

Monsoon Proofing India's Buildings: The Overlooked Electrical Safety Challenge



Each monsoon season in India sees its buildings face one of the most rigorous annual tests. Developers assess the structural soundness; facility managers check out the drainage system, and housing societies carry out preventive maintenance as they gear up for the coming rains. However, there is one crucial element that does not get nearly enough attention - the electricity network that supports each building.

It is an increasingly significant issue since the physical landscape of India is experiencing a paradigm shift. There has been a marked increase in the consumption of electricity over the past ten years within residential, commercial, and industrial projects. The use of air conditioners, lifts, building management systems, surveillance systems, data connections, electric vehicle charging stations, and other interlinked systems has become common in modern buildings. According to the International Energy Agency (IEA), India's peak electricity demand has increased substantially in the last decade.

This leads to the development of an environment that is more interconnected, more energy-intensive, and more dependent on electricity than ever before. Although this revolution has led to greater intelligence within our buildings, it also means that we have to pay extra attention to the distribution, regulation, and protection of electricity, especially during the monsoon period due to moisture and humidity.

Beyond Structural Resilience

Traditionally, monsoon preparation has been centered around the concept of waterproofing, drainage, and structural maintenance. While all these measures are

necessary, we cannot ignore the importance of electrical resilience.

Ingress of moisture, humidity, flooding of utility areas and water seepage can eventually impact the functioning of the electrical system of the building since the wiring system, electrical panels, and electrical protection devices of old buildings may be quite old and were probably installed many decades ago. Several societies, buildings, and industries have continued using electrical infrastructure meant for power requirements of a completely different era.

Modern buildings require much more power than they did just about fifteen years ago. Air conditioning, fast lifts, intelligent lighting, building management systems, access control systems, surveillance systems, and electric vehicle charging are some of the changes that have been brought about by the way we consume electricity.

This means that monsoons should not only be treated as a season that brings about and showcases weaknesses. Instead, it is important to treat it as a chance to evaluate whether our power supply system can meet our energy demands.

Safe Buildings Start with an Electrical Ecosystem Working Together

In many cases, electrical safety is perceived at the level of individual equipment items. This requires an integrated electrical ecosystem whose elements are interconnected and provide a reliable, uninterrupted power supply.

This is possible when high-quality wire and cables are used, which are capable of transporting growing electrical loads effectively and reliably. The use of modern solutions with increased load-carrying capacity, advanced insulation, and increased durability is vital due to the ongoing building electrification process. Additionally, fire-resistant cables, which are designed to minimise the spread of flames and generate less smoke, will increase the safety of the residents.

It is equally vital to use distribution boards, switchgear, miniature circuit breakers (MCBs), residual current circuit breakers (RCCBs), and effective earthing systems.

A point to be noted is that if designed to function as an ecosystem of electricity and not just as separate products, such systems greatly increase reliability and contribute to the resilience of buildings over time.

Electricity Safety Is Not Just About Products

Safety through technology is just one side of the coin. Installation expertise and maintenance of quality, along with standard compliance, are other factors to consider.

With increasing complexity in buildings, electrical planning must start off with proper loading analysis, which takes into account the present and also the future needs. Routine electrical audits are helpful to determine old installations, circuit overloading, and to replace parts that need replacing before they fail.

All the above aspects are especially important in old buildings of housing societies, business premises and industries where there may be a huge change in the pattern of electrical use, but no change in the installation of the electricity supply.

Thus, the role of expert electricians, consultants, and facility managers assumes greater significance, as the electrical systems operate in the most effective manner if good products are used with good installation and inspection/maintenance.

Preparing Infrastructure for the Future

The story of urbanisation in India is going through a new phase, whereby smart cities, mixed-use developments, logistics parks, manufacturing and modern residential projects demand more of the electrical infrastructure. On the other hand, the climate change phenomenon calls for resilient structures to ensure safety and functionality in variable environments.

This necessitates a different approach in looking at electrical infrastructure. Instead of treating it as back-end infrastructure, it needs to be viewed as crucial infrastructure impacting safety, continuity and efficiency of assets.

For project developers, it means inclusion of a resilient electrical system during the design phase. For facility management and housing societies, it means periodic electrical inspection and maintenance. For the industrial sector, it means development of electrical infrastructure as per the growing operational needs.

Building Resilience Beyond the Monsoon / Fostering Resilient Infrastructure Through the Monsoons

The monsoon season acts as a yearly reminder of the fact that resilient buildings are not just determined by their robust structure but also by the efficiency of the infrastructure running behind the walls.

As Indian buildings continue to grow in terms of their connectivity, becoming energy-consuming and forward-looking, electrical safety should move beyond just a seasonal exercise to a more sustained endeavour. The investment in certified wires and cables, fire protection measures, dependable switchgear, circuit protection mechanisms and regular electrical safety audits goes beyond just risk mitigation. It becomes essential to develop infrastructure that will keep pace with India's growth story for many years to come.

The future of India's built environment will be determined by the way the buildings are powered and protected.