

**ADDENDUM NUMBER 1**

MILWAUKEE COUNTY TRANSIT SYSTEM  
KINNICKINNIC TRANSPORTATION BUILDING  
HVAC SYSTEM REPLACEMENT  
Site #200, Bldg. #80  
1710 South Kinnickinnic Avenue  
Milwaukee, WI 53204

Project Number: T056-13426

Date of Addendum: July 29, 2013

This Addendum to the Contract Documents is issued to modify, explain or correct the original documents, dated July 3, 2013, and is hereby made part of the Contract Documents. Acknowledge receipt of this Addendum in the space provided on the Bid Form, or bid may be rejected.

**BIDDING DOCUMENTS**

1. Specification Section 00400 – Bid Form, Page 1: **DELETE** Alternative A in its entirety.
2. Specification Section 01100 – Summary, Article 1.2, C. 1: **DELETE** Item e) in its entirety.
3. Specification Section 01230 – Alternatives, Page 1: **DELETE** Alternative A in its entirety.
4. Specification Section 00400 – Alternatives, Page 1: **ADD** New Alternative A to read as follows:

Apply spray insulation system to underside of existing metal roof deck at sloped roofs including the mansard located around the outside of the Mechanical Equipment Penthouse. Application shall extend from the interior surface of the exterior walls of the First Floor to the exterior wall surface of the Mechanical Equipment Penthouse. The existing metal roof deck above the Mechanical Equipment Penthouse shall not receive the spray insulation system.

Advance Notification – Provide Milwaukee County Construction Coordinator with a three (3) week notification in writing prior to proceeding with the spray insulation application

Spray insulation system shall be scheduled and applied over the pre agreed upon weekend, starting at 12:01 a.m. CST Saturday morning. Work shall be completed to allow re-occupancy of the building by non-trade building occupants at 12:01 a.m. CST Sunday morning. Contractor shall follow manufacturer's recommendations related to ventilating the building and other practices related to re-occupancy of the building. Notify the Milwaukee County Construction Coordinator in writing with an indication that the building is safe for re-occupancy for non-SPF Trade Workers and non-Trade Building occupants.

Existing drawings have been provided for reference only.

Contractor Shall provide ADD or DEDUCT from Base Bid to apply spray insulation to underside of sloped metal roof deck as described in Section 07 21 29 – Sprayed Insulation, attached to as part of this Addendum No. 1.

The Alternative will be modified as indicated in Section 01230.

5. Specification Section 01230 – Alternatives, Page 1: **ADD** New Alternative A to read as follows:

Apply spray insulation system to underside of existing metal roof deck at sloped roofs including the mansard located around the outside of the Mechanical Equipment Penthouse. Application shall extend from the interior surface of the exterior walls of the First Floor to the exterior wall surface of the Mechanical Equipment Penthouse. The existing metal roof deck above the Mechanical Equipment Penthouse shall not receive the spray insulation system.

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Existing drawings have been provided for reference only.

### **SPECIFICATIONS**

1. Specification Section 23 09 00, Page 6, Part 2 - Products, Section 2.2 – Control System, Paragraph A – Manufacturers: **DELETE** all manufacturers except Invensys and **ADD** the following to the specification:

A. "SPECIAL BIDDING REQUIREMENTS for temperature controls work

1. Temperature controls work is a subcontract to the HVAC Contractor.
2. The manufacturer for all temperature controls work shall be Invensys Controls and installed by one of the following authorized Invensys firms:

1) EMCOR Integrated Solutions  
615 South 89<sup>th</sup> Street  
Milwaukee, WI 53214

Contact Person:  
John Schmitz  
Midwest Regional Manager

Office: 414.431.7200  
Direct: 414.431.7190  
Mobile: 414.881.8148  
Email: john\_schmitz@emcorgroup.com

2) Environmental Systems, Inc.  
3410 Gateway Road  
Brookfield, WI 53045  
Office: 1-800-522-0372

3) Industrial Controls  
5061 West State Street  
Milwaukee, WI 53208  
Office: 414-479-9523

2. Specification Section 23 72 23, Part 2 Products, Section 2.1 Packaged Energy Recovery Units, Paragraph A. **ADD** Loren Cook as acceptable Manufacturer for Packaged Energy Recovery Unit.

3. **ADD** Specification Section 07 21 29 SFL – Sprayed Insulation to the construction documents. See attached Specification Section. See Attached Specification Section 07 21 29 SFL – Sprayed Insulation.

