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Addendum No. 2

DATE: August 4, 2025

PROJECT: Enterprise CP New Warehouse, Long Prairie, MN

BID DATE: **Thursday, August 7, 2025 @ 3:00pm**

The following items modify or interpret the Bidding Documents by additions, deletions, clarifications or corrections. Where portions of the Bidding Documents are modified by this Addendum, the unaltered portions of the Bidding Documents shall remain in effect.

NOTES:

- Bid Date Moved to **Thursday, August 7, 2025 @ 3:00pm**
- Section 07 5300 Elastomeric Membrane Roofing
    - See Addendum #1 for Clarification
    - Base bid to be figured as Fully Adhered, **UNBALLASTED** per 2.02 &3.03
    - Follow manufacturer's recommendations where specifications differ from manufacturer's recommendation.
- Electrical Contractors— INCLUDE IN BASE BID:
    - See Keyless Entry, Data, and Video Surveillance Drawing
    - Keyless Entry Devices and Cameras by Owner
- See attached Addendum #2 Narrative from WIDSETH
- See attached Addendum #2 Specifications from WIDSETH
- See attached Addendum #2 Drawings from WIDSETH
- Any bidding questions contact DJ Ruby @ 701-269-7213 or david@innovativecompaniesinc.com

For Plans and Specifications: go to www.innovativecompaniesinc.com. Click on the words "plan room" in the upper right hand portion of the page. Enter "**enterprise@innovative.com**" as the user name and "**In2plans**" as the password, and then click on login. Next, the window will update showing the file directory, just click on the file to enter the directory. Once in the directory, click in the box to the left of the files you wish to download, and then click on the Red download button on the right hand side.

DJ,

For the keyless entry we use Infinias 3XLogic controllers. These operate off of Power over Ethernet so we will only need an Ethernet cable (Cat 5) pulled to each door on the list. The controller is mounted local to each door. We will supply and program the controllers. The doors listed for access will require a card reader and electronic lock set.

Doors Requiring Access. Red squares on Snip.

- -112A
- -112R
- -112K
- -101A
- -101B

We will supply and mount the Cameras that we currently use, these are all also Power over Ethernet. Will only require (Cat 5) cables to be pulled to the area. For and estimate on cameras I came up with a count of 11. Nolan and Daren are both out of the office today so they may want a small change later. I Marked up the attached snip with Orange circles showing estimated locations.

I also estimated we will have 3 WIFI access points needed which will all require Power over Ethernet (Cat 5 Cabling) I marked this location on snip with Blue circles.

We will also mount a call box in the waiting area that matches our current set up, This will require 120VAC power to the area marked in Green. Not sure if this needed to be called out. It would be easy enough for me to have added after the fact if easier.

Ryan

LOADING DOCK

LOADING DOCK

TRASH ENCLOSURE

6" DIA. CONC. FILLED BOLLARD, TYPICAL AT LOADING DOCK DOORS

6" DIA. CONC. FILLED BOLLARD, TYPICAL AT OVERHEAD DOORS

WAREHOUSE

T12

EL -1

PROPOSED RACKING PROVIDED BY OTHERS

EPW1

- ALL INTERIOR
(U.N.O.)
- DISCREPANC
- ALL PIPING, C
CONCEALED
SHOWN ON
- PROVIDE MET
WALL-MOUN
LENGTH WITH
- ALL MECHAN
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- ALL EXTERIOR
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U.N.O. WITH
- PROVIDE COR
840 AND GA-
- SEE DETAIL 8/
- SEE STRUCTU

WIDSETH

August 1, 2025

RE: Enterprise CP New Warehouse
Enterprise CP, LLC
100 Banta Road, Long Prairie, MN 56347
WIDSETH Project No. 2025-10395

BID DATE: AUGUST 5, 2025

SUBJECT: ADDENDUM #2

Total Number of Pages including Drawings: 32

The following items shall become a part of the drawings and specifications and shall supersede any conflicting provisions of these Documents:

GENERAL CLARIFICATIONS:

No areas in the facility are classified as electrically hazardous.

DRAWINGS:

Civil:

C5.01 – Utility Plan

1. Added notes regarding trench drains at loading docks.

Mechanical:

M2.11 – Overall Mechanical Plan

2. Added Sensors for DDC building automation system.
3. Modified Gas to 2460 CFH.
4. Modified Gas pipe sizing as shown.

M2.12 – Enlarged Mechanical Plan

1. Added Sensors for DDC building automation system.
2. Added balancing dampers.
3. Added Motorized damper to Exhaust louver.

M2.13 – Roof Plan

1. Showed gas up to RTUs.

M6.1– Mechanical Details and Section Views

1. Added Motorized damper to Exhaust louver.

ME1.11 – Overall Mechanical Plan

1. Modified Gas Sizing on RTUs.
2. Added GRD Schedule.
3. Modified Destrat Fan Schedule model number and to include BACnet Connection.

Electrical:

ET1.11 – Electrical Title Sheet

1. Revised General Electrical Note 'L' as indicated on attached drawing.

SPECIFICATIONS:

Section 05 2100 – Steel Joist Framing: **MODIFY** as follows:

- **MODIFY**: 2.04.A: Joists to be Shop primed in lieu of galvanized.
- **OMIT**: 2.04.A.2: Galvanized steel ledge angles in its entirety.

Section 05 3100 – Steel Decking: MODIFY as follows:

- **OMIT**: 2.02.B: Metal Form Deck in its entirety.
- **OMIT**: 3.02.H: Weld stud shear connectors through steel deck to structural member below.

Section 07 5300 – Elastomeric Membrane Roofing: **MODIFY** as follows:

- **MODIFY**: 2.06.A.1.a.2: Compressive Strength to be 20 psi in lieu of 25 psi.

Section 10 2800 – Toilet, Bath, and Laundry Accessories: **MODIFY** as follows:

- **MODIFY**: Automated Soap Dispenser: Provide **wall mount** soap dispenser B-2013 manufactured by Bobrick in lieu of deck mounted soap dispenser.
- **MODIFY**: Mirrors: Provide a **frameless** mirror 747 manufactured by Bradley in lieu of framed mirror.

Section 10 4400 – Fire Protection Specialties: **MODIFY** as follows:

- **OMIT**: 2.03 Fire Extinguisher Cabinets in its entirety.

MODIFY: Section 23 0553 Identification for HVAC Piping and Equipment as follows:

- **OMIT**: 1.01.B. Pipe Markers
- **OMIT**: 2.01.A. and B. Furnaces and Condensing Units
- **ADD:** 2.01.A. Rooftop Units: Nameplates
- **ADD:** 2.01.G. Gas Unit Heaters: Nameplates

REPLACE: Section 23 0913 Instrumentation and Control Devices for HVAC in its entirety with new section 23 0913.

REPLACE: Section 23 0923 Instrumentation and Control Devices for HVAC in its entirety with new section 23 0923.

REPLACE: Section 23 0993 Instrumentation and Control Devices for HVAC in its entirety with new section 23 0993.

MODIFY: Section 23 3423 HVAC Power Ventilators, as follows:

- **OMIT**: 2.02.A.2.a., b., and c. EF-1 - Model G-090-VG, EF-2 - Model GB-300-VGD-30, and EF-3 - Model GB-300-VGD-30
- **MODIFIED:** 2.02.A.2. to say: Greenheck Fan Corporation; Model G-240-VG:
- **OMIT**: 2.02.B.3., 4., and 5. EF-1, 2, and 3 = Vari-Green
- **OMIT**: 2.02.G. Sheaves.
- **ADD**: 2.03 Ceiling Exhaust Fans

- **ADD**: 2.04 Inline Cabinet Exhaust Fans

ADD: Section 23 3424 Circulation Fans

MODIFY: Section 23 5533 Fuel-Fired Unit Heaters as follows:
- **OMIT**: 1.01.B. - Tubular Infrared Heaters
- **MODIFIED:** 2.01.A.3. – Reznor; Model UDXC

OMIT: Section 23 7413 Packaged Outdoor Central-Station Air-Handling Units

ADD: Section 23 7416 Packaged Rooftop Air-Conditioning Units

PRIOR APPROVALS:

Architectural:

Section	Product	Manufacturer
08 3613	Electric Operation	Liftmaster – Maxum JHDC

Mechanical:

Section	Product	Manufacturer
23 7416	Rooftop Units	Valent

Electrical:

Section:	*Manufacturer:*	*Model/Catalog:*
28 4600	Potter Electric Signal	IPA-60
28 4600	Potter Electric Signal	IPA-100
28 4600	Potter Electric Signal	IPA-4000

This addendum was prepared under the direct supervision of Project Architect, **Mike Angland**.

SECTION 23 0553
IDENTIFICATION FOR HVAC PIPING AND EQUIPMENT

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Nameplates.

1.02 REFERENCE STANDARDS

A. ASTM D709 - Standard Specification for Laminated Thermosetting Materials.

1.03 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements for submittal procedures.

B. List: Submit list of wording, symbols, letter size, and color coding for mechanical identification.

C. Product Data: Provide manufacturers catalog literature for each product required.

D. Manufacturer's Installation Instructions: Indicate special procedures, and installation.

PART 2 PRODUCTS

2.01 IDENTIFICATION APPLICATIONS

A. Rooftop Units: Nameplates

B. Control Panels: Nameplates.

C. Instrumentation: Nameplates.

D. Thermostats/Sensor: Nameplates.

E. Exhaust Fans: Nameplates.

F. Electric Heaters: Nameplates.

G. Gas Unit Heaters: Nameplates.

2.02 NAMEPLATES

A. Manufacturers:
   1. Kolbi Pipe Marker Co.
   2. Seton Identification Products
   3. Substitutions: See Section 01 6000 - Product Requirements.

B. Description: Laminated three-layer plastic with engraved letters.

C. The use of vinyl adhesive labels (decals) may be used as an acceptable alternative.
   1. Letter Color: White.
   2. Letter Height:
      a. 1/2 inch for sensors, t-stats, panels, and controls .
      b. 2 inch for scheduled equipment.
   3. Background Color: Black.
   4. Plastic: Conform to ASTM D709.

PART 3 EXECUTION

3.01 PREPARATION

A. Degrease and clean surfaces to receive adhesive for identification materials.

3.02 INSTALLATION

A. Install nameplates with corrosive-resistant mechanical fasteners, or adhesive. Apply with sufficient adhesive to ensure permanent adhesion and seal with clear lacquer.

END OF SECTION

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SECTION 23 0913
INSTRUMENTATION AND CONTROL DEVICES FOR HVAC

PART 1 GENERAL

1.01 ALL TEMPERATURE CONTROLS SHALL BE:

A. Automated Logic, by Automated Technologies.

B. Substitutions: Not permitted.

1.02 SECTION INCLUDES

A. Dampers. (Factory provided with equipment)

B. Damper Operators:

C. HVAC&R Sensors:
   1. Temperature sensors.
   2. Humidity sensors.
   3. Static pressure (air pressure) sensors.
   4. Current sensors.

1.03 RELATED REQUIREMENTS

A. Section 26 0583 - Wiring Connections: Electrical characteristics and wiring connections.

B. Section 26 2726 - Wiring Devices: Elevation of exposed components.

1.04 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide description and engineering data for each control system component. Include sizing as requested. Provide data for each system component and software module.

C. Shop Drawings: Indicate complete operating data, system drawings, wiring diagrams, and written detailed operational description of sequences.

D. Operation and Maintenance Data: Include inspection period, cleaning methods, recommended cleaning materials, and calibration tolerances.

1.05 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing the Products specified in this section with minimum three years experience.

1.06 WARRANTY

A. See Section 01 7800 - Closeout Submittals, for additional warranty requirements.

PART 2 PRODUCTS

2.01 EQUIPMENT - GENERAL

A. Products Requiring Electrical Connection: Listed and classified by Underwriters Laboratories Inc., as suitable for the purpose specified and indicated.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify existing conditions before starting work.

B. Verify that systems are ready to receive work.

C. Beginning of installation means installer accepts existing conditions.

D. Provide training for all mechanical systems.

3.02 INSTALLATION

A. Install in accordance with manufacturer's instructions.

B. Check and verify location of thermostats with plans and room details before installation. Locate 60 inches above floor. Align with lighting switches and humidistats. Refer to Section 26 2726.

C. Provide conduit and electrical wiring in accordance with Section 26 0583. Electrical material and installation shall be in accordance with appropriate requirements of Division 26.

END OF SECTION

SECTION 23 0923
DIRECT-DIGITAL CONTROL SYSTEM FOR HVAC

PART 1 GENERAL

1.01 ALL TEMPERATURE CONTROLS SHALL BE:

A. Automated Logic, by Automated Technologies.

B. Substitutions: Not permitted.

1.02 SECTION INCLUDES

A. System description.

B. Operator interface.

C. Controllers.

D. System software.

E. Controller software.

1.03 RELATED REQUIREMENTS

A. Section 23 0913 - Instrumentation and Control Devices for HVAC.

PART 2 PRODUCTS

2.01 SYSTEM DESCRIPTION

A. Automatic temperature control field monitoring and control system using field programmable micro-processor based units.

B. Base system on distributed system of fully intelligent, stand-alone controllers, operating in a multi-tasking, multi-user environment on token passing network, with central and remote hardware, software, and interconnecting wire and conduit.

C. Include computer software and hardware, operator input/output devices, control units, local area networks (LAN), sensors, control devices, actuators.

D. Controls for Rooftop units, unit heaters, electric unit heaters, exhaust fans, destratification fans, and water heater recirc pump.

E. Provide control systems consisting of sensors, dampers and operators, indicating devices, interface equipment and other apparatus and accessories required to operate mechanical systems, and to perform functions specified.

F. Include installation and calibration, supervision, adjustments, and fine tuning necessary for complete and fully operational system.

2.02 OPERATOR INTERFACE

A. Connect to existing system in adjacent building.

2.03 CONTROLLERS

A. Building Controllers:
   1. Provide compatible controllers to connect to existing system in adjacent building.

2.04 SYSTEM SOFTWARE

A. Operating System: Connect to existing system in adjacent building.

END OF SECTION

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SECTION 23 0993
SEQUENCE OF OPERATIONS FOR HVAC CONTROLS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. This section defines the manner and method by which controls function. Requirements for each type of control system operation are specified. Equipment, devices, and system components required for control systems are specified in other sections.

