

Sustainable and resilient structures

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1 INTRODUCTION

Tenders were called for houses meant for Urban poor under 1 lakh multi storied Bangalore Housing programme for the construction of Multi Storied Residential housing units including infrastructures like Layout Electrification, Water Supply and Sanitation, Arboriculture, Roads, Drains, Culverts, Solar lighting, Rain Water harvesting Re-charge pits, Lifts with DG back up, Boundary compound wall with entrance gate guard room, motor room, control room for electrical, water supply and electrical etc, including 2 years maintenance at bidders cost and 3 years at the cost of beneficiaries complete on turnkey basis (planning, design, build, operate and transfer)

It is indicated that the tenderer may adopt any new alternative better technologies like shear wall or pre fab or pre cast or any proven technology approved by the Building Material and Technology Promotion Council (BMTPC/ IITs). The proposed technology should be of steel and concrete which will be reviewed by the RGRHCL before construction

2. Challenges before Agencies

To construct houses within the time limit as this is a "Fixed price, No variation" contract.

To build like a gated community by providing all amenities and infrastructure facilities like any other private project.

Maintenance cost of the project should be kept to minimum as the maintenance for the first 2 years has to be borne by the Agency.

To increase the efficiency of construction by reducing the labour component with usage of heavy machineries.

Efficient replication of units for high rise building

3 Architectural and design aspects

Shear wall technology was chosen as the alternate technology with the following advantages.

Sustainability of the structure is ensured by avoiding block work which results in 30% of wastage and the plastering component is avoided which contributes to thermal radiation to surrounding environment.

By using Mivan technology/ aluminium shuttering, neat finishing can be achieved by applying putty and by usage of thermal paint, thermal radiation can be minimised.