SCOPE OF WORK

Jochem Center HVAC Modernization

Marie Katzenbach School for the Deaf
Ewing, Mercer County, NJ

Project No. E0412-00

STATE OF NEW JERSEY

Honorable Mikie Sherrill, Governor
Honorable Dr. Dale G. Caldwell, Lt. Governor

DEPARTMENT OF THE TREASURY

Aaron Binder, Acting State Treasurer

DIVISION OF PROPERTY MANAGEMENT AND CONSTRUCTION

Thomas A. Edenbaum, Director

Date: January 30, 2026

Document Format Revision 8-1-2022

TABLE OF CONTENTS

SECTION **PAGE**

I. OBJECTIVE

The objective of this project is to remove and replace the HVAC system with a new, modern HVAC and exhaust system, including cooling, at the Jochem Center located at the Marie Katzenbach School for the Deaf in Ewing, New Jersey.

II. CONSULTANT QUALIFICATIONS

A. CONSULTANT & SUB-CONSULTANT PRE-QUALIFICATIONS

The Consultant shall be a firm pre-qualified with the Division of Property Management & Construction (DPMC) in the following discipline(s):

- **P003 HVAC Engineering**

The Consultant shall also have in-house capabilities or Sub-Consultants pre-qualified with DPMC in:

- **P002 Electrical Engineering**
- **P025 Estimating/Cost Analysis**
- **P037 Asbestos Design**
- **P038 Asbestos Safety Control Monitoring**
- **P065 Lead Paint Evaluation**

As well as, **any and all** other Architectural, Engineering and Specialty Disciplines necessary to complete the project as described in this Scope of Work (SOW).

III. PROJECT BUDGET

A. CONSTRUCTION COST ESTIMATE (CCE)

The initial Construction Cost Estimate (CCE) for this project is $871,739.

The Consultant shall review this Scope of Work and provide a narrative evaluation and analysis of the accuracy of the proposed project CCE in its technical proposal based on its professional experience and opinion.

B. CURRENT WORKING ESTIMATE (CWE)

The Current Working Estimate (CWE) for this project is $1,233,511.

The CWE includes the construction cost estimate and all consulting, permitting and administrative fees.

The CWE is the client agency's financial budget based on this project Scope of Work and shall not be exceeded during the design and construction phases of the project unless DPMC approves the change in Scope of Work through a Contract amendment.

C. CONSULTANT'S FEES

The construction cost estimate for this project ***shall not*** be used as a basis for the Consultant's design and construction administration fees. The Consultant's fees shall be based on the information contained in this Scope of Work document and the observations made and/or the additional information received during the pre-proposal meeting.

IV. PROJECT SCHEDULE

A. SCOPE OF WORK DESIGN & CONSTRUCTION SCHEDULE

The following schedule identifies the estimated design and construction phases for this project and the estimated durations. The Consultant's proposed design and construction schedule shall be in Gantt chart format and calendar day durations with start and finish dates for each task.

PROJECT PHASE	ESTIMATED DURATION (Calendar Days)
1. Site Access Approvals & Schedule Design Kick-off Meeting	**14**
2. Design Development Phase	**42**
• *Project Team & DPMC Plan/Code Unit Review & Comment*	14
3. Final Design Phase	**42**
• *Project Team & DPMC Plan/Code Unit Review & Approval*	14
4. Final Design Re-Submission to Address Comments	**7 (See Note)**
• *Project Team & DPMC Plan/Code Unit Review & Approval*	14
5. DCA Submission Plan Review	**30**
6. Permit Application Phase	**7**
• *Issue Plan Release*	
7. Bid Phase	**42**

8. Award Phase	**28**
9. Construction Phase	**155**
10. Project Close Out Phase	**30**

Note: The Final Design Phase is considered complete upon the release of Construction Documents by the DPMC Code Group and/or the Department of Community Affairs (DCA).

B. CONSULTANT'S PROPOSED DESIGN & CONSTRUCTION SCHEDULE

The Consultant shall submit a project design and construction schedule with its technical proposal that is similar in format and detail to the schedule depicted in **Exhibit 'A.'** The schedule developed by the Consultant shall reflect its recommended project phases, phase activities, and activity durations.

A written narrative shall also be included with the technical proposal explaining the schedule submitted and the reasons why and how it can be completed in the time frame proposed by the Consultant.

This schedule and narrative will be reviewed by the Consultant Selection Committee as part of the evaluation process and will be assigned a score commensurate with clarity and comprehensiveness of the submission.

V. PROJECT SITE LOCATION & TEAM MEMBERS

A. PROJECT SITE ADDRESS

The location of the project site is:

Marie H. Katzenbach School for the Deaf
320 Sullivan Way
Ewing Township, NJ 08628

See **Exhibit 'B'** for the project site location map.

B. PROJECT TEAM MEMBER DIRECTORY

The following are the names, addresses, and phone numbers of the Project Team members.

1. DPMC Representative

Name: Robert Tampellini, Project Manager
Address: Division of Property Management & Construction
20 West State Street, 3rd Floor
Trenton, NJ 08608-1206
Phone No: (609) 633-7069
E-Mail: Robert.Tampellini@treas.nj.gov

2. NJ Department of Education Representative

Name: Robert Cueto, Project Manager
Address: NJ Department of Education
100 Riverview Plaza PO Box 500
Trenton, NJ 08625
Phone No: (609) 376-9130
E-Mail: Robert.Cueto@doe.nj.gov

VI. PROJECT DEFINITION

A. BACKGROUND

The Marie Katzenbach School for the Deaf (MKSD) was established in 1883 and is the largest school for the deaf in the State of New Jersey. It serves the needs of over 100 deaf students and is the only residential school for the deaf in the State. The 118-acre campus contains 34 buildings that are used as utility, storage, administrative, health, educational, and dormitory facilities. Most of the buildings are in good condition despite their age.

B. FUNCTIONAL DESCRIPTION OF THE BUILDING

The New Jersey Department of Education (DOE) procured the services of Ronald A. Sebring Associates, LLC, Architects to perform a study of the HVAC system at the Jochem Center (Building 34) at MKSD. The Jochem Center HVAC Rehabilitation Study is shown in **Exhibit 'C'** at the end of this scope of work.

The Jochem Center currently utilizes one (1) large 20-ton ground mounted HVAC RTU Unit at the southeast corner of the building. The existing unit was installed in 2008. The existing system will be replaced with new, modern HVAC and exhaust systems, which include cooling components, to condition the space.

VII. CONSULTANT DESIGN RESPONSIBILITIES

A. DESIGN REQUIREMENTS

1. General

The Consultant shall review the Jochem Center HVAC Rehabilitation study shown in **Exhibit 'C'** and provide design, specifications, bid/award and construction administration services to replace the existing HVAC system for the building.

The existing 150kVA outdoor transformer shall be replaced.

Address all items, as mentioned in the study, including integration with the existing building control system, new panels and breakers, new ceiling mounted exhaust fans, ductwork, new electric baseboard and electric wall heaters, new conduit, wiring, receptacles, duct detectors and dehumidification.

The specifications shall describe the preferred new high energy efficiency/Energy Star rated air handler system and equipment and shall list the names of three/or equal manufacturers for each.

2. Structural Calculations

One (1) set of signed and sealed structural calculations shall be provided to the DPMC Plan and Code Review Unit Manager indicating that the new concrete pad is designed properly for the weight of the replacement HVAC unit, curbing, supports, ductwork, etc.

The design drawings must indicate the size and dimensions of the new HVAC unit and their related curbing, support fixtures, and structural components including the approved method of attachment to those components.

3. Demolition

Identify on the drawings any walls, ceilings, electric conduit, light fixtures and switches, data and telecommunication outlets, electrical junction boxes, panels, brackets, hangers and other obstructions required to be removed and/or be relocated to facilitate new construction.

Special demolition and removal procedures shall be identified in the design documents for the HVAC units that are to be replaced. Special procedures and required hours for electric utility shutdown and/or switchover during the HVAC unit removal and replacement shall be described and included in the design documents.

As necessary, provide temporary utilities for all equipment remaining in the areas during the demolition phase of the project including but not limited to electric, fire alarms, sprinkler systems, security and CCTV systems, lighting, HVAC piping & equipment, hot water piping & equipment, etc., to keep them fully functional during all phases of construction.

Procedures for the security of materials and equipment in the building during construction shall be established and included in Division 1 of the specification.

4. Noise & Dust Control

Provide a detailed drawing that depicts the location and dimensioned details for any temporary construction partition walls for security, plastic barriers for dust and dirt containment, and special covers for the equipment.

Describe the acceptable standards of cleanliness that the Contractor must meet each workday in all public access areas, hallways, elevators, rest rooms, and all other areas of the building.

Identify the procedures necessary to protect any smoke detector heads from dust and potential false alarms during the demolition work.

Identify the approved methods to remove the demolition material from the building, security policies of the building and security guard protection requirements, dumpster location and access for the removal of the materials from the property.

5. New Equipment

Delivery dates of the HVAC equipment specified must be obtainable to meet the projected completion date of the project. Documents shall include a requirement for the Contractor to minimize the HVAC system downtime.

The Consultant shall ensure that a factory representative is onsite for the start-up of the new HVAC equipment.

The Consultant shall provide Riser Diagrams to indicate locations and method of tie-in of all new HVAC & hot water utility and system circuits to the existing utility and system circuits.

6. Testing and Balancing

The Consultant shall, during the investigation phase of its work, use its discretion and experience to determine whether HVAC System Testing and Balancing is needed to properly assess the function of the existing HVAC Systems. Such HVAC System Testing and Balancing shall be performed by a qualified firm. It is not required that such firm be pre-qualified with DPMC, however a NJ Business Registration Certificate will be required.

As part of the design documents, the Consultant shall ensure that, following construction, the Contractor is required to hire a qualified HVAC Testing and Balancing firm, and such firm shall perform system tests to ensure that the HV AC system as installed performs as specified and designed. The design documents shall further require that the HVAC System Testing and Balancing firm shall produce a report setting forth its findings, adjustments, recommendations, and further that it shall certify that the HV AC system meets the design intent and will perform as specified and designed and that that all equipment, i.e., fans, controls, dampers, and devices requiring adjustments or regulation are properly installed, thoroughly cleaned, adjusted, or regulated for proper operation and free from objectionable noise and vibration. It is not required that such firm be pre-qualified with DPMC, however a NJ Business Registration Certificate will be required.

As part of Consultant's Construction Site Administration services, it will oversee the Contractor's work and their hiring of a HVAC System Testing and Balancing firm. The Consultant shall further ensure that any testing and balancing is performed in accordance with the current Association Air Balancing Council Standards or other State approved associations. Any system tests shall be observed and approved by the DPMC Project Manager and Code Group and a copy of the certified report and certification referred to above is to be provided to the DPMC Project Manager. The systems shall be maintained by the maintenance personnel in accordance with the report data and operating manuals provided by the Contractor.

7. Energy Rebates

The HVAC units shall be high efficiency units with the Consultant completing application for local energy rebates as described in Section XII, in this Scope of Work entitled “Energy Rebate and Incentive Programs.”

B. HAZARDOUS BUILDING MATERIALS

The Consultant shall survey the building and related components and, if deemed necessary, collect samples of materials that will be impacted by the construction/demolition activities and analyze them for the presence of hazardous materials including:

1. Asbestos in accordance with N.J.A.C. 5:23-8, Asbestos Hazard Abatement Sub-code.

2. Lead in accordance with N.J.A.C. 5:17, Lead Hazard Evaluation and Abatement Code.

3. PCB's in accordance with 40 CFR 761, Polychlorinated Biphenyls (PCBs) Manufacturing, Processing, Distribution in Commerce, and Use Prohibitions. Consultant shall engage a firm certified in the testing and analysis of materials containing PCB's.

4. Mold.

Consultant shall document the procedure, process and findings and prepare a "Hazardous Materials Survey Report" identifying building components impacted by construction activities requiring hazardous materials abatement. Consultant shall provide three copies of the "Hazardous Materials Survey Report" to the Project Manager.

Consultant shall estimate the cost of hazardous materials sample collection, testing, analysis and preparation of the Hazardous Materials Survey Report and include that amount in the fee proposal line item entitled **"Hazardous Materials Testing and Report Allowance,"** refer to paragraph **X.B**.

Based on the Hazardous Materials Survey Report, Consultant shall provide construction documents for abatement of the hazardous materials impacted by the work in accordance with the applicable code, sub-code and Federal regulations.

Consultant shall estimate the cost to prepare construction documents for hazardous materials abatement and include that amount in the fee proposal line item entitled **"Hazardous Materials Abatement Design Allowance,"** refer to paragraph **X.C**.

Consultant shall estimate the cost to provide "Construction Monitoring and Administration Services" for hazardous materials abatement activities and include that amount in the fee proposal line item entitled **"Hazardous Materials Construction Administration Allowance,"** refer to paragraph **X.D**.

There shall be no "mark-up" of sub-consultant or subcontractor fees if sub-consultants or subcontractors are engaged to perform any of the work defined in paragraph **VII.B** "**Hazardous Building Materials."** All costs associated with managing, coordinating, observing and administrating sub-consultants and subcontractors performing hazardous materials sampling, testing, analysis, report preparation, hazardous materials construction administration services shall be included in the consultant's lump sum fee proposal.

C. DESIGN MEETINGS & PRESENTATIONS

1. Design Meetings

Conduct the appropriate number of review meetings with the Project Team members during each design phase of the project so they may determine if the project meets their requirements, question any aspect of the contract deliverables, and make changes where appropriate. The Consultant shall describe the philosophy and process used in the development of the design criteria and the various alternatives considered to meet the project objectives. Selected studies, sketches, cost estimates, schedules, and other relevant information shall be presented to support the design solutions proposed. Special considerations shall also be addressed such as: contractor site access limitations, utility shutdowns and switchover coordination, phased construction and schedule requirements, security restrictions, available swing space, material and equipment delivery dates, etc.

It shall also be the responsibility of the Consultant to arrange and require all critical Sub-Consultants to be in attendance at the design review meetings.

Record the minutes of each design meeting and distribute within three (3) calendar days to all attendees and those persons specified to be on the distribution list by the Project Manager.

2. Design Presentations

The minimum number of design presentations required for each phase of this project is identified below for reference:

Design Development Phase: One (1) oral presentation at phase completion.

Final Design Phase: One (1) oral presentation at phase completion.

D. EXISTING DOCUMENTATION

Review any documents and any additional information that may be provided at a later date such as reports, studies, surveys, equipment manuals, as-built drawings, etc. The State does not attest to the accuracy of the information provided and accepts no responsibility for the consequences of errors by the use of any information and material contained in the documentation provided. It shall be the responsibility of the Consultant to verify the contents and assume full responsibility for any determination or conclusion drawn from the material used. If the information provided is insufficient, the Consultant shall take the appropriate actions necessary to obtain the additional information required.

All original documentation shall be returned to the provider at the completion of the project.

VIII. PERMITS & APPROVALS

A. NJ UNIFORM CONSTRUCTION CODE PLAN REVIEW AND PERMIT

The project construction documents must comply with the latest adopted edition of the NJ Uniform Construction Code (NJUCC).

The latest NJUCC Adopted Codes and Standards can be found at:

https://www.nj.gov/dca/codes/codreg/ucc.shtml

1. NJUCC Plan Review

Consultant shall estimate the cost of the NJUCC Plan Review by DCA and include that amount in their fee proposal line item entitled **"Plan Review and Permit Fee Allowance,"** refer to paragraph XIII.A.

Upon approval of the Final Design Phase Submission by DPMC, the Consultant shall submit the construction documents to the DCA, Bureau of Construction Project Review to secure a complete plan release.

As of July 25, 2022, the DCA is only accepting digital signatures and seals issued from a third party certificate authority.

Procedures for submission to the DCA Plan Review Unit can be found at:

https://www.nj.gov/dca/codes/forms/pdf_bcpr/pr_app_guide.pdf

Consultant shall complete the "Project Review Application" and include the following on Block 5 as the "Owner's Designated Agent Name":

Trevor M. Dittmar, DPMC
PO Box 235
Trenton, NJ 08625-0235
Trevor.Dittmar@treas.nj.gov 609-984-5529

The Consultant shall complete the NJUCC "Plan Review Fee Schedule", determine the fee due and pay the NJUCC Plan Review fees, refer to Paragraph XIII.A.

The NJUCC "Plan Review Fee Schedule" can be found at:

https://www.nj.gov/dca/codes/forms/pdf_bcpr/pr_fees.pdf

2. NJUCC Permit

Upon receipt of a complete plan release from the DCA Bureau of Construction Project Review, the Consultant shall complete the NJUCC permit application and all applicable technical sub-code sections. The "Agent Section" of the application and certification section of the building sub-code section shall be signed. These documents, with **six (6) sets of DCA or DPMC released drawings and specifications, with raised seals and wet signatures** shall be forwarded to the DPMC Project Manager.

The Consultant may obtain copies of all NJUCC permit applications at the following website:

https://www.nj.gov/dca/codes/resources/constructionpermitforms.shtml

All other required project permits shall be obtained and paid for by the Consultant in accordance with the procedures described in Paragraph VIII.B.

3. Prior Approval Certification Letters

The issuance of a construction permit for this project may be contingent upon acquiring various "prior approvals" as defined by N.J.A.C. 5:23-1.4. It is the Consultant's responsibility to determine which prior approvals, if any, are required. The Consultant shall submit a general certification letter to the DPMC Plan & Code Review Unit Manager during the Permit Phase of this project that certifies all required prior approvals have been obtained.

