



**DANE COUNTY DEPT. OF
PUBLIC WORKS, HIGHWAY &
TRANSPORTATION**

1919 Alliant Energy Center Way
Madison, Wisconsin 53713
Office: 608/266-4018 ♦ Fax: 608/267-1533
Public Works Engineering Division

ADDENDUM

MAY 6, 2019

ATTENTION ALL REQUEST FOR BID (RFB) HOLDERS

RFB NO. 318047 - ADDENDUM NO. 1

HVAC EQUIPMENT REPLACEMENT

**BIDS DUE: TUESDAY, MAY 14, 2019, 2:00 PM. DUE DATE AND
TIME ARE NOT CHANGED BY THIS ADDENDUM.**

This Addendum is issued to modify, explain or clarify the original Request for Bid (RFB) and is hereby made a part of the RFB. Please attach this Addendum to the RFB.

This Addendum primarily addresses the removal of the purchase of the rooftop unit (RTU-1) from the Contractor's responsibility. Very long lead times have driven this decision to change from CFCI to OFCI. This change will have the unit on site much sooner than if the Contractor were to purchase it.

PLEASE MAKE THE FOLLOWING CHANGES:

1. Table of Contents

Change: "23 74 13 - Roof Top Air Handling Units", to: "23 74 13 - Roof Top Air Handling Units (OFCL)".

2. Bid Form

In the Base Bid paragraph, change:

"Note: all Division 26 work is being provided by others.", to: "Note: all Division 26 work is being provided by others and RTU-1 is furnished by the owner and installed by the selected contractor. "

3. Basic Requirements

Page 2 - Item 1.2.B.2.: After this item, insert the following:

- "3. Furnish RTU-1, Contractor shall install (OFCL). Coordinate delivery date and location.
- 4. Needs Network volunteers to paint RTU screening. "

Page 3 - Item 1.7.D.:

Change: "... Public Works Project Engineer ... ", to: "... Public Works Project Manager ... "

4. Section 23 05 00

Page 1 - Item 1.01.A.1.: After this item, insert the following:

"2. Note: RTU-1 (Section 23 74 13) is OFCL. "

Page 4 - Item 1.09.: Add Item 1.09.A.:

"A. RTU -1 (Section 23 74 13) is OFCL. "

Addendum No. 1

RFB No. 318047

- 1 -

rev. 01/19

5. Section 23 05 93

Page 6 - Item 3.07.A.:

Change: “ Division 23 00 00 contractor ”, to: “ Division 23 contractor ” twice in this paragraph.

6. Section 23 74 13

Delete current Section 23 74 13; replace with new Section 23 74 13, issued with this Addendum.

These are the specific changes:

Page 1, Section Title:

Change: “ ROOF TOP AIR-HANDLING UNITS ”, to: “ ROOF TOP AIR-HANDLING UNITS (OFCI) ”

Page 1 - Item 1.01.A.: Delete this Item & insert the following:

- “ A. Base Bid: Unless noted otherwise, the Owner shall furnish RTU-1 and the Mechanical Contractor shall provide all labor and remaining materials for a complete system in this specification section. ”

Page 1 - Item 1.02.A.1.:

Change: “ Units 7-1/2 to 25 Tons ”, to: “ Units 7-1/2 to 30 Tons ”

Page 1 - Item 1.04:

Change current Item “A.” to “B.” and current Item “B.” to “C.” and insert new Item A.:

- “ A. Already completed by Owner. Owner shall furnish submittals and other related documentation to Mechanical Contractor for reference and equipment installation. ”

Page 1 - Item 1.04.C. (new):

Change: “ Submit shop drawings including the following ... ”, to: “ Shop drawings shall include the following ... ”

Page 2 - Item 1.08.A.:

Change: “ Furnish factory fabricated ... ”, to: “ Owner shall furnish factory fabricated ... ”

Page 4 - Item 2.02. K.:

Change: “ Roof Curb: ”, to: “ Roof Curb Adapter (OFCI): ”

Page 4 - Item 2.02. K.1.: Delete this Item & insert the following:

- “ 1. Install 16” tall curb adapter, that is OFCI, to mate with existing duct configuration and existing curb. ”

Page 5 - Item 2.02. M.1.: Delete this Item & insert the following:

- “ 1. Unit shall come with a 1-year warranty on unit parts, 5-year warranty on compressors, and 10-year warranty on heat exchanger, provided by the vendor.
- 2. Mechanical Contractor to provide a 1-year warranty on installation of RTU-1. ”

Page 5 - Item 3.01.E.: Delete this Item & insert the following:

Change: “ Provide a 1-year warranty ... ”, to: “ Unit shall come with a 1-year warranty ... ”

- “ D. Lubricate fan bearings. Verify fan isolators have proper deflection. ”

7. Sheets M100, M101, M200, M201

Delete current Sheets M100, M101, M200 & M201; replace with new Sheets M100, M101, M200 & M201, issued with this Addendum. Above the “KEYED NOTES”, add the following:

“ GENERAL NOTES:

1. MECHANICAL CONTRACTOR TO REMOVE CEILING TILE & GRID WHERE NECESSARY AND TURN OVER TO BPNN (KEN BERG) FOR STORAGE. MECHANICAL CONTRACTOR TO RE-INSTALL WHEN ALL WORK HAS BEEN COMPLETED. ”

8. Sheet M300

Delete current Sheet M300; replace with new Sheet M300, issued with this Addendum. These are the specific changes:

ROOFTOP UNIT SCHEDULE:

Add Remark #11:

“ 11 RTU-1 IS OWNER FURNISHED, CONTRACTOR INSTALLED (OFCI).
COORDINATE DELIVERY WITH OWNER. ”

Change REMARKS entry to:

“ 1,2,3,4,5,6,7,8,9,10,11 ”

If any additional information about this Addendum is needed, please call Todd Draper at 608/267-0119, draper@countyofdane.com.

Sincerely,

Todd Draper

Project Manager

Enclosures:

Section 01000
Sheet M100
Sheet M101
Sheet M200
Sheet M201
Sheet M300

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SECTION 23 74 13
ROOF TOP AIR-HANDLING UNITS (OFCD)

PART 1 – GENERAL

1.01 SCOPE OF WORK

- A. Base Bid: Unless noted otherwise, the Owner shall furnish RTU-1 and the Mechanical Contractor shall provide all labor and remaining materials for a complete system in this specification section.

