**SECTION 000009 – ADDENDUM NUMBER 9**

**DATE: MARCH 18, 2026**

**TO: ALL BIDDERS**

**FROM: PERKINS & WILL**
**225 FRANKLIN STREET, SUITE 700**
**BOSTON, MA 02110**

**RE: WORCESTER SOUTH DIVISION FIRE STATION, WORCESTER, MA**

**THIS ADDENDUM FORMS A PART OF THE CONTRACT AND MODIFIES THE ORIGINAL DOCUMENTS DATED DECEMBER 2025.**

## PART 1 - GENERAL

**1.1** This addendum must be returned with plans and specifications (if not already returned) to have your deposit returned.

**1.2** This addendum modifies, amends, and supplements the Contract Documents for the above referenced project. This addendum is hereby made a part of the Contract Documents by reference and shall be as binding as though inserted in locations designated hereunder.

**1.3** Each general bidder shall be responsible for notifying all his non-filed sub-bidders and suppliers of the content of this addendum. No claim for additional compensation will be considered because of lack of knowledge of changes or modifications contained in this addenda.

**1.4** Questions or requests for clarification shall be in writing, addressed to Jeremy C. Flansburg, Assistant Purchasing Director at **PURCHASING DEPARTMENT,** and be sent flansburgjc@worcesterma.gov. Please include your name, phone number, and e-mail.

**1.5** Part 2 of this addendum indicates revisions to the Project Manual.

**1.6** Part 3 of this addendum indicates revisions to the Drawings.

**1.7** Part 4 of this addendum indicates clarification to Contractors Questions.

## PART 2 - SPECIFICATION

**2.1** **SECTION 00 01 10 – TABLE OF CONTENTS REPLACE** this section in its entirety.

**2.2** **SECTION 00 10 00 – INVITATION TO BID**
**REPLACE** this section in its entirety

**2.3** **SECTION 23 00 01 HEATING VENTILATION AND AIR CONDITIONING REPLACE** this section in its entirety.

**2.4** **SECTION 23 34 00 – HVAC FANS**
**DELETE** in Section 1.1 "Vehicle exhaust fan" and **ADD** "Refer to Section 23 35 16 "Vehicle Exhaust Extraction System" for vehicle exhaust fan requirements, performance data, and delegated design criteria."

**2.5** **SECTION 23 34 00 – HVAC FANS**
**DELETE** Section 2.3 Vehicle Exhaust Fan in its entirety.

**2.6** **SECTION 23 35 16 – VEHICLE EXHAUST EXTRACTION SYSTEM**
**ADD** this section in its entirety.

## PART 3 - DRAWINGS

**3.1** **DELETE** Drawing A17-20 and **INSERT** revised drawing
**3.2** **DELETE** Drawing M00.00 and **INSERT** revised drawing
**3.3** **DELETE** Drawing M00.02 and **INSERT** revised drawing
**3.4** **DELETE** Drawing M03.01 and **INSERT** revised drawing
**3.5** **DELETE** Drawing M04.01A and **INSERT** revised drawing
**3.6** **DELETE** Drawing M04.01B and **INSERT** revised drawing
**3.7** **DELETE** Drawing M04.01D and **INSERT** revised drawing
**3.8** **DELETE** Drawing M04.02A and **INSERT** revised drawing
**3.9** **DELETE** Drawing M04.02B and **INSERT** revised drawing
**3.10** **DELETE** Drawing M04.02C and **INSERT** revised drawing
**3.11** **DELETE** Drawing M04.02D and **INSERT** revised drawing

## PART 4 - CONTRACTOR QUESTIONS - NONE

**List of Attachments**
1. Section 00 01 00
2. Section 00 10 00
3. Section 23 00 01
4. Section 23 34 00
5. Section 23 35 16
6. Drawing A17-20
7. Drawing M00.00
8. Drawing M00.02
9. Drawing M03.01
10. Drawing M04.01A
11. Drawing M04.01B
12. Drawing M04.01D
13. Drawing M04.02A
14. Drawing M04.02B

14. Drawing M04.02C
15. Drawing M04.02D

**END OF ADDENDUM NUMBER 9**

**DOCUMENT 00 01 10**

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CITY OF WORCESTER
INVITATION TO RE-BID / NOTICE TO CONTRACTORS
**WORCESTER SOUTH DIVISION FIRE STATION PROJECT**
**25 Madison Street**
**Worcester, Massachusetts 01608**

The City of Worcester, the Awarding Authority, invites sealed pre-qualified trade bids for: WORCESTER SOUTH DIVISION FIRE STATION PROJECT in accordance with documents prepared by Perkins and Will, Inc., 225 Franklin Street, Suite 1100, Boston, MA 02110.

The Worcester South Division Fire Station will be located at 25 Madison Street, commonly referred to as the Registry of Motor Vehicles Ancillary Parking Lot located at the southwest corner of the intersection of Southbridge Street and Madison Street. The proposed building site is 22, 24, 26 Beacon Street, 25 Madison Street (currently owned by the Commonwealth of Massachusetts), and a portion of 165 Southbridge Street (to be conveyed to the City later). There are no known site conditions that would impact the potential project.

The new building will be a two-story mostly brick façade of approximately 30,000 square feet. The new building has six (6) overhead doors, multiple storage rooms, decontamination laundry facilities, apparatus floor bathrooms, workroom, SCBA room, custodial closet, radio watch/ready room, training tower, conference rooms, office support work room, dining/kitchen, study room, exercise room, locker/bathroom(s), mechanical room, bunk room, etc.

This work may consider early packages including but not limited to early sitework, structural (concrete and steel) bid, including foundation waterproofing. **Refer to the detailed schedule and phasing plan published herein.**

**Trade Bidders have been pre-qualified for this project. Bids will be received only from bidders that will be notified by the City as being pre-qualified. See below list of Pre-Qualified Trade Bidders.**

**SEALED FILED TRADE-RE-BIDS** for the WORCESTER SOUTH DIVISION FIRE STATION PROJECT will be received at the Worcester City Hall, Purchasing Division in Room 201, 455 Main Street, Worcester MA 01605 no later than **10:00 a.m., Wednesday, April 8, 2026**.

Pre-Qualified Filed Trade-Bids are required. Pre-Qualified Trade Bidders are as follows:

HVAC:
Adams Plumbing & Heating, Inc.
Araujo Bros. Plumbing & Heating
Arden Engineering
CAM HVAC & Construction, LLC
E. Amanti& Sons, Inc.
Fimbarr Mechanical
General Mechanical Contractors, Inc.
Harold Brothers Mechanical Contractors
KMD Mechanical Corp.
N.B. Kenney Company
Royal Steam Heater
Thomas E, Snowden
Veterans Development Corporation, Inc
William F. Lynch Co., Inc.

**PREQUALIFIED TRADE-BIDS must be** accompanied by:

(01) A fully executed **Trade Contractor Bid Form**, Specification Section 00 16 00

(02) **Informational Sheet**, See Section 3.3.

(03) **Non-Collusion Affidavit**, See Section 3.3.

(04) **Affidavit of Compliance**, See Section 3.3.

(05) **Tax Payment Certificate,** Specification Section 00 85 00.

(06) **Affidavit of Acknowledgment and Certificate of Compliance** for the City of Worcester Minority/Women Business Enterprise & Worker Utilization, **Form M/WBEP-Form EOO-101,** See Specification Section 00 95 00.

(07) I**nitial Statement and Certification of Compliance** with the Responsible Employer Ordinance**, Form REO-101 page 2,** See Specification Section 00 95 00.

(08) Provide Evidence of **Compliance with the Responsible Employer Ordinance (REO),** as per Specification Section 00 95 00.

(09) **Cori Compliance/Gender Identity & Expression Form,** See Specification Section 00 95 00.

(10) **Wage Theft Prevention Certification,** See Specification Section 00 95 00.

(11) **A Certificate of Eligibility** certifying the bidder's qualification, in the respective filed sub trade category being bid, issued by the Division of Capital Asset Management and Maintenance, DCAMM, showing that the Bidder has been approved to bid on projects the size and nature of this project. In order to be eligible to be awarded this contract, a bidder must be certified in the appropriate category and for the total Cost of the respective work including all alternates elected (if applicable) to be taken by the Owner.

(12) **Sub-Bidder Update Statement**, DCAMM Form. It is the Bidder's responsibility to obtain the necessary forms and make application to DCAMM in sufficient time for DCAMM to evaluate the application and issue a Certificate of Eligibility. A sample of the **Sub-Bidder Update Statement** (Updated March 30, 2023) is located at the end of Specification Section 00 15 00.

(13) **Bid deposit** for the sub-bid in the amount of **five (5) percent** of the value of the bid, or a bid bond.

(14) **Foreign Corporation Certificate of Registration** from the Commonwealth of Massachusetts State Secretary (if applicable).

**Plans and Specifications** will be available on March 18, 2026 and can be downloaded at: www.worcesterma.gov/. For any bid or document and any addenda that are received electronically, it is the responsibility of every bidder who receives this bid and all associated documents to check this website for any addenda. The City of Worcester accepts no liability to provide accommodation to bidders who submit a response based upon information obtained from its website. Bidders may not alter (manually or electronically) the bid language or any bid documents. Unauthorized modifications to the body of the bid, specifications, terms or conditions, which change the intent of this bid are prohibited and will disqualify a response.

**WAGE RATES** - Bids are subject to the provisions of M.G.L., Chapter 149, Section 44A to J inclusive, as amended to date, and such other Federal, State and Municipal laws or regulations.

Attention of bidders is particularly called to the requirements as to conditions of employment to be observed and to the fact that not less than the minimum wage rates set forth in the Contract Documents shall be paid on this project. Minimum wage rates are per M.G.L., Chapter 149, Sections 26 & 27 inclusive.

**MINORITY/WOMEN BUSINESS ENTERPRISE PROGRAM** - The City of Worcester has established goals for the participation of minorities and women workers, contractors, subcontractors, and suppliers on all City projects. Bids must demonstrate the contractor's ability to utilize minorities and women in all phases of this project. The City of Worcester has established a program to enhance contract opportunities to minority and women-owned businesses through its Minority/Women Business Enterprise Program. This program contains minimum participation goals of ten (10) percent by MBE's and fifteen (15) percent by WBE's calculated as a percentage of the total bid price. Further, each contractor shall make a good faith effort to maintain a workforce that is 38% people of color and 10% women. Accordingly, all general bidders and filed

sub-bidders must execute and submit with their respective bids M/WBEP **Form EOO-101**, Contractor's and Filed Subcontractor's Certification.

**RESPONSIBLE EMPLOYER ORDINANCE** - The performance of the work derived from this bid is subject to the City's Responsible Employer Ordinance, Chapter 2, Section 35 of WRO (2008). Accordingly, all general bidders and filed sub-bidders must execute and submit with their respective bids **Form REO-101 page 2**, Contractor's and Filed Subcontractor's Initial Certification.

**NOISE ORDINANCE – All Contractors must adhere to the provision of § 1A(e)(9) of chapter nine of the Revised Ordinances of the city by limiting their on-site, noise producing construction and related work to the hours specified by said ordinance.**

**PRE-BID CONFERENCE** – No pre-bid conference

**QUESTIONS** - All questions and requests for clarifications or interpretations of the meaning of the Contract Documents shall be in writing or E-Mail, addressed to Jeremy C. Flansburg, Assistant Purchasing Director, City of Worcester, Purchasing Department, City Hall, 455 Main Street, Worcester, MA 01605, phone: (508) 799-1220, email: flansburgjc@worcesterma.gov and to be given consideration must be received by 10:00 a.m., Wednesday, April 1, 2026.

**WORK UNDER SEPARATE CONTRACTS AND BY OWNER** – The Owner may do other work during construction with its own forces or by separate contract.

**COMMENCEMENT OF WORK AND TIME OF COMPLETION** – Is as published in the specifications.

The Awarding Authority reserves the right to waive any informality in, or to reject any or all bids, if it were in the public interest to do so. In inviting trade bids in connection with such a contract, the Awarding Authority shall reserve the right to reject any trade bid on any sub-trade, if it determines that such trade bid does not represent the trade bid of a person competent to perform the work as specified, or that less than three (3) such trade bids were received and that the prices are not reasonable for acceptance without further competition.

The City of Worcester is an equal opportunity/affirmative action employer.

City of Worcester, Massachusetts

Executive Office of the City Manager

**END OF 001000 DOCUMENT**

# SECTION 23 00 01

# HEATING, VENTILATING AND AIR CONDITIONING

# (Trade Bid Required)

## PART 1 - GENERAL

1.1 GENERAL PROVISIONS

A. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all Sections within DIVISION 1 - GENERAL REQUIREMENTS which are hereby made a part of this Section of the Specifications.

B. Time, Manner and Requirements for Submitting Trade Bids:

1. Trade bids for work under this Section shall be for the complete work and shall be filed in a sealed envelope with the Owner at a time and place as stipulated in the "INSTRUCTIONS TO BIDDERS".
   a. The following should appear on the upper left hand corner of the envelope:
   b. NAME OF TRADE BIDDER: (Insert name of trade bidder)
   c. TRADE BID FOR SECTION: 23 00 01 – HEATING, VENTILATION, AND AIR CONDITIONING
   d. Each trade bid submitted for work under this Section shall be on forms furnished by the Owner as required by Section 8 of Chapter 149A of the General Laws, as amended. Trade bid forms may be obtained at the office of the Owner.

2. Trade bids filed with the Owner shall be accompanied by BID BOND or CASH or CERTIFIED CHECK or TREASURER'S CHECK or CASHIER'S CHECK issued by a responsible bank or trust company payable to the City of Worcester in the amount of five percent of the trade bid. A trade bid accompanied by any other form of bid deposit than those specified will be rejected.

C. Trade Sub-Bid Requirements:
1. Section 23 05 93 – TESTING ADJUSTING, AND BALANCING
2. Section 23 31 13, Section 23 33 00, Section 23 36 00, and Section 23 37 13 for sheetmetal work.
3. Section 23 07 13, Section 23 07 16, and Section 23 07 19 for insulation work.
4. Section 23 09 23 for temperature controls work.
~~4.~~5. Section 23 35 16 for Vehichle exhaust extraction system work.

D. Reference Drawings: The Work of this Trade Bid is shown on the following Contract Drawings:
1. 01-GENERAL Series

2. 23-HVAC Series

1.2 DESCRIPTION OF WORK

A. Work Included: Provide labor, materials and equipment necessary to complete the work of this Section, including but not limited to the following:

1. All Work of the following sections:
   a. 23-HEATING, VENTILATING AND AIR CONDITIONING sections
2. Firestopping for the Work of this Section, including cutting penetrations and firestopping; complying with requirements specified in Section 07 84 13 - PENETRATION FIRESTOPPING.
3. Core drilling for the Work of this Section.
4. Certified seismic restraints to meet the Commonwealth of Massachusetts Building Code applicable at the time the building permit is issued.
5. Coordination drawings and record drawings and similar requirements.
6. CAMIS excel spreadsheet data collection for Equipment Template and PM Procedure tabs as described in Section 01 77 00 – CLOSEOUT PROCEDURES
7. BIM modeling as specified in this Section and in Section 01 31 29 – COORDINATION DRAWINGS.

B. Alternates: Not Applicable.

C. Items to Be Installed Only: Install the following items as furnished by the designated Sections:

1. Section 26 00 01 – ELECTRICAL WORK
   a. Duct mounted smoke detectors.
   b. Emergency generator access.

D. Items to Be Furnished Only: Furnish the following items for installation by the designated Sections:

1. Section 03 30 00 – CAST-IN-PLACE CONCRETE:
   a. Pipe and duct sleeves for placement into formwork.
2. Section 04 20 00 – UNIT MASONRY:
   a. Access doors in masonry openings.
   b. Pipe and duct sleeves for placement into masonry openings.
3. Section 07 00 01 –ROOFING AND FLASHING:
   a. Roof curbs.
4. Section 09 29 00 – GYPSUM BOARD ASSEMBLIES:
   a. Access doors in gypsum board openings.
   b. Pipe and duct sleeves for placement into gypsum board openings.
   c. Pipe and duct sleeves for placement into gypsum board shaft-wall openings.
5. Section 09 30 13 - TILING:
   a. Access doors in tile.
6. Section 09 51 13 – ACOUSTICAL PANEL CEILINGS:
   a. Access doors in acoustical tile.

7. Section 26 00 01 – ELECTRICAL WORK:
   a. Magnetic starters.
   b. DDC control panels.

E. Related Work: The following items are not included in this Section and will be performed under the designated Sections:

1. Section 03 30 00 - CAST-IN-PLACE CONCRETE for cutting and patching of concrete walls and for concrete equipment pads, manhole and thrust block requirements.
2. Section 05 12 00 - STRUCTURAL STEEL FRAMING for structural supports necessary to distribute loading from equipment to roof or floor.
3. Section 07 00 01 –ROOFING AND FLASHING for flashing of roof mounted equipment and roofing penetrations.
4. Section 07 84 13 – PENETRATION FIRESTOPPING for coordination of floor and wall penetrations with firestopping contractor.
5. Section 09 29 00 – GYPSUM BOARD for coordination with gypsum ceilings and walls.
6. Section 09 51 13 – ACOUSTICAL PANEL CEILINGS for coordination with acoustical ceilings.
7. Section 22 00 01 – PLUMBING for cold water make-up to mechanical equipment as indicated on the Drawings.
8. Section 26 00 01 - ELECTRICAL WORK for electrical power to mechanical equipment as indicated on the Drawings.
9. Section 31 20 00 – EARTH MOVING for excavation and backfilling

F. Perform work and provide material and equipment as shown on Drawings and as specified or indicated in this Section of the Specifications. Completely coordinate work of this Section with work of other trades and provide a complete and fully functional installation.

G. Give notices, file plans, obtain permits and licenses, pay fees and back charges, and obtain necessary approvals from authorities that have jurisdiction as required to perform work in accordance with all legal requirements and with Specifications, Drawings, Addenda and Change Orders, all of which are part of Contract Documents.

**END OF SECTION**

# SECTION 23 34 00

# HVAC FANS

## (Part of Work of Section 23 00 01 – MECHANICAL, Trade Bid Required)

## PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Fans, utility set.
~~2. Vehicle exhaust fan~~
2. Ventilators, centrifugal - roof-mounted upblast and sidewall mounted.
3. Refer to Section 23 35 16 "Vehicle Exhaust Extraction System" for vehicle exhaust fan requirements, performance data, and delegated design criteria.

1.2 ACTION SUBMITTALS

A. Product Data:

1. For each type of product.
   a. Construction details, material descriptions, dimensions of individual components and profiles, and finishes for fans.
   b. Rated capacities, furnished specialties, and accessories for each fan.
   c. Fans:
      1) Certified fan performance curves with system operating conditions indicated.
      2) Certified fan sound-power ratings.
      3) Fan construction and accessories.
      4) Motor ratings and electrical characteristics, plus motor and electrical accessories.
      5) Fan speed controllers.
   d. Material thickness and finishes, including color charts.
   e. Dampers, including housings, linkages, and operators.

B. Shop Drawings:

1. Include plans, elevations, sections, and attachment details.
2. Include details of equipment assemblies. Indicate dimensions, weights, loads, required clearances, method of field assembly, components, and location and size of each field connection.
3. Include diagrams for power, signal, and control wiring.
4. Design Calculations: Calculate requirements for selecting vibration isolators **and seismic restraints** and for designing vibration isolation bases.
5. Vibration Isolation Base Details: Detail fabrication, including anchorages and attachments to structure and to supported equipment. Include adjustable motor bases, rails, and frames for equipment mounting.

C. Delegated Design Submittal: For vibration isolation**, supports, and seismic restraints** indicated to comply with performance requirements and design criteria, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.

1. Design Calculations: Calculate requirements for selecting vibration isolators**, supports, seismic restraints, and for designing vibration isolation bases**.

1.3 INFORMATIONAL SUBMITTALS

A. Coordination Drawings: Floor plans showing fan rooms and fan system layouts, reflected ceiling plans, and other drawings required to illustrate relationships between components and adjacent structural and mechanical elements. Show support locations, type of support, and weight on each support. Indicate and certify field measurements.

B. Seismic Qualification Data: Certificates, for fans, accessories, and components, from manufacturer.

1. Basis for Certification: Indicate whether withstand certification is based on actual test of assembled components or on calculation.
2. Dimensioned Outline Drawings of Equipment Unit: Identify center of gravity and locate and describe mounting and anchorage provisions.
3. Detailed description of equipment anchorage devices on which the certification is based and their installation requirements.

C. Startup service reports.

D. Field quality-control reports.

1.4 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: For fans and ventilators, include the following:

1. Operation in normal and emergency modes.
2. Operation and maintenance manuals.

1.5 MAINTENANCE MATERIAL SUBMITTALS

A. Furnish extra materials that match products installed and that are packaged with protective coverage for storage and identified with labels describing contents.

1. Belts: **One** set(s) for each belt-driven unit.

## PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by an NRTL, and marked for intended location and application.

B. NFPA Compliance: Comply with NFPA 90A for design, fabrication, and installation of unit components.

C. ASHRAE 62.1 Compliance: Applicable requirements in ASHRAE 62.1, Section 5 - "Systems and Equipment" and Section 7 - "Construction and Startup."

D. ASHRAE/IES 90.1 Compliance: Applicable requirements in ASHRAE/IES 90.1, Section 6 - "Heating, Ventilating, and Air-Conditioning."

E. Delegated Design: Engage a qualified professional engineer, as defined in Section 014000 "Quality Requirements," to design vibration isolation**, supports, and seismic restraints**, including comprehensive engineering analysis by a qualified professional engineer, using performance requirements and design criteria indicated.

F. Seismic Performance: Fans and ventilators are to withstand the effects of earthquake motions determined in accordance with **ASCE/SEI 7**. See Section 230548 "Vibration and Seismic Controls for HVAC."

1. The term "withstand" means "the unit will remain in place without separation of any parts from the device when subjected to the seismic forces specified **and the unit will be fully operational after the seismic event**."
2. Component Importance Factor: **1.5**

2.2 FANS, UTILITY SET

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Aerovent; a division of Twin City Fan Companies, Ltd.
2. Greenheck.
3. Loren Cook Company.

B. Source Limitations: Obtain fan utility sets from single manufacturers.

C. Description:

1. Factory-fabricated, -assembled, -tested, and -finished, **belt-**driven centrifugal fan utility vent sets, consisting of housing, wheel, fan shaft, bearings, motor, drive assembly, and support structure.

