

GREATER NEW HAVEN WATER POLLUTION CONTROL AUTHORITY

ADDENDUM No. 2

**TO
CONTRACT DOCUMENTS
FOR**

**WASTEWATER LABORATORY CONVERSION PROJECT
PROJECT NO. SSF 2018-04
245 EAST SHORE PARKWAY
NEW HAVEN, CONNECTICUT**

Bidders are hereby notified of the following additions, deletions, and modifications to the Contract Documents for the Wastewater Laboratory Conversion Project. The content of this Addendum modifies the scope of work.

Bidders shall acknowledge receipt of this Addendum in the space provided in Article 5.03 of the Bid Form for Construction Contract.

A. RESPONSE TO BIDDER QUESTIONS

Question 16: Is a project sign required? Where will it be located?

Response 16: No project sign is required.

Question 17: Please note that the windows specified are made in Lethbridge Canada Kawneer facility, they will be subject to Tariffs, and the windows specified are extremely expensive. Windows have a 26 week lead time from date of order. Is there an acceptable alternative window we can supply for this project?

Response 17: The windows are required to be hurricane rated. Acceptable alternate manufacturers include but are not limited to: Sky Windows, Thermo-Roll, Pioneer, Universal Window, and Architectural Window.

Question 18: Please provide specification for hollow metal frames.

Response 18: See Specification Section 08 11 13 Hollow Metal Frames attached with this addendum.

Question 19: Please provide the amount of Special Damages noted in the specification Contractor Agreement item 4.04.

Response 19: The amount of Special Damages is based upon the fines, penalties, and actual costs reasonably incurred by Owner as described in Article 4.04 of the Agreement Between Owner and Contractor for Construction Contract (Stipulated Price).

Question 20: Note on Demo plans D06 states that the intent is to keep the existing lab in operation. Does this mean that areas of the lab will remain open at all courses of construction? Will specific phasing be required? If temporary partitions/walls are required, please provide details.

Response 20: The desired intent is to keep the Level Two lab in operation during the conversion of the conference room directly below into a new lab space. It is understood that once the new lab space is complete and ready to occupy that various drains and piping that serve the Level Two lab will need to be capped off and removed before the suspended ceiling in the Level One lab can be finalized. The construction team shall coordinate with the Owner to minimize the amount of time that lab operations are temporarily halted to complete the work. Temporary partitions will not be required beyond typical dust control measures.

Question 21: Please provide style and color for the office space broadloom carpet. We have been informed that different styles/colors can vary drastically in price.

Response 21: Shaw Philadelphia Broadloom carpet. Collection: Fundamental Collection Style: Engrain # 54922 Color: Intrinsic # 00500 Traffic Rating: Heavy Duty

Question 22: We are still waiting for wage rates, which I believe were to be issued with the addendum.

Response 22: Wage rate schedule was issued in Addendum 1.

Question 23: Please provide a basis of design or list of approved manufacturers for the Laboratory Recessed Safety Station - Emergency Eye/Face Wash with Shower listed in specification 22 45 00.

Response 23: Basis of Design is Guardian GBF2150 or an approved equal complying with all requirements listed in specifications section 22 45 00 and in drawings.

Question 24: Drawing P1.000 notes a 22-gauge drip pan for all piping within the phone/comm room. AD1.100 does not list any of the existing spaces as the phone/comm room. Can you confirm the locations where the drip pans are required?

Response 24: The phone/comm room will be identified on annotated Drawing P1.00 with this addendum.

Question 25: When is the construction start and finish dates?

Response 25: The construction start and finish dates will be established as described in Article 4.02 of the Agreement Between Owner and Contractor For Construction Contract (Stipulated Price) and the Notice to Proceed after the Effective Date of Contract.

Question 26: Are utilities (electric and water) available for construction use free of charge?

Response 26: Reasonable amounts of electric and water utilities will be available for use exclusively in the construction of this project free of charge. Owner's sanitary facilities will not be available for use as indicated in Specification Section 01 50 00, paragraph 2.02.

Question 27: On Sheet P1.100 Sanitary Drainage Plan - Level 1, the legend lists two keynotes: #1 and #2. However, the plan references two keynotes labeled #2 and one keynote labeled #3, which does not match the legend. Please clarify this discrepancy.

Response 27: Keynotes will be clarified on Drawing P1.1000 provided with this addendum.

Question 28: Is the use of Type L Copper acceptable for pipe sizes 2" and below?

Response 28: Type L Copper is acceptable for where copper piping is to be used.

Question 29: Are ProPress fittings acceptable for pipe sizes 2" and below?

Response 29: ProPress fittings are acceptable for copper piping 2" and below only. If ProPress fittings are to be used, provide all applicable installer and equipment qualification submittals and product data submittals in accordance with specifications for review.

Question 30: Will the project space be occupied, or will work take place during normal hours when the project begins

Response 30: The overall Wastewater Treatment Facility will be occupied and functioning throughout the construction phase. The spaces to be renovated on Level One and Level Two will be unoccupied and will be available to the construction team during normal working hours. If the construction team wishes to work beyond normal working hours, coordination with the Owner will be required to minimize disruption to operations.

Question 31: Which company is responsible for the Control system in the building?

Response 31: The GNHWPCA facility uses:
Distech Controls through
Connecticut Temperature Controls, LLC
500 Corporate Row
Cromwell, CT 06416
800 890 2022
Joe Grismer 860 513 8839

Question 32: Per INVITATION TO BID, "The project has a total construction duration of 300 days", however In the AGREEMENT BETWEEN OWNER AND CONTRACTOR, ARTICLE 4— CONTRACT TIMES, 4.02 Contract Times: Days stated "The Work will be substantially complete within 270 days", please clarify.

Response 32: The work must be substantially complete within 330 days and ready for final payment within 360 days as indicated in Article 4.02 of the Agreement as modified by this Addendum.

Question 33: What percentage of the bid amount is required for the bid security (Bid Bond)?

Response 33: In accordance with Article 8.01 of the Instructions for Bidders, the bid security required is ten percent of Bidder's maximum bid price.

Question 34: What is the anticipated start date for the project?

Response 34: Please refer to Response 25 above.

Question 35: Are there any minority contracting or hiring requirements for this project? If so, could you specify the state-funded amount?

Response 35: There are no MBE/WBE requirements.

Question 36: Please confirm the designated Fire Alarm vendor for this project.

Response 36: The Owner currently uses Fire Protection Team (FPT), Cheshire, CT.

Question 37: Could you provide the project budget or any financial parameters we should be aware of to ensure alignment with your expectations?

Response 37: That information is not available to Bidders.

Question 38: 1. We found some discrepancies between the keynotes and drawings on sheet P1.100. Please advise.

- Keynote #7 refers to SK3, but the plan shows SK2.
- Keynote #5 refers to SK2, but the plan shows SK1.
- Keynote #4 does not refer to any sink, but the plan shows SK1.

Response 38:

- SK3 changed to SK2 in Keynote #7. See Updated P1.100 attached to this addendum.
- SK2 changed to SK1 in Keynote #5. See Updated P1.100 attached to this addendum.
- Keynote #4 refers to VAC and CA piping in piping chase behind SK1. Keynote leader has been shifted to clarify. See updated drawing P1.100 attached to this addendum.

