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Sent:	Thursday, July 21, 2005 1:21 PM
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Subject:	What is an Intelligent Building?

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What is an Intelligent Building?

There has been a lot of discussion and debate about the concept of an "Intelligent Building". Work has gone on in many forums to define and quantify what the term really means. The end result of these efforts is that an Intelligent Building is not just one thing. This week we invited Paul Ehrlich, PE Founder and President of Building Intelligence Group, to share his definition of Intelligent Buildings with you.

"Use of technology and process to create a building that is safer and more productive for its occupants and more operationally efficient for its owners."

The results from implementing these technologies and processes are buildings that cost less to operate and are worth more to their occupants. For projects that are owner occupied, such as Corporate, Government and Institutions, the benefits of an Intelligent Building provide an immediate ROI in terms of higher employee productivity and reduced operating expenses. For commercial developments, these projects are expected to result in above market rents, improved retention, higher occupancy rates and lower operating expenses. All around this is a win - win situation!

Given these benefits, why aren't we building more Intelligent Buildings? There are many reasons. Until recently the technology required to implement these projects was cost prohibitive. With the advent of Internet technology that is no longer the case. The current impediment has more to do with market demand, planning and implementation. At the recent CIO Roundtable at Realcomm in Anaheim, industry leaders described how they are applying these solutions today and the benefits they are gaining.

What are these processes and technologies? Here is a brief summary:
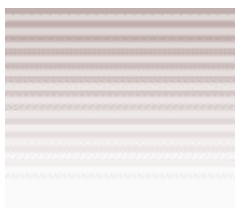
Process - Design

- Flexibility - designed to change
- Energy efficient design (LEED)
- Complete building modeling
- Focus on building circulation and Feng Shui and common spaces for networking
- Integration with transportation and surrounding community

Process - Construction

- Sustainable construction practices
- Electronic project documentation
- Modeling extended into construction

Process - Operations

- Integration of all systems
- Remote operations and optimization
- Tenant portals
- After hours operation
- Maintenance management and dispatch
- Energy information and management systems
- Real time energy response
- Continuous comfort monitoring and feedback

Technology - General

- Tenant amenities (concierge, visitor management, shopping, restaurants, lodging, parking, restrooms)
- Optimized vertical transport
- Personal comfort control (temperature, humidity, IAQ, lighting, acoustic)

Technology - Networking / Telecom

- Common network infrastructure
- Structured - maintainable cabling
- Wi-Fi
- VoIP
- Digital signage

Technology - Security / Life Safety

- Digital video monitoring
- Access control and monitoring
- Automatic fire suppression

- Fire detection and alarm
- Egress support (lighting, signage, smoke control, etc.)
- Contaminant monitoring and containment
- Proximate security / guard services

Technology - Mechanical

- Energy efficient equipment
- Thermal storage
- Combined heat and power
- Controls optimization (extensive sensing, energy efficiency, indoor air quality, comfort monitoring, Internet enabled controls, enterprise integration, water, and gas metering / sub-metering)

Technology - Electrical

- Energy efficient lighting
- Lighting control
- Distributed generation
- Dual power feeds / emergency power
- Power quality monitoring
- Sub-metering / billing

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