



August 26, 2019

**Addendum # 2 To  
Request for Proposal  
For State Hall Elevator Improvements – Phase I Modernization of Two Existing Elevators: Project 016-327661**

**Minutes of the Pre-bid Conference  
Dated August 19, 2019**

**The Addendum must be acknowledged on your lump sum bid.**

The pre-bid conference for Request for Proposal for **State Hall Elevator Improvements – Phase I Modernization of Two Existing Elevators**, Project **016-327661** was held on **August 26, 2019**, at **2:00 pm** (local time) – at Detroit, MI 48202. **Valerie Kreher** reviewed the highlights of the pre-bid package, especially concerning details such as bid due dates and who Contractors may contact during the live bid process. **Kidest Albaari** and **Amy Noff** from **Norr LLC** discussed the technical aspects of the project and bid requirements, and conducted the Q & A session.

NOTE: You must have attended a prebid conference in order to be eligible to bid on a particular project. Receipt of minutes or addenda without being at a prebid conference does not qualify your company to bid.

**Please note new dates:**

Due to insufficient attendance at the prebid meeting, the University is scheduling a second prebid on Tuesday, September 10, at 10:00 am. This meeting will be held in Conference Room 3 at FPM. Questions are due by **September 17, 2019** at 12:00 noon. **Bids are due by electronic submission on no later than 2:00 p.m., September 24, 2019.**

Numerous simple questions and answers were addressed at the pre-bid meeting. Some of the issues were as follows:

1. Minimum Participation
  - A. Pre-registration for the Pre-Bid meeting is required. In the event that we do not have four (4) or more eligible bidders pre-registered, the University reserves the right to postpone the Pre-bid meeting with up to 4 business hour notice.
  - B. If less than 4 individual contractor firms attend the mandatory pre-bid meeting, the University reserves the right, at its sole discretion, to either reschedule the pre-bid conference or proceed and offer a second pre-bid conference date. (Attendance at only one pre-bid conference will be required).
  - C. On the day of the bid opening, if less than 3 sealed bids are received, the University reserves the right, at its sole discretion, to rebid the project in an effort to obtain greater competition. If the specifications are unchanged during the rebid effort, any contractor who submitted a bid will be given the option of keeping its bid on file for opening after the second bid effort, or of having the bids returned to them unopened.
2. Smoke and Tobacco Free Policies: On August 19, 2015, Wayne State joined hundreds of colleges and universities across the country that have adopted smoke- and tobacco-free policies for indoor and outdoor spaces. Contractors are responsible to ensure that all employees and all subcontractors' employees are in compliance anytime they are on WSU's main, medical, or extension center campuses. The complete policy can be found at <http://wayne.edu/smoke-free/policy/>
3. Sworn Statement Requirements: The University tracks it's level of spend along a number of socio-economic categories. This includes it's spend with Diverse organizations, it's spend with Detroit based organizations, and it's spend with Michigan based organizations. To assist with this, The University has reporting requirements to be included with the submission of your bid and for Pay Applications submitted by the successful contractor.
4. A bid bond is not required for bids below \$50,000. Otherwise, a bid bond (5%) will be required for the full amount of the bid.
5. Performance Bond and Material & Labor Payment Bond requirements are listed in the specifications of the job. Performance & Material & Labor Payment Bonds must be provided by the awarded Contractor with the submission of the signed contract; which will then be submitted to FP&M management for counter signature.
6. The awarded Contractor must provide the required Certificate of Insurance in compliance with Section 700 – General Conditions, article 4.05 – Contractor's Insurance, and Section 800 – Supplementary Conditions, "Add the following to 4.05.1" of the bid specifications prior to commencement of any work.
7. Please review the insurance section carefully, there are some changes in the documents, such as the addition of professional liability insurance and changes in the amounts of required insurance for most of the categories