Question 39: Division One questions:

1. Are there liquidated damages for the project?
2. Are we to include building permit fees?
3. Are we to include Fire Marshall plan and review fee costs?
4. Are we to include a project sign?

Response 39:

1. Yes, liquidated damages are called out in paragraph 4.03 of the Agreement between the Owner and the Contractor.
2. Yes include building permit fees
3. Yes include Fire Marshall plan and review fee costs
4. No project sign is required.

Question 40: Division 3 question: what is the thickness of the existing concrete slab?

Response 40: The existing concrete slab thickness shown on original structural drawings is 7".

Question 41: Division 7 Roofing question: C & M Roofing Company does not do prevailing wage work. How are we to proceed?

Response 41: State of Connecticut regulations require prevailing wages rates be paid on this project.

Question 42: Division 11 Equipment questions

1. Are we to include supplying all equipment listed in spec section 11 53 00?
2. Please provide a make and model number for the Fume Hood.
3. What is the color for the fume hood?

Response 42:

1. Yes
2. Make and model numbers for Fume Hood and Canopy Hood are described in Specification Sections 11 53 00 and 11 53 13.
3. Colors for fume hood and canopy hood will be standard white color by defined manufacturer.

Question 43: Division 15 HVAC: Who is the controls contractor for the building?

Response 43: See response to Question 31.

Question 44: There is wording of a BAS for this project. Who is the BAS through?

Response 44: See response to Question 31.

Question 45: I would like to inquire whether the HVAC system for this project should be integrated with the existing Building Automation System (BAS), which is by Distech Controls through Connecticut Temperature Controls in Cromwell, CT.

Response 45: The units will be physically wired to the BMS but will not be controlled by BMS. This means there is no software update or BMS change in the sequence of operation. The HVAC system will be connected to the BAS and other safety systems, however, the units will be controlled locally as requested by Owner.

Question 46: Where are the bids to be delivered?

Response 46: Bids shall be delivered to 260 East Street, New Haven, CT. Individuals dropping off bids in person, should park in the rear lot and enter through the rear door. All bids need to be logged in at the Engineering Administration Desk (Bridget Buckley) prior to 10am on March 19.

B. SPECIFICATIONS

Bid Form for Construction Contract

Replace the Bid Form in its entirety with the attached.

Agreement Between Owner and Contractor For Construction Contract (Stipulated Sum)

Modify Article 4.02 A. of the Agreement Between Owner and Contractor For Construction Contract (Stipulated Sum) to read as follows:

“A. The Work will be substantially complete within 330 days after the date when the Contract Times commence to run as provided in Paragraph 4.01 of the General Conditions, and completed and ready for final payment in accordance with Paragraph 15.06 of the General Conditions within 360 days after the date when the Contract Times commence to run.”

Specification 01 11 00 Summary of Work

Modify Specification 01 11 00 Summary of Work, paragraph 1.06 B. to read as follows:

“On-Site Work Hours: Limit work in the existing building to normal business working hours of 8:00 a.m. to 4:00 p.m., Monday through Friday, unless otherwise indicated.
1. Weekend Hours: Work during weekend hours is not permitted.”

Specification Section 01 50 00, Temporary Facilities

Revise paragraph 1.04 PROJECT IDENTIFICATION to read as follows:

A. No project sign is required.

Specification 08 11 13 Hollow Metal Frames

Add the attached Specification Section 08 11 13 Hollow Metal Frames

Specification 08 51 13 Aluminum Windows

Add the following to Specification Section 08 51 13 Aluminum Windows, paragraph 2.01 B.:

4. Sky Windows
5. Thermo-Roll
6. Pioneer
7. Universal Window
8. Architectural Window”

Specification 09 68 00 Carpeting

Substitute the following for Specification Section 09 68 00 Carpeting, paragraph 2.01 A:

- A. “Shaw Philadelphia Broadloom Carpet. Collection: Fundamental Collection Style: Engrain # 54922 Color: Intrinsic # 00500 Traffic Rating: Heavy Duty”

Specification 22 45 00 Emergency Plumbing Fixtures

Add the following to Specification Section 22 45 00 Emergency Plumbing Fixtures, paragraph 2.1:

- “G. Basis of Design is Guardian GBF2150 or an approved equal complying with all requirements listed in specifications section 22 45 00 and in drawings.”

Specification 22 11 16 Domestic Water Piping

Modify Specification Section 22 11 16 Domestic Water Piping, paragraph 2.3 A to read:

- “A. Drawn-Temper Copper Tube: ASTM B88, Type L.”

Specification 22 11 16 Domestic Water Piping

Add the following to Specification Section 22 11 16 Domestic Water Piping, paragraph 2.3:

- “G. ProPress fittings are acceptable for copper piping 2” and below only. If ProPress fittings are to be used, provide all applicable installer and equipment qualification submittals and product data submittals in accordance with specifications for review.”

Specification 23 09 23 Instrumentation and Control for HVAC

Delete this specification section in its entirety.

C. DRAWINGS

Replace drawings P1.000, P1.100, and M5.100 with the attached drawings.

END OF ADDENDUM

BID FORM FOR CONSTRUCTION CONTRACT

PROJECT NO. SSF 2018-04

WASTEWATER LABORATORY CONVERSION PROJECT

The terms used in this Bid with initial capital letters have the meanings stated in the Instructions to Bidders, the General Conditions, and the Supplementary Conditions.

ARTICLE 1—OWNER AND BIDDER

- 1.01 This Bid is submitted to: Greater New Haven Water Pollution Control Authority.
- 1.02 The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an Agreement with Owner in the form included in the Bidding Documents to perform all Work as specified or indicated in the Bidding Documents for the prices and within the times indicated in this Bid and in accordance with the other terms and conditions of the Bidding Documents.

ARTICLE 2—ATTACHMENTS TO THIS BID

- 2.01 The following documents are submitted with and made a condition of this Bid:
 - A. Required Bid security;
 - B. CT DAS Prequalification Certificate;
 - C. List of Proposed Subcontractors;
 - D. List of Proposed Suppliers;
 - E. Evidence of authority to do business in the state of the Project; or a written covenant to obtain such authority within the time for acceptance of Bids;
 - F. Contractor's license number as evidence of Bidder's State Contractor's License or a covenant by Bidder to obtain said license within the time for acceptance of Bids;
 - G. Required Bidder Qualification Statement with supporting data.
 - H. Completed Bid Form with acknowledgement of Addenda

ARTICLE 3—BASIS OF BID—LUMP SUM BID AND UNIT PRICES

3.01 *Lump Sum Bids*

A. Bidder will complete the Work in accordance with the Contract Documents for the following lump sum price:

1. Lump Sum Price (Single Lump Sum)

Item 1: Lump Sum Bid Price for all work except Item 2: _____ (words)	\$ _____ (numbers)
Item 2: Allowance for handling hazardous materials	\$ <u>20,000.00</u>
Lump Sum Bid Price (Total of Items 1 and 2) _____ (words)	\$ _____ (numbers)

ARTICLE 4—TIME OF COMPLETION

4.01 Bidder agrees that the Work will be substantially complete and will be completed and ready for final payment in accordance with Paragraph 15.06 of the General Conditions on or before the dates or within the number of calendar days indicated in the Agreement.