### **DRAWINGS**

1. Sheet M0.0: Variable Frequency Drives Schedule: **REVISE** the following information.  
Nominal HP VFD-3 – 2 HP  
VFD-4 – 3 HP  
VFD-5 – 1-1/2 HP  
VFD-6 – 1-1/2 HP

See attached supplemental Drawing SD-1.

2. Sheet M1.0, Site Plan: **REVISE** note to read the following: "2"X-HWS/R PIPING. REMOVE EXISTING UNDERGROUND PIPING AND FURNISH AND INSTALL NEW PRE-INSULATED DIRECT BURIED UNDERGROUND 2" HWS/R PIPING. BACKFILL AND REPLACE CONCRETE TO MATCH EXISTING PARKING LOT SURFACE FINISH."

See attached supplemental drawing SD-2

3. **ADD** Existing Drawings from project titled "Operator's Building for Kinnickinnic Avenue Operating Station" produced by Johnson Wagner Isley Widen & Hipp, Inc Dated 9/18/79 with Project number 04-9567. Sheet Numbers 4, 7, 8, 9, 11, and S1 shall be included as part of Addendum No. 1.

See attached Existing Drawings, Sheet Numbers 4, 7, 8, 9, 11, and S1.

### **End of Addendum No. 1**

## SECTION 07 21 29 - SPRAYED INSULATION

### PART 1 GENERAL

#### 1.1 SUMMARY

- A. Section includes furnishing and installing sprayed insulation system (SPF) including prime coating surfaces, spray-applied polyurethane foam insulation and intumescent thermal barrier coating.
- B. Apply spray insulation system to underside of existing metal roof deck at sloped roofs including the mansard located around the outside of the Mechanical Equipment Penthouse. Application shall extend from the interior surface of the exterior walls of the First Floor to the exterior wall surface of the Mechanical Equipment Penthouse. The existing metal roof deck above the Mechanical Equipment Penthouse shall not receive the spray insulation system.
- C. Advance Notification – Provide Milwaukee County Construction Coordinator with a three (3) week notification in writing prior to proceeding with the spray insulation application.
- D. Spray insulation system shall be scheduled and applied over the pre agreed upon weekend, starting at 12:01 a.m. CST Saturday morning. Work shall be completed to allow re-occupancy of the building by non-trade building occupants at 12:01 a.m. CST Sunday morning. Contractor shall follow manufacturer’s recommendations related to ventilating the building and other practices related to re-occupancy of the building. Notify the Milwaukee County Construction Coordinator in writing with an indication that the building is safe for re-occupancy for non-SPF Trade Workers and non-Trade Building occupants.
- E. Existing drawings illustrating building plans and sections have been provided for reference only.
- F. Related Sections:
  - 1. Division 2 – Section Selective demolition for work related to the removal of selected existing construction.
  - 2. Division 9 – Section Suspended Acoustical Panel Ceilings for work on suspended acoustical panel ceiling
  - 3. Division 23 – Heating, Ventilating and Air-Conditioning for work related to the HVAC system including maintaining an outdoor air exchange rate per International Building Code IBC 2009 and ASHRAE 62.2 requirements.
  - 4. Division 26 – Electrical for work related to the Electrical system.

#### 1.2 REFERENCES

- A. ASTM International:
  - 1. ASTM E 84 - Standard Test Method for Surface Burning Characteristics of Building Materials.
  - 2. ASTM E 96 - Standard Test Methods for Water Vapor Transmission of Materials.

3. ASTM C177 - Standard Test Method for Steady-State Heat Flux Measurements and Thermal Transmission Properties by Means of the Guarded-Hot-Plate Apparatus.
  4. ASTM C518 - Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus.
  5. ASTM C1014 - Standard Specification for Spray-Applied Mineral Fiber Thermal or Acoustical Insulation.
  6. ASTM D 1621 - Standard Test Method for Compressive Properties Of Rigid Cellular Plastics.
  7. ASTM D1622 - Standard Test Method for Apparent Density of Rigid Cellular Plastics.
  8. ASTM G 21 - Standard Practice for Determining Resistance of Synthetic Polymeric Materials to Fungi.
  9. ASTM E136 - Standard Test Method for Behavior of Materials in a Vertical Tube Furnace at 750 Degrees C.
- B. California Department of Health Services:
1. CA/DHS/EHLB/R-174 - Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers, including 2004 Addenda.
- C. International Code Council
1. ICC-ES Evaluation Report ESR-2072
- D. Underwriters Laboratories, Inc.:
1. UL - Fire Resistance Directory.
- E. National Fire Protection Association
1. NFPA 286 - Standard Methods of Fire Tests for Evaluating Room Fire Growth Contribution of Wall and Ceiling Interior Finish.
- F. Building Code
1. International Building Code IBC 2009 with Wisconsin Commentary.