D. Standards: Comply with UL 705.

E. Housings:

1. Housing Material: **Reinforced steel**
2. Housing Coating: **Powder-baked enamel**
3. Formed panels to make curved-scroll housings with shaped cutoff.
4. Panel Bracing: Steel angle- or channel-iron member supports for mounting and supporting fan scroll, wheel, motor, and accessories.
5. Discharge Arrangement: Fan scroll housing field rotatable to any of **seven** discharge positions. Provide fan with discharge positioned in proper direction to minimize connected duct turns.

F. Wheels:

1. Wheel Configuration: SWSI, with hub keyed to shaft.
2. Wheel and Blade Materials: **Steel**

a. Spark-Resistant Construction: Classified in accordance with AMCA 99, Section 8 Type B

3. Wheel and Blade Coating: **None**

4. Backward-Inclined Airfoil Blades:
   a. Aerodynamic design.
   b. Heavy backplate.
   c. Hollow die-formed, airfoil-shaped blades continuously welded at tip flange and backplate.

5. Backward-Inclined Curved Blades:
   a. Curved design.
   b. Heavy backplate.
   c. Single-thickness blades continuously welded at tip flange and backplate.

6. Backward-Inclined Flat Blades:
   a. Flat design.
   b. Heavy backplate.
   c. Single-thickness blades continuously welded at tip flange and backplate.

7. Forward-Curved Blades:
   a. Curved design.
   b. Heavy backplate.
   c. Single-thickness blades continuously welded or riveted at tip flange and backplate.

G. Shafts:

1. Turned, ground, and polished steel; keyed to wheel hub. First critical speed at least 1.4 times maximum class speed.

H. Bearings:

1. Heavy-duty regreasable ball or roller type in a cast-iron pillowblock housing.
2. Ball-Bearing Rating Life: ABMA 9, **L10 of 80,000 hours**
3. Roller-Bearing Rating Life: ABMA 11, **L10 of 80,000 hours**
4. Extend grease fitting to accessible location outside of unit.

I. Belt Drive:

1. Factory mounted, with final alignment and belt adjustment made after installation.
2. Service Factor Based on Fan Motor Size: **1.5**
3. Fan Pulleys: Cast iron or cast steel with split, tapered bushing; dynamically balanced at factory.

4. Motor Pulleys: Adjustable pitch for use with motors through **5** hp; fixed pitch for use with motors larger than **5** hp. Select pulley so pitch adjustment is at the middle of adjustment range at fan design conditions.
5. Belts: Oil resistant, nonsparking, and nonstatic; matched sets for multiple belt drives.
6. Belt Guards: Comply with OSHA and fabricate in accordance with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," **0.146-inch-**thick, **3/4-inch (20-mm)** diamond-mesh wire screen welded to steel angle frame or equivalent, prime coated. Secure to fan or fan supports without short-circuiting vibration isolation. Include provisions for adjustment of belt tension, lubrication, and use of tachometer with guard in place.

J. Motor Enclosure: **Totally enclosed, fan cooled**

K. Accessories:

1. Inlet and Outlet: Flanged.
2. Companion Flanges: Rolled flanges for duct connections of same material as housing.
3. Backdraft Dampers: Gravity actuated with counterweight and interlocking aluminum blades, with felt edges in steel frame installed on fan discharge.
4. Access Door: Gasketed door in scroll with latch-type handles.
5. Scroll Dampers: Single-blade damper installed at fan scroll top with adjustable linkage.
6. Inlet Screens: Removable wire mesh.
7. Outlet Screens: Removable wire mesh.
8. Belt Guard: OSHA-compliant, fabricated in accordance with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible." Diamond mesh wire screen welded to steel angle frame or equivalent, prime coated.
9. Shaft Cooler: Metal disk between bearings and fan wheel, designed to dissipate heat from shaft.
10. Drain Connections: NPS 3/4 (DN 20) threaded coupling drain connection installed at lowest point of housing.
11. Weather Hoods: Weather resistant with stamped vents over motor and drive compartment.
12. Discharge Dampers: Assembly with **parallel** blades constructed of two plates formed around, and to, shaft, channel frame, and sealed ball bearings, with blades linked outside of airstream to single control lever of same material as housing.
13. Grease Collection Trough and Receiver: For restaurant exhaust application.
14. Speed Controller: Solid-state control to reduce speed from 100 to less than 50 percent.

~~2.3 VEHICLE EXHAUST FAN~~

~~A. MANUFACTURERS – Plymovent STR system or approved equal by:~~

~~1. Magne-Grip~~
~~2. Nederman~~

~~B. System description: Vehicle Exhaust Rail, hose reels and drops are designed by other trades and pre-purchased by CM.~~

~~C. Automatic Control Panel shall be Plymovent designed to:~~

~~1. Automatically energize the exhaust blower by a pressure sensor, the moment any vehicle engine connected to the system is started as signaled through the BMS.~~
~~2. The control panel shall contain the motor starter, overload, and solid-state circuit card with timer adjustments from 180 to 360 seconds, fused low voltage transformer, in a NEMA 12 rated key lock electrical enclosure.~~
~~3. On the exterior the panel shall be soft touch AUTO START- STOP - MANUAL RUN membrane controls and system indicator LED lights.~~
~~4. Panel shall require 120 volt, 1 phase power, maximum of 16 amps.~~

~~D. Fan data shall be as scheduled on the drawings~~

~~E. Fan shall be Class B spark resistance construction of powder coated steel housing and aluminum wheel with shaft seals.~~

~~F. Provide with air filtration system (VEF filter) designed to reduce the diesel exhaust particulate from the exhaust blower discharge. The 20 gauge galvanized steel cabinet shall have the easy access to the filter inside and supplied with a micro fiberglass bag filter. Provide spare filters.~~

~~2.4~~2.3 VENTILATORS, CENTRIFUGAL - ROOF-MOUNTED UPBLAST OR SIDEWALL MOUNTED

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Aerovent; a division of Twin City Fan Companies, Ltd.

2. Greenheck Fan Corporation.
3. Loren Cook Company.

B. Source Limitations: Obtain roof-mounted upblast or sidewall-mounted centrifugal ventilators from single manufacturer.

C. Standards:

1. Comply with UL 705.
2. Power ventilators for use with restaurant kitchen exhaust are to comply with UL 762.

D. Configuration: Centrifugal **roof upblast** ventilator.

E. Housing: Removable **spun aluminum** square, one-piece aluminum base with venturi inlet cone.

1. Upblast Units: Provide spun-aluminum discharge baffle to direct discharge air upward, with rain and snow drains.

F. Fan Wheels: Aluminum hub and wheel with backward-inclined blades**; spark-resistant construction classified in accordance with AMCA 99, Section 8, Type B**

G. Belt Drives:

1. Resiliently mounted to housing.
2. Fan Shaft: Turned, ground, and polished steel; keyed to wheel hub.
3. Shaft Bearings: Permanently lubricated, permanently sealed, self-aligning ball bearings; minimum ABMA 9, **L10 of 100,000 hours.**
4. Fan Pulleys: Cast iron or cast steel with split, tapered bushing; dynamically balanced at factory.
5. Motor Pulleys: Adjustable pitch for use with motors through **5** hp. Select pulley so pitch adjustment is at the middle of adjustment range at fan design conditions. Provide fixed pitch for use with motors larger than **5** hp.
6. Fan and motor are isolated from exhaust airstream.

H. Accessories:

1. Variable-Frequency Motor Controller: Solid-state control to reduce speed from 100 to less than 50 percent.
2. Disconnect Switch: Nonfusible type, with thermal-overload protection mounted **outside** fan housing, factory wired through an internal aluminum conduit.

3. Bird Screens: Removable, 1/2-inch (13-mm) mesh, aluminum or brass wire.
4. Dampers: Counterbalanced, parallel-blade, backdraft dampers mounted in curb base; factory set to close when fan stops.
5. Motorized Dampers: Parallel-blade dampers mounted in curb base with electric actuator; wired to close when fan stops.
6. Mounting Pedestal: Galvanized steel with removable access panel.
7. Wall Mount Adapter: Attach wall-mounted fan to wall.

I. Prefabricated Roof Curbs: Galvanized steel; mitered and welded corners; 1-1/2-inch-(40-mm-) thick, rigid, fiberglass insulation adhered to inside walls; and 1-1/2-inch (40-mm) wood nailer. Size as required to suit roof opening and fan base.

1. Configuration: **Built-in cant and mounting flange**

## ~~2.5~~2.4 MOTORS

A. Comply with NEMA designation, temperature rating, service factor, and efficiency requirements for motors specified in Section 230500 "Common Work Results for HVAC."

B. Where variable-frequency drives are indicated or scheduled, provide fan motor compatible with variable-frequency drive.

## ~~2.6~~2.5 SOURCE QUALITY CONTROL

A. **AMCA Certification for Fan Sound Performance Rating: Test, rate, and label in accordance with AMCA 311.**

B. **AMCA Certification for Fan Aerodynamic Performance Ratings: Test, rate, and label in accordance with AMCA 211.**

C. **AMCA Certification for Fan Energy Index (FEI): Test, rate, and label in accordance with AMCA 211.**

D. Fan Operating Limits: Classify fans in accordance with AMCA 99, Section 14.

## PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. Install fans level and plumb.

B. Disassemble and reassemble units, as required for moving to the final location, in accordance with manufacturer's written instructions.

C. Lift and support units with manufacturer's designated lifting or supporting points.

D. Equipment Mounting:

1. Install floor-mounted fans on cast-in-place concrete equipment bases. Comply with requirements for equipment bases and foundations specified in Section 033000 "Cast-in-Place Concrete."
2. Install roof-mounted fans on roof curbs or support steel. See Drawings for specific requirements.
3. Unit Support: Install fans level on structural curbs. Coordinate with duct connections. **Coordinate wall penetrations and flashing with wall construction.**
4. Support duct-mounted and other hanging fans directly from the building structure, using suitable hanging systems as specified in Section 230529 "Hangers and Supports for HVAC Piping and Equipment."
5. Comply with requirements for vibration isolation and seismic-control devices specified in Section 230548 "Vibration and Seismic Controls for HVAC."
6. Comply with requirements for vibration isolation devices specified in Section 230548.13 "Vibration Controls for HVAC."

E. Curb Support, Prefabricated: Rail-type wood support provided by fan manufacturer.

F. Unit Support: Install centrifugal fans level on structural **curbs**. Coordinate with duct connections. **Coordinate wall penetrations and flashing with wall construction.**

G. Isolation Curb Support: Install centrifugal fans on isolation curbs, and install flexible duct connectors and vibration-isolation **and seismic-control** devices.

1. Comply with requirements for vibration isolation and seismic-control devices specified in Section 230548 "Vibration and Seismic Controls for HVAC."
2. Comply with requirements in Section 230548.13 "Vibration Controls for HVAC."

H. Install units with adequate clearances for service and maintenance.

I. Label fans in accordance with requirements specified in Section 230553 "Identification for HVAC Piping and Equipment."

## 3.2 DUCTWORK CONNECTIONS

A. Drawings indicate general arrangement of ducts and duct accessories. Make final duct connections with flexible connectors. Flexible connectors are specified in Section 233300 "Air Duct Accessories."

B. Where installing ducts adjacent to fans, allow space for service and maintenance.

## 3.3 PIPING CONNECTIONS

A. Install piping from scroll drain connection, with trap with seal equal to 1.5 times specified static pressure, to nearest floor drain with pipe sizes matching the drain connection.

B. Install heat tracing on all drain piping subject to freezing temperature and as indicated on Drawings. Furnish and install heat tracing in accordance with Section 230533 "Heat Tracing for HVAC Piping."

## 3.4 ELECTRICAL CONNECTIONS

A. Connect wiring in accordance with Section 260519 "Low-Voltage Electrical Power Conductors and Cables."

B. Ground equipment in accordance with Section 260526 "Grounding and Bonding for Electrical Systems."

C. Install electrical devices furnished by manufacturer, but not factory mounted, in accordance with NFPA 70 and NECA 1.

D. Install nameplate for each electrical connection, indicating electrical equipment designation and circuit number feeding connection.

1. Nameplate is to be laminated acrylic or melamine plastic signs, as specified in Section 260553 "Identification for Electrical Systems."
2. Nameplate is to be laminated acrylic or melamine plastic signs with a black background and engraved white letters at least 1/2 inch (13 mm) high.

3.5 CONTROL CONNECTIONS

A. Install control and electrical power wiring to field-mounted control devices.

B. Connect wiring in accordance with Section 260519 "Low-Voltage Electrical Power Conductors and Cables."

3.6 STARTUP SERVICE:

A. **Engage a factory-authorized service representative to perform** startup service.

1. Complete installation and startup checks in accordance with manufacturer's written instructions.
2. Verify that shipping, blocking, and bracing are removed.
3. Verify that unit is secure on mountings and supporting devices and that connections to ducts and electrical components are complete. Verify that proper thermal-overload protection is installed in motors, starters, and disconnect switches.
4. Verify that cleaning and adjusting are complete.
5. For direct-drive fans, verify proper motor rotation direction and verify fan wheel free rotation and smooth bearing operation.
6. For belt-drive fans, disconnect fan drive from motor, verify proper motor rotation direction, and verify fan wheel free rotation and smooth bearing operation. Reconnect fan drive system, align and adjust belts, and install belt guards.
7. Adjust belt tension.
8. Adjust damper linkages for proper damper operation.
9. Verify lubrication for bearings and other moving parts.
10. Verify that manual and automatic volume control and fire and smoke dampers in connected ductwork systems are in fully open position.
11. Disable automatic temperature-control operators, energize motor and confirm proper motor rotation and unit operation, adjust fan to indicated rpm, and measure and record motor voltage and amperage.
12. Shut unit down and reconnect automatic temperature-control operators.
13. Remove and replace malfunctioning units and retest as specified above.

3.7 ADJUSTING

A. Adjust damper linkages for proper damper operation.

B. Adjust belt tension.

C. Lubricate bearings.

D. Comply with requirements in Section 230593 "Testing, Adjusting, and Balancing for HVAC."

## 3.8 CLEANING

A. After completing system installation and testing, adjusting, and balancing and after completing startup service, clean fans internally to remove foreign material and construction dirt and dust.

## 3.9 FIELD QUALITY CONTROL

A. Testing Agency: **Owner** will engage a qualified testing agency to perform tests and inspections.

B. Manufacturer's Field Service: Engage a factory-authorized service representative to test and inspect components, assemblies, and equipment installations, including connections.

C. Perform tests and inspections **with the assistance of a factory-authorized service representative**.

1. Fan Operational Test: After electrical circuitry has been energized, start units to confirm proper motor rotation and unit operation.
2. Test and adjust controls and safeties.
3. Fans and components will be considered defective if they do not pass tests and inspections.
4. Prepare test and inspection reports.

## 3.10 DEMONSTRATION

A. **Engage a factory-authorized service representative to train** Owner's maintenance personnel to adjust, operate, and maintain HVAC fans.

**END OF SECTION 233400**

# SECTION 23 35 16

# VEHICLE EXHAUST EXTRACTION SYSTEM

## PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Vehicle exhaust extraction system.

1.2 GENERAL RESPONSIBILITY (DELEGATED DESIGN)

A. The Vehicle Exhaust Extraction System is a Delegated Design project. The Contractor shall be responsible for the final design, engineering, and performance of the complete system. This includes, but is not limited to, the selection of fans, duct sizing, rail layouts, structural attachment methods, control and all necessary accessories.

1.3 ACTION SUBMITTALS

A. Before procurement or installation, the Contractor shall submit a comprehensive design package for Engineer review, including:

1. Shop Drawings: Detailed floor plans and sections showing locations, mounting details and clearance from other trades.

2. Calculations: Duct sizing and fan curves showing the system can maintain the specified 500 CFM (or as required) at the furthest nozzle, with a total system capacity designed for the simultaneous operation of at least six (6) vehicles.

3. P.E. Stamp: All delegated design documents must be signed and sealed by a licensed Professional Engineer in the commonwealth of Massachusetts.

4. Component Data: Technical data sheets for all components listed in Part 2.

5. Wiring and Controls: Submit comprehensive control diagrams, a written sequence of operations, and technical data for the NEMA 12 panel. Submittals must verify compliance with the pressure-sensor activation logic, adjustable run-on timers, and manual overrides specified in Parts 2 and 3.

1.4 INFORMATION AND CLOSEOUT SUBMITTALS

A. Coordination Drawings: Plans and details, or Building Information Model (BIM), drawn to scale, on which vehicle exhaust extraction system are shown and coordinated with other installations, using input from installers of the items involved.

B. Operation and Maintenance Data: Complete manuals for all equipment and control logic.

C. Maintenance Materials: Furnish one (1) spare set of each filter type specified, packaged and labeled for storage.

1.5 REGULATORY REQUIREMENTS

1. NIOSH Pocket Guide to Chemical Hazards
2. Underwriters Laboratory (UL)
3. National Fire Protection Agency (NFPA)
   a. National Electric Code (NEC)
   b. NFPA 1500
4. Air Movement and Control Association (AMCA)
5. International Mechanical Code (IMC)
6. Uniform Mechanical Code (UMC)
7. American National Standards Institute (ANSI)
8. American Society of Mechanical Engineers (ASME)
9. Vehicle Exhaust System Certified Installer shall provide one (1) automatic start control panel listed by UL in accordance with underwriters' laboratories' standard UL-508.
10. Vehicle Exhaust System Certified Installer shall provide and install one (1) non-sparking radial exhaust blower.
11. The magnetic source-capture system shall provide a positive, 100% airtight seal at the point of connection to ensure no exhaust leakage or bypass occurs during operation.

1.6 QUALITY ASSURANCE

A. The manufacturer shall be UL and CUL Certified and have their Exhaust Blowers certified by the Air Movement and Control Association (AMCA) to ensure quality, consistency and reliability of products. Certification documents shall be provided and attached to the bid proposal. All workmanship, manufacturing procedures, airflow design and materials shall be guaranteed performance.

1.7 MANUFACTURE QUALIFICATIONS

A. The manufacturer shall have a minimum of twenty-five (25) years of experience in manufacturing vehicle exhaust extraction systems of this type.

B. Equipment and materials provided for the system installation(s) shall be manufactured and provided by the supplier of primary exhaust removal system (Equipment Manufacturer) and be a standard product of manufacturer currently engaged in the manufacture of Vehicle Exhaust Extraction Systems. Where the requirement calls for a packaged exhaust system to be provided, all items shall be the product of the manufacturer. The product offering is to be a product that has been offered before a minimum period of Thirty (30) years.

1.8 TRAINING

A. Training is to be provided by Emergency Vehicle Exhaust System Certified Installer for the use and operation of the vehicle exhaust system.

B. An operation/training video and manual will be supplied as permanent training aid.

1.9 WARRANTY

A. Vehicle Exhaust System Manufacturer's parts for a minimum of Five (5) Years after Date of Substantial Completion.

## PART 2 - PRODUCTS

2.1 VEHICLE EXHAUST SYSTEM (Delegated Design)

A. Manufacturers – Plymovent STR System or approved equal

1. The Department has standardized its fleet-wide infrastructure on Plymovent magnetic connection technology. To ensure operational readiness and fiscal responsibility, any proposed "equal" system must be 100% mechanically compatible with the existing Plymovent magnetic interface.
2. The Contractor shall verify that all proposed nozzles and adapters function seamlessly with the current fleet without modification.

B. System Description:

1. Scope: Provide SIX (6) extruded aluminum vehicle exhaust rails designed for tandem (back-to-back) arrangement.
2. Capacity: Each rail shall serve two (2) vehicles via two (2) independent traveling trolley assemblies (Total: 12 trolleys/hoses).
3. Responsibility: The fan schedule and conceptual layouts in the contract drawings are for reference and intent only. The Contractor shall perform independent calculations to ensure the final design meets all local codes and NFPA 1500 standards.

C. Rail and trolley components:

1. Rail Construction: Extruded aluminum with bottom opening sealed by replaceable rubber strips. Seals must maintain an airtight seal under negative pressure.
2. Trolley (Crab) Assembly: Each trolley shall move on spark-resistant nylon wheels and include:
    a. Crab Return System: A mechanism to automatically reset the trolley to the designated start position.
    b. Balancer: Totally enclosed spring-tension balancer with stainless steel cable.
    c. Safety Disconnect: Manual release handle for emergency manual detachment.
        1) High-Temp Hose: 4" diameter, four-ply fabric-reinforced hose rated for the exhaust temperatures of the specified apparatus.
        2) Magnetic Nozzle: High-temperature magnetic grabber providing a positive, 100% seal to the vehicle tailpipe.
        3) Truck Side Adapters: Provide stainless steel tailpipe adapters for all vehicles to ensure compatibility with the magnetic nozzle.

D. Exhaust fan & filtration

1. Exhaust Fan: Centrifugal fan with Class B spark-resistant construction, powder-coated steel housing, and aluminum wheel with shaft seals.

2. Air Filtration: 20-gauge galvanized steel cabinet containing a micro-fiberglass bag filter for diesel particulate (soot) reduction. Provide spare filters as specified in Part 1.

E. Automatic control system

1. Automatically energize the exhaust fan, the moment any vehicle engine connected to the system is started as signaled through the vehicle exhaust system OEM controller and associated sensors.

2. The control panel shall contain the motor starter, overload, and solid-state circuit card with timer adjustments from 180 to 360 seconds, fused low voltage transformer, in a NEMA 12 rated key lock electrical enclosure.

3. On the exterior the panel shall be soft touch AUTO START- STOP - MANUAL RUN membrane controls and system indicator LED lights.

4. Electrical: 120V, 1-phase, max 16 amps.

## PART 3 - EXECUTION

3.1 INSTALLATION

A. The installation shall include mounting track and rail assemblies using manufacturer-supplied cross bracing and supports. All attachments to the building support structure or ceiling shall be engineered to accommodate the dynamic loads of the system.

3.2 SYSTEM CONTROLS & STARTUP

A. Control Interface: The system shall utilize the Control Panel specified in Part 2. The fan shall be activated automatically upon vehicle start-up via pressure sensors.

B. Timer Operation: The control system shall include an adjustable run-on timer (range specified in Part 2) to ensure the fan continues to operate after vehicle egress to clear residual fumes.

C. Protection: The control panel and associated circuitry shall include integrated transient protection to safeguard against electrical surges from emergency power systems, line voltage fluctuations, or lightning.

D. Fan Startup and Verification: Before placing the system into service, the Contractor shall perform the following:

1. Installation Audit: Verify all shipping blocks/bracing are removed and the unit is secure on mountings. Ensure duct connections are airtight and electrical thermal-overload protection is installed.

2. Mechanical Check: For direct-drive units, verify proper motor rotation and smooth bearing operation. For belt-drive units, verify alignment, tension, and installation of belt guards.

3. Operational Test: Confirm all manual and automatic dampers in the connected ductwork are in the fully open position. Energize the motor, confirm proper RPM, and record voltage and amperage readings.

