

Choosing an appropriate housing methodology for holistic societal needs

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Abstract

When involved in the provision of infrastructure, engineers need to be cognisant of the needs of society. The paper considers the provision of affordable housing to the acceptance of the beneficiaries, whilst contributing to societal needs through creation of local employment opportunities. The associated lack of skills and a vast number of projects lead to challenges in management of construction quality.

Construction quality is therefore considered as a driving factor in the choice of a construction methodology. Lessons from past studies are used to formulate a construction concept for low-cost housing. The lessons from this study can be extrapolated for the development of all civil and structural infrastructure. It demonstrates the need for holistic solutions to find a balance between societal needs and project requirements.

Keywords: precast concrete, societal needs, construction quality, employment creation

1 Introduction

This paper explores the challenges in providing sustainable housing for low-income communities. It demonstrates the need for finding holistic solutions to address societal needs. The lessons from this study can be extrapolated for the development of all civil and structural infrastructure.

Section 26 of the South African Constitution stipulates that adequate housing is a basic right and that it is the responsibility of the state to ensure the realisation of this right [1]. The Housing Act 107 of 1997 was passed as a measure to ensure that the state fulfils its obligation of realising the basic right to adequate housing [2] and operates in collaboration with the Reconstruction and Development Programme (RDP), which was created in 1994 [2,3].

The RDP is a plan aimed at addressing social and economic problems in South Africa and consists of five main objectives [4]. Provision of housing is included in the first objective of “meeting basic needs” [4]. The Department of Human Settlements provided housing to beneficiaries in the form of government subsidised houses [5]. Between the start of the RDP in 1994 and 2014, it is reported that approximately four million government subsidised houses had been built [6]. However, it was estimated in 2018 that a housing backlog of 2.1 million still existed in South Africa [7]. Furthermore, approximately 18 percent of all households in South Africa live in dwellings not classified as formal [8].

Various factors contribute to the housing backlog, which include corruption, budgetary constraints, mismanagement, and construction inefficiencies [6,9]. For this paper, construction inefficiencies are