



Climate change has compelled a wide range of industries - from automotive and transportation to manufacturing and construction - to put more focus on going green by building sustainability into their products and practices. For construction, when you factor in the massive investment in infrastructure projects, it represents an opportunity to put those in place on a grand scale.

These dual developments have made construction technology more relevant than ever. From environmentally friendly design in the early stages to delivery of energy-efficient structures at handover, and beyond to operations, construction tech in its varied forms is poised to help the industry meet regulatory and societal expectations for making green building an achievable reality.



It might help to think of infrastructure projects as having a reciprocal relationship with their environment. Using 3D modeling processes known as building information modeling (BIM), design teams are able to take a multifaceted approach to designing with that relationship in mind.

BIM's virtual 3D viewing capabilities, when combined with augmented reality (AR), give teams a realistic idea of how a structure may look and fit within the context of its

surroundings. This has a dual benefit. Designs can be created to minimize the negative impact on the physical landscape and other nearby structures, while also taking advantage of the positive elements unique to the local environment in the form of renewable energy sources — such as sunlight and wind patterns — for better energy efficiency once the structure is put into operation.

As the most optimal designs are being evaluated, materials exploration can become a tangential part of that decision process. With so much existing infrastructure in various states of deterioration and disrepair, it has highlighted the need for more purposeful choices in materials that not only can withstand the test of time, but are sustainable, safer for the environment, and responsibly sourced. BIM continues playing

alongside commissioning and rolling punch lists, providing an ongoing narrative of how environmental compliance was managed and substantiated from the beginning until handover. And it can provide the documentation necessary to support earning LEED (Leadership in Energy and Environmental Design) certification.



While many people naturally think that going green is more about not harming our surroundings and the planet, it has equally important value for the quality of the environment for those working or visiting within the structure itself.

This begins with good design and construction practices. The materials and systems used in building a structure can have a significant impact on how well it filters the air. For example, high levels of volatile organic compounds (VOCs) emitted from common building materials such as paints, sealants, and adhesives used in construction. When these VOCs are not properly filtered out of the air within an enclosed space, they can cause health problems such as headaches or allergic reactions.

BIM's systems design and materials exploration processes help create more sustainable buildings that are energy efficient, promote health and wellbeing, reduce pollution, and improve indoor air quality. These are the processes that allow you to experiment with ways to make the best use of natural resources.



Article

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