



INTEGRATED SUSTAINABLE DESIGN

Building Systems | Sustainable Design | Energy Services

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August 31, 2017

**Mr. Ian Crammond**  
**Sauk County Buildings Department**  
510 Broadway  
Baraboo, WI 53913

Re: **Energy Efficiency Project**  
**Proposal for Project Support Services**

Dear Mr. Crammond:

As you are aware, Integrated Sustainable Design (ISD), in conjunction with Hoffman Planning and Design's (HPD+C) photovoltaic project, has been commissioned to review several Sauk County facilities for opportunities to reduce energy consumption and improve system operation. This includes review of the information provided in the report by the E3 Coalition, dated August 23, 2015.

The final summary for that project outlining budgetary requirements is provided in the attached document prepared for the September County Board meeting. This document is provided as proposal for the Technical Support Services budgeted within the project scope necessary to support the construction process.

**Scope of Services – Common Elements:**

For all project line items, ISD will provide the following to Sauk County:

1. Develop technical description of requirements for each of the proposed energy conservation measures and system upgrades to the extent necessary for contractor implementation.
2. Support in developing contractor RFP's for obtaining firm construction pricing. Primary responsibility for drafting these documents shall be by Sauk County, with review and technical input from ISD.
3. Attendance at pre-bid conference with the contractors (assumed single day)
4. Support in response to bid RFI's during the bid process.
5. Assistance in bid review and de-scope of contractors
6. Attendance at construction kickoff meeting – one per facility (assumed single day)
7. Support in phasing of construction. Primary responsibility for day to day scheduling shall be by Sauk County.
8. Support in response to contractor RFI's during construction.
9. Review of any proposed scope changes (change order requests) by the contractors, to include modifications or extension of proposed project scope which may impact project contingency funds.
10. Periodic ("as needed") site support of startup of all "energy conservation measures" and system upgrade work.
11. Functional testing and tuning of completed phases of work.

### **West Square – Building Specific Support Services**

#### **Air Handling Systems:**

1. Develop technical description of requirements for each of the proposed energy conservation measures and system upgrades to the extent necessary for contractor implementation.
2. Validate result of calibration for minimum outdoor air flow stations.
3. Review contractor submittals for new primary outdoor air flow stations. Review installation diagrams and construction outcome.
4. AHU3 – Assist contractor in correcting calibration and validation of return air flow station.
5. Validate result of calibration of supply air flow stations. Perform comparative calibration for return air flow station and outdoor total intake rate. Tune / adjust outdoor air intake rate and fan tracking parameters to meet original design intent as modified by as-operated building conditions.
6. Validate and tune supply air temperature reset of air handlers
7. Validate and tune variable volume variable pressure algorithm for air handlers
8. Provide written sequence of operation for air handlers in collaboration with the JCI. Perform functional testing of air handler operation to validate compliance of control functions, energy conservation measures, and system upgrades. This shall include the above noted items, plus the separation of the relief damper control from strict economizer sequencing to control by a new pressure sensor to be located upstream of the return / relief dampers.

#### **Boiler (Heating Hot Water) and Chilled Water Systems:**

1. Validate and tune variable volume variable pressure algorithm for control of boiler and chiller secondary circulation pumps.
2. Validate and adjust chilled water reset schedule software
3. Collaborate with controls contractor in development of as-built sequences of operation.
4. Perform functional testing of systems to validate existing sequences of operation.

#### **Penthouse Outdoor Air Intake:**

1. Verify operation of replacement damper actuator on intake, operation of exhaust fan and unit heaters.

### **Health Care Center (HCC) – Building Specific Support Services**

#### **Air Handling Systems:**

1. Develop the following sequence of operations updates for implementation by the controls contractor. Provide technical support during implementation. Tune and validate results:
  - a. Supply to return air fan tracking.
  - b. Sequence of operation requirements for modification to air terminal operation (temperature limitation, variable air flow heating operation). Validate operation upon implementation.
  - c. Variable volume variable pressure control strategies.
  - d. Modifications to sequence necessary to avoid simultaneous heating and cooling operation.
  - e. Occupied standby operation for air terminals (unoccupied cycle for common areas relaxing space setpoints and minimum air flows by a fixed amount.)

## Sauk County

Energy Conservation Project – Technical Support Services  
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### Boiler Systems:

1. Validate and tune variable volume variable pressure algorithm for control of boiler secondary circulation pumps.
2. Collaborate with boiler control panel and temperature control system vendors to make operational the appropriate sequencing and temperature control of the boiler water reset strategies.
3. Collaborate with controls contractor in development of as-built sequences of operation.
4. Perform functional testing of systems to validate existing sequences of operation.

### Kitchen (Kitchen Hood and RTU6)

1. The kitchen hood systems currently take part of their makeup air from a dedicated kitchen makeup air system (RTU6 – heating only) and the remainder from the area HVAC unit (RTU5 – heating and cooling). The current software does not integrate the amount of outdoor air being brought in by RTU5 with whether the hood is in operation, effectively causing the unit to condition more outdoor air than required and potentially exacerbating operational improvement item #1 above. ISD will develop a sequence of operation for implementation by the controls contractor to correct these conditions.
2. Perform Engineering and selection for application of a kitchen hood demand control system. This shall include:
  - a. Development of scoping documents and selections for the proposed control system.
  - b. Integration of project with air handler 5 and 6 operating sequences.
  - c. Progress inspection and “punchlist” of construction work
  - d. Functional testing of result.

