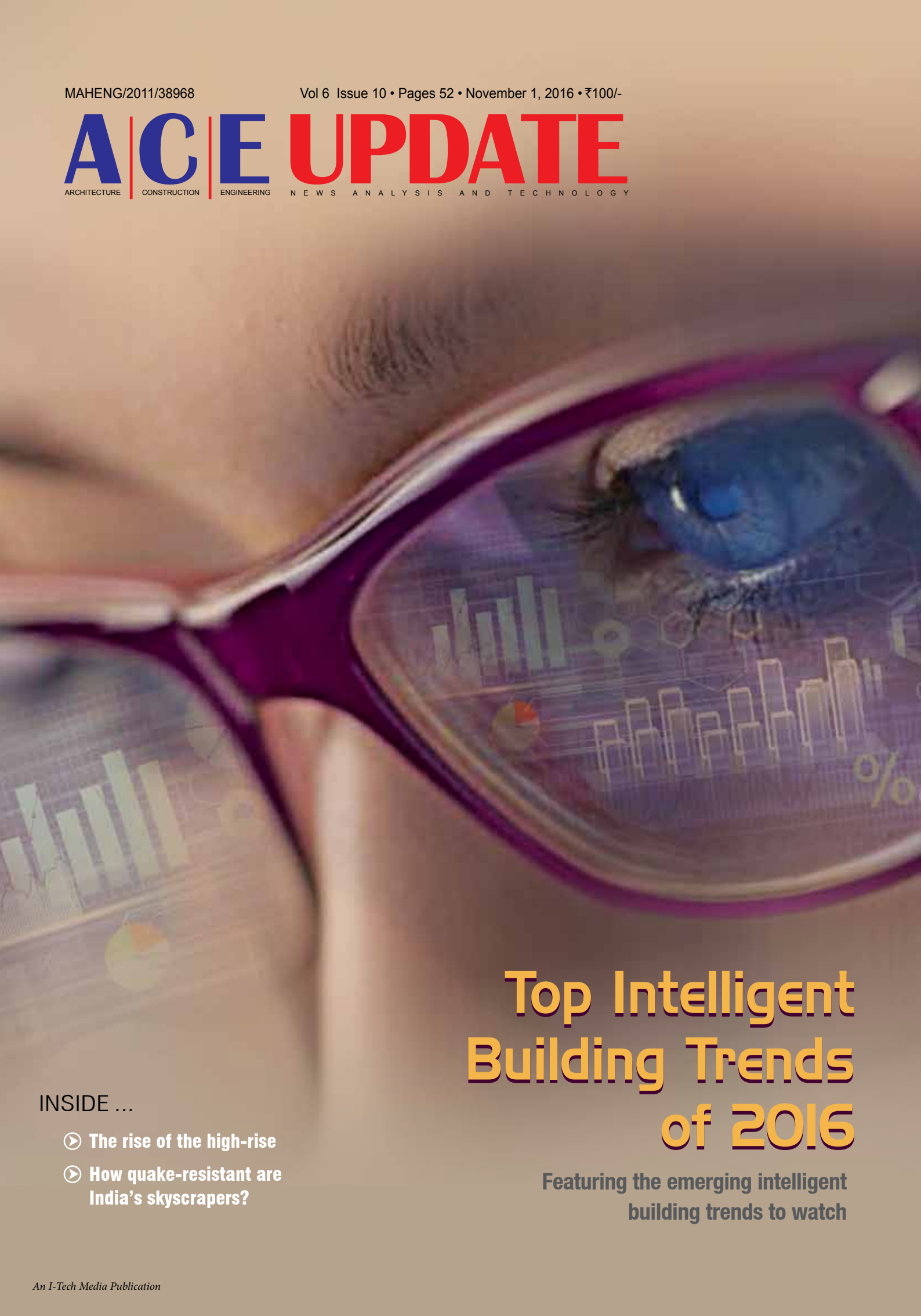


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Top Intelligent Building Trends of 2016

Featuring the emerging intelligent
building trends to watch

INSIDE ...

- ▶ **The rise of the high-rise**
- ▶ **How quake-resistant are India's skyscrapers?**



Featuring the emerging intelligent building trends to watch

The global market for Building Automation Systems (BAS) is at the crossroads of growth. Intelligence, connectivity, sensing, expression, energy and safety – that’s Internet of Things (IoT) collective vision for the future. According to a new report from the research firm Navigant Research, global commercial building automation product and services revenue is expected to grow from \$67.1 billion in 2016 to \$102 billion in 2025.