1.02 SECTION INCLUDES

- A. This section includes specifications for roof top package air-handling units. Included are the following topics:
 - 1. Units 7-1/2 to 30 Tons

1.03 RELATED WORK

- A. Applicable provisions of Division 1 govern work under this section.
- B. Section 23 05 00 – Common Work Results for HVAC
- C. Section 23 05 13 – Common Motor Requirements for HVAC Equipment
- D. Section 23 05 14 – Variable Frequency Drives
- E. Section 23 05 29 – Hangers and Supports for HVAC Piping and Equipment
- F. Section 23 05 48 – Vibration and Seismic Controls for HVAC Piping and Equipment
- G. Section 23 09 93 – Sequence of Operations for HVAC Controls
- H. Section 23 31 00 – HVAC Ducts and Casings
- I. Section 23 33 00 – Air Duct Accessories
- J. Section 23 34 00 – HVAC Fans
- K. Section 23 41 00 – Particulate Air Filtration

1.04 SUBMITTALS

- A. Already completed by Owner. Owner shall furnish submittals and other related documentation to Mechanical Contractor for reference and equipment installation.
- B. Refer to Section 23 05 00 – Common Work Results for HVAC, Submittals. In addition to the general content specified under Section 23 05 00 – Common Work Results for HVAC, supply the following submittals:
 - 1. Units 7-1/2 to 30 Tons
- C. Shop drawings shall include the following information: specific manufacturer and model numbers, submittal equipment identification corresponding to project drawings and schedules, unit dimensional and weight data, materials of construction, capacities and ratings, fan curves, fan type, drive and motor information, vibration isolation, coil performance data, sound power levels, filter information, information for all accessories.

1.05 FUNCTIONAL TESTS

- A. Refer to Section 23 05 00 – Common Work Results for HVAC, FUNCTIONAL TESTS. In addition to the general content specified under Section 23 05 00 – Common Work Results for HVAC, perform the following functional tests:
 - 1. Units 7-1/2 to 30 Tons

1.06 REFERENCE STANDARDS

- A. ARI 430 (latest edition) Standard for Central Station Air Handling Units
- B. ARI 210 Unitary Air-Conditioning Equipment.
- C. ARI 240 Air Source Unitary Heat Pump Equipment.
- D. ARI 270 Sound Rating of Outdoor Unitary Equipment.
- E. NFPA 70 National Electrical Code.
- F. NFPA 90A Standard for Installation of Air Conditioning and Ventilation Systems

1.07 QUALITY ASSURANCE

- A. Packaged air-cooled condenser units shall be certified in accordance with ANSI/AHRI Standard 340/360 performance rating of commercial and industrial unitary air-conditioning and heat pump equipment.
- B. Unit shall be certified in accordance with UL Standard 1995/CSA C22.2 No. 236, Safety Standard for Heating and Cooling Equipment.
- C. Unit and refrigeration system shall comply with ASHRAE 15, Safety Standard for Mechanical Refrigeration.
- D. Unit shall be certified in accordance with ANSI Z21.47b/CSA 2.3b and ANSI Z83.8/CSA 2.6, Safety Standard Gas-Fired Furnaces.
- E. Unit Energy Efficiency Ratio (EER) shall be equal to or greater that prescribed by ASHRAE 90.1, Energy Efficient Design of New Buildings except Low-Rise Residential Buildings.
- F. Unit shall be safety certified by ETL and ETL US listed. Unit nameplate shall include the ETL/ETL Canada label

1.08 DESIGN CRITERIA

- A. Owner shall furnish factory fabricated roof top air handling units complete meeting the configuration shown on drawings and/or as scheduled.
- B. Units to be tested, rated and certified in accordance with ARI Standard 430 and bear ARI certification label.
- C. All material shall meet NFPA 90A flame spread and smoke develop rating requirements.
- D. Any revisions made by the Contractor to the inlet and outlet ductwork conditions from that shown on the drawings shall not increase system effect and/or static pressure and shall not decrease mixing efficiencies.

1.09 OPERATION AND MAINTENANCE DATA

- A. All operations and maintenance data shall comply with the submission and content requirements specified in Section 23 05 00 – Common Work Results in HVAC.

PART 2 – PRODUCTS

2.01 MANUFACTURERS

- A. Aaon, Valent, Addison, and/or approved equal approved by owner/mechanical engineer.
- B. All manufacturers must meet all the specifications below including:
 - 1. Variable capacity compressor with 10-100% capacity control
 - 2. Direct drive supply fans
 - 3. Double wall cabinet construction and insulation with a minimum R-value of 13, with lockable access doors
 - 4. Stainless steel drain pans

2.02 7-1/2 TO 30 TON UNITS

- A. General:
 - 1. The units shall be dedicated downflow. Refrigerant shall be R410A. Performance shall be certified in accordance with ARI Standard 210 and 270, American Gas Association, and UL listed. All units shall be factory assembled, internally wired, fully charged with refrigerant and 100 percent run tested to check cooling operation, fan and blower rotation and control sequence, before leaving the factory. Wiring internal to the unit shall be colored and numbered for simplified identification. Units shall be UL listed and labeled with the following information:
 - a. Refrigerant
 - b. EER
 - c. AFUE

2. Packaged rooftop unit shall include compressors, evaporator coils, filters, supply fans, dampers, air-cooled condenser coils, condenser fans, gas heaters, exhaust fans, and unit controls.
 3. Unit shall be factory assembled and tested including leak testing of the DX coils, pressure testing of the refrigeration circuit, and run testing of the completed unit. Run test report shall be supplied with the unit in the service compartment's literature pocket.
 4. Unit shall have decals and tags to indicate lifting and rigging, service areas and caution areas for safety and to assist service personnel.
 5. Unit components shall be labeled, including refrigeration system components and electrical and controls components.
 6. Installation, Operation, and Maintenance manual shall be supplied within the unit.
 7. Laminated color-coded wiring diagram shall match factory installed wiring and shall be affixed to the interior of the control compartment's hinged access door.
 8. Unit nameplate shall be provided in two locations on the unit, affixed to the exterior of the unit and affixed to the interior of the control compartment's hinged access door.
- B. Casing/Cabinet:
1. Unit shall be constructed of 18 gauge, G90 galvanized steel with powder coat or baked enamel finish. Unit's finish shall be tested 500 hours minimum in a salt spray test in compliance with ASTM B117. Casing shall be insulated with a minimum of ¾" foil faced fiberglass. Insulation shall be mechanically fastened to the unit. Double wall construction may be used as a substitution.
 2. Wall/Roof panel deflection shall not exceed L/240 ratio at a maximum +/- 5 inches of static pressure. Deflection shall be measured at the midpoint of the panel.
 3. Base frame shall be constructed of 16-gauge minimum G90 galvanized steel and shall have integral lifting and rigging holes for installation. Base shall overhang roof curb to provide for positive water runoff and weather tight seal.
 4. Duct openings in base shall be provided with 1" flange to prevent any water getting into duct system.
 5. All access panels shall have gaskets and be provided with fasteners and handles. Panels shall be insulated to match unit construction.
 6. Duct sealant and/or gaskets as indicated in Section 23 31 00 – HVAC Ducts and Casings may be utilized to seal duct connections to the roof top air handling unit casing. Silicone sealants are not acceptable. Unit leakage rate shall not exceed 1% of the total system air quantity when subjected to +/- 5" static pressure.
- C. Fans:
1. Supply fan wheels shall be backward inclined, forward curved or airfoil type as specified or required by performance characteristics.
 2. Each fan and motor combination shall be capable of delivering 110% of air quantity scheduled at scheduled static pressure. The motor furnished with the fan shall not operate into the motor service factor when operating under these conditions.
 3. Fans to be fastened to hollow or solid steel shafts and designed for continuous operation at maximum rated static pressure. All fan assemblies shall be statically and dynamically balanced at the factory, including a final trim balance, prior to shipment. Bearings shall be sized to provide a L-50 life of 250,000 hours.
 4. Furnish variable pitch sheaves for drives 3 hp and smaller, fixed pitch sheaves for drives 5 hp and larger. Drives shall be designed for 150% of motor rating. Furnish OSHA approved belt guards for all fans.
 5. Condenser fans shall be direct drive, axial type designed for low tip speed and vertical air discharge. Fan blades shall be constructed of steel and riveted to a steel center hub. Condenser fan motors shall be heavy-duty, non-reversing type with permanently lubricated ball bearing and thermal protection. Motor design shall be totally enclosed air over (TEAO) to protect the motors from rain and damage by water.
 6. Optional Power relief fans shall be direct drive, centrifugal or axial type designed for horizontal air discharge. Fan motors shall be heavy-duty, non-reversing type with permanently lubricated ball bearing and thermal protection. Motor design shall be totally enclosed air over (TEAO) to protect the motors from rain and damage by water.
 7. Fan motors shall be provided in accordance with section 23 05 13 – Common Motor Requirements for HVAC Equipment.