B. Sequence of operation for:
   1. Packaged rooftop air handling units.
   2. Exhaust fans.
   3. Destratification Fans
   4. Gas Unit heaters.
   5. Electric Cabinet Unit Heaters

1.02 RELATED REQUIREMENTS

A. Section 23 0913 - Instrumentation and Control Devices for HVAC.

1.03 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements for submittal procedures.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 PACKAGED ROOFTOP AIR HANDLING UNITS: (DESCRIPTION - GAS BURNER, DX COIL, SUPPLY & RETURN FAN, SERVES SPACE) STAND-ALONE FACTORY CONTROLS.

A. Application:
   1. Rooftop Unit: **RTU-1, RTU-2, RTU-3, RTU-4, RTU-5, RTU-6, and RTU-7**

B. Provide DDC controls. Unit shall come equipped with dampers.

C. Time Schedule: Programmable Thermostat shall be set for Occupied / Unoccupied times.

D. Safety Devices:
   1. Freeze Protection: Stop supply fan, and close outside air dampers if discharge air temperature is below 40 degrees F; signal low temperature alarm.
   2. Duct Smoke Detector: If activated, stop supply and return fan and close dampers.

E. Occupied Mode:
   1. Supply fan shall be on.
   2. Open outside air damper and return air damper to maintain outside air requirements as scheduled. Damper position shall be determined by balancing contractor.
   3. Cooling:
      a. Enable condensing unit and stage compressors as required to maintain space temperature setpoint.
      b. Enable condensing unit and hot gas reheat valve as required to maintain space humidity setpoint in conjunction with Temperature Setpoint.
   4. Economizer Cooling:
      a. Enthalpy controller shall modulate outside air dampers as required to maintain space temperature setpoint.
      b. Outside air requirements as described above shall be overridden to allow more outside air for cooling.
   5. Heating:
      a. Enable and stage burner as required to maintain space temperature setpoint.

F. Unoccupied Mode:
   1. Supply shall be in "auto" position.

2. Outside air damper shall be closed, return damper shall be open.
3. Enable cooling or heating as required to maintain unoccupied space temperature and humidity setpoint.

G. Miscellaneous:
1. Provide 'occupied/unoccupied' switching and 'heat/cool' switching capabilities.
2. Provide night setback capability.

H. Points List:

POINT NAMES	DI	DO	AI	AO	DV	AV	T	S	A	G
Supply fan start/stop		x								x
Supply fan status	x						x			x
Supply fan alarm	x								x	
Condensing unit start/stop, per compressor		x								x
Condensing unit status, per compressor	x						x			x
Supply air temperature			x				x			x
Return air temperature			x				x			x
Outside air damper modulation				x			x			x
Return air damper modulation				x			x			x
Space Humidity, per RTU			x							x
Space Humidity Setpoint, per RTU				x						x
Hot gas reheat modulation				x			x			x
Relief air Exhaust Fan modulation (corresponding EF)				x			x			x
Low temperature alarm	x								x	
Duct smoke detector									x	
Filter Status	x									x
Space temperature sensor			x				x			x
Space Humidity Sensor			x				x			x

3.02 ELECTRIC CABINET UNIT HEATERS

A. Single temperature room thermostat set at 68 degrees F maintains constant space temperature by cycling unit fan motor and electric heating elements.
1. Integral thermostat continues fan operation until element temperature falls below 100 degrees F.

3.03 DOMESTIC RECIRCULATION PUMPS

A. Application:
1. Circulating pumps: **RCP-1**

B. Provide DDC controls.

C. Start circulating pump based on BAS schedule: 5 AM to 7 PM (adjustable). Monday through Friday.

D. Points List:

POINT NAMES	DI	DO	AI	AO	DV	AV	T	S	A	G
Circulating pump start/stop, per pump		x								x
Circulating pump status, per pump		x					x			x

3.04 EXHAUST FANS (SCHEDULED ON/OFF)

A. Application: **EF-1, 2, 3**

B. Interlock Motorized Damper with each EF.

C. Enable exhaust fans based on occupancy schedule.

D. Points List:

POINT NAMES	DI	DO	AI	AO	DV	AV	T	S	A	G
Exhaust fan start/stop, per fan		x								x
Exhaust fan status, per fan	x									x
Damper status	x									x

3.05 EXHAUST FANS, EF-4, EF-5, EF-6, EF-7, EF-8, AND EF-9

A. Exhaust fan VFD shall be Constant Pressure activated and controlled by Building Static Pressure transmitter.

B. Transmitter shall send 0-10 vdc or 4-20ma to control VFD of Fan to maintain 0.05" WC (adj).
   1. Pressure / signal points shall be linear from +0.00" to 0.1" wc.

Inches WC	EF CFM	VFD Hertz (By TAB Contractor)
< or = +0.02" (adj.)	0	0 hz
+0.02" < X < +0.04" (adj.)	1,500	
+0.04" < X < +0.06" (adj.)	3,000	
+0.06" < X < +0.08" (adj.)	4,500	
+0.08" < X < +0.10" (adj.)	6,750	60 hz

C. Points List:

POINT NAMES	DI	DO	AI	AO	DV	AV	T	S	A	G
Exhaust fan, speed (hz)				x			x			
Exhaust fan status		x					x			x

3.06 EXHAUST FANS (EF-10)

A. Motorized dampers shall be interlocked with corresponding exhaust fan. Refer to plans.

B. Points List:

POINT NAMES	DI	DO	AI	AO	DV	AV	T	S	A	G
Exhaust fan start/stop		x								x
Exhaust fan status	x						x			x

3.07 DESTRATIFICATION FANS

A. Application:
   1. DF-1 through 43 (verify # with Final Racking Layout)

B. Destratification Fans shall be grouped into building quadrants (4). Each quadrant of fans shall be enabled and signaled by a temperature difference from floor to ceiling as indicated below:

C. Provide necessary relays to accomplish fan enable and speed control.

D. Controls shall send 0-10 vdc to Fan when temperature differences are as indicated (adj).
   1. Pressure / signal points shall be linear from +0.00" to 0.1" wc.

Temperature Difference	0-10 VDC (By TAB Contractor, adjustable)
X < 4°F	2
5°F < X < 12°F	Linear scale from 3-7 vdc
13°F < X < 20°F	Linear scale from 8-10 vdc

3.08 MISCELLANEOUS

A. Application: Miscellaneous Points

B. Points List:

POINT NAMES	DI	DO	AI	AO	DV	AV	T	S	A	G
Outside air temperature			x				x			x

Outside air humidity			x				x			x
Outdoor CO2 concentration			x				x			x

3.09 ELECTRIC CABINET UNIT HEATERS

A. Application: **ECUH-1**

B. Electric heating:

1. Integral mounted thermostat shall energize electric heating element and start fan to maintain a space temperature of 75 degrees (adjustable).

C. Points List:

POINT NAMES	DI	DO	AI	AO	DV	AV	T	S	A	G
Space temperature			x				x			x
Heating elements energize		x					x			x

3.10 GAS UNIT HEATER (GUH-1, GUH-2, GUH-3, AND GUH-4)

A. Single temperature electric room thermostat maintains constant space temperature of 68 degrees F (adjustable) by cycling unit fan motor.

B. Points List:

POINT NAMES	DI	DO	AI	AO	DV	AV	T	S	A	G
Space temperature			x				x			x
Unit Heater Status	x									x

END OF SECTION

SECTION 23 3423
HVAC POWER VENTILATORS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Roof exhausters.

B. Destratification Fans

1.02 RELATED REQUIREMENTS

A. Section 23 3300 - Air Duct Accessories: Backdraft dampers.

B. Section 26 0583 - Wiring Connections: Electrical characteristics and wiring connections.

1.03 REFERENCE STANDARDS

A. AMCA (DIR) - (Directory of) Products Licensed Under AMCA International Certified Ratings Program.

B. AMCA 99 - Standards Handbook.

C. AMCA 204 - Balance Quality and Vibration Levels for Fans.

D. AMCA 210 - Laboratory Methods of Testing Fans for Certified Aerodynamic Performance Rating.

E. AMCA 300 - Reverberation Room Methods of Sound Testing of Fans.

F. UL 705 - Power Ventilators.

1.04 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide data on fans and accessories including fan curves with specified operating point clearly plotted, power, RPM, sound power levels at rated capacity, and electrical characteristics and connection requirements.

C. Manufacturer's Instructions: Indicate installation instructions.

D. Maintenance Data: Include instructions for lubrication, motor and drive replacement, spare parts list, and wiring diagrams.

1.05 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing the type of products specified in this section, with minimum three years of experience.

1.06 FIELD CONDITIONS

A. Permanent ventilators may not be used for ventilation during construction.

PART 2 PRODUCTS

2.01 POWER VENTILATORS - GENERAL

A. Static and Dynamically Balanced: AMCA 204 - Balance Quality and Vibration Levels for Fans.

B. Performance Ratings: Determined in accordance with AMCA 210 and bearing the AMCA Certified Rating Seal.

C. Sound Ratings: AMCA 301, tested to AMCA 300 and bearing AMCA Certified Sound Rating Seal.

D. Fabrication: Comply with AMCA 99.

E. Electrical Components: Listed and classified by Underwriters Laboratories Inc. as suitable for the purpose specified and indicated.

2.02 ROOF EXHAUSTERS (EF-4, 5, 6, 7, 8, AND 9)

A. Manufacturers:
   1. Cook
   2. Greenheck Fan Corporation; Model G-240-VG: www.greenheck.com/#sle.

3. PennBarry, Division of Air System Components: www.pennbarry.com/#sle.
4. Twin City Fan & Blower: www.tcf.com/#sle.
5. Substitutions: See Section 01 6000 - Product Requirements.

B. Performance Ratings: As Scheduled.
1. Electrical Characteristics: As Scheduled.
2. Motor:

C. Fan Unit: V-belt or direct driven as indicated, with spun aluminum housing; resilient mounted motor; 1/2 inch mesh, 0.62 inch thick aluminum wire birdscreen; square base to suit roof curb with continuous curb gaskets.

D. Roof Curb: 24 inch high self-flashing of galvanized steel with continuously welded seams, built-in cant strips.

E. Disconnect Switch: Factory wired, non-fusible, in housing for thermal overload protected motor.

F. Backdraft Damper: Gravity actuated, aluminum multiple blade construction, felt edged with offset hinge pin, nylon bearings, blades linked, and line voltage motor drive, power open, spring return.

2.03 CEILING EXHAUST FANS (EF-1, 2, AND 3)

A. Performance:
1. As scheduled.

B. Centrifugal Fan Unit: Direct driven with galvanized steel housing lined with acoustic insulation, resilient mounted motor, gravity backdraft damper in discharge.

C. Disconnect Switch: Cord and plug in housing for thermal overload protected motor and wall mounted switch.

D. Grille: Molded white plastic.

2.04 INLINE CABINET EXHAUST FANS

A. Manufacturers:
1. Cook
2. Greenheck Fan Corporation; Model SQ: www.greenheck.com/#sle.
3. Panasonic Corporation of North America; WhisperRecessed LED: www.panasonic.com/#sle.
4. PennBarry, Division of Air System Components; _____: www.pennbarry.com/#sle.
5. Twin City Fan & Blower; T: www.tcf.com/#sle.

B. Performance Ratings: As scheduled

C. Centrifugal Fan Unit: Direct driven with galvanized steel housing , resilient mounted motor, gravity backdraft damper in discharge.

D. Disconnect Switch: Factory wired, non-fusible, in housing for thermal overload protected motor .

PART 3 EXECUTION

3.01 INSTALLATION

A. Install in accordance with manufacturer's instructions.

B. Secure roof exhausters with cadmium plated steel lag screws to roof curb.

C. Extend ducts to roof exhausters into roof curb. Counterflash duct to roof opening.

D. Hung Cabinet Fans:
1. Install fans with resilient mountings and flexible electrical leads.
2. Install flexible connections specified in Section 23 3300 between fan and ductwork. Ensure metal bands of connectors are parallel with minimum one inch flex between ductwork and fan while running.

E. Provide sheaves required for final air balance.

F. Provide backdraft dampers on outlet from cabinet and ceiling exhauster fans and as indicated.

END OF SECTION

SECTION 23 3424
CIRCULATION FANS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Destratification fans.

1.02 RELATED REQUIREMENTS

A. Section 23 0513 - Common Motor Requirements for HVAC Equipment.

B. Section 26 0583 - Wiring Connections: Electrical characteristics and wiring connections.

1.03 REFERENCE STANDARDS

A. AMCA 99 - Standards Handbook.

B. AMCA 204 - Balance Quality and Vibration Levels for Fans.

C. AMCA 210 - Laboratory Methods of Testing Fans for Certified Aerodynamic Performance Rating.

D. AMCA 300 - Reverberation Room Methods of Sound Testing of Fans.

E. AMCA 301 - Methods for Calculating Fan Sound Ratings from Laboratory Test Data.

1.04 ADMINISTRATIVE REQUIREMENTS

A. Preinstallation Meeting: Conduct preinstallation meeting one week prior to start of work of this section; require attendance by all affected installers.

1.05 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements for submittal procedures.

B. Product Data: Provide data on fans and accessories, including fan curves with specified operating point plotted, power, rpm, sound power levels at rated capacity, and electrical characteristics and connection requirements.

1.06 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section, with minimum three years of documented experience.

1.07 WARRANTY

A. See Section 01 7800 - Closeout Submittals for additional warranty requirements.

B. Manufacturer Warranty: Provide 2-year manufacturer warranty for Destrat fans. Complete forms in Owner's name and register with manufacturer.

PART 2 PRODUCTS

2.01 GENERAL REQUIREMENTS

A. Static and Dynamically Balanced: Comply with AMCA 204.

B. Performance Ratings: Comply with AMCA 210, bearing certified rating seal.

C. Sound Ratings: Comply with AMCA 301, tested to AMCA 300, bearing certified sound ratings seal.

D. Fabrication: Comply with AMCA 99.

E. Electrical Components: Listed and classified by Underwriters Laboratories Inc. as suitable for the purpose specified and indicated.