### 1.3 PERFORMANCE REQUIREMENTS

- A. Conform to ICC-Evaluation Report ESR-2072 for application of closed cell spray foam insulation with an intumescent coating in lieu of a prescriptive thermal barrier.
- B. Conform to applicable codes in the 2009 International Building Code for flame and smoke ratings, concealment, and over coat requirements.
- C. Thermal Performance: R value of 38 on metal roof deck.

### 1.4 SUBMITTALS

- A. Section 01 33 00 - Submittal Procedures: submittal procedures.
- B. Product Data: Submit data on materials describing prime coating surfaces, spray-applied polyurethane foam insulation and intumescent thermal barrier coating.

- C. Manufacturer's Installation Instructions: Indicate special procedures, perimeter conditions requiring special attention, and recommendations for reoccupancy.
- D. Manufacturer's Certificate: Certify products meet or exceed specified requirements.
- E. Installer Qualification – Provide written statement that Installer complies with Qualifications.

#### 1.5 QUALITY ASSURANCE

- A. Insulation Installed in Concealed Locations Surface Burning Characteristics: Maximum 25/450 flame spread/smoke developed index when tested in accordance with ASTM E84.
- B. Perform Work in accordance with manufacturer's recommendations and applicable ICC-ES Evaluation Reports, and standards and codes of governing bodies.
- C. Maintain one copy approved shop drawings and manufacturer's installation on site at least three weeks prior to proceeding with work. Documents shall be available for review by the County Construction Administrator.

#### 1.6 QUALIFICATIONS

- A. Manufacturer: Company specializing in manufacturing products and systems specified in this section with minimum ten years documented experience.
- B. Installer: A Company specializing in performing Work of this section. Provide current CPI ID numbers for all workers and a certificate from the manufacturer identifying that the SPF contractor is authorized to apply the products to be installed. Minimum "bronze" accreditation required. Provide minimum three years documented experience.

#### 1.7 DELIVERY, STORAGE, AND HANDLING

- A. Store products in manufacturer's unopened packaging, clearly marked with the manufacturer's name, brand name, product identification, type of material, safety information, manufacture date, and lot numbers until ready for installation.
- B. Store spray foam materials between 65 degrees F (18 degrees C) and 85 degrees F (29 degrees C) with careful handling to prevent damage to products.
- C. Protect all materials from freezing and other damage during transit, handling, storage, and installation.
- D. Store and dispose of solvent-based materials, and materials used with solvent based materials, in accordance with requirements of local authorities having jurisdiction.

#### 1.8 PRE-INSTALLATION MEETINGS

- A. Convene pre-installation meeting prior to commencing work of this section.

- B. Attendance: Architect, Contractor, manufacturer's representative and spray insulation applicator.
- C. Agenda: Review installation sequence and scheduling.

## 1.9 ENVIRONMENTAL REQUIREMENTS

- A. Ventilate building per manufacture's recommendation during and after application of spray foam system. Reference:
  - 1. [http://www.spf.bayermaterialscience.com/images/BMS\\_SPF\\_reoccupancy.pdf](http://www.spf.bayermaterialscience.com/images/BMS_SPF_reoccupancy.pdf)
  - 2. <http://polyurethane.americanchemistry.com/Spray-Foam-Coalition/Guidance-on-Ventilation-During-Installation-of-Interior-Applications-of-High-Pressure-SPF.pdf>
- B. Maintain acceptable ambient and substrate surface temperatures per manufacturer's recommendations prior to, during, and after application.

