

Energy costs, green building fuel 'smart' structures

By John Egan

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Slowly, so-called "smart" structures are taking root as concern over energy costs and interest in green building grow.

Experts say smart buildings — featuring cutting-edge, fiber-optic networking designed to improve operating efficiencies and expenses — boast happier tenants and lower energy bills than other properties. While it doesn't take a high IQ to grasp the benefits, many short-sighted developers have yet to jump on the intelligent-building bandwagon.

"You feel the tide coming up a little bit, but eventually it'll come up really high," says Dallas developer Bob Bruner, principal of Ballantyne Village, a \$250 million mixed-use development in Charlotte, N.C.

At Bruner's "smart" project, property managers can log in remotely to flip the switch on more than 500 lights. In restrooms throughout the 10-acre development, the toilet paper, paper towel and soap dispensers automatically alert property managers when a dispenser is empty. Toilets send signals when they're clogged. Restrooms are one of the two top triggers of complaints about commercial real estate properties, experts say. Most other tenant gripes center on heating and cooling systems, which also are built into the smart network.

Ballantyne Village offers telephone, data, Internet, security and music services through a single fiber-optic network. Property managers can monitor heating, cooling, lighting, and digital signage through that same network, which currently links all retail tenants, outdoor spaces and property management offices. About 160,000 sq. ft. of Ballantyne Village — primarily retail — already is finished. When completed by 2013, the 650,000 sq. ft., six-building project also will include about 200 condominiums, 100,000 sq. ft. of offices and a 150-room hotel, all of which will be tied to a network capable of handling 1 gigabit of data.

Ballantyne Village is among less than 10% of new and existing commercial buildings that contain intelligent technology, estimates Ron Bernstein, executive director of San Jose, Calif.-based LonMark International, a trade group that develops standards for intelligent building technology. Most active in the intelligent-building movement are data centers, hospitals and universities, says Paul Ehrlich, president of Building Intelligence Group LLC, a technology consulting firm in St. Paul, Minn.

A key driver of intelligent technology in the commercial real estate sector is escalating energy costs. If a high-tech lighting and energy management system is integrated into a building's overall operating network, the owner can reap energy savings of 30% to 45% vs. stand-alone lighting and energy management systems, says Ron Zimmer, executive director of the Continental Automated Buildings Association, an international trade group based in Ottawa, Canada. The payback on that investment can be realized in two and a half years, Zimmer says.

Ehrlich believes a full-fledged intelligent technology system can yield bottom-line rewards. He cites this hypothetical scenario: A developer spends \$600,000 to equip a new 150,000 sq. ft. building with smart technology that integrates lighting, heating, cooling and other functions on a single network platform. That system prompts a 10% drop in operating costs, as well as a 4% hike in occupancy and rental rates, since tenants view this as a modern, comfortable property. As a result, net cash flow rises by \$420,000.

Nowadays, building technology is "more than a necessary evil and a budget item," says Tom Shircliff, co-founder of Intelligent Buildings Group of Charlotte, a technology consulting firm that is working with Ballantyne Village. "Too many times, people think 'smart buildings' means the owner selling phones and Internet service to tenants."

One reason smart buildings have yet to make it to the mainstream, tech experts argue, is that commercial real estate developers typically emphasize a building's short-term profitability rather than its long-term operating expenses. "They don't care about the building costs five years from now because they're not going to own it," LonMark's Bernstein says. Experts say it costs about \$1 to \$4 per square foot to include smart technology in a new project.

Bruner, the Ballantyne Village developer, concedes that cutting corners to chop construction costs is standard practice among developers. "If the tenants were barking for intelligent technology, the developers would do it," Bruner says. "The tenants don't understand it, so they don't give it much credence."

For his part, trade group director Zimmer acknowledges "a terrible job" has been done of teaching building developers, owners and designers about the value of intelligent technology. That's why the Continental Automated Buildings Association is introducing the Building Intelligence Quotient (BIQ) tool and the Life Cycle Analysis Tool on its Web site.

Users of the BIQ tool can grade the value of their intelligent-building technology and learn how to improve such technology in new and existing buildings. As with the LEED and Energy Star programs, participants in the BIQ program will be able to pursue certification. The life cycle tool allows building owners to calculate long-range costs associated with intelligent systems.


Despite its slow adoption, tech consultant Ehrlich is optimistic about the future of intelligent technology. During focus groups conducted last fall by Building Intelligence Group, about nine of every 10 of the participants from the commercial real estate, education, hotel and health care sectors said they intend to incorporate intelligent technology into their building projects within the next two years. Ehrlich cites the green-building wave as one of the factors sparking interest in this technology.

For the time being, Ehrlich says, "[intelligent technology] is the exception today rather than the rule." Facilities managers, chief information officers and chief technology officers are among those pushing for the technology, he says.

So who isn't pushing? "The people with the money," says Ehrlich, referring to building owners and developers. "At the end of the day, someone's got to write the check."



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