In addition to the general certification letter discussed above, the following specific prior approval certification letters, where applicable, shall be submitted by the Consultant to the DPMC Plan & Code Review Unit Manager: Soil Erosion & Sediment Control; Water & Sewer Treatment Works Approval; Coastal Areas Facilities Review; Compliance of Underground Storage Tank Systems with N.J.A.C. 7:14B; Pinelands Commission; Highlands Council; Well Construction and Maintenance; Sealing of Abandoned Wells with N.J.A.C. 7:9D; Certification that all utilities have been disconnected from structures to be demolished; Board of Health Approval for Potable Water Wells; Health Department Approval for Septic Systems; and Notification to Adjoining Property Owners with N.J.A.C. 5:23-2.17(c). It shall be noted that in accordance with N.J.A.C. 5:23-2.15(a)5, a permit cannot be issued until the letter(s) of certification is received.

4. Multi-building or Multi-site Permits

A project that involves many buildings and/or sites requires that a separate permit shall be issued for each building or site. The Consultant must determine the construction cost estimate for *each* building and/or site location and submit that amount where indicated on the permit application.

5. Special Inspections

In accordance with the requirements of the NJUCC N.J.A.C. 5:23-2.20(b), Bulletin 03-5 and Chapter 17 of the International Building Code, the Consultant shall be responsible for the coordination of all special inspections during the construction phase of the project.

Bulletin 03-5 can be found at:

https://www.nj.gov/dca/codes/publications/pdf_bulletins/b_03_5.pdf

a. Definition

Special inspections are defined as an independent verification by a certified special inspector for **Class I buildings and smoke control systems in any class building**. The special inspector is to be independent from the contractor and responsible to the Consultant so that there is no possible conflict of interest.

Special inspectors shall be certified in accordance with the requirements in the NJUCC.

b. Responsibilities

The Consultant shall submit with the permit application, a list of special inspections and the agencies or special inspectors that will be responsible to carry out the inspections required for the project. The list shall be a separate document, on letter head, signed and sealed.

B. OTHER REGULATORY AGENCY PERMITS, CERTIFICATES AND APPROVALS

The Consultant shall identify and obtain all other State Regulatory Agency permits, certificates, and approvals that will govern and affect the work described in this Scope of Work. An itemized list of these permits, certificates, and approvals shall be included with the Consultant's Technical Proposal and the total amount of the application fees should be entered in the Fee Proposal line item entitled, **"Plan Review and Permit Fee Allowance."**

The Consultant may refer to the DPMC "Procedures for Architects and Engineers Manual," Paragraph "**9. REGULATORY AGENCY APPROVALS"** which presents a compendium of State permits, certificates, and approvals that may be required for this project.

The Consultant shall determine the appropriate phase of the project to submit the permit application(s) in order to meet the approved project milestone dates.

Where reference to an established industry standard is made, it shall be understood to mean the most recent edition of the standard unless otherwise noted. If an industry standard is found to be

revoked, or should the standard have undergone substantial change or revision from the time that the Scope of Work was developed, the Consultant shall comply with the most recent edition of the standard.

IX. BIDDING AND CONTRACT AWARD RESPONSIBILITIES

The Bidding and Contract Award Phase commences with receipt of the required permits, UCC plan release and verification that funding is in place for construction. The Consultant shall refer to the DPMC "Procedures for Architects and Engineers Manual", Paragraph "17. BIDDING AND CONTRACT AWARD" for all requirements for this phase available at https://www.nj.gov/treasury/dpmc/Assets/Files/ProceduresforArchitectsandEngineers.pdf.

X. CONSTRUCTION ADMINISTRATION RESPONSIBILITIES

The A/E and their sub-consultants shall, unless otherwise specified in the project specific Scope of Work, provide site administration during the construction of the project. The services required of such site administration shall include, but shall not be limited to, attend and chair the pre-construction meeting, conduct weekly field observations, attend and chair regularly scheduled bi-weekly job meetings, review/approve shop drawings, submittals, and respond to RFI's.

The Consultant shall refer to the DPMC "Procedures for Architects and Engineers Manual", Paragraph "18. CONSTRUCTION PHASE" for all construction administration requirements available at https://www.nj.gov/treasury/dpmc/Assets/Files/ProceduresforArchitectsandEngineers.pdf.

XI. PROJECT CLOSE-OUT PHASE

The DPMC Project Manager has the full responsibility for the planning, scheduling, and execution of project close-out activities. The A/E is responsible to cooperate with the DPMC Project Manager in the planning, scheduling, and execution of project close-out activities. The Consultant shall refer to the DPMC "Procedures for Architects and Engineers Manual", Paragraph "19. PROJECT CLOSE-OUT PHASE" for all requirements available at https://www.nj.gov/treasury/dpmc/Assets/Files/ProceduresforArchitectsandEngineers.pdf.

XII. ENERGY REBATE AND INCENTIVE PROGRAMS

The Consultant shall review any and all programs on the State and Federal level to determine if any proposed upgrades to the mechanical and/or electrical equipment and systems for this project qualify for approved rebates and incentives.

The Consultant shall review the programs available on the "New Jersey's Clean Energy Program" website at: http://www.njcleanenergy.com as well as federal websites and New Jersey electric and gas utility websites to determine if and how they can be applied to this project.

The Consultant shall identify all applicable rebates and incentives in their technical proposal and throughout the design phase.

The Consultant shall be responsible to complete the appropriate registration forms and applications, provide any applicable worksheets, manufacturer's specification sheets, calculations, attend meetings, and participate in all activities with designated representatives of the programs and utility companies to obtain the entitled financial incentives and rebates for this project.

All costs associated with this work shall be estimated by the Consultant and the amount included in the base bid of its fee proposal.

XIII. ALLOWANCES

A. PLAN REVIEW AND PERMIT FEE ALLOWANCE

The Consultant shall obtain and pay for all of the project permits in accordance with the guidelines identified below.

1. Permits

The Consultant shall determine the various permits, certificates, and approvals required to complete this project.

2. Permit Costs

The Consultant shall estimate the application fee costs for all of the required project permits, certificates, and approvals (excluding the NJUCC permit) and include that amount in its fee proposal line item entitled **"Plan Review and Permit Fee Allowance."** A breakdown of each permit and application fee shall be attached to the fee proposal for reference.

NOTE: The NJUCC permit is excluded since it will be paid for by the State.

3. Applications

The Consultant shall complete and submit all permit applications to the appropriate permitting authorities and the costs shall be paid from the Consultant's permit fee allowance. A copy of the application(s) and the original permit(s) obtained by the Consultant shall be given to the DPMC Project Manager for distribution during construction.

4. Consultant Fee

The Consultant shall determine what is required to complete and submit the permit applications, obtain supporting documentation, attend meetings, etc., and include the total cost in the base bid of its fee proposal.

Any funds remaining in the permit allowance will be returned to the State at the close of the project.

B. HAZARDOUS MATERIALS TESTING AND REPORT ALLOWANCE

The Consultant shall estimate the costs to complete the hazardous materials survey, sample collection, testing and analysis and preparation of a "Hazardous Materials Survey Report" noted in paragraph **VII.B** and enter that amount on the fee proposal line item entitled **"Hazardous Materials Testing and Report Allowance,"** Consultant shall attach a detailed cost breakdown sheet for use by DPMC during the proposal review and potential fee negotiations. The cost breakdown sheet shall include, but not be limited to, the following information:

- Description of tasks and estimated cost for the following:
    - Sample collection;
    - Sample testing; and,
    - Preparation of a Hazardous Materials Survey Report.

Any funds remaining in the Hazardous Materials Testing and Report Allowance will be returned to the State at the close of the project.

C. HAZARDOUS MATERIALS ABATEMENT DESIGN ALLOWANCE

The Consultant shall estimate the costs to prepare construction documents for hazardous materials abatement noted in paragraph **VII.B** and enter that amount on the fee proposal line item entitled **"Hazardous Materials Abatement Design Allowance."** Consultant shall attach a detailed cost breakdown sheet for use by DPMC during the proposal review and potential fee negotiations. The cost breakdown sheet shall include a description of the tasks to be performed and the estimated cost of each task.

Any funds remaining in the Hazardous Materials Abatement Design Allowance will be returned to the State at the close of the project.

D. HAZARDOUS MATERIALS CONSTRUCTION ADMINISTRATION ALLOWANCE

The Consultant shall estimate the cost to provide Construction Monitoring and Administration Services for hazardous materials abatement as noted in paragraph **VII.B** and enter that amount on the fee proposal line item entitled "**Hazardous Materials Construction Administration Allowance.**" Consultant shall attach a detailed cost breakdown sheet for use by DPMC during the proposal review and potential fee negotiations. The cost breakdown sheet shall include a description of the tasks to be performed and the estimated cost of each task.

Any funds remaining in the Hazardous Materials Construction Administration Allowance will be returned to the State at the close of the project.

XIV. SOW SIGNATURE APPROVAL SHEET

This Scope of Work shall not be considered a valid document unless all signatures appear in each designated area below.

The client agency approval signature on this page indicates that they have reviewed the design criteria and construction schedule described in this project Scope of Work (including the subsequent contract deliverables and exhibits) and verifies that the work will not conflict with the existing or future construction activities of other projects at the site.

SOW APPROVED BY: James Wright 1/30/2026

JAMES WRIGHT, MANAGER DATE
DPMC PROJECT PLANNING & INITIATION

SOW APPROVED BY: Robert Cueto 1/30/2026

ROBERT CUETO, PROJECT MANAGER DATE
DEPARTMENT OF EDUCATION

SOW APPROVED BY: 1/30/2026

ROBERT TAMPELLINI, PROJECT MANAGER DATE
DPMC PROJECT MANAGEMENT GROUP

SOW APPROVED BY: Jeanette M Barnard 3.19.26

JEANETTE M. BARNARD, DEPUTY DIRECTOR DATE
DIV PROPERTY MGT & CONSTRUCTION

XV. CONTRACT DELIVERABLES

The following are checklists listing the Contract Deliverables that are required at the completion of each phase of this project. The Consultant shall refer to the DPMC publication entitled "Procedures for Architects and Engineers," 3.0 Edition, dated September 2022 available at https://www.nj.gov/treasury/dpmc/Assets/Files/ProceduresforArchitectsandEngineers.pdf for a detailed description of the deliverables required for each submission item listed. References to the applicable paragraphs of the "Procedures for Architects and Engineers" are provided.

Note that the Deliverables Checklist may include submission items that are "S.O.W. Specific Requirements." These requirements will be defined in the project specific scope of work and included on the deliverables checklist.

This project includes the following phases with the deliverables noted as "Required by S.O.W" on the Deliverables Checklist:

DESIGN DEVELOPMENT PHASE;

FINAL DESIGN PHASE;

PERMIT APPLICATION PHASE;

BIDDING AND CONTRACT AWARD;

CONSTRUCTION PHASE; and

PROJECT CLOSE-OUT PHASE

XVI. EXHIBITS

A. SAMPLE PROJECT SCHEDULE FORMAT
B. PROJECT SITE LOCATION MAP
C. JOCHEM CENTER HVAC REHABILITATION STUDY

END OF SCOPE OF WORK

DPMC Project No.: E0412-00

Deliverables Checklist
Design Development Phase

A/E Name: _____

A/E Manual Reference	Submission Item	Required by S.O.W.		Previously Submitted		Enclosed	
		Yes	No	Yes	No	Yes	No
14.4.1.	A/E Statement of Site Visit						
14.4.2.	Narrative Description of Project						
14.4.3.	Building Code Information Questionnaire						
14.4.4.	Space Analysis						
14.4.5.	Special Features						
14.4.6.	Catalog Cuts						
14.4.7.	Site Evaluation						
14.4.8.	Subsurface Investigation						
14.4.9.	Surveys						
14.4.10.	Arts Inclusion						
14.4.11.	Design Rendering						
14.4.12.	Regulatory Approvals						
14.4.13.	Utility Availability						
14.4.14.	Drawings (6 Sets)						
14.4.15.	Specifications (6 Sets)						
14.4.16.	Current Working Estimate/Cost Analysis in CSI Format						
14.4.17.	Project Schedule						
14.4.18.	Formal Presentation						
14.4.19.	Plan Review/Scope of Work Compliance Statement						
14.4.20.	Design development Phase Deliverables Checklist						
S.O.W. Reference	**S.O.W. Specific Requirements**						

This checklist shall be completed by the Design Consultant and included as the cover sheet of this submission to document to the DPMC the status of all the deliverables required by the project specific Scope of Work.

_____ _____

Consultant Signature Date

DPMC Project No.: E0412-00

Deliverables Checklist
Final Design Phase

A/E Name: _____

A/E Manual Reference	Submission Item	Required by S.O.W.		Previously Submitted		Enclosed	
		Yes	No	Yes	No	Yes	No
15.4.1.	A/E Statement of Site Visit						
15.4.2.	Narrative Description of Project						
15.4.3.	Building Code Information Questionnaire						
15.4.4.	Space Analysis						
15.4.5.	Special Features						
15.4.6.	Catalog Cuts						
15.4.7.	Site Evaluation						
15.4.8.	Subsurface Investigation						
15.4.9.	Surveys						
15.4.10.	Arts Inclusion						
15.4.11.	Design Rendering						
15.4.12.	Regulatory Approvals						
15.4.13.	Utility Availability						
15.4.14.	Drawings (6 Sets)						
15.4.15.	Specifications (6 Sets)						
15.4.16.	Current Working Estimate/Cost Analysis in CSI Format						
15.4.17.	Project Schedule						
15.4.18.	Formal Presentation						
15.4.19.	Plan Review/Scope of Work Compliance Statement						
15.4.20.	Final Design Phase Deliverables Checklist						
S.O.W. Reference	**S.O.W. Specific Requirements**						

This checklist shall be completed by the Design Consultant and included as the cover sheet of this submission to document to the DPMC the status of all the deliverables required by the project specific Scope of Work.

_____ _____

Consultant Signature Date

DPMC Project No.: E0412-00

Deliverables Checklist
Permit Application Phase

A/E Name: _____

A/E Manual Reference	Submission Item	Required by S.O.W.		Previously Submitted		Enclosed	
		Yes	No	Yes	No	Yes	No
16.1.	N.J. UCC Permit Application						
16.4.	Drawings, Signed and Sealed (6 Sets)						
16.5.	Specifications, Signed and Sealed (6 Sets)						
16.6.	Current Working Estimate/Cost Analysis in CI Format						
16.7.	Project Schedule						
16.8.	Plan Review/Scope of Work Compliance Statement						
16.9.	Permit Application Phase Deliverables Checklist						
S.O.W. Reference	**S.O.W. Specific Requirements**						

This checklist shall be completed by the Design Consultant and included as the cover sheet of this submission to document to the DPMC Project Manager the status of all the deliverables required by the project specific Scope of Work.

_____ _____

Consultant Signature Date

DPMC Project No.: E0412-00

Deliverables Checklist
Bidding and Contract Award Phase

A/E Name: _____

A/E Manual Reference	Submission Item	Required by S.O.W.		Previously Submitted		Enclosed	
		Yes	No	Yes	No	Yes	No
17.1.1.	Notice of Advertising						
17.1.2.	Bid Proposal Form						
17.1.3.	Bid Clearance Form						
17.1.4.	Drawings (6 Sets)						
17.1.5.	Specifications (6 Sets)						
17.1.6.	Construction Schedule						
17.3	Pre-Bid Conference/Mandatory Site Visit						
17.3.1.	Meeting Minutes						
17.4	Bulletins						
17.5	Post Bid Meeting						
17.6.	Contract Award "Letter of Recommendation"						
17.8.	Bid Protests - Hearings						
17.9.	Bidding and Contract Award Phase Deliverables Checklist						
S.O.W. Reference	**S.O.W. Specific Requirements**						

This checklist shall be completed by the Design Consultant and included as the cover sheet of this submission to document to the DPMC the status of all the deliverables required by the project specific Scope of Work.

_____ _____

Consultant Signature Date

DPMC Project No.: E0412-00

Deliverables Checklist
Construction Phase

A/E Name: _____

A/E Manual Reference	Submission Item	Required by S.O.W.		Previously Submitted		Enclosed	
		Yes	No	Yes	No	Yes	No
18.2.	Pre-Construction Meeting						
18.3.	Submittal Log						
18.4.	Construction Schedule						
18.5.	Project Progress Meetings						
18.7.	Contractor's Invoicing and Payment Process						
18.8.	Contractor Submittals						
18.10.	Testing						
18.11.	Shop Drawings (6 Sets)						
18.12.	As-Built & Record Set Drawings (6 Sets)						
18.13.	Change Orders						
18.14.	Construction Photographs						
18.15.	Field Observations						
18.17.	Construction Phase Deliverables Checklist						
S.O.W. Reference	**S.O.W. Specific Requirements**						

This checklist shall be completed by the Design Consultant and included as the cover sheet of this submission to document to the DPMC the status of all the deliverables required by the project specific Scope of Work.

_____ _____

Consultant Signature Date

DPMC Project No.: E0412-00

Deliverables Checklist
Project Close-Out Phase

A/E Name: _____

A/E Manual Reference	Submission Item	Required by S.O.W.		Previously Submitted		Enclosed	
		Yes	No	Yes	No	Yes	No
19.3.	Development of Punch List and Inspection Reports						
19.5.	Determination of Substantial Completion						
19.6.	Correction/Completion of Punch List						
19.7.	Submission of Close-Out Documentation						
19.7.1.	As-Built and Record Sets of Drawing (6 Sets)						
19.8.	Final Payment						
19.9.1.	Contractors Final Payment						
19.9.2.	A/E's Final Payment						
19.10.	Project Close-Out Phase Deliverables Checklist						
S.O.W. Reference	**S.O.W. Specific Requirements**						

This checklist shall be completed by the Design Consultant and included as the cover sheet of this submission to document to the DPMC the status of all the deliverables required by the project specific Scope of Work.