8. If your company has not previously done business with the University you may go to the Purchasing website at **www.purchasing.wayne.edu** and look for the "new vendor" link under "Information for Vendors" on the left. You may submit a new vendor request form and an IRS form W-9. This will register your company on our vendor list. (NOTE: this does not replace the listserv.)
9. This Project Requires the Contractor and any subcontractors to compensate all employees who come to the job site at no less than Prevailing Wage Rates. A Prevailing Wage Rate Schedule is included as Appendix A to the Bid Specifications. Contractors must review these requirements to be sure they are in compliance with the requirements of the University. Contractors must post wages at the job site in compliance with the complete Prevailing Wage Rate listing provided in Bid Documents.
10. 1099 workers and subcontractors using 1099 workers are NOT acceptable
11. Certified Payroll must be provided with each of the contractor's pay applications for all workers who worked at the job site, in compliance with the University policy. Failure to provide certified payroll will constitute breach of contract and pay applications will be returned unpaid, and remain so until satisfactory supporting documents are provided.
12. Signed waivers from all Subcontractors and suppliers must accompany Pay Applications or they will be returned for such documentation prior to approval.
13. A properly executed sworn statement is required from all tiers of contractors, and sub-contractors indicating sub-contractors and suppliers which provide services or product of \$10,000.00 or greater. Sworn statements must accompany applications for payment
14. All documents listed in the Front End Section 0410-2 "Wayne State Prevailing Wage Requirements" must accompany applications for payment. Failure to do so will result in the entire application package returned for correction.
15. A checklist of all Pay Application requirements can be found in Section 00430-1.
16. Note: there is a new section 440 Contractors Performance Evaluation. This is a new part of the contract and will be performed at the end of every job.
17. The building is occupied, however floors two and four are not occupied. During the school year there will be classes. Should there be any noisy work, the contractor will need to provide a seven day notice and coordinate with the project manager.
18. Demolition should be completed after hours. This should be included in your lump sum proposals. There will be demolition required in the basement
19. There is work required on the penthouse, the smoke detector, and the fire alarm. As a result of the penthouse work, the roof will need to be patch and repaired.
20. The University requires a seven day advance notice for coordination of alternate hours or shutdowns.
21. The Building address was incorrect; the correct address is 5143 Cass Ave, Detroit, MI 48202
22. The competency and responsibility of Bidders will be considered in making the award. The Owner does not obligate himself to accept the lowest or any other bids. The Owner reserves the right to reject any and all bids and to waive any informalities in the Proposals
23. Parking on WSU campus lots and structures are \$8.50/access. Contractor must build parking into their lump sum bid. There is no parking allowed on the malls.
24. Section 300, Form of Proposal has changed very recently, review carefully and complete in its entirety to avoid disqualification.
25. The contractors **must** fill out our prequalification form. They can attach additional information if they would like but at a minimum the information requested must be filled in on our form so that we do not have to hunt to find the information.
26. The modernization of the conveying system is NOT part of the scope of work for this RFP.
27. Contractors who have withdrawn a bid after a University bid opening and/or refused to enter into a contract with the University upon notification of award within the last 3 years are not eligible to bid on this project.
28. Project hours of operation are 7:00am – 5:00 pm. Anything else requires advance notice and approval.
29. Prequalification meeting will be held the first business day after bid openings. Contractors must be available. The Project Manager will coordinate the meetings.
30. Prequalification meeting includes Schedule of Values from the Contractor, including a list of Contractor's subcontractors and other qualifications required by the documents.
31. An unsigned contract will be given to the successful Contractor at the conclusion of the Prequalification meeting, if all aspects of the bid are in order. The Contractor has 5 business days to return the contract to the Project Manager for University counter signature. The contractor must also submit a Performance Bond as outlined above and a Certificate of Insurance in the same 5 business day period. In the event the Contractor fails to return the documents in this 5 day period, the University reserves the right to award the contract to the next most responsive bidder.
32. Alternates have been added to this project. There is a new Form of Proposal at the end of the minutes for you to use.
33. An Optional second walk thru was not scheduled at this time.
34. Permit requirements are the responsibility of the awarded contractor as listed in General Conditions, Section 700 Article 4.02.18.
35. Contractor must provide their own dumpster if needed, which must be rubber or plywood padded if placed on concrete. Location and duration must be coordinated with the project manager. Dumpster must be tagged with the name of your company clearly displayed. Any lawn damage must be restored.
36. Due to insufficient attendance at the prebid meeting, the University is scheduling a second prebid on Tuesday, September 10, at 10:00 am. This meeting will be held in Conference Room 3 at FPM.
37. Questions are due by **September 17, 2019** at 12:00 noon

38. Bids are due **by electronic submission on no later than 2:00 p.m., September 24, 2019.** The link for bid submission will be posted with the bid details at <http://go.wayne.edu/bids> beginning **August 19, 2019.**  
**No public bid opening will be held.**
39. **Time of Completion:** The Contract is expected to be fully executed on or about 15 calendar days after successful bidder qualification and recommendation of award. The successful bidder (Contractor) agrees to start construction **immediately after** receipt of a fully executed contract and Purchase Order, and to complete the work as follows: Substantial Completion, and State Approved Inspections (if appropriate), no later than **March 25, 2020.**
40. A copy of the sign in sheet is available for downloading from the University Purchasing Web Site at <http://go.wayne.edu/bids>.
41. This is an occupied area, awarded Contractor must be considerate of environment (noise, cleanliness, etc)
42. **IMPORTANT- This is an addendum which MUST be acknowledged on your bid form**

**We will require your lump sum proposals, vendor qualification questionnaire and your bid bond documents as a single PDF in your electronic submission.**

All questions concerning this project must be emailed to: **Valerie Kreher**, Procurement & Strategic Sourcing. Email: [rfpteam2@wayne.edu](mailto:rfpteam2@wayne.edu), and copy **Kim Tomaszewski**, Senior Buyer, at [ac9934@wayne.edu](mailto:ac9934@wayne.edu).