- D. Heating (Electric):
 - 1. Provide single stage electric heat as scheduled.
- E. Cooling:
 - 1. Provide a minimum of two steps of cooling capacity with independent refrigeration circuits.
 - 2. Provide low ambient control to allow mechanical cooling to operate down to 0 degrees F.
 - 3. Provide unit with a minimum EER per drawings. If EER is not indicated on drawings, the minimum EER shall be equal to or greater than the 2015 International Energy Conservation Code.
- F. Compressors:
 - 1. All units shall have direct-drive, hermetic, scroll type compressors with centrifugal type oil pumps.
 - 2. Motor shall be suction gas-cooled and shall have Internal overloads shall be provided with the scroll compressors. All models shall have crankcase heaters, phase monitors and low- and high-pressure control as standard.
 - 3. Provide a time delay between starting of first and second compressor with multiple compressor units.
 - 4. A lockout timer shall provide a minimum off time of five minutes between compressor cycling.
- G. Coils:
 - 1. Condenser coils shall be multi-row and fabricated from high efficiency copper tubing mechanically bonded to high efficiency aluminum fins. Each condenser coil shall be factory leak tested to 150 psig, pressure tested to 650 psig, and qualified to UL 1995 burst test at 1980 psig. Provide hail guards to protected coils.
 - 2. Evaporator coils shall be multi-row and fabricated from high efficiency copper tubing mechanically bonded to high efficiency aluminum fins. Each coil shall have interlaced coil circuiting. Each evaporator coil shall be factory leak tested to 150 psig, pressure tested to 450 psig, and qualified to UL 1995 burst test at 1775 psig.
 - 3. Fabricate cooling coil drain pans from type 304 stainless steel. Install a drain pan under each cooling coil. Extend drain pans the entire width of each coil, including the header, and from the upstream face of each coil to a distance ½ of the vertical coil height of the bottom coil or 6", whichever is greater, downstream from the downstream face. Pitch drain pans in two directions towards the outlet. Pipe drain pans individually down to the drain pan below using a minimum 1" type 304 stainless steel piping. The bottom drain pan shall be piped to the exterior of the unit base.
- H. Economizer: **(BAS to control economizer operation)**
 - 1. BAS to control economizer operation for RTU.
 - 2. Provide factory installed controls to include modulating outside air dampers, relief fans with dampers and relief hoods.
 - 3. Unit shall include 0-100% economizer capability as controlled from the BAS 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 DDC actuator. Unit shall include outside air opening bird screen, outside air hood, and barometric relief dampers.
- I. Electrical:
 - 1. Provide unit mounted disconnect for a single point power connection.
 - 2. Provide unit mounted GFI convenience outlet. Outlet shall be powered from unit. Outlet shall be provided with a separate power circuit.
- J. Filters:
 - 1. Unit shall be provided with a draw-through filter section. The filter rack shall be designed to accept a 2" filter. The unit design shall have a hinged access door for the filter section. See Section 23 41 00 – Particulate Air Filtration for filter information.
 - 2. Unit shall include a clogged filter switch.
 - 3. Unit shall include a Magnehelic gauge mounted in the controls compartment.
- K. Roof Curb Adapter (OFCI):

1. Install 16" tall curb adapter, that is OFCI, to mate with existing duct configuration and existing curb.
 2. Curbs shall to be fully gasketed between the curb top and unit bottom with the curb providing full perimeter support, cross structure support and air seal for the unit. Curb gasket shall be furnished within the control compartment of the rooftop unit to be mounted on the curb immediately before mounting of the rooftop unit.
 3. See Sections 23 05 29 – Hangers and Support for HVAC Piping and Equipment and 23 05 48 – Vibration and Seismic Controls for HVAC Piping and Equipment for additional information.
- L. Controls:
1. Provide a terminal strip controls interface for field installed controls.
 2. Provide space in the RTU control cabinet for a field installed DDC controller. Appx. space to be 18" x 18" or as large as possible for field installed controls.
 3. Provide factory installed Wattmaster modulating gas heat controller with supply air temperature sensor. This controller to provide all gas heat functions and safeties in addition to modulating the gas heat to maintain a discharge air temperature and can be reset via a field 0-10V DC input.
 4. Provide factory mounted VFD's with 0-10V input signal for controls by others along with a BACnet MS/TP connection for feedback.
 5. Provide other control points as indicated in the specifications and shown on the plans.
 6. Building BAS shall provide the following outputs for controlling RTU: economizer enable to modulate OA/RA/RE damper per sequence of operations on detail 3/M500, fan enable, the cooling stage 1 on, cooling stage 2 on, heat stage 1 on will all be controlled per the supply air temperature control called out under the sequence of operation on detail 3/M500. Building BAS will provide all additional control point as indicated on the points list on detail 4/M500.
 7. Refer to Section 23 09 93 - Sequence of Operations for HVAC Controls for Control of discharge temperature, space temperature and fan speed
- M. Warranty:
1. Unit shall come with a 1-year warranty on unit parts, 5-year warranty on compressors, and 10-year warranty on heat exchanger provided by the vendor.
 2. Mechanical Contractor to provide a 1-year warranty on installation of RTU-1.

