTS

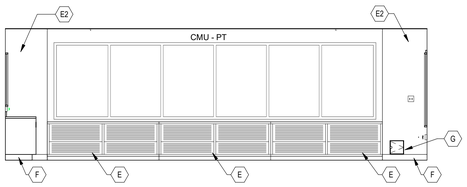
ISSUE DATE
AUGUST 18, 2022

SHEET NAME
INTERIOR ELEVATIONS

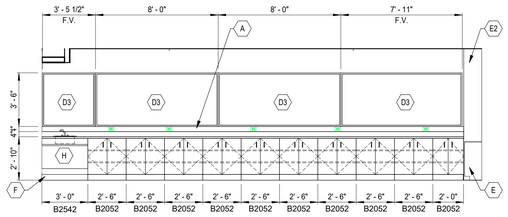
ATS&R PROJECT NO.
20050.2

REVISION NO.
1

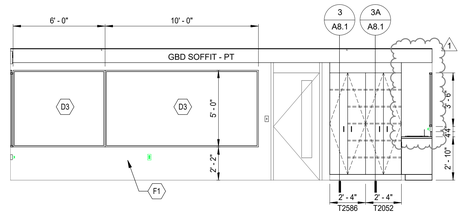
SHEET NUMBER
A11.3



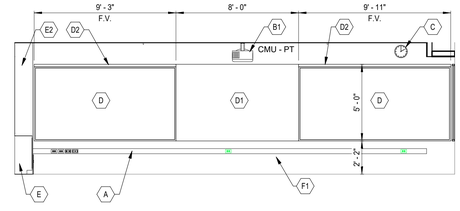
1 A11.4 123-N
1/4" = 1'-0"



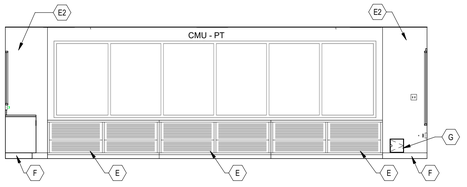
1A A11.4 123-W
1/4" = 1'-0"



1B A11.4 123-S
1/4" = 1'-0"



1C A11.4 123-E
1/4" = 1'-0"



2 A11.4 124-N
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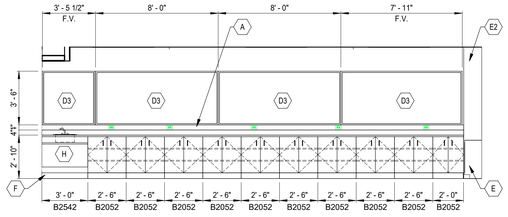

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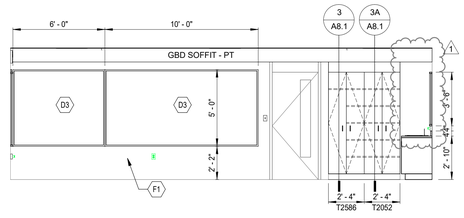
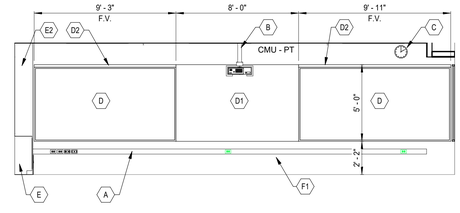
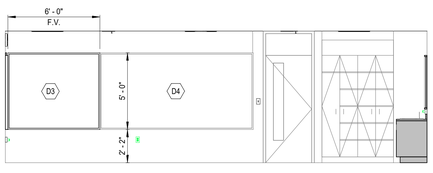


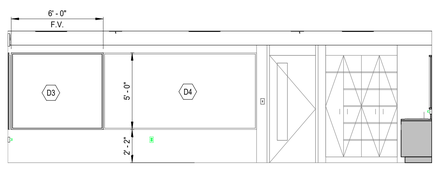
2B A11.4 124-S
1/4" = 1'-0"



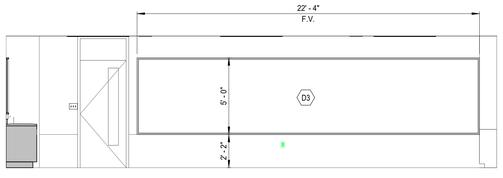
2C A11.4 124-E
1/4" = 1'-0"



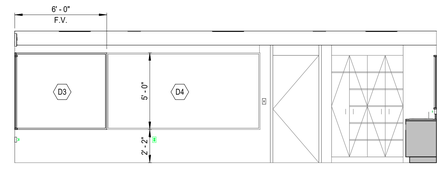
3 A11.4 104-E
1/4" = 1'-0"



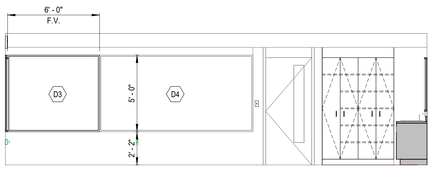
3A A11.4 105-E
1/4" = 1'-0"



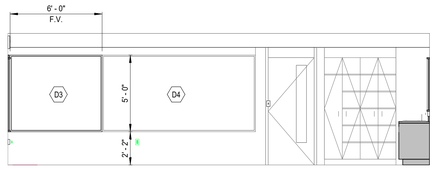
3B A11.4 106-S
1/4" = 1'-0"



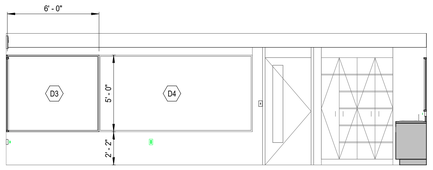
3C A11.4 107-N
1/4" = 1'-0"



4 A11.4 108-N
1/4" = 1'-0"



4A A11.4 109-N
1/4" = 1'-0"



4B A11.4 110-N
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 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. MECHICAL 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 23"D (UON), UPPER/WALL CABINETS TO BE 13"D (UON), TALL CABINETS TO BE 23"D (UON).
14. PROVIDE 4 1/2" TOE KICK UON.

INTERIOR ELEVATION NOTES

- A — SURFACE RACEWAY, SEE ELEC
- B — CONTRACTOR TO REMOVE AND REINSTALL EXG CLG MOUNTED PROJECTOR
- B1 — CONTRACTOR TO REMOVE AND REINSTALL EXG WALL MOUNTED PROJECTOR
- C — INSTALL WALL MOUNTED CLOCK, SEE ELEC
- D — PROVIDE MARKERBOARD
- D1 — EXG PROJECTION BOARD RE-INSTALLED BY GC
- D2 — PROVIDE TACK STRIP
- D3 — PROVIDE TACKBOARD
- D4 — EXISTING TACKBOARD / MARKER BOARD, AND TACK STRIP TO REMAIN
- E — NEW DISPLACEMENT TERMINAL UNIT - COORDINATE LOCATION WITH MECH
- E1 — NOT USED
- E2 — 5/8" IMPACT RESISTANT GBD CHASE - PT
- F — 4 1/2" VINYL BASE
- F1 — EXG GST
- G — 8 X 8 ACCESS PANEL. PRIME AND PAINT TO MATCH GBD CHASE. SEE MECH
- H — ADA SINK - REFER TO DETAIL 2 / A8.1 FOR ADDITIONAL INFO

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REV NO	DESCRIPTION	DATE
1	ADDENDUM 1	08/31/2022

HAMILTON ELEMENTARY SCHOOL

HVAC Replacement and Deferred Maintenance - Phase 3

Anoka-Hennepin schools I.S.D. No. 11
1374 111th Ave NW #4221
Coon Rapids, MN 55433

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.

