

A Research Alliance ,CSIR/SUPSI Project Proposal For Energy Efficient Building (Housing) in South Africa

PROJECT TITLE:

“Energy Efficient Housing in SA”

Presentation: Energy Efficient Housing in SA Background

SDC HQ Meeting, Bern,
Switzerland

11 February, 2010

Presenter: Dr Jabulani
Charles Kuchena, CSIR



Sustainability Challenges: Economic, Social and Environmental

- Housing backlog about 2.2m
 - Eastern Cape backlog about 800 000
- Electricity
 - Need 41 539 MW by 2013: renewable to provide 1 667 MW (4%) by 2013
 - 44% of SA households do not use electricity for cooking
 - 20% of SA households do not electricity for lighting
- SA on threshold of internationally-used definition of water stress
 - Between 12-14m without access to safe water
 - Over 20m without adequate sanitation
- Global warming impacts on South Africa
 - Climate change cause less precipitation generally
 - Higher winds at the coast
 - Flash floods



Default Housing units

- Varying quality bricks and bricklaying
- Significant material waste
- Varying quality foundations
- No weatherisation
- No ceilings
- No insulation
- Poor solar orientation

17-Aug-07 11:26

South African experience

- Large number of projects implemented in the past , either “normal” housing projects with an energy efficiency twist or pilots and demonstrations of single energy efficient houses
- Large knowledge base on energy efficient intervention
- **HOWEVER**, energy efficiency not mainstreamed in housing delivery

South African experience

- Materials: brick cavity walls, compressed earth bricks, adobe, compressed wood composite material, etc.
- Design: orientation, fenestration, roof overhang, weatherisation, ceiling, insulation, shared walls, etc.
- Energy use: town planning, solar water heaters, solar PV, solar cookers, etc.

CSIR expertise

Research on:

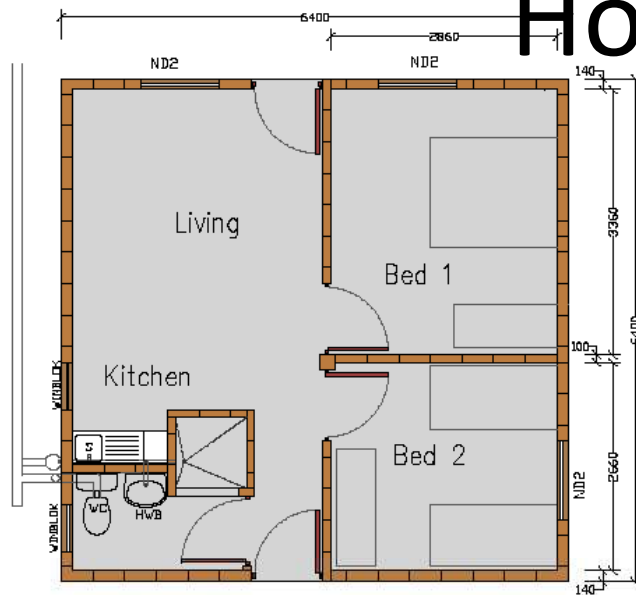
- Design
- Construction methods
- Material selection
- Home owner behaviour
- Systems integration

Linkages with national, provincial and municipal government to implement projects

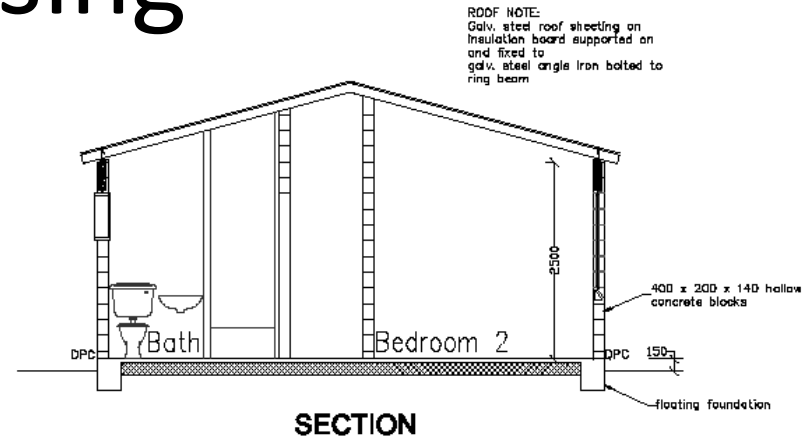
SA Experience

1. Kuyasa & CDM: See attached and <http://www.kuyasacdm.co.za/>
2. SANS 204
3. see <http://www.sustainabilityinstitute.net/surf-mainmenu-73>
4. CSIR Housing
5. NHBRC

Housing



PLAN - scale 1:50
Area of unit = 40.96 sq.m



CSIR Built Environment	Jubilee 20 Planning Module Road Pretoria Telephone 012 36 86 2077 Facsimile 012 36 842227 E-mail: huy@csir.ac.za
Innovative Technology Platform Subsidy House	
Project Modified Subsidy House	
	Drawing No.
	Date 2008/08/27
	Scale 1:50
	Drawn LvW & Adv

- Plan changes
- Modular blocks
- Prefabrication (roof & plumbing)
- CRCP foundations

The End