_____ _____

Consultant Signature Date

Typical DPMC Project - Random Selection of Design Consultant

ID	Task Name	Start	Finish	Duration
0	**Typical Project Model**	**Mon 5/19/...**	**Fri 4/9/27**	**691 days**
1	**Project Initiation Phase**	**Mon 5/19/25**	**Mon 7/14/25**	**57 days**
2	Project Funding Received	Mon 5/19/25	Mon 5/19/25	1 day
3	Schedule Site Visit	Thu 5/22/25	Thu 5/22/25	1 day
4	Site Visit	Fri 5/30/25	Fri 5/30/25	1 day
5	Prepare Draft SOW	Mon 6/2/25	Fri 6/6/25	5 days
6	Distribute Draft SOW for Review	Mon 6/9/25	Mon 6/9/25	1 day
7	Review SOW	Tue 6/10/25	Mon 6/23/25	10 days
8	Review SOW	Tue 6/10/25	Mon 6/23/25	10 days
9	Review SOW	Tue 6/10/25	Mon 6/23/25	10 days
10	Receive Comments Revise SOW	Tue 6/24/25	Mon 6/30/25	5 days
11	Distribute Final SOW for Review & Signature	Tue 7/1/25	Tue 7/1/25	1 day
12	Review & Sign SOW	Wed 7/2/25	Wed 7/2/25	1 day
13	Review & Sign SOW	Mon 7/7/25	Mon 7/7/25	1 day
14	Review & Sign SOW	Thu 7/10/25	Thu 7/10/25	1 day
15	Forward SOW to Procurement	Mon 7/14/25	Mon 7/14/25	1 day
16	**Consultant Selection Phase**	**Tue 7/15/25**	**Mon 9/1/25**	**49 days**
17	Prepare Solicitation, Advertise Proj	Tue 7/15/25	Wed 7/16/25	2 days
18	Select Firms - Random Selection	Thu 7/17/25	Thu 7/17/25	1 day
19	Conduct Preproposal Meeting	Mon 7/28/25	Mon 7/28/25	1 day
20	Consultant Questions Due - Prepare and Issue Addenda	Tue 7/29/25	Tue 7/29/25	1 day
21	Receive Proposals - Distribute for Review	Tue 8/12/25	Tue 8/12/25	1 day
22	Review & Rank Proposals	Wed 8/13/25	Tue 8/19/25	5 days
23	Review & Rank Proposals	Wed 8/13/25	Tue 8/19/25	5 days
24	Review & Rank Proposals	Wed 8/13/25	Tue 8/19/25	5 days
25	Determine Rankings, Open Fee Proposals and Distribute to Committee	Wed 8/20/25	Wed 8/20/25	1 day
26	Negotiate Fee	Thu 8/21/25	Wed 8/27/25	5 days
27	Provide Funding for Consultant Contract	Thu 8/28/25	Thu 8/28/25	1 day
28	Complete Recommendation to Awa	Thu 8/28/25	Fri 8/29/25	2 days
29	Consultant Contract Award	Sat 8/30/25	Mon 9/1/25	2 days
30	**Design Phase**	**Sun 9/7/25**	**Fri 5/8/26**	**244 days**
31	Design Contract "Kick-Off" Meeting	Sun 9/7/25	Mon 9/8/25	2 days
32	Program Design Phase	Tue 9/9/25	Mon 10/6/25	28 days
33	Receive Program Submittal & Distribute for Review	Tue 10/7/25	Thu 10/9/25	3 days

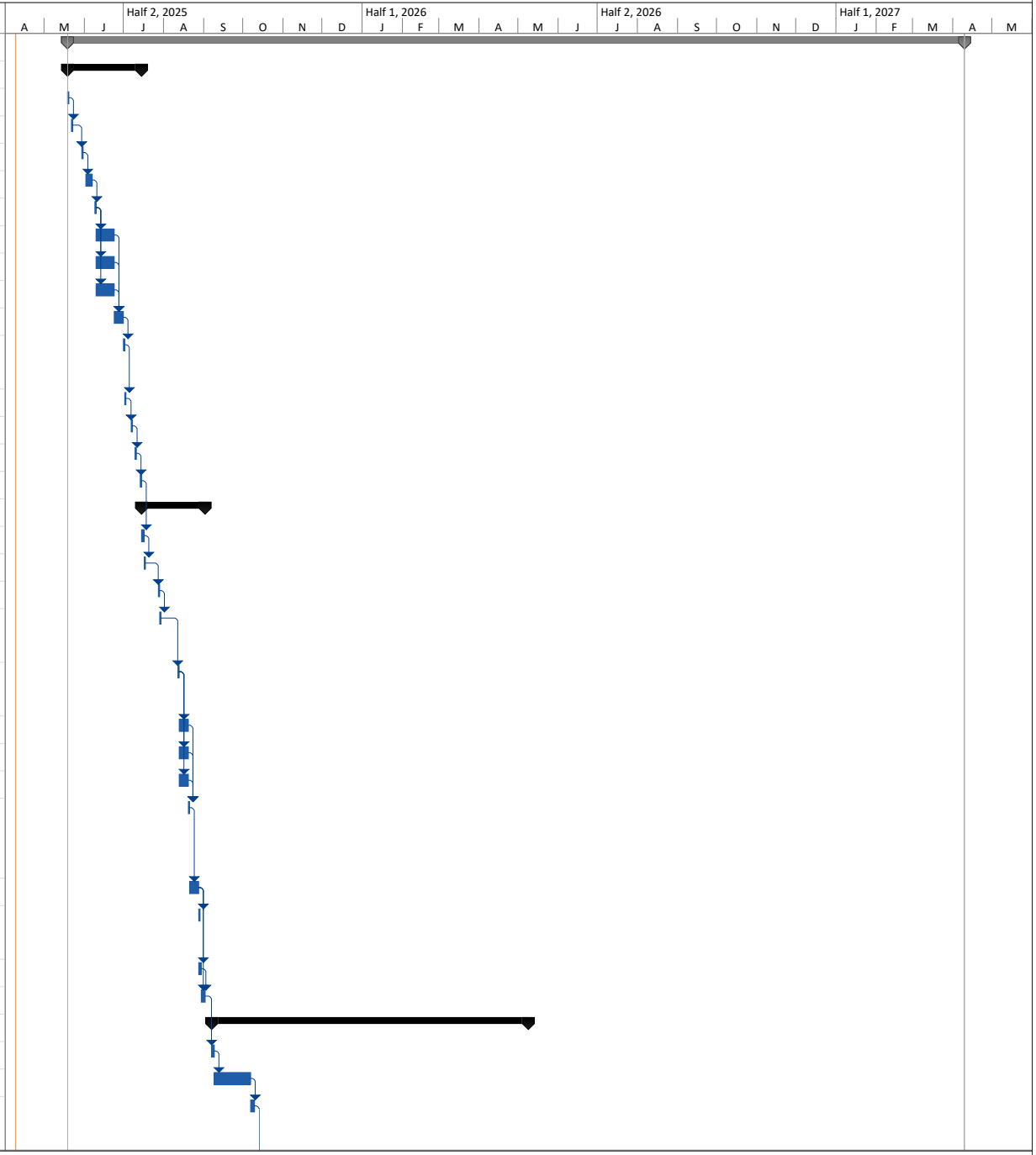


EXHIBIT 'A'

Typical DPMC Project - Random Selection of Design Consultant

ID	Task Name	Start	Finish	Duration
34	Program Phase Presentation/Submittal	Fri 10/10/25	Fri 10/10/25	1 day
35	Review Program Phase	Mon 10/13/25	Fri 10/24/25	10 days
36	Review Program Phase	Mon 10/13/25	Fri 10/24/25	10 days
37	Review Program Phase	Mon 10/13/25	Fri 10/24/25	10 days
38	Receive Program Phase Comments, Review & Consolidate and Forward to Consultant	Mon 10/27/25	Wed 10/29/25	3 days
39	Schematic Design Phase	Thu 10/30/25	Wed 11/26/25	28 days
40	Receive Schematic Submittal & Distribute for Review	Thu 11/27/25	Mon 12/1/25	3 days
41	Schematic Phase Presentation/Submittal	Tue 12/2/25	Tue 12/2/25	1 day
42	Review Schematic Phase	Wed 12/3/25	Tue 12/16/25	10 days
43	Review Schematic Phase	Wed 12/3/25	Tue 12/16/25	10 days
44	Review Schematic Phase	Wed 12/3/25	Tue 12/16/25	10 days
45	Receive Schematic Phase Comments, Review & Consolidate and Forward to Consultant	Wed 12/17/25	Fri 12/19/25	3 days
46	Design Development (DD) Design Phase	Sat 12/20/25	Fri 1/16/26	28 days
47	Receive DD Submittal & Distribute for Review	Mon 1/19/26	Wed 1/21/26	3 days
48	DD Phase Presentation/Submittal	Thu 1/22/26	Thu 1/22/26	1 day
49	Review DD Phase	Fri 1/23/26	Thu 2/5/26	10 days
50	Review DD Phase	Fri 1/23/26	Thu 2/5/26	10 days
51	Review DD Phase	Fri 1/23/26	Thu 2/5/26	10 days
52	Receive DD Phase Comments, Review & Consolidate and Forward to Consultant	Fri 2/6/26	Tue 2/10/26	3 days
53	Final Design Phase	Wed 2/11/26	Tue 3/10/26	28 days
54	Final Submittal & Distribute for Rev	Wed 3/11/26	Fri 3/13/26	3 days
55	Final Phase Presentation/Submittal	Sat 3/14/26	Mon 3/16/26	2 days
56	Review Final Phase	Tue 3/17/26	Mon 3/30/26	10 days
57	Review Final Phase	Tue 3/17/26	Mon 3/30/26	10 days
58	Review Final Phase	Tue 3/17/26	Mon 3/30/26	10 days
59	Review Final Phase	Tue 3/17/26	Mon 3/30/26	10 days
60	Receive Final Phase Comments, Review & Consolidate and Forward to Consultant	Tue 3/31/26	Thu 4/2/26	3 days
61	Final/Permit Design Phase	Fri 4/3/26	Thu 4/16/26	14 days

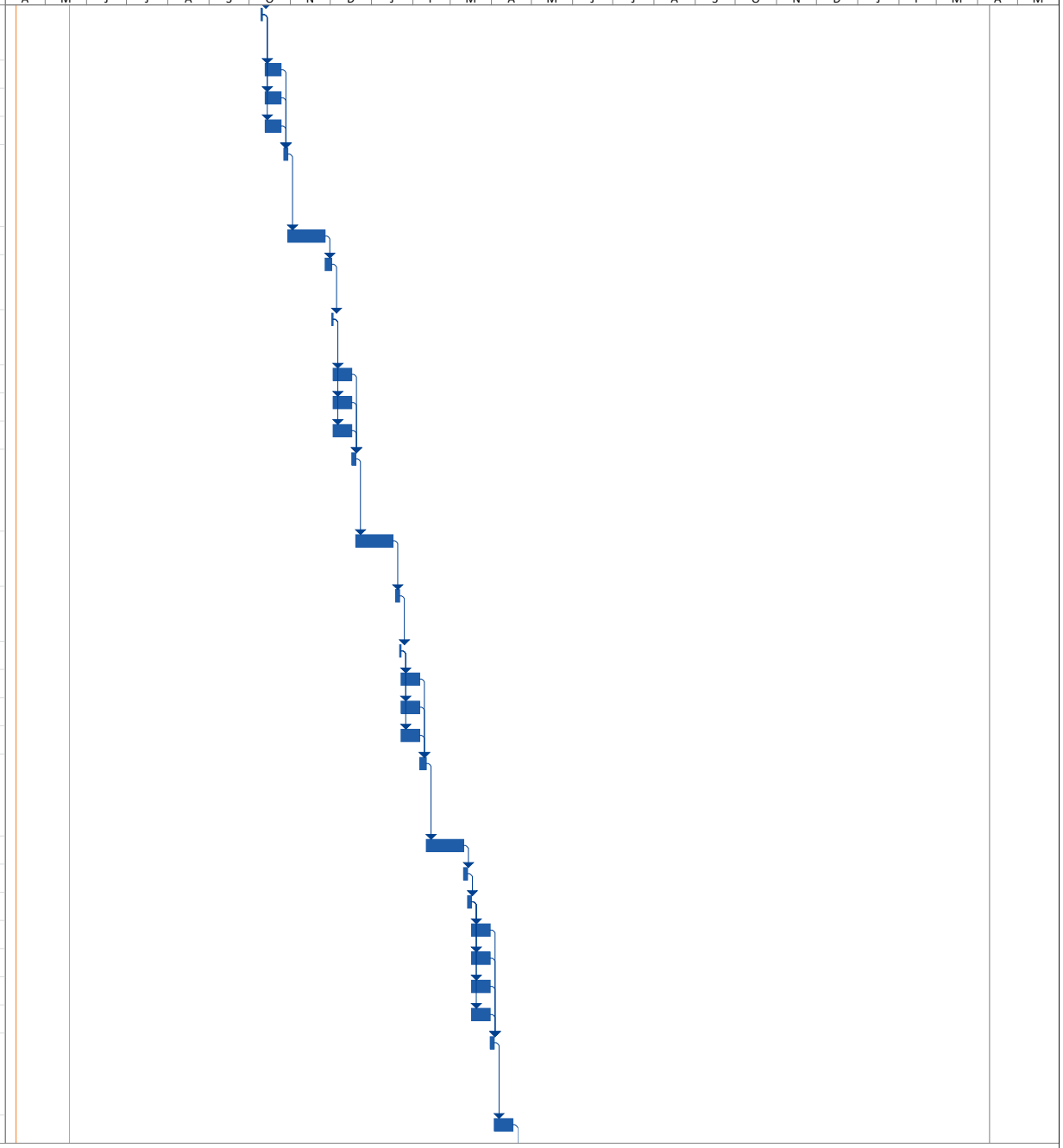


EXHIBIT 'A'

Typical DPMC Project - Random Selection of Design Consultant

ID	Task Name	Start	Finish	Duration
62	Final/Permit Submittal & Distribute for Review	Fri 4/17/26	Tue 4/21/26	3 days
63	Review Final/Permit Phase	Wed 4/22/26	Tue 5/5/26	10 days
64	Receive Final/Permit Phase Approval and Forward to	Wed 5/6/26	Fri 5/8/26	3 days
65	**Permit Acquisition Phase**	**Wed 4/22/26**	**Fri 5/22/26**	**31 days**
66	Prepare UCC Application, Bid Clearance & Submit Bid Package	Sat 5/9/26	Fri 5/15/26	7 days
67	Provide Funding for Construction	Wed 4/22/26	Wed 4/22/26	1 day
68	Secure Bid Clearance Including Funding Verification	Mon 5/18/26	Fri 5/22/26	5 days
69	**Advertise-Bid-Award Phase**	**Mon 5/25/26**	**Thu 7/23/26**	**60 days**
70	Advertise Project for Construction	Mon 5/25/26	Mon 5/25/26	1 day
71	Conduct Pre-Bid Meeting	Tue 6/9/26	Tue 6/9/26	1 day
72	Contractor Questions Due - Prepare and Issue Bulletin	Mon 6/15/26	Wed 6/17/26	3 days
73	Construction Bids Due - Open Bids	Tue 6/23/26	Tue 6/23/26	1 day
74	Conduct Post Bid Review Meeting	Mon 6/29/26	Mon 6/29/26	1 day
75	Prepare and Submit Recommendation for Award	Tue 6/30/26	Wed 7/1/26	2 days
76	Prepare and Submit Recommendation for Award	Thu 7/2/26	Fri 7/3/26	2 days
77	Prepare Contract and Schedule Award Meeting	Mon 7/6/26	Fri 7/10/26	5 days
78	Conduct Contract Award Meeting/Issue NTP	Thu 7/16/26	Thu 7/16/26	1 day
79	Sign/Seal UCC Permit Applications	Thu 7/16/26	Thu 7/16/26	1 day
80	Secure UCC Permit from DCA	Fri 7/17/26	Thu 7/23/26	5 days
81	**Construction Phase**	**Fri 7/24/26**	**Wed 1/20/27**	**181 days**
82	Conduct Construction "Kick-Off Meeting"	Fri 7/24/26	Fri 7/24/26	1 day
83	Complete Construction - Achieve Substantial Completion	Sat 7/25/26	Wed 1/20/27	180 days
84	**Project Close-Out Phase**	**Thu 1/21/27**	**Fri 4/9/27**	**79 days**
85	Complete Punch List	Thu 1/21/27	Fri 2/19/27	30 days
86	Close Out Construction Contract	Mon 2/22/27	Fri 2/26/27	5 days
87	Close Out Consultant Contract	Mon 3/1/27	Fri 4/9/27	30 days