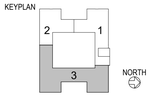
Signature

David M. Maroney, AIA
Typed or printed name

August 18, 2022
Date

20992
License Number

KEYPLAN



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MB

CHECKED BY
DMM

ISSUED FOR
CONSTRUCTION DOCUMENTS

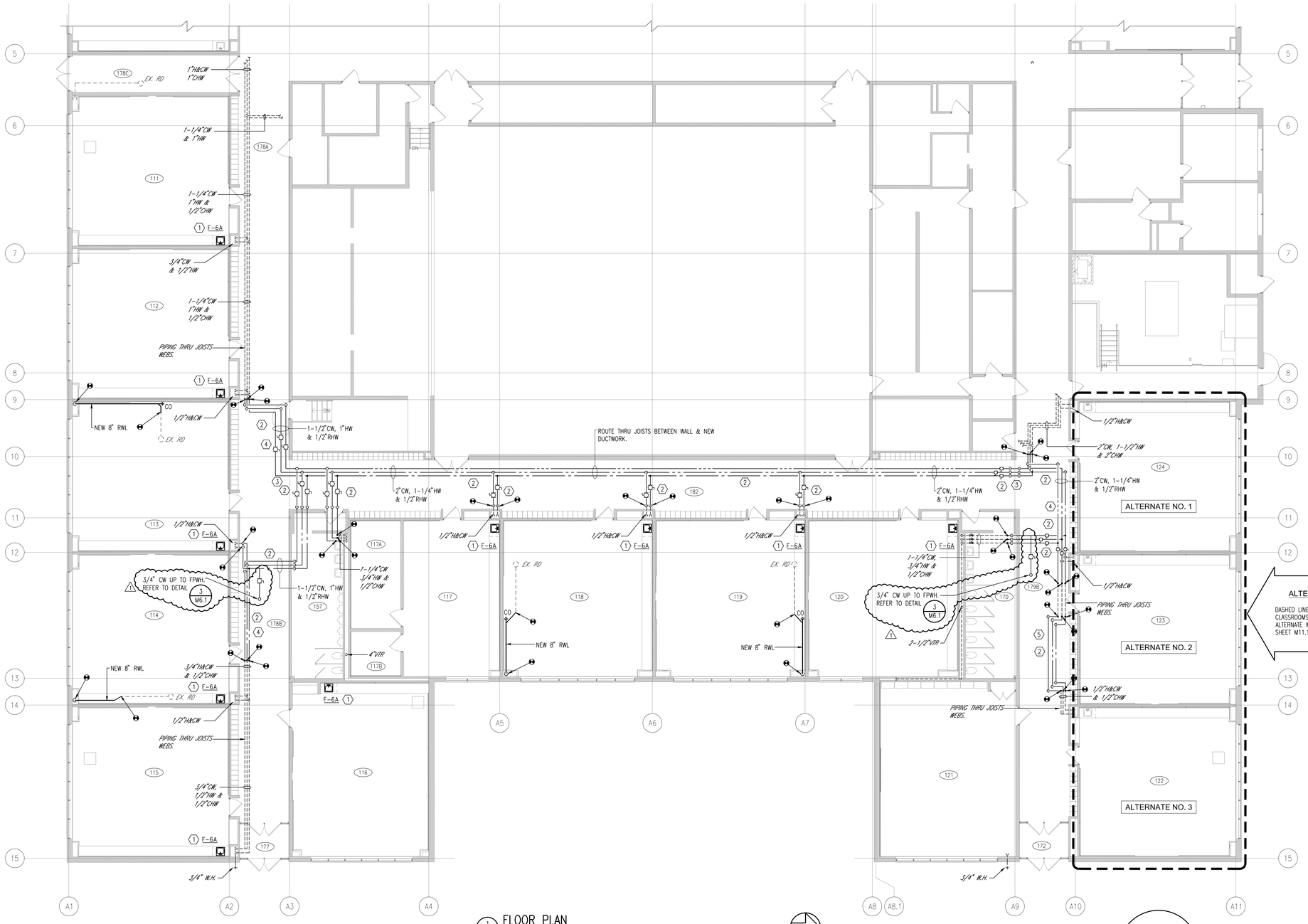
ISSUE DATE
AUGUST 18, 2022

SHEET NAME
INTERIOR ELEVATIONS

ATS&R PROJECT NO.
20050.2

REVISION NO.
1

SHEET NUMBER
A11.4



1 M3.1 FLOOR PLAN PLUMBING

1/8"=1'-0" NORTH

PLUMBING PLAN NOTES:

1. THIS CONTRACTOR SHALL COORDINATE INSTALLATION OF THEIR WORK WITH GENERAL, ELECTRICAL, HYDRONIC, VENTILATION, FIRE SPRINKLER, AND TEMPERATURE CONTROL CONTRACTORS AND RESOLVE ALL DISPUTES PRIOR TO INSTALLATION.
2. ALL STORM & SANITARY SEWER PIPING SHALL BE RUN BELOW THE FLOOR OF THE PLAN ON WHICH IT IS SHOWN, UNLESS OTHERWISE INDICATED.
3. ALL PIPING THAT PASSES THRU FLOORS SHALL BE SLEEVED AND CAULKED WATER TIGHT.
4. COORDINATE ROOF DRAINS & RAIN WATER LEADERS WITH DUCTWORK LOCATIONS.
5. ALL VENT, WATER, HEATING & SERVICE PIPING SHALL BE RUN IN THE CEILING OF THE PLAN ON WHICH IT IS SHOWN, UNLESS OTHERWISE INDICATED.
6. IN GENERAL – ALL PIPE MAINS SHALL BE RUN IN JOIST SPACES, BRANCH PIPES MAY DROP OUT OF JOIST SPACES WHERE SPACE PERMITS.
7. PLUMBING/HEATING 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 & 1'-6" FROM EACH SIDE OF PANEL BOARDS.
8. VERIFY EXACT WALL LOCATIONS WITH ARCHITECTURAL PLANS.
9. FIELD VERIFY EXACT LOCATION & QUANTITY OF ALL EXISTING PIPING AND EQUIPMENT.
10. ALL WORK SHALL MEET STATE & LOCAL CODES.
11. ⊗ – DENOTES CONNECTION TO EXISTING PIPING.
12. THESE DRAWINGS ARE DIAGRAMMATIC. THE INTENT IS TO INDICATE GENERAL ARRANGEMENT OF SYSTEMS AND WORK INCLUDED IN THE CONTRACT. IT IS NOT INTENDED TO SPECIFY OR SHOW EVERY OFFSET, FITTING OR COMPONENT. HOWEVER, THE DRAWINGS AND SPECIFICATIONS REQUIRE COMPONENTS AND MATERIALS SHALL BE PROVIDED WHETHER OR NOT INDICATED OR SPECIFICALLY SPECIFIED TO MAKE THE SYSTEMS BEING INSTALLED COMPLETE, INSPECTED, TESTED AND OPERATIONAL.

