

Relevant Project Descriptions:

University of Connecticut – Retro-Commissioning & Energy Audits

Project Size: Phase I – 341,500 gsf; Phase II – 245,743 gsf; Phase III – 139,238 gsf; Phase IV – 2,586,812 gsf

List of Operational Improvements:

- Optimize tertiary chilled water pumps and control (P-1, P-2, P-3 and P-4).
- Implement enthalpy economizer and VAV box static pressure reset on AHU-1 and 2 with space unoccupied control of the VAV boxes.
- Implement bypass of the tertiary chilled water pumps.
- Implement space occupancy sensor control of AC-1, AC-2 & AC-3 serving the Lecture Halls.
- Optimize the operation of five (5) air handling units.
- Implement bypass of tertiary chilled water pumps.
- Optimize the dual temperature pump control.
- Modify the control strategy for the tertiary hot water pumps HWP-1 and HWP-2.
- Optimize the operation of units MAU-1 and MAU-2 and implement OAT lockout.
- Optimize Variable Air Volume Air Handling Units AHU-1 and 3 Music-Drama Building
- Provide Occupancy Control for Lighting & HVAC, and Optimize Constant Volume Air Handling Units AHU-2, 4, & 5
- "Provide Occupancy Control for AHU-1 Serving the Auditorium von der Mehden
- Optimize Variable Air Volume Air Handling Units AHU-6, 7 and 8 Music Library
- Provide Occupancy Control for Lighting & VAV Setback for RM L103. Music Library
- Optimize the Chiller Plant Operation and Secondary Chilled Water System
- Implement Programming to maintain temperature differential for five (5) buildings having existing bridge control or plate and frame heat exchanger
- Implement Programming to maintain temperature differential for remaining twenty one (21) buildings

Audit, Monitoring and Savings Verification Methodologies:

- M&V by both Option C – Whole building energy analysis using existing submeters and Option A: Retrofit Isolation to measure key parameters to calculate savings.

Description: SBS was engaged to provide a retro-commissioning survey to identify indicators of opportunity for cost-effective retro-commissioning for the University of Connecticut's main campus in Storrs, CT. The purpose of this building survey report is to identify indicators of opportunity for cost-effective retro-commissioning and to provide the basis for the University of Connecticut to decide whether to proceed with a full retro-commissioning investigation process. The retro-commissioning building survey presented a broad assessment of the major energy consuming equipment and systems within the University of Connecticut Storrs campus and identified potential retro-commissioning opportunities. Cost-saving measures were individually tabulated for review with the following breakout: estimated implementation cost, cost to investigate the energy efficiency measure and estimated annual electrical savings.

Reference: David McIntosh, Associate Director of Energy & Water Conservation; (860) 486-3591;
david.mcintosh@uconn.edu

Gateway Community College – Retro-Commissioning & Owner’s Representation

Project Size: 367,000 sf

List of Operational Improvements:

- Optimize Chilled Water & Ice Plant Operation
- Optimize Hot Water Boiler Staging, Setpoints & Pumping
- Optimize AHU-6 Sequences & Schedules
- Implement AHU Optimum Start, Optimize DAT Reset & VAV Box Heating Mode Operation (AHU-1,2,3, 4), CO2 Sensors, Stand-by Mode & Scheduling
- Improve Building Pressurization and Exterior Enclosure Infiltration Issue
- Enhance time of day scheduling of lighting, Repair Occupancy Sensors throughout North and South Buildings

Audit, Monitoring and Savings Verification Methodologies:

- M&V by both Option C – Whole building energy analysis using existing utility meters and Option A: Retrofit Isolation to measure key parameters to calculate savings.

Description: SBS provided Gateway Community College with a retro-commissioning building survey to identify energy conservation findings, preliminary implementation costs, and energy savings opportunities. The campus is comprised of two four-story buildings (North and South) connected by a bridge. The College was constructed in 2012 and retains a LEED Gold rating. The campus houses classrooms, meeting spaces, a cafeteria, a bookstore, computer labs, administrative offices, and other services. The building survey identified opportunities for cost-effective retro-commissioning and provided Gateway Community College with a basis to decide whether to proceed with a full retro-commissioning investigation process. The retro-commissioning survey report presented a broad assessment of the major energy consuming equipment and systems within each building and identified the potential retro-commissioning opportunities. SBS is currently working with the College to investigate the energy conservation measures identified during the retro-commissioning survey report.