4.02 Bidder accepts the provisions of the Agreement as to liquidated damages.

ARTICLE 5—BIDDER’S ACKNOWLEDGEMENTS: ACCEPTANCE PERIOD, INSTRUCTIONS, AND RECEIPT OF ADDENDA

5.01 *Bid Acceptance Period*

A. This Bid will remain subject to acceptance for 90 days after the Bid opening, or for such longer period of time that Bidder may agree to in writing upon request of Owner.

5.02 *Instructions to Bidders*

A. Bidder accepts all of the terms and conditions of the Instructions to Bidders, including without limitation those dealing with the disposition of Bid security.

5.03 *Receipt of Addenda*

A. Bidder hereby acknowledges receipt of the following Addenda: **[Add rows as needed. Bidder is to complete table.]**

Addendum Number	Addendum Date

ARTICLE 6—BIDDER’S REPRESENTATIONS AND CERTIFICATIONS**6.01 Bidder’s Representations**

- A. In submitting this Bid, Bidder represents the following:
1. Bidder has examined and carefully studied the Bidding Documents, including Addenda.
 2. Bidder has visited the Site, conducted a thorough visual examination of the Site and adjacent areas, and become familiar with the general, local, and Site conditions that may affect cost, progress, and performance of the Work.
 3. Bidder is familiar with all Laws and Regulations that may affect cost, progress, and performance of the Work.
 4. Bidder has considered the information known to Bidder itself; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Bidding Documents; and the Technical Data identified in the Supplementary Conditions or by definition, with respect to the effect of such information, observations, and Technical Data on (a) the cost, progress, and performance of the Work; (b) the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder, if selected as Contractor; and (c) Bidder’s (Contractor’s) safety precautions and programs.
 5. Based on the information and observations referred to in the preceding paragraph, Bidder agrees that no further examinations, investigations, explorations, tests, studies, or data are necessary for the performance of the Work at the Contract Price, within the Contract Times, and in accordance with the other terms and conditions of the Contract.
 6. Bidder is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Bidding Documents.
 7. Bidder has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder has discovered in the Bidding Documents, and of discrepancies between Site conditions and the Contract Documents, and the written resolution thereof by Engineer is acceptable to Contractor.
 8. The Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.
 9. The submission of this Bid constitutes an incontrovertible representation by Bidder that without exception the Bid and all prices in the Bid are premised upon performing and furnishing the Work required by the Bidding Documents.

6.02 Bidder’s Certifications

- A. The Bidder certifies the following:
1. This Bid is genuine and not made in the interest of or on behalf of any undisclosed individual or entity and is not submitted in conformity with any collusive agreement or rules of any group, association, organization, or corporation.
 2. Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid.
 3. Bidder has not solicited or induced any individual or entity to refrain from bidding.

4. Bidder has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for the Contract. For the purposes of this Paragraph 6.02.A:
 - a. Corrupt practice means the offering, giving, receiving, or soliciting of anything of value likely to influence the action of a public official in the bidding process.
 - b. Fraudulent practice means an intentional misrepresentation of facts made (a) to influence the bidding process to the detriment of Owner, (b) to establish bid prices at artificial non-competitive levels, or (c) to deprive Owner of the benefits of free and open competition.
 - c. Collusive practice means a scheme or arrangement between two or more Bidders, with or without the knowledge of Owner, a purpose of which is to establish bid prices at artificial, non-competitive levels.
 - d. Coercive practice means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the execution of the Contract.

BIDDER hereby submits this Bid as set forth above:

Bidder:

(typed or printed name of organization)

By: _____
(individual's signature)

Name: _____
(typed or printed)

Title: _____
(typed or printed)

Date: _____
(typed or printed)

If Bidder is a corporation, a partnership, or a joint venture, attach evidence of authority to sign.

Attest: _____
(individual's signature)

Name: _____
(typed or printed)

Title: _____
(typed or printed)

Date: _____
(typed or printed)

Address for giving notices:

Bidder's Contact:

Name: _____
(typed or printed)

Title: _____
(typed or printed)

Phone: _____

Email: _____

Address: _____

Bidder's Contractor License No.: (if applicable) _____

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SECTION 08 11 13
HOLLOW METAL FRAMES

PART 1 - GENERAL

1.01 SUMMARY:

A. Section includes:

1. Hollow metal frames
2. Borrowed lights.

B. Related Requirements:

1. Section 08 14 16 - Flush Wood Doors: For wood doors installed in hollow metal frames.
2. Section 08 71 00 - Door Hardware: For door hardware for hollow metal frames.
3. Section 09 91 00 - Painting: For field painting of hollow metal frames.

1.02 DEFINITIONS:

- A. Minimum Thickness: Minimum uncoated base metal steel sheet thickness complying with NAAMM HMMA 803-08 Steel Tables.

1.03 COORDINATION

- A. Coordinate Work of this Section with wall construction types for proper anchorage of hollow metal frames.

1.04 SUBMITTALS:

- A. Submit the following shop drawings in accordance with Section 01 33 00.
- B. Product Data: Submit manufacturer's product data for specified products and fabrications.
- C. Shop Drawings and Schedules: Provide frame schedule and detailed drawings of fabrication and assembly, including the following information:
1. Identification of each opening, cross-referenced to the construction documents using the same opening designations and numbering indicated.

2. Dimensioned frame product elevations, sections and profiles. Provide dimensions for proper edge clearances of doors, including meeting stiles for pairs of doors going into metal frames.
3. Material thicknesses, anchors and fastening.
4. Locations of welded and interlocking joints and connections, including field splices.
5. Show construction, hardware preparation, reinforcement, moldings, stops, trims and accessories. Coordinate with the final approved door hardware schedule.
6. Explanation of abbreviations, symbols, and nomenclature contained in submittal.
7. Details and locations of smoke seals and weather stripping of frames.
8. Preparation for wiring and electrified hardware.

1.05 QUALITY ASSURANCE:

- A. Comply with the requirements specified in Section 01 43 00.
- B. Door frame inspection: contractor with installer shall inspect each door frame, checking frame for squareness, alignment, twist, plumbness and anchor attachment before installation of wallboard and masonry to assure proper fit of doors with correct clearances and operation without modification to the door. Frames that are out of tolerance shall be reinstalled to requirements.

1.06 QUALIFICATIONS

- A. Manufacturer: member of national association of architectural metal manufacturers (NAAMM), that manufacturers are in accordance with standards set by the Hollow Metal Manufacturers Association (HMMA) for fabrication methods and product quality.
- B. Company specializing in manufacturing products specified in this Section with minimum five years' experience.

1.07 DELIVERY STORAGE AND HANDLING:

- A. Comply with the requirements specified in Section 01 66 10.
- B. Package or crate materials to provide protection during transit and delivery.
- C. Remove wraps or covers upon delivery at the building site and ensure that scratches or disfigurement caused by shipping or handling are promptly cleaned and touched up with a rust inhibitive primer.
- D. Inspect hollow metal work on delivery for damage; notify shipper and supplier if damage is found. Minor damages may be repaired provided refinished items match new work and

are acceptable to Architect. Remove and replace damaged items that cannot be repaired as directed.

