

Incorporating Spatial Selection Criteria with Decision-Maker Preferences of A Precast Manufacturing Plant

Authors : M. N. A. Azman, M. S. S. Ahamad

Abstract : The Construction Industry Development Board of Malaysia has been actively promoting the use of precast manufacturing in the local construction industry over the last decade. In an era of rapid technological changes, precast manufacturing significantly contributes to improving construction activities and ensuring sustainable economic growth. Current studies on the location decision of precast manufacturing plants aimed to enhanced local economic development are scarce. To address this gap, the present research establishes a new set of spatial criteria, such as attribute maps and preference weights, derived from a survey of local industry decision makers. These data represent the input parameters for the MCE-GIS site selection model, for which the weighted linear combination method is used. Verification tests on the model were conducted to determine the potential precast manufacturing sites in the state of Penang, Malaysia. The tests yield a predicted area of 12.87 acres located within a designated industrial zone. Although, the model is developed specifically for precast manufacturing plant but nevertheless it can be employed to other types of industries by following the methodology and guidelines proposed in the present research.

Keywords : geographical information system, multi criteria evaluation, industrialised building system, civil engineering

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