## 1.10 SCHEDULING

- A. Advance Notification – Provide Milwaukee County Construction Coordinator with a three (3) week notification in writing prior to proceeding with the spray insulation application.
- B. Spray insulation system shall be scheduled and applied over the pre agreed upon weekend, starting at 12:01 a.m. CST Saturday morning. Work shall be completed to allow re-occupancy of the building by non-trade building occupants at 12:01 a.m. CST Sunday morning. Contractor shall follow manufacturer's recommendations related to ventilating the building and other practices related to re-occupancy of the building. Notify the Milwaukee County Construction Coordinator in writing with an indication that the building is safe for re-occupancy for non-SPF Trade Workers and non-Trade Building occupants.
- C. Apply insulation after hangers and supporting clips are installed but before subsequent construction is erected.

## PART 2 PRODUCTS

### 2.1 SUSTAINABILITY CHARACTERISTICS

- A. Indoor Environmental Quality Characteristics:
  - 1. Paints and Coatings: Maximum volatile organic compound content in accordance with product and testing requirements of CA/DHS/EHLB/R-174.

### 2.2 SPRAY-APPLIED POLYURETHANE FOAM INSULATION

- A. Closed Cell Spray Foam Insulation: Bayseal CCX two-component, closed cell polyurethane foam with a nominal density of 1.9 pcf, as manufactured by Bayer MaterialScience. Bayseal CCX foam shall have the following minimum physical properties when cured:
  - 1. Core Density: 1.9 - 2.2 lbs/ft<sup>3</sup> when tested in accordance with ASTM D 1622.
  - 2. Compressive Strength: 25 psi when tested in accordance with ASTM D 1621.
  - 3. R-Value (aged): When tested in accordance with ASTM C 518:
    - a. 6.9 at 1 inch.

- b. 24 at 3.5 inches.
- c. 38 at 5.5 inches.
- d. 54 at 7.9 inches.
- 4. Closed Cell Content: Greater than 90 percent when tested in accordance with ASTM D 2856.
- 5. Surface Burning Characteristics: Less than 25 when tested in accordance with ASTM E 84 and SDI less than 450 when tested in ASTM E 84.
- 6. Tensile Strength: 60 psi when tested in accordance with ASTM D 1623.
- 7. Moisture Vapor Transmission (permeance) when tested in accordance with ASTM E 96.
  - a. 0.80 Perms at 1 inch.
  - b. 0.23 Perms at 3.5 inches.
  - c. 0.16 Perms at 5 inches.
  - d. 0.10 Perms at 7.9 inches.
- 8. Dimensional Stability: (7 days at 158 degrees F, 95 percent RH) less than 10 percent change in volume when tested in accordance with ASTM D 2126.
- 9. Air Leakage Rate: Less than 0.02 (L/s)/m<sup>2</sup> when tested in accordance with ASTM E 283 and ASTM E 2178.
- 10. Fungi Resistance: Zero Rating when tested in accordance with ASTM G 21.
- 11. Substitutions: As provided under Section 01 60 00-Product Requirements.

### 2.3 ACCESSORIES

- A. Primer:
  - 1. Bayblock Prime RI: A water based epoxy primer to achieve superior adhesion and penetration on concrete, masonry, metal, wood, etc. as supplied by Bayer MaterialScience, or approved equal substitutions.
  - 2. Substitutions: As provided under Section 01 60 00-Product Requirements.
- B. Intumescent Thermal Barrier Coating (in lieu of prescriptive 15 minute thermal):
  - 1. TPR<sup>2</sup> Fireshell® BMS-TC Intumescent Coating or Paint to Protect® DC-315 intumescent coating as an alternate to prescriptive 15 minute thermal barrier alternative for use with Bayseal CCX manufactured by Bayer MaterialScience.
  - 2. Substitutions: As provided under Section 01 60 00 Product Requirements.
- C. Accessories as required for a complete installation.

## PART 3 EXECUTION

### 3.1 EXAMINATION

- A. Clean surfaces of matter capable of inhibiting adhesion. Surfaces to be coated must be dry, clean, and free of dirt, loose debris and any other substances that could interfere with the adhesion of the coating.
- B. Verify other Work scheduled to be performed prior to insulation application on and within spaces to be insulated is complete prior to applying spray foam insulation.