Reference: Chris Dupuis, Director of Capital Projects, CT State College & Universities; (860) 723-0315;
CDupuis@commnet.edu

Yale University Art Gallery – Retro-Commissioning/Ongoing Commissioning/Cloud Based Data Analytics

Project Size: 195,000 sf

List of Operational Improvements:

- VFD and seasonal control of induction units
- Optimize Grove St and Central Row AHUs and Exhaust Fans
- Optimize Main North Supply, Return & Exhaust Fan Systems
- Calibrate flow stations and sensors and repair leaking reheat valves

Audit, Monitoring and Savings Verification Methodologies:

- M&V by both Option C – Whole building energy analysis using existing submeters and Option A Retrofit Isolation to measure key parameters to calculate savings.

Description: SBS was engaged to provide retro-commissioning services for the energy conservation measures at the Yale University Art Gallery as part of the University's participation in the United Illuminating Retro-Commissioning program. During the implementation phase of the retro-commissioning program, SBS assisted Yale University with the implementation of the energy conservation measures including providing technical assistance and reviewing contractor bids. SBS is also tracked the implementation progress and reported the status to the University. SBS developed retro-commissioning documentation and operations and maintenance manuals, provided follow-up training to building staff, and proposed methods for monitoring the performance of the implemented measures.

Additionally, SBS has implemented a cloud-based data analytics software solution which automatically analyzes building, energy and equipment data to identify issues, faults and opportunities for operational savings.

Reference: Sean Dunn, Director of Facilities; (203) 432-0607; sean.dunn@yale.edu

Pricing and Fees

Describe the pricing structure for the type of retrofit projects/services being proposed.

SBS is flexible to establish pricing and costs in a manner that meets the project specific needs of CT DAS. Most of our engagements are based upon a fixed cost for a defined scope of work. We have several engagements that are utilizing variable costs based upon time and materials both with and without caps.

Describe all cost markups and how they me be applied

SBS professional services are based upon pre-established hourly rates for services. The following table represents our 2018 Hourly Rates:

2018 Hourly Rates	
Category	Hourly Rate
Director	\$195
Senior Project Manager	\$155
Project Manager	\$145
Assistant Project Manager	\$120

Construction contracts for physical improvements as part of an energy efficiency retrofit or retro-commissioning implementation effort are typically held by the Owner and therefore would be priced at the actual contractor’s construction cost and without a SBS mark-up. If SBS is requested to hold the construction contract, any bonding or insurance costs would be passed through to CT-DAS at cost, without administrative mark-up. A mark-up for overhead and profit of 15% would be applied to all construction contracts that are held by SBS

Describe all other costs such as maintenance and monitoring and how they are applied.

Ongoing, Monitoring-Based Commissioning / Analytics

- Software-based building data analytics solution that can automatically analyze building, energy, and equipment data to identify issues, faults, and opportunities for energy and operational savings and helps ensure the persistence of savings.
- Solution is based on open-source structure and network protocols, using data connections such as BACnet, Obix, Haystack, Modbus, CSV, and SQL.
- Utilizes custom programming and analysis to deploy continuous performance evaluations throughout a system, campus or facility

SkySpark Technical Services and Rates

The ongoing commissioning and building data analytics solution services includes three components 1) data analytics software based upon number of points stored, monitored and analyzed, 2) professional services fees for system setup, programming and engineering related to the efficiency solution and its M&V, 3) physical hardware and costs for connectivity if a connected server is not available for use.

- Software Costs per Point Packages are based on the following pricing guideline for local server based software installations and assumes local server and connectivity provided. Cloud based installations (remote data analytics server included) adds 25% to the following software costs:

Pricing Examples for Reference	Price	\$/Point	Parts
# Points	\$		
2000	\$ 5,800.00	\$2.90	2 X 1000 Point Pack
4000	\$ 10,900.00	\$2.73	1 x 5000 Point Pack
5000	\$ 10,900.00	\$2.18	1 x 5000 Point Pack
9000	\$ 14,900.00	\$1.66	1 x 10,000 Point Pack
10000	\$ 14,900.00	\$1.49	1 x 10,000 Point Pack
20000	\$ 29,800.00	\$1.49	2 x 10,000 Point Packs
50000	\$ 29,900.00	\$0.60	1 x 50,000 Point Pack
60000	\$ 44,800.00	\$0.75	1 x 50,000 Pack plus 1 x 10,000 Pack
80000	\$ 59,800.00	\$0.75	2 x 50,000 Point Packs
100000	\$ 59,800.00	\$0.60	2 x 50,000 Point Packs

Annual Upgrade Packages / License Costs..... After Year 1 License Cost is 18% of Point Package

Optional Cloud-based Server Installations.....Annual upgrade and database management services is 30% of the cost of the point package and cloud based server costs.