Bids are due **by electronic submission on no later than 2:00 p.m., September 24, 2019.** The link for bid submission will be posted with the bid details at <http://go.wayne.edu/bids> beginning **August 19, 2019.**

**Do not contact either FP&M or the Design Firm directly as this may result in disqualification of your proposal.**

Thank you for interest shown in working with Wayne State University.

**Valerie Kreher**  
**Senior Buyer**

CC: **Kidest Albaari** (Project Manager), **Kim Tomaszewski**, Senior Buyer, Attendee list.

Reason for Issue  
Addendum 2

Date  
September 5th, 2019

Project Information  
WSU State Hall Elevator Modernization  
Phase 1

NORR Project No.  
JCDT18-0229

Wayne State University Project No.

---

### **Intent**

This **TRANSMITTAL** is issued to provide new and/or updated project documents.

### **Specifications**

The following **SPECIFICATIONS** accompany and form a part of this **TRANSMITTAL**.

221005 Plumbing Piping – New.

223000 Plumbing Equipment – New.

238126.13 Small-Capacity Split-System Air Conditioners – New.

253523 Integrated Automation Control Dampers – Re-issued.

### **Drawings**

The following **DRAWINGS** accompany and form a part of this **TRANSMITTAL**.

#### *ARCHITECTURE*

*Revised Drawings:* G0-00, A1-01

#### *MECHANICAL*

*Revised Drawings:* FP1-01, M1-01

#### *ELECTRICAL*

*Revised Drawings:* E0-02, ED-01, E1-01

#### *ARCHITECTURE DRAWING REVISIONS*

1. Dwg No G0-00
  - a. Revised Sheet Index to show sheets included as part of Addendum #1
2. Dwg No A1-01
  - a. Added demolition photos 9b & 9c to show additional demolition scope
  - b. Revised dimensions of louver demolition

- c. Added removal of existing exhaust for air intake system to scope of work.

*MECHANICAL DRAWING REVISIONS*

1. Dwg No FP1-01
  - a. Added condensate line for AC-1 unit.
  - b. Revised Automatic Sprinklers for Elevator Hoistway Diagram and removed heat detector interlock.
2. Dwg No M1-01
  - a. Added Split System Cooling Schedule for elevator machine room.
  - b. Added Mechanical – Basement Part Plan.
  - c. Revised Motorized Damper Schedule for insulated damper.
  - d. Revised Hoistway Vent Damper Control and removed heat detector interlock.
  - e. Removed exhaust fan from elevator machine room.

*ELECTRICAL DRAWING REVISIONS*

1. Dwg No E0-02
  - a. Revised panel schedule DP-EL.
2. Dwg No ED-01
  - a. Added removal of exhaust fan.
3. Dwg No E1-01
  - a. Added AC-1 and ACC-1.
  - b. Revised Key Note E4.

**SECTION 00 0110  
TABLE OF CONTENTS**

**PROCUREMENT AND CONTRACTING REQUIREMENTS**

**1.01 DIVISION 00 -- PROCUREMENT AND CONTRACTING REQUIREMENTS**

- A. 00 0101 - Project Title Page
- B. 00 0110 - Table of Contents

**SPECIFICATIONS**

**2.01 DIVISION 01 -- GENERAL REQUIREMENTS**

**2.02 DIVISION 02 -- EXISTING CONDITIONS**

**2.03 DIVISION 03 -- CONCRETE**

**2.04 DIVISION 04 -- MASONRY**

- A. 04 2000 - Unit Masonry

**2.05 DIVISION 05 -- METALS**

**2.06 DIVISION 06 -- WOOD, PLASTICS, AND COMPOSITES**

**2.07 DIVISION 07 -- THERMAL AND MOISTURE PROTECTION**

- A. 07 8400 - Firestopping

**2.08 DIVISION 08 -- OPENINGS**

**2.09 DIVISION 09 -- FINISHES**

**2.10 DIVISION 10 -- SPECIALTIES**

**2.11 DIVISION 11 -- EQUIPMENT**

**2.12 DIVISION 12 -- FURNISHINGS**

**2.13 DIVISION 13 -- SPECIAL CONSTRUCTION**

**2.14 DIVISION 14 -- CONVEYING EQUIPMENT**

- 14 2100 - Electric Traction Elevators

**2.15 DIVISION 21 -- FIRE SUPPRESSION**

- A. 21 0500 - Common Work Results for Fire Suppression
- B. 21 0523 - General-Duty Valves for Water-Based Fire-Suppression Piping
- C. 21 0553 - Identification for Fire Suppression Piping and Equipment
- D. 21 1300 - Fire-Suppression Sprinkler Systems

