

Future building methods will use digital tools to lower CO2 emissions

By [Mark Freeman](#)

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Many environmental problems, such as pollution, waste and climate change, are related to high energy use, especially from fossil fuels that emit greenhouse gases. Therefore, to achieve net zero carbon emissions globally, every industry needs to reduce its carbon impact and become more sustainable.



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In this sense, mitigating the high levels of energy consumption by buildings is the biggest challenge faced by the building industry. According to a [UN report](#), as of 2020, buildings account for 37% of global energy use and energy-related CO₂ emissions.

As such, sustainable building practices are likely to see buildings of the future depending more on renewable energy sources rather than on traditional electricity grids.

Electricity grids in many regions – including South Africa – are still hugely coal-fired and thus detrimental to the environment.



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Buildings of the future will rely on multiple sources of power generation, such as a mix of solar, hydrogen, geothermal and the grid, with generators providing backup power.

However, renewable energy sources need to be combined with the right technology solutions to ensure that buildings are operating as efficiently as possible to effectively reduce their carbon footprint.

Integration of smart technology

While green building certifications, energy-efficient designs and the use of eco-friendly materials are gaining traction globally, sustainable building practices will essentially see the integration of smart technology into buildings of the future.

This is key to providing building owners and managers with a full view of how they are distributing their power, where they are distributing it and when.

The only way to achieve this level of efficiency is through digitising a building to ensure the utilisation of the right power loads and the right power sources, at the right time.

Buildings of the future will not only have visibility of the power they consume but also where they are consuming it, how they are consuming it and which source it is coming from for specific applications.

Integrated building management systems provide actionable insights to manage buildings efficiently, improve engineering efficiency and meet cybersecurity needs. These platforms integrate multiple systems for centralised, real-time control and management across one or several enterprise buildings.

Energy supply management

Additionally, developers can integrate energy supply management software solutions into their buildings that are designed to help power-critical and energy-intensive facilities maximise uptime and operational efficiency.

These solutions can provide insight into electrical system health and energy efficiency, allowing informed decisions to be made that improve performance.

From a single pane of glass, building managers can operate and manage every system and application, such as smart electricity and water meters, pump and HVAC systems and building security, among others.

Not only can the switch-on and switch-off times be set for specific periods, but smart building solutions can also manage and switch between power sources for different systems, as and when needed.

As electricity prices continue to rise and the transition to net zero carbon emissions becomes more pronounced, building owners will increasingly look to systems that will enable them to make educated and informed decisions about their energy options.

Smart digital solutions can convert data into action and unlock a building's energy management system's full potential with advanced energy visualisation and analysis tools.

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