2.02 HIGH-VELOCITY FANS

A. Manufacturers:
   1. Airius; Model ONYX-EC-STD-100-130-W with Airius BAC24
   2. Substitutions: See Section 01 6000 - Product Requirements.

B. Product Description: Electrically-operated, personnel cooling fan for mounting at loading dock door openings.

C. Direct-Drive EC Fan:
   1. Fan Wheel:
      a. Motor Type: Non-overloading; totally enclosed air over motor.
   2. Housing:
      a. Venturi enclosure with front and rear spiral wound grills.
      b. Construct drive-frame assembly of heavy-gauge steel.
      c. Finish: Powder coated.

D. Control: 0-10V, BACnet MS/TP card for integration to existing system.

E. Disconnect Switch: Cord and plug-in housing for thermal overload-protected motor.

F. Accessories:
   1. Finishes: Standard factory finish to match fan housing.

G. Performance Ratings: As indicated on drawings.

END OF SECTION

SECTION 23 5533
FUEL-FIRED UNIT HEATERS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Gas fired unit heaters.

1.02 RELATED REQUIREMENTS

A. Section 23 5100 - Breechings, Chimneys, and Stacks.

B. Section 26 0583 - Wiring Connections: Electrical characteristics and wiring connections.

1.03 REFERENCE STANDARDS

A. NFPA 54 - National Fuel Gas Code.

B. NFPA 90A - Standard for the Installation of Air-Conditioning and Ventilating Systems.

C. NFPA 211 - Standard for Chimneys, Fireplaces, Vents, and Solid Fuel-Burning Appliances.

1.04 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide manufacturer's literature and data indicating rated capacities, weights, accessories, electrical nameplate data, and wiring diagrams.

C. Shop Drawings: Indicate assembly, required clearances, and locations and sizes of field connections.

D. Operation and Maintenance Data: Include manufacturer's descriptive literature, operating instructions, maintenance and repair data, and parts listing.

E. Warranty: Submit manufacturers warranty and ensure forms have been filled out in Owner's name and registered with manufacturer.

1.05 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing the type of products specified in this section, with minimum three years of experience.

1.06 WARRANTY

A. See Section 01 7800 - Closeout Submittals, for additional warranty requirements.

B. Provide five year manufacturers warranty for heat exchangers.

PART 2 PRODUCTS

2.01 GAS FIRED UNIT HEATERS

A. Manufacturers:
   1. Modine Manufacturing Company
   2. Sterling HVAC/Mestek Technology, Inc
   3. Reznor; Model UDXC
   4. Substitutions: See Section 01 6000 - Product Requirements.

B. Unit Heaters: Self-contained, packaged, factory assembled, pre-wired unit consisting of cabinet, supply fan, heat exchanger, burner, controls, and accessories:
   1. Heating: Natural gas fired.
   2. Discharge Louvers: Individually adjustable horizontal and vertical louvers to match cabinet finish.

C. Cabinet: Galvanized steel with baked enamel finish, easily removed and secured access doors, glass fiber insulation and reflective liner.

D. Supply Fan: Propeller type with direct drive.

E. Heat Exchanger:

1. The heater shall be equipped with a multi-cell, 4 pass serpentine style steel heat exchanger. Heat exchanger tubes shall be press fabricated of titanium stabilized, corrosion resistant aluminized steel. All heat exchangers shall be fabricated with no welding or brazing, only tool pressed mechanical joints. All heat exchanger cells shall be designed with an aerodynamic cross section to provide maximum airflow.

F. Combustion Air and Venting
   1. The unit shall have a factory-installed power venter device to draw combustion air through an inlet in the rear of the cabinet.
   2. The combustion air/venting system shall include a vibration isolated power venter motor and wheel assembly and a combustion air pressure switch.

G. Gas Burner: (2-stage for 60 MBH heaters and above)
   1. Gas valve, two stage provides 100 percent safety gas shut-off; 24 volt combining pressure regulation, safety pilot, manual set (On-Off), pilot filtration, automatic electric valve.
   2. Electronic pilot ignition, with electric spark igniter.

H. Gas Burner Safety Controls:
   1. Thermocouple Sensor: Prevents opening of gas valve until pilot flame is proven and stops gas flow on ignition failure.
   2. Vent Safety Shutoff Sensor: Temperature sensor installed on draft hood and prevents operation, manual reset.

I. Operating Controls:
   1. Controls shall include a dual-stage gas valve (60MBH and higher); direct spark multi-try ignition with electronic flame supervision with timed lockout integrally controlled via a printed circuit control board. The control board shall also incorporate diagnostic lights, DIP switches for blower overrun settings, and a relay definite purpose 3 pole contactor for blower only operation. All open (TEFC) blower motors shall have automatic thermal overload protection or be equipped with a factory installed motor starter with adjustable thermal overloads. All units shall be equipped with a safety limit switch.
   2. All controls shall be enclosed in the sealed control compartment to protect them from accidental damage, dust, and atmospheric corrosion.
   3. Operation shall be controlled by an integrated circuit board that includes LED diagnostic indicator lights. Supply voltage connections are made at the circuit board. 24-volt control connections shall be made on an externally mounted terminal strip with connections W1, W2, R, and G. All internal wiring, both line and control voltages, shall be terminated by insulated terminal connectors to minimize shock hazard during service.
   4. Room Thermostat: Cycles burner and fan to maintain room temperature setting.

J. Performance: As scheduled.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that space is ready for installation of units and openings are as indicated on shop drawings.

B. Verify that proper power supply is available.

C. Verify that proper fuel supply is available for connection.

3.02 INSTALLATION

A. Install in accordance with NFPA 90A.

B. Install gas fired units in accordance with NFPA 54 and applicable codes.

C. Provide and install unit venting in accordance with manufacturer's recommendations.

D. Provide vent connections in accordance with NFPA 211. Refer to Section 23 5100.

E. Install unit heaters with vibration isolation. Refer to Section 23 0548.

F. Provide operating controls; refer to Section 23 0913.

G. Provide connection to electrical power systems; refer to Section 26 0583.

END OF SECTION

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SECTION 23 7416
PACKAGED ROOFTOP AIR-CONDITIONING UNITS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Packaged, intermediate-capacity, rooftop air-conditioning units.

1.02 RELATED REQUIREMENTS

A. Section 23 0548 - Vibration and Seismic Controls for HVAC.

B. Section 23 0913 - Instrumentation and Control Devices for HVAC: Control components, time clocks.

C. Section 23 0913 - Instrumentation and Control Devices for HVAC: Installation of thermostats and other control components.

D. Section 26 0583 - Wiring Connections: Installation and wiring of thermostats and other control components; wiring from unit terminal strip to remote panel.

E. Section 26 0583 - Wiring Connections: Electrical characteristics and wiring connections.

1.03 REFERENCE STANDARDS

A. AHRI 270 (SI/I-P) - Sound Performance Rating of Outdoor Unitary Equipment.

B. ASHRAE Std 90.1 I-P - Energy Standard for Buildings Except Low-Rise Residential Buildings.

C. ASHRAE Std 135 - BACnet - A Data Communication Protocol for Building Automation and Control Networks.

D. IEEE 802.11 - IEEE Standard for Information Technology--Telecommunications and Information Exchange between Systems - Local and Metropolitan Area Networks--Specific Requirements - Part 11: Wireless LAN Medium Access Control (MAC) and Physical Layer (PHY) Specifications.

E. NFPA 90A - Standard for the Installation of Air-Conditioning and Ventilating Systems.

1.04 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements for submittal procedures.

B. Product Data: Provide capacity and dimensions of manufactured products and assemblies required for this project. Indicate electrical service with electrical characteristics and connection requirements, and duct connections.

C. Shop Drawings: Indicate capacity and dimensions of manufactured products and assemblies required for this project. Indicate electrical service with electrical characteristics and connection requirements, and duct connections.

D. Manufacturer's Instructions: Indicate assembly, support details, connection requirements, and include start-up instructions.

E. Operation and Maintenance Data: Include manufacturer's descriptive literature, operating instructions, installation instructions, maintenance and repair data, and parts listing.

F. Warranty: Submit manufacturer's warranty and ensure forms have been filled out in Owner's name and registered with manufacturer.

G. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
   1. See Section 01 6000 - Product Requirements for additional provisions.
   2. Extra Filters: One set for each unit.

1.05 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing the type of products specified in this section, with minimum three years of documented experience.

B. Products Requiring Electrical Connection: Listed and classified by Underwriters Laboratories Inc. as suitable for the purpose specified and indicated.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Protect units from physical damage by storing off site until roof mounting curbs are in place and ready for immediate installation of units.

1.07 WARRANTY

A. See Section 01 7800 - Closeout Submittals for additional warranty requirements.

B. Provide a five year warranty to include coverage for refrigeration compressors.

PART 2 PRODUCTS

2.01 PACKAGED, INTERMEDIATE-CAPACITY, ROOFTOP AIR-CONDITIONING UNITS (RTU-1, 2, 3, AND 4)

A. Manufacturers:
   1. Basis of Design: Aaon ; Model RN Series
   2. CaptiveAire
   3. Valent
   4. Carrier
   5. Substitutions: See Section 01 6000 - Product Requirements.

B. General: Roof mounted units having gas burner and electric refrigeration that are 7.5 tons to 25 tons in capacity.

C. Description: Self-contained, packaged, factory assembled and prewired, consisting of cabinet and frame, supply fan, heat exchanger and burner, unit controls, air filters, refrigerant cooling coil, Hot gas reheat coil, and compressor, condenser coil and condenser fan.

D. Refrigerant: Use only refrigerants that have ozone depletion potential (ODP) of zero and global warming potential (GWP) no greater than that allowed by federal code.

E. Electrical Characteristics: As Scheduled.

F. Standard Power Block

G. 5kAIC SCCR

H. Field Wired, 115v, 20amp GFI outlet.

I. Disconnect Switch: Factory mount disconnect switch in control panel.

2.02 CASING

A. Cabinet (walls, access doors, and roof): Double wall G90 galvanized Steel with thermal break and baked enamel finish, including access doors with piano hinges and locking handle. Structural members to be minimum 18 gauge, 0.0478 inch, with access doors or panels of minimum 20 gauge, 0.0359 inch.

B. Insulation: 2-inch thick foam injection - R-13 minimum.

C. Bottom Supply and Return air openings.

2.03 FANS

A. Supply Fan: Backward curved with Direct drive, and rubber isolated hinge mounted. Provide with high efficiency motor. Isolate complete fan assembly. See Section 23 0548.

2.04 BURNERS

A. Staged Gas Burner (4:1): Induced draft type burner with adjustable combustion air supply, pressure regulator, gas valves, manual shut-off, intermittent spark or glow coil ignition, flame-sensing device, and automatic 100 percent shutoff pilot.
   1. Construction: Welded stainless steel.

B. Gas Burner Safety Controls: Energize ignition, limit time for establishment of flame, prevent opening of gas valve until pilot flame is proven, stop gas flow on ignition failure, energize blower motor, and after airflow proven and slight delay, allow gas valve to open.

2.05 EVAPORATOR COIL

A. Coils shall be designed for use with R-454B refrigerant and constructed of copper tubes with aluminum fins mechanically bonded to the tubes and galvanized steel end casings. Fin design shall be sine wave rippled. Shall include a double sloped 304 Stainless Steel drain pan and connection.

B. Provide capillary tubes or thermostatic expansion valves for units of 6 tons capacity and less, and thermostatic expansion valves and alternate row circuiting for units 7.5 tons cooling capacity and larger.

2.06 CONDENSER COIL

A. Provide copper tube aluminum fin coil assembly with subcooling rows and coil guard (Hail Gaurd).

B. Provide direct drive propeller fans, resiliently mounted with fan guard, motor overload protection, wired to operate with compressor. Provide ECM or VFD control motors.

2.07 HOT GAS REHEAT COIL

A. Provide copper tube aluminum fin coil assembly with multiple circuits arranged to provide hot gas reheat for dehumidification.

2.08 COMPRESSORS

A. Unit shall include a 2-step scroll compressors on the refrigeration circuits which shall be capable of 5-stages of refrigerant capacity.

B. R-454B.

C. Lead refrigeration circuit shall be provided with hot gas reheat coil, modulating valves, electronic controller, supply air temperature sensor and a control signal terminal whichallow the unit to have a dehumidification mode of operation, which includes supply air temperature control to prevent supply air temperature swings and overcooling of the space.

D. Lag refrigeration circuit shall be provided with hot gas reheat coil, modulating valves, electronic controller, supply air temperature sensor and a control signal terminal whichallow the unit to have a dehumidification mode of operation, which includes supply air temperature control to prevent supply air temperature swings and overcooling of the space.

2.09 MIXED AIR CASING

A. Unit shall include 0-100% economizer consisting of a motor operated outside air damper and return air damper assembly constructed of extruded aluminum, hollow core, airfoil blades with rubber edge seals and aluminum end seals. Damper blades shall be gear driven and designed to have no more than 20 cfm of leakage per sq ft. at 4 in. w.g. air pressure differential across the damper.Low leakage dampers shall be Class 2 AMCA certified, in accordance with AMCA Standard 511. Damper assembly shall be controlled by spring return enthalpy activated fully modulating actuator. Unit shall include outside air opening bird screen and outside air hood. Unit, except for horizontal series, shall also include barometric relief dampers.

B. Gaskets: Provide tight fitting dampers with edge gaskets.

2.10 AIR FILTERS:

A. MERV 8 - 4 inch pleated

2.11 OPERATING CONTROLS

A. Provide terminal strip on unit for connection of operating controls to remote panel by others. Control to allow for modulating heat, modulating cooling, Modulating hot gas reheat, and variable air volume.

2.12 OPERATING CONTROLS - VARIABLE VOLUME UNITS

A. Temperature transmitter located in supply air to signal electronic logic panel to control mixing dampers and cooling in sequence. Mixing section to operate as first stage of cooling and revert to minimum outside air above approximately 75 degrees F as determined by enthalpy of return and outdoor air.