- E. Comply with HMMA 840. Properly store on planks or dunnage in a dry location. Welded frame product shall be stored in a vertical position, spaced by blocking. Materials shall be covered to protect them from damage but in such a manner as to permit air circulation.

1.08 PROJECT/SITE CONDITIONS:

- A. Field Measurements: Verify field measurements prior to fabrication. Indicate field measurements on Shop Drawings.

PART 2 - PRODUCTS

2.01 MANUFACTURERS:

- A. Acceptable Manufacturers:

1. J/R Metal Frames Manufacturing, Inc., 287 Oakland Road, Belgrade, Maine 04917; Phone: 207.465.9066; <http://www.jrmetalframes.com/index.html>
2. M/S Hollow Metal
3. Kamco
4. KD Door
5. Galaxy Metal Products
6. Metropolitan Door Industries

2.02 REGULATORY REQUIREMENTS:

- A. Labeled Fire-Rated and Smoke and Draft Control Openings:

1. Frames, transom frames and sidelight assemblies provided for openings requiring fire protection, temperature rise, and/or smoke and draft control shall be listed and/or classified and bear the label of a testing agency having a factory inspection service and acceptable to authorities having jurisdiction.
 - a. Tested in accordance with ANSI/UL-10C or NFPA 252 and constructed as Listed or classified for fire labeling.
 - b. Tested in accordance with ANSI/UL-10B or NFPA 252 and constructed as listed or classified for fire labeling.

- c. Tested in accordance with UL 1784 and installed in compliance with ANSI/NFPA 105 and for smoke and draft control with gaskets listed and labeled for smoke control.
- d. Welded frames shall be listed and labeled by Underwriters' Laboratories (UL).

B. Labeled Fire-Rated Borrowed-Lights:

- 1. Frames provided for openings requiring fire protection ratings shall be listed and bear the label of a testing agency having a factory inspection service and acceptable to authorities having jurisdiction.
 - a. Assemblies complying with NFPA 80 tested in accordance with ANSI/UL 9 or ANSI/NFPA 257 and constructed as listed for labeling.

C. If any frame product specified by the Architect to be fire-rated cannot qualify for labeling because of design, hardware or any other reason, the Architect shall be so advised in the submittal documents. If hardware, glazing, or other options affect the fire-rating and are unknown at the time of submittal document preparation, the architect shall be advised.

2.03 HOLLOW METAL FRAMES:

A. Interior Hollow Metal Frames:

- 1. Face sheets fabricated from metallic-coated steel sheet.
 - a. a. Zinc-Coating: A40 galvanized.

B. Steel Sheet Thickness:

- 1. Doors
 - a. 0.053 inch for doors.
- 2. Borrowed Lights: 0.053 inch.
- 3. Fabricate frames with mitered or coped corners and seamless face joints.
- 4. Fabricate frames as full profile welded unless otherwise indicated.
- 5. Exposed Finish: Primer.

2.04 MATERIALS:

- A. Metallic-Coated Steel Sheet: Zinc-coated steel sheet conforming to ASTM A 653 CS, Type B, Coating Designation A40.
- B. Frame Anchors, Internal Door Components and Reinforcements: Zinc-coated steel sheet conforming to ASTM A 653 CS Type B, Coating Designation A40.

- C. Inserts, Bolts, and Fasteners: ASTM A 153 hot dip galvanized.
- D. Power-Actuated Fasteners: Corrosion resistant fasteners of size and configuration for applicable attachment configurations and substrates.
- E. Gasketing: Flexible kerf insert gasketing, fire and smoke rated.

2.05 FABRICATION:

- A. General: Comply with NAAMM's HMMA 800 through 850 Series documents. Fabricate hollow metal work to be neat and uniform in appearance and free from warpage or buckle. Edge bends shall be true and straight and of minimum radius for the thickness of metal used. Assemble units at the manufacturer's facility to the maximum extent possible.
 - 1. Before shipment, mark each frame with an identification number as shown on approved submittal drawings and door schedule.
 - 2. Tolerances and Clearances: Comply with HMMA 840.
- B. Hollow Metal Frames:
 - 1. Construction:
 - a. Frame product shall have integral stops of sizes and types shown on approved shop drawings.
 - b. Jamb, header, mullion and sill profiles shall be in accordance with the frame schedule and as shown on the approved submittal drawings.
 - c. Corner joints shall have all contact edges closed tight with faces mitered and stops butted.
 - d. Minimum height of stops shall be 5/8-inch.
 - e. Welding:
 - (1) Perimeter face joints (flush or indented) shall be continuously welded internally or externally. Flush face joints shall be finished smooth with seamless faces. Rabbets and soffits shall be continuously welded internally.
 - (2) Internal flush face joints shall be continuously welded and finished smooth with seamless faces.
 - f. Frames shall be prepared for single stud, resilient door silencers, three per strike jamb for single door openings, two per head for pairs, except on gasketed or weather-stripped frame product. Silencers shall be supplied and installed by others.

- g. Welding:
 - (1) Perimeter face joints (flush or indented) shall be continuously welded internally or externally. Flush face joints shall be finished smooth with seamless faces. Rabbets and soffits shall be continuously welded internally.
 - (2) Internal flush face joints shall be continuously welded and finished smooth
 - (3) Members at internal indented intersections shall be securely welded to concealed reinforcements and have hairline face seams.
 - (4) All other intersection elements shall have hairline seams.
 - (5) Provide welded frames with temporary steel spreader bar welded to the feet of the jambs or mullions to serve as bracing during shipping and handling only. Spreader bars to be removed before installation.
 - h. Hardware Reinforcements and Preparations:
 - (1) Frames shall be mortised, reinforced, drilled and tapped at the factory for templated hardware only, in accordance with the approved hardware schedule and templates provided by the hardware supplier. Where surface mounted non-templated hardware apply, frames shall be reinforced, with drilling and tapping done by others in the field.
2. Minimum steel thickness for hardware reinforcements shall be as follows:
- a. Full Mortise Hinges and Pivots: 0.184 inch.
 - b. Continuous Hinges: 0.067 inch.
 - c. Strikes, Pivots, Concealed Holders, or Surface Mounted Closers: 0.093 inch.
 - d. Overhead Stops: 0.093 inch.
 - e. Plaster Guards: Formed from same material as frames, not less than 0.016-inch thick steel sheet to close off interior of openings; place at back of hardware cutouts where mortar or other materials might obstruct hardware installation and operation.
3. Floor Anchors: Provide floor anchors for frames, unless indicated otherwise.
- a. Formed from same material and thickness as frames, but not less than 0.053 inch thick.
 - b. Weld anchors to bottom of jambs and mullions with at least four spot welds per anchor. Provide two holes for fastening to substrate.