ROOM NO.	ROOM NAME
111	CLASSROOM
112	CLASSROOM
113	CLASSROOM
114	CLASSROOM
115	CLASSROOM
116	CLASSROOM
117	CLASSROOM
117A	STORAGE
117B	STORAGE
118	CLASSROOM
119	CLASSROOM
120	CLASSROOM

ROOM NO.	ROOM NAME
122	ADV. PLUS
123	SPECIAL ED
124	SPECIAL ED
157	BOYS LAV
170	GIRLS LAV
172	VESTIBULE
177	VESTIBULE
178A	CORRIDOR
178B	CORRIDOR
179B	CORRIDOR
182	CORRIDOR

ALTERNATES

DASHED LINE HERE INDICATES CLASSROOMS DESIGNATED FOR ALTERNATE WORK. REFER TO SHEET M11.1 FOR THIS WORK.

DUCTS/EQUIP. TO REMAIN

(exemple) 35/14

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.

SPECIFIC NOTES

1. INSTALL NEW SINK & FAUCET IN NEW CASEWORK & CONNECT TO EXISTING WATER, WASTE & VENT. PROVIDE NEW CHECK STOP VALVES FOR EACH WATER CONNECTION & NEW SUPPLY LINES FROM VALVE TO FAUCET. PROVIDE NEW P-TRAP.
2. RE-ROUTE SECTIONS OF DOMESTIC WATER PIPING TO ACCOMMODATE NEW DUCTWORK. COORDINATE NEW PIPE ROUTING WITH VENTILATION CONTRACTOR. SEE 1/M5.1.
3. ROUTE BELOW BEAM.
4. ROUTE THRU JOISTS.
5. ROUTE BELOW JOISTS.

CEILING WORK BY MECHANICAL

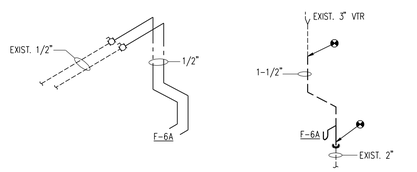
REFER TO, AND COORDINATE WITH, ARCHITECTURAL DEMOLITION PLANS FOR CEILING REMOVAL AREAS. ALL OTHER CEILINGS REQUIRING REMOVAL, WHICH ARE NOT DESIGNATED FOR REMOVAL ON ARCHITECTURAL PLANS, SHALL BE REMOVED AND REINSTALLED BY DIVISION 23 CONTRACTOR. DIVISION 23 CONTRACTOR IS RESPONSIBLE FOR REPLACING DAMAGED CEILING TILE AND GRID COMPONENTS OCCURRING DURING THIS WORK AT NO COST TO OWNER OR OTHER CONTRACTOR.

NOTE: EXISTING DUCTWORK, EQUIPMENT, DUCTS & RELATED ACCESSORIES OR NOTES ARE SHOWN IN ITALICS.

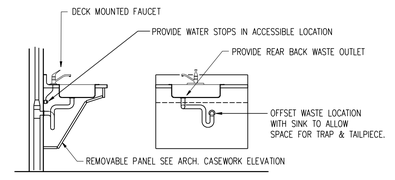
PLUMBING FIXTURE SERVICE SCHEDULE

FIXT NO	DESCRIPTION	W	V	TW	CW	HW
F-6A	S.S. SINK - ACCESSIBLE - 1 COMPARTMENT	2	1-1/2	---	1/2	1/2

NOTE: PROVIDE 2" WASTE TO FIXTURE IN LIEU OF 1-1/2" WHERE THE FIXTURE STANDS ALONE OR UNLESS OTHERWISE NOTED. THE 2" WASTE IS THE MINIMUM PIPE SIZE FOR USE AS A CLEANOUT FOR PIPING LOCATED BELOW THE FLOOR SLAB.



2 M3.1 WST VENT & WTR PIPING RISER DIAGRAM CLASSROOM SINKS NO SCALE



3 M3.1 ADA SINK PIPING DETAIL NO SCALE

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REVISIONS
1 Addendum #1 8/31/2022

HAMILTON ELEMENTARY SCHOOL

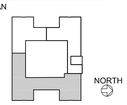
HVAC Replacement and Deferred Maintenance - Phase 3
Anoka-Hennepin schools I.S.D. No. 11
1374 11th Ave NW #4221
Coon Rapids, MN 55433

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
August 18, 2022
DATE
46630
LICENSE NUMBER

KEYPLAN



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BJP
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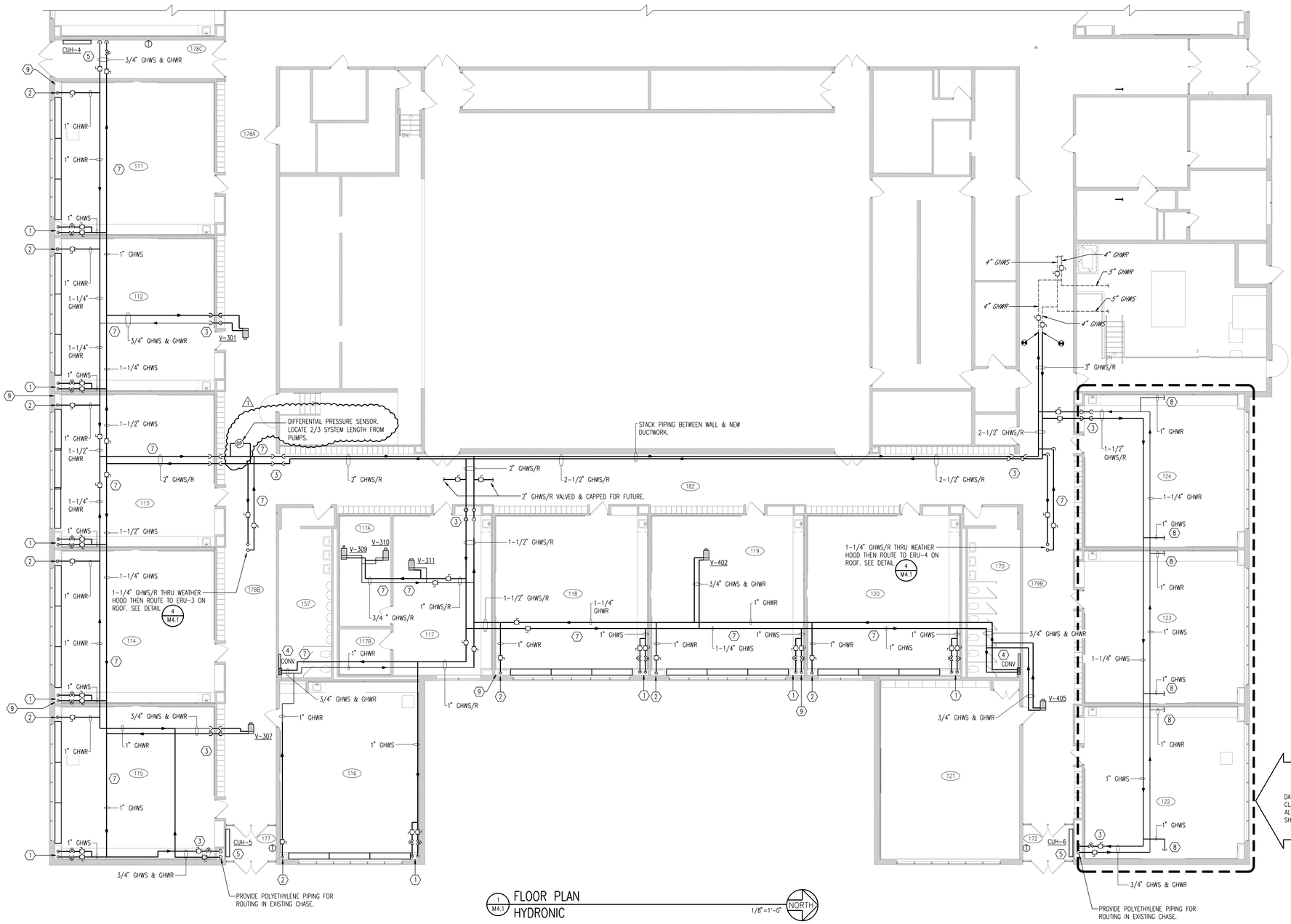
CONSTRUCTION DOCUMENTS
ISSUE DATE
AUGUST 18, 2022
SHEET NAME
PLUMBING PLAN
ATS&R PROJECT NO.
20050.2
REVISION NO.
1
SHEET NUMBER
M3.1