**2.16 DIVISION 22 -- PLUMBING**

- A. 22 1005 - *Plumbing Piping*
- B. **22 3000 - Plumbing Equipment**

**2.17 DIVISION 23 -- HEATING, VENTILATING, AND AIR-CONDITIONING (HVAC)**

- A. **23 8126.13 - Small-Capacity Split-System Air Conditioners**

**2.18 DIVISION 25 -- INTEGRATED AUTOMATION**

- A. 25 0500 - Common Work Results for Integrated Automation
- B. 25 3513 - Integrated Automation Actuators and Operators
- C. 25 3519 - Integrated Automation Control Valves
- D. **25 3523 - Integrated Automation Control Dampers**

**2.19 DIVISION 26 -- ELECTRICAL**

- A. 26 0505 - Selective Demolition for Electrical

- B. 26 0519 - Low-Voltage Electrical Power Conductors and Cables
- C. 26 0526 - Grounding and Bonding for Electrical Systems
- D. 26 0529 - Hangers and Supports for Electrical Systems
- E. 26 0533.13 - Conduit for Electrical Systems
- F. 26 0533.16 - Boxes for Electrical Systems
- G. 26 0553 - Identification for Electrical Systems
- H. 26 2416 - Panelboards
- I. 26 2726 - Wiring Devices
- J. 26 2813 - Fuses
- K. 26 2816.13 - Enclosed Circuit Breakers
- L. 26 2816.16 - Enclosed Switches
- M. 26 5100 - Interior Lighting

**2.20 DIVISION 27 -- COMMUNICATIONS**

**2.21 DIVISION 28 -- ELECTRONIC SAFETY AND SECURITY**

- A. 28 4600 - Fire Detection and Alarm

**2.22 DIVISION 31 -- EARTHWORK**

**2.23 DIVISION 32 -- EXTERIOR IMPROVEMENTS**

**2.24 DIVISION 33 -- UTILITIES**

**2.25 DIVISION 46 -- WATER AND WASTEWATER EQUIPMENT**

**END OF SECTION 00 0110**

**SECTION 22 1005  
PLUMBING PIPING**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Pipe, pipe fittings, specialties, and connections for piping systems.
  - 1. Sanitary sewer.
  - 2. Flanges, unions, and couplings.
  - 3. Pipe hangers and supports.

**1.02 RELATED REQUIREMENTS**

- A. Section 22 0516 - Expansion Fittings and Loops for Plumbing Piping.

**1.03 REFERENCE STANDARDS**

- A. ASTM D1785 - Standard Specification for Poly(Vinyl Chloride) (PVC) Plastic Pipe, Schedules 40, 80, and 120; 2015, with Editorial Revision (2018).
- B. ASTM D2241 - Standard Specification for Poly (Vinyl Chloride) (PVC) Pressure-Rated Pipe (SDR Series); 2015.
- C. ASTM D2466 - Standard Specification for Poly(Vinyl Chloride) (PVC) Plastic Pipe Fittings, Schedule 40; 2017.
- D. ASTM D2564 - Standard Specification for Solvent Cements for Poly(Vinyl Chloride) (PVC) Plastic Piping Systems; 2012 (Reapproved 2018).
- E. ASTM D2855 - Standard Practice for the Two-Step (Primer & Solvent Cement) Method of Joining Poly (Vinyl Chloride) (PVC) or Chlorinated Poly (Vinyl Chloride) (CPVC) Pipe and Piping Components with Tapered Sockets; 2015.
- F. MSS SP-58 - Pipe Hangers and Supports - Materials, Design, Manufacture, Selection, Application, and Installation; 2018.
- G. NSF 61 - Drinking Water System Components - Health Effects; 2017.
- H. NSF 372 - Drinking Water System Components - Lead Content; 2016.

**1.04 SUBMITTALS**

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide data on pipe materials, pipe fittings, valves, and accessories. Provide manufacturers catalog information. Indicate valve data and ratings.

**1.05 QUALITY ASSURANCE**

- A. Perform work in accordance with applicable codes.
- B. Identify pipe with marking including size, ASTM material classification, ASTM specification, potable water certification, water pressure rating.

**1.06 DELIVERY, STORAGE, AND HANDLING**

- A. Provide temporary end caps and closures on piping and fittings. Maintain in place until installation.
- B. Protect piping systems from entry of foreign materials by temporary covers, completing sections of the work, and isolating parts of completed system.

**PART 2 PRODUCTS**

**2.01 GENERAL REQUIREMENTS**

- A. Potable Water Supply Systems: Provide piping, pipe fittings, and solder and flux (if used), that comply with NSF 61 and NSF 372 for maximum lead content; label pipe and fittings.

**2.02 SANITARY SEWER PIPING, ABOVE GRADE**

- A. PVC Pipe: ASTM D1785 Schedule 40, or ASTM D2241 SDR 26 with not less than 150 psi (1034 kPa) pressure rating.



1. Fittings: ASTM D2466, PVC.
2. Joints: Solvent welded, with ASTM D2564 solvent cement.

### **2.03 FLANGES, UNIONS, AND COUPLINGS**

- A. Unions for Pipe Sizes 3 Inches (80 mm) and Under:
  1. Copper tube and pipe: Class 150 bronze unions with soldered joints.
- B. Dielectric Connections: Union with galvanized or plated steel threaded end, copper solder end, water impervious isolation barrier.