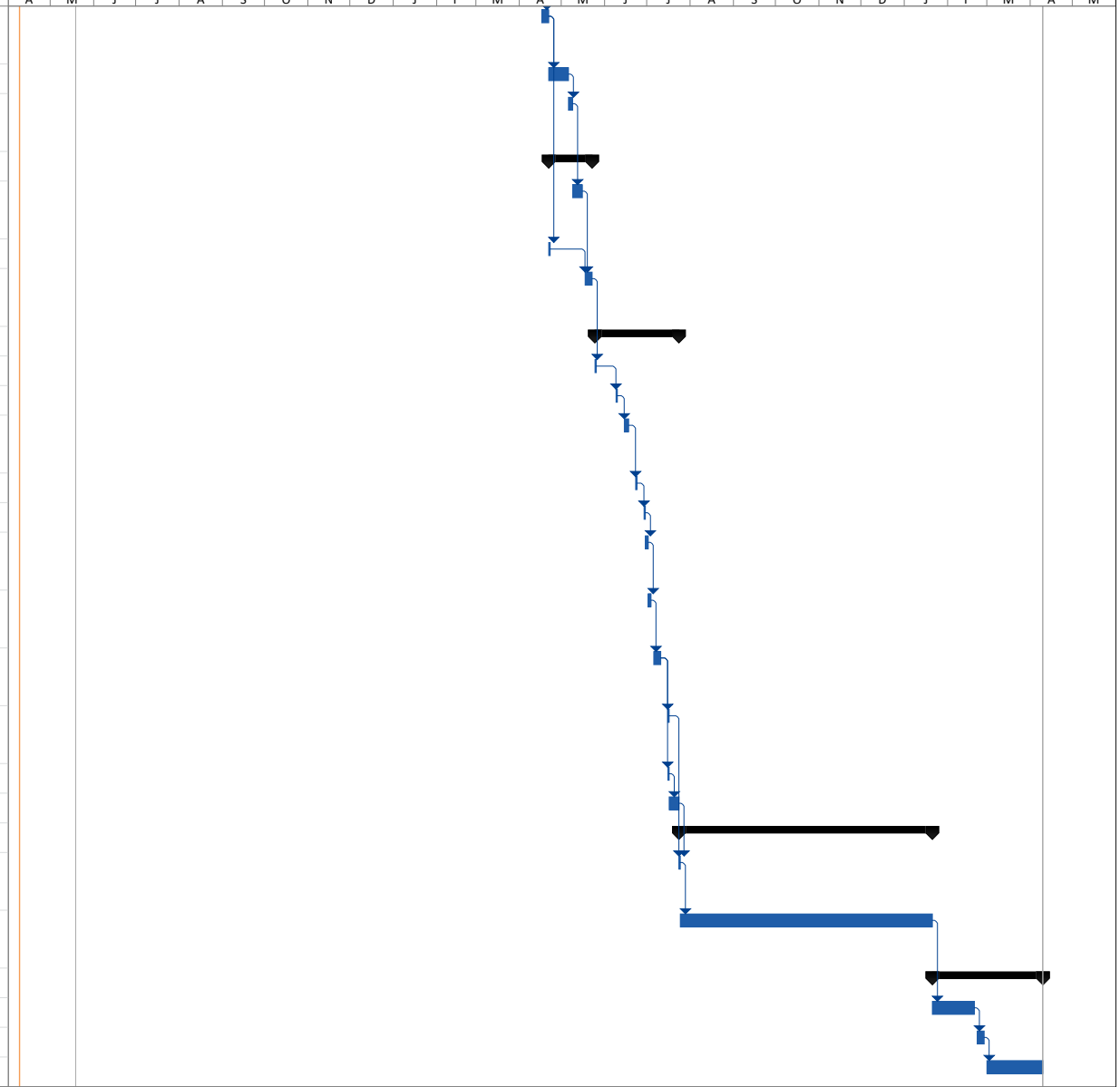


EXHIBIT 'A'

Typical DPMC Project - Random Selection of Design Consultant

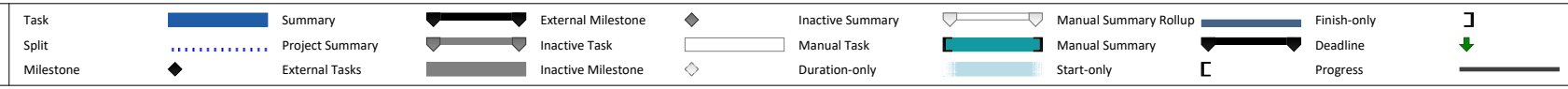
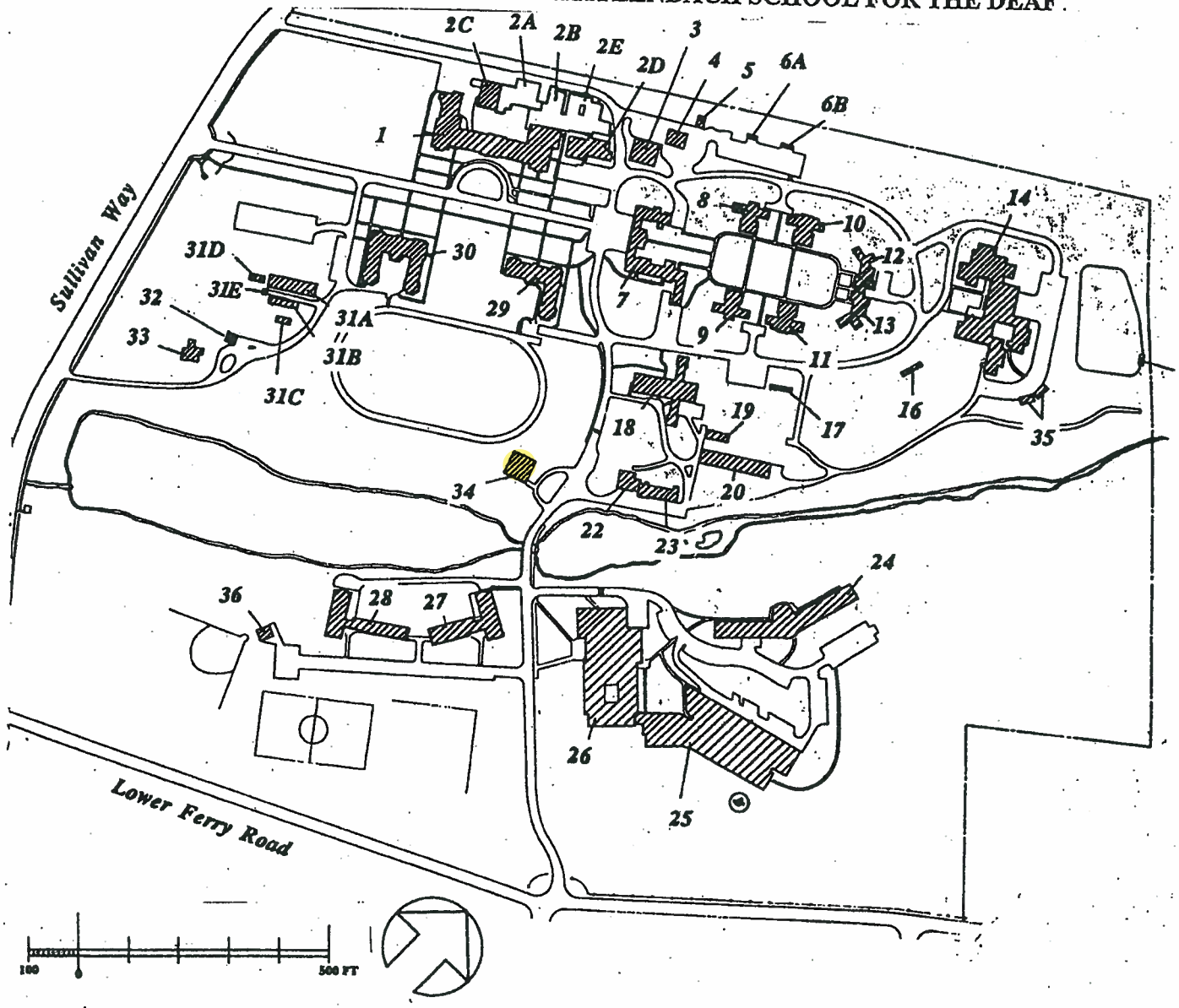


EXHIBIT 'A'

EXHIBIT 'B'

MARIE KATZENBACH SCHOOL FOR THE DEAF



LEGEND

1. MIDDLE SCHOOL
2c. AUTOMOTIVE MAINTENANCE
2d. MIDDLE SCHOOL ANNEX
2e. POWER HOUSE
3. TO BE DETERMINED
4. GARAGE
5. BUS GARAGE
6. BIKE SHEDS
7. CLOCK TOWER BUILDING
8. COTTAGE NO. 1
9. HEALTH CENTER
10. COTTAGE NO. 3
11. COTTAGE NO. 4 PLUS PROGR.
12. COTTAGE NO. 5
13. COTTAGE NO. 6
14. LOWER SCHOOL
15. STORAGE SHED
16. BIKE SHED
17. STORAGE SHED
18. NURSERY SCHOOL
19. PAINT SHOP
20. MAINTENANCE GARAGE
22. CENTRAL BOILER HOUSE
23. MAINTENANCE OFFICE
24. PROCTOR RESIDENCE NO. 3
25. VOCATIONAL HIGH SCHOOL
26. ACADEMIC HIGH SCHOOL
27. H. S. GIRLS' RESIDENCE NO. 1
28. H.S. BOYS' RESIDENCE NO. 2
29. TO BE DETERMINED
30. PROCTOR RESIDENCE
31. GREENHOUSES
32. GARAGE
33. SUPERINTENDENT'S HOUSE
34. JOCHEM MEMORIAL CENTER
35. GUARD HOUSE
36. FIELD HOUSE

DIRECTIONS: Take I-95 South to Exit No. 2, West Trenton. Follow Route 579 (Bear Tavern Road) to first traffic light (Seven-Eleven on corner). Go through traffic light (road becomes Grand Ave.) and under railroad overpass (road becomes Sullivan Way). Main entrance to the school is 400 yards on the left.

JOCHEM CENTER
HVAC REHABILITATION STUDY

BUILDING No.34
MARIE KATZENBACH SCHOOL FOR THE DEAF

WEST TRENTON, MERCER COUNTY, NEW JERSEY

Prepared by

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E-MAIL: Architects@rasallc.com

SCHILLER AND HERSH ASSOCIATES, INC., MEP ENGINEERING
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November 12, 2024

EXHIBIT 'C'

TABLE OF CONTENTS

EXHIBIT 'C'

EXECUTIVE SUMMARY

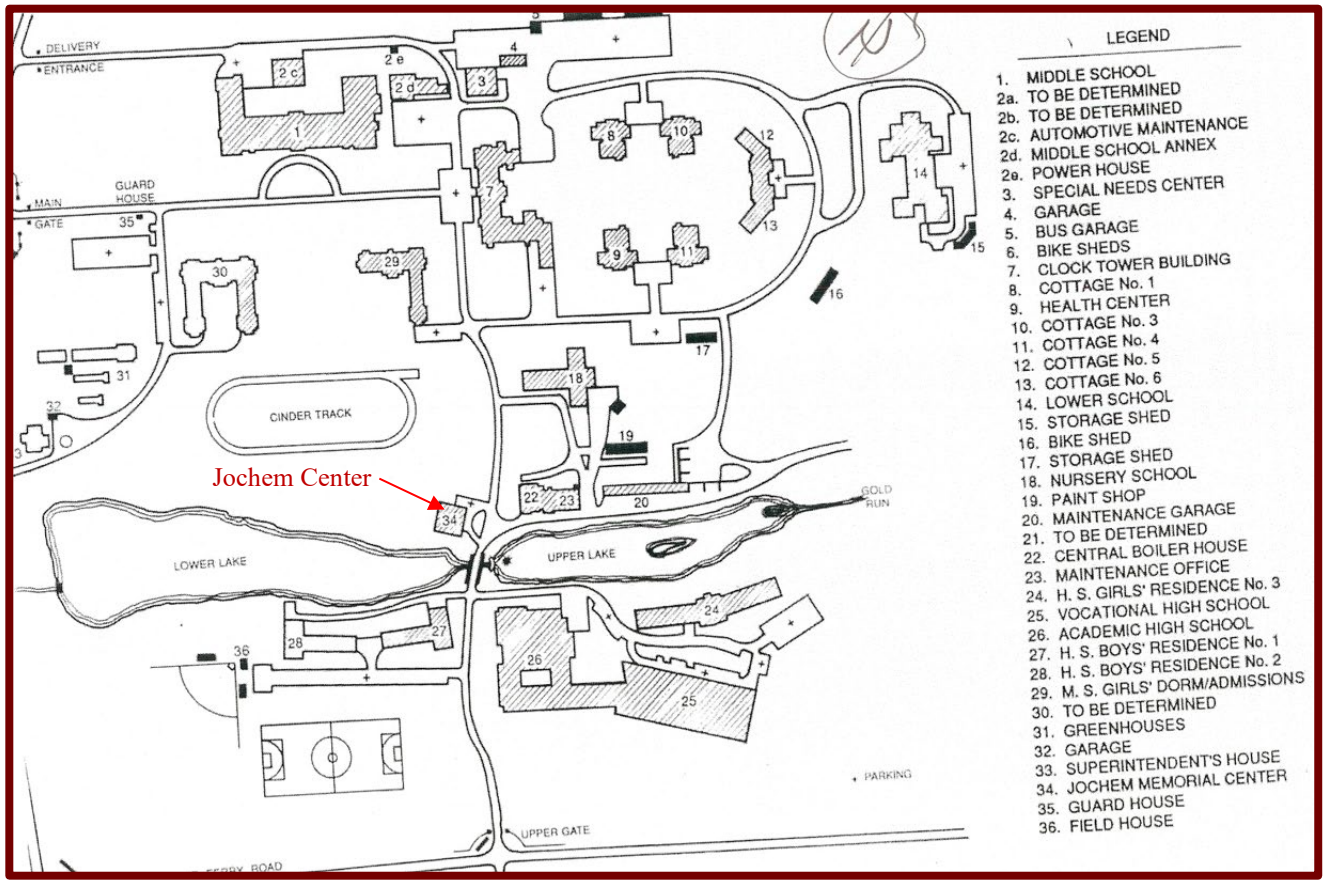
- Ronald A. Sebring Associates, LLC. and Schiller and Hersh, Inc. conducted a Site Visit in August of 2024 to perform Field Investigation of the existing temperature controls systems within the Jochem Center (Building No. 34), as well as observe the conditions pertinent to the temperature controls systems replacement.
- It was observed that the existing temperature control systems consist of two (2) items. Stationed outside of the Jochem Center at the Southeast corner is a 20-ton ground mounted RTU with ductwork penetrating the masonry wall construction and into the Jochem Center. The existing ductwork enters the Jochem Center and runs above the ceilings of the perimeter rooms as well as side wall supply and ceiling grilles.
- Also present within the Jochem Center is an electric baseboard heat system which is utilized for supplemental heating. This baseboard heat system runs the perimeter of the Jochem Center.
- The RTU Unit and electrical baseboard heat are original to the building and are well beyond their life expectancy. It was observed that the RTU Unit was installed in 2008, being one (1) year beyond its fifteen (15) year life expectancy. The associated fans and exhaust systems were also observed to be beyond their life expectancy.
- New fire alarm duct detectors are required within the new ductwork associated with new RTU units, including fire alarm wiring, fire alarm relay, and unit shut-down wiring.
- The Jochem Center is powered via a 4160V Campus Feeder that supplies a 150kVA outdoor dry type transformer with integral 5kV primary switch and fuse. The 4160V – 208Y/120V, 3-phase transformer feeds an indoor 600A, 120/208V, 3-phase, 4-wire panel “PP-A” with a main breaker.
- The peak demand for this building is not known. During design, 30 days of metering should be performed and then electrical load calculations done to confirm the service is adequate.
- The building consists of various interior spaces that run along the perimeter of the Jochem Center. The exterior walls of Building No. 34 are predominantly constructed of 8” CMU block.
- Given the age of the transformer being at least 30+ years, MKSD should consider replacement as part of this project. The average service life of an outdoor dry type transformer is approximately 25-30 years. The optional Construction Cost for the new transformer is $98,000.00.
- It is proposed that the new RTU Unit occupy the space adjacent to the entry vestibule (Northeast corner) within the Jochem Center, as it will allow for a more efficient ductwork layout.
- The newly proposed location of the new RTU Unit at the space adjacent to the entry vestibule (Northeast corner) will require a new enclosure to be constructed. It is proposed that a new privacy screened fencing enclosure be constructed to accommodate the size of the new ground mounted RTU Unit.

EXHIBIT 'C'

- The estimated Construction Cost Estimate (CCE) to perform only the minimum required General Construction and MEPFP work is $773,738.85. If the optional Transformer and Switch is included, the total Construction Cost Estimate is $871,738.85

INTRODUCTION

In August of 2024, Ronald A. Sebring Associates, LLC (***RASA***) was commissioned by the State of New Jersey, Department of Education (DOE) under the NJ Department of the Treasury, Division of Property Management and Construction, Agency Consultant Program, to conduct a feasibility and modernization Study for the HVAC & Exhaust Systems within the Jochem Center (Building No.34) at the Marie Katzenbach School for the Deaf (MKSD) also known as the New Jersey School for the Deaf (NJSD).



Map of Marie Katzenbach School for the Deaf Campus

As requested by the Client Agency, this Feasibility and Modernization Study includes proposed replacements and upgrades to the existing heating, ventilation, and exhaust units at the Jochem Center. The existing system only provides heat to the building.