1 M4.1 FLOOR PLAN HYDRONIC — 1/8"=1'-0" NORTH

HYDRONIC GENERAL NOTES

1. THIS CONTRACTOR SHALL COORDINATE INSTALLATION OF HIS WORK WITH ALL OTHER CONTRACTORS AND RESOLVE ALL DISPUTES PRIOR TO INSTALLATION.
2. PLUMBING & HYDRONIC 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 & 1'-6" FROM EACH SIDE OF PANEL BOARDS.
3. IN GENERAL – ALL PIPE MAINS SHALL BE RUN TIGHT TO BOTTOM OF JOISTS, BRANCH PIPES MAY RISE INTO JOIST SPACES WHERE SPACE PERMITS.
4. ALL HYDRONIC PIPING SHALL BE RUN IN THE CEILING OF THE PLAN ON WHICH IT IS SHOWN, UNLESS OTHERWISE INDICATED.
5. ALL PIPING THAT PASSES THRU FLOORS SHALL BE SLEEVED AND CAULKED TO AIR TIGHT CONDITIONS.
6. VERIFY EXACT WALL LOCATIONS WITH ARCHITECTURAL PLANS.
7. ALL WORK SHALL MEET STATE & LOCAL CODES.
8. PIPE BREAKS ARE FOR CLARITY ONLY.
9. COORDINATE HYDRONIC PIPING AT PENETRATIONS THRU ROOF WITH RTU COIL LOCATIONS.
10. VENT ALL HIGH POINTS ON HEATING PIPING.
11. THESE DRAWINGS ARE DIAGRAMMATIC. THE INTENT IS TO INDICATE GENERAL ARRANGEMENT OF SYSTEMS AND WORK INCLUDED IN THE CONTRACT. IT IS NOT INTENDED TO SPECIFY OR SHOW EVERY OFFSET, FITTING OR COMPONENT. HOWEVER, CONTRACT DOCUMENTS REQUIRE COMPONENTS AND MATERIALS SHALL BE PROVIDED WHETHER OR NOT INDICATED OR SPECIFICALLY SPECIFIED TO MAKE THE SYSTEMS BEING INSTALLED COMPLETE, INSPECTED, TESTED AND OPERATIONAL.

ROOM NO.	ROOM NAME
111	CLASSROOM
112	CLASSROOM
113	CLASSROOM
114	CLASSROOM
115	CLASSROOM
116	CLASSROOM
117	CLASSROOM
117A	STORAGE
117B	STORAGE
118	CLASSROOM
119	CLASSROOM
120	CLASSROOM

ROOM NO.	ROOM NAME
122	ADV. PLUS
123	SPECIAL ED
124	SPECIAL ED
157	BOYS LAV
170	GIRLS LAV
172	VESTIBULE
177	VESTIBULE
178A	CORRIDOR
178B	CORRIDOR
179B	CORRIDOR
182	CORRIDOR

SPECIFIC NOTES

1. TWO 3/4" GHWS THRU CHASE TO DTU. INSTALL VALVES, STRAINERS, AND ACCESSORIES IN ACCESSIBLE LOCATION. SEE DETAIL 9/M7.1.
2. 1" GHWR THRU CHASE TO DTU. INSTALL VALVES, STRAINERS, AND ACCESSORIES IN ACCESSIBLE LOCATION. SEE DETAIL 9/M7.1.
3. OFFSET GHWS/R AS REQUIRED TO BYPASS THE STRUCTURAL BEAMS.
4. MOUNT CONVECTOR TO WALL WHERE EXISTING HEATER WAS REMOVED. PROVIDE 8"x6" 18GA. FLOOR TO CEILING SHEET METAL PIPE COVER. PAINT TO MATCH CUH. SEE DETAIL 4/M4.1
5. MOUNT CUH TO WALL WHERE EXISTING HEATER WAS REMOVED. SEE DETAIL 3/M4.1
6. ROUTE GHWS/R MAINS AS TIGHT TO THE CORRIDOR WALL AS POSSIBLE. COORDINATE WITH SHEET M5.1 TO AVOID ALL DUCTWORK. STACK PIPING ON THE WALL.
7. ROUTE GHWS/R OVER DUCTWORK. COORDINATE WITH SHEET M5.1.
8. CAP PIPE UNDER BASE BID.
9. ROUTE VERTICAL PIPING BETWEEN DUCT & EXISTING RWL.

ALTERNATES

DASHED LINE HERE INDICATES CLASSROOMS DESIGNATED FOR ALTERNATE WORK. REFER TO SHEET M11.1 FOR THIS WORK.

DUCTS/EQUIP. TO REMAIN

(example) 36/14

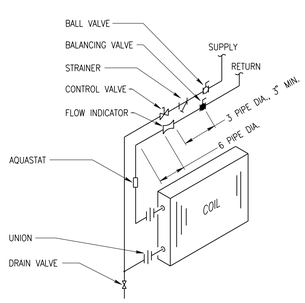
DUCTWORK & EQUIPMENT SHOWN DASHED ON THIS PLAN ARE EXISTING & SHALL REMAIN UNLESS OTHERWISE NOTED. ANY EQUIPMENT, DUCTWORK, PIPING OR RELATED SYSTEM ACCESSORIES NOT SHOWN ON THIS PLAN SHALL REMAIN UNLESS OTHERWISE NOTED.

CEILING WORK BY MECHANICAL

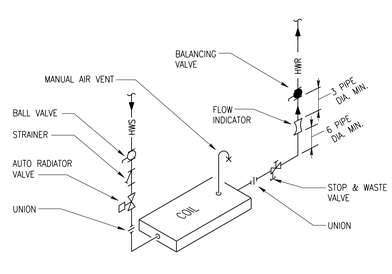
REFER TO, AND COORDINATE WITH, ARCHITECTURAL DEMOLITION PLANS FOR CEILING REMOVAL AREAS. ALL OTHER CEILINGS REQUIRING REMOVAL, WHICH ARE NOT DESIGNATED FOR REMOVAL ON ARCHITECTURAL PLANS, SHALL BE REMOVED AND REINSTALLED BY DIVISION 23 CONTRACTOR. DIVISION 23 CONTRACTOR IS RESPONSIBLE FOR REPLACING DAMAGED CEILING TILE AND GRID COMPONENTS OCCURRING DURING THIS WORK AT NO COST TO OWNER OR OTHER CONTRACTOR.

NOTE: EXISTING DUCTWORK, EQUIPMENT TAGS & RELATED ACCESSORIES OR NOTES ARE SHOWN IN ITALICS.