However, Rajesh Adhangale, Business Development Manager – BA, Beckhoff Automation Pvt Ltd observes, “Building automation market in India is diverse mainly dominated by few BMS companies advocating proprietary communication protocols and focusing on a few functionalities only. From this perspective the present Building Management System (BMS) is still in its nascent stage and there is lot to be achieved.”

Pointing out the grey areas, he further noted, “Some of the factors of BMS like fire alarm and CCTV surveillance have become a necessity in Indian market and primarily used for safety and security purpose. Users are yet to realise the benefits of using BMS effectively where it can be more energy and cost efficient. As of now BMS is far from being called as intelligent or smart.”

India is being rapidly transforming itself with lot of foreign investments coming in, setting up offices, new start-up companies getting operational, huge investments undertaken by the government in field of infrastructure, revamping of the government owned industrial manufacturing plants , offices, complexes

through public works etc. “With Centre’s important ventures like Digital India, Make in India and Smart Cities, the need for intelligent building automation and management system is strongly felt. This can be a major growth driver for BMS industry,” Adhangale adds.

The automation market is broadly segmented into heating, ventilation and air conditioning (HVAC), lighting controls, electronic security and safety, and energy management systems. “Concerns regarding greenhouse gas emissions and increasing electricity demand-supply gap are driving the building automation market in India,” said Thanik B, Director – Segment Marketing and Business Development, Schneider Electric India.

He adds, “Today the demand for building automation in India is driven by commercial building segment on account of increasing number of shopping malls, IT/ITES office buildings, educational institutes, etc.” The market



Gaurav Burman, VP and Country President, 75F

Currently, we are focused on one of the most serious problems in commercial buildings – HVAC – because it represents the largest single cost of operating a building.



Rajesh Adhangale,
Business Development
Manager - BA,
Beckhoff Automation

Users are yet to realise the benefits of using BMS effectively where it can be more energy and cost efficient.

is further supported by mandatory energy efficiency regulations and other regulations implemented by the government such as LEED rating scheme and BEE star rating scheme.

Emerging trends for tomorrow's buildings



Today's BMS are dominated by a few functionalities like HVAC, security and lighting. However it is also evolving into a combination of multiple consumption processes and technologies. The trend of tomorrow's building is towards creating a facility that is more safe, operationally efficient and productive for its occupants. Hence, Adhangale observes, automation and IT are driving the trends for tomorrow's smart buildings.

IoT is the latest trend that is getting integrated within the Smart Building concept. Here, Adhangale enlists a few trends that could be a reality in tomorrow's efficient buildings:

- Intelligent building automation and management system shares information to the user or building manager or alerts about consumption patterns, security breaches or reminds about next maintenance actions and all this in real time throughout the day.
- RFID sensor based car parking management system or vision based access control system, smart lighting controller window blinds control time synchronous with day or night or any event.
- Occupancy based HVAC control or AHU control based on outside air temperature or humidity thus enabling energy saving.
- Similarly monitoring of CO2 level within the area or use of outside ambience lighting i.e. natural lighting could be implemented saving on energy.
- Building facility management or office premises management system for automatic notifications

- about building facilities or about office facilities like the availability of meeting or conference rooms monitoring the critical parameters like temperature, humidity, CO2 level, and lux level thus providing maximum comfort to the occupants.
- BMS integrated with fire safety and building security systems that would use IP video camera, CCTVs surveillance for more safe and secure usage.
- Life saving system like fire alarm being continuously monitored by BMS and alarms being notified to the central command centre.
- Need of the hour is to design the futuristic system free from sensors and wires which is not only cumbersome for installation or maintenance point of view but also a very costly matter. Advanced building automation and management system can directly pool data from weather station and control HVAC and lighting. Cloud based system is technology for tomorrow.

Nevertheless, Adhangale adds, the challenge here will be, networking of all sensors, devices, systems from multiple vendors and integrating them on to a single automation platform while complying with all regulatory needs. Hence, he suggests, "There is a need for single smart computerised controller which is truly open and capable to handle different communication protocols and scalable in nature where all these different systems can be interwoven and seamlessly converge into a single integrated BMS."

According to Gaurav Burman, VP and Country President, 75F, there are four key trends in the commercial buildings segment. They are:

1. Increasing automation across commercial spaces
2. Increasing awareness of the need for energy efficiency
3. Customers becoming more demanding in terms of comfort, air quality, operational visibility,
4. New technologies making all of these benefits available at a price point affordable to most.

