The Prospects of Urban Mining in LEED Educational Buildings (Phase I)

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ABSTRACT

There tends to be a lack of sustainability in the building design and construction industry, which sites cost as one of the reasons for not going green. The construction industry consumes one-third of the world's natural resources and generates 40% of all landfill waste, and initial cost of buildings could be reduced if materials were reused more effectively. The USBGC's LEED rating system encourages "urban mining" principles, rewarding projects that reuse structures and materials, but these credits are hardly achieved. The goal of Phase I of this research project was to investigate how urban mining practices may reduce initial costs of LEED projects. Scorecards from 478 US LEED-BD+C: NC v3 Platinum buildings were evaluated, and primary results endorsed evidence that it is challenging to obtain credits from the Materials and Resources LEED category, mainly those related to reuse. RSMeans cost stimulations were performed, and further investigations were developed on educational buildings, which represented the majority of the sample. Outcomes suggest that urban mining principles may reduce initial costs of LEED buildings and increase their credit score, and applying these principles to educational buildings might be key to promote sustainable development. The results from this first phase will be referenced in future investigations A further objective for this research is to explore existing buildings as case studies, and evaluate the cost-benefits of reusing them for academic-related purposes in comparison to demolishing the buildings and building a new structures of the same size, purpose, and location.

BIOGRAPHY

Nara Almeida has a vast experience both professionally and in academia. These include eight years of working on architectural and civil engineering construction projects, and about seven years of academic practices, both as a Professor and as a Research and Teaching Assistant. As a LEED Accredited Professional, Nara applies many of the LEED concepts professionally, and in her classes. Some examples of courses are: “Sustainable Building Design”, “Sustainability: Green Engineering”, “Intro to Environmental Engineering”, “Life Cycle Assessment”, and “Green Buildings”. Furthermore, Nara has also participated in conferences, and has recently organized an international live virtual event, bringing John Elkington to speak with the Lafayette College community.