4. Commissioning: Complete all startup checks in accordance with the manufacturer's written instructions. Replace any malfunctioning units and retest until performance meets specified capture rates.

## 3.3 QUALITY ASSURANCE & MODIFICATIONS

A. Certified Installation: The system shall be installed by a manufacturer-certified installation team. A certificate of factory training and authorization must be provided upon completion.

B. Vehicle Modifications: All Worcester Fire Department apparatus tailpipes shall be modified by a licensed fire apparatus mechanic, if not already modified, to accommodate the magnetic nozzles provided by the system installer. All modifications must maintain compatibility with the standardized magnetic connection required in Part 2.

## 3.4 ADJUSTING

A. Adjust damper linkages for proper damper operation.

B. Lubricate bearings.

C. Comply with requirements in Section 230593 "Testing, Adjusting, and Balancing for HVAC."

## 3.5 CLEANING

A. After completing system installation and testing, adjusting, and balancing and after completing startup service, clean fans internally to remove foreign material and construction dirt and dust.

## 3.6 FIELD QUALITY CONTROL

A. Testing Agency: Owner will engage a qualified testing agency to perform tests and inspections.

B. Manufacturer's Field Service: Engage a factory-authorized service representative to test and inspect components, assemblies, and equipment installations, including connections.

C. Perform tests and inspections with the assistance of a factory-authorized service representative.

1. Fan Operational Test: After electrical circuitry has been energized, start units to confirm proper motor rotation and unit operation.

2. Test and adjust controls and safeties.

3. Fans and components will be considered defective if they do not pass tests and inspections.

4. Prepare test and inspection reports.

**END OF SECTION**

## FIREMATIC FF&E SCHEDULE

| ROOM NAME | ROOM NUMBER | EQUIP NUMBER | DESCRIPTION | SPEC SECTION | METHOD | PLUMB REQD | MECH REQD | ELEC REQD | NOTES | MFG. & MODEL NO. |
|---|---|---|---|---|---|---|---|---|---|---|
| APPARATUS BAY | 100 | 100.01 | VEHICLE EXHAUST CAPTURE SYSTEM | 23 35 16 | CF/CI | | X | X | SEE MECHANICAL AND ELECTRICAL DRAWINGS | SEE MECHANICAL AND ELECTRICAL DRAWINGS |
| APPARATUS BAY | 100 | 100.02 | HAND SINK - SEE PLUMBING DRAWINGS | 22 40 00 | CF/CI | X | | | SEE PLUMBING DRAWINGS. SEE INTERIOR ELEVATIONS AND ENLARGED FLOOR PLANS | ADVANCE TABCO 7-PS-68 |
| APPARATUS BAY | 100 | 100.03 | (SOAP DISPENSER) GOJO CHERRY GEL PUMICE HAND CLEANER STARTER KIT | N/A | OF/OI | | | | SEE INTERIOR ELEVATIONS AND ENLARGED FLOOR PLANS | GOJO PRO TDX 2000 |
| APPARATUS BAY | 100 | 100.04 | TOWEL DISPENSER AND WASTE RECEPTACLE + LINER MATE SURFACE MOUNTED STAINLESS STEEL PAPER TOWEL DISPENSER WITH 15 GALLON RECEPTABLE + LINER MATE GARBAGE BAG HOLDER | N/A | OF/OI | | | | SEE INTERIOR ELEVATIONS AND ENLARGED FLOOR PLANS | BOBRICK B-43949 |
| APPARATUS BAY | 100 | 100.05 | WALL MOUNTED EYEWASH STATION. SEE PLUMBING DRAWINGS. | 22 40 00 | CF/CI | X | | | PLUMBING LINES RUN INTERNALLY IN CMU WALLS SEE 5/A17-32 | GUARDIAN G175OP EYE / FACE WASH G6044-XXX TEMPERING UNIT |
| APPARATUS BAY | 100 | 100.06 | WATER HOSE REEL. PROVIDE 70 FEET OF 3/4" HOSE. (PROVIDE PROFESSIONAL GRADE DUTY FIREMANS STYLE WATER REEL NOZZLE) | 22 00 00 | CF/CI | X | | | PROVIDE WITH TEMPERED WATER. PROVIDE WATER REEL NOZZEL AT EACH HOSE REEL | HANNAY: #N618-25-26-10.5B-SR GILMOUR: #855032-1001 |
| APPARATUS BAY | 100 | 100.07 | STOP-GO LIGHT REDLIGHT/GREENLIGHT SAFETY LIGHTS | 26 00 00 | CF/CI | | | X | SEE INTERIOR ELEVATIONS AND ELECTRICAL DRAWINGS | LIFTMASTER RGL24LY |
| APPARATUS BAY | 100 | 100.08 | POWER CHORD REEL WITH RELIEF PLUG ASSEMBLY | 26 05 00 | CF/CI | | | X | SEE ELECTRICAL DRAWINGS. VERIFY LOCATIONS WITH CHIEF PRIOR TO FINAL MOUNTING | COXREELS PC SERIES POWER CORD REEL EZ-PC13-5012-A |
| APPARATUS BAY | 100 | 100.09 | SEE PLUMBING DRAWING | 22 40 00 | CF/CI | X | | | SEE PLUMBING DRAWINGS. SEE INTERIOR ELEVATIONS AND ENLARGED FLOOR PLANS | T&S BRASS AND BRONZE WORKS MODEL #PB-8WOSN00PZLUB |
| APPARATUS BAY | 100 | 100.12 | TURNOUT GEAR HANGING RACK (1-1/4" BLACK IRON PIPE & FITTINGS PER DRAWINGS) | 05 50 00 | CF/CI | | | | SEE INTERIOR ELEVATIONS, ENLARGED FLOOR PLANS AND DETAILS. RACK HEIGHT TO BE BASED ON GEAR LENGTH REQUIREMENTS | |
| APPARATUS BAY | 100 | 100.14 | FLAT SCREEN MONITOR AND WALL BRACKET. EC PROVIDES POWER AND DATA; GC INSTALLS MOUNT/MONITOR | 26 05 00 | OF/CI | | | X | EC PROVIDES POWER AND DATA. POWER AND DATA TO BE LOCATED AT MID-MONITOR LEVEL. EC TO COORDINATE MOUNTING HEIGHT WITH OWNER. GC INSTALLS MOUNTS/MONITORS | FLAT SCREEN MONITOR AND MOUNT FOR "EMERGENCY RESPONDER SYSTEM" |
| APPARATUS BAY | 100 | 100.18 | DESTRATIFICATION FAN | 22 00 00<br>23 34 00 | CF/CI | | X | X | SEE MECHANICAL AND ELECTRICAL DRAWINGS | ENVIROFAN GOLD LINE 160C-7 |
| APPARATUS BAY | 100 | 100.19 | 304 STAINLESS STEEL 12GA COUNTERTOP (NO BACKSPLASH) (SQUARE EDGE TYPE) (MATTE FINISH) WITH STAINLESS STEEL CHANNEL BACKER FLUSH WITH BOTTOM EDGE . STAINLESS STEEL SUPPORT BRACKETS (14" x 14" x 2" WIDE AND 3/16" THICK | 12 36 16 | CF/CI | | | | SEE INTERIOR ELEVATIONS AND ENLARGED FLOOR PLANS | BASIS OF DESIGN: STAINLESS SUPPLY |
| SCBA FILL | 101 | 101.01 | (2) COMPARTMENT (2) DRAINBOARD SINK WITH PRE-RINSE FAUCET. SEE PLUMBING DRAWINGS | 22 00 00 | CF/CI | X | | | SEE PLUMBING DRAWINGS. SEE INTERIOR ELEVATIONS AND ENLARGED FLOOR PLANS | Basis of design: Advance Tabco 94-22-40-18 RL |
| SCBA FILL | 101 | 101.02 | [SOAP DISPENSING SYSTEM] GOJO CHERRY GEL PUMICE HAND CLEANER STARTER KIT | 10 28 13 | OF/CI | | | | SEE INTERIOR ELEVATIONS AND ENLARGED FLOOR PLANS | GOJO PRO TDX 2000 |
| SCBA FILL | 101 | 101.03 | STAINLESS STEEL SINGLE BAR POT RACK 72" LONG | 12 36 16 | CF/CI | | | | SEE INTERIOR ELEVATIONS AND ENLARGED FLOOR PLANS | ADVANCE TABCO SW1-72 |
| SCBA FILL | 101 | 101.04 | S.S BASE & WALL CABINETS & COUNTERTOP | 12 31 01 | CF/CI | | | | SEE INTERIOR ELEVATIONS AND ENLARGED FLOOR PLANS | BASIS OF DESIGN: MOTT MANUFACTURING. STAINLESS STEEL CABINETS. |
| SCBA FILL | 101 | 101.05 | 3-POSITION SCBA FILL STATION; INSTALLED BY OWNERS VENDOR. DIMS: 41"W X 21"D X 57"H | N/A | OF/CI | | | | SEE INTERIOR ELEVATIONS AND ENLARGED FLOOR PLANS AND DETAILS | BASIS OF DESIGN: BAUER - CFS5.5-3S |
| SCBA FILL | 101 | 101.06 | SCBA MOBILE BOTTLE CART - 16 BOTTLES | N/A | OF/OI | | | | | READY RACK VBR - 16 |
| SCBA FILL | 101 | 101.07 | WALL MOUNTED TOOL GRID RACK, 72"W UNIT X 25-1/4"H - MOUNT VERTICALLY | 10 51 43 | CF/CI | | | | PROVIDE SIX (6) SHORT HOOKS IN LIEU OF STANDARD RACK ASSORTMENT / RACK. SEE INTERIOR ELEVATIONS, ENLARGED FLOOR PLANS, AND DETAILS. | GEAR GRID SLINGER TOOL GRID WALL MOUNT |
| YARD STORAGE | 102 | 102.01 | CANTILEVER SHELVING & HARDWARE (3) 4' - 0" LONG UPRIGHTS PER UNIT WITH (2) 9'-0"L x 1'-6"D SHELVES PER UNIT. MOUNT UPRIGHT AT 4'-0" CLEAR FROM FINISH FLOOR. SHELVES ARE TO BE 18GA STAINLESS STEEL | 10 56 13 | CF/CI | | | | SEE INTERIOR ELEVATIONS AND ENLARGED FLOOR PLANS | E-Z SHELVING SYSTEMS INC. |
| YARD STORAGE | 102 | 102.02 | TRASH & RECYCLE BINS | N/A | OF/OI | | | | ROLLING MODELS: 50 GAL CAPACITY | RUBBERMAID OR SIM. |
| YARD STORAGE | 102 | 102.03 | FLAMMABLE STORAGE CABINET (YELLOW) 43"W X 18"D X 44"H | N/A | OF/OI | | | | MEETS NFPA AND OSHA STANDARDS | ULINE H-1563M-Y |
| YARD STORAGE | 102 | 102.04 | 4' UNIT (3) LARGE TOOL HANGERS (1) FOUR PRONG RACK | 10 51 43 | OF/CI | | | | SEE INTERIOR ELEVATIONS AND ENLARGED FLOOR PLANS | GEAR GRID BROOM CENTER |
| YARD STORAGE | 102 | 102.05 | 1-1/2"D X 7-1/2"H X 96"L WALL MOUNTED BOARD WITH (6) 6" LONG PEGS | N/A | OF/OI | | | | SEE INTERIOR ELEVATIONS AND ENLARGED FLOOR PLANS AND DETAILS | |
| YARD STORAGE | 102 | 102.06 | CANTILEVER SHELVING & HARDWARE (4) 4'-0" LONG UPRIGHTS PER UNIT WITH (3) 12'-0"L x 1'-6"D SHELVES PER UNIT. MOUNT UPRIGHT AT 4'-0" CLEAR FROM FINISH FLOOR. SHELVES ARE TO BE 18GA STAINLESS STEEL | 10 56 13 | CF/CI | | | | SEE INTERIOR ELEVATIONS AND ENLARGED FLOOR PLANS | E-Z SHELVING SYSTEMS INC. |
| COMPRESSOR ROOM | 103 | 103.01 | CUSTOM BAUER COMPRESSOR VERTICUS COMPRESSOR, [CHARGING RATE: 13 SCFM] [NO. OF STAGES: (4)] [MOTOR: 10HP] BAUER ELECTRONIC CARBON MONOXIDE MONITOR WITH CAL KIT AIR SAMPLE (RA01). COMPRESSOR IN-SERVICE TRAINING | N/A | OF/OI | | | X | MC TO PROVIDE PVC FRESH AIR INTAKE LINE. EC TO PROVIDE POWER / DISCONNECT PER CONTRACT DRAWINGS. INSTALLED BY OWNERS VENDOR. BOLTING TO FLOOR BY GC AND GC TO PROVIDE CORE THRU ROOF. | BASIS OF DESIGN: BAUER VERTICUS ENCLOSED VERTICAL COMPRESSOR VAC 13H-E3 |
| COMPRESSOR ROOM | 103 | 103.02 | ASME AIR STORAGE SYSTEM (4) CYLINDER WITH 6000 PSIG ASME TANKS. | N/A | OF/OI | | | | SEE INTERIOR ELEVATIONS AND ENLARGED FLOOR PLANS. INSTALLED BY OWNERS VENDOR. BOLTING TO FLOOR BY GC. | BASIS OF DESIGN: BAUER - SCBA AIR STORAGE SYSTEM ASME6K-4 RCK-0037 |
| EMS STORAGE | 104 | 104.01 | MOBILE BOTTLE STORAGE FOR 6 D OR E CANISTERS | N/A | OF/CI | | | | | USA SAFETY MODEL #GCMD65SC |
| EMS STORAGE | 104 | 104.02 | STAINLESS STEEL SOLID SHELVING 60"W X 24"D X 63"H | N/A | OF/CI | | | | FOUR (4) SHELVES | ULINE H-6816 |
| DEPT STORAGE | 105 | 105.02 | HEAVY-DUTY STEEL SHELVING 96"W X 36"D X 72"H | N/A | OF/CI | | | | SEE INTERIOR ELEVATIONS AND ENLARGED FLOOR PLANS | ULINE H-10487 |
| DEPT STORAGE | 105 | 105.03 | TURNOUT GEAR HANGING RACK (1-1/4" BLACK IRON PUPE & FITTINGS PER DRAWINGS) | 05 50 00 | CF/CI | | | | SEE INTERIOR ELEVATIONS, ENLARGED PLANS, AND DETAILS. RACK HEIGHT TO BE BASED ON GEAR LENGTH REQUIREMENTS; COORDINATE HEIGHT AFF WITH OWNER. | |
| DEPT STORAGE | 105 | 105.04 | MOBILE WORKBENCH 72" (w) x 30" (d) W/ ADJUSTABLE HEIGHT | N/A | OF/CI | | | | | Global Industrial WB183985A |
| TURN OUT GEAR | 106 | 106.01 | STANDARD LOCKERS (74 TOTAL LOCKERS AT 24"D X 30"W FULL HEIGHT) [30 WALL MOUNTED LOCKERS] AND [44 LOCKERS WITH CENTER-ROOM SELF-SUPPORTING FRAME] LOCKERS EQUIPPED WITH NAME PLATE HOLDER AND NAME PLATE, HANGER BAR, 2 HD STAINLESS STEEL HANGERS, AND BOTTOM SHELF. | 10 51 43<br>26 05 00 | CF/CI | | | X | LOCKERS: COLOR: RED SELF SUPPORTING FRAMES: COLOR: BLACK, SEE EQUIPMENT PLAN AND DETAILS. [SEE DETAILS FOR ITEMS FURNISHED BY 26 00 01 - ELECTRIC] | GEAR GRID |

## FIREMATIC FF&E SCHEDULE

| ROOM NAME | ROOM NUMBER | EQUIP NUMBER | DESCRIPTION | SPEC SECTION | METHOD | PLUMB REQD | MECH REQD | ELEC REQD | NOTES | MFG. & MODEL NO. |
|---|---|---|---|---|---|---|---|---|---|---|
| STORAGE ROOM 1&2 | 107 | 107.01 | STORAGE CABINET 24"W X 18"D X 66"H | N/A | OF/CI | | | | SEE INTERIOR ELEVATIONS AND ENLARGED FLOOR PLANS | ULINE H-6317BL |
| STORAGE ROOM 1&2 | 107 | 107.02 | HEAVY-DUTY STEEL SHELVING 60"W X 24"D X 72"H | N/A | OF/CI | | | | SEE INTERIOR ELEVATIONS AND ENLARGED FLOOR PLANS | ULINE H-4862 |
| STORAGE ROOM 1&2 | 107 | 107.03 | HEAVY-DUTY STEEL SHELVING 96"W X 36"D X 72"H | N/A | OF/CI | | | | SEE INTERIOR ELEVATIONS AND ENLARGED FLOOR PLANS | ULINE H-10487 |
| STORAGE ROOM 1&2 | 107 | 107.04 | DOLLY FOR TRUCK TIRE MATS (METAL PLATFORM TRUCK) | N/A | OF/CI | | | | 36"W X 72"L | ULINE H-6708 |
| BAY CUSTODIAL | 109 | 109.01 | FLOOR MOUNTED MOP SINK 24" X 24" N WITH MOP HNGER OPTION. SEE PLUMBING DRAWINGS | 22 40 00 | CF/CI | X | | | SEE PLUMBING DRAWINGS. SEE INTERIOR ELEVATIONS AND ENLARGED FLOOR PLANS | FIAT_TSB100 W OPTION 889CC MOP HANGER |
| BAY CUSTODIAL | 109 | 109.02 | UTILITY SHELF WITH (5) HOOKS AND (4) MOP AND BROOM HOLDERS; 44"W X 8"D | 10 28 13 | CF/CI | | | | SEE INTERIOR ELEVATIONS AND ENLARGED FLOOR PLANS | BRADLEY 9934 |
| BAY CUSTODIAL | 109 | 109.03 | SERVICE SINK. SEE PLUMBING DRAWINGS | 22 40 00 | CF/CI | X | | | SEE PLUMBING DRAWINGS. SEE INTERIOR ELEVATIONS AND ENLARGED FLOOR PLANS | ELKAY ESSB2520C |
| BAY CUSTODIAL | 109 | 109.04 | CANTILEVER SHELVING & HARDWARE (2) 3'-0" LONG UPRIGHTS PER UNIT WITH (2) 4'-8"L X 1'-6"D SHELVES PER UNIT. MOUNT UPRIGHT AT 3'-6" CLEAR FROM FINISH FLOOR. SHELVES ARE TO BE 18 GA. STAINLESS STEEL | 10 56 13 | CF/CI | | | | SEE INTERIOR ELEVATIONS AND ENLARGED FLOOR PLANS | E-Z SHELVING |
| BAY CUSTODIAL | 109 | 109.05 | FLOOR CLEANER / SCRUBBER WITH WATER CONSERVATION FEATURES AND NO NEEDED CHEMICALS | N/A | OF/OI | | | | 17" OR 20" DIAMETER CLEANING PATH | |
| SCBA SHOP | 110 | 110.01 | HAND SINK - SEE PLUMBING DRAWINGS | 22 40 00 | CF/CI | X | | | SEE PLUMBING DRAWINGS. SEE INTERIOR ELEVATIONS AND ENLARGED FLOOR PLANS | BASIS OF DESIGN: ADVANCE TABCO 7-PS-68 |
| SCBA SHOP | 110 | 110.02 | CANTILEVER SHELVING & HARDWARE (3) 6'-0" LONG UPRIGHTS PER UNIT WITH (4) 6'-6"L X 1'-6"D SHELVES PER UNIT. MOUNT UPRIGHT AT 0'-6" CLEAR FROM FINISH FLOOR. SHELVES ARE TO BE 18 GA. STAINLESS STEEL | 10 56 13 | CF/CI | | | | SEE INTERIOR ELEVATIONS AND ENLARGED FLOOR PLANS | E-Z SHELVING |
| SCBA SHOP | 110 | 110.02a | CANTILEVER SHELVING & HARDWARE (3) 6'-0" LONG UPRIGHTS PER UNIT WITH (4) 5'-6"L X 1'-6"D SHELVES PER UNIT. MOUNT UPRIGHT AT 0'-6" CLEAR FROM FINISH FLOOR. SHELVES ARE TO BE 18 GA. STAINLESS STEEL | 10 56 13 | CF/CI | | | | SEE INTERIOR ELEVATIONS AND ENLARGED FLOOR PLANS | E-Z SHELVING |
| SCBA SHOP | 110 | 110.03 | S.S BASE CABINETS & COUNTERTOP | 12 31 01 | CF/CI | | | | SEE INTERIOR ELEVATIONS AND ENLARGED FLOOR PLANS | BASIS OF DESIGN: MOTT MANUFACTURING. STAINLESS STEEL CABINETS. |
| SCBA SHOP | 110 | 110.04 | ASME AIR STORAGE SYSTEM W (2) 6000 PSIG ASME TANKS | N/A | OF/OI | | | | SEE INTERIOR ELEVATIONS AND ENLARGED FLOOR PLANS | BASIS OF DESIGN: BAUER - SCBA AIR STORAGE SYSTEM ASME6K-2 |
| SCBA SHOP | 110 | 110.05 | CANTILEVER SHELVING & HARDWARE (3) 3'-3" LONG UPRIGHTS PER UNIT WITH (1) 10'-0"L x 1'-0"D SHELVES PER UNIT. MOUNT UPRIGHT AT 4'-0" CLEAR FROM FINISH FLOOR. SHELVES ARE TO BE 18GA STAINLESS STEEL | 10 56 13 | CF/CI | | | | SEE INTERIOR ELEVATIONS AND ENLARGED FLOOR PLANS | E-Z SHELVING SYSTEMS INC. |
| SCBA SHOP | 110 | 110.06 | DESK 48"(L) x 24"(D) & CHAIR | N/A | OF/OI | | | | SEE INTERIOR ELEVATIONS AND ENLARGED FLOOR PLANS | |
| WORKROOM | 118 | 118.02 | DELUXE WORKSTATION TABLE MAPLE TOP (96" X 36") ACCESSORIES INCLUDE: (1) SHELF [H-5761], (3) PEGBOARD PANELS [H-5768], (1) LOUVERED PANEL [H5767] | N/A | OF/CI | | | | SEE INTERIOR ELEVATIONS AND ENLARGED FLOOR PLANS | ULINE H-5771-MAP |
| WORKROOM | 118 | 118.03 | ONE COMPARTMENT SINK WITH SIDE DRAINBOARD. SEE PLUMBING DRAWINGS | 22 40 00 | CF/CI | X | | | SEE PLUMBING DRAWINGS. SEE INTERIOR ELEVATIONS AND ENLARGED FLOOR PLANS | [SINK] ADVANCE TABCO #FS-1-3624-24L WITH ADVANCE TABCO K116 FAUCET |
| WORKROOM | 118 | 118.05 | (SOAP DISPENSER) GOJO CHERRY GEL PUMICE HAND CLEANER STARTER KIT | 10 28 13 | OF/OI | | | | SEE INTERIOR ELEVATIONS AND ENLARGED FLOOR PLANS | GOJO PRO TDX 2000 |
| WORKROOM | 118 | 118.07 | HEAVY-DUTY STEEL SHELVING 60"W X 24"D X 72"H | N/A | OF/CI | | | | SEE INTERIOR ELEVATIONS AND ENLARGED FLOOR PLANS | ULINE H-4862 |
| DECON | 119 | 119.01 | (SOAP DISPENSER) GOJO CHERRY GEL PUMICE HAND CLEANER STARTER KIT | 10 28 13 | OF/CI | | | | SEE INTERIOR ELEVATIONS AND ENLARGED FLOOR PLANS | GOJO PRO TDX 2000 |
| DECON | 119 | 119.02 | HEAVY DUTY STEEL SHELVING 48"W X 24"D X 72"H | N/A | OF/CI | | | | SEE INTERIOR ELEVATIONS AND ENLARGED FLOOR PLANS | ULINE H-3913 |
| DECON | 119 | 119.03 | TWO COMPARTMENT SINK - WITH (2) DRAINBOARD & PRE-RINSE FAUCET. SEE PLUMBING DRAWINGS | 22 40 00 | CF/CI | X | | | SEE PLUMBING DRAWINGS. SEE INTERIOR ELEVATIONS AND ENLARGED FLOOR PLANS | [SINK] ADVANCE TABCO 94-62-36-18RL [FAUCET] ADVANCE TABCO K116 HEAVY DUTY PRE-RINCE FAUCET (T&S) |
| DECON | 119 | 119.04 | SINGLE BAR POT RACK - 60" LONG | 12 36 16 | OF/CI | | | | CENTERED ON SINK; DO NOT INSTALL UNTIL SINK LOCATION IS FINALIZED. | ADVANCE TABCO SW1-60 |
| DECON | 119 | 119.05 | HEAVY-DUTY STEEL SHELVING 60"W X 24"D X 72"H | N/A | OF/CI | | | | SOLID SHELVING. SEE EQUIPMENT PLAN. | ULINE H-4862 |
| PPE DRYING ROOM | 119A | 119A.01 | TURNOUT GEAR HANGING RACK (1-1/4" BLACK IRON PIPE & FITTINGS PER DRAWINGS) | 05 50 00 | CF/CI | | | | SEE INTERIOR ELEVATIONS, ENLARGED PLANS, AND DETAILS. RACK HEIGHT TO BE BASED ON GEAR LENGTH REQUIREMENTS; COORDINATE HEIGHT AFF WITH OWNER. | |
| PPE DRYING ROOM | 119A | 119A.02 | (BOOT AND GLOVE DRYING UNIT) 14 PAIR DRYING SYSTEM, AIR FLOW: 350 CFM, AMPS: 16.5, VOLTS: 120V | 26 00 00 | OF/CI | | | X | SEE INTERIOR ELEVATIONS AND ENLARGED FLOOR PLANS | HEATER.CRAFT: CYCLONE DRYING-SYSTEMS.MODEL #500-014 V2 |
| PPE DRYING ROOM | 119A | 119A.03 | TURNOUT GEAR HANGING RACK (1-1/4" BLACK IRON PUPE & FITTINGS PER DRAWINGS) | 05 50 00 | CF/CI | | | | SEE INTERIOR ELEVATIONS, ENLARGED PLANS, AND DETAILS. RACK HEIGHT TO BE BASED ON GEAR LENGTH REQUIREMENTS; COORDINATE HEIGHT AFF WITH OWNER. | |
| LAUNDRY | 119B | 119B.01 | HARDMOUNT 65LB CAPACITY TURNOUT GEAR WASHER / EXTRACTOR WITH FIRE LINK OPTION | 22 13 16 / 26 05 00 | OF/CI | X | | X | PC TO PROVIDE WATER INLETS AND EXTRACTOR DISCHARGE DRAIN LINES / GC TO INSTALL TROUGH / EC TO PROVIDE HARD WIRED ELECTRICAL SUPPLYS AND DISCONNECTS | UNIMAC MODEL #UW65 SERIES |
| LAUNDRY | 119B | 119B.02 | WASHER / EXTRACTOR DETERGENT DELIVERY SYSTEM | N/A | OF/CI | X | | X | EC TO PROVIDE DUPLEX FOR PUMP POWER SUPPLY. COORDINATE MOUNTING WITH INTERIOR ELEVAIONS, SEE INTERIOR ELEVATIONS AND ENLARGED FLOOR PLANS. PC TO PROVIDE WATER REQUIREMENTS. | BASIS OF DESIGN: FIRESOAPS |
| LAUNDRY | 119B | 119B.03 | 12"D X 36"L, 16 GA. STAINLESS STEEL WALL MOUNTED SHELF | 12 36 16 | CF/CI | | | | SEE INTERIOR ELEVATIONS AND ENLARGED FLOOR PLANS | ADVANCE TABCO WS-12-36-16 |
| LAUNDRY | 119B | 119B.04 | 4.7 CU FT HIGH EFFICIENCY RESIDENTIAL TOP-LOAD CLOTHES WASHER 120V; 20A | N/A | OF/CI | X | | X | SEE INTERIOR ELEVATIONS AND ENLARGED FLOOR PLANS | MODEL TBD |
| LAUNDRY | 119B | 119B.05 | 7.4 CU FT HIGH EFFICIENCY RESIDENTIAL FRONT-LOAD CLOTHES DRYER (ELECTRIC) | N/A | OF/CI | | X | X | SEE INTERIOR ELEVATIONS AND ENLARGED FLOOR PLANS | MODEL TBD |
| LAUNDRY | 119B | 119B.06 | RECESSED WASHING MACHINE OUTLET BOX | 22 40 00 | CF/CI | X | | | SEE PLUMBING DRAWINGS, INTERIOR ELEVATIONS, AND ENLARGED FLOOR PLANS | GUY GRAY |
| LAUNDRY | 119B | 119B.07 | 12"D X 60"L, 16 GA STAINLESS STELL WALL MOUNTED SHELF | 12 36 16 | CF/CI | | | | SEE INTERIOR ELEVATIONS AND ENLARGED FLOOR PLANS | ADVANCE TABCO WS-12-60-16 |