Using the Internet of Things, 75F harnesses the computing power of the Cloud and packs intelligence into smart control devices to make spaces comfortable & energy-efficient.

A self-learning & dynamic balancing system, the 75F solution does all the work while making commercial buildings more comfortable, smart and energy-efficient. It also decreases the carbon footprint.



SENSE
Remote Temperature Sensors & Wireless Room Module

Internet-connected sensors take readings every 60 seconds and are designed to fit your decor.



ANALYZE
Central Control Unit

Powered by predictive algorithms that combine sensor data and weather forecasts, the Central Control Unit proactively controls HVAC systems & regulates airflow.



CONTROL
Smart Modulating Damper

Smart dampers modulate to optimize airflow and are available in numerous sizes and styles.

75F is a building automation system that leverages IoT to make commercial buildings more comfortable, energy efficient, automated and smart. Burman further explained the future key trends for commercial buildings as:

- Buildings are becoming people-centric with occupant's comfort and preferences being given utmost priority.
- Building IoT will become expansive – from paper and soap dispenser in restrooms to air quality and cooling, all will be inter-connected and automatic.
- Interoperability will become common place.
- Role of automation in buildings will further increase – self-sensing, self-optimising network of systems with minimal human interventions will become the order of the day.
- Air quality in buildings is being given increasing importance with the correlation between air quality and employee health and productivity now becoming clearer.
- Many of today's traditional architectures will buckle under the increasing demand for all the connected devices.
- Buildings are becoming 24x7 operations – upgrading to newer technologies like BIoT needs to happen without disruption
- To ensure security of IoT environments, intelligent routing, and analytics, networking layers will be needed as IoT lays a lot of cyber threat vulnerabilities bare.



A few intelligent solutions

The idea of a green building is based on sustainable, energy-efficient construction and building use can be realised with intelligent, integral building automation. PC-based control technology from Beckhoff is being used successfully for almost three decades in all

areas of building automation functions like HVAC control, lighting control, power, water, fire safety and surveillance utilities. BACNet compliant Controller PC hardware is the integral component of intelligent building automation system.

"Beckhoff offers a universal, scalable building automation control system covering PC- and Ethernet-based controllers and a modular I/O system for logging all data points in building," informs Adhangale. "Beckhoff meets all the functional criteria for the green and efficient building management that brings simplicity with cost savings thus giving highest RoI."

According to Thanik, "Today Schneider Electric makes it possible for buildings of tomorrow to be more safe, more connected, more sustainable, efficient and collaborative, and more smart vis-à-vis the conventional buildings. With numerous customers across the world including the famous Green 'Meudon' in France deemed to be world's largest positive energy building and 'The Edge' for its sustainability quotient across the globe."

Recently the US-based company 75F announced the launch of its business operations in India. Explaining the company's commitment to the Indian market, Burman said, "From our association with UNEP Sustainable Buildings, Climate Initiative and IGBC to our efforts in looking at every way we can to make buildings more comfortable and efficient, we are committed to the mission to save energy and reduce carbon emissions. Our award-winning solution leverages the latest in technology and IoT to understand a building's ever changing needs, and proactively caters to them to ensure 40 per cent energy savings while making spaces more comfortable, automated and smart."

He adds, "We also believe in the promise of IoT to improve our lives by designing systems that work so well, you forget they are there. Currently, we are focused on one of the most serious problems in commercial buildings – HVAC – because it represents the largest single cost of operating a building. Beyond HVAC, we are looking at providing BAS to commercial buildings that are easy to install, affordable and effective. We look to bring the further benefits of BAS to improve energy usage, lighting, security and more."

Referring to the concept as 'Internet of Air', 75F has recently unveiled its innovative approach to HVAC zone controls called Dynamic Airflow Balancing in Indian market. Leveraging IoT design philosophy and the power of cloud computing, the 75F solution achieves what was once thought to be only theoretically possible – continuous commissioning or perfect air balancing. "Launched on a national basis, the smart HVAC system has the potential to reduce energy usage by 562 trillion BTUs, enough energy for 24 million cars to be taken off the road," 75F claims. ■



Thanik B, Director - Segment Marketing and Business Development, Schneider Electric India

Concerns regarding GHG emissions and increasing electricity demand-supply gap are driving the building automation market in India.