

## Transforming Construction Projects Into Energy-Efficiency Projects

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In an age of increasing energy costs coupled with greater awareness of the need to conserve natural resources, more building contractors are eager to do the right thing when it comes to identifying and remedying energy inefficiencies in commercial projects. But, the time has come to broaden the meaning of green building to include the opportunity to tap a new revenue stream in construction.

By taking a holistic approach to building design and construction, contractors can transform traditional projects into more cost-effective energy-efficiency projects that improve the bottom line. It's a big market opportunity that should not to be missed.

### A UNIFIED SUITE OF SERVICES

In contrast to the traditional piecemeal method of providing engineering, construction, controls and maintenance/service separately, an integrated approach can extract unprecedented energy efficiency and savings from both old and new structures. By examining all aspects of building design, mechanical systems and controls (including HVAC, lighting and security) and applying integrated energy solutions, building owners and property managers can take energy management and efficiency—and corresponding dollar savings—to higher “green” levels.

The integrated energy solutions approach is geared toward a unified suite of services. Much like the conductor of a symphony orchestra, the integrated system ensures that all “instruments” in the building’s mechanical and electrical systems are working harmoniously. A holistic view of energy management and efficiency can result in new energy- and water-efficient buildings, which offer the appeal of higher rents, lower vacancy rates and greater tenant satisfaction.

Integrated solutions also can transform existing “brown” buildings, where there are immediate opportunities to upgrade mechanical systems for a demonstrated return on investment. If a building has not been properly maintained and serviced, an integrated energy solutions system can deliver an immediate cost-saving impact. In addition, the building manager will have the capability to integrate individual system controls into a full-fledged building automation system, as well as establish a planned systems maintenance program.

Keep in mind, integrated energy solutions can play a pivotal role at each step in a building development project: in the design or negotiation phases, at the beginning of construction, at the midway point to coordinate the systemic development of controls, or at completion to ensure interoperability and develop a planned maintenance program.

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### **THE IMPORTANCE OF INTEROPERABILITY**

Ultimately, integration is the key to operational success. Also, system designers should avoid proprietary systems and instead choose open protocol devices that have the capacity to read systems and controls produced by a number of manufacturers. All system components must be able to communicate instantly on an electronic “handshake” arrangement.

Interoperability is a crucial element of an effective integrated energy solutions implementation (i.e., making sure different systems and devices are able to communicate effectively across different software protocols and languages). Even advanced buildings that are equipped with digital HVAC and lighting controls may not have integrated systems so that a building owner or property manager has a single dashboard to see where energy usage is highest or where performance of individual components may be lagging. An integrated system provides a wide-angle operational view of all components from 35,000 feet, while at the same time allowing facility managers to drill down and see the individual “blades of grass.”

### **CUSTOMIZATION IS KEY**

To realize the full measure of energy and cost efficiency, each energy solutions project should be custom programmed and individually tailored to each facility.

One of the critical features of an integrated system is the capability to record building analytics and trends, from which baseline performance levels can be established. Once those baselines are in place, acceptable variances can be established and alarm features engaged so that system managers can monitor the system at-a-glance to see bumps or drops in energy usage. For example, dashboards can include floor plan layouts with temperature overlays that detect warm or cold spots in the building, enabling the contractor to set equipment operating constraints and utilize occupancy zones to maximize performance.

Scalability is another component of an integrated system. It’s advantageous for the system to be able to operate a single building or a series of buildings through communal access via LAN, WAN or Internet connections.

### **THE BOTTOM LINE**

By applying integrated energy solutions, owners and property managers have a new way to improve the bottom line for investors and their portfolios as customers and tenants have proven willing to pay more for “green” energy efficiency. Not only is this the right thing to do, but it also enhances everyone’s bottom line.

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