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ABSTRACT

All certification systems should emphasize four key principles, i.e., energy, environment, ecology and economy. The leading building certificates such as LEED, BREEAM, DGNB refer to these concepts in various degrees of importance. Yet, none of them emphasizes the aspects of energy cost and efficiency in depth. Four other ones, Energy Star, Effinergie, Minergie, and Passivhaus, have a more clear emphasize on energy. Many parameters considered for these certification systems show a great variety among themselves and are considered very complex by the end user, making them unattractive to users and owners of buildings. There is a need to have a comprehensive set of guidelines for design, construction and operation of sustainable buildings, particularly with emphasize on energy cost and efficiency. Here, we provide a review of certificate systems with particular emphasize on Energy Star, Effinergie, Minergie, and Passivhaus. Our objective is to identify the strengths and weaknesses of these systems, which help us to develop a new set up of guidelines for high performance buildings of future from energy cost and efficiency points of view, in line with the ongoing NEED4B