### 3.2 PREPARATION

- A. Use screens, masking and other precautions to prevent damage to adjacent areas from fugitive overspray. Mask and protect adjacent surfaces from overspray or damage. Protect surfaces from splatters and over-spray. This includes but is not limited to ceilings, light fixtures, walls, floors, windows, furniture and equipment.
- B. Apply primer.
  - 1. Prepare surfaces and apply primer in accordance with manufacturer's instructions.
  - 2. Apply primer to the properly prepared substrates in accordance with the manufacturer's instructions and data sheet to achieve a the minimum thickness of dry film thickness. Allow primer to cure prior to application of spray polyurethane foam.
- C. Accessory Application
  - 1. Joint Filler Foam and Caulk: Use joint filler foam and/or caulk to seal confined spaces, around wall and roof openings/penetrations, pipes, electrical raceways, multiple studs, etc. Expansion of joint filler foam in a confined space can tighten window frames and door jambs. Use care in these areas to avoid distortion of these members.

### 3.3 INSTALLATION

- A. Install spray foam system in accordance with manufacturer's instructions.
- B. Apply insulation to a uniform monolithic density without voids on metal roof deck. Apply one (1) inch thickness on bottom flanges of purlins supporting the metal roof deck. The intent is to provide a continuous spray foam surface from the metal deck and across the purlins.
- C. Apply to achieve thermal resistance R-Value of 38 on metal roof deck.
- D. Apply intumescent overcoat monolithically, without voids to fully cover insulation in a manner so that the spray foam plastic insulation is not exposed.
- E. Install Work in accordance with applicable ICC-ES Evaluation Reports, and standards and codes of governing bodies.

### 3.4 FIELD QUALITY CONTROL

- A. Protect installed products until completion of project.
- B. Manufacturer's Representative shall provide a written inspection report at the completion of the spray foam system application including installation per manufacturer's recommendations, verification of primer, insulation, intumescent coating, thickness and density.

### 3.5 PROTECTION OF INSTALLED CONSTRUCTION

- A. Protect installed products until completion of project.
- B. Remove protective materials such as drop clothes and clean surfaces of splatters and overspray. This includes but is not limited to ceilings, walls, floors, windows, furniture and equipment.
- C. Repair foam insulation system damaged by other construction activity. This includes but is not limited to repairs at hangers, clamps, suspension wires, etc. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION



Milwaukee County Dept. of Administrative Services  
 FACILITIES MANAGEMENT DIVISION  
 Architectural, Engineering & Environmental Services  
 CITY CAMPUS 2711 W. WELLS ST. 3RD FLOOR MILWAUKEE, WI 53208