PART 3 – EXECUTION

3.01 INSTALLATION

- A. Install all roof top air handling units and accessories as indicated on drawings and/or as scheduled and according to manufacturer's installation instructions.
- B. Mount units at appropriate height above roof to insure proper condensate trap depth and condensate drainage.
- C. Install roof top air handling unit to provide for adequate service access. Coordinate with other trades to assure unit does not infringe upon access or service clearances of other equipment.
- D. Lubricate fan bearings. Verify fan isolators have proper deflection.
- E. Upon completion of installation of roof top air handling units, start-up and operate equipment to demonstrate capability and compliance with requirements. Field correct malfunctioning components, then retest to demonstrate compliance.
- F. Furnish one spare set of fan drive belts and three reinforced nylon access door handles.

3.02 TRAINING

- A. See Section 23 05 00 – Common Work Results for HVAC for general training requirements.
- B. In addition to the training provided in Section 23 05 00 – Common Work Results for HVAC, provide an additional 4 hours of training for each type of roof top air-handling unit provided on the project.

END OF SECTION

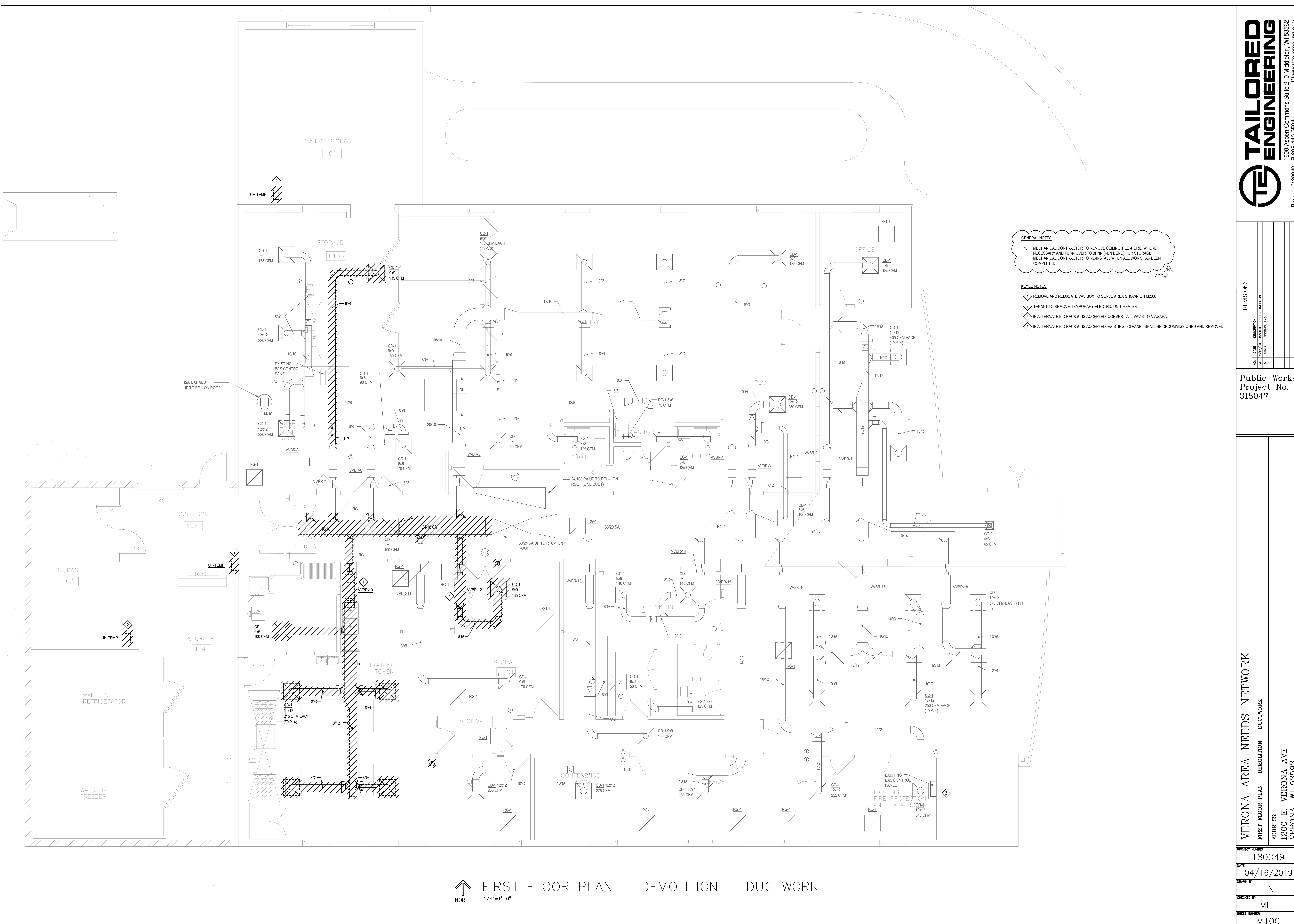
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REVISIONS	
NO.	DESCRIPTION
A	1/17/19 ISSUED FOR CONSTRUCTION
B	ADDENDUM 1