## FIREMATIC FF&E SCHEDULE

| ROOM NAME | ROOM NUMBER | EQUIP NUMBER | DESCRIPTION | SPEC SECTION | METHOD | PLUMB REQD | MECH REQD | ELEC REQD | NOTES | MFG. & MODEL NO. |
|---|---|---|---|---|---|---|---|---|---|---|
| LAUNDRY | 119B | 119B.08 | S.S. BASE, WALL CABINETS, AND COUNTERTOP | 12 31 01 | CF/CI | | | | SEE INTERIOR ELEVATIONS AND ENLARGED FLOOR PLANS | BASIS OF DESIGN - MOTT MANUFACTURING STAINLESS STEEL CABINETS |
| SHOWER LOCKERS | 119C | 119C.01 | PHENOLIC LOCKER (THREE TIER) HINGE TYPE: THROUGH BOLT DOOR CUSTOM 12"W X 12"D X 72"H | 10 51 25 | CF/CI | | | | LOCKERS, COLOR: FORMICA PHENOLIC-NAVY BLUE. SEE INTERIOR ELEVATIONS AND ENLARGED FLOOR PLANS | SUMMIT LOCKERS |
| SHOWER LOCKERS | 119C | 119C.02 | 4.7 CU FT HIGH EFFICIENCY RESIDENTIAL TOP-LOAD CLOTHES WASHER 120V; 20A | 11 30 00 | OF/CI | | X | X | SEE INTERIOR ELEVATIONS AND ENLARGED FLOOR PLANS | MODEL TBD |
| SHOWER LOCKERS | 119C | 119C.03 | 7.4 CU FT HIGH EFFICIENCY RESIDENTIAL FRONT-LOAD CLOTHES DRYER (ELECTRIC) | 11 30 00 | OF/CI | | X | X | SEE INTERIOR ELEVATIONS AND ENLARGED FLOOR PLANS | MODEL TBD |
| SHOWER LOCKERS | 119C | 119C.04 | RECESSED WASHING MACHINE OUTLET BOX | 22 40 00 | CF/CI | X | | | SEE PLUMBING DRAWINGS, AND INTERIOR ELEVATIONS AND ENLARGED FLOOR PLANS | GUY GRAY |
| SHOWER LOCKERS | 119C | 119C.05 | 12"D X 60"L, 16 GA STAINLESS STEEL WALL MOUNTED SHELF | 12 36 16 | CF/CI | | | | SEE INTERIOR ELEVATIONS AND ENLARGED FLOOR PLANS | ADVANCE TABCO WS-12-60-16 |
| SHOWER LOCKERS | 119C | 119C.06 | S.S. BASE, WALL CABINETS, AND COUNTERTOP | 12 31 01 | CF/CI | | | | SEE INTERIOR ELEVATIONS AND ENLARGED FLOOR PLANS | BASIS OF DESIGN - MOTT MANUFACTURING STAINLESS STEEL CABINETS |
| SHOWERS | 120D | 120D.01 | SHOWER. SEE PLUMBING DRAWINGS | 22 40 00 | CF/CI | X | | | SEE PLUMBING DRAWINGS, INTERIOR ELEVATIONS, AND ENLARGED FLOOR PLANS | BRADLEY MODEL #HN200 |
| SHOWERS | 120D | 120D.02 | ANTI-MICROBIAL SHOWER CURTAIN EZE-MESH 20" AT TOP | 10 28 13 | CF/CI | | | | SEE INTERIOR ELEVATIONS AND ENLARGED FLOOR PLANS | BRADLEY MODEL 9537 |
| SHOWERS | 120D | 120D.03 | STAINLESS STEEL SURFACE MOUNTED COAT HOOK | 10 28 13 | CF/CI | | | | SEE INTERIOR ELEVATIONS AND ENLARGED FLOOR PLANS | BOBRICK B-682 |
| SHOWERS | 120D | 120D.04 | BENCH 12"D X (CUSTOM LENGTH) (24" x VIF) WITH (2) WALL MOUNTED BRACKETS PER BENCH | 10 28 13 | CF/CI | | | | SEE INTERIOR ELEVATIONS AND ENLARGED FLOOR PLANS | COLUMBIA - PSISC WALL MOUNTED BENCH |
| SHOWERS | 120D | 120D.05 | SHAMPOO & SOAP DISPENSER | N/A | OF/CI | | | | COORDINATE FINAL LOCATION WITH OWNER | TBD |
| SHOWERS | 120D | 120D.06 | SHOWER CURTAIN ROD AND HOOKS | 10 28 13 | CF/CI | | | | SEE INTERIOR ELEVATIONS AND ENLARGED FLOOR PLANS | BRADLEY #953 BRADLEY #9536 |
| ICE ROOM | 121.3 | 121.3.01 | ICE MACHINE: AIR-COOLED UNIT; 24.54"W X 26.27"D X 39"H | 22 05 00<br>26 05 00 | OF/CI | X | | X | 115V/60HZ/1-PHASE WITH CORD SET INCLUDED. ICE MAKER WATER IN 3/8" FPT SUPPLY WITH CONDENSATE LINE BY PC | ICE-O-MATIC: #ICEU220A |
| CUSTODIAL | 122 | 122.01 | FLOOR MOUNTED MOP SINK 24" X 24" WITH MOP HANGER OPTION. SEE PLUMBING DRAWINGS | 22 40 00 | CF/CI | X | | | SEE PLUMBING DRAWINGS. SEE INTERIOR ELEVATIONS AND ENLARGED FLOOR PLANS | FIAT_TSB100 W OPTION 889CC MOP HANGER |
| CUSTODIAL | 122 | 122.02 | UTILITY SHELF WITH (4) HOOKS, AND (3) MOP AND BROOM HOLDERS; 34"W X 8"D | 10 28 13 | CF/CI | | | | SEE INTERIOR ELEVATIONS AND ENLARGED FLOOR PLANS | BRADLEY 9933 |
| CUSTODIAL | 122 | 122.03 | SERVICE SINK. SEE PLUMBING DRAWINGS | 22 40 00 | CF/CI | X | | | SEE PLUMBING DRAWINGS. SEE INTERIOR ELEVATIONS AND ENLARGED FLOOR PLANS | ELKAY ESSB2520 SINK |
| CUSTODIAL | 122 | 122.04 | CANTILEVER SHELVING & HARDWARE (2) 3'-0" LONG UPRIGHTS PER UNIT WITH (2) 4'-0"L X 1'-6"D SHELVES PER UNIT. MOUNT UPRIGHT AT 3'-6" CLEAR FROM FINISH FLOOR. SHELVES ARE TO BE 18 GA STAINLESS STEEL | 10 56 13 | CF/CI | | | | SEE INTERIOR ELEVATIONS AND ENLARGED FLOOR PLANS | E-Z SHELVING |
| CUSTODIAL | 122 | 122.05 | FLOOR CLEANER / SCRUBBER WITH WATER CONSERVATION FEATURES AND NO NEEDED CHEMICALS | N/A | OF/OI | | | | 17" OR 20" DIAMETER CLEANING PATH | |
| WATCH ROOM | 123 | 123.02 | OVERHEAD DOOR CONTROL PUSH BUTTON ASSEMBLY | 08 33 23<br>26 05 00 | CF/CI | | | X | SEE ELECTRICAL DRAWINGS AND DETAIL 6/A17.32 | |
| WATCH ROOM | 123 | 123.12 | 23" DESKTOP SCREEN MONITOR & COMPUTER SYSTEM AND DESK MOUNT ARTICULATING GAS SPRING SINGLE ARM MONITOR STAND | 26 05 00 | OF/CI | | | X | GC INSTALLS MONITORS TO ARTICULATING ARMS. EC PROVIDES BOX, CONDUIT, AND PULL STRING FOR POWER AND DATA | BASIS OF DESIGN: MONITOR STAND: HUANNO COMPUTER SYSTEM: TBD |
| CUSTODIAL | 221 | 221.01 | FLOOR MOUNTED MOP SINK 24" X 24" WITH MOP HANGER OPTION. SEE PLUMBING DRAWINGS | 22 40 00 | CF/CI | X | | | SEE PLUMBING DRAWINGS. SEE INTERIOR ELEVATIONS AND ENLARGED FLOOR PLANS | FIAT_TSB100 W OPTION 889CC MOP HANGER |
| CUSTODIAL | 221 | 221.02 | UTILITY SHELF WITH (4) HOOKS AND (3) MOP AND BROOM HOLDERS; 34"W X 8"D | 10 28 13 | CF/CI | | | | SEE INTERIOR ELEVATIONS AND ENLARGED FLOOR PLANS | BRADLEY 9933 |
| CUSTODIAL | 221 | 221.03 | STAINLESS STEEL FREE STANDING SHELVING UNIT 48" X 12" X 72" | N/A | OF/CI | | | | SEE INTERIOR ELEVATIONS AND ENLARGED FLOOR PLANS | ULINE H-7117 |


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**WORCESTER SOUTH DIVISION FIRE STATION PROJECT**
25 MADISON ST
WORCESTER, MA 01608

**CITY OF WORCESTER**

455 MAIN STREET
WORCESTER, MA 01605

**KEY PLAN**

**ISSUE CHART**

| MARK | ISSUE | DATE |
|---|---|---|
| 1 | ADDENDUM 9 | 3/13/26 |

**Job Number** 157132.000

**TITLE**

**FIREMATIC FIXTURES AND EQUIPMENT SCHEDULE**

**SHEET NUMBER**

**A17-20**

CONSTRUCTION DOCUMENTS 12/19/25

## DUCTWORK SYMBOLS

| SYMBOL | DESCRIPTION |
|---|---|
| 32x20 / 12x6 | DOUBLE-LINE AND SINGLE-LINE RECTANGULAR DUCT. FIRST NUMBER INDICATES SIDE IN VIEW IN INCHES, SECOND NUMBER INDICATES SIDE IN DEPTH IN INCHES |
| 24ø / 12ø | DOUBLE-LINE AND SINGLE-LINE ROUND DUCT. NUMBER INDICATES DIAMETER IN INCHES |
| 32x20(L2) / 12x6(L2) | ACOUSTICAL LINED DUCTWORK. SIZES GIVEN ARE CLEAR INSIDE DIMENSIONS IN INCHES |
| 1 | DUCTWORK FOR DELEGATED DESIGN |
| | FLEXIBLE DUCT |
| | FLEXIBLE CONNECTION |
| | DIRECTION OF AIR FLOW |
| | TRANSITION / REDUCER |
| | RADIUS ELBOW WITH TURNING VANES & MITERED ELBOW WITH TURNING VANES |
| | DUCT - END CAP |
| | RECTANGULAR DUCT BRANCH |
| | CIRCULAR DUCT BRANCH |
| | RECTANGULAR SUPPLY AIR DUCT (UP AND DOWN) |
| | RECTANGULAR RETURN AIR DUCT (UP AND DOWN) |
| | RECTANGULAR EXHAUST AIR DUCT (UP AND DOWN) |
| | RECTANGULAR OUTSIDE AIR DUCT (UP AND DOWN) |
| | ROUND SUPPLY AIR DUCT (UP AND DOWN) |
| | ROUND RETURN AIR DUCT (UP AND DOWN) |
| | ROUND EXHAUST AIR DUCT (UP AND DOWN) |
| | ROUND OUTSIDE AIR DUCT (UP AND DOWN) |
| VD | VOLUME DAMPER |
| M | MOTORIZED DAMPER |
| BDD | BACKDRAFT DAMPER |
| FD | FIRE DAMPER |
| SD | SMOKE DAMPER |
| FSD | COMBINATION FIRE/SMOKE DAMPER |
| SMD | DUCT SMOKE DETECTOR |
| TYPE (CFM) | AIR TERMINAL - SIDEWALL GRILLE/REGISTER (AIRFLOW DIRECTION AND TYPE SHOWN) |
| TYPE (CFM) | AIR TERMINAL - CEILING SUPPLY (AIRFLOW DIRECTION AND TYPE SHOWN) |
| TYPE (CFM) | AIR TERMINAL - CEILING RETURN (AIRFLOW DIRECTION AND TYPE SHOWN) |
| TYPE (CFM) | AIR TERMINAL - CEILING EXHAUST (AIRFLOW DIRECTION AND TYPE SHOWN) |
| TYPE (CFM) | AIR TERMINAL - CEILING SUPPLY - ROUND (AIRFLOW DIRECTION AND TYPE SHOWN) |
| TYPE (CFM) | AIR TERMINAL - CEILING RETURN - ROUND (AIRFLOW DIRECTION AND TYPE SHOWN) |
| TYPE (CFM) | AIR TERMINAL - CEILING EXHAUST - ROUND (AIRFLOW DIRECTION AND TYPE SHOWN) |
| | LINEAR DIFFUSER (AIR DIRECTION AND TYPE SHOWN) |
| AD | ACCESS DOOR |
| | TRANSFER DUCT WITH GRILLES |
| UC | UNDERCUT DOOR |
| | AIR FLOW ARROW (SUPPLY) |
| | AIR FLOW ARROW (RETURN/EXHAUST) |

## DUCTWORK SYMBOLS

| SYMBOL | DESCRIPTION |
|---|---|
| | FAN - ROOF MOUNTED - MUSHROOM |
| | FAN - ROOF MOUNTED - UPBLAST |
| | FAN - CENTRIFUGAL |
| | FAN - CENTRIFUGAL PLUG/PLENUM |
| | FAN - AXIAL |
| | FILTER - BAG |
| | FILTER - PLEATED |
| | FILTER - CARBON |
| | HUMIDIFIER |
| | LOUVER |
| AH | AIR HANDLING UNIT ACCESS SECTION |
| AL | AIR HANDLING UNIT PLENUM SECTION |
| P C | COIL - PRE-HEAT |
| R C | COIL - RE-HEAT |
| C C | COIL - COOLING |
| H C | COIL - HEATING |
| DX C | COIL - DX |
| | FAN COIL UNIT |
| | UNIT HEATER |
| | UNIT HEATER - CEILING - PLAN |
| | VAV BOX - SINGLE DUCT |
| | VAV BOX - FAN ASSISTED - PARALLEL |
| | SOUND ATTENUATOR |
| TS | TEMPERATURE SENSOR |
| R | HUMIDITY SENSOR |
| DPS | DIFFERENTIAL PRESSURE |
| CO | CARBON MONOXIDE SENSOR |
| CO2 | CARBON DIOXIDE SENSOR |
| O | OCCUPANCY SENSOR |
| T | THERMOSTAT |
| H | NITROGEN OXIDES SENSOR |
| SP | STATIC PRESSURE SENSOR |
| XX-YY | SENSOR - SEE ABBREVIATIONS FOR TYPE |
| XX-YY | SENSOR (DUCT MOUNTED) - SEE ABBREVIATIONS FOR TYPE |
| | ROOF EXHAUST FAN (PLAN) |
| L (SQ.FT.) | LOUVER (DOOR AND WALL) AND LOUVER FREE AREA |

## GENERAL DUTY MANUAL AND CONTROL VALVES

| SYMBOL (WITH OPERATOR TYPE) | | | | | DESCRIPTION |
|---|---|---|---|---|---|
| MANUAL | CYLINDER | DIAPHRAGM | MOTORIZED | SOLENOID | |
| S | S | S | M S | S S | 2-PORT SHUT-OFF VALVE (S) |
| T | T | T | M T | S T | 2-PORT THROTTLING VALVE (T) |
| | | | M S | S | 3-WAY GATE VALVE |
| | | | M | S | ANGLE VALVE |
| | | | M | S | GLOBE VALVE |
| | | | M | S | 3-WAY GLOBE VALVE |
| | | | M | S | BALL VALVE |
| | | | M | S | PLUG VALVE |
| | | | M | S | BUTTERFLY VALVE |
| | | | M | S | DIAPHRAGM VALVE |

