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**CITY OF DANBURY**  
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SUPERINTENDENT

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**TO:** Hon. Mark D. Boughton, Mayor  
City Council Members

**FROM:** Richard M. Palanzo, Superintendent of Public Buildings *RMP*

**DATE:** May 24, 2010

**RE:** Honeywell Energy Performance & Capital Improvement Project for Danbury Public Schools

I am proposing an additional phase of work, Phase 3a, to add to the Honeywell Energy Performance Contracting Project. The work involved would upgrade our most needed boiler plants to the most energy efficient design to save energy and operating costs. We have had a very good experience with Honeywell over the term of the last 3 phases (appx.13 years) and recently Honeywell had our building energy data input to the EPA Energy Star Portfolio Manager to bench mark all of our school facilities. As you know two of our schools achieved the EPA Energy Star Award! Funding for this project is in large part by Qualified Energy Conservation Bonds (QECB), which has been provided for through the ARRA Stimulus Program and a tax exempt lease through Bank of America.

The concept behind the Project is that through implementation of energy conservation measures at our schools, the savings generated by these projects will allow the school district to address a multitude of needed capital improvement projects without the outlay of additional funds as well as insure a reliable, energy efficient heating plant for the next 30 years!. The utility savings and utility rebates will subsidize the energy conservation measures as well as the capital improvement projects. Additionally the cost avoidance for repairs to these facilities will also help offset the cost of these improvements.

The project covers the following boiler plants, Danbury High School, Broadview Middle School, King Street Primary, King Street Intermediate and Stadley Rough Elementary. In Honeywell's analysis and proposal you will find that the Project consists of \$4,390,000 in Energy Conservation and Capital projects. These projects are critical to the operation of the schools and are in dire need of repair. These include much needed boiler replacements which have been in our capital budget for years. Through this program we have a creative option that not only upgrades our existing infrastructure, but does it through a lowest possible interest rate over the next 15 years.

Also included in the Project are new installations and/or upgrades to the computerized Energy Management Systems as well as an energy Kiosk which will provide energy updates and community outreach in terms of how Danbury is conserving energy. This platform can have Danbury based initiatives showcased on it and are a great means of teaching conservation in the Schools.

- Honeywell has a proven track record over the last three phases of work over the past 13 years. The district has avoided over \$2.3m in energy & operational expenditures over the first nine years of the contract.
- For Phase 3a Honeywell is incorporating much of the needed Capital projects that need to be done as a significant portion of the existing equipment is original to the buildings.
- This project would have guaranteed energy savings just like the prior three other phases.
- There is no additional Honeywell Maintenance Service needed for this phase of the project the Public Buildings division will maintain the boilers as we have in the past.
- Boiler plants to be upgraded include; Danbury High School, Stadley Rough, Broadview Middle School, King Street Intermediate, King Street Primary and Mill Ridge Primary. This will ensure the operations of the heating plant and a more efficient plant therefore reducing operational costs. Please see detailed scope of work attached.

If you have any questions or would like any additional information please do not hesitate to contact me.

I respectfully request your support for this exciting and beneficial project. Thank you for your time and consideration.

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**Honeywell**  
**Scope of Work**  
**Danbury Phase 3a**  
**BOILER PLANTS**

**A. HIGH SCHOOL**

- Existing boiler plant comprises of 3 (three) – 300 BHP steam boilers, traditionally one boiler supported full load
- Calculated heat loss is 11114 MBH, which supports the usage
- Three new boilers sized at 66% of the calculated load
- New Burner Control Panels and Honeywell Controlinks burner controls
- Replace main condensate return and feed water system in boiler room
- Replace all condensate return pumps in the building
- Replace fuel oil pumps
- Provide new combustion air system to meet code requirements
  
- 50 BHP steam boiler produced Domestic Hot Water in a tank and coil system with two large tanks
  
- New system will comprise of a condensing boiler (estimated combustion efficiency of 92-97%) to match the calculated domestic hot water load of 750 GPH recovery and storage of 1,000 gallons.
  
