

Healthy and Smart Building Projects

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Abstract : Stakeholders in the architecture, engineering, and construction (AEC) industry have been always searching for strategies to develop, design, and construct healthy and smart building projects. Healthy and smart building projects require that the building process including design and construction be altered and carefully implemented in order to bring about sustainable outcomes throughout the facility lifecycle. Healthy and smart building projects are expected to positively influence organizational success and facility performance across the project lifecycle leading to superior outcomes in terms of people, economy, and the environment. The present study aims to identify potential strategies that AEC organizations can implement to achieve healthy and smart building projects. Drivers and barriers for healthy and smart building features are also examined. The study findings indicate that there are three strategies to advance the development of healthy and smart building projects: (1) the incorporation of high-quality products and low chemical-emitting materials, (2) the integration of innovative designs, methods, and practices, and (3) the adoption of smart technology throughout the facility lifecycle. Satisfying external demands, achievement of a third-party certification, obtaining financial incentives, and a desire to fulfill professional duty are identified as the key drivers for developing healthy and smart building features; whereas, lack of knowledge and training, time/cost constrains, preference for/adherence to customary practices, and unclear business case for why healthy buildings are advantageous are recognized as the primary barriers toward a wider diffusion of healthy and smart building projects. The present study grounded in previous engineering, medical, and public health research provides valuable technical and practical recommendations for facility owners and industry professionals interested in pursuing sustainable, yet healthy and smart building projects.

Keywords : healthy buildings, smart construction, innovative designs, sustainable projects

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