### **2.04 PIPE HANGERS AND SUPPORTS**

- A. Provide hangers and supports that comply with MSS SP-58.
  1. If type of hanger or support for a particular situation is not indicated, select appropriate type using MSS SP-58 recommendations.
  2. Overhead Supports: Individual steel rod hangers attached to structure or to trapeze hangers.
  3. Trapeze Hangers: Welded steel channel frames attached to structure.
  4. Vertical Pipe Support: Steel riser clamp.
- B. Plumbing Piping - Drain, Waste, and Vent:
  1. Wall Support for Pipe Sizes to 3 Inches (80 mm): Cast iron hook.
  2. Floor Support: Cast iron adjustable pipe saddle, lock nut, nipple, floor flange, and concrete pier or steel support.

## **PART 3 EXECUTION**

### **3.01 PREPARATION**

- A. Ream pipe and tube ends. Remove burrs. Bevel plain end ferrous pipe.
- B. Remove scale and dirt, on inside and outside, before assembly.
- C. Prepare piping connections to equipment with flanges or unions.

### **3.02 INSTALLATION**

- A. Install in accordance with manufacturer's instructions.
- B. Provide non-conducting dielectric connections wherever jointing dissimilar metals.
- C. Route piping in orderly manner and maintain gradient. Route parallel and perpendicular to walls.
- D. Install piping to maintain headroom, conserve space, and not interfere with use of space.
- E. Group piping whenever practical at common elevations.
- F. Install piping to allow for expansion and contraction without stressing pipe, joints, or connected equipment. Refer to Section 22 0516.
- G. PVC Pipe: Make solvent-welded joints in accordance with ASTM D2855.
- H. Sleeve pipes passing through partitions, walls and floors.
- I. Pipe Hangers and Supports:

### **3.03 APPLICATION**

- A. Install unions downstream of valves and at equipment or apparatus connections.

### **3.04 TOLERANCES**

- A. Drainage Piping: Establish invert elevations within 1/2 inch (10 mm) vertically of location indicated and slope to drain at minimum of 1/8 inch per foot (1:100) slope.

### **3.05 SCHEDULES**

- A. Pipe Hanger Spacing:
  1. Plastic Piping:
    - a. All Sizes:
      - 1) Maximum Hanger Spacing: 6 ft (1.8 m).

2) Hanger Rod Diameter: 3/8 inch (9 mm).

**END OF SECTION**

**SECTION 22 3000  
PLUMBING EQUIPMENT**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Cooling condensate removal pumps.

**1.02 REFERENCE STANDARDS**

- A. UL 778 - Standard for Motor-Operated Water Pumps; Current Edition, Including All Revisions.

**1.03 ADMINISTRATIVE REQUIREMENTS**

- A. Preinstallation Meeting: Conduct a preinstallation meeting one week prior to the start of the work of this section; require attendance by all affected installers.
- B. Sequencing: Ensure that utility connections are achieved in an orderly and expeditious manner.

**1.04 SUBMITTALS**

- A. See Section 01 3000 - Administrative Requirements, for submittals procedures.
- B. Product Data:
- C. Warranty Documentation: Submit manufacturer warranty and ensure that forms have been completed in Wayne State University'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 documented experience.
- B. Certifications:
  - 1. Products Requiring Electrical Connection: Listed and classified by Underwriters Laboratories Inc., as suitable for the purpose specified and indicated.
- C. Identification: Provide pumps with manufacturer's name, model number, and rating/capacity identified by permanently attached label.
- D. Performance: Ensure pumps operate at specified system fluid temperatures without vapor binding and cavitation, are non-overloading in parallel or individual operation, operate within 25 percent of midpoint of published maximum efficiency curve.

**1.06 DELIVERY, STORAGE, AND HANDLING**

- A. Provide temporary inlet and outlet caps. Maintain caps in place until installation.

**1.07 WARRANTY**

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

**PART 2 PRODUCTS**

**2.01 COOLING CONDENSATE REMOVAL PUMPS**

- A. Manufacturers:
  - 1. Franklin Electric Company: [www.franklin-electric.com/#sle](http://www.franklin-electric.com/#sle).
  - 2. Liberty Pumps Inc: [www.libertypumps.com/#sle](http://www.libertypumps.com/#sle).
- B. Construction: Commercial grade, nonferrous pump with stainless steel shaft, integral discharge check valve, integral float switch, safety switch, thermoplastic reservoir, motor assembly, and power cord with ground.
- C. Safety: UL 778.

**PART 3 EXECUTION**

**3.01 INSTALLATION**

- A. Install plumbing equipment in accordance with manufacturer's instructions, as required by code, and complying with conditions of certification, if any.
- B. Coordinate with plumbing piping and related fuel piping work to achieve operating system.