RUN-OUTS TO EQUIPMENT	
GPM	PIPE SIZE
0-3.5	3/4"
3.6-6.7	1"
6.8-14	1-1/4"

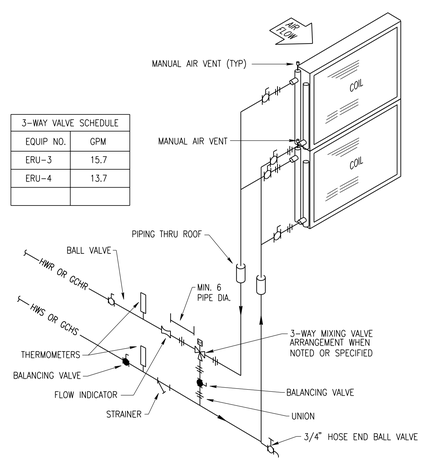


2 M4.1 CABINET UNIT HEATER PIPING DETAIL HOT WATER - DOWNFEED — NO SCALE



3 M4.1 HOT WATER-DOWNFEED CONVECTOR PIPING DETAIL — NO SCALE

3-WAY VALVE SCHEDULE	
EQUIP NO.	GPM
ERU-3	15.7
ERU-4	13.7



4 M4.1 MULTIPLE HOT WATER OR CHILLED WATER ERU & RTU — NO SCALE

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HAMILTON ELEMENTARY SCHOOL

HVAC Replacement and Deferred Maintenance - Phase 3

Anoka-Hennepin schools I.S.D. No. 11
1374 11th Ave NW #4221
Coon Rapids, MN 55433

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

August 18, 2022
DATE

46630
LICENSE NUMBER

KEYPLAN

NORTH

DRAWN BY
BJW

CHECKED BY
BJP

ISSUED FOR
CONSTRUCTION DOCUMENTS

ISSUE DATE
AUGUST 18, 2022

SHEET NAME
HYDRONIC PLAN

ATS&R PROJECT NO.
20050.2

REVISION NO.
1

SHEET NUMBER
M4.1

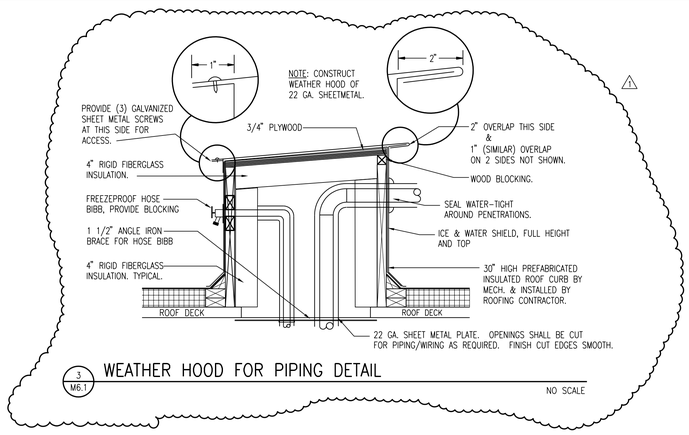
GENERAL MECHANICAL DEMOLITION NOTES

1. DEMOLISHED MATERIAL SHALL BE REMOVED AND DISPOSED OF IN COMPLIANCE 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 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 LOCATIONS OF EQUIPMENT AND PIPING SHOWN PER ORIGINAL PLANS.
6. IF HAZARDOUS MATERIALS ARE ENCOUNTERED, DO NOT PROCEED, BUT NOTIFY 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 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)

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

SPECIFIC NOTE

(1) HYDRONIC PIPING THRU WEATHER HOOD. OFFSET AS REQUIRED TO ROUTE INTO PIPING CHASE FROM BELOW UNIT. CONTRACTOR SHALL DETERMINE WEATHER HOOD LOCATION. FIELD-VERIFY. SUPPORT PIPING FROM ROOF AS REQUIRED. SEE DETAIL 10/M7.1 FOR SUPPORTS. SEE DETAIL 2/M6.1 FOR WEATHER HOOD. REFER TO M4.1 FOR PIPING.