B. Control cooling and dehumidification by cycling compressors, cylinder unloading, and hot gas reheat.

C. Control logic to allow supply air reset under low load or airflow conditions.

2.13 PLENUM ROOF CURBS

A. Roof Mounting Curb: 24 inches high plenum curb, galvanized steel, channel frame with gaskets, nailer strips.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that roof is ready to receive work and opening dimensions are as required by manufacturer.

B. Verify that proper power supply is available.

3.02 INSTALLATION

A. Install in accordance with manufacturer's instructions.

B. Mount units on factory built roof mounting curb providing watertight enclosure to protect ductwork and utility services. Install roof mounting curb level.

3.03 SYSTEM STARTUP

A. Prepare and start equipment. Adjust for proper operation.

3.04 CLOSEOUT ACTIVITIES

A. See Section 01 7800 - Closeout Submittals for additional submittals.

B. See Section 01 7900 - Demonstration and Training for additional requirements.

3.05 MAINTENANCE

A. Provide service and maintenance of packaged rooftop units for one year from Date of Substantial Completion.

B. Provide routine maintenance service with a two-month interval as maximum time period between calls.

C. Include maintenance items as outlined in manufacturer's operating and maintenance data, including minimum of six filter replacements, minimum of one fan belt replacement, and controls check-out, adjustments, and recalibration.

D. After each service call, submit copy of service call work order or report that includes description of work performed.

END OF SECTION

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BLOCK ONE

PID: 36-4015600
CITY OF LONG PRAIRIE
3

PID: 36-4015700
CITY OF LONG PRAIRIE
4

PID: 36-4015800
CITY OF LONG PRAIRIE
5

PID: 36-4017400
CITY OF LONG PRAIRIE
OUTLOT A

SAN MANHOLE
RIM ELEV.=1300.46
12" PVC INV N= 1293.41
12" PVC INV S= 1293.44

SAN MANHOLE
RIM ELEV.=1300.24
12" PVC INV S= 1290.27

SAN MANHOLE
RIM ELEV.=1299.33
12" PVC INV N= 1289.29
12" PVC INV S= 1289.24

6" CLEANOUT

CONNECT TO EXISTING
SANITARY SEWER

CONNECT TO EXISTING
WATER MAIN
10"X8" TEE
8" WET TAP

PROPOSED TRENCH DRAIN
SEE SHEET C2.05 FOR DETAIL
CONNECT TO STORM SEWER (INCIDENTAL)

MH 4 (24"-36" NYLOPLAST STRUCTURE)
RIM ELEV. = 1302.91
MH DEPTH = 7.35'
SUMP DEPTH = 2'
INV. ELEV. IN (N) = 1297.56 ()
INV. ELEV. OUT (S) = 1297.56 (MH 3)

12" PVC STM. S.
24LF @ 2.08%

CONNECT TO 12" PVC ROOF DRAIN
(SEE MECHANICAL)

2 - 22.5° BENDS

12" CS APRON
INV. ELEV. = 1298.5
SEE STD. PL. 3123J

RANDOM RIPRAP CLASS III
SEE MNDOT STD PLATE 3133D

12" CS APRON
INV. ELEV. = 1296.0
SEE STD. PL. 3123J

77LF - 12" PVC 0.00% STM. S.

6" CLEANOUT

PROPOSED 6" SANITARY SEWER

8" 22.5° BEND

PROPOSED TRENCH DRAIN
SEE SHEET C2.05 FOR DETAIL
CONNECT TO STORM SEWER (INCIDENTAL)

MH 3 (24"-36" NYLOPLAST STRUCTURE)
RIM ELEV. = 1302.91
MH DEPTH = 5.61'
INV. ELEV. IN (N) = 1297.31 (MH 4)
INV. ELEV. OUT (S) = 1297.31 (MH 2)

12" PVC STM. S.
8LF @ 6.25%

CONNECT TO 12" PVC ROOF DRAIN
(SEE MECHANICAL)

MH 2 (24"-36" NYLOPLAST STRUCTURE)
RIM ELEV. = 1302.91
MH DEPTH = 7.72'
SUMP DEPTH = 2'
INV. ELEV. IN (N) = 1297.19 (MH 3)
INV. ELEV. OUT (S) = 1297.19 (MH 1)

12" CS APRON
INV. ELEV. = 1298.5
SEE STD. PL. 3123J

RANDOM RIPRAP CLASS III
SEE MNDOT STD PLATE 3133D

PROPOSED 8" WATER MAIN

8" 22.5° BEND

53LF - 12" PVC 0.20% STM. S.

271LF -12" PVC 0.20% STM. S.

MH 1 (24"-36" NYLOPLAST STRUCTURE)
RIM ELEV. = 1300.94
MH DEPTH = 3.86'
INV. ELEV. IN (N) = 1297.08 (MH 2)
INV. ELEV. OUT (E) = 1297.08 (MH 5)

MH 5 (24"-36" NYLOPLAST STRUCTURE)
RIM ELEV. = 1300.40
MH DEPTH = 3.86'
INV. ELEV. IN (W) = 1296.54 (MH 1)
INV. ELEV. OUT (NE) = 1296.54 ()

12" CS APRON
INV. ELEV. = 1296.5
SEE STD. PL. 3123J

22LF - 12" PVC STM. S.

0 40 80
SCALE IN FEET

N

WIDSETH
ARCHITECTS ▪ ENGINEERS ▪ SCIENTISTS ▪ SURVEYORS

DRAWN BY: NJL
CHECKED BY: JLK

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

JEFFREY L KUHN LIC. NO.: 26874 DATE: 07/29/2025

DATE	REV#	REVISIONS DESCRIPTION
07/29/2025	A	ADDENDUM 1
08/01/2025	B	ADDENDUM 2

ENTERPRISE CP

UTILITY PLAN

C5.01

PROJECT #: 2025-10395

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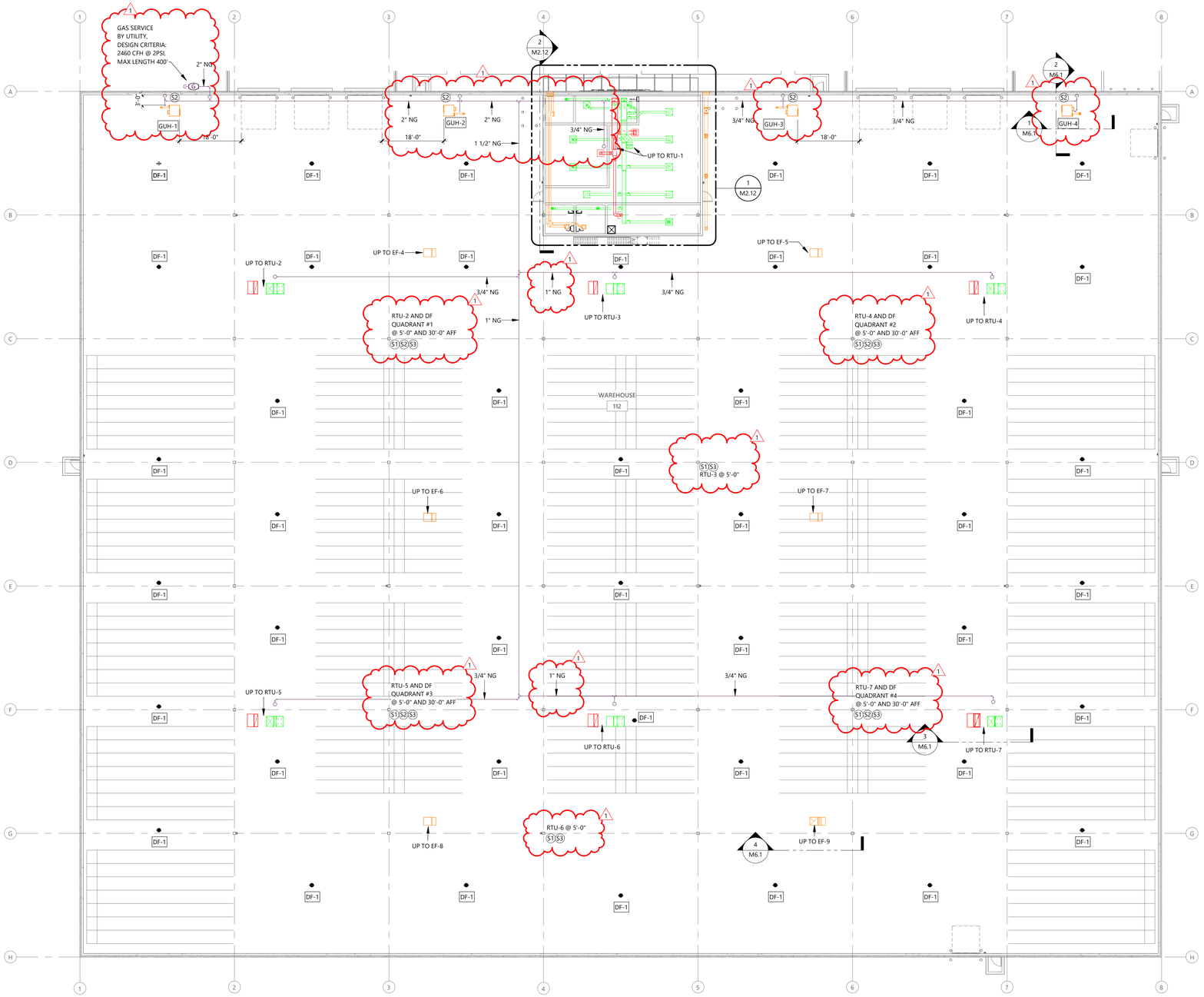

1 FIRST LEVEL MECHANICAL HVAC PLAN
1/16" = 1'-0"

#	KEYED PLAN NOTES
#	DESCRIPTION

GENERAL MECHANICAL NOTES	
A	COORDINATE DESTRAT FAN LOCATIONS WITH RACKING LAYOUT AND LIGHTING.

SENSOR LEGEND

- S1 TEMPERATURE AND HUMIDITY SENSOR, MOUNT AT 5'-0"
- S2 TEMPERATURE SENSOR, MOUNT AT 30'-0"
- S3 BUILDING PRESSURE SENSOR, MOUNT AT 5'-0"

GRAPHIC SCALE
0' 12'-0" 24'-0"

2025-10395

ENTERPRISE CP WAREHOUSE

WIDSETH
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DRAWN BY: DP
CHECKED BY: AMS

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ADAM SIEMERS LIC #: 52730 DATE: 07-03-2025

DATE	REV#	REVISIONS DESCRIPTION
8/1/2025	1	ADDENDUM #2

ENTERPRISE CP WAREHOUSE

OVERALL MECHANICAL PLAN

M2.11

PROJECT #: 2025-10395

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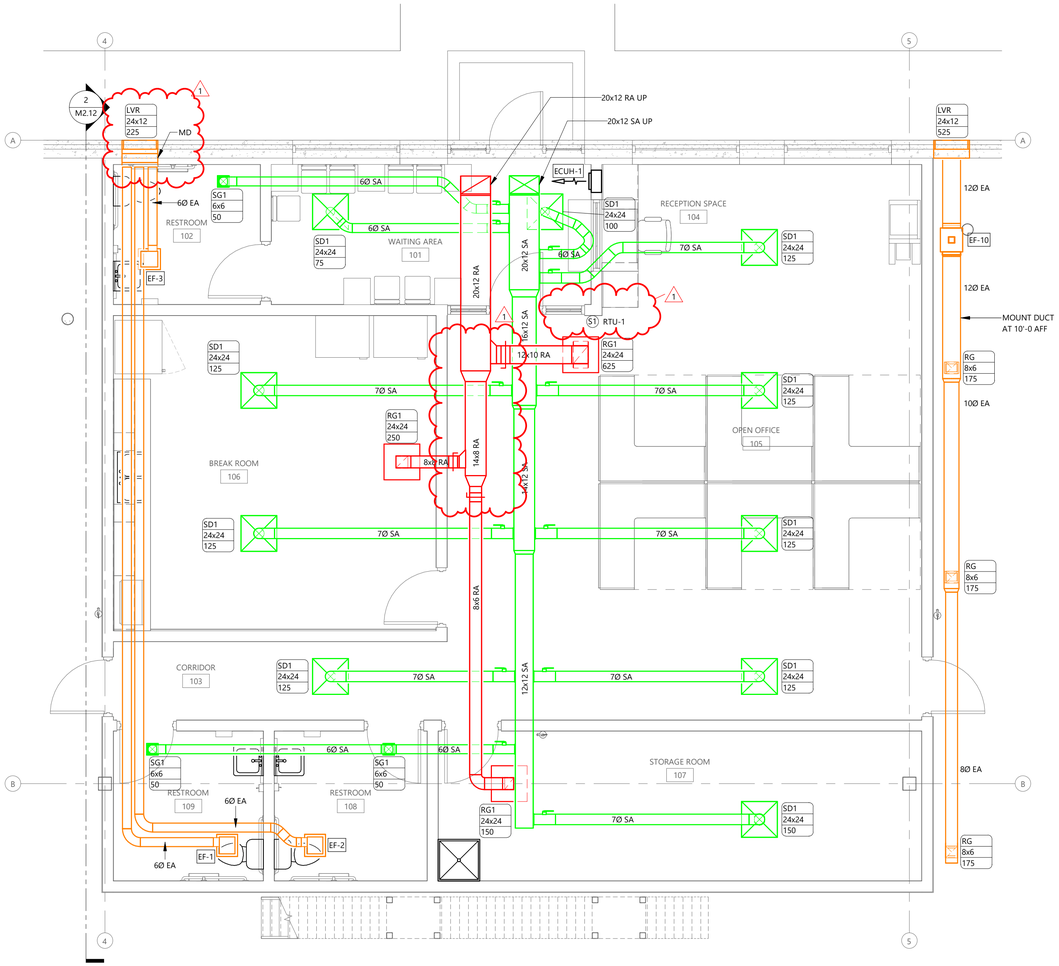
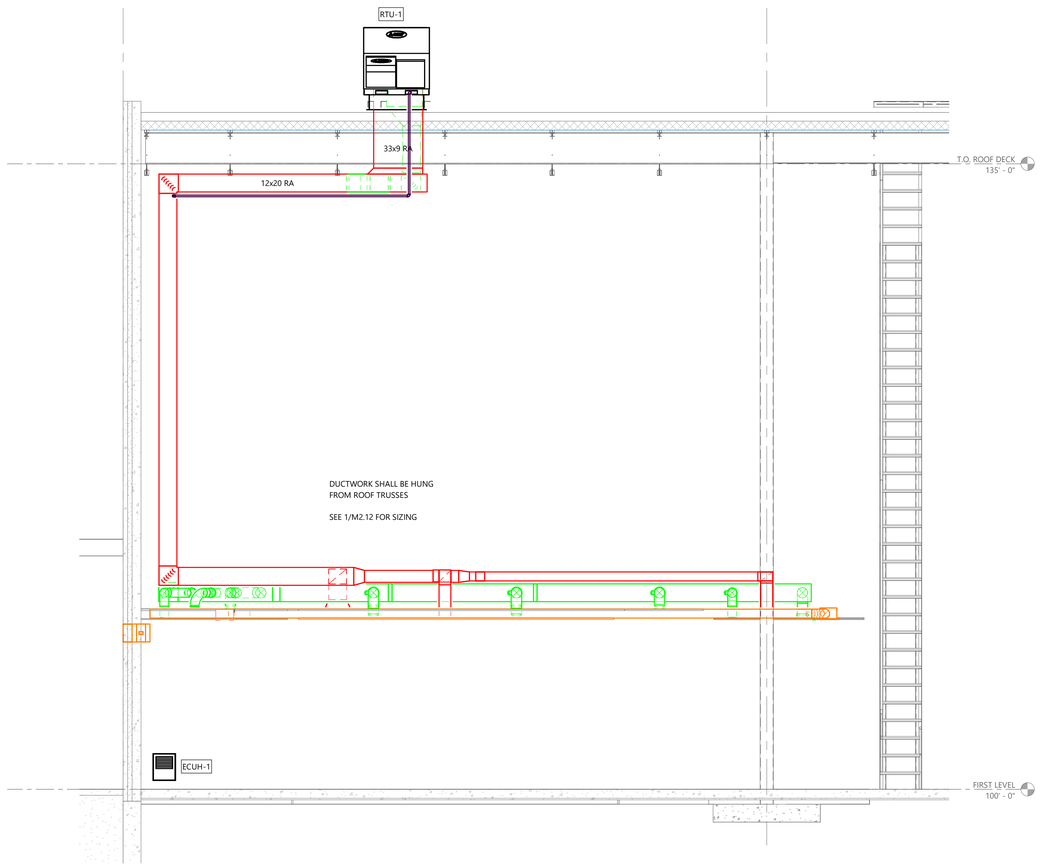