Public Works
 Project No.
 318047

VERONA AREA NEEDS NETWORK
 FIRST FLOOR PLAN - DEMOLITION - DUCTWORK
 ADDRESS: 1200 E. VERONA AVE
 VERONA, WI 53593

PROJECT NUMBER	180049
DATE	04/16/2019
DRAWN BY	TN
CHECKED BY	MLH
SHEET NUMBER	M100



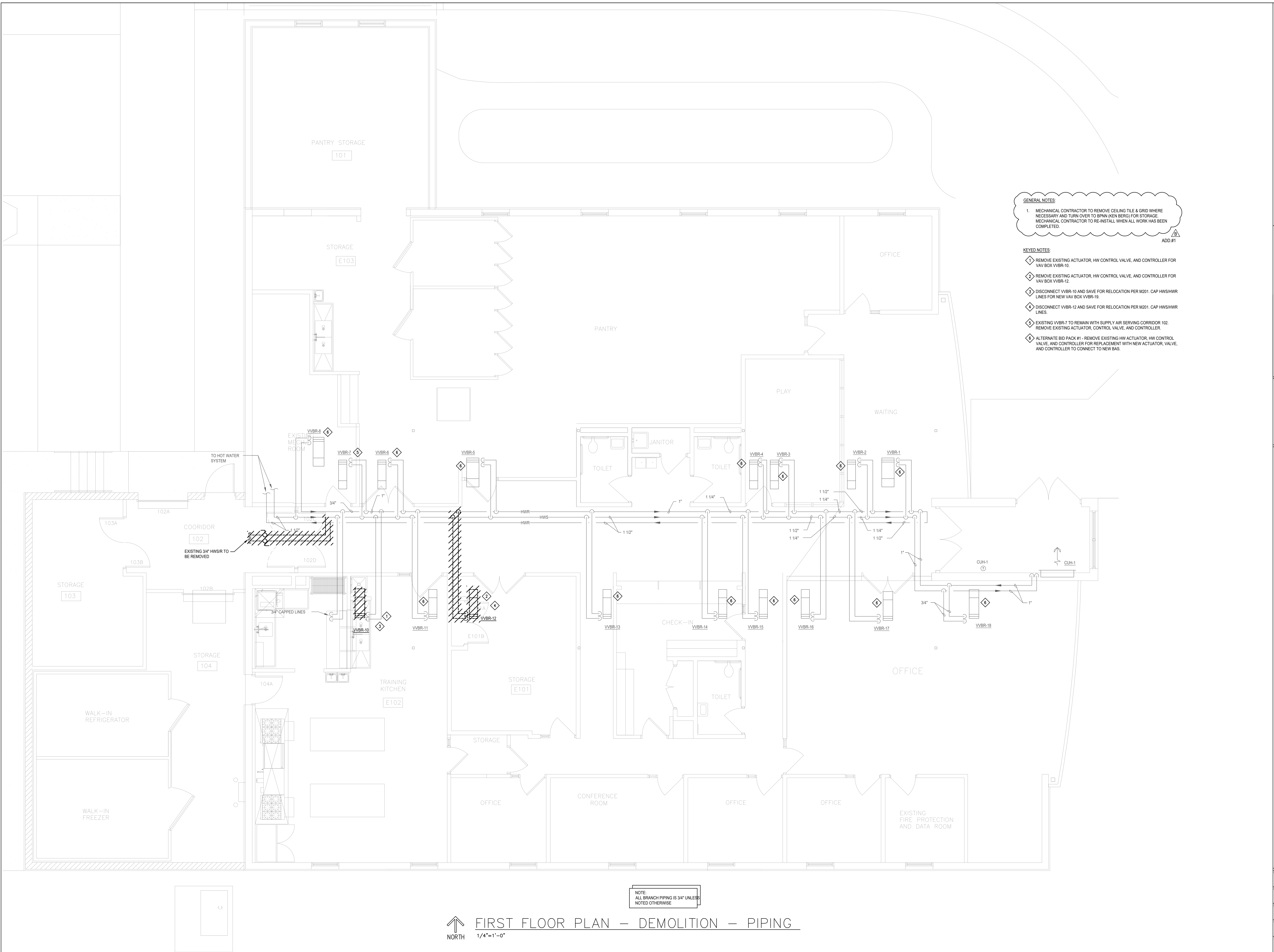
GENERAL NOTES:

- MECHANICAL CONTRACTOR TO REMOVE CEILING TILE & GRID WHERE NECESSARY AND TURN OVER TO BPNM (KEN BERG) FOR STORAGE. MECHANICAL CONTRACTOR TO RE-INSTALL WHEN ALL WORK HAS BEEN COMPLETED.

KEYED NOTES:

- REMOVE AND RELOCATE VAV BOX TO SERVE AREA SHOWN ON M200.
- TENANT TO REMOVE TEMPORARY ELECTRIC UNIT HEATER.
- IF ALTERNATE BID PACK #1 IS ACCEPTED, CONVERT ALL VAV'S TO NIAGARA.
- IF ALTERNATE BID PACK #1 IS ACCEPTED, EXISTING JCI PANEL SHALL BE DECOMMISSIONED AND REMOVED.

FIRST FLOOR PLAN - DEMOLITION - DUCTWORK
 1/4"=1'-0"



GENERAL NOTES:

- MECHANICAL CONTRACTOR TO REMOVE CEILING TILE & GRID WHERE NECESSARY AND TURN OVER TO SPIN (KEN BERG) FOR STORAGE. MECHANICAL CONTRACTOR TO RE-INSTALL WHEN ALL WORK HAS BEEN COMPLETED.

- KEYED NOTES:**
- REMOVE EXISTING ACTUATOR, HW CONTROL VALVE, AND CONTROLLER FOR VAV BOX VVBR-10.
 - REMOVE EXISTING ACTUATOR, HW CONTROL VALVE, AND CONTROLLER FOR VAV BOX VVBR-12.
 - DISCONNECT VVBR-10 AND SAVE FOR RELOCATION PER M201. CAP HWSHWR LINES FOR NEW VAV BOX VVBR-19.
 - DISCONNECT VVBR-12 AND SAVE FOR RELOCATION PER M201. CAP HWSHWR LINES.
 - EXISTING VVBR-7 TO REMAIN WITH SUPPLY AIR SERVING CORRIDOR 102. REMOVE EXISTING ACTUATOR, CONTROL VALVE, AND CONTROLLER.
 - ALTERNATE BID PACK #1 - REMOVE EXISTING HW ACTUATOR, HW CONTROL VALVE, AND CONTROLLER FOR REPLACEMENT WITH NEW ACTUATOR, VALVE, AND CONTROLLER TO CONNECT TO NEW BAS.

REVISIONS	
NO.	DESCRIPTION
A	ISSUED FOR CONSTRUCTION
B	ADDENDUM NO. 1

Public Works
 Project No.
 318047

VERONA AREA NEEDS NETWORK
 FIRST FLOOR PLAN - DEMOLITION - PIPING
 ADDRESS: 1200 E. VERONA AVE
 VERONA, WI 53593

PROJECT NUMBER	180049
DATE	04/16/2019
DRAWN BY	TN
CHECKED BY	MLH
SHEET NUMBER	M101

NOTE:
 ALL BRANCH PIPING IS 3/4" UNLESS NOTED OTHERWISE

FIRST FLOOR PLAN - DEMOLITION - PIPING
 1/4"=1'-0"

