

Culverture Housing Arrangement

Industries for this invention

- Private and Public property developers
- Homeowners for small additions

Innovation Status

TRL 5
Early Prototype

Intellectual Property

Functional and Aesthetic
Designs

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Invention

An alternative construction technology for buildings, especially for affordable developments. This invention explores prefabricated structural systems, which work as an alternative to the labour-intensive in-situ construction methodologies predominant in South Africa. The project explores the adaptation of 'shop-bought', readily-available infrastructural prefabricated concrete culvert systems originally designed for bulk water infrastructure as habitable living spaces.

Problem Solved

Johannesburg alone is faced with an estimated housing backlog of 300 000 housing units with an additional 3000 people migrating to the city every month in search of financial opportunities. Approximately 108 000 people are stuck on the housing waiting list with thousands of people still living in the city's informal settlements. There are not nearly enough housing products aimed at the lower income groups. This is our search for the most cost effective and profitable housing design solution as a response to this global burden. The current norm for construction of affordable housing in South Africa consists of cement brick walls. This process may take a long time to build and is generally disruptive on site, additionally it leaves room for bad workmanship, resulting in skew and cracking walls.

Application

Prefabrication has been around for many years and in many other countries. With all the advantages that prefabrication offers it is surprising that we don't see more examples of it in our country. Through Culverture's Housing Restructured system we aim to use prefabricated construction in an effort to reduce costs and create affordable housing at higher densities at a production rate that will be able to match the demand. Housing is not only a local but global problem.

Advantages

- A cost effective and profitable housing design solution
- The system developed creates flexible, adaptable, economical and modular living spaces
- Within an incredibly compact 8 square meters which is 86 square feet, one unit provides basic infrastructure and allows for furniture and fittings
- The configurations of the units when stacked allows relief and interaction within what would usually be a solid housing block.