## PIPING SYMBOLS

| SYMBOL | DESCRIPTION |
|---|---|
| | EXISTING |
| | NEW (LINETYPE VARIES PER SYSTEM) |
| | ELBOW TURN DOWN |
| | TEE TURN DOWN |
| | PIPE TURN UP |
| | TEE TURN UP |
| | CAPPED PIPE |
| | INSULATED PIPE |
| XXX X | XXXX - SERVICE TYPE. SEE ABBREVIATIONS |
| R | PITCH OF PIPE (RISE) |
| D | PITCH OF PIPE (DROP) |
| | CONCENTRIC REDUCER/EXPANDER |
| FOB / FOT | ECCENTRIC REDUCER/EXPANDER |
| | PIPE ANCHOR |
| | UNION JOINT |
| | FLANGED JOINT |
| | EXPANSION LOOP |
| | EXPANSION JOINT |
| | PIPE ALIGNMENT GUIDE |
| | CHECK VALVE |
| | CHECK VALVE - SWING GATE |
| | CHECK VALVE - SPRING |
| | PRESSURE REDUCING VALVE |
| | QUICK DISCONNECT VALVE (OPENING) |
| | QUICK DISCONNECT VALVE (CLOSING) |
| | LOCK SHIELD VALVE |
| | NEEDLE VALVE |
| | CIRCUIT SETTER (BALANCING VALVE) |
| | AUTOMATIC FLOW LIMITING VALVE |
| | TAMPER VALVE |
| | FLOAT VALVE |
| | TRIPLE DUTY VALVE |
| | COCK, DRAIN |
| | COCK, SHUT-OFF |
| | CURB VALVE |
| | SAFETY RELIEF VALVE |
| | HOSE END DRAIN |
| | STRAINER Y-TYPE |
| | AIR VENT, AUTOMATIC |
| | AIR VENT, MANUAL |
| VB | VACUUM BREAKER |
| | FLEXIBLE CONNECTION (BRAIDED HOSE) |
| | FLEXIBLE CONNECTION (SPHERICAL RUBBER) |
| T | THERMOSTATIC RADIATOR |
| | THERMOWELL |
| M | FLOW METER |
| | TEST POINT |
| | PRESSURE GAUGE |
| | THERMOMETER |
| | STEAM TRAP |
| FS | FLOW OR PRESSURE SWITCH |
| | PUMP |
| | FLOW INDICATOR |

## GENERAL SYMBOLS AND TAGS

| SYMBOL | DESCRIPTION |
|---|---|
| AHU 8 | EQUIPMENT TYPE<br>EQUIPMENT TAG NUMBER |
| | LINE BREAK |
| | ELECTRIC HEAT TRACING |
| | EXISTING TO BE REMOVED |
| | POINT OF NEW CONNECTION TO EXISTING WORK |
| XXX | POINT OF DISCONNECTION OF WORK TO BE REMOVED (XXX - SERVICE REFERENCE. SEE ABBREVIATIONS) |

## ABBREVIATIONS

| SYMBOL | DESCRIPTION |
|---|---|
| °F | DEGREE FARENHEIT |
| Ø | DIAMETER OR PHASE |
| AC | AIR CONDITIONING UNIT |
| ACC | AIR COOLED CONDENSER |
| ACCU | AIR COOLED CONDENSING UNIT |
| AD | ACCESS DOOR |
| AFF | ABOVE FINISHED FLOOR |
| AHU | AIR HANDLING UNIT |
| AMB | AMBIENT |
| AP | ACCESS PANEL |
| APPROX | APPROXIMATE |
| ARCH | ARCHITECTURAL |
| AS | AIR SEPARATOR |
| AWT | AVERAGE WATER TEMPERATURE |
| BAS | BUILDING AUTOMATION SYSTEM |
| BDD | BACKDRAFT DAMPER |
| BFP | BACKFLOW PREVENTER |
| BHP | BRAKE HORSEPOWER |
| BLDG | BUILDING |
| BSMT | BASEMENT |
| BMS | BUILDING MANAGEMENT SYSTEM |
| BTU | BRITISH THERMAL UNIT |
| BTUH | BTU PER HOUR |
| C | CONVERTER |
| CAV | CONSTANT AIR VOLUME |
| CC | COOLING COIL |
| CD | CEILING DIFFUSER |
| CFM | CUBIC FEET PER MINUTE |
| CFP | CHEMICAL FEED PUMP |
| CG | CEILING GRILL |
| CJ | CONSTRUCTION JOINT |
| CLG | CEILING |
| CLR | CLEAR |
| CND | CONDENSER WATER |
| CNDR | CONDENSER WATER RETURN |
| CNDS | CONDENSER WATER SUPPLY |
| C.O. | CLOSE OFF |
| CO | CARBON MONOXIDE |
| CO2 | CARBON DIOXIDE |
| COL | COLUMN |
| CONC | CONCRETE |
| COND | CONDENSATE |
| CONDR | CONDENSOR |
| CONN | CONNECTION |
| CONT | CONTINUATION / CONTINUOUS |
| CONV | CONVECTOR |
| COP | COEFFICIENT OF PERFORMANCE |
| CP | CONTROL PANEL |
| CU | CONDENSING UNIT |
| CU FT | CUBIC FEET |
| CU IN | CUBIC INCHES |
| DB | DRY BULB |
| DDC | DIRECT DIGITAL CONTROL |
| DEMO | DEMOLITION |
| DH | DOMESTIC WATER HEATER |
| DHW | DOMESTIC HOT WATER |
| DIA | DIAMETER |
| DIM | DIMENSION |
| DLV | DOOR LOUVER |
| DMPR | DAMPER |
| DP | DEWPOINT |
| DPS | DIFFERENTIAL PRESSURE SENSOR |
| DR | DRAIN |
| DS | DISCONNECT SWITCH |
| DW | DOMESTIC WATER |
| DWG | DRAWING |
| DXC | DX SPLIT SYSTEM (CONDENSING UNIT) |
| DXE | DX SPLIT SYSTEM (EVAPORATOR UNIT) |
| (E) | EXISTING |
| EA | EXHAUST AIR |
| EAT | ENTERING AIR TEMPERATURE |
| ED | EXHAUST DIFFUSER |
| EB | ELECTRIC BOILER |
| EDB | ENTERING DRY BULB TEMPERATURE |
| EER | ENERGY EFFICIENCY RATIO |
| EF | EXHAUST FAN |
| EFV | EXHAUST FAN FOR VEHICLE |
| EFF | EFFICIENCY |
| EG | EXHAUST GRILLE |
| ELEC | ELECTRICAL |
| ENT | ENTERING |
| ER | EXHAUST REGISTER |
| ES | ELECTRIC SUPPLY |
| ESP | EXTERNAL STATIC PRESSURE |
| ET | EXPANSION TANK |
| EWT | ENTERING WATER TEMPERATURE |
| EXP | EXPANSION |
| EXT | EXTERIOR |
| F | FAN |
| FCV | FLOW CONTROL VALVE |
| FD | FIRE DAMPER |
| FDR | FLOOR DRAIN |
| FF | FINAL FILTER |
| FLA | FULL LOAD AMP |
| FMD | FLOW MEASURING DEVICE |
| FPB | FAN POWERED BOX |
| FPM | FEET PER MINUTE |
| FSD | COMBINATION FIRE/SMOKE DAMPER |
| FSS | FLOW SENSING SWITCH |
| FT | FEET |
| FTR | FINNED TUBE RADIATION |
| GA | GAUGE |
| GAL | GALLON |
| GALV | GALVANIZED |
| GDS | GAS DETECTION SYSTEM |
| GPM | GALLON PER MINUTE |
| H | HUMIDITY |
| HC | HEATING COIL |
| HFD | HORIZONTAL FIRE DAMPER |
| HHW | HEATING HOT WATER |
| HHWR | HEATING HOT WATER RETURN |
| HHWS | HEATING HOT WATER SUPPLY |
| HORIZ | HORIZONTAL |
| HP | HORSEPOWER |
| HPC | HIGH PRESSURE CONDENSATE |

## ABBREVIATIONS

| SYMBOL | DESCRIPTION |
|---|---|
| HPS | HIGH PRESSURE STEAM |
| HTG | HEATING |
| HTP | HEAT TRANSFER PACKAGE |
| HZ | HERTZ |
| IN | INCHES |
| KW | KILOWATT |
| LAT | LEAVING AIR TEMPERATURE |
| LB | POUND |
| LD | LINEAR DIFFUSER |
| LWT | LEAVING WATER TEMPERATURE |
| MAX | MAXIMUM |
| MBH | THOUSAND BTUH |
| MBTU | THOUSAND BTU |
| MCA | MINIMUM CIRCUIT AMPACITY |
| MCC | MOTORIZED CONTROL CENTER |
| MD | MOTORIZED DAMPER |
| MECH | MECHANICAL |
| MEZZ | MEZZANINE |
| MFSD | MODULATING FIRE SMOKE DAMPER |
| MIN | MINIMUM |
| MISC | MISCELLANEOUS |
| NC | NORMALLY CLOSED |
| NFA | NET FREE AREA |
| NIC | NOT IN CONTRACT |
| NO | NUMBER |
| NOX | NITROGEN OXIDES |
| NTS | NOT TO SCALE |
| OA | OUTSIDE AIR |
| OAD | OUTSIDE AIR DAMPER |
| OBD | OPPOSED BLADE DAMPER |
| OCC | OCCUPANCY SENSOR |
| OD | OUTSIDE DIAMETER |
| OPNG | OPENING |
| OPWT | OPERATING WEIGHT |
| P | PUMP |
| PA | PIPE ANCHOR |
| PCF | POUNDS PER CUBIC FOOT |
| PD | PRESSURE DROP |
| PERF | PERFORATED |
| PF | PRE-FILTER |
| PG | PRESSURE GAUGE |
| PH | PHASE |
| PL | PLATE |
| POC | POINT OF CONNECTION |
| PRV | PRESSURE REDUCING VALVE |
| PSI | POUNDS PER SQUARE INCH |
| PSIA | POUNDS PER SQUARE INCH (ABS) |
| PSIG | POUNDS PER SQUARE INCH (GAUGE) |
| RA | RETURN AIR |
| RAD | RETURN AIR DAMPER |
| RC | REHEAT COIL |
| RCHWR | RADIANT CHILLED WATER RETURN |
| RCHWS | RADIANT CHILLED WATER SUPPLY |
| RD | RETURN DIFFUSER |
| RDR | ROOF DRAIN |
| REFG | REFRIGERATION SYSTEM |
| REFGR | REFRIGERATION RETURN |
| REFGS | REFRIGERATION SUPPLY |
| RG | RETURN GRILL |
| RH | RELATIVE HUMIDITY |
| RHG | REFRIGERANT HOT GAS |
| RHHWR | RADIANT HEATING HOT WATER RETURN |
| RHHWS | RADIANT HEATING HOT WATER SUPPLY |
| RL | REFRIGERANT LIQUID LINE |
| RPM | REVOLUTIONS PER MINUTE |
| RR | RETURN REGISTER |
| RS | REFRIGERANT SUCTION LINE |
| S | SLAB |
| SA | SUPPLY AIR |
| SAD | SEE ARCHITECTURAL DRAWINGS |
| SD | SMOKE DAMPER |
| SD | SUPPLY DIFFUSER |
| SEER | SEASONAL ENERGY EFFICIENCY RATIO |
| SF | SUPPLY FAN |
| SG | SUPPLY GRILLE |
| SP | STATIC PRESSURE |
| SPD | SEE PLUMBING DRAWINGS |
| SQ FT | SQUARE FEET |
| SR | SUPPLY REGISTER |
| SS | STAINLESS STEEL |
| SST | STAINLESS STEEL |
| ST | SOUND TRAP (ATTENUATOR) |
| ST | SURFACE TEMPERATURE |
| STL | STEEL |
| STM | STEAM |
| STRUCT | STRUCTURAL |
| T, TEMP | TEMPERATURE |
| TA | TRANSFER AIR |
| TA | TO LEVEL ABOVE |
| TB | TO LEVEL BELOW |
| TG | TRANSFER GRILLE |
| THK | THICK |
| TNL | TUNNEL |
| TYP | TYPICAL |
| UFD | UNDERFLOOR DUCT |
| UGND | UNDERGROUND |
| UH | UNIT HEATER |
| UON | UNLESS OTHERWISE NOTED |
| VAV | VARIABLE AIR VOLUME |
| VB | VACUUM BREAKER |
| VC | VENT COIL |
| VD | VOLUME DAMPER |
| VFD | VARIABLE FREQUENCY DRIVE/CONTROLLER |
| VIF | VERIFY IN FIELD |
| W/O | WITHOUT |
| WB | WET BULB |
| WC | WATER COLUMN |
| WF | WATER FILTER |
| WFR | WATER FILTER RETURN |
| WFS | WATER FILTER SUPPLY |
| WG | WATER GAUGE OR WALL GRILLE |
| WMS | WIRE MESH SCREEN |
| WS | WATER SOFTENER |
| WT | WEIGHT |
| WW | WELL WATER |

## GENERAL NOTES

1. EXACT LOCATIONS OF ALL CEILING DIFFUSERS, REGISTERS AND GRILLES DETAILED ON THE ARCHITECTURAL REFLECTIVE CEILING PLAN, AND ARCHITECTURAL ROOM ELEVATIONS.
2. ALL EQUIPMENT SHALL BE INSTALLED IN STRICT ACCORDANCE WITH THE EQUIPMENT MANUFACTURER'S RECOMMENDATIONS. PROVIDE ALL FITTINGS, TRANSITIONS, DAMPERS, VALVES, AND OTHER DEVICES REQUIRED FOR A COMPLETE WORKABLE INSTALLATION.
3. ALL DUCTWORK SHALL BE CONSTRUCTED, ERECTED, AND TESTED IN ACCORDANCE WITH THE MOST RESTRICTIVE OF LOCAL REGULATIONS, PROCEDURES DETAILED IN THE ASHRAE HANDBOOK OF FUNDAMENTALS, OR THE APPLICABLE STANDARDS ADOPTED BY THE SHEET METAL AND AIR CONDITIONING CONTRACTORS NATIONAL ASSOCIATION.
4. DUCTWORK SHALL BE INSULATED OR LINED PER SPECIFICATIONS OR AS NOTED ON DRAWINGS. ALL DUCT JOINTS AND SEAMS SHALL BE SEALED PER SPECIFICATIONS.
5. DUCT AND PLENUM SIZES INDICATED ON THE DRAWINGS ARE INSIDE CLEAR DIMENSIONS. WHERE DUCTWORK AND PLENUMS ARE INTERNALLY LINED, THEIR SIZES SHALL BE ADJUSTED TO PROVIDE THE INSIDE CLEAR DIMENSIONS INDICATED ON THE DRAWINGS.
6. MANUAL DAMPERS SHALL BE PROVIDED IN ALL DUCT BRANCHES AND IN ALL BRANCHES TO INDIVIDUAL DIFFUSERS, GRILLES AND REGISTERS.
7. ALL EQUIPMENT, DUCTS, PIPING, AND OTHER DEVICES AND MATERIALS INSTALLED OUTSIDE OF THE BUILDING OR OTHERWISE EXPOSED TO THE WEATHER SHALL BE COMPLETELY WEATHERPROOFED.
8. PROVIDE AN INSULATED SHEETMETAL DRAIN PAN BELOW ALL CEILING HUNG FAN COIL UNITS. DRAIN PAN SHALL BE 4" DEEP AND SHALL EXTEND 6" BEYOND THE EDGE OF THE FAN COIL. PROVIDE TRAP AND DRAIN PIPING.
9. THIS CONTRACTOR SHALL INSTALL DUCT MOUNTED SMOKE DETECTORS FURNISHED BY THE ELECTRICAL CONTRACTOR.
10. PROVIDE METAL COVER PLATES FOR ALL PIPES LOCATED AT FLOOR LEVEL TO PREVENT PIPE DAMAGE. PLATES SHALL NOT BE DAMAGED BY NORMAL MAINTENANCE TRAFFIC.
11. CONTRACTOR SHALL COORDINATE INSTALLATION OF EQUIPMENT WITH ALL SERVICES AND TRADES.
12. CONTRACTOR SHALL VERIFY CLEARANCE ABOVE THE CEILING AND NOTIFY THE ENGINEER AND ARCHITECT ABOUT POSSIBLE CONFLICTS.
13. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE WORK WITH ALL TRADES. THE SHOP DRAWINGS PREPARED BY THE CONTRACTOR SHALL INDICATE SPACE ALLOWANCES FOR ALL WORK OF ALL OTHER TRADES AND SHALL BE SIGNED OFF BY OTHER CONTRACTORS.
14. CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE BUILDING CODE REQUIREMENTS AND PROVIDE ALL REQUIRED CONTROLLED INSPECTIONS FOR HIS WORK.
15. PROVIDE ESCUTCHEONS AND SEALING OF ALL PENETRATIONS OF FIRE SEPARATIONS IN ACCORDANCE WITH DETAIL DRAWINGS.
16. FOR PIPING REQUIREMENTS NOT INDICATED ON PLANS, SEE RELATED CONNECTION DETAILS AND DIAGRAMS.
17. PROVIDE REDUCER FITTINGS FOR CHANGE IN PIPE SIZE AND FOR FINAL CONNECTION AT EQUIPMENT AND AS REQUIRED TO PERMIT DRAINAGE AND VENTING.
18. PROVIDE MANUAL AIR VENTS, DRAINS AND RELIEF VALVES. AS REQUIRED AT THE HIGH AND LOW POINTS IN THE SYSTEM.
19. PROVIDE VALVED AND CAPPED CONNECTIONS FOR DRAINAGE AT ALL LOW POINTS OF PIPING SYSTEM.
20. MINIMUM PITCH SHALL BE SUFFICIENT TO INSURE ADEQUATE VENTING OR DRAINAGE.
21. COORDINATE INSTALLATION OF NEW PIPES IN THE CEILING WITH NEW AND EXISTING SERVICES.
22. CONNECTION OF NEW WORK SHALL BE COORDINATED WITH THE BUILDING ENGINEER SO AS TO NOT DISRUPT BUILDING OPERATIONS AND SERVICES. IF TEMPORARY SHUTDOWNS ARE REQUIRED THEY SHALL BE COORDINATED WITH BUILDING ENGINEER AND SCHEDULED AS REQUIRED. ALL SHUTDOWNS MUST BE ACCOMPLISHED AFTER NORMAL WORKING HOURS. ALL REQUIRED OVERTIME LABOR SHALL BE INCLUDED IN THE BASE BID.
23. IT IS THE RESPONSIBILITY OF THIS CONTRACTOR TO COORDINATE ALL WORK WITH ALL NEW AND EXISTING WORK OF ALL OTHER TRADES. THE SHOP DRAWINGS PREPARED BY THIS CONTRACTOR SHALL INDICATE SPACE ALLOWANCES FOR ALL WORK OF ALL OTHER TRADES AND SHALL BE SIGNED OFF BY ALL OTHER CONTRACTORS.
24. CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE BUILDING CODE REQUIREMENTS AND PROVIDE ALL REQUIRED CONTROLLED INSPECTIONS FOR HIS WORK.
25. THESE NOTES APPLY TO ALL SYSTEMS.
26. CONTRACTOR SHALL VERIFY ON-SITE ALL CONDITIONS AND MEASUREMENTS SHOWN ON CONTRACT.
27. CONTRACTOR SHALL PROVIDE DETAILS AND LOCATIONS OF SUPPORTS FOR ALL PIPING, AND EQUIPMENT WITH LOAD CALCULATIONS FOR REVIEW BY THE STRUCTURAL ENGINEER.
28. ALL SUPPORTS FOR MECHANICAL EQUIPMENT ARE BASED ON PRELIMINARY INFORMATION FROM ONE MANUFACTURER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CHECKING SIZES FROM CERTIFIED DRAWINGS OF EQUIPMENT BEING SUBMITTED AND SHALL MAKE ANY STRUCTURAL MODIFICATIONS REQUIRED WITHOUT ANY ADDITIONAL COST TO THE OWNER.
29. ALL PIPING IS SHOWN DIAGRAMMATICALLY AND DOES NOT SHOW ALL OFFSETS, DROPS AND RISERS OF RUNS.
30. PRIOR TO ISSUING BID PRICE COORDINATE WITH BUILDING ENGINEER TO DETERMINE EXTENT OF WORK WHICH IS REQUIRED TO BE PERFORMED AFTER NORMAL OPERATING HOURS OR DURING THE WEEKENDS AND INCLUDE FOR SUCH WORK IN BID PRICE.
31. CONTRACTOR SHALL IDENTIFY ANY WORK WHICH MAY BE REQUIRED TO BE PERFORMED ON OVERTIME IN ORDER NOT TO DISTURB OCCUPIED SPACES WHICH ARE NOT IN CONTRACT.
32. THE CONTRACTOR SHALL BEAR ALL COSTS FOR UTILITY SHUTDOWNS.

## SUBMITTALS

1. CONTRACTOR SHALL REFER TO SECTION 013300 DIVISION 1 OF THE GENERAL REQUIREMENTS SPECIFICATION FOR THE PROCEDURES OF ALL SUBMITTALS IN ADDITION TO THE REQUIREMENTS LISTED BELOW.
2. THE CONTRACTOR SHALL PREPARE AND MAINTAIN A SUBMITTAL REVIEW SCHEDULE, CLEARLY INDICATING THE NUMBER AND TYPE OF SUBMITTALS ISSUED TO THE DESIGN TEAM EACH WEEK.
3. SUBMITTALS SHALL BE ISSUED TO THE DESIGN TEAM IN THE ORDER IN WHICH REVIEWS ARE REQUIRED BY THE CONTRACTOR. THE DESIGN TEAM WILL ONLY REVIEW SUBMITTALS IN THE ORDER IN WHICH THEY WERE RECEIVED.
4. SUBSTITUTION REQUESTS, REMEDIAL WORKS FOR FIELD CONDITIONS, REMEDIAL WORKS FOR CONTRACTOR ERRORS, AND SIMILAR CONDITIONS SHALL BE AGREED BY THE DESIGN TEAM IN WRITING PRIOR TO THEIR ISSUANCE BY THE CONTRACTOR AS A SUBMITTAL.
5. ONLY SUBMITTALS REQUIRED BY THESE SPECIFICATIONS, AS WELL AS ANY ADDITIONAL SUBMITTALS AGREED TO IN WRITING, SHALL BE REVIEWED BY THE DESIGN TEAM.
6. THE DESIGN TEAM RESERVES THE RIGHT TO REJECT SUBMITTALS IF ANY OF THE REQUIREMENTS STATED IN THIS SECTION ARE NOT MET.
7. THE CONTRACTOR UNDERSTANDS THAT AN ORDERLY SUBMITTAL PROCESS, MEETING THE CONDITIONS STATED IN THIS SECTION, IS A PRE-REQUISITE FOR THE DESIGN TEAM TO MEET THE AGREED SUBMITTAL REVIEW PERIODS.
8. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS AND CALCULATIONS SIGNED BY A DRO OR CSE INCLUDING REGISTRATION NUMBER AS REQUIRED BY THE SPECIFICATIONS, FOR ENGINEER'S APPROVAL.
9. ONLY SHOP DRAWINGS MARKED "NO EXCEPTIONS TAKEN", "REVISE AS NOTED" OR "SEE COMMENTS NOTED" MAY BE USED BY CONTRACTOR IN THE WORK. SHOP DRAWINGS MARKED "REJECTED" OR "RESUBMIT FOR REVIEW" SHALL BE CORRECTED AND COMPLETED AS REQUIRED AND RESUBMITTED TO THE ARCHITECT AND REVIEWED BY THE ARCHITECT BEFORE THEY ARE USED IN THE WORK.
10. THE REVIEW PERIOD FOR SUBMITTALS AND SHOP DRAWINGS SHALL BE 21 CALENDAR DAYS FROM RECEIPT OF SUBMITTAL OR SHOP DRAWING
11. THE REVIEW PERIOD FOR REQUESTS FOR INFORMATION SHALL BE 7 CALENDAR DAYS FROM RECEIPT OF REQUEST FOR INFORMATION.