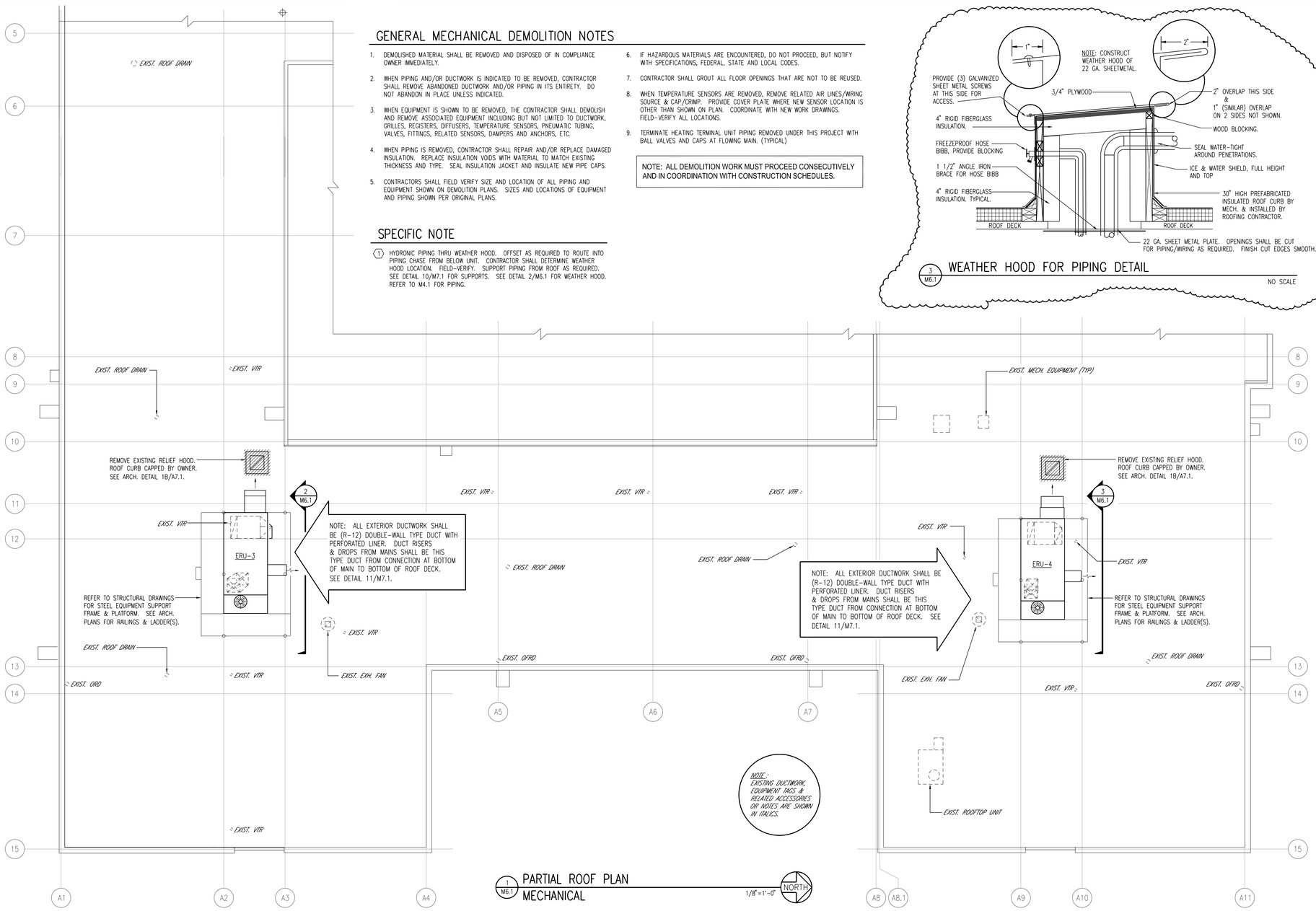
3 / M6.1 WEATHER HOOD FOR PIPING DETAIL

NO SCALE

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 NOT GREATER THAN FIVE FEET (5'-0"). SEE DETAILS.
6. ALL RETURN DIFFUSER BOOTS SHALL BE LINED WITH 1/2" FIBER-FREE DUCT LINER. SEE SPECIFICATIONS FOR TYPE.
7. ALL TRANSFER DUCTS SHALL BE LINED WITH 1-INCH FIBER-FREE DUCT LINER. SEE SPECIFICATIONS FOR TYPE.
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 PANEL BOARDS AND SHALL KEEP ALL PIPING AND DUCTWORK OUT OF AREA ABOVE THE PANEL BOARDS AND FOR A DISTANCE OF 3'-6" IN FRONT OF, AND 1'-6" FROM EACH SIDE OF PANEL BOARDS. THIS INCLUDES CONTROL PANELS FOR MECHANICAL EQUIPMENT.
12. PROVIDE TEST HOLES FOR ALL SUPPLY DUCTS NEAR AIR HANDLING/VENTILATION UNITS.
13. (T) SEE SPECIFICATIONS FOR TEMPERATURE SENSOR TYPE.
14. (M) INDICATES MOTORIZED DAMPER. SEE SPECIFICATION & CONTROL DIAGRAMS.
15. WHERE 45 DEGREE BRANCH TAKE-OFFS CANNOT BE USED, PROVIDE 90 DEGREE CONICAL TAKE-OFFS.
16. DENOTES FIRE DAMPER.
17. DENOTES SMOKE DAMPER.
18. DENOTES COMBINATION FIRE/SMOKE DAMPER.
19. RUNOUT DUCTS TO VAV BOXES SHALL BE SAME SIZE AS BOX INLETS. ODD SIZE VAV INLET DUCTS SHALL BE ROUNDED UP TO NEXT EVEN SIZE (ex: 9"ø INLET SHALL HAVE 10"ø INLET DUCT CONNECTION).
20. INSTALL MECHANICAL EQUIPMENT REQUIRING MAINTENANCE NO HIGHER THAN 3'-0" ABOVE FINISHED CEILING UNLESS OTHERWISE NOTED ON PLAN. THIS INCLUDES, BUT IS NOT LIMITED TO: VAV BOXES, FAN COILS, FAN-POWERED BOXES, REHEAT COILS & ETC.)

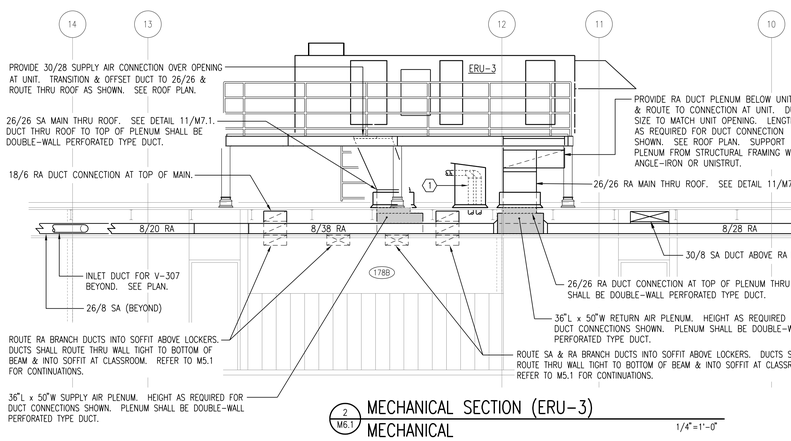
NOTE: ALL NEW WORK MUST PROCEED CONSECUTIVELY AND IN COORDINATION WITH CONSTRUCTION SCHEDULES.



1 / M6.1 PARTIAL ROOF PLAN
MECHANICAL

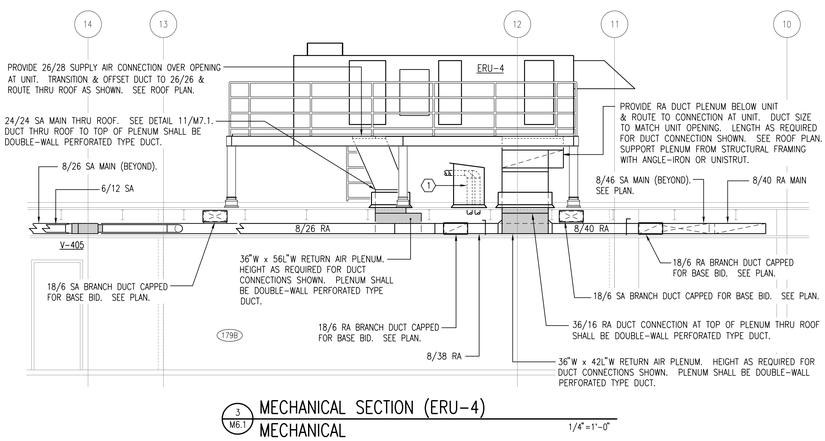
1/8"=1'-0"

DEMO	HATCHING DENOTES MECHANICAL DUCTWORK AND/OR EQUIPMENT TO BE REMOVED.
EXIST. TO REMAIN	ALL DASHED MECHANICAL EQUIPMENT ON THIS SHEET AND/OR MECH. EQUIPMENT NOT SHOWN SHALL REMAIN UNLESS OTHERWISE NOTED.
EXIST.	EXISTING DUCTWORK, EQUIPMENT TAGS & RELATED ACCESSORIES OR NOTES ARE SHOWN IN ITALICS.



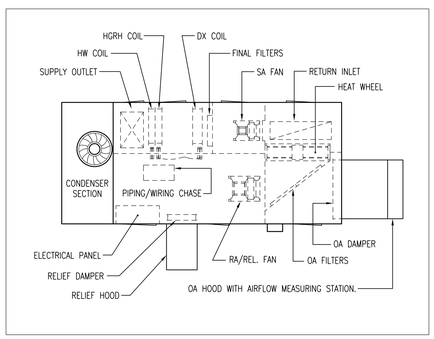
2 / M6.1 MECHANICAL SECTION (ERU-3)
MECHANICAL

1/4"=1'-0"



3 / M6.1 MECHANICAL SECTION (ERU-4)
MECHANICAL

1/4"=1'-0"



4 / M6.1 EQUIPMENT COMPONENTS (ERU-3 & 4)

NO SCALE

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HAMILTON ELEMENTARY SCHOOL

HVAC Replacement and Deferred Maintenance - Phase 3
Anoka-Hennepin schools I.S.D. No. 11
1374 11th Ave NW #4221
Coon Rapids, MN 55433

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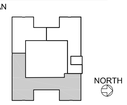

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AUGUST 18, 2022
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MECHANICAL ROOF PLAN
ATS&R PROJECT NO.
20050.2
REVISION NO.
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SHEET NUMBER
M6.1

