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Mahesh Mudda

Intelligent Buildings: Design, management & operations

An intelligent building is where the technology and process are used to create a building that is safer and more productive for its occupants and more operationally efficient for its owners

For a layman now and for a civil engineering professional just a few years back, the scope of Intelligent Buildings would not have gone beyond Intercom System connecting every unit of the building with the security cabin and video unit at the entrance of each unit to screen the visitor before opening the door.

So what is an intelligent building in the current context? What does it do? Why is it important to construct one and if one wants to how do one go about the task?

Intelligent building construction is not an afterthought or fit out, it is an integrated process which starts from the concept, gets translated in to designing, implemented during execution and carried through maintenance. Intelligent buildings mean different things to different people depending on one's perspective and role.

What is an Intelligent Building?

Very loosely intelligent building considers following:

Designing stage:

Flexibility & Scalability – Ability to change design based on altered parameters.

Energy Efficiency – Designing such parameters that will pave the way for LEED certification.

Circulation – Providing adequate design parameters to optimally utilize natural and forced air circulation.

Integration – With transportation and surrounding community.

Construction Stage:

Sustainable Construction Practices: Construction methodologies and practices like ideal concrete mix, correct usage of construction steel, perfect plastering mix,

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standardised shuttering and staging material, insulated piping, fire proof wiring and cabling, extensive sensing, acoustical treatment for internal and external walls, thermal and weather resistant treatment for external walls, Wi-Fi and VOIP enabled communication, digital signing etc.

Electronic Project Documentation: Uniform and standardised project documentation distributed electronically through efficient ERP system, Seamless flow of electronic GFC drawings to and from architects, structural consultants, generation and storage of as built drawings for future reference required for



maintenance activity.

Modeling Extension: Process flexibility to carry forward the modelling experimentation into full scale construction activity.

Operations Stage:

System Integration: Security, Building Automation, Fire Fighting through a common monitoring console.

Remote Operations and Optimization: Instruction to operate various systems remotely through dedicated gadgets or by GPRS through GSM technology, either during office hours or after office hours.

Tenant Portals & Billing System: Interaction with various tenants / unit holders in the building regarding account details, notices for payment dues, circulars etc.

Maintenance Management: Automatic reminders about the preventive maintenance schedule of various facilities, Renewal schedule of Annual Maintenance Contract of various facilities, replacement scheduling of worn out parts with minimum disruption of services etc.

Energy Information & Management: Mapping on periodical basis about the energy consumption of various utilities, arranging repairs based on the feedback to minimize the consumption.

In addition to these very basic facilities that are sought to be provided to the building, other facilities like:

Tenant Amenities: Conceive, Shopping, Lodging, Parking, Restrooms, Restaurants.

Personal Comfort Control: Temperature, Humidity, IAQ, Acoustic and Lighting.

Utilities Management: Energy Efficient Lighting, Distributed Generation, Water and Gas Metering, Combined Heat and Power, Dual Power Feeds also play an important role in constructing an Intelligent Building.

What Does it Do?

Intelligent building looks like any ordinary building from

outside, however, during designing stage and construction stage, very meticulous planning has gone into it thus resulting in:

- Choice of multiple construction materials.
- Flexibility in construction methodology.
- Optimization of Inputs.
- Assurance of uniform quality.
- Reduction in construction cost.
- Enhancing building life.
- Reduced maintenance cost.

Every one of these benefits is important enough for every architect, consultant, developer and contractor to advocate construction of Intelligent Buildings.

Why is it necessary to Construct Intelligent Building?

Optimum utilisation of scarce resources, faster construction, higher scalability options, longer life of the building, ease of maintenance and most importantly peace of mind for the inmates are few of the main reasons why one should go for intelligent buildings.

How does one go about it?

There are organisations like Indian Green Building Council working to promote the concept and propagate its advantages. One can approach the council and get active help in fulfilling the requirements of Intelligent Buildings.

The advent of technology in every field, its commercial use and variety of new applications this has developed is mind boggling. What was fairy tale and thought to be a science fiction yesterday is a reality today and what is reality today is soon going to be history.

It appears the terminology of 'Change is the only constant' is not only applicable to IT industry but to all industries ... in construction industry we can probably say, with the exception of cement and steel (at least for the time being).



(The writer is Chairman – Builders Association of India - Mumbai Centre and Executive Director & CEO of New Consolidated Construction Co Ltd – flagship Company of Jasdanwalla Group)