

Rental Housing for South Africa – A Design Model



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1 Shelter Situation Analysis

1.1 Basic General Data

South Africa is situated at the southernmost tip of the African continent. South Africa have a population of over 47.9-million people of diverse origins, cultures, languages and beliefs. There are eleven official languages in South Africa.

South Africa has a two-tiered economy; one rivaling other developed countries and the other with only the most basic infrastructure. It is therefore a productive and industrialised economy that exhibits many characteristics associated with developing countries, including a division of labour between formal and informal sectors and an uneven distribution of wealth and income. The primary sector, based on manufacturing, services, mining, and agriculture, is well developed.

Government in South Africa is a constitutional democracy with a three-tier (National, Provincial and Local) system of government and an independent judiciary. Municipalities fall within the category of local government.

Metropolitan municipalities, of which Port Elizabeth (NMBM) is one, have exclusive municipal executive and legislative authority in their areas. NMBM is

based on an Executive Mayoral system combined with a Ward Participatory system.

The following is a list of the ten most populous cities/municipalities in South Africa, with their populations from the 2001 census.

Table 1: Population Census 2001 and 2007

CITY/MUNICIPALITY	PROVINCE	2001	2007	% GROWTH
• Johannesburg	Gauteng	2,639,110	3,225,812	• 22.2%
• Durban	KwaZulu-Natal	2,751,193	3,090,117	• 12.3%
• Cape Town	Western Cape	2,563,612	2,893,251	• 12.9%
• East Rand	Gauteng	2,026,807	2,480,282	• 22.4%
• Pretoria	Gauteng	1,682,701	1,985,984	• 18.0%
• Port Elizabeth	Eastern Cape	969,771	1,005,776	• 3.7%
• East London	Eastern Cape	682,287	701,881	• 2.9%
• Vereeniging	Gauteng	597,948	658,422	• 10.1%
• Bloemfontein	Free State	603,704	645,441	• 6.9%
• Thohoyandou	Limpopo	537,454	584,469	• 8.7%

Source: Statistics South Africa

1.2 Shelter Related Fact and Figures

South Africa has a right relating to housing or shelter in its constitution (*Section 26, Constitution of South Africa*). The objective of the housing policy is to enable every household access to adequate and affordable shelter of good quality at a tenure of it's choice. The successful implementation of the policy is realised through a state capital subsidy scheme plus private sector participation in financing and construction. Informal housing units have nationally decreased to 14.5% in 2007 compared to 16.5% in 2001.



Picture 1: Typical informal dwelling in South Africa. Illustration: Keith Coltman

Table 2: Housing stock: National level

PROVINCE	HOUSING UNITS COMPLETED (1 April 2007 to 31 March 2008)
Eastern Cape	• 12,684
Free State	• 12,482
Gauteng	• 90,886
KwaZulu-Natal	• 34,471
Limpopo	• 18,970
Mpumalanga	• 16,569
Northern Cape	• 8,686
North West	• 19,945
Western Cape	• 34,157
TOTAL	• 248,850 (units completed in a single year)

Source: Statistics South Africa, Population Census 2001 and 2007



Picture 2: Typical example of government subsidised dwelling unit in South Africa.
Photo: Keith Coltman

Health

The effect of HIV/AIDS remain one of the greatest threats to the South African economy as South Africa is one of the countries most affected by the epidemic with 5-6 million HIV infected individuals. About 2,300 new infections occur each day or over 850,000 annually. Recent studies predict the epidemic could cost South Africa as much as 17% in GDP growth by 2010. This become very important as it will impact greatly in the design for special need groups in the future

Household Expenditure

Household income has a significant bearing on household expenditure. A Central Statistical Service survey (1997) of earnings and spending in South Africa during 1995 indicated that a large proportion of the average South African household income is spent on essential products and services like food and housing.

Households spend an average of 59% of their annual expenditure on four items: food: 18%, housing: 16%, income tax: 15%, transport: 10%

The poorest households, however, spend almost 75% of their total annual disposable income on food, power and other energy sources. This leaves them with very little left to spend on housing.

Shelter Quality

The houses produced however are usually very low in quality, particularly regarding thermal, environmental and aesthetic characteristics. The thermal problems created by these designs can lead to major life-time costs for heating and cooling, both for the user and for the environment. End users usually experience low levels of satisfaction with the houses.

Gender

Around 52 percent of the total population of the metropolitan area are women. Equal participation in decision making is an important precondition to sustainable development, as projects with it's focus on this criterion have proven to be more successful over time.