1 FIRST LEVEL MECHANICAL HVAC PLAN - ENLARGED
1/4" = 1'-0"



2 RTU-1 DUCTWORK SECTION
1/4" = 1'-0"

GRAPHIC SCALE
0' 6'-0" 12'-0"

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ADAM SIEMERS LIC #: 52730 DATE: 07-03-2025

DATE	REV#	REVISIONS DESCRIPTION
8/1/2025	1	ADDENDUM #2

ENTERPRISE CP WAREHOUSE

ENLARGED MECHANICAL PLAN

M2.12

PROJECT #: 2025-10395

2025-10395
ENTERPRISE CP WAREHOUSE

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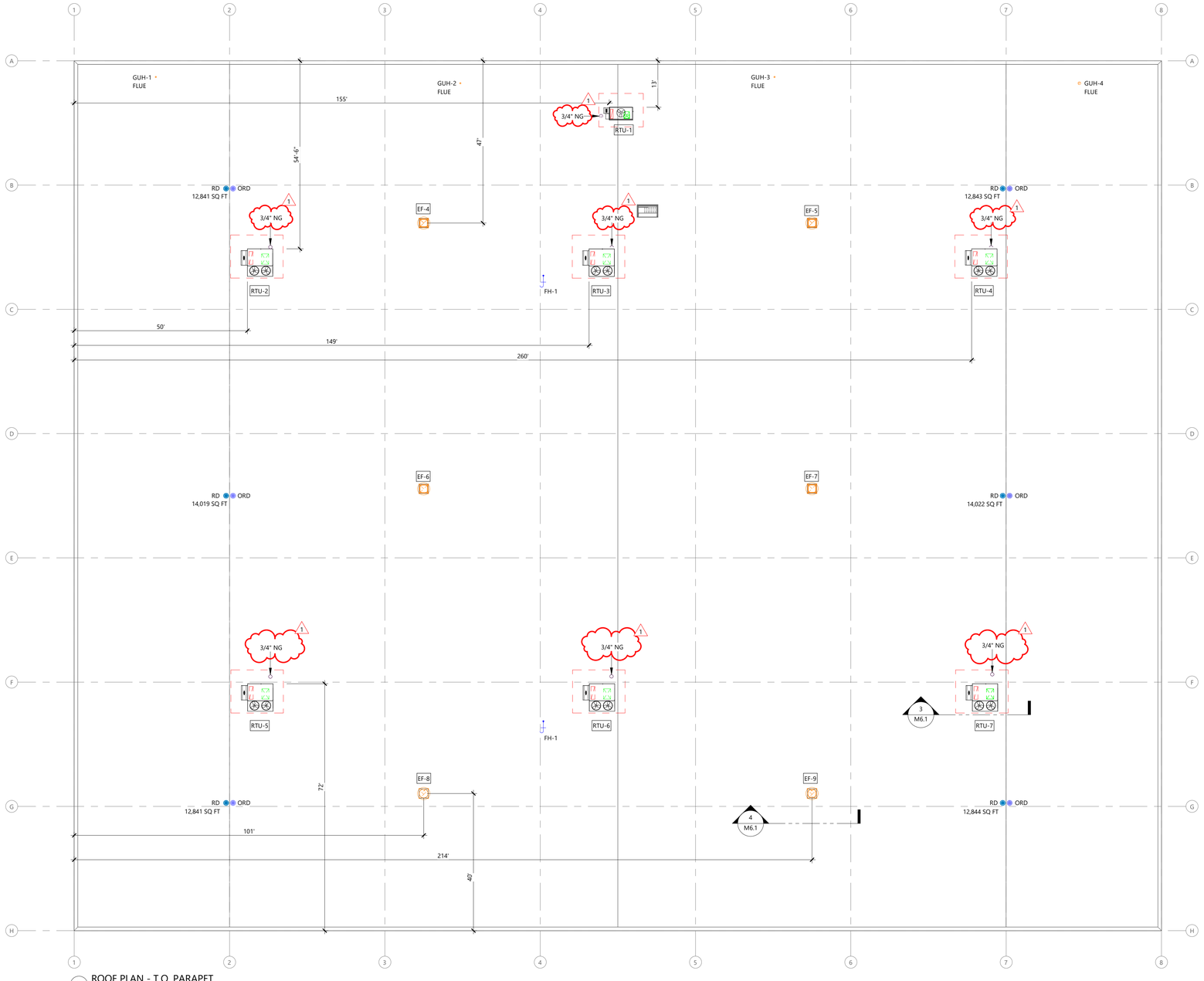

1 ROOF PLAN - T.O. PARAPET
1/16" = 1'-0"

GRAPHIC SCALE
0' 24'-0" 48'-0"

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ADAM SIEMERS LIC #: 52730 DATE: 07-03-2025

DATE	REV#	REVISIONS DESCRIPTION
8/1/2025	1	ADDENDUM #2

ENTERPRISE CP WAREHOUSE

ROOF PLAN

M2.13

PROJECT #: 2025-10395

2025-10395
ENTERPRISE CP WAREHOUSE

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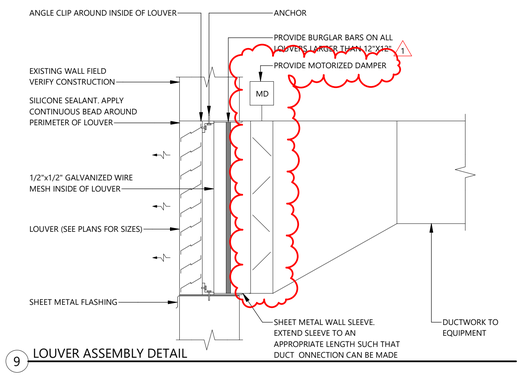
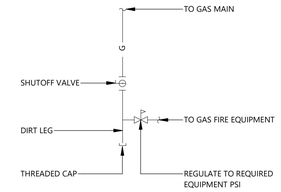
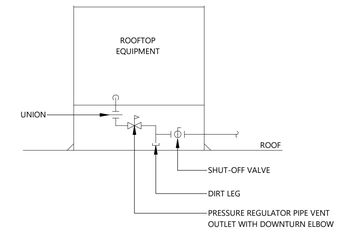


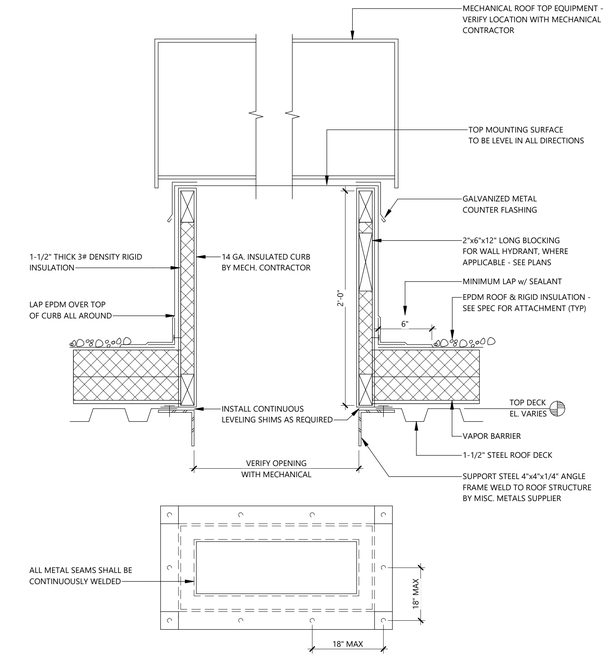
9 LOUVER ASSEMBLY DETAIL



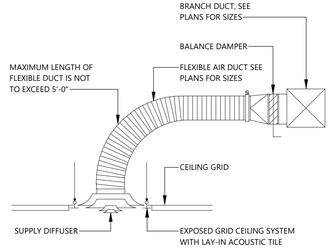
5 GAS PIPING DIRT LEG DETAIL



6 GAS PIPING CONNECTION FOR ROOFTOP EQUIPMENT DETAIL

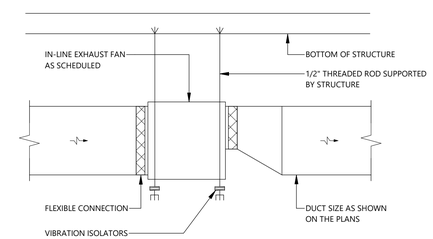


10 HVAC - ROOF CURB

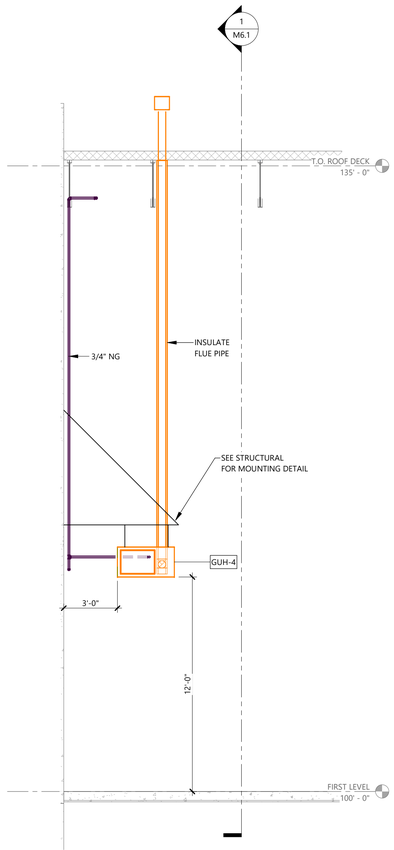


NOTE:
USE WORM DRIVE CLAMPS FOR CONNECTING FLEXIBLE AIR DUCT TO DIFFUSER & BRANCH DUCT.

