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
Public Works Solid Waste Division

ADDENDUM

OCTOBER 24, 2016

ATTENTION ALL REQUEST FOR BID (RFB) HOLDERS

RFB NO. 316037 - ADDENDUM NO. 1

JAIL SHOWERS & SPLIT PODS IMPROVEMENTS

BIDS DUE: TUESDAY, NOVEMBER 15, 2016, 2:00 PM. DUE DATE AND TIME **ARE** CHANGED BY THIS ADDENDUM.

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

PLEASE MAKE THE FOLLOWING CHANGES:

1. **Cover Page**
   Change: "**TUESDAY, NOVEMBER 1, 2016**", to: "**TUESDAY, NOVEMBER 15, 2016**".

2. **Legal Notice**
   Change: "**2:00 P.M., TUESDAY, NOVEMBER 1, 2016**", to: "**TUESDAY, NOVEMBER 15, 2016, 2:00 P.M.**".

3. **Section 22 46 00**
   Page 3 - Item 2.3.A.:
   Change: "Detectors - Water Alert Model SS-2100 or approved equal.", to: "Detectors - Water Alert Model SS or approved equal.".

   Page 3 - Item 2.3.A.1.:
   Change: "85 dB", to: "100 dB".

   Page 3 - Item 2.3.B.: Delete this item.

4. **Section 23 01 30.51**
   Delete current Section 23 01 30.51; replace with new Section 23 01 30.51, issued with this Addendum.

If any additional information about this Addendum is needed, please call Scott Carlson at 608/266-4179, carlson.scott@countyofdane.com.

Sincerely,
Scott Carlson
Project Manager

Enclosures:
Section 23 01 30.51

H:\Shared\ENGINEERING DIVISION\Scott Carlson\316037 - PSB Jail Showers Construction\03 - Addendum\Addendum 1.docx

SECTION 23 01 30.51

HVAC AIR DUCT CLEANING

PART 1 GENERAL

1.1 SCOPE

A. This section includes specifications for cleaning duct and HVAC systems on this project. Included are these topics:

B. PART 1 - GENERAL
1. Scope
2. Reference
3. Reference Standards
4. Quality Assurance
5. Shop Drawings
6. Design Criteria

C. PART 2 - PRODUCTS
1. General
2. Cleaners and Biocides
3. Equipment
4. Access Doors

D. PART 3 - EXECUTION
1. General
2. Cleaning
3. Biocides
4. Cleaning Report
5. Access Doors

1.2 REFERENCE

A. Applicable provisions of Division 01 govern work under this Section.

1.3 REFERENCE STANDARDS

A.	NADCA 1992-01	Mechanical Cleaning of Non-Porous Air Conveyance System Components National Air Duct Cleaners Association
B.	NADCA	Understanding Microbial contamination in HVAC Systems
C.	NAIMA	Cleaning Fibrous Glass Insulated Air Duct Systems

1.4 QUALITY ASSURANCE

A. Refer to Division 01, Instructions to Bidders – Qualifications of Bidder and General Conditions - Equals and Substitutions.

B. Regular Member in good standing of NADCA (National Air Duct Cleaners Association). Maintain membership for entire duration of the Work. Maintain staff of at least one Certified Air System Cleaning Specialist (ASCS). If membership of firm, or any certification of any staff performing work is terminated or expires during duration of the Work, contact Owner immediately.

1.5 SHOP DRAWINGS

A. Refer to Division 01, Basic Requirements, Submittals.

B. Include manufacturer's data and / or Contractor data for these:
1. List of equipment to be used.
2. Product description and MSDS sheets for cleaners and biocides.
3. Access doors.

PART 2 PRODUCTS

2.1 GENERAL

A. Use products which conform to NFPA 90A, possessing flame spread rating of not over 25 and smoke developed rating no higher than 50.

2.2 CLEANERS and BIOCIDES

A. Manufacturer: H.B. Fuller / Foster, Porter, or approved equal.

B. Cleaners and biocides shall be water-based products specifically designed for application to HVAC duct interiors and capable of being applied with airless spray equipment. Biocides must be colored differently than substrate to be coated.

C. Biocidal agents to be formulated for long term fungicidal activity with no loss on aging. Biocidal agents must be registered with U.S. Environmental Protection Agency for use on interior of HVAC duct systems.

D. Cured biocides must provide tough washable elastic protective finish able to withstand light impact or abrasion without breaking down over time or releasing fibers.

2.3 EQUIPMENT

A. Particulate Collection Equipment: Fan / filter unit sized to create sufficient quantity of negative pressure for capture and filtration of air and contaminants dislodged during duct cleaning. Equipment to include pre-filtration and HEPA final filtration with 99.97% collection efficiency for 0.3 micron size particles.