NO.	DATE	DESCRIPTION
A	1/17/19	ISSUED FOR CONSTRUCTION
B	5/20/19	ADDENDUM NO. 1

Public Works
 Project No.
 318047

VERONA AREA NEEDS NETWORK
 FIRST FLOOR PLAN - NEW - DUCTWORK
 ADDRESS: 1200 E. VERONA AVE
 VERONA, WI 53593

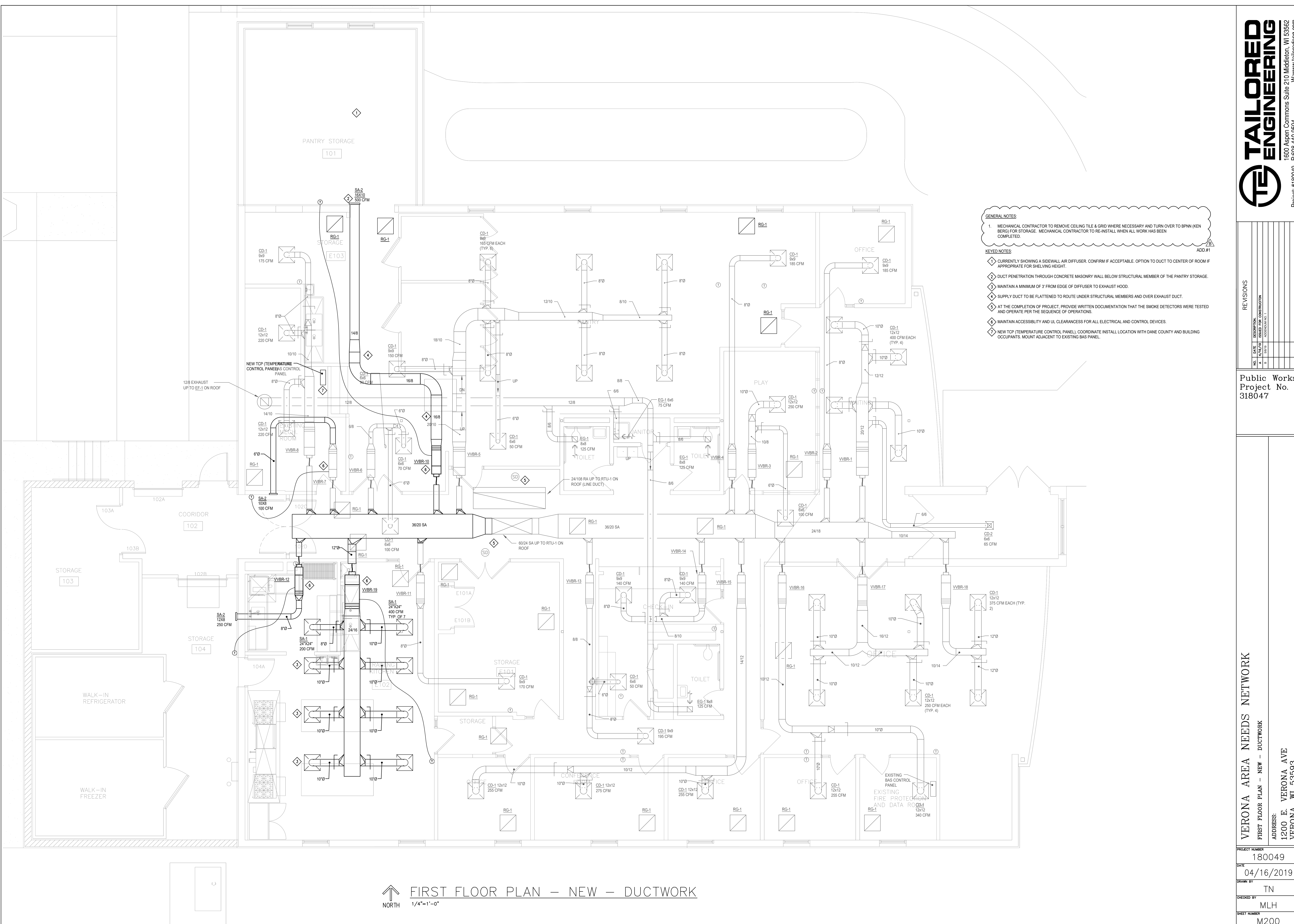
PROJECT NUMBER	180049
DATE	04/16/2019
DRAWN BY	TN
CHECKED BY	MLH
SHEET NUMBER	M200

GENERAL NOTES:

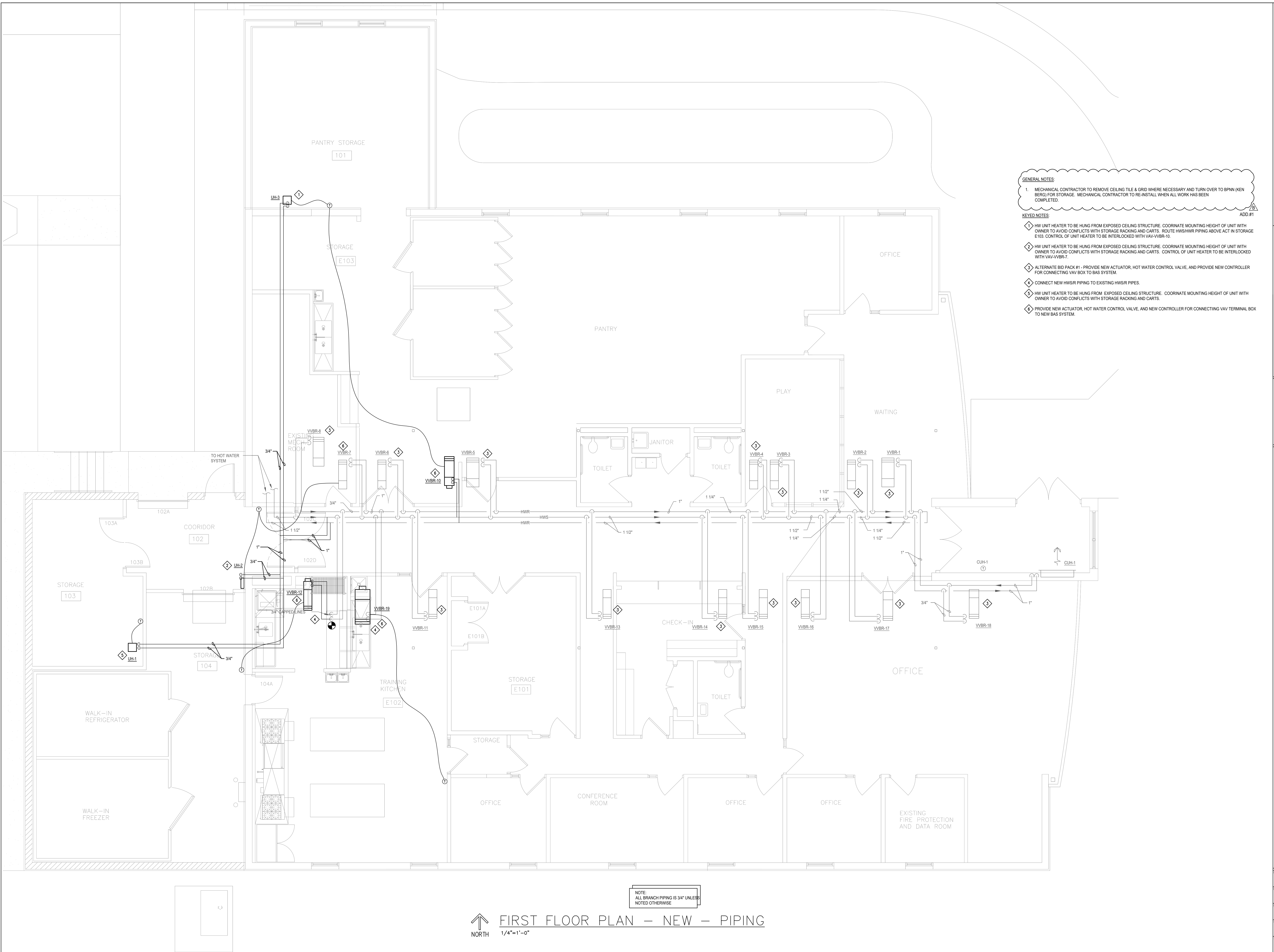
- MECHANICAL CONTRACTOR TO REMOVE CEILING TILE & GRID WHERE NECESSARY AND TURN OVER TO BPNM (KEN BERG) FOR STORAGE. MECHANICAL CONTRACTOR TO RE-INSTALL WHEN ALL WORK HAS BEEN COMPLETED.