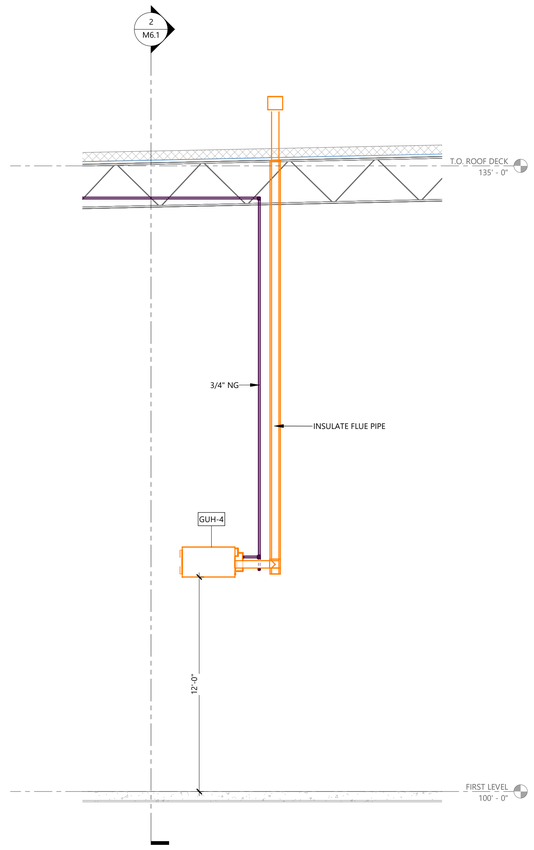
7 HVAC - DIFFUSER CONNECTION - RECTANGULAR TO ROUND



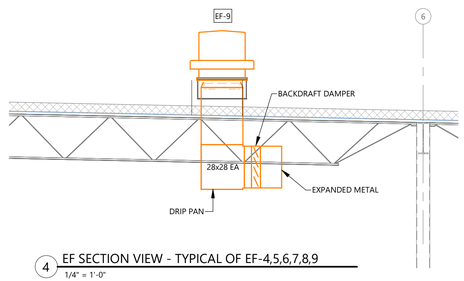
8 HVAC - IN-LINE FAN 1



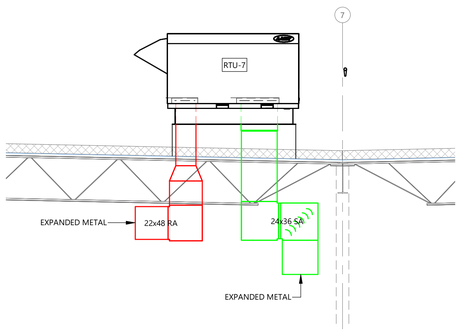
2 GAS UNIT HEATER ELEVATION VIEW 2
1/4" = 1'-0"



1 GAS UNIT HEATER ELEVATION VIEW 1
1/4" = 1'-0"



4 EF SECTION VIEW - TYPICAL OF EF-4,5,6,7,8,9
1/4" = 1'-0"



3 RTU SECTION VIEW - TYPICAL OF RTU-2,3,4,5,6,7
1/4" = 1'-0"

GRAPHIC SCALE
0' 6'-0" 12'-0"

2025-10395

ENTERPRISE CP WAREHOUSE

WIDSETH
ARCHITECTS ▪ ENGINEERS ▪ SCIENTISTS ▪ SURVEYORS

DRAWN BY: DP
CHECKED BY: AMS

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA
ADAM SIEMERS LIC #: 52730 DATE: 07-03-2025

DATE	REV#	REVISIONS DESCRIPTION
8/1/2025	1	ADDENDUM #2

ENTERPRISE CP WAREHOUSE

MECHANICAL DETAILS AND SECTION VIEWS

M6.1

PROJECT #: 2025-10395

ROOF TOP UNIT SCHEDULE (MECHANICAL SECTION)

GENERAL		MECHANICAL																					
		SUPPLY FAN						HEATING COIL DATA					DX COOLING DATA										
								AIR DATA		GAS HEATING (MBH)					AIR DATA				COMPRESSORS				
															ENTERING AIR		LEAVING AIR						
MARK	LOCATION	CFM	OA CFM	ESP (IN WC)	FAN RPM	MOTOR HP	DRIVE	EAT (°F)	LAT (°F)	MAX INPUT	MAX OUTPUT	MODULATING TURNDOWN	TOTAL MBH	SENS. MBH	DB (°F)	WB (°F)	DB (°F)	WB (°F)	FACE VELOCITY (FPM)	QTY	TYPE	RTU WEIGHT (lbs)	MANUFACTURER	MODEL NO.	NOTES
RTU-1	OFFICE AREA	1350	300	1.0	1309	0.62	DIRECT	40	77.4	60	48.6	4:1	38	30.1	81.7	66.7	58.1	56.2	292	1	2-STAGE	917	Aaon, Inc.	RQ-003	2,3,4,5
RTU-2	WAREHOUSE 112	6750	1000	0.5	1713	3.43	DIRECT	61	90	300	240	4:1	180	143.1	77	63.5	52.1	50.9	343	2	SCROLL 2-STAGE	2200	Aaon, Inc.	RNA-015	1,2,3,4,5
RTU-3	WAREHOUSE 112	6750	1000	0.5	1713	3.43	DIRECT	61	90.1	300	240	4:1	180	143.1	77	63.5	52.1	50.9	343	2	SCROLL 2-STAGE	2200	Aaon, Inc.	RNA-015	1,2,3,4,5
RTU-4	WAREHOUSE 112	6750	1000	0.5	1713	3.43	DIRECT	61	90.1	300	240	4:1	180	143.1	77	63.5	52.1	50.9	343	2	SCROLL 2-STAGE	2200	Aaon, Inc.	RNA-015	1,2,3,4,5
RTU-5	WAREHOUSE 112	6750	1000	0.5	1713	3.43	DIRECT	61	90	300	240	4:1	180	143.1	77	63.5	52.1	50.9	343	2	SCROLL 2-STAGE	2200	Aaon, Inc.	RNA-015	1,2,3,4,5
RTU-6	WAREHOUSE 112	6750	1000	0.5	1713	3.43	DIRECT	61	90.1	300	240	4:1	180	143.1	77	63.5	52.1	50.9	343	2	SCROLL 2-STAGE	2200	Aaon, Inc.	RNA-015	1,2,3,4,5
RTU-7	WAREHOUSE 112	6750	1000	0.5	1713	3.43	DIRECT	61	90.1	300	240	4:1	180	143.1	77	63.5	52.1	50.9	343	2	SCROLL 2-STAGE	2200	Aaon, Inc.	RNA-015	1,2,3,4,5

MECHANICAL NOTES:
1. PROVIDE WITH RETURN DUCT SMOKE DETECTOR
2. PROVIDE WITH DISCONNECT SWITCH
3. PROVIDE WITH POWERED CONVENIENCE OUTLET
4. PROVIDE WITH HAIL GUARD
5. PROVIDE WITH ECONOMIZER

ROOF TOP UNIT SCHEDULE (ELECTRICAL SECTION)

	ELECTRICAL												
		TOTAL ELECTRICAL	CONTROL		STARTER		STARTER	DISCONNECT				120V CONVENIENCE OUTLET	
MARK	VOLTAGE / PHASE	LOAD	TYPE	BY	TYPE / SIZE	BY	LOCATION	TYPE / SIZE	BY	FEEDER SIZE	POWER SOURCE	POWER SOURCE	NOTES
RTU-1	480/3	9.1 KW	-	DIV. 23	W/UNIT	DIV. 23	ON UNIT	W/UNIT	DIV. 23	1/2"C., 3#12 + 1#12G.	HP-1	20A, 1P	-
RTU-2	480/3	27.4 KW	-	DIV. 23	W/UNIT	DIV. 23	ON UNIT	W/UNIT	DIV. 23	1"C., 3#8 + 1#10G.	HP-1	20A, 1P	-
RTU-3	480/3	27.4 KW	-	DIV. 23	W/UNIT	DIV. 23	ON UNIT	W/UNIT	DIV. 23	1"C., 3#8 + 1#10G.	HP-1	20A, 1P	-
RTU-4	480/3	27.4 KW	-	DIV. 23	W/UNIT	DIV. 23	ON UNIT	W/UNIT	DIV. 23	1"C., 3#8 + 1#10G.	HP-1	20A, 1P	-
RTU-5	480/3	27.4 KW	-	DIV. 23	W/UNIT	DIV. 23	ON UNIT	W/UNIT	DIV. 23	1"C., 3#8 + 1#10G.	HP-1	20A, 1P	-
RTU-6	480/3	27.4 KW	-	DIV. 23	W/UNIT	DIV. 23	ON UNIT	W/UNIT	DIV. 23	1"C., 3#8 + 1#10G.	HP-1	20A, 1P	-
RTU-7	480/3	27.4 KW	-	DIV. 23	W/UNIT	DIV. 23	ON UNIT	W/UNIT	DIV. 23	1"C., 3#8 + 1#10G.	HP-1	20A, 1P	-

ELECTRICAL NOTES:
1.
2.

GRILLES, REGISTERS & DIFFUSERS SCHEDULE

MARK	DESCRIPTION	MANUFACTURER	MODEL NO.	MATERIAL	VOLUME DAMPER	NOTES
RG	LOUVERED GRILLE	TITUS	350FL	ALUMINUM	-	1,2
RG1	EGGCRATE RETURN GRILLE	TITUS	50F	ALUMINUM	-	1,2
SD1	PLAQUE FACE DIFFUSER	TITUS	OMNI-AA	ALUMINUM	-	1,2
SG1	LOUVERED DOUBLE DEFLECTION GRILLE	TITUS	300FL	ALUMINUM	-	1,2

MECHANICAL NOTES:
1. COORDINATE MOUNTING FRAME TYPE WITH ARCHITECTURAL PLANS.
2. COLOR TO BE SELECTED BY THE ARCHITECT.

UNIT HEATER/CABINET UNIT HEATER SCHEDULE

GENERAL		MECHANICAL												ELECTRICAL											
								GAS HEATING (MBH)		ELECTRIC COIL						CONTROL		STARTER		STARTER	DISCONNECT				
MARK	LOCATION	CFM	FAN DRIVE	FAN RPM	FAN HP	EAT (°F)	LAT (°F)	MAX INPUT	MAX OUTPUT	INPUT (kW)	MANUFACTURER	MODEL NO.	CONTROL	NOTES	VOLTAGE/PHASE	TOTAL ELEC. LOAD	TYPE	BY	TYPE/SIZE	BY	LOCATION	TYPE/SIZE	BY	FEEDER SIZE	POWER SOURCE	NOTES
ECUH-1	WAITING AREA 101	100	DIRECT	-	FRACT.	50	90	0	0	1.5	QMARK	AWH3150F	INTEGRAL	1	115/1	1.5 KW	-	DIV. 23	-	-	-	W/UNIT	DIV. 23	1/2"C., 2#12 + 1#12G.	LP-1	-
GUH-1	WAREHOUSE 112	1921	DIRECT	1050	0.25	50	110	150	124.5	0	REZNOR	UDXC-150	REMOTE	2	115/1	456 W	-	DIV. 23	-	-	-	W/UNIT	DIV. 23	1/2"C., 2#12 + 1#12G.	LP-1	-
GUH-2	WAREHOUSE 112	1921	DIRECT	1050	0.25	50	110	150	124.5	0	REZNOR	UDXC-150	REMOTE	2	115/1	456 W	-	DIV. 23	-	-	-	W/UNIT	DIV. 23	1/2"C., 2#12 + 1#12G.	LP-1	-
GUH-3	WAREHOUSE 112	1921	DIRECT	1050	0.25	50	110	150	124.5	0	REZNOR	UDXC-150	REMOTE	2	115/1	456 W	-	DIV. 23	-	-	-	W/UNIT	DIV. 23	1/2"C., 2#12 + 1#12G.	LP-1	-
GUH-4	WAREHOUSE 112	1921	DIRECT	1050	0.25	50	110	150	124.5	0	REZNOR	UDAP-150	REMOTE	2	115/1	456 W	-	DIV. 23	-	-	-	W/UNIT	DIV. 23	1/2"C., 2#12 + 1#12G.	LP-1	-

MECHANICAL NOTES:
1. RECESSED MOUNT
2. HANG AT HEIGHT AS CALLED OUT ON PLANS

ELECTRICAL NOTES:
1.
2.

EXHAUST FAN SCHEDULE

GENERAL		MECHANICAL								ELECTRICAL												
											TOTAL ELECTRICAL	CONTROL		STARTER		STARTER	DISCONNECT				
MARK	FAN TYPE	CFM	ESP (IN WC)	DRIVE - MOTOR	FAN (RPM)	FAN HP	MANUFACTURER	MODEL NO.	NOTES	VOLTAGE / PHASE	LOAD	TYPE	BY	TYPE / SIZE	BY	LOCATION	TYPE / SIZE	BY	FEEDER SIZE	POWER SOURCE	NOTES
EF-1	CENTRIFUGAL	75	0.28	DIRECT	950	FRACT.	GREENHECK	SP-110-VG	2	120/1	23 W	-	DIV. 23	-	-	-	W/UNIT	DIV. 23	1/2"C., 2#12 + 1#12G.	LP-1	-
EF-2	CENTRIFUGAL	75	0.28	DIRECT	950	FRACT.	GREENHECK	SP-110-VG	2	120/1	23 W	-	DIV. 23	-	-	-	W/UNIT	DIV. 23	1/2"C., 2#12 + 1#12G.	LP-1	-
EF-3	CENTRIFUGAL	75	0.28	DIRECT	950	FRACT.	GREENHECK	SP-110-VG	2	120/1	23 W	-	DIV. 23	-	-	-	W/UNIT	DIV. 23	1/2"C., 2#12 + 1#12G.	LP-1	-
EF-4	CENTRIFUGAL	6750	0.25	DIRECT	6750	FRACT.	GREENHECK	G-240-VG	1	480/3	2.6 KW	-	DIV. 23	-	-	-	W/UNIT	DIV. 23	1/2"C., 3#12 + 1#12G.	HP-1	-
EF-5	CENTRIFUGAL	6750	0.25	DIRECT	6750	FRACT.	GREENHECK	G-240-VG	1	480/3	2.6 KW	-	DIV. 23	-	-	-	W/UNIT	DIV. 23	1/2"C., 3#12 + 1#12G.	HP-1	-
EF-6	CENTRIFUGAL	6750	0.25	DIRECT	6750	FRACT.	GREENHECK	G-240-VG	1	480/3	2.6 KW	-	DIV. 23	-	-	-	W/UNIT	DIV. 23	1/2"C., 3#12 + 1#12G.	HP-1	-
EF-7	CENTRIFUGAL	6750	0.25	DIRECT	6750	FRACT.	GREENHECK	G-240-VG	1	480/3	2.6 KW	-	DIV. 23	-	-	-	W/UNIT	DIV. 23	1/2"C., 3#12 + 1#12G.	HP-1	-
EF-8	CENTRIFUGAL	6750	0.25	DIRECT	6750	FRACT.	GREENHECK	G-240-VG	1	480/3	2.6 KW	-	DIV. 23	-	-	-	W/UNIT	DIV. 23	1/2"C., 3#12 + 1#12G.	HP-1	-
EF-9	CENTRIFUGAL	6750	0.25	DIRECT	6750	FRACT.	GREENHECK	G-240-VG	1	480/3	2.6 KW	-	DIV. 23	-	-	-	W/UNIT	DIV. 23	1/2"C., 3#12 + 1#12G.	HP-1	-
EF-10	CENTRIFUGAL	525	0.25	DIRECT	6750	FRACT.	GREENHECK	SQ 90-95	3	120/1	166 W	-	DIV. 23	-	-	-	W/UNIT	DIV. 23	1/2"C., 2#12 + 1#12G.	LP-1	-

MECHANICAL NOTES:
1. INTERLOCK WITH ECONOMIZER OPERATION
2. PROVIDE INTEGRAL BACKDRAFT DAMPER
3. INTERLOCK WITH ON/OFF SWITCH

ELECTRICAL NOTES:
1.
2.

