City Centre Sustainable Housing Design Competition

Workshop 3: Sustainable Housing Case Studies

Date: 3 April 2024
Time: 16:00-18:00
Venue: Online hosted by the CIB
Presenter: Jeremy Gibberd

Structure

• What is the most sustainable housing design?
• Case studies

Common space
Structure of space

Figure 3. Spatial layout of yards (Jobe, 2017).

Densification

Kalabamu and Bolaane, 2013

Material banking

Larsson, A., 1993; Jobe and Williams, 2016
Informal and Modular Building Systems

- Bio-based panels use local materials
- Insulation can be bio-based or recycled / grown materials
- Self-build, modular, affordable
- Customised to respond to change, culture and climate

Building in a Box Unit (BIBU)

Tiny houses
Alexandra: Alternative Housing Models

New Business Models

Digital ecosystems to create new enterprises, improved efficiency and increased affordability and access to services:

- Accommodation, energy, food, water, ICT, academic support, mobility services provided by circular entrepreneurs
- Improved access and affordability through smart metering, tokenisation, crowd funding, work exchanges.
Modular Adaptable Mixed-use Buildings: Housing, Small Business and Social Enterprises

Building Services

1. Rainwater gutter
2. Solar water heater
3. PV panels
4. Hot water cylinder
5. Hot water, electricity, grey/rainwater, potable water supply and meters
6. Apartment
7. PV inverter, battery and controls
8. Incoming potable water mains
9. Rain/grey water storage

Onsite Service Enterprises (OSE)

Mixed-use passive buildings with
- Renewable energy, hot water, recycling, mobility, childcare, ICT, food onsite enterprises (OSEs)

OSEs:
- Optimise performance of systems, reduce waste, reduce capital and operating costs (potential for net zero)
- Enable diversified resilient economy, with a variety of symbiotic enterprises which create local jobs
Circular Mixed-Use Housing

Well-located urban locations
Walking distance to work, education, health, recreation services
Linked circular small enterprises for energy, water, waste, food, mobility, equipment, personal services
Thank you, Questions?

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