

Modern Methods of Construction (MMC): The Potentials and Challenges of Using Prefabrication Technology for Building Modern Houses in Afghanistan

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Abstract : The purpose of this paper is to study Modern Methods of Construction (MMC); specifically, the prefabrication technology and check the applicability, suitability, and benefits of this construction technique over conventional methods for building new houses in Afghanistan. Construction industry and house building sector are a key contributor to Afghanistan's economy. However, this sector is challenged with lack of innovation and severe impacts that it has on the environment due to huge amount of construction waste from building, demolition and or renovation activities. This paper studies the prefabrication technology, a popular MMC that is becoming more common, improving in quality and being available in a variety of budgets. Several feasibility studies worldwide have revealed that this method is the way forward in improving construction industry performance as it has been proven to reduce construction time, construction wastes and improve the environmental performance of the construction processes. In addition, this study emphasizes on 'sustainability' in-house building, since it is a common challenge in housing construction projects on a global scale. This challenge becomes more severe in the case of under-developed countries, like Afghanistan. Because, most of the houses are being built in the absence of a serious quality control mechanism and dismissive to basic requirements of sustainable houses; well-being, cost-effectiveness, minimization - prevention of wastes production during construction and use, and severe environmental impacts in view of a life cycle assessment. **Methodology:** A literature review and study of the conventional practices of building houses in urban areas of Afghanistan. A survey is also being completed to study the potentials and challenges of using prefabrication technology for building modern houses in the cities across the country. A residential housing project is selected for case study to determine the drawbacks of current construction methods vs. prefabrication technique for building a new house. **Originality:** There are little previous research available about MMC considering its specific impacts on sustainability related to house building practices. This study will be specifically of interest to a broad range of people, including planners, construction managers, builders, and house owners.

Keywords : modern methods of construction (MMC), prefabrication, prefab houses, sustainable construction, modern houses

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