DESTRATIFICATION FAN SCHEDULE

GENERAL		MECHANICAL						ELECTRICAL												
									TOTAL ELECTRICAL	CONTROL		STARTER		STARTER	DISCONNECT					
MARK	LOCATION	FAN TYPE	DRIVE - MOTOR	FAN (RPM)	MANUFACTURER	MODEL NO.	NOTES	VOLTAGE / PHASE	LOAD	TYPE	BY	TYPE / SIZE	BY	LOCATION	TYPE / SIZE	BY	FEEDER SIZE	POWER SOURCE	OVERCURRENT DEVICE	NOTES
DF-1	WAREHOUSE 112	EC	DIRECT	1732	AIRIUS	ONYX-EC-STD-100-130-W	1,2,3	120/1	158 W	-	DIV. 23	-	-	-	CORD & PLUG	DIV. 26	1/2"C., 2#12 + 1#12G.	LP-1	20A, 1P, CB	-

MECHANICAL NOTES:
1. MECHANICAL CONTRACTOR TO VERIFY QUANTITY
2. VERIFY AND COORDINATE LOCATIONS WITH RACKING AND ELECTRICIAN
3. PROVIDE BACnet CONNECTION

ELECTRICAL NOTES:
1.
2.

2025-10395

ENTERPRISE CP WAREHOUSE

WIDSETH
ARCHITECTS ▪ ENGINEERS ▪ SCIENTISTS ▪ SURVEYORS

DRAWN BY: DP
CHECKED BY: AMS

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA
ADAM SIEMERS LIC #: 52730 DATE: 07-03-2025

DATE	REV#	REVISIONS DESCRIPTION
8/1/2025	1	ADDENDUM #2

ENTERPRISE CP WAREHOUSE

MECHANICAL & ELECTRICAL SCHEDULES

ME1.11

PROJECT #: 2025-10395

THIS SHEET ONLY VALID IF PRINTED IN COLOR

ELECTRICAL SYMBOLS

* TYPICAL MOUNTING HEIGHT, UNLESS NOTED OTHERWISE

COMMUNICATION DEVICES

- C — CLOCK
- IC — INTERCOM CALL SWITCH
- IM — INTERCOM MASTER STATION
- MI — MICROPHONE - CEILING MOUNTED
- PB — PUSH BUTTON
- PUSH BUTTON CONTROLLER *48"
- S — SPEAKER - CEILING MOUNTED
- S — SPEAKER - WALL MOUNTED
- S I — INTERCOM SPEAKER - WALL MOUNTED
- S P — INTERCOM SPEAKER WITH PUSH BUTTON - WALL MOUNTED

DATA DEVICES

- DATA CABINET
- # — DATA DEVICE - CEILING MOUNTED (# INDICATES NUMBER OF PORTS)
- # — DATA DEVICE - FLOOR MOUNTED (# INDICATES NUMBER OF PORTS)
- # — DATA DEVICE - WALL MOUNTED *18" (# INDICATES NUMBER OF PORTS)
- P — PROJECTOR

TELEPHONE DEVICES

- # — TELEPHONE DEVICE - FLOOR MOUNTED (# INDICATES NUMBER OF PORTS)
- # — TELEPHONE DEVICE - WALL MOUNTED *18" (# INDICATES NUMBER OF PORTS)

ELECTRICAL EQUIPMENT

- CT — CT CABINET
- FUSED DISCONNECT SWITCH
- NON FUSED DISCONNECT SWITCH
- MOTOR STARTER
- COMBINATION FUSED DISCONNECT SWITCH & MOTOR STARTER
- M — METER
- MOTOR / MOTOR CONNECTION
- PANELBOARD
- SWITCHBOARD / DISTRIBUTION CABINET
- T — TRANSFORMER
- TVSS (TRANSIENT VOLTAGE SURGE SUPPRESSOR)

ELECTRICAL FIXTURES

- D — DROP CORD - DUPLEX - CEILING MOUNTED
- D — DROP CORD - QUADPLEX - CEILING MOUNTED
- J — JUNCTION BOX - CEILING MOUNTED
- J — JUNCTION BOX - FLOOR MOUNTED
- J — JUNCTION BOX - WALL MOUNTED *18"
- POWERPOLE
- RECEPTACLE - SINGLE - CEILING MOUNTED
- RECEPTACLE - DUPLEX - CEILING MOUNTED
- RECEPTACLE - DUPLEX EMERGENCY - CEILING MOUNTED
- RECEPTACLE - QUADPLEX - CEILING MOUNTED
- RECEPTACLE - QUADPLEX EMERGENCY - CEILING MOUNTED
- RECEPTACLE - SPECIAL PURPOSE - CEILING MOUNTED
- RECEPTACLE - DUPLEX - FLOOR MOUNTED
- RECEPTACLE - DUPLEX EMERGENCY - FLOOR MOUNTED
- RECEPTACLE - QUADPLEX - FLOOR MOUNTED
- RECEPTACLE - QUADPLEX EMERGENCY - FLOOR MOUNTED
- RECEPTACLE - SPECIAL PURPOSE - FLOOR MOUNTED
- RECEPTACLE - DUPLEX - WALL MOUNTED *18"
- RECEPTACLE - DUPLEX EMERGENCY - WALL MOUNTED *18"
- RECEPTACLE - DUPLEX - BOTTOM HALF SWITCHED - WALL MOUNTED *18"
- RECEPTACLE - QUADPLEX - WALL MOUNTED *18"
- RECEPTACLE - QUADPLEX EMERGENCY - WALL MOUNTED *18"
- RECEPTACLE - SPECIAL PURPOSE - WALL MOUNTED *18"

FIRE ALARM DEVICES

- D — DUCT SMOKE DETECTOR
- F — SMOKE DAMPER
- FACP — FIRE ALARM CONTROL PANEL
- FAA — FIRE ALARM ANNUNCIATOR
- FIREMANS TELEPHONE OUTLET
- FS — FLOW SWITCH
- R H — HEAT DETECTOR - RATE OF RISE
- H — HORN UNIT *80"
- F — STROBE UNIT *80"
- F — HORN / STROBE UNIT *80"
- P — PULL STATION *48"
- S — SMOKE DETECTOR
- A S — SMOKE DETECTOR - WITH AUDIO/VISUAL NOTIFICATION
- R S — SMOKE DETECTOR - WITH ELEVATOR RECALL
- CO S — COMBINED SMOKE & CO DETECTOR
- TS — TAMPER SWITCH

GENERAL SYMBOLS

- A — REVISION NUMBER - SHOWN ON PLANS
- XX / XX — NUMBER OF DETAIL ON SHEET / NUMBER OF SHEET WHERE DETAIL APPEARS
- 1 — KEYNOTE
- EXISTING SERVICES TO BE DEMOLISHED
- EXISTING SERVICES TO REMAIN
- AREA NOT IN CONTRACT

LIGHTING FIXTURES

- BOLLARD
- CEILING FAN
- EMERGENCY LIGHT - 2 HEADS (BATTERY OPERATED)
- EMERGENCY REMOTE DUAL HEAD - WALL MOUNTED
- EMERGENCY REMOTE SINGLE HEAD (LEFT OR RIGHT) - WALL MOUNTED
- EXIT LIGHT WITH DUAL HEADS - WALL MOUNTED (SHADED AREA INDICATES ILLUMINATED FACE)
- EXIT LIGHT WITH DUAL HEADS & DIRECTIONAL ARROW - WALL MOUNTED (SHADED AREA INDICATES ILLUMINATED FACE)
- EXIT LIGHT WITH DUAL HEADS - CEILING MOUNTED (SHADED AREA INDICATES ILLUMINATED FACE)
- EXIT LIGHT WITH DUAL HEADS & DIRECTIONAL ARROW(S) - CEILING MOUNTED (SHADED AREA INDICATES ILLUMINATED FACE)
- EXIT SIGN WITH DIRECTIONAL ARROW(S) - CEILING MOUNTED (SHADED AREA INDICATES ILLUMINATED FACE(S))
- EXIT SIGN WITH DIRECTIONAL ARROW(S) - WALL MOUNTED (SHADED AREA INDICATES ILLUMINATED FACE(S))
- PENDANT - CEILING MOUNTED
- POLE MOUNTED LIGHT
- RECESSED CIRCULAR
- RECESSED EMERGENCY CIRCULAR
- RECESSED RECTANGULAR
- RECESSED EMERGENCY RECTANGULAR
- SURFACE-SUSPENDED CIRCULAR
- SURFACE-SUSPENDED EMERGENCY CIRCULAR
- SURFACE-SUSPENDED RECTANGULAR
- SURFACE-SUSPENDED EMERGENCY RECTANGULAR
- WALL MOUNT CIRCULAR
- WALL MOUNT RECTANGULAR
- WALL MOUNT SQUARE
- CONDUIT (CONCEALED)
- CONDUIT (EXPOSED)
- CONDUIT (UNDERGROUND ELECTRIC)
- CONDUIT CONTINUATION
- HOMERUN
- P1 / 1,3,5 — PANELBOARD IDENTIFICATION / CIRCUIT NUMBERS
- A / a — FIXTURE TYPE DESIGNATION / 'EX' DENOTES EXISTING FIXTURE / SWITCH REFERENCE

LIGHTING DEVICES

- DL OS — DAY LIGHT & OCCUPANCY SENSOR - CEILING MOUNTED
- DL — DAY LIGHT SENSOR - CEILING MOUNTED
- OS — OCCUPANCY SENSOR - CEILING MOUNTED
- OS — OCCUPANCY SENSOR - WALL MOUNTED
- ELCU — EMERGENCY LIGHTING CONTROL UNIT
- LCP — LIGHTING CONTROL PANEL
- PC — PHOTOCELL CONTROL
- D — SWITCH - DIMMER *48"
- D DL — SWITCH - DIMMER INTEGRAL DAY LIGHT SENSOR *48"
- D OS — SWITCH - DIMMER INTEGRAL OCCUPANCY SENSOR *48"
- $ — SWITCH - SINGLE POLE *48"
- $3 — SWITCH - THREE WAY *48"
- $4 — SWITCH - FOUR WAY *48"
- $LV — SWITCH - LOW VOLTAGE *48"
- $OS — SWITCH - INTEGRAL OCCUPANCY SENSOR *48"

SECURITY DEVICES

- SC — CAMERA - CEILING MOUNTED
- SC — CAMERA - WALL MOUNTED
- CR — CARD READER *48"
- DC — DOOR CONTACT
- DO — DOOR OPERATOR
- DR — DOOR RELEASE
- DS — DOOR SWITCH
- DA — DURESS ALARM
- EL — ELECTRIC LOCK
- ES — ELECTRIC STRIKE
- G — GLASS BREAK DETECTOR
- HC — HANDICAP PUSH BUTTON
- KP — KEY PAD
- LD — LOCKDOWN BUTTON
- M — MAGNETIC HOLD OPEN
- MD — MOTION DETECTOR
- PA — PANIC ALARM
- RE — REQUEST TO EXIT

CABLE TRAY SYSTEMS

- BMS
- COMMUNICATION
- FIRE ALARM
- HV
- LANDLORDS
- LIFE SAFETY
- LIGHTING & POWER
- LV
- SECURITY
- TELEPHONE
- TV

TRUNKING SYSTEMS

- BMS
- COMMUNICATION
- DADO
- FIRE ALARM
- LANDLORDS
- LIFE SAFETY
- LIGHTING & POWER
- SECURITY
- TELEPHONE
- TV

EQUIPMENT ABBREVIATIONS

AC	AIR CONDITIONING UNIT
ACU	AIR CURTAIN
AD	AIR DRYER
AEU	AIR EXCHANGER UNIT
AHU	AIR HANDLING UNIT
AS	AIR SEPARATOR
ATS	AUTOMATIC TRANSFER SWITCH
B	BOILER
BMS	BUILDING MANAGEMENT SYSTEM
BT	BUFFER TANK
CA	AIR COMPRESSOR
CH	CHILLER
CR	CONDENSATE RECEIVER
CR	CORD REEL
CT	COOLING TOWER
CU	CONDENSING UNIT
CUH	CABINET UNIT HEATER (HYDRONIC/STEAM) (WALL MOUNTED)
DC	DUCT COIL
DOAS	DOAS UNIT
DS	DUCT SILENCER
DUC	DUST COLLECTOR
EBB	ELECTRIC BASEBOARD RADIATION
EC	EVAPORATIVE COOLER
ECU	ENVIRONMENTAL CONTROL UNIT
ECUH	ELECTRIC CABINET UNIT HEATER (WALL MOUNTED)
EDC	ELECTRIC DUCT COIL
EF	EXHAUST FAN
EHR	EXHAUST HOSE REEL
ERU	ENERGY RECOVERY UNIT
ERV	ENERGY RECOVERY VENTILATOR
ESG	ELECTRIC STEAM GENERATOR
EUH	ELECTRIC UNIT HEATER (CEILING MOUNTED)
EXP	EXPANSION TANK
F	FURNACE
FC	FLUID COOLER
FCU	FAN COIL UNIT
FP	FIRE PUMP
FTR	FINNED TUBE RADIATION
FWI	FLAMMABLE WASTE INTERCEPTOR
GEN	GENERATOR
GI	GREASE INTERCEPTOR
GIH	GRAVITY INTAKE HOOD
GP	GLYCO PUMP
GRH	GRAVITY RELIEF HOOD
GSHP	GROUND SOURCE HEAT PUMP
GUH	GAS UNIT HEATER (CEILING MOUNTED)
HC	HEATING COIL
HEX	HEAT EXCHANGER
HRU	HEAT RECOVERY UNIT
HTR	HEATER
HU	HUMIDIFIER
IR	INFRARED RADIANT HEATER
IVP	INFRARED VACUUM PUMP
KH	KITCHEN HOOD
MAN	MANIFOLD
MB	MIXING BOX
MSB	MAIN SWITCH BOARD
MTS	MANUAL TRANSFER SWITCH
MUA	MAKE-UP AIR UNIT
OI	OIL INTERCEPTOR
P	PUMP ('P' IS DEFAULT. ONCE ASSIGNED A SYSTEM, THIS WILL CHANGE TO BELOW)
CP	CIRCULATING PUMP
BP	BOILER PUMP
RCP	RECIRCULATING PUMP
MCP	MANIFOLD CIRCULATING PUMP
PCU	POLLUTION CONTROL UNIT
PH	PIPING HEADER
PRV	POWER ROOF VENTILATOR
PS	PRESSURE WASHER
PTAC	PTAC UNIT
PTHP	PTHP UNIT
RC	REFRIGERATED CASE
RCP	RADIANT CEILING PANEL
RHC	REHEAT COIL
RHP	RADIANT HEATING PANEL
RTU	ROOFTOP UNIT
SF	SUPPLY FAN
SP	SUMP PUMP
ST	STORAGE TANK
STG	STEAM GENERATOR
SU	SUMP
UH	UNIT HEATER (HYDRONIC/STEAM) (CEILING MOUNTED)
UPS	UNITERUPTABLE POWER SOURCE
UV	UNIT VENTILATOR
VAV	VAV BOX
WH	WATER HEATER
WOH	WASTE OIL HEATER
WS	WATER SOFTENER
WSHP	WATER SOURCE HEAT PUMP