KEYED NOTES:

- CURRENTLY SHOWING A SIDEWALL AIR DIFFUSER. CONFIRM IF ACCEPTABLE. OPTION TO DUCT TO CENTER OF ROOM IF APPROPRIATE FOR SHELVING HEIGHT.
- DUCT PENETRATION THROUGH CONCRETE MASONRY WALL BELOW STRUCTURAL MEMBER OF THE PANTRY STORAGE.
- MAINTAIN A MINIMUM OF 3" FROM EDGE OF DIFFUSER TO EXHAUST HOOD.
- SUPPLY DUCT TO BE FLATTENED TO ROUTE UNDER STRUCTURAL MEMBERS AND OVER EXHAUST DUCT.
- AT THE COMPLETION OF PROJECT, PROVIDE WRITTEN DOCUMENTATION THAT THE SMOKE DETECTORS WERE TESTED AND OPERATE PER THE SEQUENCE OF OPERATIONS.
- MAINTAIN ACCESSIBILITY AND UL CLEARANCES FOR ALL ELECTRICAL AND CONTROL DEVICES.
- NEW TCP (TEMPERATURE CONTROL PANEL), COORDINATE INSTALL LOCATION WITH DANE COUNTY AND BUILDING OCCUPANTS. MOUNT ADJACENT TO EXISTING GAS PANEL.



FIRST FLOOR PLAN - NEW - DUCTWORK
 NORTH 1/4"=1'-0"



GENERAL NOTES

- MECHANICAL CONTRACTOR TO REMOVE CEILING TILE & GRID WHERE NECESSARY AND TURN OVER TO BPN (KEN BERG) FOR STORAGE. MECHANICAL CONTRACTOR TO RE-INSTALL WHEN ALL WORK HAS BEEN COMPLETED.

KEYED NOTES ADD.#1

- HW UNIT HEATER TO BE HUNG FROM EXPOSED CEILING STRUCTURE. COORDINATE MOUNTING HEIGHT OF UNIT WITH OWNER TO AVOID CONFLICTS WITH STORAGE RACKING AND CARTS. ROUTE HWS/HWR PIPING ABOVE ACT IN STORAGE E103. CONTROL OF UNIT HEATER TO BE INTERLOCKED WITH VAV-VVBR-10.
- HW UNIT HEATER TO BE HUNG FROM EXPOSED CEILING STRUCTURE. COORDINATE MOUNTING HEIGHT OF UNIT WITH OWNER TO AVOID CONFLICTS WITH STORAGE RACKING AND CARTS. CONTROL OF UNIT HEATER TO BE INTERLOCKED WITH VAV-VVBR-7.
- ALTERNATE BID PACK #1 - PROVIDE NEW ACTUATOR, HOT WATER CONTROL VALVE, AND PROVIDE NEW CONTROLLER FOR CONNECTING VAV BOX TO BAS SYSTEM.
- CONNECT NEW HWS/R PIPING TO EXISTING HWS/R PIPES.
- HW UNIT HEATER TO BE HUNG FROM EXPOSED CEILING STRUCTURE. COORDINATE MOUNTING HEIGHT OF UNIT WITH OWNER TO AVOID CONFLICTS WITH STORAGE RACKING AND CARTS.
- PROVIDE NEW ACTUATOR, HOT WATER CONTROL VALVE, AND NEW CONTROLLER FOR CONNECTING VAV TERMINAL BOX TO NEW BAS SYSTEM.

NO.	DATE	DESCRIPTION
A	4/16/19	ISSUED FOR CONSTRUCTION
B		

Public Works
 Project No.
 318047

VERONA AREA NEEDS NETWORK
 FIRST FLOOR PLAN - NEW - PIPING
 ADDRESS: 1200 E. VERONA AVE
 VERONA, WI 53593

PROJECT NUMBER	180049
DATE	04/16/2019
DRAWN BY	TN
CHECKED BY	MLH
SHEET NUMBER	M201

NOTE:
 ALL BRANCH PIPING IS 3/4" UNLESS
 NOTED OTHERWISE

FIRST FLOOR PLAN - NEW - PIPING
 1/4"=1'-0"

VAV BOX W/ HOT WATER REHEAT SCHEDULE																				
PLAN MARK	SERVES	AIR TERMINAL DEVICE						REHEAT COIL												REMARKS
		DISCHARGE SIZE			NOISE CRITERIA			HEATING AIRFLOW (CFM)	CAP. (MBH)	E.A.T. (°F)	ROWS	AIR PRESS. DROP (IN. W.G.) AT MAX. AIRFLOW	WATER FLOW (GPM)	E.W.T. (°F)	WATER PRESS. DROP (FT.)	INTERFACE WITH ROOM OCCUPANCY SENSOR				
		INLET SIZE (IN.)	WIDTH (IN.)	HEIGHT (IN.)	OCCUPIED MAX. AIRFLOW (CFM)	OCCUPIED MIN. AIRFLOW (CFM)	AIR TERMINAL TOTAL PRESS. DROP (IN. W.G.)										MAXIMUM DISCHARGE (NC)	MAXIMUM RADIATED (NC)		
VVBR-7 (EXISTING)	CORRIDOR 102	4	10.5	12.5	100	55	1.0	-	-	55	5.3	50		0.01	0.5	180	0.3	N	1	
VVBR-10 (EXISTING)	PANTRY STORAGE 101	9	14.5	12.5	500	250	1.0	-	-	250	21.5000	50		0.01	0.5	180	0.3	N	2	
VVBR-12 (EXISTING)	STORAGE 104	4	10.5	12.5	250	125	1.0	-	-	125		50		0.01	0.5	180	0.3	N	2,3	
VVBR-19 (NEW)	KITCHEN E102	16	24.5	12.5	2900	1450	1.0	84	76	1450	44	50	2	0.29	1.0	180	0.4	N	3	

REMARKS:

- VAV BOX IS EXISTING TO BE REUSED IN PLACE. PROVIDE NEW CONTROLLER, CONTROL VALVE, AND ACTUATOR.
- VAV BOX IS EXISTING AND TO BE RELOCATED AS SHOWN ON M200. PROVIDE NEW CONTROLLER, CONTROL VALVE, AND ACTUATOR.
- HOT WATER COILS TO BE CONNECTED TO EXISTING HWS/HWR AS SHOWN.

