

What Is Low-Carbon Development for Design and Construction?

Low-carbon development is a holistic approach to design and environmentally friendly practices used to build a better needs of the present without compromising the ability of future generations to meet their own needs,” according to the Brundtland Commission, a mid-1980s global conference embraced in principle by industry leaders worldwide.

As technology evolves and climate change reinforces the urgency of sustainable solutions, low-carbon development achieve overall sustainability in the architecture, engineering, and construction (AEC) industry without radically changing the materials and construction. Reducing those numbers will be more challenging due to an expected wave of urbanization.



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Why Is Low-Carbon Development Important?

to adopt a different approach. Low-carbon development

Elements of a Low-Carbon Development Strategy

Low-carbon development is a holistic vision and process, focusing on improving the environment and often adopting

construction, with all teams sharing digital assets from the product.

teams can commit to a comprehensive blueprint with the right sustainable materials and construction practices.

CAREFUL SITE SELECTION

estate axiom about location goes double for green design.

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LOW-CARBON CONSTRUCTION MATERIALS

comes from the structural materials, sustainable development

construction materials may also include repurposed materials

construction industry is notorious for tossing unused

alternatives, including:

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- » Recycled concrete
- » Concrete mixes that reduce carbon impact

- also cuts down on the total amount of material used.

mapping materials at an elemental level once a building

emissions of all materials made, transported, and assembled

costs.

MINDFUL MATERIAL ASSEMBLY

such as lean construction, eliminates waste and cuts down

Prefab, modular, and industrialized construction can also speed

town of Venlo can actually be disassembled and reassembled

forged a path toward renewably powered construction sites.

LOW-CARBON BUILDING OPERATIONS AND MAINTENANCE

operations and maintenance are lifetime pursuits that offer ways to cut energy bills and, ultimately, pollution. UN researchers found that emissions from building operations hit

technology are becoming the new standard. Emissions from building operations need to decrease rapidly in order to meet the goals of the Paris Agreement.

cooling, and HVAC systems using technology and data for

and digital twins - a constantly updated digital simulation

machine learning, that can monitor, maintain, and optimize

advancements also introduce predictive maintenance, where sensors and real-time monitoring can detect when something starts to wobble past a certain threshold and implement

as possible.

BUILDING DECOMMISSIONING AND END-OF-LIFE REUSE

Even soon-to-be-demolished or decommissioned buildings

century paradigm of selling or demolishing a site, with salvage

to a certain degree. But digital solutions offer better recycling and reclamation solutions and a more thoughtful approach.

Leveraging digital twins, old buildings can become material

they were installed, can be rescued and given a second life in

to reuse those materials. Without a roadmap to deconstruction,

architects and designers are well-positioned to pursue