- New Domestic Hot Water boiler, along with the Cogeneration unit will also support D wing heating system

**B. King Street Intermediate School**

- Replace existing condemned boiler with new boiler (H.B. Smith 28 HE – W -11) to match existing new boiler of same size
- Heat loss estimated and sizing of boiler validated
- Replace all zone valves and shut off valves
  
- Install one (1) new A.O. Smith model COF-199 or equal Domestic Hot Water Heater, 86 gallons storage and 191 gph recovery to supplement existing domestic hot water system

**C. Broadview Middle School**

- Replace existing steam boilers with 2 (two) H.B. Smith 6500 A boilers, 5,394 MBH output to match calculated load of 5,385 MBH
- New burner control panel and Honeywell Controlinks burner controls
- Provide new combustion air system to meet code requirements
- Replaced condensate return and feed water system with new vacuum return and feed water system
- Install new fuel oil pumps and oil drainage system

- Replace all isolation valves
- Install new domestic hot water boiler to satisfy calculated load of 1,105 GPH recovery and 500 gallons storage

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#### **D. King Street Primary School**

- Install 1 (one) – A.O. Smith model COF-199 or equal domestic hot water heater, 86 gallon storage and 191 gph recovery to supplement existing system
- Install all required ancillaries and controls to make the system fully functional

#### **E. Mill Ridge Primary School**

- Install HB Smith G-28HE – S-5 boiler with Power Flame full modulation fuel oil burner, to provide back up capacity for the existing single boiler (sized at 40% of full capacity to fit in the available space in boiler room).
- Install new boiler feed unit, Shipco Model CS-P or equal, 147 gallon, 3 pumps (25 gpm at 25 psig)
- Relocate other equipment in boiler room to provide required service clearnace
- Provide new combustion air system to meet code requirements

#### **F. Stadley Rough School**

- Disconnect burner from existing defective boiler along with associated piping and wiring
- Install one (1) new HB Smith 28HE – RTS – 18 or equal
- Reinstall existing gas/oil burner , complete all piping and electric connections

### **VARIABLE FREQUENCY DRIVES**

#### **A. Danbury High School**

- Install variable frequency drives with bypass on two (2) 7.5 HP hot water pumps serving the D – wing (Tank Room)
- Install and provide wiring for a new differential pressure sensor to be installed at the end of the heating system piping

#### **B. King Street Intermediate School**

- Install variable frequency drives without bypass on two (2) 3 HP hot water heating pumps
- Install and provide wiring for a new differential pressure sensor to be installed at the end of the heating system piping

### **BUILDING MANAGEMENT SYSTEM**

- Install all required controllers and wiring to reinstate control of all the new boilers and ancillary systems through existing Honeywell EBI system

- Install all necessary controls for the new VFD's

**WOW SUSTAINABILITY MANAGEMENT SYSTEM**

**To be installed at Danbury High School**

Honeywell will furnish and install a WOW Sustainability Management System consisting of the following:

1. Subscription to WOW a SaaS Based sustainability management system with the following selected applications:

- a) Home
- b) Environmental Features
- c) About Us
- d) Sustainability Projects
- e) Building Resources
- f) Weather
- g) Carbon Education
- h) Performance Validation



2. Web-based portal for access to the system

User Password Protected Portal for access.

Public direct access (via a unique web link, when this feature is enabled)

3. Remote data collection on a remotely managed server for the 40 selected live or manual data points. These points will be collected from the Honeywell BMS system.

4. Customized integration the City's logo and color scheme

5. **5 years contract** for system subscription & operation

6. Configuration to run WOW on the kiosk, touch screen display and in standard web browser

7. Access to WOW Animation Library.

8. 30 Hours content implementation remote support

9. One Hour Installation and usage online e-training

10. Hardware: 1 WOW Kiosk with 32" upgrade, 1 COM Server BACnet IP, 1 CISCO Network Security Appliance. Kiosk will be installed in the Main lobby of the Danbury High School.