2 MECHANICAL GENERAL NOTES
NTS

## MECHANICAL DRAWING LIST

| Sheet Number | Sheet Name |
|---|---|
| M00.00 | MECHANICAL GENERAL NOTES, SYMBOLS & ABBREVIATIONS |
| M00.01 | MECHANICAL SCHEDULES |
| M00.02 | MECHANICAL SCHEDULES |
| M00.03 | MECHANICAL SCHEDULES |
| M01.01 | MECHANICAL SITE PLAN |
| M03.01 | MECHANICAL SINGLE LINE DIAGRAMS |
| M03.02 | MECHANICAL SINGLE LINE DIAGRAMS |
| M03.03 | MECHANICAL VRF SINGLE LINE DIAGRAMS |
| M03.04 | MECHANICAL VRF SINGLE LINE DIAGRAMS |
| M04.01A | MECHANICAL DUCTWORK PLAN FIRST FLOOR - PART A |
| M04.01B | MECHANICAL DUCTWORK PLAN FIRST FLOOR - PART B |
| M04.01D | MECHANICAL DUCTWORK PLAN FIRST FLOOR - PART D |
| M04.02A | MECHANICAL DUCTWORK PLAN SECOND FLOOR - PART A |
| M04.02B | MECHANICAL DUCTWORK PLAN SECOND FLOOR - PART B |
| M04.02C | MECHANICAL DUCTWORK PLAN SECOND FLOOR - PART C |
| M04.02D | MECHANICAL DUCTWORK PLAN SECOND FLOOR - PART D |
| M04.03A | MECHANICAL DUCTWORK PLAN ROOF - PART A |
| M04.03B | MECHANICAL DUCTWORK PLAN ROOF - PART B |
| M04.03D | MECHANICAL DUCTWORK PLAN ROOF - PART D |
| M05.00 | MECHANICAL PIPING PLAN UNDER SLAB |
| M05.01 | MECHANICAL PIPING PLAN FIRST FLOOR |
| M05.02 | MECHANICAL PIPING PLAN SECOND FLOOR |
| M06.01 | MECHANICAL CONTROLS PLAN FIRST FLOOR |
| M06.02 | MECHANICAL CONTROLS PLAN SECOND FLOOR |
| M08.01 | MECHANICAL DETAILS |
| M08.02 | MECHANICAL DETAILS |
| M08.03 | MECHANICAL DETAILS |
| M08.04 | MECHANICAL DETAILS |
| M08.05 | MECHANICAL DETAILS |
| M08.06 | MECHANICAL DETAILS |
| M09.00 | MECHANICAL CONTROLS |
| M09.01 | MECHANICAL CONTROLS |
| M09.02 | MECHANICAL CONTROLS |
| M09.03 | MECHANICAL CONTROLS |
| M09.04 | MECHANICAL CONTROLS |
| M09.05 | MECHANICAL CONTROLS |
| M09.06 | MECHANICAL CONTROLS |


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**PROJECT**

**WORCESTER SOUTH DIVISION FIRE STATION PROJECT**
25 MADISON ST
WORCESTER, MA 01608

**CITY OF WORCESTER**

455 MAIN STREET
WORCESTER, MA 01605

CONSTRUCTION DOCUMENTS 12/19/25

**KEY PLAN**

**ISSUE CHART**

| MARK | ISSUE | DATE |
|---|---|---|
| 1 | Addendum #9 | 3/13/26 |

**Job Number** 157132.000

**TITLE**

**MECHANICAL GENERAL NOTES, SYMBOLS & ABBREVIATIONS**

**SHEET NUMBER**

**M00.00**



3/13/2026 5:27:40 PM Autodesk Docs://City of Worcester - South Division Firehouse/MEP_City of Worcester_South Division Firehouse.rvt

## AIR-WATER HEAT PUMP SCHEDULE

| ITEM | | | | | | HEATING MODE | | | | | | | EVAPORATOR | | | | | | ELEC. DATA (PER MODULE) | | | | | VIBRATION ISOLATION | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TYPE | NO. | MANUFACTURER | MODEL NO. | REFRIG TYPE | REFRIG CHARGE [LBS] | MIN EFF AT -15°DB [COP] | MIN EFF AT 47F HTG CONDS [COP] | MIN EFF AT 17F HTG CONDS [COP] | DESIGN HEATING OA TEMP [°F] | LOW AMBIENT MIN. OPERATING OA TEMP. [°F] | HEATING CAPACITY [kBTU/H] | EWT [°F] | LVG [°F] | MAX FLOW [GPM] | DESIGN FLOW [GPM] | MIN FLOW [GPM] | FLUID SYSTEM | CONN [IN] | MAX. PRESS. DROP FULL FLOW [FT WC] | FLA [AMPS] | MCA [AMPS] | V | HZ | PH | EMERGENCY/ STANDBY POWER | MOUNT TYPE | MIN STATIC DEFL. [IN] | BASE TYPE | OPERATING WEIGHT [LBS] | NOTES |
| ASHP | 1 | WATER FURNACE | T9RS | R-454B | 94.00 | 1.7 | 2.77 | 1.95 | 2 | -15 | 400.0 | 110 | 120 | 73 | 50 | 36 | 30% PROP GLY | 6" | 5 | 72 | 80 | 460 | 60 | 3 | YES | SPRING | 0" - 2" | RAIL | 2550 | 1 |

NOTES:
1. PROVIDE CURB TO ELEVATE UNIT TO MINIMUM 18" ABOVE GRADE. COORDINATE HEIGHT WITH SPRING ISOLATION.

## Manifolds

| Name | ManifoldType | # Circuits | Tubing Size | Supply Temp [°F] | TotalFlow [USGPM] | Head Loss [ft water] | Total Load [Btu/hr] | Fluid |
|---|---|---|---|---|---|---|---|---|
| Manifold 3 | Stainless Steel - Shut Off/Balancing/Flow Meters, 1-1/4" | 6 | 3/4" | 100 | 8.21 | 15.2 | 61,488 | 30% Propylene Glycol |
| Manifold 4 | Stainless Steel - Shut Off/Balancing/Flow Meters, 1-1/4" | 12 | 3/4" | 100 | 14.05 | 13.1 | 105,167 | 30% Propylene Glycol |

NOTES:
1. THERE IS NO MANIFOLD 1 NOR MANIFOLD 2, NUMBERING STARTS AT MANIFOLD 3.

## Rooms

| Name | Heating Zone | Area [ft²] | Heating Room Temp [°F] | Panel Type | Floor Cover R [R] | Slab Thickness | Tube Depth(Center)¹ [in] | Surface Temp [°F] | Heat Loss [Btu/hr] | Panel Backloss | Supplemental | Total Load [Btu/hr] | Radiant Unit Load [Btu/(hr-ft²)] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Room A-05 | 201 | 8,121 | 68 | Embedded Slab | 0.0 | 8.0 in (Slab) | 4.0 in | 77 | 192,000 | 19,200 | 44,545 | 211,200 | 20.5 |

¹ Tube depth measured from the top of the slab to the center of the tubing.

## Circuit Information

| Number | Length [ ft ] | Tube Size | Spacing¹ [ in ] | Manifold | Flow [ USGPM ] | Head Loss [ ft water ] | Total Load [ Btu/hr ] | Actuator | Color |
|---|---|---|---|---|---|---|---|---|---|
| M3.1 | 627 | 3/4" | 6 | Manifold 3 | 1.37 | 11.0 | 10,251 | No | |
| M3.2 | 627 | 3/4" | 6 | Manifold 3 | 1.37 | 11.1 | 10,254 | No | |
| M3.3 | 626 | 3/4" | 6 | Manifold 3 | 1.37 | 11.0 | 10,235 | No | |
| M3.4 | 627 | 3/4" | 6 | Manifold 3 | 1.37 | 11.1 | 10,256 | No | |
| M3.5 | 628 | 3/4" | 6 | Manifold 3 | 1.37 | 11.1 | 10,258 | No | |
| M3.6 | 626 | 3/4" | 6 | Manifold 3 | 1.37 | 11.0 | 10,233 | No | |
| M4.1 | 589 | 3/4" | 12 | Manifold 4 | 1.29 | 9.4 | 9,648 | No | |
| M4.2 | 568 | 3/4" | 12 | Manifold 4 | 1.24 | 8.5 | 9,303 | No | |
| M4.3 | 588 | 3/4" | 12 | Manifold 4 | 1.29 | 9.3 | 9,638 | No | |
| M4.4 | 578 | 3/4" | 12 | Manifold 4 | 1.25 | 8.7 | 9,384 | No | |
| M4.5 | 577 | 3/4" | 12 | Manifold 4 | 1.25 | 8.7 | 9,378 | No | |
| M4.6 | 490 | 3/4" | 12 | Manifold 4 | 1.05 | 5.5 | 7,880 | No | |
| M4.7 | 499 | 3/4" | 12 | Manifold 4 | 1.08 | 5.8 | 8,061 | No | |
| M4.8 | 494 | 3/4" | 12 | Manifold 4 | 1.07 | 5.6 | 7,995 | No | |
| M4.9 | 502 | 3/4" | 12 | Manifold 4 | 1.09 | 5.9 | 8,149 | No | |
| M4.10 | 495 | 3/4" | 12 | Manifold 4 | 1.07 | 5.7 | 8,029 | No | |
| M4.11 | 498 | 3/4" | 12 | Manifold 4 | 1.08 | 5.8 | 8,080 | No | |
| M4.12 | 591 | 3/4" | 12 | Manifold 4 | 1.29 | 9.3 | 9,622 | No | |

NOTES:
1. THERE IS NO MANIFOLD 1 NOR MANIFOLD 2, NUMBERING STARTS AT MANIFOLD 3.

## PUMP SCHEDULE

| ITEM | | | | | | | | MOTOR DATA | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TYPE | NO. | MANUFACTURER | Model | LOCATION | SYSTEM SERVED | FLOW [GPM] | PUMP HEAD [FT WC] | POWER [HP] | V | PH | HZ | CONTROL | EMERGENCY/STANDBY POWER | WEIGHT | NOTES |
| HHWP | 1 | BELL & GOSSETT | ECOCIRC XL 20-140 | MEP ROOM | ASHP LOOP | 72 | 15 | 0.5 | 208 | 1 | 60 | ECM | YES | 40 | 1 |
| HHWP | 2 | BELL & GOSSETT | ECOCIRC XL 36-45 | MEP ROOM | RADIANT LOOP | 25 | 20 | 0.2 | 120 | 1 | 60 | ECM | YES | 25 | 1 |

NOTES:
1. PUMPS SELECTION BASE UPON REQUIREMENTS OF RADIANT FLOOR MANUFACTURE. IF AN ALTERNATE RADIANT FLOOR PRODUCT IS SELECTED PUMP SELECTION MAY BE AFFECTED. ANY CHANGES TO PUMP OR ELECTRICAL REQUIREMENTS DUE TO ALTERNATE RADIANT FLOOR MANUFACTURE SHALL BE AT NO ADDITIONAL COST TO OWNER.

## BUFFER TANK SCHEDULE

| ITEM | | | | | | | DIMENSIONS | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TYPE | NO. | MANUFACTURER | MODEL NO. | LOCATION | SERVICE | VOLUME [GAL] | HEIGHT [IN] | DIA [IN] | CONN SIZE [IN] | FLUID SYSTEM | DESIGN PRESSURE [PSI] | OPERATING WEIGHT [LBS] | NOTES |
| BT | 1 | LOCHINVAR | CVU 400 | MEP | RADIANT HEATING | 400 | 80" | 46" | 3" | 30% PROP GLY | 125.00 | 5100 | 1,2 |

NOTES:
1. UNIT TO BE MOUNTED ON THE MIN 6" CONCRETE CURB.
2. WEIGHT LISTED IS 100% FULL.

## EXPANSION TANK SCHEDULE

| ITEM | | | | | | SYSTEM VOLUME [GAL] | SYSTEM TEMP RANGE [°F] | ACCEPTANCE VOLUME [GAL] | TANK SIZE | | FILL PRESSURE AT TANK [PSIG] | MAX WORKING PRESSURE [PSIG] | OPERATING WEIGHT [LBS] | NOTES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TYPE | NO. | MANUFACTURER | MODEL NO. | TYPE | FLUID SYSTEM | | | | DIA [IN] | LENGTH [IN] | | | | |
| ET | 1 | BELL & GOSSETT | B50 | BLADDER | 30% PROP GLY | 13.0 | 40 - 120 | 13.0 | 14" | 24" | 60 | 125 | 160 | 1,2,3,4 |
| ET | 2 | BELL & GOSSETT | B50 | BLADDER | 30% PROP GLY | 13.0 | 40 - 120 | 13.0 | 14" | 24" | 60 | 125 | 160 | 1,2,3,4 |

NOTES:
1. PROVIDE FULL-ACCEPTANCE BLADDERS.
2. CONTRACTOR SHALL VERIFY ALL PRESSURE VALVES AND SYSTEM VOLUME FOR FINAL TANK SELECTION.
3. PROVIDE ASME RATED EXPANSION TANK.
4. WEIGHT LISTED IS 100% FULL.

## GLYCOL FEED SYSTEM SCHEDULE

| ITEM | | | | | | | TANK SIZE | | | ELECTRICAL DATA | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TYPE | NO. | MANUFACTURER | MODEL NO. | LOCATION | SERVICE | TANK VOLUME [GAL] | DIA [IN] | H [IN] | SYSTEM OUTLET DIA [IN] | MOTOR HP | V | PH | HZ | EMERGENCY/ STANDBY POWER | OPERATING WEIGHT [LBS] | NOTES |
| GF | 1 | NEPTUNE | G-50-1A | MEP | RADIANT HEATING | 50 | 22" | 55" | 1/2" | 0.33 | 120 | 1 | 60 | YES | 600 | 1 |

NOTES:
1. PROVIDE WITH LOW LEVEL ALARM OUTPUT.

## CHEMICAL POT FEEDER SCHEDULE

| ITEM | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| TYPE | NO. | MANUFACTURER | MODEL NO. | LOCATION | SERVICE | CAPACITY [GAL] | FLUID SYSTEM | DESIGN PRESSURE [PSI] | OPERATING WEIGHT [LBS] | NOTES |
| CPF | 1 | NEPTUNE | FTF-5DB | MEP ROOM | RADIANT LOOP | 5 | 30% PROP GLY | 125.00 | 50 | 1 |

NOTES:
1. FLOOR MOUNTED.

## HIGH-PLUME PACKAGED EXHAUST FAN SYSTEM SCHEDULE

| ITEM | | | | | | | MIN STACK HEIGHT ABOVE ROOF [FT] | E.S.P. [IN W.C.] | FAN [RPM] | MOTOR DATA | | | | | | | VIBRATION ISOLATION | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TYPE | NO. | MANUFACTURER | MODEL NO. | LOCATION | AREA SERVED | AIR FLOW [CFM] | | | | BHP | HP | V | PH | HZ | SPEED CONTROL | EMERGENCY/ STANDBY POWER | MOUNT TYPE | MIN. STATIC DEFL. [IN] | BASE TYPE | OPERATING WEIGHT [LBS] | NOTES |
| EF | 3 | GREENHECK | VK-H-24-18 | ROOF | APPARATUS BAY | 5600 | 10' - 0" | 0.72 | 863 | 2.60 | 3.00 | 460 | 3 | 60 | NA | YES | SPRING | 2" | RAIL | 1095 | 1,2 |

NOTES:
1. PROVIDE RAIL TO ELEVATE UNIT TO MINIMUM 18" ABOVE GRADE.
2. FAN TO BE RUN AS CONSTANT VOLUME.

## FAN SCHEDULE

| ITEM | | | | | | | | | MOTOR DATA | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TYPE | NO. | MANUFACTURER | MODEL NO. | LOCATION | AREA SERVED | AIR FLOW [CFM] | E.S.P. [IN W.C.] | FAN [RPM] | BHP | HP | V | PH | HZ | EMERGENCY/ STANDBY POWER | OPERATING WEIGHT [LBS] | NOTES |
| EF | 1 | GREENHECK | CUE-100HP-VG | ROOF | VEST AND FIRE POLES | 300 | 1 | 1681 | 0.13 | 0.25 | 208 | 1 | 60 | YES | 54 | |
| EF | 2 | SEE SPECIFICATION | DELEGATED DESIGN | ROOF | APPARATUS BAY | 3000 | 8 | 3500 | 9.50 | 10.00 | 460 | 3 | 60 | YES | 290 | 1, 2, 3, 4 |
| EF | D1 | GREENHECK | USF-06-B7 | ROOF | LAUNDRY AND LOCKER ROOM | 400 | 0.5 | 1229 | 0.06 | 0.25 | 208 | 3 | 60 | YES | 148 | |
| EF | D2 | GREENHECK | USF-10-B6 | ROOF | PPE DRYING ROOM | 350 | 1 | 1509 | 0.12 | 0.25 | 208 | 3 | 60 | YES | 143 | |

NOTES:
1. PROVIDE WITH MANUFACTURER CONTROLLER.
2. PROVIDE WITH AIR FILTRATION SYSTEM DESIGNED TO REDUCE THE DIESEL EXHAUST PARTICULATE FROM THE EXHAUST BLOWER DISCHARGE.
3. FAN SHALL BE CLASS B SPARK RESISTANCE CONSTRUCTION OF POWDER COATED STEEL HOUSING AND ALUMINUM WHEEL WITH SHAFT SEALS.
4. FAN SCHEDULE PARAMETERS (CFM, STATIC PRESSURE, AND MOTOR HP) ARE PROVIDED FOR CONCEPTUAL REFERENCE AND DESIGN INTENT ONLY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR FINAL FAN SELECTION BASED ON THEIR DELEGATED DESIGN CALCULATIONS. FINAL PERFORMANCE DATA SHALL ENSURE 100% EXHAUST CAPTURE AT ALL SPECIFIED OPERATING CONDITIONS PER SECTION 23 35 16.

## ENERGY RECOVERY VENTILATOR SCHEDULE (PART 1)

| ITEM | | | | | | SUPPLY FAN | | | | | EXHAUST FAN | | | | | ENERGY RECOVERY | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | MOTOR DATA | | | | | MOTOR DATA | | | | WINTER PERFORMANCE | | | | | | | | |
| | | | | | | | | | | | | | | | | | OUTSIDE AIR | | | | EXHAUST AIR | | EFFECTIVENESS | |
| TYPE | NO. | MANUFACTURER | MODEL NO. | LOCATION | AREA SERVED | DESIGN AIRFLOW [CFM] | EXT. S.P. [IN WG] | HP | BHP | FAN SPEED [RPM] | AIRFLOW [CFM] | EXT. S.P. [IN WC] | HP | BHP | FAN SPEED [RPM] | TYPE | ENT DB [°F] | ENT WB [°F] | LVG DB [°F] | LVG WB [°F] | ENT DB [°F] | ENT WB [°F] | SENSIBLE [%] | TOTAL [%] |
| HRV | 1 | VALENT | ERW-E1-20L | ROOF | APPARATUS BAY | 400 | 0.50 | 0.50 | 0.12 | 996 | 400 | 0.50 | 0.50 | 0.15 | 1004 | FORWARD CURVE | 1.7 | 0.1 | 42.3 | 34.2 | 60 | 47 | 69.6 | 66.7 |

## ENERGY RECOVERY VENTILATOR SCHEDULE (PART 2)

| ITEM | | ELECTRICAL DATA | | | | | FINAL FILTER | | | VIBRATION ISOLATION | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TYPE | NO. | V | PH | HZ | MCA [AMPS] | EMERGENCY/ STANDBY POWER | QUANTITY | DEPTH [IN] | MERV RATING | MOUNT TYPE | MIN.STATIC DEFL. [IN] | OPERATING WEIGHT [LBS] | NOTES |
| HRV | 1 | 115 | 1 | 60 | 15 | Yes | 1 | 2 | 8 | SPRING | 2" | 280 | 1 |

NOTES:
1. PROVIDE RAIL TO ELEVATE UNIT TO MINIMUM 18" ABOVE GRADE.

## AIR CIRCULATOR SCHEDULE

| ITEM | | | | | MOTOR DATA | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| TYPE | NO. | MANUFACTURER | LOCATION | AIR FLOW [CFM] | HP | V | PH | HZ | EMERGENCY/ STANDBY POWER | NOTES |
| C | 1 | GREENHECK | PPE DRYING ROOM | 2400 | 0.25 | 115 | 1 | 60 | NO | 1,2 |
| C | 2 | GREENHECK | PPE DRYING ROOM | 2400 | 0.25 | 115 | 1 | 60 | NO | 1,2 |

NOTES:
1. PROVIDE WITH MANUFACTURE MOUNT BRACKET WITH VIBRATION ISOLATOR.
2. SEE CONTROL DRAWINGS AND SPECS FOR CONTROL DETAILS.

## DESTRATIFICATION FAN SCHEDULE

| ITEM | | | | | MOTOR DATA | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| TYPE | NO. | MANUFACTURER | LOCATION | AIR FLOW [CFM] | WATTS | V | PH | HZ | EMERGENCY/ STANDBY POWER | NOTES |
| DSF | 1 | ENVIROFAN | APPARATUS BAY | 7212 | 82.55 | 120 | 1 | 60 | YES | 1,2,3 |
| DSF | 2 | ENVIROFAN | APPARATUS BAY | 7212 | 82.55 | 120 | 1 | 60 | YES | 1,2,3 |
| DSF | 3 | ENVIROFAN | EXERCISE ROOM | 7212 | 82.55 | 120 | 1 | 60 | YES | 1,2,4 |
| DSF | 4 | ENVIROFAN | APPARATUS BAY | 7212 | 82.55 | 120 | 1 | 60 | YES | 1,2,3 |
| DSF | 5 | ENVIROFAN | APPARATUS BAY | 7212 | 82.55 | 120 | 1 | 60 | YES | 1,2,3 |

NOTES:
1. CONTRACTOR TO PROVIDE AND INSTALL A LOCAL START/STOP PUSH-BUTTON STATION FOR THE FAN. MOUNT AT 36" A.F.F.
2. CONTRACTOR TO PROVIDE MOUNTING HARDWARE AND DOWNROD (EXTENSION TUBE) OF SUFFICIENT LENGTH TO INSTALL FAN AT THE MOUNTING HEIGHT (MH) SHOWN ON DRAWINGS.
3. FAN COLOR TO BE BLACK.
4. FAN COLOR TO BE WHITE.