ROOFTOP UNIT SCHEDULE																
UNIT TAG	MFG.	MODEL #	FAN SECTION			HEATING SECTION		COOLING SECTION		ELECTRICAL DATA			UNIT WEIGHT (LBS)	REMARKS		
			SUPPLY CFM	MIN. OA CFM	E.S.P.	SUPPLY FAN HP	SUPPLY FAN RPM	KW INPUT	MBH OUTPUT	CAPACITY (TONS)	EER	VOLTAGE / PHASE			MCA	MFS
RTU-1	AAON	RN-030-8-0-EA09-12A	10099	1600	1.00	10	1760	15	51.2	27.8	10.6	208/3	191	225	2957	1,2,3,4,5,6,7,8,9,10,11

ADD #1

- UNIT OPTIONS: SEE SPECIFICATIONS FOR LISTING OF EQUIPMENT OPTIONS.
- PROVIDE A 12"-15" TALL RETROFIT ROOF CURB TO ADAPT TO OPENINGS ON EXISTING CURB.
- MODULATING COOLING COMPRESSOR DOWN TO 10% MIN CAPACITY (NO HOT GAS BYPASS OR RAWAL VALVE).
- UNIT SHALL BE DOUBLE WALL CONSTRUCTION 2" THICK WITH ACCESS DOORS, PIANO HINGES, LOCKABLE HANDLES.
- RTU SERVING MULTIPLE VAV ZONES - SUPPLY FAN MODULATION TO MAINTAIN DUCT STATIC PRESSURE SETPOINT.
- PROVIDE A TERMINAL STRIP CONTROLS INTERFACE FOR FIELD INSTALLED CONTROLS.
- PROVIDE SPACE IN THE RTU CONTROL CABINET FOR A FIELD INSTALLED DDC CONTROLLER. APPX. SPACE TO BE 18"X18" OR AS LARGE AS POSSIBLE FOR FIELD INSTALLED CONTROLS.
- PROVIDE FACTORY INSTALLED ELECTRIC HEAT CONTROLLER WITH SUPPLY AIR TEMPERATURE SENSOR. THIS CONTROLLER TO MAINTAIN A DISCHARGE AIR TEMPERATURE AND CAN BE FACTORY RESET VIA A FIELD 0-10V DC INPUT.
- PROVIDE FACTORY MOUNTED VFD'S WITH 0-10V INPUT SIGNAL FOR CONTROLS BY OTHERS ALONG WITH A BACNET MS/TP CONNECTION FOR FEEDBACK.
- PROVIDE OTHER CONTROL POINTS AS INDICATED IN THE SPECIFICATION AND SHOWN ON THE PLANS.
- RTU-1 IS OWNER FURNISHED, CONTRACTOR INSTALLED (OFCI). COORDINATE DELIVERY WITH OWNER.

REGISTERS, GRILLES, & DIFFUSERS SCHEDULE							
ITEM #	SERVICE	TYPE	MOUNTING	MATERIAL	AIR PATTERN	MANUFACTURER	MODEL #
SA-1	SUPPLY	2X2 SQUARE PLAQUE DIFFUSER	LAY-IN	ALUMINUM	360°	PRICE	SPD
SA-2	SUPPLY	WALL	SURFACE MOUNT	ALUMINUM	45° DEFLECTION	PRICE	LBP
RG-1	RETURN	EGG GRATE GRILLE	LAY-IN	ALUMINUM	0° DEFLECTION	PRICE	80

- ALL GRILLES AND DIFFUSERS SHALL NOT EXCEED NOISE CRITERIA NC-20 AND A MAXIMUM OF 0.1 INCH WG STATIC PRESSURE DROP.
- BORDER TYPES SHALL BE COMPATIBLE WITH CEILING TYPES WHERE AIR DEVICE IS LOCATED.
- SEE PLANS FOR LOCATION AND AIR QUANTITIES OF EACH DEVICE.
- EACH SUPPLY, RETURN, EXHAUST DEVICE TO HAVE A DAMPER IN DUCTBRANCH TAKE-OFF. PRIOR APPROVAL REQUIRED BY ENGINEER TO USE OPPOSED BLADE DAMPER IN AIR DEVICE. PLACE DAMPER IN ACCESSIBLE AREA.

HOT WATER UNIT HEATER SCHEDULE														
PLAN MARK (UH)	LOCATION	AIRFLOW DIRECTION	CAPACITY (MBH)	AIRSIDE			WATER SIDE			MOTOR				REMARKS
				FLOW (CFM)	E.A.T. (°F)	FLUID TYPE	FLOW (GPM)	PRESS. DROP (FT.)	E.W.T. (°F)	MOTOR SPEED (RPM)	MOTOR SIZE	VOLT.	PHASE	
UH-1	STORAGE 103	HORIZONTAL	22.3000	550	60	WATER	2.0000	0.0900	180	1550	25 WATT	115	1	1,3
UH-2	CORRIDOR 102	HORIZONTAL	22.3000	550	60	WATER	2.0000	0.0900	180	1550	25 WATT	115	1	2,3
UH-3	PANTRY STORAGE 101	HORIZONTAL	22.3000	550	60	WATER	2.0000	0.0900	180	1550	25 WATT	115	1	1,3

REMARKS:

- UNIT HEATER MOUNTED BELOW CEILING REPLACING TEMPORARY ELECTRIC UNIT HEATER.
- SELECTION BASED ON STERLING HS-36 MODEL UNIT HEATER.
- MANUFACTURER TO PROVIDE DISCONNECT.

NO.	DATE	DESCRIPTION
A	4/16/19	ISSUED FOR CONSTRUCTION
B		REVISION NO. 1

Public Works
 Project No.
 318047

VERONA AREA NEEDS NETWORK
 MECHANICAL SCHEDULES
 ADDRESS:
 1200 E. VERONA AVE
 VERONA, WI 53593

PROJECT NUMBER	180049
DATE	04/16/2019
DRAWN BY	TN
CHECKED BY	MLH
SHEET NUMBER	M300