B. Portable pressure washers to be capable of 500 psig to 1000 psig operation.

C. Power brush systems designed specifically for duct cleaning.

PART 3 EXECUTION

3.1 GENERAL

A. Use products and equipment in accordance with manufacturers instructions.

3.2 CLEANING

A. Clean ductwork systems and associated turning vanes, dampers, coils, VAV boxes, drain pans, plenums, diffusers, registers, grilles and louvers; air handling units and associated fans, coils, drain pans, plenums and dampers; fans; terminal units and other equipment described below:

System / Component	Location	Action
Supply Duct Systems	See drawings	Clean
Return Duct Systems	See drawings	Clean
Transfer Duct Systems	See drawings	Clean
Exhaust / Relief Duct Systems	See drawings	Clean
Outside Air / Mixed Air Duct Systems	See drawings	Clean

B. Visually inspect systems and site prior to cleaning. Document and report damaged system components to Owner's Construction Representative prior to cleaning. Mark damper and other component positions prior to cleaning and reset after cleaning to original position. Establish specific, coordinated plan detailing how each area of building will be protected during various phases of the Work.

C. Protect building occupants, components and furnishings from cleaning activities. Use polyethylene sheeting covers and barriers where cleaning will disperse debris outside HVAC systems. Install critical barriers within building, at inlets / outlets and within system to prevent migration of dust and debris to clean areas.

D. Use particulate collection equipment to remove and capture debris. Connect to system downstream of cleaning operations. Wherever possible, duct exhaust to exterior of building. Avoid discharge near air intakes and points of entry. Arrange source of makeup air to flow from clean area to work area negatively pressurizing work area. Take measures to control offensive odors and vapors during cleaning process.

E. Clean systems using mechanical cleaning methods, such as vacuum cleaning, compressed air sweeping and mechanical brushing, designed to extract contaminants from within HVAC system and safely remove contaminants from facility. No cleaning methods are to be used which damage components of system or negatively alter integrity of system.

F. Clean fibrous glass thermal or acoustical insulation with HEPA vacuuming equipment. Document locations of damage, deterioration, delamination, mold, fungus growth or excessive moisture which cannot be restored by cleaning or resurfacing with repair

coating. Report locations and conditions to Architect / Engineer and Owner's Project Representative for determination of removal and / or replacement.

G. Where fibrous glass thermal or acoustical insulation is to be removed, scrape and brush metal clean. Remove loose fasteners, weld pins where required for cleaning work and sheet metal covers associated with insulation. Patch and seal fastener openings.

H. Owner shall clean coils to restore pressure drop to within 10% of design rating. Where design rating is unknown, coils must be cleaned free of foreign material and chemical residue. Cleaning methods used must not bend, erode or damage coil surfaces, fins or tubes. Clean coil drain pans and drain. Make drain fully operational. Where wet methods are used, thoroughly rinse coils and drains pans with clean water to remove latent residues. Provide temporary drain pans below coils without drain pans to capture water.

I. Where systems and equipment containing filters are cleaned, obtain replacement filters from building occupant and replace existing filters.

J. Verification of HVAC system cleanliness will be performed after cleaning and prior to application of biocides. Contractor shall notify Owner's Construction Representative and Architect / Engineer in advance of verification. Verification will consist of inspection by Contractor, Owner's Construction Representative and / or Architect / Engineer. If surfaces are visibly clean, no contaminants are evident through visual inspection and coils are within 10% of design pressure drop, HVAC system shall be considered clean. However Owner reserves right to further verify system cleanliness through third party gravimetric or wipe testing analysis per NADCA standards.

3.3 BIOCIDES

A. Biocides are to be applied only after cleaning and verification have been completed and surfaces are dry. System fans are to remain off and critical barriers maintained to prevent migration of biocides from HVAC systems.

B. Apply biocides to these surfaces which are suspected of or have been tested and verified for microbial contamination:
   1. Plenums and ductwork around and 5' downstream of cooling coils and humidifiers.
   2. Cooling coil drain pans.
   3. Outdoor air intake drain pans.

C. Biocides to be directly sprayed (not fogged), brushed or rolled onto surfaces to achieve continuous film of thickness recommended by manufacturer. Increase application rate on porous or rough surfaces. Protect coils, fan blades, bearings, damper linkages and seals, fire / smoke dampers, humidifiers, airflow sensors, pressure sensors, temperature sensors and humidity sensors during application of biocides. Clean any overspray from these components immediately. Allow products to fully cure prior to using HVAC systems. Operate systems during unoccupied hours flushing with fresh air to purge system prior to occupied use.

3.4 CLEANING REPORT

A. Provide a report describing pre-cleaning inspection and damage, systems cleaned, methods and materials used, problems encountered, final verification and any remaining problems noted. Submit three (3) copies to Owner's Construction Representative.

3.5 ACCESS DOORS

A. Install access doors where access is required for cleaning or inspection.

B. Size and numbers of duct access doors to be sufficient to perform intended service. Minimum access door size shall be 8 x 8 inch size for hand access, 18 x 18 inch size for shoulder access, or other size as indicated. Install access doors on both inlet and outlet sides of reheat coils as well as other duct mounted coils if not existing.

END OF SECTION