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The Role of Technology in Sustainable Architecture

Abstract

This paper sets out to examine the relationship between architecture and technology in sustainable architectural design and in particular to address the following questions within this context:

What are “smart buildings” and “smart cities” and what is the role of technology in achieving these?

Which approach lends itself better to achieving sustainable design; “High Tech” or “Low Tech?”

The paper begins with a discussion of the term “smart” and its current application in the context of smart buildings and cities in the professional community. In the ensuing discussion the meaning of energy efficiency and energy performance and methods for evaluating these are explained and design strategies to maximize the energy performance of buildings and cities are discussed. In the course of this discussion, alternative interpretations to the current meaning of “smart” in this context are offered. Then follows a discussion on “High Tech” and “Low Tech” approaches and the suitability of these different approaches to achieving sustainable buildings and cities. The paper closes with a short discussion on the interaction between buildings, their occupants and technology, offers some conclusions regarding the role of technology in sustainable architecture and suggests an approach for future orientated building design.

Keywords

Sustainable Architecture; Smart Building; Smart City; Energy Efficiency; Building Performance; Low Tech; High Tech.