

Title: Off-Site Construction

Sub Title: Reducing Construction Costs and Negative Environmental Impacts of School Building Projects

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Purpose: Traditional build techniques are gradually being replaced by high quality, fast-track, sustainable off-site construction alternatives. The purpose of this research was to examine alternative construction methods that if integrated successfully addressed sustainable development requirements while reducing BAM's risk exposure on site in terms of cost, safety, quality, environment and programme. Despite the low level of activity within the construction industry, the demand for school buildings is not declining. The educational sector is seen by many as the area of greatest growth. It is expected that the findings and recommendations of this research would be used by BAM to help capitalise on this business opportunity.

Methodology: A comprehensive literature review was undertaken to develop a full understanding of the benefits and constraints associated with the implementation of off-site construction on school building projects. A qualitative research strategy was adopted allowing the perspectives and experiences of the research participants to be evaluated and correlated. The exploratory approach to the research topic facilitated in the development of recommendations. The primary data was collected through semi-structured interviews and case studies. The research participants consisted of four BAM project managers and three off-site manufacturing companies.

Findings: The research found that off-site construction greatly reduces waste in the production process which in turn helps to create a sustainable built environment. The demand for fast-track construction is placing greater emphasis on the importance of savings through prefabrication. However, the value of off-site construction is best realised when it is considered at the design stage. Failure of design teams to include main contractors and specialist suppliers in design decisions hinders opportunities for innovation. The fragmented nature of the project organisation structure must be addressed. Early contractor involvement is necessary. For this reason Design and Build projects are best suited to off-site construction.

Keywords: off-site construction, cost, school buildings, lean thinking, sustainability.