Function & Comfort

Adequate housing must provide protection from the elements and suitable space for eating, sleeping, relaxing and family life. By international standards, living space should allow for 38m² three-room house for a household of 2 and a 62m² five-room house for a household of 6.

Safety

There exist a constant need for more secure communities in a society with some of the highest crime statistics in the world. This is achievable through some innovative design and the intelligent manipulation of the physical elements of architectural planning.

Social Inclusion

Social and economic inclusion should be reinforced along the lines of gender, age, economic status, race etc.

2 Organisation



THE ORGANISATION: Nelson Mandela Bay Metropolitan Municipality
Government
Executive Mayor: Nondumiso Maphazi
Municipal Manager: Graham Richards

The Nelson Mandela Bay Metropolitan Municipality is situated in the Eastern Cape Province of South Africa, it includes Port Elizabeth, Uitenhage and Despatch as its mandate area.

The role of the NMBMM in the housing delivery process:
The local authority will, in almost every situation, be the key player in the shelter delivery process.

3 Shelter Problem

Approximately 1.8 million South African, low to middle income households live in rented accommodation with the demand ever increasing, at a rate of over 100 000 units per year, for the abovementioned income groups.



Article: Weekend Post, November 15, 2008

Picture 3: Article from Weekend Post, November 15, 2008

A Case For Social Housing

For the purpose of this paper the term *social housing* will refer to residential units constructed for rental. Social housing can be defined as a housing option for low-to-medium income persons that is provided by housing institutions and that excludes immediate individual ownership.

4 Proposal for Change and Improvement

To efficiently cater to this sector of our society, effective design guidelines need to be formulated by the local authority to strengthen the central governments policy on social housing.

Clearly defined design guidelines is important as it will become the measuring tool when assessing and approving social housing proposals. Therefore it is important that these guidelines provide general design guidance at the levels of both the overall scheme and the individual dwelling unit. The intention is to encourage an innovative approach to the provision of social housing given the principles of good design.

Methodology:

- Identification of the target group: With reference to population within the boundary of the NMBMM
- Define the income group bracket and the percentage of the population affected.
- Establish the size of the average household represented by this group.
- Identify the percentage who are considered special needs groups (children, HIV/Aids, aged and disabled)
- Standards and norms: With reference to planning issues.
- Define space standards to determine effective room dimensions – compare with accepted international trends.
- Ergonomic data, specific reference to special needs groups.
- Define the quality of material to be used as well as fenestration of the facades with specific reference to the context.

Land selection criteria:

- Define the accepted proximity to social and cultural amenities – schools, shops, medical facilities etc.
- Access to a efficient and safe public transport system.
- Define regard to existing parks, open spaces and places of cultural significance.
- Specify issues effecting gender equality requirements.

- Define provision to be made for special needs groups in the outdoor spaces.

Townplanning Regulations:

- Define density in terms of the zoning scheme.
- Define use in terms of the zoning scheme.
- Define parking requirements in terms of the zoning scheme.

Other:

- Define regulations regarding the use of renewable energy sources.
- Define regulations regarding the provision of safety and security.

Design

The Challenge

“People cannot be genuinely comfortable and healthy in a house which is not theirs. All forms of rental –whether from private landlords or public housing agencies – work against the natural processes which allow people to form stable , self healing communities”

(p393 – a pattern language)

The author continues and says that rental areas are the first to turn into slums. This seems to be proven fact and any number of examples can easily be named, but amazing examples of turnaround communities have proven that once inhabitants are given some sort of input in the visual appearance of their environment, the opening statement are easily disproved.

Concept

The model were conceptualised whilst attending the Shelter Design And Development course at Lund University, Housing Development and Management Faculty, Sweden. Out of the process a courtyard community were developed that encroached all conventional setbacks and internalised spaces to useful, more secure environment that formed common spaces shared by households and around which dwelling units could develop and grow.

The proposal received some positive comments from colleagues at the metro Housing Delivery Division and it was suggested that the Architectural Division explore the proposal as a social housing model.



Picture 4: The Courtyard Concept illustration: Keith Coltman

By doing this, the proposal can be developed to a full scale municipal project and the Architectural Division are currently looking at the construction of a basic core model as a show unit to test public acceptability and practical implementation. This unit will be constructed using funding from the Motherwell Urban Renewal Initiative and will serve as their offices within the local Motherwell community. The intention is that this unit will act as a showcase of an acceptable housing solution to both the community and the government in order for this social housing initiative to receive the necessary political and financial backing to make it a viable medium to high density housing alternative.