ELECTRICAL ABBREVIATIONS

A	AMPERE
AC	ABOVE COUNTER
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
ANN	ANNUNCIATOR
BC	BELOW COUNTER
BMS	BUILDING MANAGEMENT SYSTEM
C	CONDUIT
CAB	CABINET
CB	CIRCUIT BREAKER
CKT	CIRCUIT
CLG	CEILING
COMB	COMBINATION
COMM	COMMUNICATIONS
CONTR	CONTRACTOR
COORD	COORDINATE
CR	CORD REEL
DN	DOWN
DWG	DRAWING
EA	EACH
EC	ELECTRICAL CONTRACTOR
ELEC	ELECTRICAL
EQUIP	EQUIPMENT
EXIST	EXISTING
EWC	ELECTRIC WATER COOLER
F	FUSED
FAA	FIRE ALARM ANNUNCIATOR PANEL
FACP	FIRE ALARM CONTROL PANEL
FFE	FINISHED FLOOR ELEVATION
FIXT	FIXTURE
FVNR	FULL VOLTAGE NON REVERSING
G	GROUND
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
GFI	GROUND FAULT INTERRUPTER
HP	HORSEPOWER
HTG	HEATING
HTR	HEATER
HZ	HERTZ
IG	INSULATED GROUND
J-BOX	JUNCTION BOX
KW	KILOWATTS
KVA	KILOVOLT AMPERE
LTG	LIGHTING, LIGHT OR LIGHTS
MAN	MANUAL
MAX	MAXIMUM
MECH	MECHANICAL
MIN	MINIMUM
MFR	MANUFACTURER
MLO	MAIN LUGS ONLY
MSS	MANUAL STARTER SWITCH
MTD	MOUNTED
MTR	MOTOR
NA	NOT APPLICABLE
NF	NON-FUSED
P	POLE
PB	PULL BOX
PH	PHASE
PR	PAIR
PVC	POLYVINYL CHLORIDE
REC	RECEPTACLE
RECPT	RECEPTACLE
RM	ROOM
SM	SURFACE MOUNT
SPEC	SPECIFICATION
STR	STARTER
SW	SWITCH
SWBD	SWITCHBOARD
TC	TIME CLOCK
TEL	TELEPHONE
TERM	TERMINAL
TL	TWIST LOCK
TMB	TELEPHONE MOUNTING BOARD
TP	TAMPER PROOF
TS	TOGGLE SWITCH
TYP	TYPICAL
UC	UNDER COUNTER
UG	UNDERGROUND
V	VOLTS
VA	VOLT AMPERE
VFD	VARIABLE FREQUENCY DRIVE
VRC	VANDAL RESISTANT COVER
W	WATTS
WAP	WIRELESS ACCESS POINT
WG	WIRE GUARD
WM	WIRE MOLD
WP	WEATHERPROOF

SHEET INDEX

GENERAL NOTES

A	FOR EXACT LOCATIONS OF ALL WALL MOUNTED DEVICES, REFER TO ARCHITECTURAL INTERIOR ELEVATIONS. FOR CEILING MOUNTED DEVICES, SEE ARCHITECTURAL REFLECTED CEILING PLAN.
B	THE ELECTRICAL CONTRACTOR SHALL COORDINATE RACE-WAY INSTALLATIONS WITH ALL OTHER TRADES TO ENSURE CLEARANCE & ACCESSIBILITY OF MECHANICAL EQUIPMENT & CEILING ACCESS POINTS ARE MAINTAINED. RACE-WAY INCLUDES CONDUITS, WIRE-WAYS, ETC.
C	OPENINGS AROUND ELECTRICAL PENETRATIONS THROUGH FIRE RESISTIVE RATED WALLS, PARTITIONS, FLOORS, OR CEILINGS SHALL BE FIRE STOPPED USING APPROVED METHODS TO MAINTAIN FIRE RESISTIVE RATINGS.
D	THE CONTRACTOR SHALL PROVIDE ALL NECESSARY FRAMING, PATCHING, AND PAINTING TO MATCH EXISTING CONDITIONS IN AREAS BEING REMODELED WHERE NEW DEVICES/FIXTURES ARE BEING INSTALLED AT EXISTING DEVICE/FIXTURE LOCATIONS.
E	MINIMUM WIRE SIZE FOR BRANCH CIRCUIT HOME-RUNS BASED ON 20 AMP CIRCUIT SHALL BE AS FOLLOWS: OVER 50' SHALL BE #10 AWG. UNLESS NOTED OVER 100' SHALL BE #8 AWG. UNLESS NOTED OVER 150' SHALL BE #6 AWG. UNLESS NOTED OVER 250' SHALL BE #4 AWG. UNLESS NOTED
F	PROVIDE (1) NEUTRAL FOR EACH CIRCUIT. MULTI WIRE HANDLE TIES ARE NOT ALLOWED.
G	WHERE CABLE TRAY PASSES THROUGH RATED WALLS, PROVIDE STI-EASY PATH.
H	DEVICE HEIGHTS INDICATED ON DRAWINGS ARE TO THE CENTER OF THE DEVICE ABOVE FINISHED FLOOR (AFF) OR ABOVE FINISHED GRADE (AFG).
I	ALL ELECTRICAL WORK SHALL COMPLY WITH THE CURRENT EDITION OF THE NATIONAL ELECTRICAL CODE (NEC).
J	MINIMUM UNDERGROUND ELECTRICAL CONDUIT SIZE SHALL BE 1-INCH, INSTALLED AT A MINIMUM OF 24 INCHES BELOW FINISHED GRADE, UNLESS INDICATED OTHERWISE.
K	THE CONTRACTOR SHALL FIELD COORDINATE THE PLACEMENT OF CONDUIT AND OTHER ELECTRICAL EQUIPMENT WITH UTILITIES, OTHER TRADES AND CONSTRUCTION ACTIVITIES ON THE PROJECT SITE.
L	CONDUIT AND DEVICES IN THE WAREHOUSE 112 SHALL BE SURFACE MOUNTED ON THE PRE-CAST WALLS (NO EMBEDDING). CONDUIT AND DEVICES IN THE OFFICE AREA SHALL BE RECESSED IN THE WALLS. COORDINATE WITH THE GENERAL CONTRACTOR.

B

POWER AND COMMUNICATION NOTES

A	COORDINATE THE LOCATIONS OF ALL ELECTRICAL DEVICES WITH THE ARCHITECTURAL PLANS AND ELEVATIONS.
B	WIRE COUNTS ARE NOT SHOWN. IT IS THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR TO COORDINATE THE NUMBER OF CONDUCTORS REQUIRED. MINIMUM HOMERUN SHALL BE: 1/2"C., 2#12 + 1#12G. PROVIDE A SEPARATE NEUTRAL FOR EACH CIRCUIT; NO SHARED NEUTRALS.
C	ALL ELECTRICAL DEVICES MOUNTED IN A LAY-IN CEILING SHALL BE CENTERED IN THE TILE.
D	REFER TO MECHANICAL/ELECTRICAL SCHEDULES FOR MOTOR INFORMATION AND ADDITIONAL ELECTRICAL REQUIREMENTS.
E	ALL ELECTRICAL WORK SHALL COMPLY WITH THE CURRENT EDITION OF THE NATIONAL ELECTRICAL CODE (NEC).
F	DEVICE HEIGHTS INDICATED ON DRAWINGS ARE TO THE CENTER OF THE DEVICE ABOVE FINISHED FLOOR (AFF) OR ABOVE FINISHED GRADE (AFG).

LIGHTING NOTES

A	COORDINATE THE LOCATIONS OF ALL LIGHT FIXTURES AND ELECTRICAL DEVICES WITH THE ARCHITECTURAL PLANS AND ELEVATIONS.
B	WIRE COUNTS ARE NOT SHOWN. IT IS THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR TO COORDINATE THE NUMBER OF CONDUCTORS REQUIRED. MINIMUM HOMERUN SHALL BE: 1/2"C, 2#12, 1#12G. PROVIDE A SEPARATE NEUTRAL FOR EACH CIRCUIT; NO SHARED NEUTRALS.
C	ALL LIGHT FIXTURES AND/OR ELECTRICAL DEVICES MOUNTED IN A LAY-IN CEILING SHALL BE CENTERED IN THE TILE.
D	THE CAPITAL LETTER ADJACENT TO LIGHT FIXTURE SYMBOL INDICATES THE LIGHT FIXTURE TYPE. A LOWER CASE LETTER ADJACENT TO SWITCH OR LIGHT FIXTURE SYMBOL INDICATES THE SWITCHING SCHEME. SEE LIGHT FIXTURE SCHEDULE FOR ADDITIONAL INFORMATION.
E	CONNECT ALL EXIT/EGRESS LIGHTS TO THE UNSWITCHED PORTION OF LIGHTING CIRCUIT.
F	DEVICE HEIGHTS INDICATED ON DRAWINGS ARE TO THE CENTER OF THE DEVICE ABOVE FINISHED FLOOR (AFF) OR ABOVE FINISHED GRADE (AFG).
G	ALL ELECTRICAL WORK SHALL COMPLY WITH THE CURRENT EDITION OF THE NATION ELECTRICAL CODE. (NEC)

DEMOLITION NOTES

A	ALL ELECTRICAL DEVICES SHOWN DASHED ARE TO BE DISCONNECTED AND REMOVED IT ITS ENTIRETY, INCLUDING ALL CONDUIT, CONDUCTORS, JUNCTION BOXES, ETC., UNLESS NOTED OTHERWISE
B	ALL ELECTRICAL DEVICES SHOWN SOLID ARE TO REMAIN. MAINTAIN CIRCUIT CONTINUITY AS REQUIRED, INCLUDING PROVIDING NEW CONDUIT(S) AND WIRES TO ADJACENT AREAS AS NEEDED.
C	DISCONNECT AND REMOVE ANY EXISTING ELECTRICAL DEVICES, BACKBOXES, WIRE AND ASSOCIATED CONDUITS WHERE SHOWN ON DRAWINGS OR AS REQUIRED TO ACCOMMODATE COMPLETE REMODELING.
D	ELECTRICAL CONTRACTOR SHALL MAINTAIN OPERATION OF ELECTRICAL EQUIPMENT AND DEVICES THAT ARE NOT PART OF THIS REMODEL. THIS SHALL INCLUDE EXTENDING AND RECONNECTING ELECTRICAL FOR EQUIPMENT AND DEVICES AFFECTED BY THESE REMOVALS.
E	MAINTAIN CIRCUITRY OR WIRING FOR DEVICES AND EQUIPMENT THAT ARE NOTED TO BE REINSTALLED.
F	ALL MATERIALS REMOVED BY THIS CONTRACTOR SHALL BE REVIEWED BY THE OWNER. MATERIAL NOT WANTED BY THE OWNER SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE REMOVED FROM THE PREMISES. MATERIAL THE OWNER ELECTS TO KEEP SHALL BE STORED BY THE OWNER.
G	THE FLOORS, WALLS AND CEILINGS SHALL BE PATCHED TO MATCH EXISTING CONDITIONS.
H	PENETRATIONS OF RATED FLOORS, WALLS AND CEILINGS SHALL BE FIRE STOPPED. SEE ARCHITECTURAL PLANS FOR RATINGS.
I	THE EXISTING ELECTRICAL EQUIPMENT SHOWN ON THIS PLAN HAS BEEN TAKEN FROM THE ORIGINAL BUILDING PLANS AND/OR JOB SITE REVIEW AND IS INCLUDED FOR THE CONTRACTOR'S INFORMATION ONLY. IT SHALL NOT BE CONSTRUED TO BE A GUARANTEE THAT THE SYSTEMS WERE INSTALLED PRECISELY AS SHOWN. THE CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS AND MAKE MODIFICATIONS AS NECESSARY TO COMPLETE THE WORK AS SHOWN ON THE PLANS AND IN THE SPECIFICATIONS.
J	AREAS WITH NO DEVICES OR EQUIPMENT SHOWN ARE EXISTING TO REMAIN, UNLESS NOTED OTHERWISE.

2025-10395

ENTERPRISE CP WAREHOUSE

WIDSETH
ARCHITECTS ▪ ENGINEERS ▪ SCIENTISTS ▪ SURVEYORS

DRAWN BY: KEV
CHECKED BY: JWS

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA

JAMES W. SZUSTEK LIC #: 25395 DATE: 7/03/2025

DATE	REV#	REVISIONS DESCRIPTION
08-01-2025	B	ADDENDUM 2

ENTERPRISE CP WAREHOUSE

ELECTRICAL TITLE SHEET

ET1.11

PROJECT #: 2025-10395