

# What is a Smart Building?

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A smart building is the integration of building, technology, and energy systems. These systems may include building automation, life safety, telecommunications, user systems and facility management systems. Smart buildings recognize and reflect the technological advancements and convergence of building systems, the common elements of the systems and the additional functionality that integrated systems provide. Smart buildings provide actionable information about a building or space within a building to allow the building owner or occupant to manage the building or space.

Smart buildings provide the most cost effective approach to the design and the deployment of building technology systems. The traditional way to design and construct a building is to design, install, and operate each system separately. A smart building takes a different approach and integrates the design and installation of the systems. This process reduces the inefficiencies in the design and construction process, saving time and money.

During the operation of the building, the building technology systems are integrated horizontally among all subsystems and vertically, that is subsystems to facility management systems to business systems. This integration allows information and data about the building's operation to be utilized by multiple systems as well as people occupying and managing the building. Smart buildings integrate building technology systems at a physical, logical and application level. The foundations of a smart building are structured cable, open network protocols and standardized databases.

Smart Buildings also are a critical component to the energy use and sustainability of buildings, and the smart electrical grid. The building automation systems which are part of a smart building, such as HVAC control, lighting control, power management and metering, play a major role in determining the operational energy efficiency of a building. The smart grid is dependent on smart buildings. In addition, many of the systems involved in a smart building monitor and manage building's energy and resource utilization.

Smart buildings leverage mainstream information technology infrastructure, and take advantage of existing and emerging technology. For building developers and owners, smart buildings increase the value of a building. For property and facility managers, smart buildings provide more effective subsystems and more efficient management options, such as the consolidation of system management. For building architects, engineers, and construction contractors, it means combining portions of the design and construction, with resulting savings in project management and commissioning time.