

Transform Construction Projects with Integrated Energy Solutions

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by Mark Drury

The time has come for professionals in the construction industry to broaden that meaning of "green" when they hear about "green" building projects. The tendency is to just first think about energy efficiency, which may be all well and good, but it's an opportunity to tap into a new revenue stream in construction, while positioning your construction business as an authority and leader of an initiative that's transforming the construction space.

In an age of increasing energy costs coupled with greater awareness of the need to conserve energy resources, more and more building contractors are eager to do the right thing when it comes to identifying and remedying energy inefficiencies in commercial projects. But what if, by taking a holistic approach to building design and construction, construction executives could transform traditional construction projects into more cost-effective energy-efficiency projects that improve the bottom line? It's a big new market opportunity that is not to be missed.

The integrated energy solution approach is a process that can tap unprecedented energy efficiency and savings from old and new buildings alike because it takes a holistic approach that examines all aspects of building design, mechanical systems and controls (including HVAC, lighting and security).

It is the opposite of the traditional piecemeal or "silo" method of providing engineering, construction, controls and maintenance/service. Instead, the integrated energy solutions approach is geared to 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. By taking this holistic view of energy management and efficiency, integrated energy solutions can make the entire process more efficient and effective in:

- Providing new energy and water efficient buildings, which offer the appeal of higher rents, lower vacancy rates and greater tenant satisfaction.
- Transforming 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, with an integrated system in place, building management 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.

Ultimately, integration is the key to integrated energy solutions operational success. This requires a carefully thought out engineering process that avoids a fragmented or piecemeal approach. 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 multitude of manufacturers. All system components must be able to communicate instantly on an electronic "handshake" arrangement.

Interoperability Is Key

Integrated energy solutions can play a critical role at each step in a building development project: in the design phase; in the negotiation phase; 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. Interoperability, in fact, is a key element of an effective integrated energy solutions implementation — making sure different systems and

devices are able to communicate effectively across different software protocols and languages. Even in today's most advanced buildings that are equipped with digital HVAC and lighting controls, these systems may not be integrated 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, though, provides both 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."

Customizing Your Energy Solution

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 will be able to monitor the system at-a-glance to see bumps or drops in energy usage.

A state-of-the-art IES system integrates individual building system communications to provide a user-friendly control interface customized for each facility. This dashboard should include floor plan layouts with temperature overlays that detect warm or cold spots in the building, enabling us to coordinate the setting of equipment operating constraints and utilize occupancy zones to maximize performance.

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Scalability is another IES advantage. When communal access is provided via LAN, WAN or Internet connections, an IES system can operate a single floor in a building, an entire building or even a series of buildings.

IES - The Bottom Line

As we move forward in the energy-challenged commercial building industry, contractors and owners of construction-related businesses need to become part of the "green" dialogue with building owners. By getting up to speed on the key design elements of Integrated Energy Solutions, construction executives can position themselves to provide answers to the questions more and more owners are asking about how to make their buildings more energy efficient.

Armed with Integrated Energy Solutions, contractors and owners can move out of the traditional mindset of budgeting for a construction project into a new "green" mindset of budgeting for building energy efficiency. Not only is IES the right thing to do, but in the long run it's the more economical way to go.

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