C. Pumps:

1. Provide line sized isolating valve and strainer on suction and line sized soft seated check valve and balancing valve on discharge.
2. Ensure pumps operate at specified system fluid temperatures without vapor binding and cavitation, are non-overloading in parallel or individual operation, and operate within 25 percent of midpoint of published maximum efficiency curve.
3. Provide electrical interlocking from cooling condensate pump safety switch to associated HVAC unit(s) furnished under other Sections.

**END OF SECTION**

**SECTION 23 8126.13**  
**SMALL-CAPACITY SPLIT-SYSTEM AIR CONDITIONERS**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Air cooled condensing units.
- B. Indoor ductless fan & coil units.
- C. Controls.

**1.02 RELATED REQUIREMENTS**

- A. Section 22 1005 - Plumbing Piping: Includes indoor coil condensate drain.
- B. Section 22 3000 - Plumbing Equipment: Cooling condensate removal pumps.
- C. Section 26 0583 - Wiring Connections: Electrical characteristics and wiring connections and installation and wiring of thermostats and other controls components.

**1.03 REFERENCE STANDARDS**

- A. AHRI 210/240 - Standard for Performance Rating of Unitary Air-Conditioning and Air-Source Heat Pump Equipment; 2008, Including All Addenda.
- B. AHRI 270 - Sound Performance Rating of Outdoor Unitary Equipment; 2015.
- C. AHRI 520 - Performance Rating of Positive Displacement Condensing Units; 2004.
- D. ASHRAE Std 15 - Safety Standard for Refrigeration Systems; 2016, with Addendum (2017).
- E. ASHRAE Std 23.1 - Methods of Testing for Rating the Performance of Positive Displacement Refrigerant Compressors and Condensing Units that Operate at Subcritical Temperatures of the Refrigerant; 2010.
- F. NFPA 90A - Standard for the Installation of Air-Conditioning and Ventilating Systems; 2018.
- G. NFPA 90B - Standard for the Installation of Warm Air Heating and Air-Conditioning Systems; 2018.
- H. UL 207 - Standard for Refrigerant-Containing Components and Accessories, Nonelectrical; Current Edition, Including All Revisions.

**1.04 SUBMITTALS**

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide rated capacities, weights, accessories, electrical nameplate data, and wiring diagrams.
- C. Shop Drawings: Indicate assembly, required clearances, and location and size of field connections.
- D. Design Data: Indicate refrigerant pipe sizing.
- E. Manufacturer's Instructions: Indicate rigging, assembly, and installation instructions.
- F. Operation and Maintenance Data: Include manufacturer's descriptive literature, operating instructions, installation instructions, maintenance and repair data, and parts listing.
- G. Warranty: Submit manufacturers warranty and ensure forms have been filled out in Wayne State University's name and registered with manufacturer.
- H. Project Record Documents: Record actual locations of components and connections.
- I. Maintenance Materials: Furnish the following for Wayne State University's use in maintenance of project.
  - 1. See Section 01 6000 - Product Requirements, for additional provisions.
  - 2. Extra Filters: One for each unit.

**1.05 WARRANTY**

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

- B. Provide three year manufacturers warranty for solid state ignition modules.

## **PART 2 PRODUCTS**

### **2.01 MANUFACTURERS**

- A. Mitsubishi..
- B. Panasonic.
- C. Daikin.
- D. Samsung.

### **2.02 SYSTEM DESIGN**

- A. Split-System Cooling Unit: Self-contained, packaged, matched factory-engineered and assembled, pre-wired indoor and outdoor units; UL listed.
  - 1. Heating: None.
  - 2. Cooling: Outdoor electric condensing unit with evaporator coil in wall mounted indoor unit..
  - 3. Provide refrigerant lines internal to units and between indoor and outdoor units, factory cleaned, dried, pressurized and sealed, with insulated suction line.
- B. Performance Requirements: See Drawings for additional requirements.
- C. Electrical Characteristics:
  - 1. Disconnect Switch: Factory mount disconnect switch on equipment under provisions of Section 26 0583.

### **2.03 INDOOR UNITS FOR DUCTLESS SYSTEMS**

- A. Indoor Units: Self-contained, packaged, factory assembled, pre-wired unit consisting of cabinet, supply fan, evaporator coil, and controls; wired for single power connection with control transformer.
  - 1. Location: High-wall.
  - 2. Cabinet: Galvanized steel.
    - a. Finish: Manufacturers standard..
  - 3. Fan: Line-flow fan direct driven by a single motor.
  - 4. Filter return air with washable, antioxidant pre-filter and a pleated anti-allergy enzyme filter.
  - 5. Wall-Mounted Units:
    - a. Cooling Output: 9000 Btuh (2.64 kW).
- B. Evaporator Coils: Copper tube aluminum fin assembly, galvanized or polymer drain pan sloped in all directions to drain, drain connection, refrigerant piping connections, restricted distributor or thermostatic expansion valve.
  - 1. Construction and Ratings: In accordance with AHRI 210/240 and UL 207.
  - 2. Manufacturer: System manufacturer.
- C. Remote Actuators:

### **2.04 OUTDOOR UNITS**

- A. Outdoor Units: Self-contained, packaged, pre-wired unit consisting of cabinet, with compressor and condenser.
  - 1. Comply with AHRI 210/240.
  - 2. Refrigerant: R-410A.
  - 3. Cabinet: Galvanized steel with baked enamel finish, easily removed and secured access doors with safety interlock switches, glass fiber insulation with reflective liner.
  - 4. Construction and Ratings: In accordance with AHRI 210/240 with testing in accordance with ASHRAE Std 23.1 and UL 207.
  - 5. Sound Rating: 69 dBA, when measured in accordance with AHRI 270.
- B. Air Cooled Condenser: Aluminum fin and copper tube coil, AHRI 520 with direct drive axial propeller fan resiliently mounted, galvanized fan guard.
- C. Coil: Air-cooled, aluminum fins bonded to copper tubes.

- D. Accessories: Filter drier, high pressure switch (manual reset), low pressure switch (automatic reset), service valves and gauge ports, thermometer well (in liquid line).
  - 1. Provide thermostatic expansion valves.
- E. Operating Controls:
  - 1. Control by room thermostat to maintain room temperature setting.

## **2.05 ACCESSORY EQUIPMENT**

- A. Room Thermostat: Wall-mounted, electric solid state microcomputer based room thermostat with remote sensor to maintain temperature setting; low-voltage; with following features:
  - 1. System selector switch (heat-off-cool) and fan control switch (auto-on).
  - 2. Automatic switching from heating to cooling.
  - 3. Preferential rate control to minimize overshoot and deviation from setpoint.
  - 4. Instant override of setpoint for continuous or timed period from one hour to 31 days.
  - 5. Programming based on weekdays, Saturday and Sunday.
  - 6. Selection features including degree F or degree C display, 12 or 24 hour clock, keyboard disable, remote sensor, fan on-auto.
  - 7. Battery replacement without program loss.
  - 8. Thermostat Display:
    - a. Time of day.
    - b. Actual room temperature.
    - c. Programmed temperature.
    - d. Programmed time.
    - e. Duration of timed override.
    - f. Day of week.
    - g. System Mode Indication: Heating, Cooling, Fan Auto, Off, and On, Auto or On, Off.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Verify that substrates are ready for installation of units and openings are as indicated on shop drawings.
- B. Verify that proper power supply is available and in correct location.

### **3.02 INSTALLATION**

- A. Install in accordance with manufacturer's instructions and requirements of local authorities having jurisdiction.
- B. Install in accordance with NFPA 90A and NFPA 90B.
- C. Install refrigeration systems in accordance with ASHRAE Std 15.
- D. Pipe drain from cooling coils to nearest floor drain.

**END OF SECTION**

**SECTION 25 3523  
INTEGRATED AUTOMATION CONTROL DAMPERS**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Control dampers.
- B. Louvers:
  - 1. Adjustable.

**1.02 RELATED REQUIREMENTS**

- A. Section 25 0500 - Common Work Results for Integrated Automation.
- B. Section 25 3513 - Integrated Automation Actuators and Operators.

**1.03 REFERENCE STANDARDS**

- A. AMCA 500-D - Laboratory Methods of Testing Dampers for Rating; 2018.
- B. AMCA 511 - Certified Ratings Program for Air Control Devices; 2010.

**1.04 SUBMITTALS**

- A. See Section 01 3000 - Administrative Requirements for submittal procedures.
- B. See Section 25 0500 for submittal requirements. Unless otherwise indicated, submittals may be arranged according to individual sections and submitted separately or combined into comprehensive package covering work of this division.
- C. Develop a damper schedule equal or similar to featured sample:

| CONTROL DAMPER SCHEDULE |        |   |       |   |                |   |   |   |   |   |          |   |   |   |   |       |    |    |    |
|-------------------------|--------|---|-------|---|----------------|---|---|---|---|---|----------|---|---|---|---|-------|----|----|----|
| ITEM #                  | SYSTEM |   | FLUID |   | FRAME ASSEMBLY |   |   |   |   |   | ACTUATOR |   |   |   |   | NOTES |    |    |    |
|                         | a      | b | a     | b | a              | b | c | d | e | f | g        | h | a | b | c |       | d  | e  |    |
|                         | SIGNAL |   |       |   |                |   |   |   |   |   |          |   |   |   |   |       |    |    |    |
|                         |        |   |       |   |                |   |   |   |   |   |          |   |   |   |   |       | 1) | 2) | 3) |

1. Item Number: Sequential.
2. System:
  - a. Location.
  - b. Service: Assigned equipment (device) tag listed in alphabetical order.
3. Fluid:
  - a. Design flow.
  - b. Design air velocity.
4. Frame Assembly:
  - a. Width or diameter.
  - b. Height.
  - c. Torque, calculated.
  - d. Orientation.
  - e. Application type.
  - f. Operation type.
  - g. Manufacturer.
  - h. Part number.
5. Actuator:
  - a. Type.
  - b. Part number.
  - c. Torque capacity.
  - d. Quantity.
  - e. Signal:
    - 1) Input.
    - 2) Position feedback.
    - 3) Manual operator.
6. Notes.