## DEHUMIDIFIER UNIT SCHEDULE

| ITEM | | | | | | REFRIGERANT | | | | | | | MOTOR DATA | | | | | | | FILTER | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TYPE | NO. | MANUFACTURER | MODEL NO. | LOCATION | AREA SERVED | TYPE | CHARGE [OZ] | AIR FLOW [CFM] | TEMP [F] | RH [%] | TOTAL COOLING [BTU/HR] | WATER REMOVAL [PINTS/DAY] | DRIVE | WATT | MCA | V | PH | HZ | EMERGENCY/STANDBY POWER | SIZE [LxWxD] | MERV | DRAIN CONN. [IN] | OPERATING WEIGHT [LBS] | NOTES |
| DHU | 1 | QUEST | 100 | PPE DRYING ROOM | PPE DRYING ROOM | R454B | 18 | 280 | 80 | 60 | 6800.0 | 100 | VARIABLE SPEED ECM | 540.00 | 15 | 120 | 1 | 60 | NO | 12" x 14" x 1" | 13 | 3/4" | 60 | 1,2,3,4 |

NOTES:
1. SUPPORT THE UNIT WITH VIBRATION ISOLATORS INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.
2. PROVIDE WITH DIGITAL CONTROL INTERFACE WITH EXTERNAL CONTROL OPTION FOR BMS INTERFACE.
3. PROVIDE WITH DRAIN PAN UNDERNEATH THE UNIT.
4. PROVIDE WITH THE CONDENSATE PUMP.


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CONSTRUCTION DOCUMENTS 12/19/25

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CITY OF WORCESTER
455 MAIN STREET
WORCESTER, MA 01605

KEY PLAN

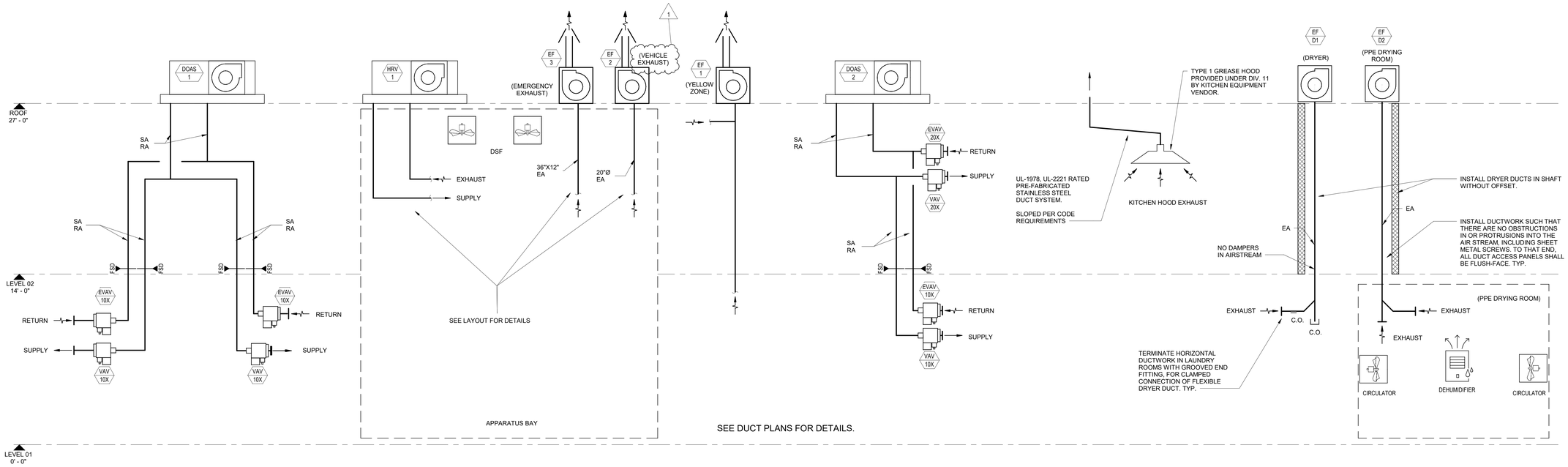
ISSUE CHART

| MARK | ISSUE | DATE |
|---|---|---|
| 1 | Addendum #9 | 3/13/26 |

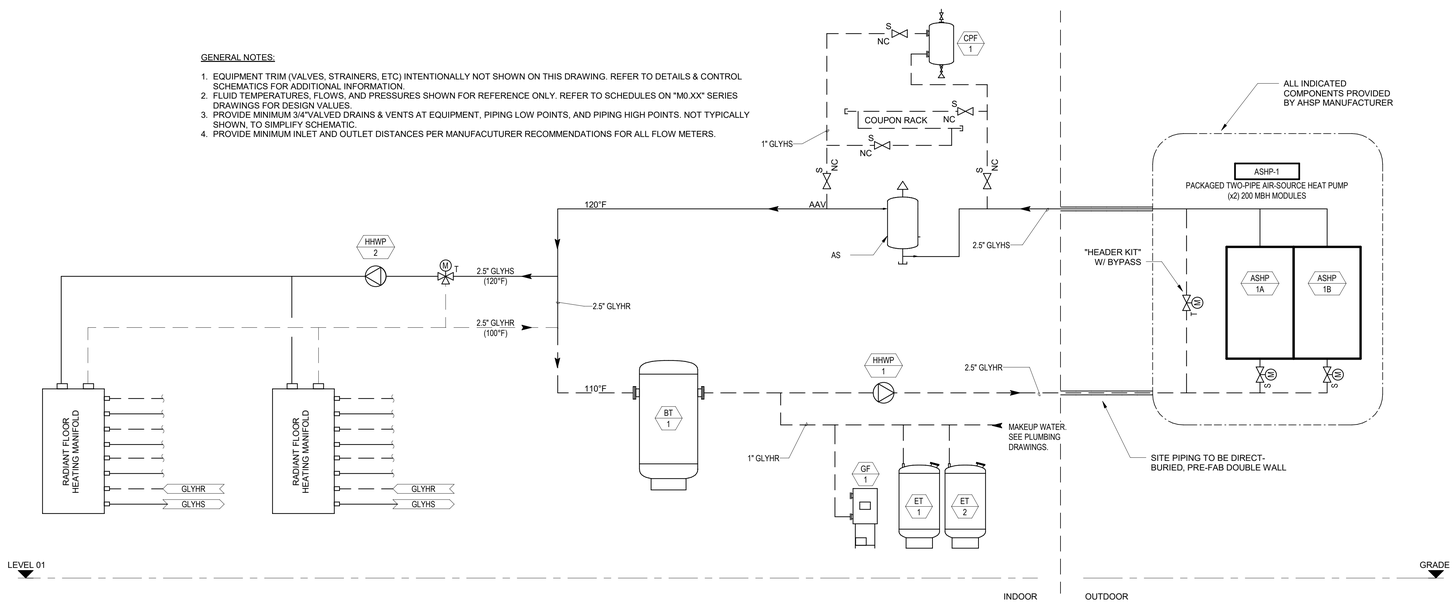
Job Number 157132.000

TITLE
MECHANICAL SCHEDULES

SHEET NUMBER
M00.02




## 1 MECHANICAL AIR RISER DIAGRAM
NTS




## 2 HOT WATER FLOW DIAGRAM
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| 1 | Addendum #9 | 3/13/26 |

**Job Number** 157132.000

**TITLE**

**MECHANICAL SINGLE LINE DIAGRAMS**

**SHEET NUMBER**

**M03.01**

CONSTRUCTION DOCUMENTS 12/19/25



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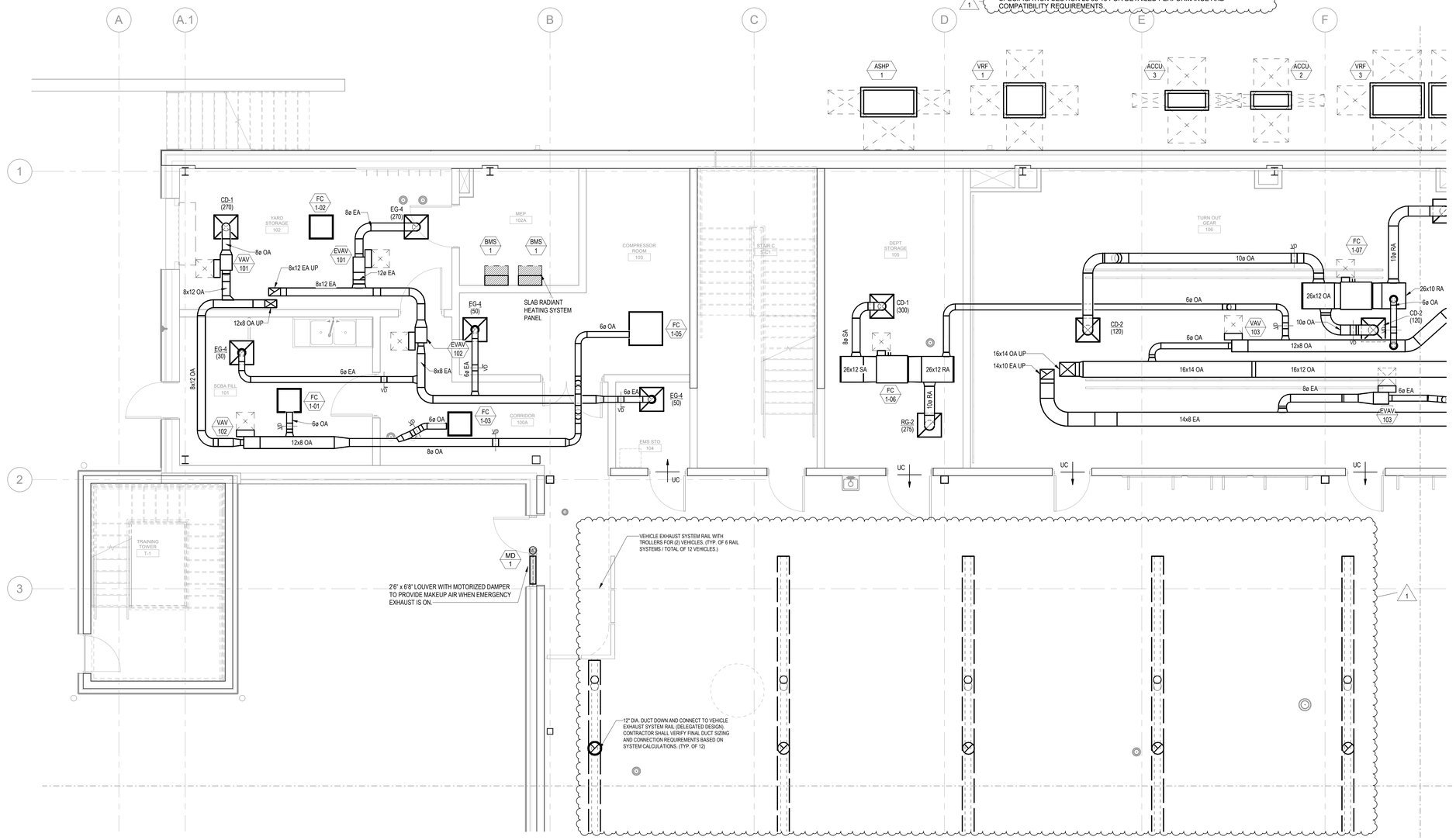
GENERAL:

1. ADD 1" LINER TO FCU SUPPLY AND RETURN PLENUM.
2. THE VEHICLE EXHAUST EXTRACTION SYSTEM, INCLUDING ALL ASSOCIATED DUCTWORK, EXHAUST RAILS, TROLLEYS, FANS, AND CONTROLS, IS A DELEGATED DESIGN. THE MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE TO DESIGN, FURNISH, AND INSTALL A COMPLETE AND OPERATIONAL SYSTEM. REFER TO SPECIFICATION SECTION 23 35 16 FOR DETAILED PERFORMANCE AND COMPATIBILITY REQUIREMENTS.




1 MECHANICAL DUCTWORK PLAN FIRST FLOOR - PART A
1/4" = 1'-0"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**Job Number** 157132.000

**TITLE**

**MECHANICAL DUCTWORK PLAN FIRST FLOOR - PART A**

**SHEET NUMBER**

**M04.01A**



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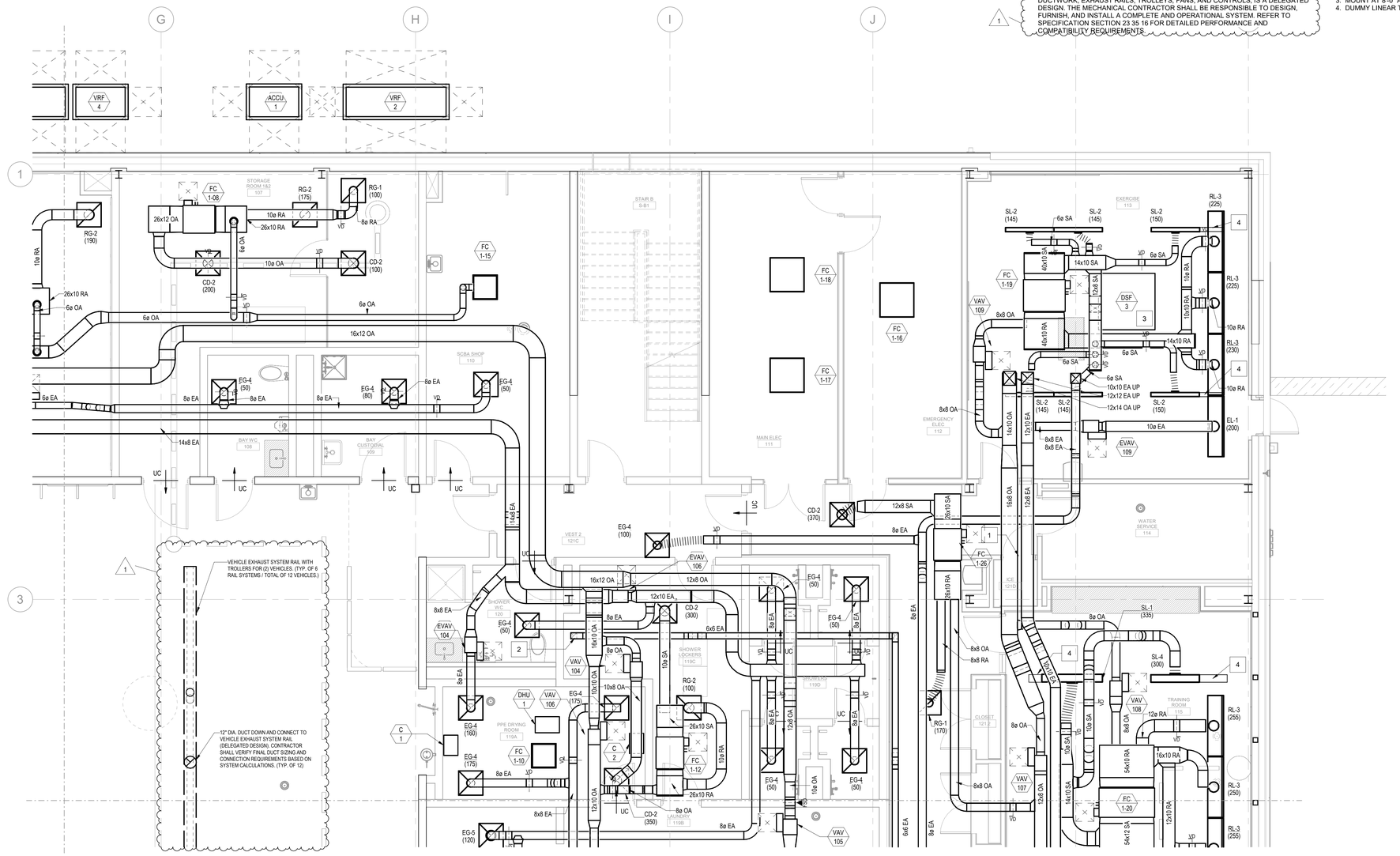
GENERAL:

1. ADD A LINER TO FCU SUPPLY AND RETURN PLENUM.
2. THE VEHICLE EXHAUST EXTRACTION SYSTEM, INCLUDING ALL ASSOCIATED DUCTWORK, EXHAUST RAILS, TROLLEYS, FANS, AND CONTROLS, IS A DELEGATED DESIGN. THE MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE TO DESIGN, FURNISH, AND INSTALL A COMPLETE AND OPERATIONAL SYSTEM. REFER TO SPECIFICATION SECTION 23 35 16 FOR DETAILED PERFORMANCE AND COMPATIBILITY REQUIREMENTS.

KEYNOTES:

1. PROVIDE WITH DOOR LOUVER WITH MIN FREE AREA OF 1SF.
2. DRYER VENT CONNECTION.
3. MOUNT AT 8'-0" AFF, TO COORDINATE THE HEIGHT AND LOCATION WITH LIGHTING.
4. DUMMY LINEAR TERMINAL TO ALIGN WITH LIGHTING.




1 MECHANICAL DUCTWORK PLAN FIRST FLOOR - PART B
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MECHANICAL DUCTWORK PLAN FIRST FLOOR - PART B

SHEET NUMBER

M04.01B



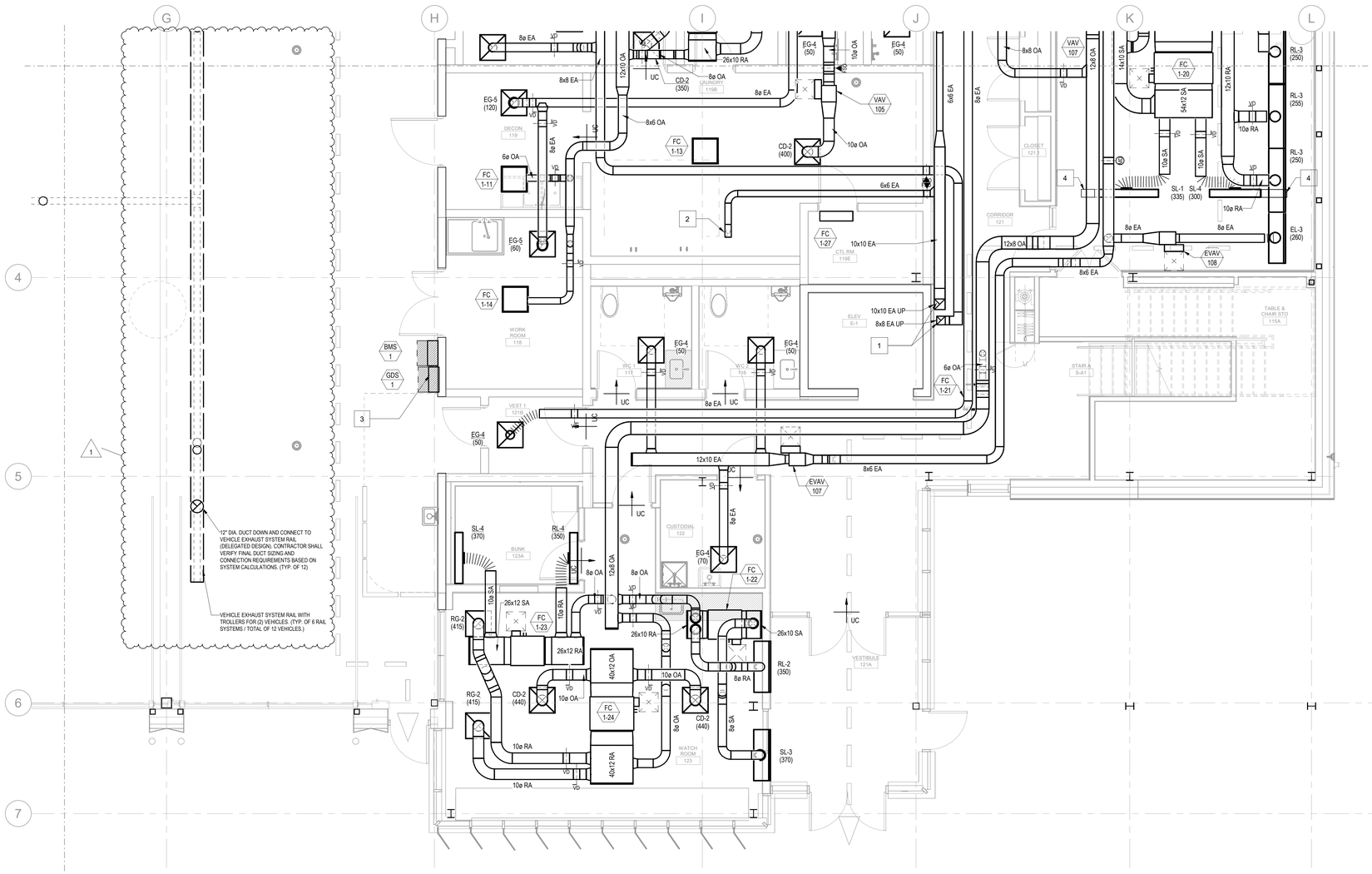
3/13/2026 3:45:06 PM Autodesk Docs://City of Worcester - South Division Firehouse/MEP_City of Worcester_South Division Firehouse.rvt

GENERAL:

1. ADD 1" LINER TO FCU SUPPLY AND RETURN PLENUM.
2. THE VEHICLE EXHAUST EXTRACTION SYSTEM, INCLUDING ALL ASSOCIATED DUCTWORK, EXHAUST RAILS, TROLLEYS, FANS, AND CONTROLS, IS A DELEGATED DESIGN. THE MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE TO DESIGN, FURNISH, AND INSTALL A COMPLETE AND OPERATIONAL SYSTEM. REFER TO SPECIFICATION SECTION 23 35 16 FOR DETAILED PERFORMANCE AND COMPATIBILITY REQUIREMENTS.

KEYNOTES:

1. EXHAUST VENT TO GO UP INSIDE THE SHAFT TO THE ROOF.
2. DRYER VENT CONNECTION.
3. GAS DETECTION SYSTEM PANEL.
4. DUMMY LINEAR TERMINAL TO ALIGN WITH LIGHTING.