4. Jamb Anchors: Frames shall be provided with anchorage appropriate to frame and wall construction. Anchor requirements below are in addition to floor anchors.
- a. a. Masonry Anchors: Adjustable jamb anchors of the strap and stirrup or T-strap type not less than 0.053 inch thickness. Straps shall be not less than 2 inches by 10 inches in size, corrugated or perforated. Jamb anchors shall be placed at a maximum of 18 inches from top and bottom of openings. The minimum number of anchors spaced at maximum 32 inches on center, provided on each jamb, based on the over-all frame height, shall be as follows:
 - (1) Up to 60 inches: 3 jamb anchors and one floor anchor.
 - (2) Greater than 60 inches, up to 90 inches: 3 jamb anchors and one floor anchor.
 - (3) Greater than 90 inches, up to 96 inches: 4 jamb anchors and one floor anchor.
 - (4) Greater than 96 inches: 5 jamb anchors plus one for each 24 inches or fraction thereof, spaced at 32 inches maximum between anchors and one floor anchor.
 - b. Stud Wall Anchors: Combination anchor, not less than 0.053 inch thickness. Jamb anchors shall be placed at a maximum of 18 inches from top and bottom of openings. The minimum number of anchors spaced at maximum 32 inches on center, provided on each jamb, based on the over-all frame height, shall be as follows:
 - (1) Up to 86 inches: 3 jamb anchors and one floor anchor.
 - (2) Greater than 86 inches, up to 96 inches: 4 jamb anchors and one floor anchor.
 - (3) Greater than 96 inches: 5 jamb anchors plus one for each 24 inches or fraction thereof, spaced at 32 inches maximum between anchors and one floor anchor.
 - c. Compression Anchors: Provide slip-on drywall frames for installation in stud partitions with an adjustable compression anchor in each jamb and provide for secure attachment of each jamb base to stud runners. Provide anchor straps on both sides of bottom of frame jambs to receive screw fasteners.
 - d. Existing Wall Anchors: Provide countersunk holes to receive 0.375 inch diameter screw fasteners, with a spacer within the jamb profile. Place anchors a maximum of 6 inches from the top and bottom of the frame, with intermediate spacing at a maximum of 24 inches on center. Provide anchors for installation by others.

- e. Glazing Moldings and Stops:
 - (1) Provide with steel moldings to secure glazing materials, in accordance with glazing sizes and thickness shown in the contract documents.
 - (2) Removable glass stops shall be channel shaped, not less than 0.032 inch thickness, with tight fitting butt or mitered corners, and secured with #6 minimum, corrosion resistant countersunk sheet metal screws.
 - (3) Metal surfaces to which glazing stops are applied, and the inside of the glazing stops shall be treated for maximum paint adhesion and painted with a rust inhibitive primer prior to installation of the stop.
 - (4) Glazing stops to have same zinc-coating and primer finish as the frames.
 - (5) Fire rated frames shall be prepared for listed glazing as required in accordance with the manufacturer's fire rating procedure.
 - (6) Fasteners: Zinc coated phillips head self-tapping screws. Fasteners located on secure side of opening.

2.06 SHOP PAINTNG:

- A. Preparation: After fabrication, fill and sand all tool marks and surface imperfections as required to make surfaces free from irregularities and dressed smooth.
 - 1. Galvanannealed surfaces shall be wiped clean, removing dirt, oils and metal filings.
 - 2. Galvanized surfaces shall be cleaned and etched in accordance with primer manufacturer requirements.
 - 3. At exterior hollow metal work, repair galvanized surfaces with zinc-rich primer.
- B. Primer: Rust inhibitive alkyd primer that permits latex and alkyd architectural coatings and two-component epoxies, aliphatic urethanes and oleo resinous industrial coating systems.
- C. Prime coat external surfaces including faces, and vertical, top and bottom edges. Prime coat concealed glazed opening surfaces and glazing stops.
 - 1. Fully cure primer before shipment.

PART 3 - EXECUTION

3.01 EXAMINATION:

- A. Verify that substrate conditions, whether existing or installed under other Sections, are as detailed in the construction drawings, and are acceptable for product installation in accordance with the manufacturer's instructions.
- B. Check the area of floor on which the frame is to be installed, and within the path of door swing, for flatness and levelness.
- C. Check slabs for location and depth of conduits and piping to ensure clearance from power actuated fasteners and post installation fasteners.
- D. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 PREPARATION:

- A. Check doors and frame for correct size, swing, fire-rating, and opening number. Verify adequate floor clearance above finish flooring scheduled for the door location, providing not less than 1/4 inch floor clearance from finish floor.
- B. Remove temporary steel spreader bars before installation. Dress smooth area of removal by grinding and filling, removing tool marks and surface imperfections. At exterior hollow metal work, repair galvanized surfaces with zinc-rich primer.
- C. Coat concealed frame surfaces to come in contact with mortar grout with a field applied monolithic bituminous barrier coating.

3.03 INSTALLATION:

- A. General Installation: Install hollow metal work plumb, level, rigid and in true alignment. Comply with According to HMMA 840, manufacturer's instructions and the following. Install labeled fire doors and frames according to NFPA 80.
- B. Hollow Metal Frames:
 - 1. Set frames in proper location, temporarily braced, shimmed and held in position until permanently anchored.
 - a. Properly space frame using wood template not less than 1 inch thick, that is nearly full depth of frame and of proper spacing width during setting and anchoring of frames to maintain proper width, with frame plumb and square without twists. Provide additional spreader at mid height to correct or prevent bowing of frames and secure to maintain proper opening and clearance tolerances. Remove temporary braces necessary for installation after frames have been properly set and secured.

- b. Where frames are fabricated and shipped in sections, field splice at approved locations by welding face joint continuously or mechanical splice with recessed screws and filled. Dress smooth by grinding and filling, removing tool marks and surface imperfections. At exterior hollow metal work, repair galvanized surfaces with zinc-rich primer.
- c. Floor Anchors: Provide for each jamb and mullion, and secure to substrate with not less than two power-actuated fasteners or post installation screw fasteners per anchor.
- d. Masonry Walls: Masonry anchors, set into mortar joints and grouted as masonry installation progresses. Provide floor anchor at each jamb, in addition to wall anchors.
 - (1) Coordinate installation of silencers in frames before mortar grout placement.
- e. Stud Partitions: Screw attach stud wall anchors to studs. Provide floor anchor at each jamb, in addition to wall anchors. Use galvanized fasteners at exterior wall locations.
- f. In-Place Stud Partitions: Adjust compression anchors to secure frames in proper position. Screw attach jamb bottoms to framing on both sides of each jamb.
- g. In-Place Masonry or Concrete: Existing wall anchors, secured to substrate with post installation screw anchors. Countersink fastener heads, fill and finish flush and not visible after finish painting.
- h. Installation Tolerances: During the setting and securing of frames check and correct as necessary for opening width, opening height, squareness, alignment, twist and plumbness. Installation tolerances shall be maintained within the following limits.
 - (1) Opening Width: Measured from rabbet to rabbet at top, middle and bottom of frame; plus 1/16 inch, minus 1/32 inch.
 - (2) Opening Height: Measured vertically between the frame head rabbet and top of floor or bottom of frame minus jamb extensions at each jamb and across the head; plus 1/16 inch, minus 1/32 inch.
 - (3) Squareness: Measured at rabbet on a line from jamb, perpendicular to frame head; not to exceed 1/16 inch.
 - (4) Alignment: Measured at jambs on a horizontal line parallel to the plane of the face; not to exceed 1/16 inch.

- (5) Twist: Measured at opposite face corners of jambs on parallel lines perpendicular to the plane of the door rabbet; not to exceed 1/16 inch.
- (6) Plumbness: Measured at the jambs on a perpendicular line from the head to the floor; not to exceed 1/16 inch.