- D. Installation Instructions: Indicate application conditions and limitations of use stipulated by product testing agency. Include instructions for storage, handling, protection, examination, preparation, installation, and operation of product.

#### **1.05 QUALITY ASSURANCE**

- A. Manufacturer Qualifications: At least three years of experience manufacturing listed products.
- B. Products: Listed, classified, and labeled as suitable for the purpose intended.

#### **1.06 DELIVERY STORAGE AND HANDLING**

- A. Store products in manufacturer's unopened packaging until ready for installation.

#### **1.07 WARRANTY**

- A. See Section 01 7800 - Closeout Submittals, for additional warranty requirements.
- B. Warrant supplied products with appurtenances to be free from defects in material and workmanship for one year.

### **PART 2 PRODUCTS**

#### **2.01 MANUFACTURERS**

- A. Greenheck Fan Corporation: [www.greenheck.com/#sle](http://www.greenheck.com/#sle).
- B. Honeywell International, Inc: [buildingcontrols.honeywell.com/#sle](http://buildingcontrols.honeywell.com/#sle).
- C. Johnson Controls International, PLC: [www.johnsoncontrols.com/#sle](http://www.johnsoncontrols.com/#sle).
- D. Ruskin Company: [www.ruskin.com/#sle](http://www.ruskin.com/#sle).

#### **E. Pottorff, Model TICD-52-BF.**

#### **2.02 DAMPERS**

- A. Frame:
  - 1. Orientation: Vertical (V).
  - 2. Assembly: Commercial-grade sized damper to handle full closure against 100 percent of design static head and flow at design air velocity in either direction.
  - 3. Position Indicator: Grooved line on shaft-end, jackshaft, or blade fastened switch with external visual indicator.
- B. Certification Seal: Certified as tested in accordance with AMCA 500-D and AMCA 511 standards for air leakage, air performance, and energy efficiency.
- C. Actuators:
  - 1. Mounting: Factory-mounted per Section 25 3513 requirements unless directed otherwise.
  - 2. Location: Outside of equipment.
- D. Identification Tag: Custom square type, stainless steel, engraved.
  - 1. Information: Show cfm (lps) with fail setting and part number.
  - 2. Fastened: Nylon tie.

#### **2.03 CONTROL DAMPERS**

- A. Operation: Opposed type.
- B. Frame:
  - 1. Material: 12 gage galvanized steel.
  - 2. Free-area: Single cross section.
- C. Blade:
  - 1. Type: Multi-blade airfoil for high pressure.**
  - 2. Maximum Individual Blade Height: 8 inches (203 mm).
  - 3. Material: 12 gauge galvanized steel.
  - 4. Authority: Opposed type, 5 to 50 percent (typically 10 percent).
- D. Leakage (Allowance per Pressure Class):
  - 1. Class 1A: 3 cfm/sf at 1 inch wg (15.2 lps/sm at 0.25 kPa).

- E. **Insulation: Thermally-broken blade and frame for -70 degree F range. Damper blade insulated with a two part high-density polyurethane foam, and the aluminum surface of the airfoil blade is thermally broken between front and back surface of the blade.**
  - 1. **Blade insulation R-Value: 6.4.**
  - 2. **Thermal Breaks: Airfoil blade and frame.**
- F. Temperature Service Range: **Minus 70 to 212 degrees F.**
- G. Other Requirements:
  - 1. Paint Finish: Standard.
  - 2. Rust Inhibitor Coating: Moisture and salt water-resistant.
  - 3. Sleeve or Flange: Factory-mounted standard.
  - 4. Custom: Include bird screen and insect screen.

#### **2.04 LOUVERS (ADJUSTABLE AND DAMPER COMBINED)**

- A. Adjustable Drainable Type:
  - 1. Material: Extruded galvanized steel.
  - 2. Paint Finish: Standard.
  - 3. Rust Inhibitor Coating: Standard.
  - 4. Sleeve or Flange: Factory-mounted standard.
- B. Temperature Service Range: Minus 25 to 185 degrees F (minus 32 to 85 degrees C).

### **PART 3 EXECUTION**

#### **3.01 INSTALLATION**

- A. Review approved equipment submittals to confirm design data specifics like flow, pressure difference, and service temperature to select and expedite dampers.
- B. Designate dampers and related accessories for installation to be handled by applicable installers in accordance with Section 23 3300 requirements.

**END OF SECTION**