EXHIBIT 'C'

BUILDING DESCRIPTION

The Jochem Center (Building No.34) at the Marie Katzenbach School for the Deaf, constructed between 1980 and 1983, is a one-story steel framed structure containing approximately 4,224 gross square feet.

The building consists of one (1) large open Community Room with a presentation stage, One (1) Men's Toilet Room, One (1) Women's Toilet Room, One (1) Electrical Closet, One (1) Fire Suppression Controls Room, (1) Storage Room, and One (1) Kitchen Area. The exterior walls of Building No. 34 are predominantly constructed of 8" concrete block.

The roof system consists of K-series steel open web bar joists and large steel trusses, tongue and groove wood board roof decking, and an asphaltic-fiberglass shingle roof system. There are very minimal roof penetrations present above the two (2) Toilet Rooms. The various interior spaces/rooms within the Jochem Center are constructed of wood framed walls with gypsum wallboard.

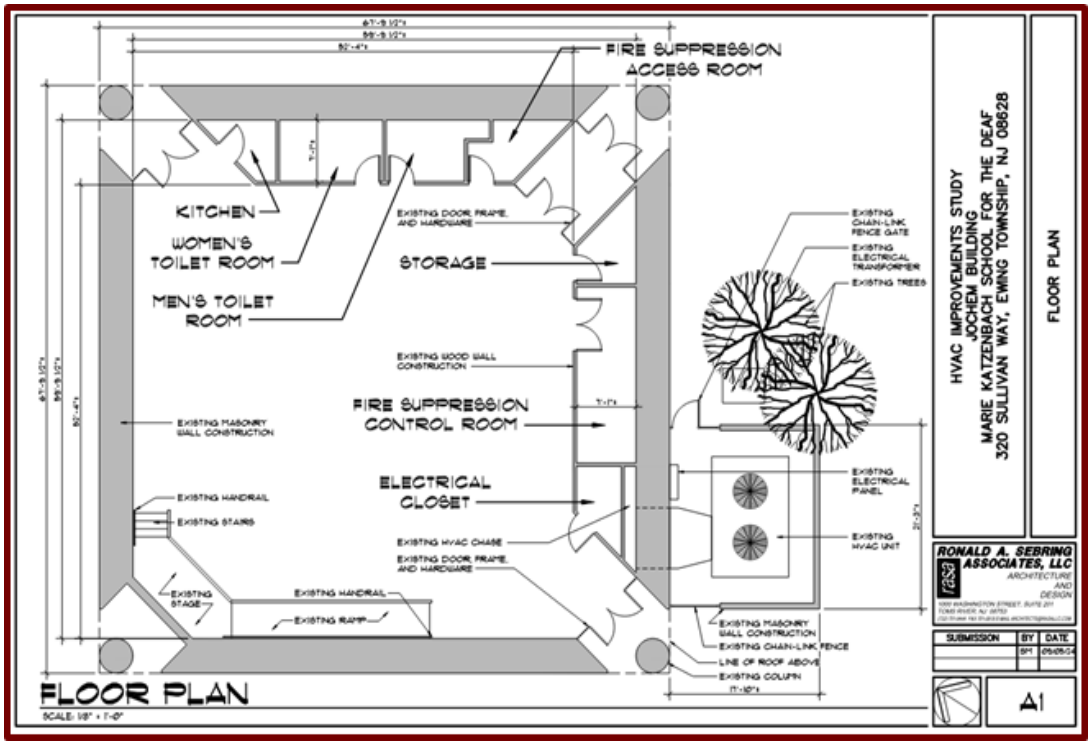


EXHIBIT 'C'

EXISTING CONDITIONS

The Jochem Center currently utilizes one (1) large 20-ton ground mounted HVAC RTU Unit at the southeast corner of the building. The ground mounted HVAC RTU Unit is housed within an 8’-0” high enclosure constructed of 8” concrete blocks. Two (2) 3’-0” wide gated entrances are present on the South and North end respectively.

The ground mounted HVAC RTU Unit supplies the Jochem Center via ductwork that penetrates the exterior wall at approximately 24” above grade. At the interior of the building the ductwork immediately transitions vertically to above ceiling height to serve the various rooms within the Jochem Center. The ductwork runs along the ceilings of these spaces.

These units currently serve as the Jochem Center’s temperature control measures. The existing systems are beyond their lifespan and are recommended to be removed.

EXHIBIT 'C'

BUILDING CODE AND DESIGN GUIDELINES

There are requirements that will affect the design of the installation of new HVAC and Exhaust Units. Pursuant to the International Building Code, 2021, New Jersey Addition, the Building Code Criteria applicable to the Jochem Center is as follows:

Use Group: A3 - Assembly

Area Largest Floor: 4,224 Square Feet

- Area of Open Assembly Space: 2,800 Square Feet
- Stage: 85 Square Feet
- Ramp/Stair: 115 Square Feet
- Various Rooms (Storage, Toilet Rooms, Etc.): 1,224 Square Feet

Occupant Load / Occupancy Tabulation per IBC Table 1004.5:

- Stage: 85/15 = 6 Occupants
- Ramp/Stair: Omitted
- Open Assembly Space:
    - Standing: 2,600/5 = 520 Occupants
    - Chairs: 372 Occupants
    - Tables & Chairs = 174 Occupants
- Maximum Occupant Load = 526 Occupants

Building Height: One Story, 35'-0" +/-

Construction Classification: Type VB (Combustible-Unprotected)**

The proposed HVAC Improvements will need to comply with:

- NJ Rehabilitation Subcode N.J.A.C. 5:23.6
- International Building Code, 2021 (IBC) – NJ Edition
- International Mechanical Code, 2021*
- National Electrical Code (NFPA 70), 2020*
- ASHRAE 90.1 – 2019 Energy Standard for Buildings Except Low-Rise Residential Buildings*

*Current adopted versions of Applicable Codes are listed above. It is anticipated that New Jersey will adopt new versions of these codes in the latter part of 2025. A 6-month grace period is typically permitted which extends applicability into 2026 for completion of design to application for permit. If the design is not completed by early 2026 it should be assumed that the current adopted codes will no longer apply and design will need to comply with newer Code adoptions.

**Type VC Construction (Combustible-Unprotected) is permissible by Code for the height and area of the existing building, however, the exterior walls are of non-combustible masonry which is consistent with Type IIIB construction per the IBC. The A/E of record shall determine the applicable construction type.

EXHIBIT 'C'

HAZARDOUS MATERIALS

No hazardous materials testing was conducted as part of this study.

The Jochem Center was constructed after 1978 when lead-based paint was banned for residential and commercial properties. Lead based paint was still utilized within construction into the 1980's. Therefore, due to the age of the building, it should be assumed that the existing paint is lead-based. Any proposed work that will disturb painted surfaces will need to be performed in accordance with New Jersey Lead-Safe Work Practices.

It is likely that hazardous materials are present within the construction present throughout Building No.34, independent hazardous materials analysis should be conducted on all materials being impacted by any future construction Projects taking place.

RECOMMENDATIONS

HVAC and Exhaust Unit Replacement

It is recommended that the existing Ground Mounted RTU Unit, installed in 2008, currently servicing the Jochem Center be removed and replaced with new, modern HVAC and Exhaust systems, which include cooling components, to condition the space. It was noted that the existing 20-ton unit is undersized to serve the space properly, is beyond its expected life expectancy of fifteen (15) years, and is currently not operational.

The proposed new RTU Unit product data and locations are included in the MEP Engineer's Assessment which is included in Appendix "A" of this Study.

The new proposed RTU Unit is larger than the existing and will not adequately fit within the existing masonry block enclosure. It would not be possible to occupy the same space as the existing RTU Unit. Due to this, it is recommended that the existing masonry enclosure and fencing be demolished in its entirety.

EXHIBIT 'C'

It is proposed that the new RTU Unit occupy the space adjacent to the entry vestibule (Northeast corner) within the Jochem Center, as it will allow for a more efficient ductwork layout.

The removal of the existing RTU Unit will require that all previously utilized penetrations through the exterior wall be patched and sealed utilizing construction to match the existing wall construction.

The newly proposed location of the new RTU Unit at the space adjacent to the entry vestibule (Northeast corner) will require a new enclosure to be constructed. It is proposed that a new privacy screened fencing enclosure be constructed to accommodate the size of the new ground mounted RTU Unit and required maintenance clearances.

The new ductwork will penetrate the existing masonry wall construction and will require fireproofing sealant in accordance with the International Building Code requirements to match or exceed the existing fire rating (2-Hours for Type IIIB Construction). The supply ductwork distribution is proposed to utilize a similar layout as the existing, laid above the various spaces throughout the Jochem Center. The return ductwork would utilize a low register near the floor of the room adjacent to the entry vestibule.

It is noted that multiple large trees are within the space proposed to house the new ground mounted RTU Unit.

Pedestrian Protection

The design of the RTU Unit will need to consider and provide requirements for pedestrian protection from work. These measures may consist of sidewalk sheds, temporary fencing, other acceptable pedestrian barriers and signage, or a combination thereof.

Access

The contractor will require an adequate area for placement of on-site stored materials, dumpsters, temporary toilets and for access to remove curtain wall materials during demolition and for staging of materials for installation.

A sizeable Staging Area for the Contractor to utilize for equipment and materials storage, as well as a designated location for loading of materials to the roof, will also be required.

The parking area and grassy area to the north of the building is the most logical place to provide for staging for the Contractor, avoiding changes in level, landscaped areas, and primary points of staff, student, and visitor access. As part of the RTU Unit Replacement the area for staging and site access restrictions should be reviewed in detail and determined for inclusion in specifications for construction.

EXHIBIT 'C'

Manufacturer's Warranty

Based on the age of the existing RTU Unit, the systems are no longer protected under any manufacturer's warranty coverage.

New HVAC and Exhaust Unit systems can be provided with warrantees covering defects in the system and their components for up to twenty-five (25) years.

CONCLUSION

The replacement of the existing ground mounted RTU Unit is an effective means of providing a permanent solution to the outdated temperature controls within the Jochem Center.

EXHIBIT 'C'

DESIGN AND CONSTRUCTION SCHEDULE

The following durations should be considered in preparation of a schedule for the Project and Scope of Work for the Ground Mounted RTU Replacement:

DOE/DPMC Scope of Work Preparation

Scope of Work Preparation	21 Calendar Days
Funding Acquisition	14 Calendar Days (+/-)
Advertisement to Design Consultants	20 Calendar Days
Pre-Proposal Walkthrough	1 Calendar Days
Proposal Preparation / Submission	14 Calendar Days
Proposal Review	28 Calendar Days
Fee Negotiation	7 Calendar Days
Design Consultant NTP	7 Calendar Days
Subtotal:	112 Calendar Days (+/-)

RTU Unit Replacement

Design Phase	90 Calendar Days
Design Development	45 Calendar Days
DOE/DPMC Review	15 Calendar Days
Final Design	30 Calendar Days
DPMC/DOE Final Review	14 Calendar Days
Comment Responses	14 Calendar Days
DCA Submission and Review	45 Calendar Days**
Permit-Bid Documents	7 Calendar Days
Bid and Award	70 Calendar Days
Construction	155 Calendar Days***
Submittals / Coordination	20 Calendar Days
Long Lead Items / Mobilization	75 Calendar Days
Demolition / Enclosure Construction	30 Calendar Days
RTU Installation	30 Calendar Days
Close-out	21 Calendar Days
Subtotal:	416 Calendar Days

Total **528 Calendar Days**

** DCA submission and plan review will be required based on the inclusion of plumbing and mechanical trades. The anticipated time-frame for this phase, based on recent experience, can vary between 30 and over 90 calendar days depending on the reviewers assigned to the Project and the ability of the A/E to provide submissions meeting the DCA's intake requirements for the E-File system.

*** Construction Duration is approximate and includes time for submittal review, mobilization, phasing, site and building construction, and punch list inspections. The actual duration will vary based on phasing and lead-times for materials at time of bid.

END OF STUDY

EXHIBIT 'C'

Appendix A – MEP Engineer's HVAC Study
Appendix B – Construction Cost Estimates
Appendix C – Existing Conditions Drawings
Appendix D - Photographs

Prepared 11/12/2024 by:

Ronald A. Sebring Associates, LLC
1000 Washington Street, Suite 201
Toms River NJ, 08753

EXHIBIT 'C'

APPENDIX "A" MEP
ENGINEER'S HVAC STUDY

EXHIBIT 'C'

SCHILLER AND HERSH ASSOCIATES, INC.
Consulting M/E/P Engineers

636 Skippack Pike, Suite 200
Blue Bell, PA 19422

P: 215.886.8947
F: 215.886.8956
www.schillerhersh.com

HVAC Study at the
Jochem Memorial Center
Marie Katzenbach School for the Deaf

S&H Project 2463A
Date: November 6, 2024

Background Information:

Schiller and Hersh was contracted by Ronald A. Sebring Associates to perform a study of the HVAC systems at the subject building on the campus of Marie Katzenbach School for the Deaf. A site visit was performed on August 27, 2024 at the Charles M. Jochem Memorial Center to review the existing HVAC systems. The following is a summary of our findings and preliminary construction costs for the replacement of the ground mount roof top unit (RTU), electric heaters and exhaust fans with new HVAC systems.

Existing Conditions:

Existing HVAC:

The main room is served by a 20-ton ground mounted RTU with ductwork running above the ceilings of the perimeter rooms to side wall supply grilles and ceiling grilles in small storage rooms and kitchen. The existing Lennox RTU is a heat pump with R-22 refrigerant and electric backup heat. The unit dates to 2008, so it is about 16 years old. The existing duct appeared to be in poor condition. There is one common return for the main room and no returns for the smaller perimeter rooms. Both the supply and return ducts appear to be internally lined – the return is open above the electrical room and shows signs of lining deterioration and debris.

There is perimeter electric baseboard heat for supplemental heating. Electric wall heaters are in the south vestibule and north entrance. Ceiling mounted exhaust fans serve the toilet rooms and utility room with exhaust air ducted to wall louvers. The roof top unit is from 2008 and is near the end of its life expectancy at 16 years; average life expectancy is 15 to 20 years. The exhaust fans and electric heaters appear to be original to the building and are well past their average life expectancy.

The HVAC computerized load calculations show the existing 20-ton unit is undersized, given the lack of insulation in the roof & probably the walls and based on the occupancy of the space. The existing maximum occupancy as posted in the space is 450 (standing). The owner has notified the team that the occupancy does not need to exceed 100, based on the current and future use of the space. This report used a maximum occupancy based on the 2021 International Mechanical Code of 270 occupants.

EXHIBIT 'C'

Existing Electrical Service:

The building is powered via a 4160V campus feeder that supplies a 150kVA outdoor dry type transformer with integral 5kV primary switch & fuse. The 4160V – 208Y/120V, 3-phase transformer feeds an indoor 600A, 120/208V, 3-phase, 4-wire panel "PP-A" with a main breaker (the panel nameplate indicates it is rated at 277/480V, but it is operating at 120/208V based on the exterior transformer nameplate). The main breaker size is not known without opening the panel, but is assumed to be 600A. The PP-A panel contains a 400A breaker feeding the existing HVAC ground-mounted RTU. The peak demand for this building is not known, but there are local meters that may provide the peak demand, but that may need to be adjusted to account for the RTU's operational issues. During design, 30 days of metering should be performed and then electrical load calculations done to confirm the service is adequate.

Given the age of the transformer being at least 30+ years, MKSD should consider replacement as part of this project. The average service life of an outdoor dry type transformer is approximately 25-30 years. An optional construction cost is provided below for the replacement. Any replacement would require the integral 5kV primary switch to be replaced at the same time.

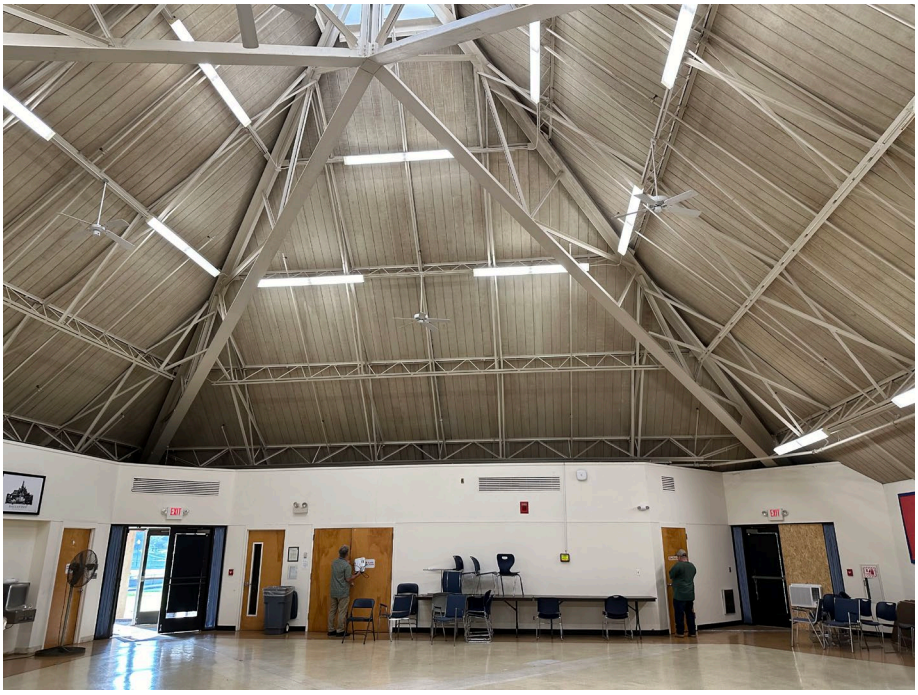
Existing Roof Top Unit

EXHIBIT 'C'

Existing Ductwork above rooms

Open-end return duct in chase behind the electrical room

EXHIBIT 'C'



Existing Supply Grilles in Main Room

Existing outdoor combination 5kV primary switch and transformer

EXHIBIT 'C'

Engineering Assessment of Jochem Center HVAC Replacement:

Based on the age, conditions and operations, it is proposed to replace existing RTU, exhaust fans and electric heaters.