1 MECHANICAL DUCTWORK PLAN FIRST FLOOR - PART D
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1408 PROVIDENCE HWY, NORWOOD, MA 02062


PROJECT

CONSTRUCTION DOCUMENTS 12/19/25

WORCESTER SOUTH DIVISION FIRE STATION PROJECT
25 MADISON ST
WORCESTER, MA 01608

CITY OF WORCESTER

455 MAIN STREET
WORCESTER, MA 01605

KEY PLAN

ISSUE CHART

| MARK | ISSUE | DATE |
|---|---|---|
| 1 | Addendum #9 | 3/13/26 |

Job Number 157132.000

TITLE

MECHANICAL DUCTWORK PLAN FIRST FLOOR - PART D

SHEET NUMBER

M04.01D



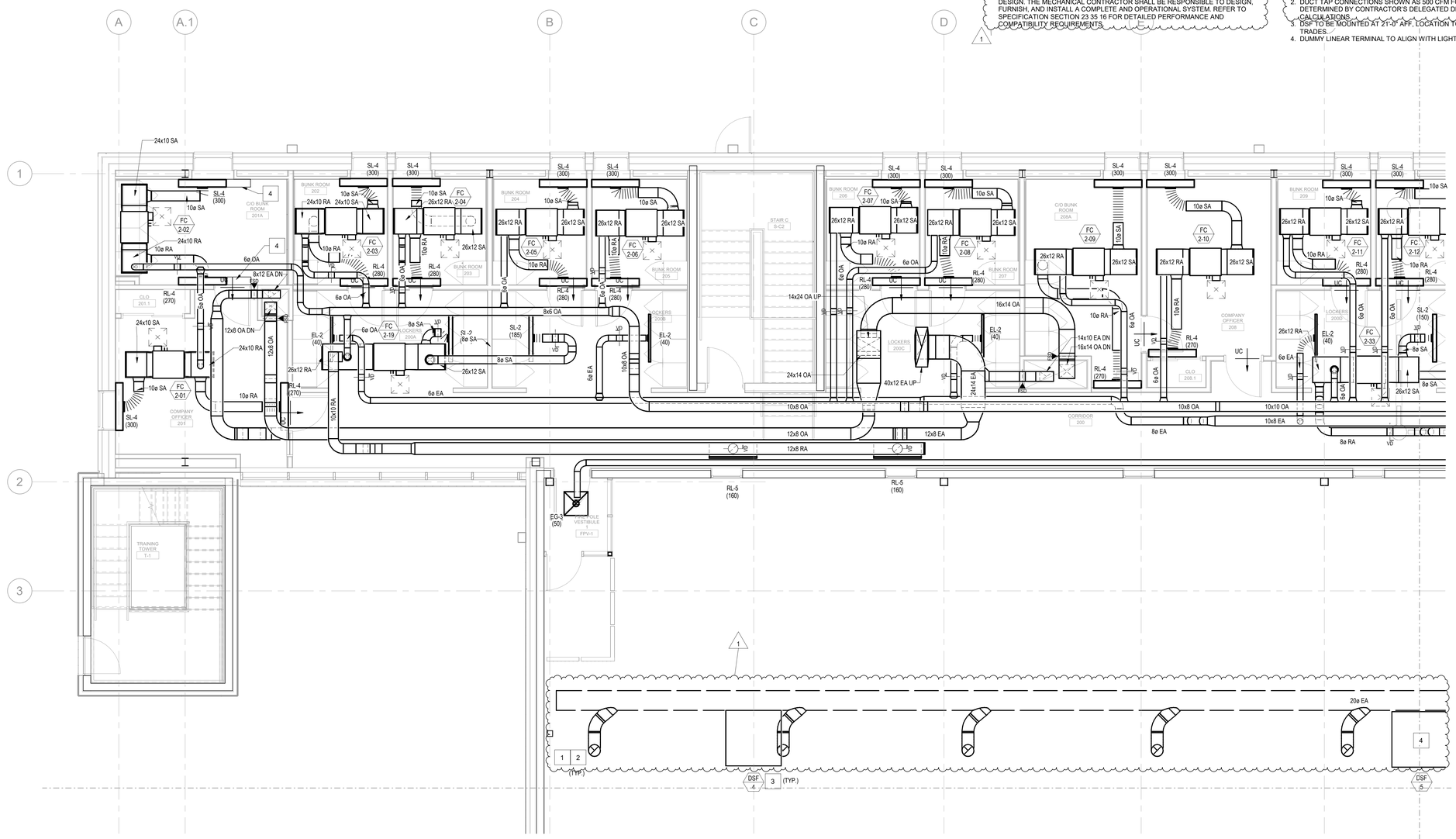
3/13/2026 3:45:14 PM Autodesk Docs://City of Worcester - South Division Firehouse/MEP_City of Worcester_South Division Firehouse.rvt

GENERAL:

1. ADD 1" LINER TO FCU SUPPLY AND RETURN PLENUM.
2. THE VEHICLE EXHAUST EXTRACTION SYSTEM, INCLUDING ALL ASSOCIATED DUCTWORK, EXHAUST RAILS, TROLLEYS, FANS, AND CONTROLS, IS A DELEGATED DESIGN. THE MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE TO DESIGN, FURNISH, AND INSTALL A COMPLETE AND OPERATIONAL SYSTEM. REFER TO SPECIFICATION SECTION 23 35 16 FOR DETAILED PERFORMANCE AND COMPATIBILITY REQUIREMENTS.

KEYNOTES:

1. DUCT DOWN AND CONNECT TO VEHICLE EXHAUST RAIL (DELEGATED DESIGN). CONTRACTOR TO RESPONSIBLE FOR FINAL DESIGN, COMPONENT LAYOUT, AND TRADE COORDINATION.
2. DUCT TAP CONNECTIONS SHOWN AS 500 CFM FOR REFERENCE; FINAL SIZING TO BE DETERMINED BY CONTRACTOR'S DELEGATED DESIGN AND PERFORMANCE CALCULATIONS.
3. DSF TO BE MOUNTED AT 21'-0" AFF, LOCATION TO BE COORDINATED WITH OTHER TRADES.
4. DUMMY LINEAR TERMINAL TO ALIGN WITH LIGHTING.




1 MECHANICAL DUCTWORK PLAN SECOND FLOOR - PART A
1/4" = 1'-0"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KEY PLAN

ISSUE CHART

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|---|---|---|
| 1 | Addendum #9 | 3/13/26 |

Job Number 157132.000

TITLE
MECHANICAL DUCTWORK PLAN SECOND FLOOR - PART A

SHEET NUMBER

M04.02A

GENERAL:

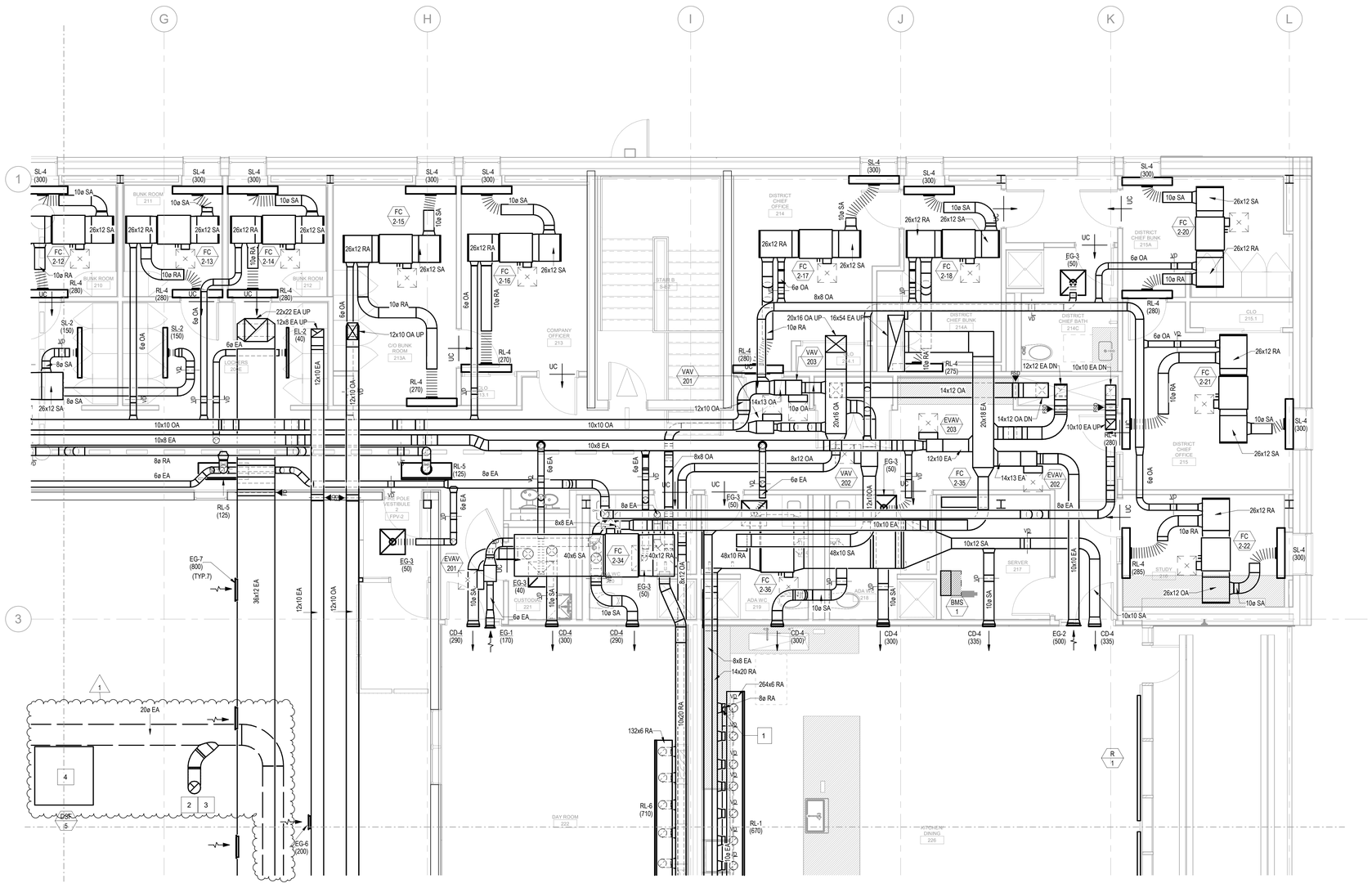
1. ADD 1" LINER TO FCU SUPPLY AND RETURN PLENUM
2. THE VEHICLE EXHAUST EXTRACTION SYSTEM, INCLUDING ALL ASSOCIATED DUCTWORK, EXHAUST RAILS, TROLLEYS, FANS, AND CONTROLS, IS A DELEGATED DESIGN. THE MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE TO DESIGN, FURNISH, AND INSTALL A COMPLETE AND OPERATIONAL SYSTEM. REFER TO SPECIFICATION SECTION 23 35 16 FOR DETAILED PERFORMANCE AND COMPATIBILITY REQUIREMENTS.

1

KEYNOTES:

1. DUCT TO CONNECT TO KITCHEN HOOD INTERNAL BLOWER. DUCT TRANSITION TO BE PROVIDED FOR KITCHEN HOOD CONNECTION.
2. DUCT DOWN AND CONNECT TO VEHICLE EXHAUST RAIL (DELEGATED DESIGN). CONTRACTOR TO RESPONSIBLE FOR FINAL DESIGN, COMPONENT LAYOUT, AND TRADE COORDINATION.
3. DUCT TAP CONNECTIONS SHOWN AS 500 CFM FOR REFERENCE; FINAL SIZING TO BE DETERMINED BY CONTRACTOR'S DELEGATED DESIGN AND PERFORMANCE CALCULATIONS.
4. DSF TO BE MOUNTED AT 21'-0" AFF, LOCATION TO BE COORDINATED WITH OTHER TRADES.

1




1 MECHANICAL DUCTWORK PLAN SECOND FLOOR - PART B
1/4" = 1'-0"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| 1 | Addendum #9 | 3/13/26 |

Job Number 157132.000

TITLE
MECHANICAL DUCTWORK PLAN SECOND FLOOR - PART B

SHEET NUMBER
M04.02B



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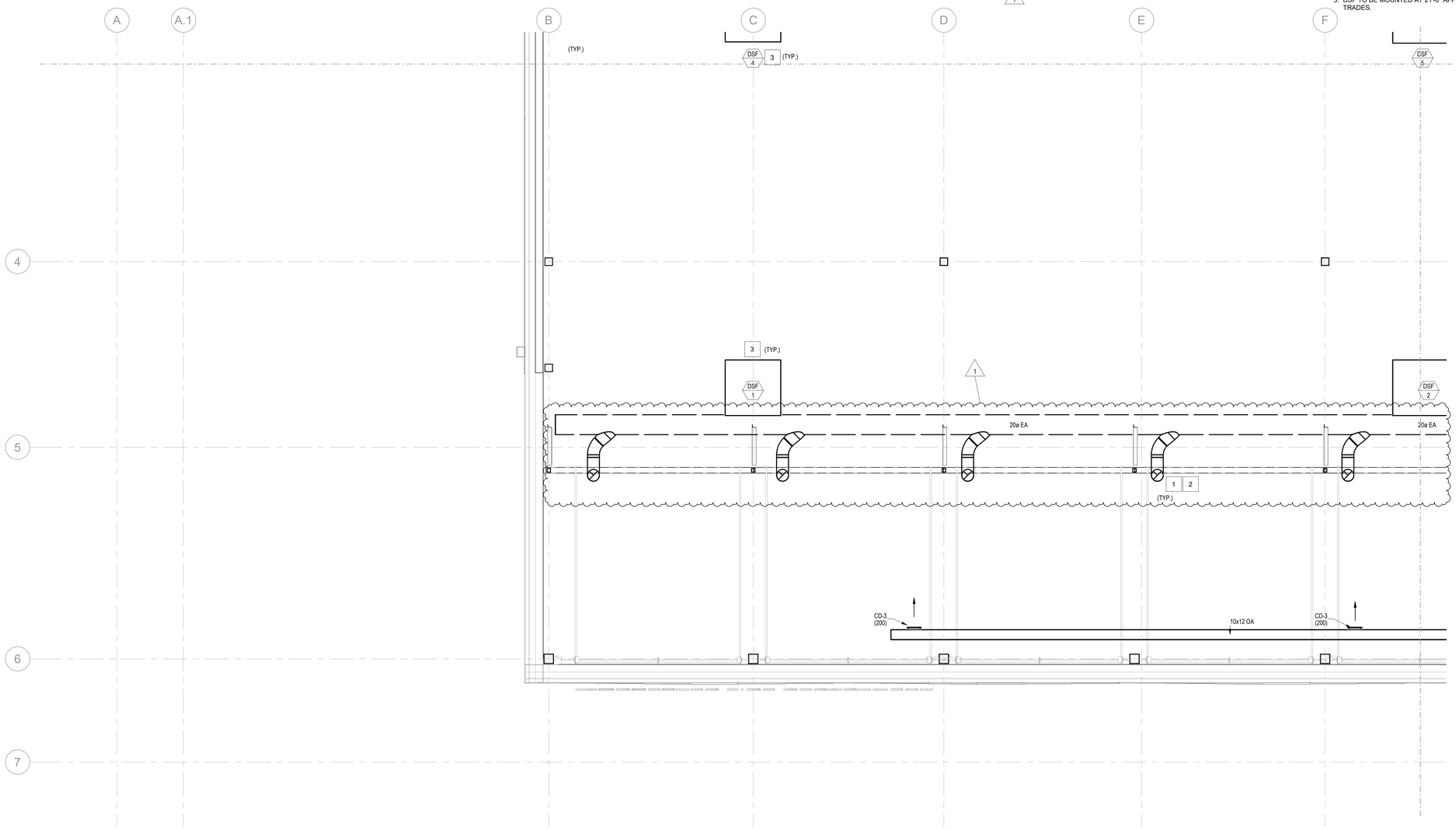
GENERAL:

1. THE VEHICLE EXHAUST EXTRACTION SYSTEM, INCLUDING ALL ASSOCIATED DUCTWORK, EXHAUST RAILS, TROLLEYS, FANS, AND CONTROLS, IS A DELEGATED DESIGN. THE MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE TO DESIGN, FURNISH, AND INSTALL A COMPLETE AND OPERATIONAL SYSTEM. REFER TO SPECIFICATION SECTION 23 35 16 FOR DETAILED PERFORMANCE AND COMPATIBILITY REQUIREMENTS.

KEYNOTES:

1. DUCT DOWN AND CONNECT TO VEHICLE EXHAUST RAIL (DELEGATED DESIGN). CONTRACTOR TO RESPONSIBLE FOR FINAL DESIGN, COMPONENT LAYOUT, AND TRADE COORDINATION.
2. DUCT TAP CONNECTIONS SHOWN AS 500 CFM FOR REFERENCE; FINAL SIZING TO BE DETERMINED BY CONTRACTOR'S DELEGATED DESIGN AND PERFORMANCE CALCULATIONS.
3. DSF TO BE MOUNTED AT 21'-0" AFF. LOCATION TO BE COORDINATED WITH OTHER TRADES.




1 MECHANICAL DUCTWORK PLAN SECOND FLOOR - PART C
1/4" = 1'-0"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CONSTRUCTION DOCUMENTS 12/19/25

KEY PLAN

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| 1 | Addendum #9 | 3/13/26 |

Job Number 157132.000

TITLE
MECHANICAL DUCTWORK PLAN SECOND FLOOR - PART C

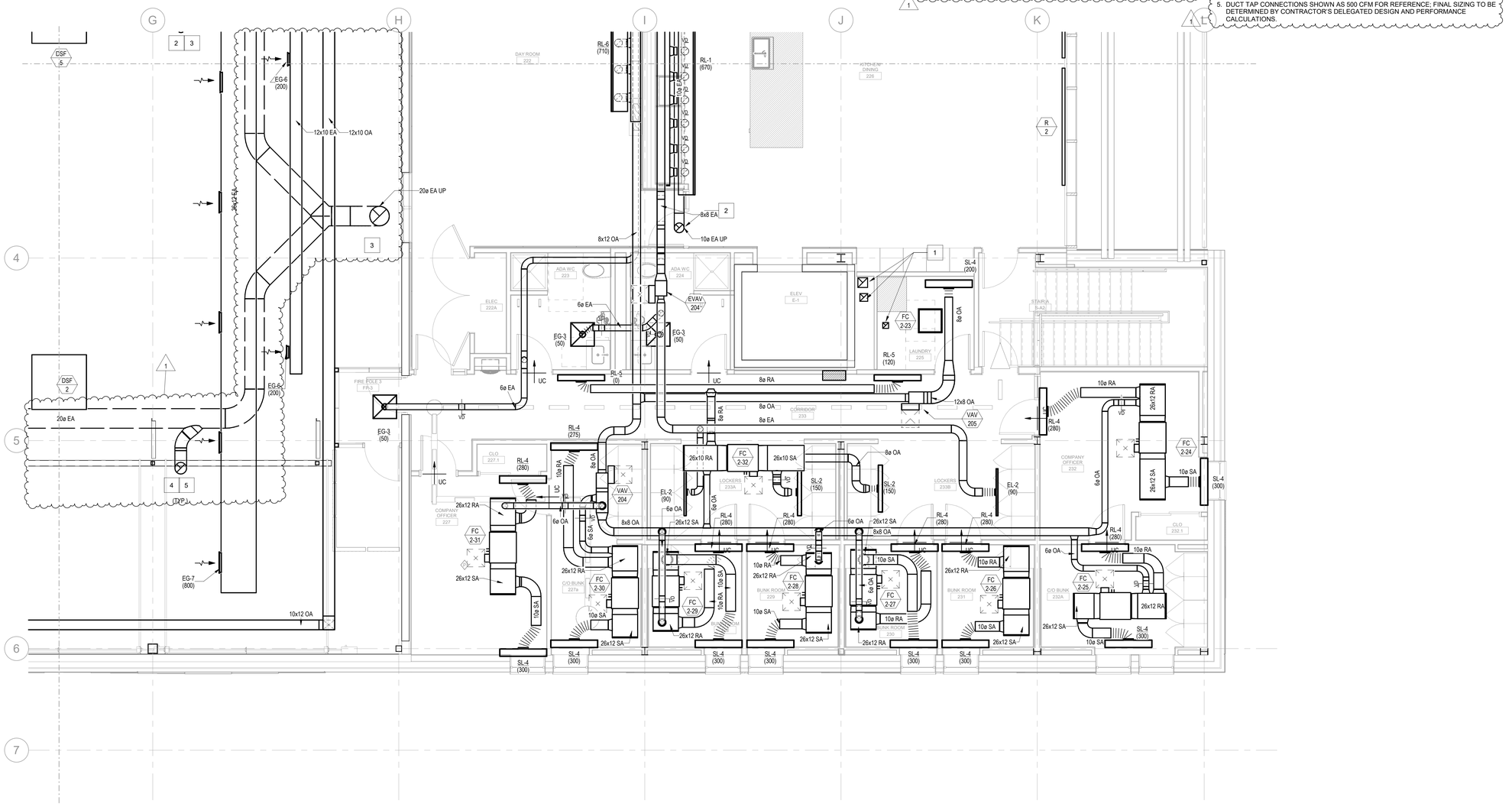
SHEET NUMBER
M04.02C

GENERAL:

1. ADD 1" LINER TO FCU SUPPLY AND RETURN PLENUM.
2. THE VEHICLE EXHAUST EXTRACTION SYSTEM, INCLUDING ALL ASSOCIATED DUCTWORK, EXHAUST RAILS, TROLLEYS, FANS, AND CONTROLS, IS A DELEGATED DESIGN. THE MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE TO DESIGN, FURNISH, AND INSTALL A COMPLETE AND OPERATIONAL SYSTEM. REFER TO SPECIFICATION SECTION 23 35 16 FOR DETAILED PERFORMANCE AND COMPATIBILITY REQUIREMENTS.

KEYNOTES:

1. EXHAUST VENT UP TO THE ROOF.
2. KITCHEN EXHAUST DUCT UP TO THE ROOF.
3. DUCT UP TO ROOF VEHICLE EXHAUST FAN: EXACT LOCATION AND INSTALLATION DETAILS PER CONTRACTOR'S DELEGATED DESIGN.
4. DUCT DOWN AND CONNECT TO VEHICLE EXHAUST RAIL (DELEGATED DESIGN). CONTRACTOR TO RESPONSIBLE FOR FINAL DESIGN, COMPONENT LAYOUT, AND TRADE COORDINATION.
5. DUCT TAP CONNECTIONS SHOWN AS 500 CFM FOR REFERENCE; FINAL SIZING TO BE DETERMINED BY CONTRACTOR'S DELEGATED DESIGN AND PERFORMANCE CALCULATIONS.




1 MECHANICAL DUCTWORK PLAN SECOND FLOOR - PART D
1/4" = 1'-0"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**Job Number** 157132.000

TITLE
**MECHANICAL DUCTWORK PLAN SECOND FLOOR - PART D**

SHEET NUMBER
**M04.02D**



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