The Module

Developing a modular system seem to be the obvious choice as I believe feasibility of such a design will be greatly enhanced by the repetition of elements such as structural systems, plumbing layouts and vertical circulation such as staircases.

The minimum size of 30m² for a social housing unit will be the main determining factor of the module. 4.5x4.5m module forms the basis for single bedsitter unit with a wet core and food preparation area. This module can then be manipulated and altered to create the larger two and three bed roomed units. By overlaying and interweaving these modules a maze of housing units are created with a direct link to a courtyard or enclosed spaces that offer a sense of security

and community to the inhabitants. The scale (magnitude) of a ‘housing block’ can vary and be adjusted to suit the requirements of each proposal. The height of such a development should be four storeys or less in order to maintain a strong connection and accessibility to external spaces. This model limits itself to 3 storey walk-up units.



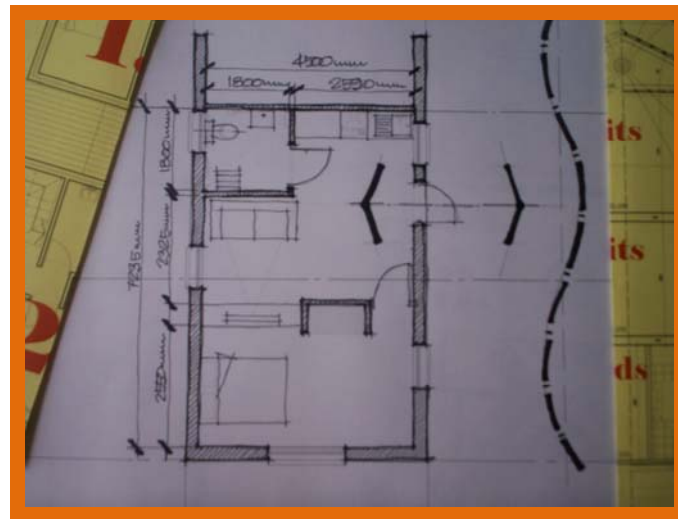
Picture 5: Sectional Study. Illustration: Keith Coltman

Planning

Through a sensitive approach to the design attention must be given to: accommodate special needs groups such as disabled individuals, children and the aged, the design must incorporate the full life cycle represented within a balanced community. Focus on positive external spaces and the relationship between external and internal spaces with specific reference to the privacy and security of individuals. Secure child friendly environments attracts and accommodates female headed households.



Picture 6: Special Needs Unit, Illustration: Keith Coltman

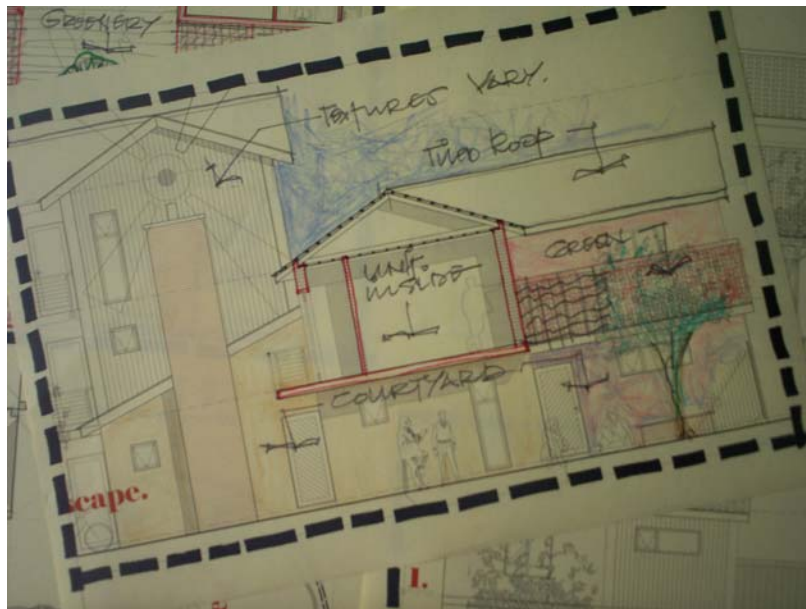


Picture 7: Typical Core Unit Illustration: Keith Coltman

'Floating' forms artificially control climatic conditions of public activity nodes by creating varied protected areas. The varied heights allow for the creation of a sense of individuality to each housing unit. This is further enhanced with the use of various textures and colours. The quality of the materials selected and the detailing become vitally important, as good detailing produces integrity in design. Public acceptability relies strongly on this fact. Proposals that are favoured by the inhabitants prove to be more sustainable over time. People want to be able to identify the part of the city where they live to be distinct from all others. Attention to shared spaces within the 'housing block' must not be neglected. A strongly organised community will need a meeting space where important management and political decisions regarding their 'spatial unit' can be taken. Access to such a space must be considered and this function could possibly be