The general scope requirements for unit replacements are recommended to include the following:

- Demolition of existing roof top unit and associated ductwork. Demolish associated concrete pad and patch the existing exterior walls after demolition of the RTU ductwork.
- Demolition of the existing masonry wall enclosure around the existing unit – it could remain, if the School had a purpose for it, as the new RTU will be relocated on the site, as the masonry enclosure is not large enough for the new unit, including required clearances.
- The new ground mount RTU size will be increased to 31 tons to meet the building load and code ventilation requirements. The existing duct chase location behind the electrical closet has insufficient space for the new larger ductwork and is very difficult to access. The proposed new RTU is to be shifted to a new concrete pad mounted location plan north. The RTU should have a 40" high horizontal discharge curb.
- It is recommended to have a new 8' high chain link fence with privacy screening materials, (1) man-gate and (1) double gate for equipment access around the new RTU.
- New exterior ductwork from the RTU into the building is proposed to be metal-clad duct similar to PTM Manufacturing. New interior ductwork will be provided to suit the new RTU location and will be routed above the ceilings of the perimeter rooms, similar to the existing. A new low return grille at floor level will be added to increase the ventilation efficiency of the space. The Storage room next to the Fire Suppression Control Room is proposed to be taken over for the routing of the new supply and return ducts, including elimination of the door. A new access panel will be required in order to access the duct detectors, which will presumably be installed within the Storage Room.
- The new packaged heat pump RTU should incorporate the following minimum features. The specification of active dehumidification is extremely important in a space that can have wide ranges of occupancy:
    - Equal to Aaon RNA series units with variable capacity compressor for first stage of cooling & heating.
    - Electric backup heat.
    - Hot gas reheat for active dehumidification.
    - VFD condenser fans.
    - Single zone VAV operation.
    - Demand controlled ventilation.

- Install new temperature/humidity and CO2 sensors in the main room and integrate the new units into the existing Schneider Electric Andover Continuum building control system, including all graphics and alarms/alerts.
- Install new ceiling mounted exhaust fans and associated ductwork to existing wall louvers.
- Replace existing electric baseboard and electric wall heaters in kind.
- Install new 350A circuit breaker in the indoor 600A PP-A panelboard. Install new conduit and cabling from the existing indoor panelboard to the new ground-mounted rooftop unit. Install new convenience GFCI receptacle near new RTU.

- Install new fire alarm duct detectors in new ductwork, including associated fire alarm wiring, fire alarm relay, and unit shut-down wiring.
- Final testing, balancing and commissioning of the RTU systems.

See attached sketch with proposed location of RTU and preliminary proposed ductwork routing.

Cost Estimate for HVAC Replacement (Mechanical and Electrical)*:

Demolition:	$30,000
New ground mounted 31-ton RTU with curb	$150,000
Ductwork:	$125,000
HVAC Controls:	$30,000
Electric heaters and exhaust fans	$15,000
Testing & Balancing:	$10,000
Electrical Breakers, Conduit & Wiring:	$50,000
Fire Alarm Devices & Wiring	$10,000
General Conditions, overhead and profit:	$80,000
Sub-Total:	$500,000
Preliminary Design Contingency (15%):	$75,000
Sub-Total Mechanical & Electrical Estimate (CCE):	**$575,000**

* Refer to the architectural cost estimate for additional costs.

Optional Cost Estimate to Replace the Existing 5kV Switch & 150kVA Transformer:

Demolition	$10,000
5kV primary fused load interrupter switch	$25,000
150kVA dry-type transformer	$30,000
Installation labor	$10,000
Conduit & wiring	$10,000
Sub-Total:	$85,000
Preliminary Design Contingency (15%)	$13,000
Total Optional Cost Estimate for Switch/Transformer:	**$98,000**

The above cost estimates have the following assumptions:

- Cost estimates are in 2024 dollars. Escalate at 5% per year to the mid-point of construction for the final budget.
- Excludes hazardous materials remediation work.
- Excludes architectural and structural work, such as concrete pads, exterior wall openings, fencing and modifications to existing interior walls/doors/ceilings.

Energy Efficiency Analysis for RTU Replacement:

The recommended RTU includes options that increase energy efficiency:

- Demand control ventilation.
- Single Zone VAV operational sequence.
- VFD condenser fans for head pressure control.
- Variable capacity compressors on 1st stage of cooling/heating.

Energy Efficiency Comparison of existing system versus proposed:

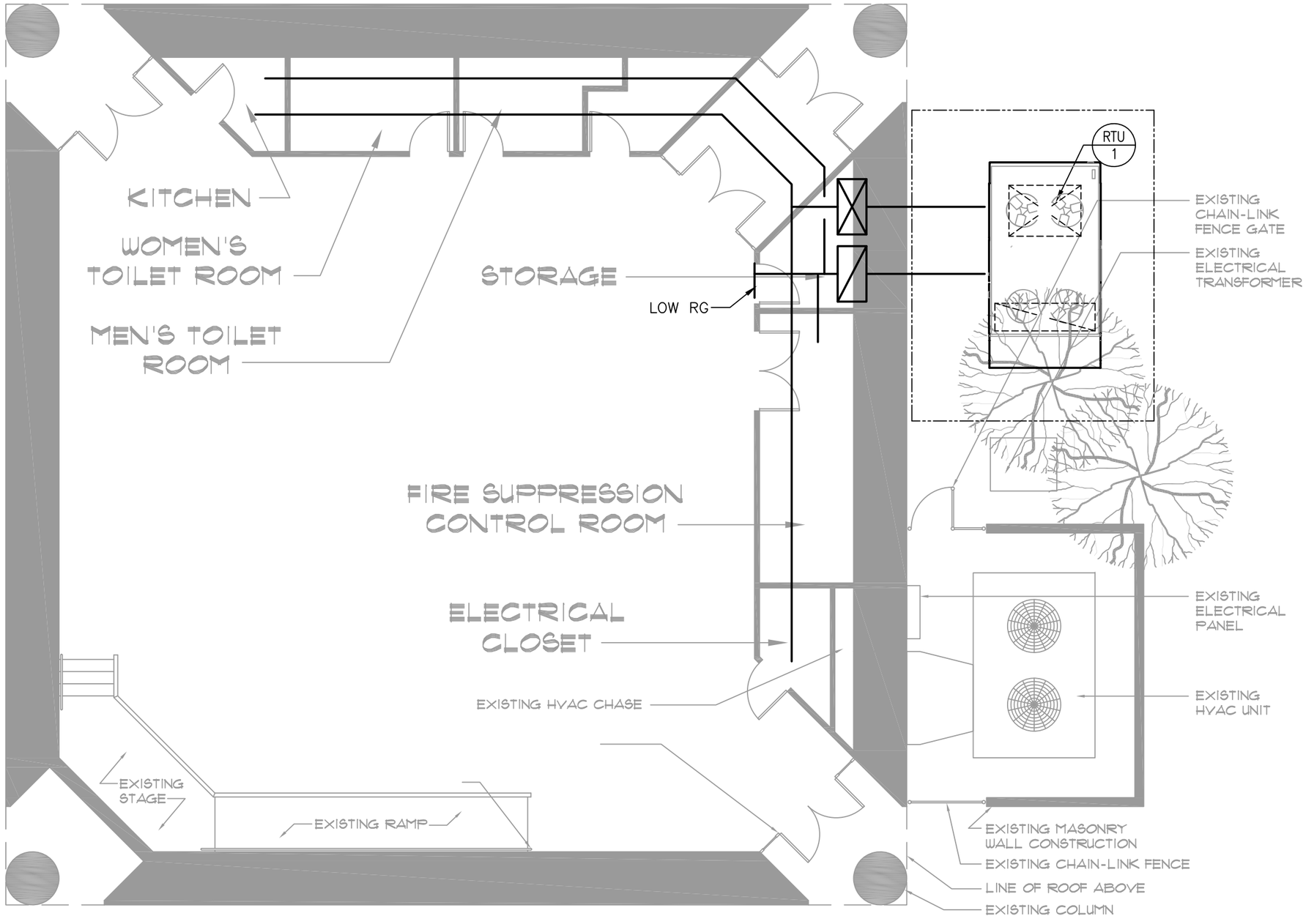
The existing system has an EER of 9.3 and a COP of 3.1. The new RTU will have an EER of 10.1 and a COP of 3.3. The new RTU will exceed the energy efficiency requirements of the applicable ASHRAE 90.1 NJ energy code.

End of HVAC Study

EXHIBIT 'C'

HVAC Layout Sketch

EXHIBIT 'C'



HVAC IMPROVEMENTS STUDY
JOCHEM BUILDING
MARIE KATZENBACH SCHOOL FOR THE DEAF
320 SULLIVAN WAY, EWING TOWNSHIP, NJ 08628

FLOOR PLAN

RONALD A. SEBRING ASSOCIATES, LLC
ARCHITECTURE AND DESIGN
1000 WASHINGTON STREET, SUITE 201
TOMS RIVER, NJ 08753
(732) 701-9444 FAX 701-9919 E-MAIL ARCHITECTS@RASALLC.COM

SUBMISSION	BY	DATE
		10/25/24

M1

EXHIBIT 'C'

RTU Selection Information

EXHIBIT 'C'

Unit Rating

2425 South Yukon Ave • Tulsa, OK 74107 • Ph: (918) 583-2266
Ecat Version: 352.0

A1 A2 A3 A4 A5 B1 B2 B3 B4 B5 1 2 3A 3B 3C 3D 3E 4A 4B 4C 5A 5B 5C 5D 5E 6A 6B 6C 6D 6E 7 8 9A 9B 9C

RNA-031-D-A-8-GJB0C-A02NB:00-0AGAL-E00-00000-00000-QC-CB0A-00-E0-0-AZ0-EB-DA0A-00-000-B00F00-E0000B-0000A0B

9D 10A 10B 11A 11B 12 13A 13B 13C 14 15 16A 16B 16C 16D 17A 17B 18A 18B 18C 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37

Tag: RTU - 1

Job Information

Job Name:	*S-H Katzenbach School*
Job Number:	*Job #14*
Site Altitude:	*0 ft*
Refrigerant:	*R-454B*
System Charges (oz):	*1822 / 1822*

Unit Information

Approx. Op./Ship Weights:	*6765 lbs / 6765 lbs (±5%)*
Ambient Temperature (DB/WB):	*93.0 °F / 76.0 °F*
Coil Filter FV / Qty:	*312.5 fpm / 8*
Min. Room Area/Height/Airflow**:	*1708.0 ft² / 7.2 ft / 3082 SCFM*
Outside Air Prefilter FV / Qty:	*138.0 fpm / 6*
Supply Airflow/ESP:	*10000 SCFM / 2.25 in. w.g.*
Outside Airflow:	*2300 SCFM*
Return Temperature (DB/WB):	*75.0 °F / 62.0 °F*

Static Pressure

External:	*2.25 in. w.g.*
Cooling Coil:	*0.24 in. w.g.*
Filters Clean:	*0.36 in. w.g.*
Dirt Allowance:	*0.35 in. w.g.*
Reheat Coil:	*0.05 in. w.g.*
Economizer:	*0.18 in. w.g.*
Heating:	*0.06 in. w.g.*
Cabinet:	*0.04 in. w.g.*
Total:	*3.54 in. w.g.*

Cooling Section

	Gross	Net
Total Capacity:	*356.9 MBH*	*330.7 MBH*
Sensible Capacity:	*275.7 MBH*	*249.5 MBH*
Latent Capacity:	*81.2 MBH*	
Mixed Air Temp (DB/WB):	*79.1 °F / 65.6 °F*	
Entering Air Temp (DB/WB):	*79.1 °F / 65.6 °F*	
Lv Air Temp (Coil) (DB/WB):	*53.4 °F / 53.4 °F*	
Lv Air Temp (Unit) (DB/WB):	*55.8 °F / 54.3 °F*	

Supply Air Fan:	*1 x 270D @ 9.58 BHP Ea.*
SA Fan RPM / Width:	*1433 RPM / 6.130 in*
SA Fan FEI:	*1.03*
Evaporator Coil:	*34.4 ft² / 6 Rows / 12 FPI*
Evaporator Face Velocity:	*290.9 fpm*

Heating Section

Preheat Type:	*Std (No Preheat)*
Integrated Heat Capacity:	*147.3 MBH*
Primary Heat Type:	*Heat Pump*
Total Capacity:	*160.1 MBH*
OA Temp (DB/WB):	*0.0 °F / -1.0 °F*
RA Temp (DB/WB):	*70.0 °F / 55.0 °F*
Entering Air Temp (DB/WB):	*57.8 °F / 47.8 °F*
Leaving Air Temp (DB/WB):	*71.1 °F / 53.6 °F*
Input (Emergency/Aux):	*60.1 kW / 60.1 kW*
Fan Temp Rise:	*2.3 Δ°F*
Auxiliary Heating Type:	*Electric Heat*
Heating Airflow:	*10000 SCFM*
Total Capacity:	*205.1 MBH*
Entering Air Temp (DB/WB):	*71.1 °F / 53.6 °F*
Leaving Air Temp (DB/WB):	*89.9 °F / 60.8 °F*
Input:	*60.1 kW*
Electric Heat FLA:	*166.8*

Re-heat Coil:

Capacity:	*198.8 MBH*
Leaving Air Temp (DB/WB):	*72.0 °F / 60.6 °F*
Relative Humidity:	*51.8%*

Rating Information

Cooling Capacity:	*332.0 MBH*	*Heating High Temp Capacity:*	*325.0 MBH*
Cooling EER:	*10.09 BTU/h·W*	*Heating High Temp COP:*	*3.3 W/W*
Cooling IEER:	*13.52 BTU/h·W*	*Heating Low Temp Capacity:*	*192.0 MBH*
		Heating Low Temp COP:	*2.23 W/W*

Outside the scope of AHRI Standard 340/360 (I-P). Rated using procedure described in AHRI 340/360 (I-P).

Application EER @ Op. Conditions:	***10.1 BTU/h·W***
Application COP @ Op. Conditions:	***2.06 W/W***
Application COPH @ Op. Conditions:	***3.3 W/W***

Electrical Data

EXHIBIT 'C'

2425 South Yukon Ave • Tulsa, OK 74107 • Ph: (918) 583-2266
Ecat Version: 352.0

Circuit 1

Rating:	*208V/3Ø/60Hz*	*Minimum Circuit Amp:*	*330*
Unit FLA:	*318*	*Maximum Overcurrent:*	*350*
SCCR:	*10 KAIC*		

	Qty	HP	VAC	Phase	RPM	FLA	RLA
Compressor 1:	*1*		*208*	*3*	*3500*		*44.9*
Compressor 2:	*1*		*208*	*3*	*3500*		*46.5*
Condenser Fan:	*4*	*0.75*	*208*	*3*	*1080*	*3.4*	
Supply Fan:	*1*	*15.00*	*208*	*3*	*1760*	*46.2*	

Cabinet Sound Power Levels*

Octave Bands:	**63**	**125**	**250**	**500**	**1000**	**2000**	**4000**	**8000**
Discharge LW (dB):	*92*	*90*	*92*	*96*	*93*	*89*	*86*	*82*
Return LW (dB):	*81*	*78*	*74*	*68*	*70*	*66*	*57*	*50*

*Sound power levels are given for informational purposes only. The sound levels are not guaranteed.

The minimum floor area for the Lower Flammability Limit (LFL) is calculated in accordance with UL60335-2-40 4th ed. (operating or storage).

Performance Data Table

Outside Air		Mixed Air		Leaving Air		Heat Pump Capacity	Heat Pump Integrated Capacity	Heat Wheel Heating Capacity	Heating COP
DB °F	WB °F	DB °F	WB °F	DB °F	WB °F	MBH	MBH	MBH	W/W
62.0	56.2	68.2	55.3	104.7	68.1	398.8	398.8		3.77
57.0	51.6	67.0	54.2	101.3	66.6	374.6	374.6		3.66
52.0	47.1	65.9	53.3	98.0	65.2	351.8	351.8		3.56
47.0	42.6	64.7	52.4	94.8	63.8	329.8	329.8		3.45
42.0	38.0	63.6	51.5	91.7	62.4	308.7	308.7		3.34
37.0	33.5	62.4	50.7	84.9	59.8	288.8	248.1		2.81
32.0	28.8	61.3	50.0	82.6	58.6	269.1	235.2		2.75
27.0	24.3	60.1	49.2	80.2	57.5	250.4	222.1		2.68
22.0	19.7	59.0	48.5	77.8	56.4	232.1	208.6		2.59
17.0	15.0	57.8	47.8	75.4	55.3	214.6	195.3		2.51
12.0	10.4	56.7	47.1	73.0	54.3	198.3	181.9		2.41
7.0	5.7	55.5	46.5	70.6	53.2	182.8	168.2		2.30
2.0	0.1	54.4	45.7	68.2	52.0	168.0	154.6		2.19

*Invalid operation point - Compressor operating outside of operating envelope
**Electric preheat is used to maintain the entering air temperature when applicable.