ENERGY RECOVERY UNIT SCHEDULE

UNIT NO.	LOCATION	AREA SERVED	MANUFACTURER	MODEL NO.	SUMMER DESIGN			WINTER DESIGN				SUPPLY FAN							EXHAUST FAN						OUTDOOR AIR FILTERS			
					O/A - ENTERING AIR TEMP. DB/WB (°F)	O/A - LEAVING AIR TEMP. DB/WB (°F)	E/A - ENTERING AIR TEMP. DB/WB (°F)	O/A - ENTERING AIR TEMP. DB (°F)	O/A - LEAVING AIR TEMP. DB (°F)	E/A - ENTERING AIR TEMP. DB (°F)	FROST CONTROL SETPOINT (DEG F)	CFM	OUTDOOR AIR (%)	EXT. STATIC PRESS. (IN W.G.)	TOTAL STATIC PRESS. (IN W.G.)	FAN RPM	MOTOR HP	VFD CONTROL	CFM	EXT. STATIC PRESS. (IN W.G.)	TOTAL STATIC PRESS. (IN W.G.)	FAN RPM	MOTOR HP	VFD CONTROL BY MANUFACTURER	TYPE	AREA (SF)	1st STAGE-THICKNESS / EFFICIENCY	2nd STAGE-THICKNESS / EFFICIENCY
ERU-3	ROOF	SOUTHEAST CLASSROOMS	XETEX	AHS-1400-RT-CD-HG-HW-FF-RC	92/75	80.1/67.4	75/63	-16	45.7	72	15	4200	100	2	6.1	4110	7.5	YES	4429	1	2.9	2255	5	YES	PLEAT	8	2" MERV-8	4" MERV-13
ERU-4	ROOF	NORTHEAST CLASSROOMS	XETEX	AHS-1400-RT-CD-HG-HW-FF-RC-AC	92/75	79.9/67.1	75/63	-16	47	72	15	3800	100	2	5.8	3860	7.5	YES	4062	1	2.7	2117	5	YES	PLEAT	8	2" MERV-8	4" MERV-13

ENERGY RECOVERY UNIT SCHEDULE - CONTINUED

UNIT NO.	EXHAUST AIR FILTERS			HOT WATER HEATING COIL											DX COOLING COIL											
	TYPE	AREA (SF)	1st STAGE-THICKNESS / EFFICIENCY		ROWS	FINS PER INCH (MAX)	FACE VELOCITY (FPM)	AIR PRESS. DROP (IN W.G.)	ENTERING AIR TEMP DB (°F)	LEAVING AIR TEMP DB (°F)	GPM/MBH	ENTERING WATER TEMP (°F)	LEAVING WATER TEMP (°F)	WATER PRESS. DROP (FT W.G.)	ETHYLENE GLYCOL (%)		ROWS	FINS PER INCH (MAX)	FACE VELOCITY (FPM)	AIR PRESS. DROP (IN W.G.)	ENTERING AIR TEMP DB (°F)	ENTERING AIR TEMP WB (°F)	LEAVING AIR TEMP DB (°F)	LEAVING AIR TEMP WB (°F)	TOTAL CLG. CAP. (MBH)		RETURN AIR DUCT SMOKE DETECTOR BY MANUFACTURER	UNIT POWER	REMARKS
ERU-3	PLEAT	8.7	MERV-8		2	11	513	0.21	28	76.2	15.7 / 218.1	140	110	8	30		6	12	494	0.88	80.1	67.4	50.4	49.8	219.1		NO	164.3mca @ 208/3	NOTE 1, 2, 3
ERU-4	PLEAT	8.7	MERV-8		2	11	501	0.2	28	75.8	14.2 / 197.1	140	110	9.5	30		6	12	495	0.88	79.8	67.1	49.8	49.3	199.8		NO	147.8mca @ 208/3	NOTE 1, 2, 3

NOTES:
1. WELD UNIT BASE TO STRUCTURAL STEEL BEAMS. UNIT SHALL BE SINGLE POINT CONNECTION WITH 120/1 LIGHT/GFI CONNECTION. SF, EF & RECOVERY WHEEL VFD's SHALL BE INCLUDED IN UNIT. UNIT SHALL NOT EXCEED 15 FEET IN LENGTH. SF, EF & OA AIR FLOW MEASURING STATIONS SHALL BE INCLUDED WITH UNIT. UNIT SHALL BE PACKAGED WITH A CONDENSING SECTION.
2. PROVIDE HOTGAS REHEAT COIL : 1 ROW, 9 FPI, 517 FPM, 0.10 SP, 50.4 EAT, 71.1 LAT, 94.3 MBH.
3. PROVIDE A FACTORY MONTED AND WIRED GFI OUTLET BREAKER, LIGHTING BREAKER, 120v TO 24v TRANFORMER AND LED LIGHTS.

⚠1

PERIMETER INDUCTION - DISPLACEMENT TERMINAL ROOM SCHEDULE

Room Number	Model	Quantity Per Room	2 or 4 Pipe	Depth (inches)	Nominal Length (inches)	Size	Primary Air Flow CFM per unit	Supply Air Flow Rate CFM per unit	Air PD (in WG) per unit	Heating MBH per unit	Heating GPM per unit	Heating PD (ft. H2O) per unit	Cooling MBH (future)	Cooling GPM (future)	Cooling PD (ft. H2O) (future)	Max. Space NC Level	Unit Types Per Room	Room Ceiling Height	Notes
111	QLCI-2000	3	2	13.5	87.44	2000	150	450	0.3	8.7	1.5	12.4	8.3	1.5	14.7	23	B, B, B	8'-7"	
112	QLCI-1500	4	2	13.5	67.75	1500	115	345	0.3	6.2	1	10.1	6.5	1.5	11.9	17	B, B, B	8'-7"	
113	QLCI-2000	3	2	13.5	87.44	2000	150	450	0.3	8.7	1.5	12.4	8.3	1.5	14.7	23	B, B, B	8'-7"	
114	QLCI-2000	3	2	13.5	87.44	2000	150	450	0.3	8.7	1.5	12.4	8.3	1.5	14.7	23	B, B, B	8'-7"	
115	QLCI-2000	3	2	13.5	87.44	2000	150	450	0.3	8.7	1.5	12.4	8.3	1.5	14.7	23	B, B, B	8'-7"	
116	QLCI-2000	3	2	13.5	87.44	2000	150	450	0.3	8.7	1.5	12.4	8.3	1.5	14.7	23	B, B, B	8'-7"	
118	QLCI-2000	3	2	13.5	87.44	2000	150	450	0.3	8.7	1.5	12.4	8.3	1.5	14.7	23	B, B, B	8'-7"	
119	QLCI-2000	3	2	13.5	87.44	2000	150	450	0.3	8.7	1.5	12.4	8.3	1.5	14.7	23	B, B, B	8'-7"	
122	QLCI-2000	3	2	13.5	87.44	2000	150	450	0.3	8.7	1.5	12.4	8.3	1.5	14.7	23	B, B, B	8'-7"	**ALTERNATE**
123	QLCI-2000	3	2	13.5	87.44	2000	150	450	0.3	8.7	1.5	12.4	8.3	1.5	14.7	23	B, B, B	8'-7"	**ALTERNATE**
124	QLCI-2000	3	2	13.5	87.44	2000	150	450	0.3	8.7	1.5	12.4	8.3	1.5	14.7	23	B, B, B	8'-7"	**ALTERNATE**

CABINET UNIT HEATER SCHEDULE

UNIT NO.	LOCATION	MANUFACTURER	MODEL NO.	SIZE	ARRANGEMENT	CAPACITY (MBH)	CAPACITY (GPM)	ENTERING WATER TEMP (°F)	LEAVING WATER TEMP (°F)	WATER PRESSURE DROP (FT W.G.)	CFM	MOTOR HP	ETHYLENE GLYCOL (%)
CUH-4	178C	RITTLING	RWI-300-04	04	WALL HUNG	17.3	1.9	140	120	1.3	310	1/25	30
CUH-5	177	RITTLING	RWI-300-04	04	WALL HUNG	17.3	1.9	140	120	1.3	310	1/25	30
CUH-6	172	RITTLING	RWI-300-04	04	WALL HUNG	17.3	1.9	140	120	1.3	310	1/25	30