C. Glazing Moldings and Stops

- 1. Coordinate installation with Division 08 Section - Glazing and with hollow metal manufacturer's instructions. Screw attach with stops with uniformly spaced countersunk flathead or oval head fasteners to hold stops in position tight to opening without gaps or displacement.

3.04 CLEANING:

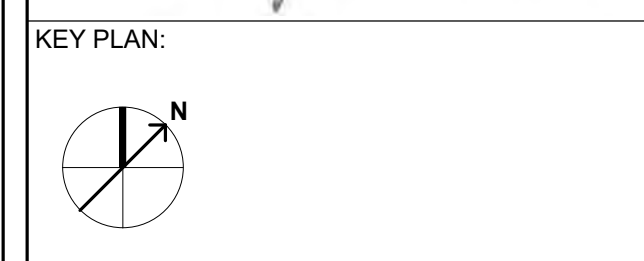
- A. Clean surfaces made dirty by field work.
- B. Metallic-Coated Steel Surfaces: At hollow metal work exposed to the exterior, repair galvanized surfaces with zinc-rich primer.
- C. Primer Touchup: Surfaces damaged from storage, handling and installation operations shall be sanded smooth and touch up with compatible rust inhibitive primer.

3.05 CLOSEOUT ACTIVITIES:

- A. Provide in accordance with Section 01 77 00.

END OF SECTION

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REVISIONS:

REV. NO.	DATE	DESCRIPTION	BY
1	3/12/25	ADDENDUM 2	SB

PRIMARY:
AECOM
500 ENTERPRIS DRIVE, SUITE 1A
ROCKY HILL, CT 06067
WWW.AECOM.COM

CONSULTANT:

GNHWPCA PROJECT NUMBER
SSF2018-04

WASTEWATER LABORATORY
CONVERSION PROJECT

AECOM PROJECT NUMBER 60729146
SHEET TITLE:
1ST FLOOR - PLUMBING PLAN

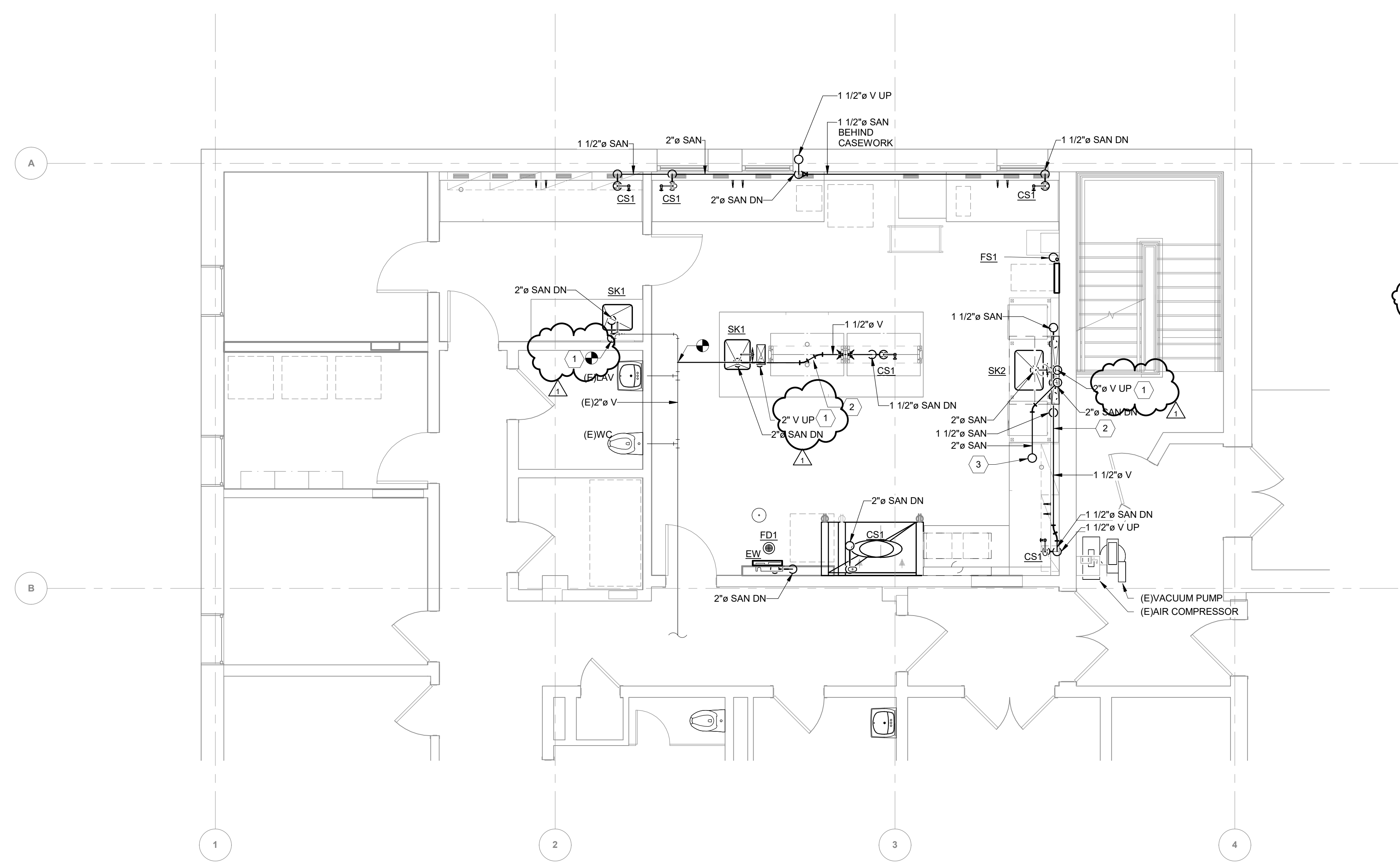
DISCIPLINE:
PLUMBING

DESIGN BY: DRAWN BY: CHECKED BY: APPROVED BY:
STB STB NDG EJM

SCALE: AS NOTED DATE: 2/11/2025
BID DOCUMENTS

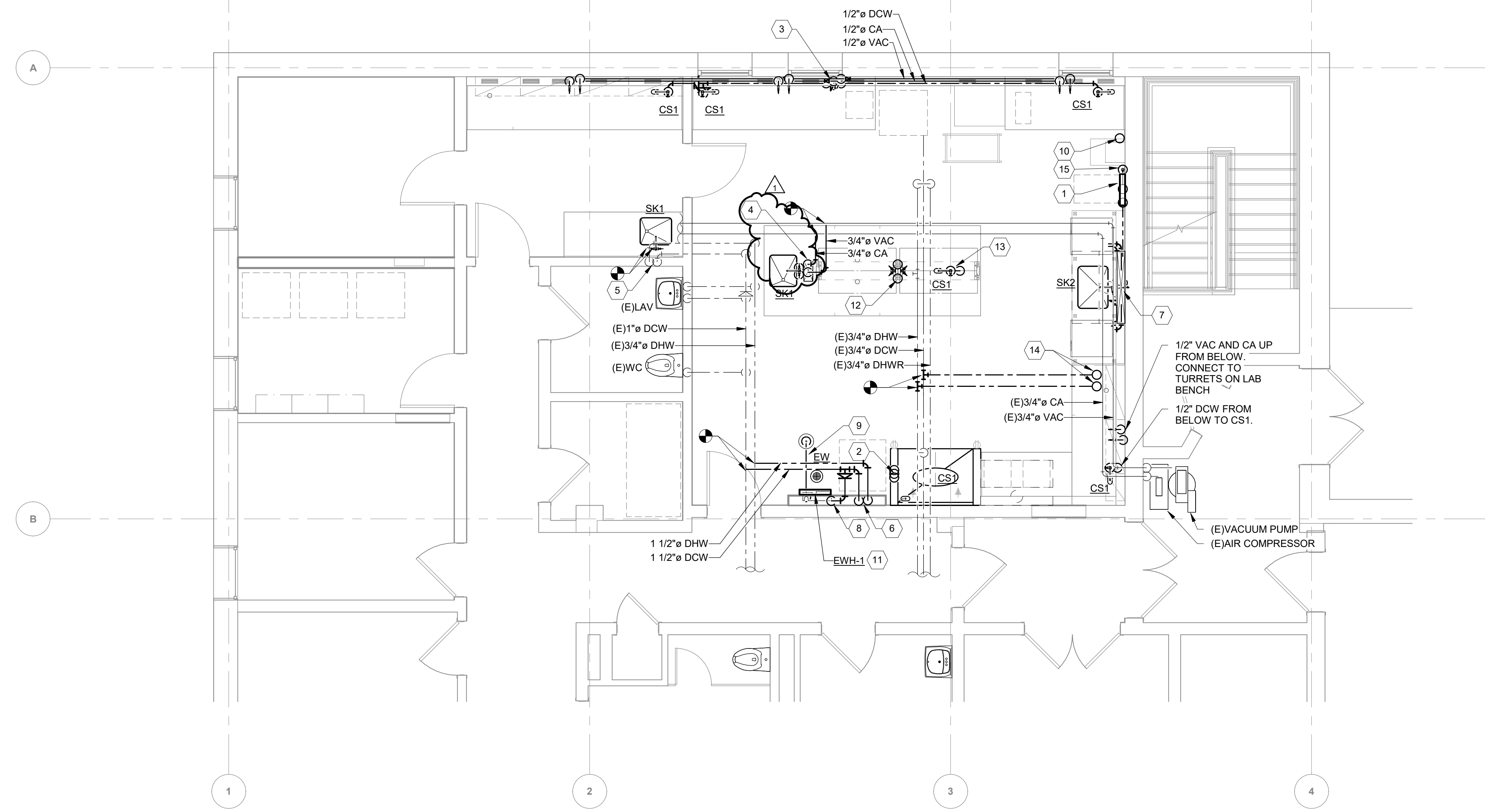
SHEET NUMBER:

P1.100



- KEYNOTES:**
1. VENT UP, CONNECT TO EXISTING VENT ABOVE CEILING.
 2. 1 1/2\"/>

1 SANITARY DRAINAGE PLAN - LEVEL 1
Scale: 1/4" = 1'-0"



- KEYNOTES:**
1. RELOCATED EWH. CONNECT DCW TO EWH AND PROVIDE IN-LINE SEDIMENT FILTER. PROVIDE NEW HOT WATER PIPING FROM EWH TO SK3. RUN PIPING ALONG WALL BEHIND DISHWASHER AND TABLE.
 2. 1/2" VAC, CA, AND DCW UP FROM BELOW. CONNECT VAC AND CA TO TURRETS AND CONNECT DCW TO CS1 IN FUME HOOD.
 3. 3/4" VAC, CA, AND DCW UP FROM BELOW. ROUTE PIPING BEHIND CASEWORK AND CONNECT 1/2" VAC AND CA TO TURRETS AND 1/2" DCW TO CS1 AT EACH LAB STATION (3).
 4. 3/4" VAC AND CA DOWN TO BASEMENT WITH PLUMBING RISER.
 5. (E)DCW AND (E)DHW DOWN. CONNECT TO SK1. PROVIDE ADDITIONAL PIPING AND FITTINGS AS NEEDED TO MAKE CONNECTION.
 6. DCW AND DHW DOWN TO BASEMENT WITH PLUMBING RISER.
 7. DCW UP FROM BELOW. EXTEND DCW TO SK2 AND BOTH DISHWASHERS.
 8. PROVIDE 1 1/4" DCW TO EWH-1 INLET. EXTEND TEMPERED WATER LINE FROM EWH OUTLET TO EMERGENCY SAFETY STATION.
 9. 1" TEMPERED WATER FROM SAFETY STATION TO EMERGENCY SHOWER HEAD.
 10. 3/4" DCW WATER UP FROM BELOW. CONNECT TO AUTOCLAVE AND BARNSTEAD LAB TOWER. PROVIDE IN-LINE SEDIMENT FILTER. SEE ARCHITECTURAL LAB PLANS FOR EQUIPMENT LAYOUT. SEE PLUMBING DIAGRAMS ON PAGE P7.000.
 11. ELECTRIC WATER HEATER, EWH-1, TO SERVE EMERGENCY SAFETY STATION. MOUNT HEATER TO STUD WALL ABOVE CEILING. PROVIDE BLOCKING FOR INSTALLATION AS NEEDED.
 12. 3/4" VAC AND CA UP FROM BELOW. ROUTE PIPING THROUGH LAB BENCH SHELVING ASSEMBLY AND CONNECT TO TURRETS.
 13. 1/2" DCW UP TO CS1 AT LAB BENCH.
 14. 3/4" DCW AND DHW UP TO SECOND FLOOR AND CAP FOR FUTURE. PROVIDE ISOLATION VALVES ABOVE FIRST FLOOR CEILING AS CLOSE TO THE MAIN BRANCHES AS POSSIBLE TO MINIMIZE POTENTIAL DEAD-LEGS.
 15. 3/4" DCW TO WALL MOUNTED HOSE REEL, HR1. SEE DIAGRAM ON PAGE P7.000.

2 PRESSURE PIPING PLAN - LEVEL 1
Scale: 1/4" = 1'-0"



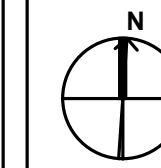
PROJECT LOCATION:
345 East Shore Parkway, New Haven, Connecticut

CONTRACT NO.:
60729146

PROJECT SUBMISSION PHASE:
100% DRAWING SET

REGISTRATION STAMP:

KEY PLAN:



REVISIONS:

REV. NO.	DATE	DESCRIPTION	BY
1	3/12/2025	FANS AND MAKE UP AIR UNIT ISOLATED FROM CONTROL BY BMS	

PRIMARY:



500 ENTERPRISE DRIVE, SUITE 1A
ROCKY HILL, CT 06067
WWW.AECOM.COM

CONSULTANT:

60729146

WASTEWATER LABORATORY
CONVERSION PROJECT

AECOM PROJECT NUMBER 60729146

SHEET TITLE:
SCHEDULE 1

DISCIPLINE:
MECHANICAL

DESIGN BY: DRAWN BY: CHECKED BY: APPROVED BY:
OD JT OD EA

SCALE: AS NOTED DATE: 12/12/24

SHEET NUMBER:

M5.100

UNIT NO.	LOCATION	SERVICE	TYPE	FAN CHARACTERISTICS						ELECTRICAL CHARACTERISTICS						MANUFACTURER & MODEL NO.	
				BLADE TYPE	CFM	S.P. (IN. WC)	MAX. BHP	FAN RPM	SONES	DRIVE	HP	VOLTS	HZ	PHASE	FLA		VFD
EF-R-1	ROOF	FLUME HOOD EX.	UPBLAST ROOF MOUNTED	FC	600	1.5	0.4	2278	6.7	DIRECT	1/2	115	60	1	9.8	1	GREENHECK MF CUBE-100-HP
EF-R-2	ROOF	(2) CANOPY HOOD EX.	UPBLAST ROOF MOUNTED	FC	1000	1.5	0.54	1811	10.5	DIRECT	3/4	115	60	1	13.8	1	GREENHECK MF CUBE-140-HP
EF-R-3	ROOF	GENERAL EX.	DOWNBLAST ROOF MOUNTED	FC	360	1.0	0.18	1155	5.6	DIRECT	1/4	115	60	1	5.8	1	GREENHECK MF GB-100HP-4

GENERAL NOTES:
1. ROOFTOP FANS TO BE PROVIDED WITH FAN MOUNTED NEMA 3R CONTROL BOX WITH VFD & DISCONNECT BY INSTALLING CONTRACTOR.
2. EF-R-3 FAN VFD TO BE INTEGRATED WITH NEW INTERLOCK PREPARED BY CONTROLS VENDOR.
3. EXHAUST FAN TO BE PROVIDED MANUFACTURER 20" HEIGHT ROOF CURB AND DISCONNECT SWITCH.
4. FANS TO CONNECT TO BUILDING BMS AND FIRE ALARM SYSTEM FOR MONITORING.
5. PROVIDE POLYESTER COATING FOR EF-R-1.
6. PROVIDE MOTORIZED BACKDRAFT DAMPER, ALUMINUM ROOF CURB, STAINLESS STEEL BIRDSCREEN, AND TEFC MOTOR.

TAG	APPLICATION	MANUFACTURER & MODEL NO.	FACE DIMENSIONS OR SLOT SIZE	NECK SIZE	CFM RANGE	NC VALUE	MATERIAL	FINISH
SD-A	SUPPLY	TITUS MODEL OMNI	12" x 12"	8"Ø	25 - 125	< 20	STEEL	WHITE
SD-B	SUPPLY	TITUS MODEL OMNI	24" x 24"	8"Ø	50 - 200	< 20	STEEL	WHITE
RG-A	RETURN	TITUS MODEL Z3RL	12" x 12"	10" x 10"	0 - 275	< 20	STEEL	WHITE
RG-B	RETURN	TITUS MODEL Z3RL	24" x 24"	22" x 22"	280 - 1000	< 20	STEEL	WHITE
EG-A	EXHAUST	TITUS MODEL Z3RL	12" x 12"	8" x 8"	0 - 200	< 30	STEEL	WHITE
EG-B	EXHAUST	TITUS MODEL Z3RL	24" x 24"	12" x 12"	205 - 450	< 30	STEEL	WHITE

GENERAL NOTES:
1. COORDINATE AIR TERMINAL FRAME, BORDER TYPES & FINISHES WITH ARCHITECTURAL REFLECTED CEILING PLAN. AIR TERMINALS MUST BE COMPATIBLE WITH NEW CEILING TYPES.
2. ALL DUCTED AIR TERMINALS TO BE BALANCED BY VOLUME DAMPERS LOCATED IN BRANCH DUCTWORK UNLESS OTHERWISE NOTED IN SCHEDULE.
3. PROVIDE CABLE-OPERATED VOLUME DAMPERS FOR ALL DAMPERS LOCATED ABOVE INACCESSIBLE CEILINGS.
4. PROVIDE BLANK-OFF PLATES FOR 3-WAY DIFFUSERS WHERE INDICATED ON PLANS. INCREASE NECK DIAMETER TO NEXT SIZE. REFER TO FLOOR PLANS FOR TAGS.
5. PROVIDE CONCEALED MOUNTING TYPES FOR ALL SURFACE MOUNTED REGISTERS AND GRILLES.
6. USE THIS SCHEDULE FOR AIR TERMINAL SIZING UNLESS OTHERWISE NOTED ON PLANS.

UNIT TAG	SERVICE	MAKE UP AIR UNIT SCHEDULE 100% OUTSIDE AIR																
		BASIS OF DESIGN		SUPPLY FAN			HEATING			RE-HEAT			COOLING CAPACITY			ELECTRICAL		
		MFR	MODEL	TOTAL CFM	MIN OA CFM	ESP (IN.W.G)	OUTPUT (KW)	EAT(F)	LAT(F)	CAPACITY (MBH)	LAT (DBWB/F)	TOTAL (MBH)	SENSIBLE (MBH)	EAT (DBWB/F)	LAT (DBWB/F)	MCA	MOP	POWER (KVA)
MAU-R-1	LABORATORY	AACN	RQ-0033V	600	600	1.5	19	9.6	70	14.3	75/61	62.2	20.4	84.1/62	52.3/52.1	45	45	460/360

GENERAL NOTES:
1. PROVIDE SINGLE-POINT POWER CONNECTION AND FACTORY MOUNTED DISCONNECT SWITCH.
2. PROVIDE 24" ROOF CURB.
3. PROVIDE OUTDOOR INTAKE AND EXHAUST HOOD.
4. UNIT TO CONNECT TO BUILDING BMS AND FIRE ALARM SYSTEM FOR MONITORING.
5. INTERLOCK MAKE UP AIR UNIT WITH EF-R-1 AND EF-R-2 FANS.
6. PROVIDE 2 INCH MERV 8 PREFILTER AND 4 INCH MERV 13 FILTERS.

DUCTLESS SPLIT SYSTEM AIR CONDITIONING UNIT SCHEDULE																															
UNIT NO.		LOCATION		UNIT TYPE	AIR FLOW HEATING (CFM)	AIR FLOW COOLING (CFM)	O.A. CFM	EXT. S.P. (IN. WC)	COOLING CAPACITY (MBH)	INDOOR UNIT		OUTDOOR UNIT				EFFICIENCY		MANUFACTURER & MODEL No.		REMARKS											
INDOOR	OUTDOOR	INDOOR	OUTDOOR							EAT (DEG. F)	DB	WB	VOLTS	PHASE	MCA	FAN FLA	SOUND PRESSURE (dBA)	REFRIGERANT	VOLTS		PHASE	MCA	FAN FLA	BREAKER SIZE (AMPS)	EAT (DEG. F)	DB	WB	SOUND PRESSURE (dBA)	MINIMUM (SEER)	TEST PROCEDURE	INDOOR UNIT
HP-1-1,2	ACHP-1	LAB	OUTSIDE		(2) 438	(2) 376	-	-	(2) 17,720.6	(2) 11,995.0	80.0	67.0	208	1	1	0.65	31-36-41-46	R-410A	208	1	36	-	-	95.0	10.8	49/53	13.5	-	PKFY-P18NLMU	MXZ-SM36NAM2-U1	

REMARKS:
1. PROVIDE REMOTE WALL MOUNTED THERMOSTAT
2. PROVIDE WIND BARRIERS FOR OUTDOOR UNIT