EXHIBIT 'C'

27.4" STAR Plenum

2425 South Yukon Ave • Tulsa, OK 74107 • Ph: (918) 583-2266
Ecat Version: 352.0

JOB INFORMATION:

Job Name:	*S-H Katzenbach School*
Job Tag:	*RTU - 1*
Date:	*10/28/2024 12:00:00 AM*

WHEEL SPECIFICATION:

Max RPM:	*1800*
Diameter x Qty:	*27.4 in. x 1*
CFM:	*10000*
Inertia:	*16WR²*

OPERATING CONDITIONS

Air Flow:	*10000*
Fan Energy Index (FEI):	*1.03*
Static Pressure:	*3.54 in. Wg*
Relief Dampers DP:	*0 in. Wg*
TSP:	*3.54 in. Wg*
Site Altitude	*0 ft*
TSP @ Sea Level:	*3.54 in. Wg*

MOTOR SELECTION

Rated HP / Bypass:	*15 x 1 / No*
Frame Size:	*254T*
Nominal RPM:	*1760*
VAC/PH/HZ:	*208V/3Ø/60Hz*
Enclosure Type:	*ODP*
Max Inertial Load:	*0 WR²*

FAN PERFORMANCE:

RPM:	*1433*
BHP:	*9.58*
Efficiency:	*58.25%*
Max Duct SP with Blocked Airway:	*0 in. Wg @1433 RPM*

Max Duct SP with Blocked Airway:

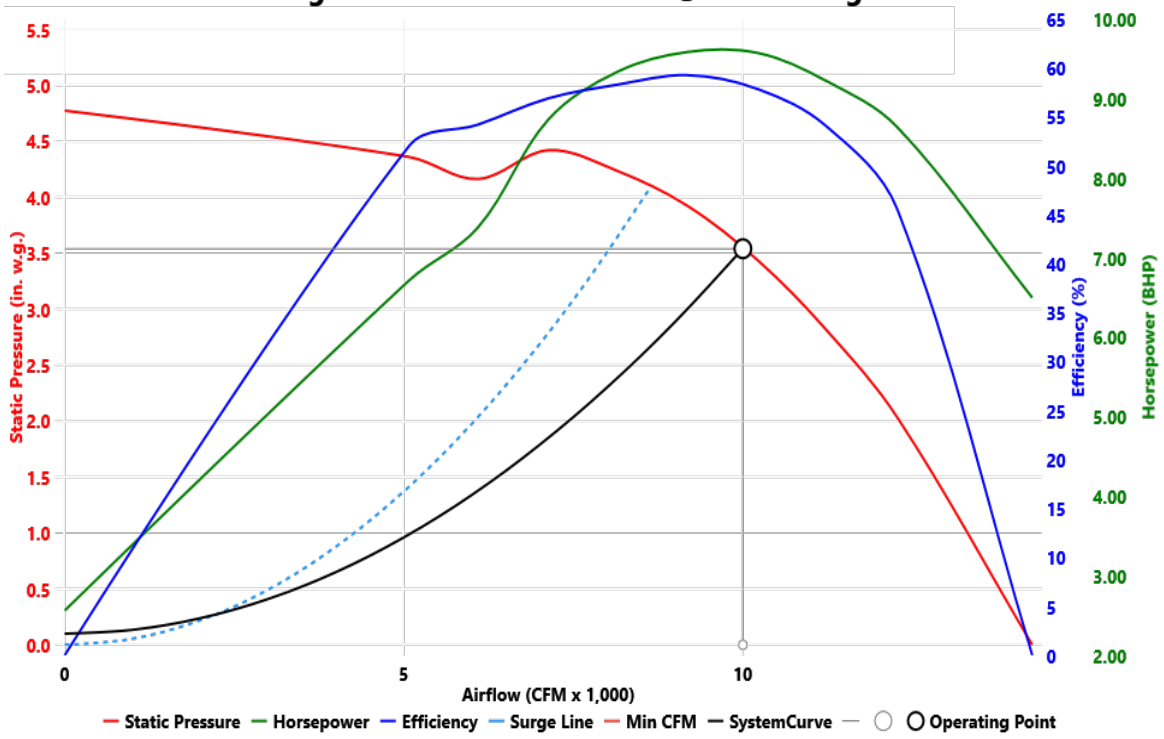
FAN SOUND POWER (Inlet/Outlet)

Octave Band: **(Re 10^-12 watts)**

1	2	3	4	5	6	7	8
90	89	87	86	86	85	84	83
92	90	92	96	94	90	88	84

SOUND POWER A-Weighted: 84 dB

Supply Fan Model: 270D @ 1433 RPM and 100% Width
Design Conditions: 10000 CFM @ 3.54 in. w.g. SP



Last Modified By:Eric Zanolini - H.C. Nye Co. - King of Prussia, PA
Date Created/Modified:11/16/2023 9:57:44 AM Using Version:352.0

Date Printed:10/28/2024 12:24:27 PM

EXHIBIT 'C'

Unit Submittal

2425 South Yukon Ave • Tulsa, OK 74107 • Ph: (918) 583-2266
Ecat Version: 352.0

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A-00-E0-0-AZ0-EB-DA0A-00-000-B00F00-E0000B-0000A0B

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Tag: RTU - 1

Job Name: S-H Katzenbach School
Unit Worksheet For:
Job Number: Job #14
Unit Worksheet Date: 10/28/2024

	Base Option	Description
RN	Generation	RN Series
A	Major Revision	Major Revision A
031	Unit Size	Thirty One
D	Series	D Series
A	Minor Revision	Minor Revision A
8	Voltage	208V/3φ/60Hz
G	Compressor Style	R-454B Variable Capacity Scroll Compressor
J	Condenser Style	Alpha Class - Air-Source Heat Pump
B	Indoor Coil Configuration	6 Row Evaporator
0	Cooling Heat Exchanger Construction	Standard
C	Cooling Staging	1 Variable Capacity Comp + 1 Two-Step Comp
A	Heat Type	Electric Heat (Vertical Unit Configuration)
0	Heat Construction	Standard
2	Heat Designation	60.1 kW
N	Heat Staging	Modulating SCR Electric - Temperature Control
B	Heat Pump Auxiliary Heating	Auxiliary Heat - 15kW - Modulating

	Feature Option		Decription
0	F1.	Unit Orientation	Standard Access - Hinged Access Doors with Lockable Handles
0	F2.	Supply & Return Locations	Bottom Supply+Bottom Return
0	F3A.	Supply Fan Quantity	1 Fan
A	F3B.	Supply Fan Configuration	1 Fan per VFD + Full Width Fan
G	F3C.	Supply Fan Size	27" Direct Drive Backward Curved Aluminum
A	F3D.	Supply Fan Motor Type	High Efficiency Open Motor (1,800 nominal rpm)
L	F3E.	Supply Fan Motor Size	15 hp
E	F4A.	Outside Air Section	Economizer
0	F4B.	Energy Recovery Type	No Energy Recovery
0	F4C.	Energy Recovery Size	No Energy Recovery
0	F5A.	Return Fan Quantity	0 Return Fans
0	F5B.	Return Fan Configuration	No Return Fan
0	F5C.	Return Fan Size	No Return Fan
0	F5D.	Return Fan Motor Type	No Return Fan
0	F5E.	Return Fan Motor Size	No Return Fan
0	F6A.	Exhaust Fan Quantity	0 Exhaust Fans
0	F6B.	Exhaust Fan Configuration	No Exhaust Fan
0	F6C.	Exhaust Fan Size	No Exhaust Fan
0	F6D.	Exhaust Fan Motor Type	No Exhaust Fan
0	F6E.	Exhaust Fan Motor Size	No Exhaust Fan
Q	F7.	Outside Air Control	CO2 Override + Fully Mod. Act. - Enthalpy Limit
C	F8.	Return and Exhaust Air Options	Standard Barometric Relief EA Dampers
C	F9A.	Unit Filter Type	2" Pleated MERV 8 + 4" Pleated MERV 13
B	F9B.	Unit Filter Size & Location	High Efficiency Filters in Standard Position
0	F9C.	Final Filter Type	No Final Filters
A	F9D.	Filter Options	Clogged Filter Switch - Unit Filters
0	F10A.	Refrigeration Control A	Standard - Adj Comp. Cooling Lock Out Through Unit Controls

EXHIBIT 'C'

	Feature Option		Decription
0	F10B.	Refrigeration Control B	Standard
E	F11A.	Refrigeration Options A	Modulating Hot Gas Reheat Microchannel Coil [MHGR-MC]
0	F11B.	Refrigeration Options B	Standard Packaged Unit
0	F12.	Refrigeration Accessories	None
A	F13A.	Unit Disconnect Type	Single Point Power - Non-fused Disconnect Power Switch
Z	F13B.	Disconnect 1 Size	400 Amps
0	F13C.	Disconnect 2 Size	Standard - None
E	F14.	Safety Options	Remote Safety Shutdown Terminals
B	F15.	Electrical Accessories	Phase & Brown Out Protection
D	F16A.	Control Sequence	VAV Unit Controller - VAV Cool + CAV Heat
A	F16B.	Control Supplier	AAON Controls
0	F16C.	Control Supplier Options	None
A	F16D.	BMS Connection & Diagnostics	BACnet IP or MSTP
0	F17A.	Preheat Configuration	Standard - None
0	F17B.	Preheat Sizing	Standard - None
0	F18A.	Option Box Location	None
0	F18B.	Option Box Size	None
0	F18C.	Option Box Accessories	None
B	F19.	Outside Air Accessories	Outside Air Hood with Metal Mesh Filters
0	F20.	Cabinet Options	Standard - None
0	F21.	Accessories	Standard
F	F22.	Maintenance Accessories	Factory Wired 115V Convenience Outlet + Control Panel LED Service Lights
0	F23.	Code Options	Standard - ETL U.S.A. Listing
0	F24.	Shipping Splits	Standard
E	F25.	Air-Cooled Condenser Accessories	VFD Condenser Fan Head Pressure Control
0	F26.	Evap-Cooled Condenser Accessories	Standard
0	F27.	Water-Cooled Condenser Accessories	None
0	F28.	Energy Recovery Accessories	None
0	F29.	VFD Options	Standard
B	F30.	Miscellaneous Options	SCCR (10kA)
0	F31.	Blank	Standard
0	F32.	Blank	Standard
0	F33.	Blank	Standard
0	F34.	Blank	Standard
A	F35.	Warranty	2 Year Parts Warranty
0	F36.	Cabinet Material	Galvanized Cabinet - Double Wall + R-13 Foam Insulation
B	F37.	Specials & Paint	Premium AAON Gray Paint Exterior Paint

Controller Components
2425 South Yukon Ave • Tulsa, OK 74107 • Ph: (918) 583-2266
Ecat Version: 352.0

A1 A2 A3 A4 A5 B1 B2 B3 B4 B5 1 2 3A 3B 3C 3D 3E 4A 4B 4C 5A 5B 5C 5D 5E 6A 6B 6C 6D 6E 7 8 9A 9B 9C

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9D 10A 10B 11A 11B 12 13A 13B 13C 14 15 16A 16B 16C 16D 17A 17B 18A 18B 18C 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37

EXHIBIT 'C'

Tag: RTU - 1

Job Name: S-H Katzenbach School
Job Number: Job #14

VCCX For:
VCCX Date: October 28, 2024

Part#	Included Parts	Assigned Channel	BACnet Point
ASM07503	VCCX-454 CONTROLLER		
ASM01692	OSA Temp/Hum Sensor	EBUS2 Communicating Sensor	AI:16,AI:17,AI:18,AI:19
R82890	Supply Temp Sensor - Field Installed	VCCX Control Point AI3	AI:9
ASM01820	Space Digital Temp/Hum Sensor	EBUS3 Communicating Sensor	AI:12,AI:13
R82890	Return Temp Sensor	VCCX Control Point AI4	AI:14
ASM01831	Duct Mount C02	EBUS4 Communicating Sensor	AI:29
ASM01640	Duct Static Pressure Sensor	VCCX Control Point AI8	AI:21
	Supply Fan Control Signal 0-10VDC	VCCX Control Point AO1	AI:22
	Economizer	VCCX Control Point AO2	AI:30
	Modulated Heating (0-10VDC)	VCCX Control Point AO3	AI:35
R62330	Proof of Air Flow	VCCX Control Point BI1	BI:6, BI:24
G150620	Clogged Filter Switch (Standard Filters)	VCCX Control Point BI2	BI:25
	A2L Airstream Leak Detect Status	VCCX Control Point BI5	BI:9
	Safety Shut Down	VCCX Control Point BI8	BI:26
	Supply Fan	Configured Relay Point	BI:0
	Heat 1	Configured Relay Point	BI:1
	Heat 2	Configured Relay Point	BI:2
	Morning Warm-Up	Configured Relay Point	BI:3
ASM07563	A2L MITIGATION BOARD 1		
G137750	Gas Sensor 1	A2L MB1 AI1	
	Supply Fan Proof of Flow	A2L MB1 BI1	
	Alarm Output	A2L MB1 Fixed RO3	
ASM07716	REFRIGERATION MODULE 1		
V38391	Suction Pressure Sensor A	RM454-D 1 SP-1	AI:48
	Comp Discharge Temp A	RM454-D 1 TEMP1	AI:66
	Modulated Condenser Signal A/C	RM454-D 1 AOUT1	AI:46
G017740	O.D. Coil Defrost Temp Switch A	RM454-D 1 BIN3	BI:81
	Comp Status Input A	RM454-D 1 BIN1	BI:77
	Emergency Shutdown	RM454-D 1 BIN4	BI:83
	Comp Enable A	RM454-D 1 RLY1	BI:84
	Comp Unload Signal A	RM454-D 1 COMP1	AI:44
	Reversing Valve Enable A/C	RM454-D 1 RLY5	BI:88
ASM07716	REFRIGERATION MODULE 2		
V38391	Suction Pressure Sensor B	RM454-D 2 SP-1	AI:73
	Comp Discharge Temp B	RM454-D 2 TEMP1	AI:91
G017740	O.D. Coil Defrost Temp Switch B	RM454-D 2 BIN3	BI:93
	Comp Status Input B	RM454-D 2 BIN1	BI:89
	Emergency Shutdown	RM454-D 2 BIN4	BI:95
	Comp Enable B	RM454-D 2 RLY1	BI:96
	Comp Unload Signal B	RM454-D 2 COMP1	AI:69
	Reversing Valve Enable B&D	RM454-D 2 RLY5	BI:100
ASM01670	MODULATING HOT GAS REHEAT MODULE		
	Reheat HGR Valve	MHGRV-X	AI:42

EXHIBIT 'C'

RN UNITS 26-31 TON
AIR COOLED, METAL MESH FILTER, RNA-D

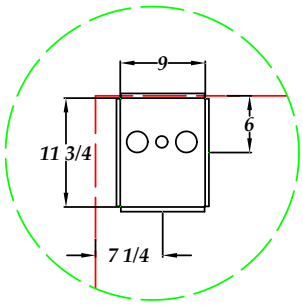
AAON®

CLEARANCES

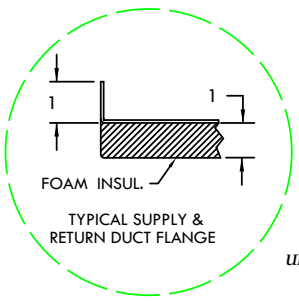
LOCATION	UNIT SIZE 26-31 TON
OUTSIDE AIR (BACK)	48*
CONTROLS SIDE	48
LEFT SIDE	48
RIGHT SIDE	70
TOP	UNOBSTRUCTED

NOTE: RIGHT AND LEFT SIDE UNIT CLEARANCES ARE INTERCHANGEABLE ON UNITS THAT DO NOT HAVE THE HYDRONIC HEATING OPTION. (UNITS WITH HYDRONIC HEAT MUST HAVE 70" RIGHT SIDE ACCESS FOR SERVICE.)