## VARIABLE FREQUENCY DRIVES

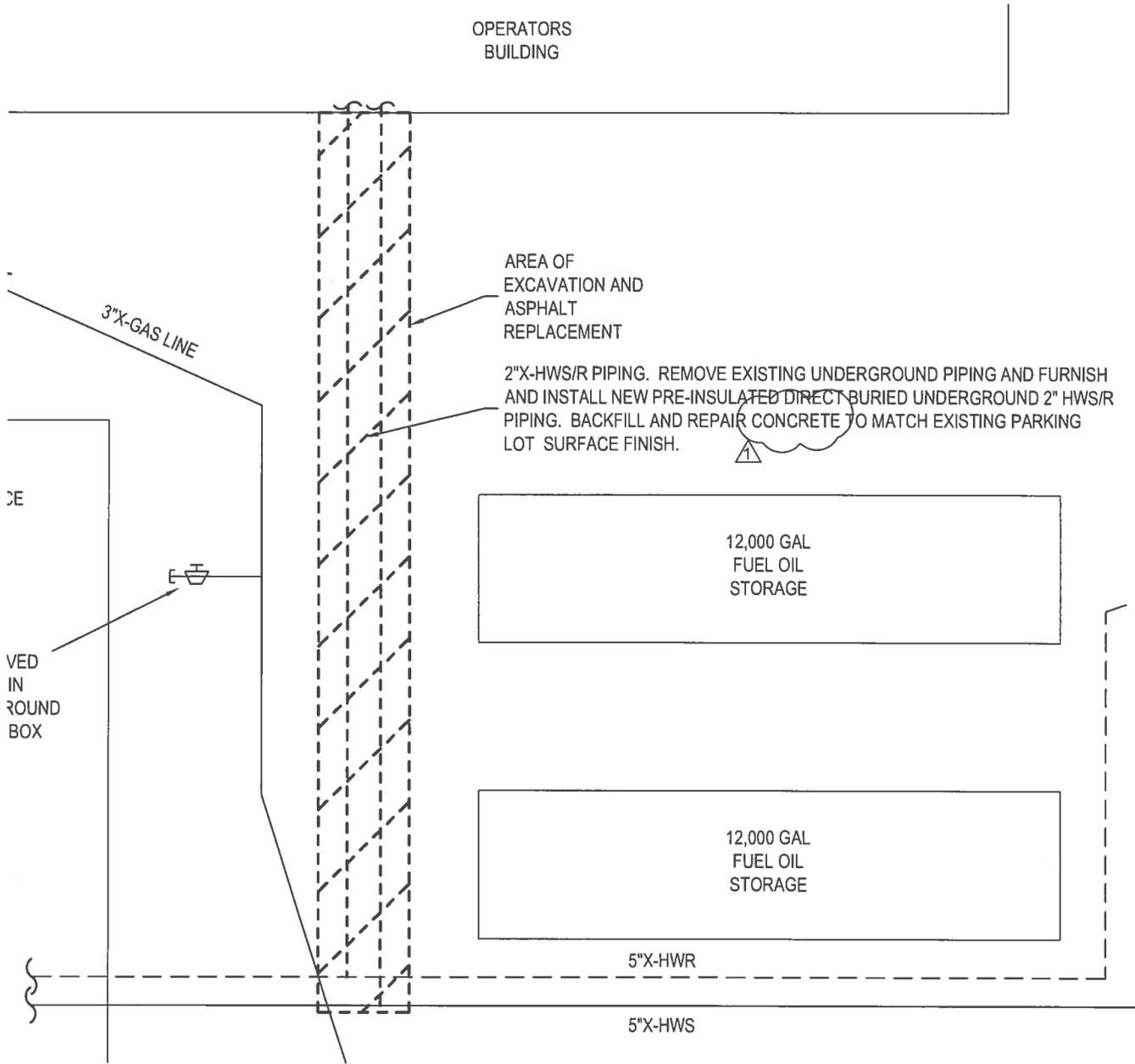
| PLAN DESIGNATION                   | VFD-1            | VFD-2             | VFD-3             | VFD-4             | VFD-5             | VFD-6             |
|------------------------------------|------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| MANUFACTURER                       | ABB              | ABB               | ABB               | ABB               | ABB               | ABB               |
| MODEL                              | ACS550           | ACS550            | ACS550            | ACS550            | ACS550            | ACS550            |
| SERVES                             | AHU-1 SF         | AHU-1 RF          | ERU EXHAUST       | ERU SUPPLY        | P-1               | P-2               |
| LOCATION                           | MECH             | MECH              | MECH              | MECH              | MECH              | MECH              |
| NOMINAL HP                         | 10               | 5                 | 2                 | 3                 | 1-1/2             | 1-1/2             |
| RATINGS OUTPUT CURRENT VOLTS/PHASE | 5.4<br>208 / 3Ø  | 2.4<br>208 / 3Ø   | 2.4<br>208 / 3Ø   | 2.4<br>208 / 3Ø   | 2.4<br>208 / 3Ø   | 2.4<br>208 / 3Ø   |
| ENCLOSURE TYPE                     | NEMA 12          | NEMA 12           | NEMA 12           | NEMA 12           | NEMA 12           | NEMA 12           |
| CABINET SIZE (H x W x D IN INCHES) | R2 - 22 x 9 x 10 | R1 - 19 x 10 x 10 |
| WEIGHT                             | 25               | 18                | 18                | 18                | 18                | 18                |

NOTES: NO BYPASS REQUIRED

REVISIONS:

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| Δ | 07/26/2013 |
| Δ |            |
| Δ |            |
| Δ |            |

DATE: 07/03/2013  
 PROJECT: T055-13426  
 SITE NO: 200  
 BUILDING NO: 80



REPLACE HVAC SYSTEM AT KINNICKINNIC TRANSPORTATION BUILDING  
**MILWAUKEE COUNTY FACILITY**  
 1710 S KINNICKINNIC AVE, MILWAUKEE COUNTY, MILWAUKEE, WI - 53204



Milwaukee County Dept. of Administrative Services  
 FACILITIES MANAGEMENT DIVISION  
 Architectural, Engineering & Environmental Services  
 CITY CAMPUS 2711 W. WELLS ST., 2ND FLOOR MILWAUKEE, WI 53208

REVISIONS:

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| △ | 07/26/2013 |
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DATE: 07/03/2013  
 PROJECT: T056-13426  
 SITE NO: 200  
 BUILDING NO: 80

SD-2

4 SITE PLAN  
 1.0 1/8"=1'-0"

