



Safe energy storage and energy production in buildings

Production of energy

Be it using wind, biomass, solar radiation, or any fuels from renewable/non-renewable sources, the production of energy for use in buildings requires some form of energy conversion, and this is often not free of fire risks whenever heat accumulation is expected in the vicinity of combustible materials. In the recent years, photovoltaic panels have attracted great attention in this area.

Storage of energy

The storage of energy is crucial for the sustainable use of energy, especially in isolated energy systems such as off-grid buildings. This can be facilitated by batteries that provide a high energy efficiency as

well as power output. Lithium-ion phosphate (LFP) and lithium nickel manganese cobalt oxide (NMC) batteries are among the most cost-effective, reliable, and flexible batteries that can be used for this purpose. However, these batteries represent hazards of ignition and toxic gases in the case of a short circuit, overcharging, or overheating. Therefore, special risk mitigation measures must be taken for their fire-safe implementation in buildings.

Smart technology

Through smart technology, sensors can be used to monitor important parameters in the units of energy production and storage to detect abnormal situations. This is vital for obtaining early warnings and activating risk mitigating actions appropriately.

Link to the full report: [link](#)

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