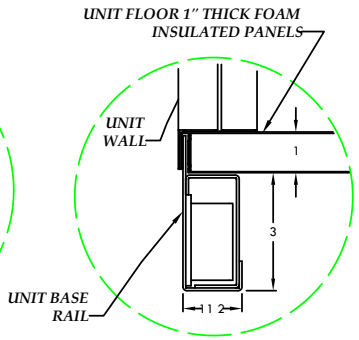
*CLEARANCE IS FROM THE EDGE OF THE UNIT



DETAIL A
UTILITY ENTRY

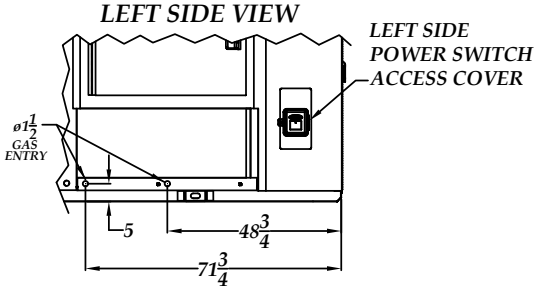


DETAIL B

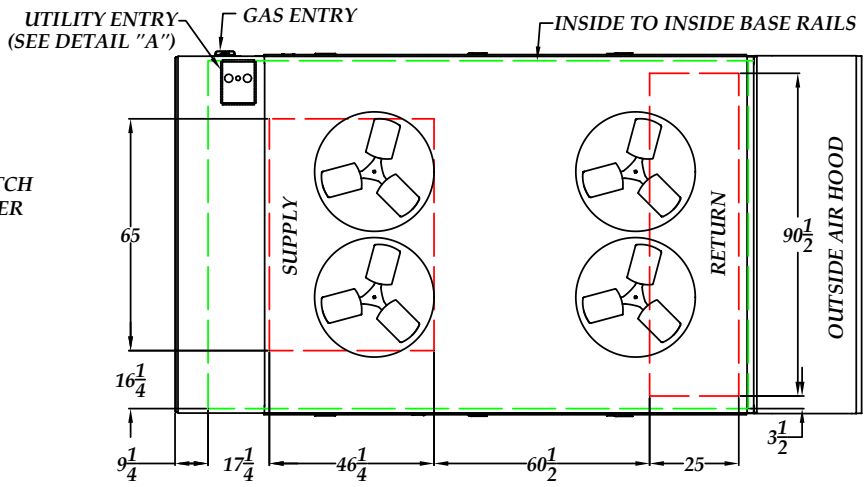


BASE RAIL CLEARANCE

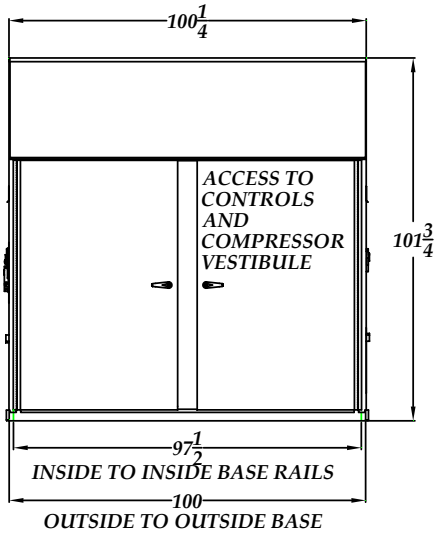
LEFT SIDE VIEW



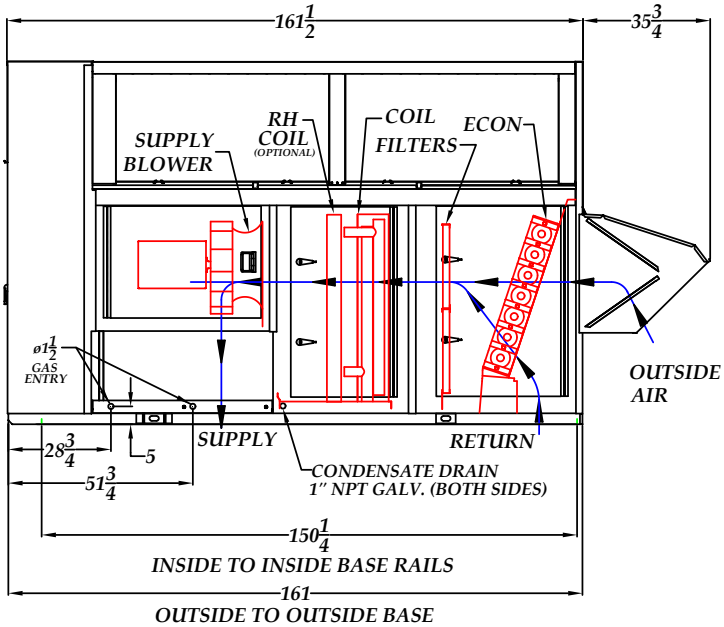
TOP VIEW



FRONT VIEW



RIGHT SIDE VIEW

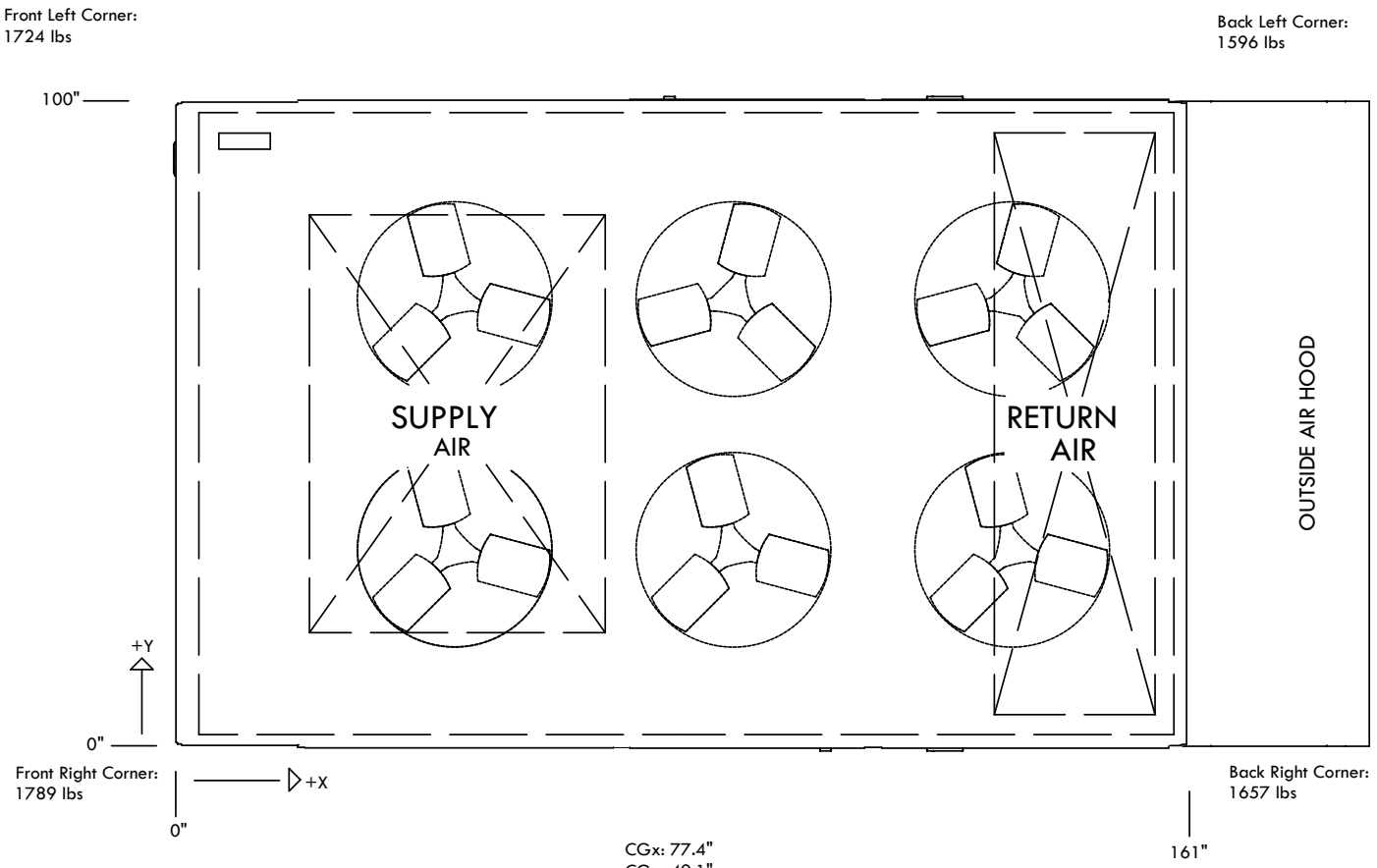


CAT000498 RNA-D REV:A 06/25/24 JWC
ALL DIMENSIONS ARE IN INCHES

EXHIBIT 'C'

RND CABINET
AIR COOLED CONDENSING UNIT

RNA-031-D-A-8-GJB0C-A02NB:00-0AGAL-E00-00000-00000-QC-CB0A-00-E0-0-AZ0-EB-DA0A-00-000-B00F00-E0000B-0000A0B



Disclaimer:
This weight estimate does not account for any SPAs.

EXHIBIT 'C'

APPENDIX "B"
CONSTRUCTION COST ESTIMATES

EXHIBIT 'C'

JOCHEM CENTER (Building No. 34)
HVAC REHABILITATION STUDY

CONSTRUCTION COST SUMMARY

CATEGORY	TOTAL
GENERAL CONSTRUCTION	$198,738.85
MECHANICAL & ELECTRICAL	$575,000.00
TOTAL CONSTRUCTION COST	**$773,738.85**
(*OPTIONAL)* SWITCH & TRANSFORMER (RECOMMENDED)	$98,000.00
TOTAL CONSTRUCTION COST w/ OPTION	**$871,738.85**

*****Refer to attached breakdowns for additional information**

EXHIBIT 'C'

JOCHEM CENTER (Building No. 34)
HVAC REHABILITATION STUDY

GENERAL CONSTRUCTION

ITEM	QUANTITY	COST PER UNIT	TOTAL
CRANE WITH OPERATOR /DAY	3.00	$800.00	$2,400.00
CONCRETE FOOTINGS AND PIERS (FENCING) /C.Y.	80.00	$400.00	$32,000.00
ADD FOR REINFORCING /L.S.	1.00	$2,000.00	$32,000.00
CONCRETE PUMP EQUIPMENT /L.S.	1.00	$3,500.00	$3,500.00
CONCRETE PUMP OPERATOR /L.S.	1.00	$1,800.00	$1,800.00
SOIL BACKFILL /C.Y.	60.00	$40.00	$2,400.00
STONE FILL /C.Y.	120.00	$40.00	$4,800.00
STRIP TOPSOIL /C.Y.	60.00	$7.00	$420.00
SPREAD TOPSOIL FOR RESTORATION /C.Y.	60.00	$7.00	$420.00
SOD FOR RESTORATION /M.S.F.	3.00	$580.00	$1,740.00
NEW CONCRETE WALK /S.F.	120.00	$35.45	$4,254.00
NEW CONCRETE SLABS /C.Y.	12.00	$400.00	$4,800.00
ADD FOR REINFORCING /L.S.	1.00	$1,600.00	$1,600.00
CHAIN-LINK FENCE /L.F.	140.00	$140.00	$19,600.00
ADD FOR ADDITIONAL POSTS 4" /EACH	24.00	$235.00	$5,640.00
ADD FOR PRIVACY SCREENING /S.F.	1120.00	$6.25	$7,000.00
CHAIN-LINK GATES WITH HARDWARE /EACH	2.00	$600.00	$1,200.00
CUT / REMOVE MASONRY WALL /S.F.	40.00	$16.00	$640.00
NEW 8" CONCRETE BLOCK INFILL /S.F.	60.00	$40.00	$2,400.00
ADD FOR TOOTH-IN MASONRY /S.F.	60.00	$18.75	$1,125.00
JOINT AND FIRESTOPPING SEALANTS /L.S.	1.00	$5,000.00	$5,000.00
REMOVE AND REINSTALL ACT CEILING /EACH LOCATION	12.00	$450.00	$5,400.00
DEBRIS REMOVAL /C.Y.	25.00	$72.00	$1,800.00
DEBRIS DISPOSAL (DUMPSTER)	3.00	$900.00	$2,700.00
SUBTOTAL			**$144,639.00**
AREA ADJUSTMENT (7.4%)			$10,703.29
SUBTOTAL			**$155,342.29**
LABOR ADJUSTMENT (16% OF LABOR)			$4,495.30
SUBTOTAL			**$159,837.58**
OVERHEAD (15%)			$23,975.64
SUBTOTAL			**$183,813.22**
PROFIT (6%)			$11,028.79
SUBTOTAL			**$194,842.01**
BOND (2%)			$3,896.84
TOTAL GENERAL CONSTRUCTION			**$198,738.85**

EXHIBIT 'C'

Cost Estimate for HVAC Replacement (Mechanical and Electrical)*:

Demolition:	$30,000
New ground mounted 31-ton RTU with curb	$150,000
Ductwork:	$125,000
HVAC Controls:	$30,000
Electric heaters and exhaust fans	$15,000
Testing & Balancing:	$10,000
Electrical Breakers, Conduit & Wiring:	$50,000
Fire Alarm Devices & Wiring	$10,000
General Conditions, overhead and profit:	$80,000
Sub-Total:	$500,000
Preliminary Design Contingency (15%):	$75,000
Sub-Total Mechanical & Electrical Estimate (CCE):	**$575,000**

* Refer to the architectural cost estimate for additional costs.

Optional Cost Estimate to Replace the Existing 5kV Switch & 150kVA Transformer:

Demolition	$10,000
5kV primary fused load interrupter switch	$25,000
150kVA dry-type transformer	$30,000
Installation labor	$10,000
Conduit & wiring	$10,000
Sub-Total:	$85,000
Preliminary Design Contingency (15%)	$13,000
Total Optional Cost Estimate for Switch/Transformer:	**$98,000**

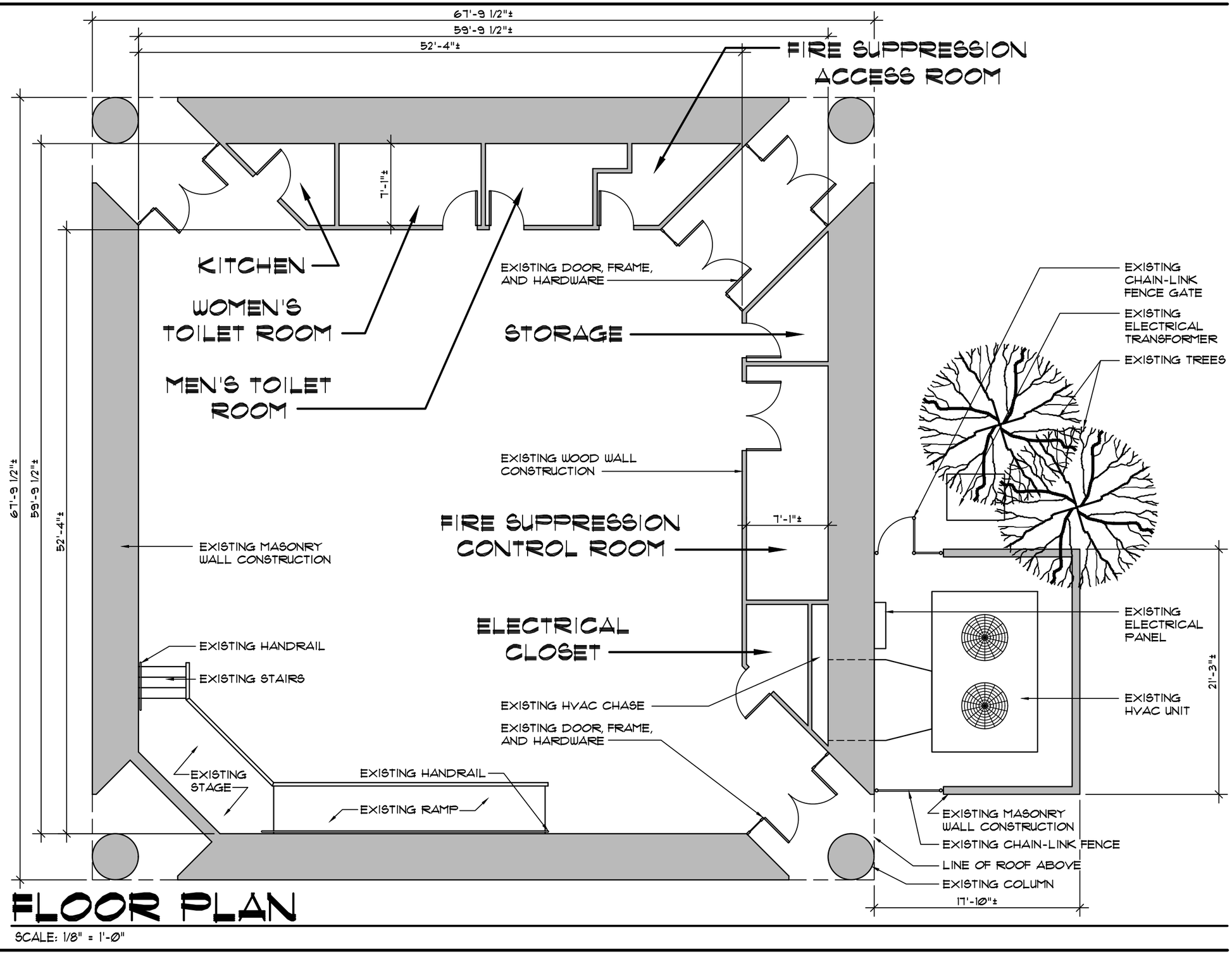
The above cost estimates have the following assumptions:

- Cost estimates are in 2024 dollars. Escalate at 5% per year to the mid-point of construction for the final budget.
- Excludes hazardous materials remediation work.
- Excludes architectural and structural work, such as concrete pads, exterior wall openings, fencing and modifications to existing interior walls/doors/ceilings.

EXHIBIT 'C'

APPENDIX "C" EXISTING CONDITIONS DRAWINGS

EXHIBIT 'C'



FLOOR PLAN

SCALE: 1/8" = 1'-0"

HVAC IMPROVEMENTS STUDY
JOCHEM BUILDING
MARIE KATZENBACH SCHOOL FOR THE DEAF
320 SULLIVAN WAY, EWING TOWNSHIP, NJ 08628

FLOOR PLAN

RONALD A. SEBRING ASSOCIATES, LLC
ARCHITECTURE AND DESIGN
1000 WASHINGTON STREET, SUITE 201
TOMS RIVER, NJ 08753
(732) 701-9444 FAX 701-9919 E-MAIL ARCHITECTS@RASALLC.COM

SUBMISSION	BY	DATE
	SM	09/05/24

A1

EXHIBIT 'C'

APPENDIX "D" EXISTING CONDITIONS PHOTOGRAPHS

EXHIBIT 'C'

EXHIBIT 'C'

EXHIBIT 'C'

EXHIBIT 'C'

EXHIBIT 'C'