CONVECTOR SCHEDULE

TYPE	MANUFACTURER	MODEL NO.	STYLE	CAPACITY (MBH)	ETHYLENE GLYCOL (%)	ENTERING WATER TEMP (°F)	LEAVING WATER TEMP (°F)	LENGTH	HEIGHT	DEPTH	GPM
SLOPE TOP	RITTLING	SL-20-48-04	WALL MOUNTED	2.5	30	140	132	48	20	4	1

PERIMETER INDUCTION - DISPLACEMENT TERMINAL MODEL SCHEDULE

Type	Unit Model	Left End Panel			Right End Panel			Top Panel		
		Blank Panel	Duct	Notched	Blank Panel	Duct	Notched	Blank Panel	Left Duct / Pipe Knockout	Right Duct / Pipe Knockout
B	QLCI-4-X/2000/C1/0		X	X		X	X	X		

VARIABLE AIR VOLUME TERMINAL UNIT SCHEDULE

MANUFACTURER:	TITUS					
UNIT NO.	LOCATION	SPACE SERVED	MODEL NO	MAX CFM	MIN CFM	NOTES
V-302	112	111	DESV-7	450	410	
V-303	113	112	DESV-7	450	410	
V-304	113	113	DESV-7	450	410	
V-305	114	114	DESV-7	450	410	
V-306	115	115	DESV-7	450	410	
V-308	116	116	DESV-7	450	410	
V401	118	118	DESV-7	450	410	
V403	119	119	DESV-7	450	410	
V404	120	120	DESV-7	450	410	
V406	124	124	DESV-7	450	410	**ALTERNATE**
V407	123	123	DESV-7	450	410	**ALTERNATE**
V408	122	122	DESV-7	450	410	**ALTERNATE**

VARIABLE AIR VOLUME TERMINAL UNIT WITH REHEAT COILS SCHEDULE

MANUFACTURER:	TITUS					
EAT / LAT / EWT / LWT:	55 / 95 / 140 / 110					
UNIT NO.	LOCATION	SPACE SERVED	MODEL NO	MAX CFM	MIN CFM	GPM
V-301	178A	178A	DESV-6	300	50	1.3
V-307	178B	178B	DESV-6	300	50	1.3
V-309	117A	117B	DESV-4	70	20	1.0
V-310	117A	117A	DESV-5	200	50	1.0
V-311	117	117	DESV-8	600	100	2.8
V-402	119	182	DESV-6	300	50	1.3
V-405	179B	179B	DESV-6	300	50	1.3

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HAMILTON ELEMENTARY SCHOOL
HVAC Replacement and Deferred Maintenance - Phase 3
Anoka-Hennepin schools I.S.D. No. 11
1374 11th Ave NW #4221
Coon Rapids, MN 55433

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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.

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Blayne Parkos, PE
TYPED OR PRINTED NAME
August 18, 2022
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46630
LICENSE NUMBER

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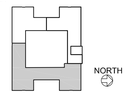

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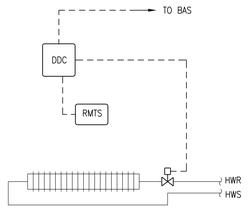
FIN-TUBE RADIATION/CONVECTOR - TWO POSITION CONTROL VALVE

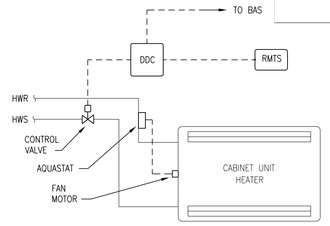
SEQUENCE	POINTS	HARDWARE				SOFTWARE					
		AI	AO	DI	DO	HA	LA	SA	TL	SP	SC	IL
1. Set-point minus 1.5 degrees F. = Control Valve full open.	SPACE TEMPERATURE	X					X		X	X	X	
2. Minus 1.5 Deg F. to Set-point = Modulate control valve to full open.	CONTROL VALVE		X									
3. Set-Point to plus 1 deg F.= Control Valve closed.	ACTIVE SET-POINT									X	X	
4. Reverse shall occur on a drop in temperature.												
6. Points shall be monitored by BAS.												



1 M10.2 HYDRONIC FIN TUBE RADIATION / CONVECTOR

CABINET UNIT HEATER WITH DIGITAL STAT - TWO POSITION CONTROL VALVE & AQUASTAT

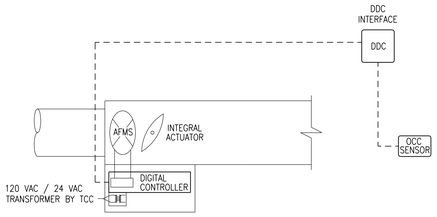
SEQUENCE	POINTS	HARDWARE				SOFTWARE					
		AI	AO	DI	DO	HA	LA	SA	TL	SP	SC	IL
1. Two position control valve shall open and close to satisfy space temperature setpoint of 66 F. (adjustable).	SPACE TEMPERATURE	X					X		X	X		
2. Fan shall cycle on and off through control relay from aquastat setpoint of 90 F. (adjustable).	CONTROL VALVE		X									
3. The spring return normally open valve will fail open to full heat.												
4. Points shall be monitored by the BAS.												



2 M10.2 HOT WATER CABINET UNIT HEATER

OA VAV BOX MODULATION

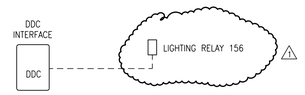
SEQUENCE	POINTS	HARDWARE				SOFTWARE					
		AI	AO	DI	DO	HA	LA	SA	TL	SP	SC	IL
1. When space occupancy sensor calls for ventilation, the modulating damper shall open to 100%.	CONROL DAMPER		X						X			
2. When space occupancy sensor goes to unoccupied mode, the modulating damper shall close to 30% (adjustable).	OCCUPANCY SENSOR			X					X			
	AIR FLOW	X							X			



3 M10.2 VAV BOX

LIGHTING CONTROLS

SEQUENCE	POINTS	HARDWARE				SOFTWARE					
		AI	AO	DI	DO	HA	LA	SA	TL	SP	SC	IL
1. Each lighting zone shall have a lighting ralay												
2. Label zones as to area and system served	ACTIVE SETPOINT									X		
3. Provide control schedules for each system category and zone location.	LIGHTING CONTROL RELAY				X					X		
4. Map(s) shall indicate status and curreny control status for each control zone												
5. Indicate run time for each zone.												
6. Points shall be monitored by the BAS.												



NOTE: REFER TO SHEET E2.2 FOR ROOM LOCATIONS. COORDINATE WITH ELECTRICAL CONTRACTOR.

4 M10.2 LIGHTING CONTROL

POINTS LEGEND

AI = ANALOG INPUT	SA = STATUS ALARM
AO = ANALOG OUTPUT	TL = TREND LOG
DI = DIGITAL INPUT	SP = SETPOINT
DO = DIGITAL OUTPUT	SC = SCHEDULE
HA = HIGH ALARM	IL = INTERLOCK
LA = LOW ALARM	

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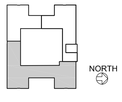
LICENSE NUMBER

KEYPLAN



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