### Law Enforcement Center (LEC) – Building Specific Support Services

1. Develop the following sequence of operations updates for implementation by the controls contractor. Provide technical support during implementation. Tune and validate results:
  - a. Updates to sequence of operation to allow night setback in unoccupied areas of the facility. To include relocation of outdoor air temperature sensor from intake of A block air handler to allow shutdown of these systems,
  - b. Correction of control of energy recovery unit wheel / recovery core bypass to allow for 100% outdoor air economizer (“free” cooling”) with associated reduction in chiller requirements.
  - c. Correction of heating and cooling operation to eliminate / minimize any need for simultaneous heating and cooling operation.
  - d. Develop variable volume variable pressure control strategies for the air handlers serving C and D wing.
  - e. Develop variable volume variable pressure control strategies for the boiler and chilled water secondary pumping systems.
  - f. Collaborate with the controls contractor and specify modifications to the boiler sequencing control to allow the boilers to cycled down into condensing temperature levels when appropriate.
  - g. Specify necessary sequence of operation changes associated with the implementation of variable speed drives on the primary boiler pumps
2. Specify and provide technical support in the setup of variable speed drives on the boiler primary pumps to allow the flow rates to be appropriately matched the number of on line boiler modules
3. Provide technical support and validation of rebalancing of total energy recovery unit supply and return air flow rates to achieve original design intent and building pressurization balance.

**Professional Fee:**

**West Square** – ISD will provide the scope of services as described for the West Square Building on a Time and Material / Expense Basis, Not to Exceed: **Five Thousand, Four Hundred and Sixty Dollars (\$5460.00)**

**Health Care Center** – ISD will provide the scope of services as described for the West Square Building on a Time and Material / Expense Basis, Not to Exceed: **Thirteen Thousand, Nine Hundred and Twenty Dollars (\$13,920.00)**

**Health Care Center** – ISD will provide the scope of services as described for the West Square Building on a Time and Material / Expense Basis, Not to Exceed: **Nine Thousand, Seven Hundred and Fifteen Dollars (\$9,715.00)**

We have included the costs of travel between our Madison Wisconsin offices and the project sites within our proposal costs. Any additional expenses encountered during the course of this project will be invoiced at a 1.1 multiplier. Any requested services not specifically called out in this proposal be invoiced per our published 2017 labor rates, attached.

General Note: The proposed professional fees for these facilities assume acceptance and implementation of the entire project scope. In the event that any single facility or portion of the scope for that facility is removed from the project, ISD reserves the right to review and modify our professional fee accordingly.

**Proposal Clarifications:**

1. Integrated Sustainable Design, LCC, is a wholly owned subsidiary of IBC Engineering, PC, of Rochester NY. As an Engineering Firm, this proposal is provided for technical support services to assist Sauk County with the procurement, implementation and validation of the project scope outlined in this document and more fully documented within reports presented to the Board under separate cover. As such, our role will be to serve as the Engineer for Sauk County on this project, and not as a “Construction Contractor” providing the actual Energy Conservation Measures and Upgrades to these systems.
2. The work of this project will be performed in as much of a collaborative effort as possible, with ISD closely involved in the project implementation. As such, the requirements for a written engineered product are minimized. Sealed engineering documentation and drawings will be produced only to the extent that they may be required by the authorities having jurisdiction for construction permits or associated purposes.
3. Costs associated with construction permits or completion thereof is excluded.
4. Application for any code variances based on as-constructed conditions is excluded.
5. Engineering, testing for, abatement and disposal associated with suspected hazardous materials encountered during the course of construction shall be by others.
6. As built documentation shall be provided by Sauk County where required. ISD reserves the right to scan any documents obtained into our records where required. We do not anticipate the requirement to develop any CAD backgrounds of existing floor or systems, however, in the event that these may be required, the costs of development of these documents is specifically excluded from our scope.
7. IBC specifically excludes the costs of printing and duplication of documents from our proposal.
8. Preparation and publication of formal meeting minutes is excluded.
9. It is not the intent for ISD to review the engineering and code compliance associated with existing systems and equipment. Only where our work directly impacts the parameters stated on the original engineering drawings, review will be provided to assure that no negative impact occurs.

**Schedule:**

No formal schedule for this project has been determined at this time, however, this proposal is based upon acceptance by Sauk County approximately October 1, 2017, and a construction schedule completion by March 2018. In the event that construction cannot be completed by the end of March, 2018, ISD reserves the right to adjust all remaining project scope labor based on our published rates in place as of that date.

**Proposal Duration**

This proposal shall be considered valid for a period of 45 days, after which ISD reserves the right to review and modify our pricing and terms.

Respectfully Submitted,

**IBC ENGINEERING, P.C.**

Michael I. Tatkow, P.E.  
Wisconsin Operations Manager

Acceptance for Sauk County:

Name: \_\_\_\_\_

Date: \_\_\_\_\_

Title: \_\_\_\_\_