Request for Architectural and Engineering Services

Ventilation Improvements
Department of Corrections
Milwaukee Secure Detention Facility
Milwaukee, WI
DFDM Project #19G2Z

August 2019
Agency: Department of Corrections

DOC Contact: David Layton at (608) 240-5416, DavidJ.Layton@wisconsin.gov

Location: Milwaukee Secure Detention Facility (MSDF), Milwaukee, Wisconsin

Project Request:

Proposals from A/E teams are requested for professional services associated with Heating and Ventilation (HV) system improvements at the Milwaukee Secure Detention Facility.

Project Number: 19G2Z

Project Background and Purpose

MSDF is a unique, fifteen story building in the heart of downtown Milwaukee. The building has sealed (fixed) exterior windows and no outdoor recreation space, making the Heating and Ventilation (HV) system the only source of cooling and fresh air for inmates and staff alike.

Currently only the 2nd (administration staff), 3rd (maintenance shop, health services unit, and general housing unit), and 6th (orientation, female, special needs and restrictive housing units) floors have tempered air. The rest of the facility is subject to hot and humid conditions, with heat stress indexes frequently exceeding 90°F. MSDF attempts to provide relief to inmates by distributing additional ice each hour, closing recreation rooms, moving susceptible individuals to floors with tempered air (space permitting), and providing accommodations to inmate workers.

With a population regularly exceeding 1100 inmates, more than half suffer from serious mental illness and around three quarters receive psychotropic drugs on a daily basis. These drugs often create additional health concerns for inmates in high heat index situations.

The kitchen is particularly problematic having been originally designed for reheating meals prepared off site. The kitchen has since been converted to a full scale production kitchen, which was found to be more cost effective, but something the HV system was never designed to handle. Heat and humidity is generated in the kitchen from a vent-less dishwasher, five ovens, coolers, and a dry storage refrigeration system, resulting in a heat index that has exceed 120 degrees.

MSDF staff has offices throughout the facility - providing security, programming, and treatment to inmates – and may be subject to high heat stress index episodes regularly. During these episodes, some staff need to be frequently displaced or temporarily relocated to provide accommodations and relief, straining staff resources.

This project will address the unique conditions within the MSDF facility that have contributed to widespread heat stress related issues for inmates and staff alike. HV upgrades needed to render building-wide ventilation improvements and repairs has been studied under Projects 13G1O and 17C1K.
Project 17C1K prepared a ventilation upgrade conceptual design engineering study that addressed the following:

- Reviewed the existing HVAC systems, electrical service, and generator sizing.
- Recommended modifications to the HVAC and electrical systems to provide air tempering for the housing, intake and kitchen areas so space temperatures do not exceed a Heat Stress Index (HSI) of 80 degrees F.
- Evaluated code implications of the modifications.
- Identified HVAC system performance and operational deficiencies throughout the facility and recommend HVAC system corrections.
- Proposed an initial phasing plan.
- Established the project budget.

**Project Description**

This project will address conditions within the MSDF that have contributed to identified ventilation deficiencies and heat stress related issues for inmates and staff by expanding, enhancing, and unifying the existing ventilation equipment throughout the facility. This includes air handling modifications, chilled water modifications and additions, upgrading obsolete chilled water units, eliminating some less efficient direct expansion cooling units, modernizing HV system controls, and upgrading controlled devices to operate on direct digital electronic controls. Electrical additions and enhancements will be required with this project as well.

A/E services will include the following:

- Providing a design along with construction administration services of the selected design alternative.
- Preparing a preliminary design and Design Report for use by the DOC in seeking authorization by the State Building Commission.
- Preparing a detailed work phasing plan to allow construction to be completed with minimal disruption of existing inmate and staff daily activity.

**AE Requirements**

A qualified firm would have an appropriately staffed team with thorough knowledge, understanding, licensing and experience with the following:

- Chilled water plant analysis and design for electric centrifugal chillers.
- Standards for design and construction for state-owned correctional buildings
- Electrical power supply for HVAC equipment
- Structural design for support of large rotating equipment, pumps, and piping
Project Schedule

- A/E Selection: October 2019
- Design Report: July 2020
- BC Approval: August 2020
- Bid Opening: February 2021
- Construction Start: April 2021
- Substantial Completion: April 2022

Preliminary Project Budget

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<tr>
<th>Item</th>
<th>Amount</th>
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<tbody>
<tr>
<td>Construction</td>
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<td>Contingency</td>
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<td>Design</td>
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<td>Other Fees</td>
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<tr>
<td><strong>Total Project Budget</strong></td>
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Site Security
The A/E team and contractor must become familiar with and abide by MSDF procedures for entering and exiting the institutions and for bringing any equipment or tools into the location.