combined with the offices of the management within the 'housing block'. The courtyard is intended to be outdoor meeting space for various activities and it become the primary conceptual element that ties the whole housing block together. Each courtyard placed in such a way that there is a view out to some larger space. The streets become usable public spaces right outside the houses.

The roofscapes visual clarity and simplicity is important as it compliment the overall design and psychologically satisfies people's fundamental sense of shelter. The pitched roof remains the most powerful symbol of shelter. The roof pitch and choice of roof covering are determined by the basic requirement standards for social housing.



Picture 8: Section of the Court Yard

Planning data

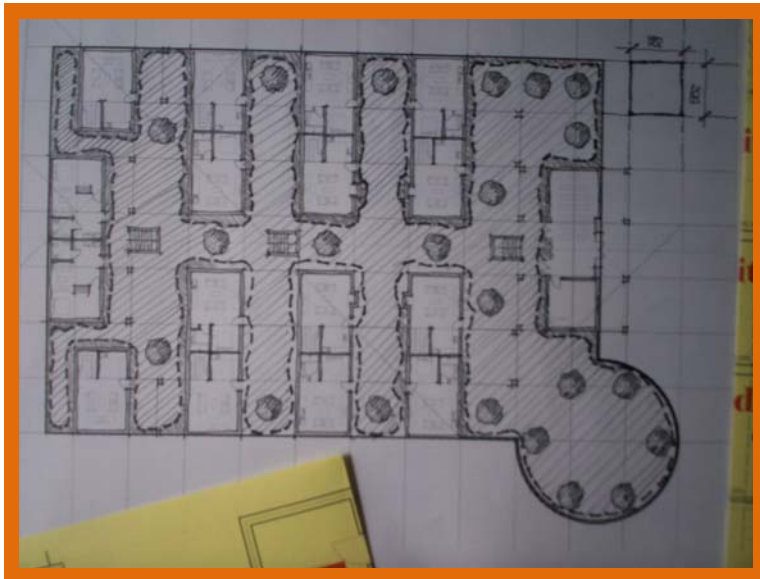
Accommodation:

- 1 - community meeting space
- 1 - management office
- 4 - 2 bedroom units (first and second floor level)
- 4 - 3 bedroom units (double storey)
- 4 - bedsitter units (ground floor)
- 2 - bedsitter units (ground floor)
- 2 - 2 bedroom units (double storey)
- 2 - 2 bedroom units (double storey)

- 2 - bedsitter units (special needs group – cater for the disabled sector)
- 4 - 2 bedroom units (first and second floor)
- 3 - external staircases (reinforced concrete)
- 8- internal staircases (timber)

Total units

- 6 - bedsitter units – open plan sleeping area, kitchenette, living room and bathroom.
- 2 - bedsitter units – semi enclosed bedroom, kitchenette and bathroom to suit to aged or paraplegic, living room
- 12 - 2 bedroom units – kitchenette, living room, staircase, main and second bedroom, bathroom
- 4 - 3 bedroom units – kitchenette, living room, staircase, main, second and third bedroom, bathroom (balcony and fireplace)



Picture 9: Complete site plan: hatched area indicate percentage green area
Illustration: Keith Coltman

24 Units in Total

- | | | | | |
|--------------------------|---|------|----------------|---------|
| ▪ Site area | : | 1778 | m ² | |
| ▪ Buildings footprint | : | 706 | m ² | 39.70 % |
| ▪ Open public space | : | 1072 | m ² | 60.29 % |
| ▪ Typical bedsitter size | : | 32 | m ² | |
| ▪ Typical 2 bedroom size | : | 44 | m ² | |
| ▪ Typical 3 bedroom size | : | 72 | m ² | |

Conclusion

This document represents the first steps towards to establishment of an accepted planning tool to create a sustainable social housing model. The development of an aesthetically pleasing and feasible model will serve to ease public acceptability of social housing within the metropolitan area of Nelson Mandela Bay and on a national level in South Africa.

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