Professional services fees related to the ongoing commissioning and data analytics solution can include the following activities and are priced either on a lump sum basis or hourly Time and Materials basis using our previously provided professional service fee rates.

- Evaluation of existing sites, network infrastructure, project goals, operational sequences, and key metrics
- Coordination for Data Integration and Software Connections; includes network communication to data point, trends, and or databases
- SkySpark Software and Driver Installation

- Discovery and Import of network raw data points
- Identification and software tagging of data points
- Development of software applications, tools, and SkySpark architecture, including energy management, trend analysis, and fault detection
- Development of Key Performance Indicators (KPIs) and custom metrics for reporting
- Development of custom Functions to evaluate system performance; including custom rule writing and analysis
- Verification and evaluation of performance results
- Management of SkySpark results and metrics reporting
- Deployment of automated reporting to key personnel
- Management of SkySpark database, software license, and reporting tools
- Regular on-site meetings with staff (i.e. monthly, quarterly) to review performance to develop corrective action plan
- Identification and investigation of additional energy savings initiatives identify by the data analytics solution

Any required physical hardware, server and connectivity, if not already in place, would be priced at the actual cost (client internal IT resources or outside contractor costs) without an SBS mark-up if the client holds the contracts. If SBS is requested to hold the construction contract, any bonding or insurance costs would be passed through to CT-DAS at cost, without administrative mark-up. A mark-up for overhead and profit of 15% would be applied to all construction contracts that are held by SBS.

Describe any potential rebates and incentives that can be made available to the users of this contract.

SBS is one of a very select short-list of companies that is pre-qualified and under contract with both Eversource and United Illuminating to participate in the Energize Connecticut’s Retro-commissioning Program. The retro-commissioning program is a very financially attractive program for Connecticut state agencies. RCx program information can be found here: <https://www.energizect.com/your-business/solutions-list/Retro-Commissioning> and typical incentives include:

- Retro-commissioning Survey: Paid 100% by Eversource & UI
- Retro-commissioning Investigation: Paid up to 50% by Eversource & UI
- Retro-commissioning Implementation: Paid up to 40% by Eversource & UI, and customer can earn back their portion of the investigation fee.

CONTRACT NAME:	ENERGY EFFICIENCY RETROFITS AND COST SAVINGS PROGRAMS FOR EXISTING BUILDINGS	RFP NO: 18PSX0104
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DESCRIPTION OF GOODS AND SERVICES OFFERED BY CONTRACTORS
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INSTRUCTIONS: PROVIDE A DESCRIPTION OF YOUR COMPANY ALONG WITH THE GOODS AND SERVICES THAT IT INTENDS TO PROVIDE THE STATE OF CONNECTICUT THROUGH THIS CONTRACT. THIS IS THE DESCRIPTION THAT WILL APPEAR IN THE CONTRACT FOR END USERS SEEKING TO MAKE ACQUISITIONS FROM IT. THE DESCRIPTION MUST BE LIMITED TO THE SPACE PROVIDED HERE. ALL ADDITIONAL PAGES, DOCUMENTATION OR VERBIAGE WILL BE DISREGARDED AND DESCRIPTION WILL BE EDITED AT THE DISCRETION OF THE DAS CONTRACT SPECIALIST.

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Since 1996, Strategic Building Solutions, LLC's Commissioning and Energy Services team has worked throughout Connecticut and the Northeast to deliver cost effective projects under numerous energy efficiency programs. This experience has created a deep understanding of program procedures, guidelines, goals and requirements. These energy efficiency programs have been offered and managed by large and small utility companies and third party program administrators. Strategic Building Solutions, LLC's Commissioning and Energy Services team has expertise and experience in a variety of program types including traditional energy audits (ASHRAE Levels 1, 2 & 3), retro-commissioning, energy savings performance contracts, building tune-ups, "Pay for Performance", energy retrofits utilizing prescriptive and performance based incentives and CPACE.
Strategic Building Solutions, LLC is a Connecticut based firm founded in 1996 providing owner's representation for Energy related projects, energy auditing, retro-commissioning, building optimization and tune-up, ongoing Commissioning, building data analytics (cloud based and local server based) and measurement and verification Services.
Strategic Building Solutions, LLC is a Building Commissioning Association Certified Commissioning Firm.