



KZN Human Settlements
uMnyango Wezokuhlaliswa
Kwabantu
ISIFUNDAZWE SAKWAZULU-NATALI

TO	THE CHAIRPERSON: HEAC		
ATTENTION	MR S. ADAM		
DATE	1 June 2010		
ENQUIRIES	PRODUCT DEVELOPMENT	REF:1/P	
SUBJECT	FRAMEWORK FOR NORMS AND STANDARDS		

1. PURPOSE

To approve a framework for Norms and Standards in KwaZulu-Natal; and note reports prepared by the former Cuban officials.

2. PROBLEM STATEMENT

The current standard of stand alone dwellings is prescribed by the revised National Norms and Standards which came into effect on 1st April 2007. These standards are in terms of the National Home Builders Registration Council (NHBRC) and SANS 10400 requirements. Although the standards are adhered to, it has been observed that some projects are delivering, within the subsidy amount allowable, a higher standard of top structure with tiled roofs, gutters, down pipes, etc. while others are very basic structures with minimum aesthetic appeal. In some cases these prescribed standards are disregarded in favour of poor quality material.

3. BACKGROUND

- 3.1 The Housing Evaluation and Assessment Committee was first informed of the establishment of a framework for Norms and Standards in a related report on the standard of houses in the Townview, Mooiriver Project. The intention is to standardize the material used in the construction of the top-structure as well as accommodate the various housing typologies currently being compiled by the Cuban professionals. To this effort information was gathered from various sources including the National Housing Code 2009, Eastern Cape Department of Human Settlements, Western Cape Department of Human Settlements as well as the NHBRC.
- 3.2 The Product Development component held a consultation workshop on the 1st September 2009 with Project Management, the NHBRC and implementing agents to find a common ground on the understanding of acceptable norms and standards. Comments and suggestions were made that were in line with the NHBRC inspection manual and the National Building Regulations.
- 3.3 The suggestions were made in view of the fact that some materials will be prescribed by a professional engineer e.g. foundations and roofs, while others cannot be too strictly prescribed due to its availability within project areas as well as the impact this may have in terms of prejudicing suppliers.

Name	S.RAMLUCKAN	D.DUVAL	M.MILNE	S.ADAM	MEC
Initials					

3.4 A report on the input received from the consultation on the norms and standards was compiled and circulated for comment and further input to all attendees on the 29th September 2009. All comments were to be submitted by 14 October 2009. No responses were received.

4. SUGGESTED STANDARDS

The following are suggested as minimum standards for the construction of stand alone dwellings financed through the housing subsidy in KwaZulu-Natal.

4.1 FOUNDATIONS

The geotechnical report must advise the choice of foundation.

a) Raft Foundations

If raft foundations are required, it must be constructed according to the design prepared and certified by a structural engineer.

b) Strip Footings

In stable soil conditions, the minimum width of strip foundations must be 500mm for external walls and 400mm for internal walls (for a house with a tiled or sheeted roof). The minimum depth of the foundation must be 200mm. The strength of the concrete used for the strip footing must be 15MPa or better. Blocks used for strip footings must be filled with concrete.

c) Foundation Walls

The height of any foundation wall shall be not more than 1,5 m if not acting as a retaining wall.

d) Damp Proof Course (DPC)

A 250 micron thick damp proof course of plastic must be laid above the compacted fill and up over the blockwork so that it extends beyond the edge of the outside blockwork.

4.2 FLOORS

a) Floor Fill

The fill to be used under the floor slab must be clean soil with no clay, sticks, stones, plastic, paper, sharp objects, or other matter.

b) Floor Slab

The floor slab must be steel floated but wood float finishes may be used in dispersed rural areas. Concrete used for foundations must be compacted and a minimum strength of 20 MPa.

c) Site Preparation

There must be a 1,5m clearing from the external walls in the case of some rural projects or have a 1m concrete apron around the house.

Name	S.RAMLUCKAN	D.DUVAL	M.MILNE	S.ADAM	MEC
Initials					

4.3 BLOCKWORK

a) Walls

The brick force used must be 2,8mm galvanized for coastal areas and 2, 8mm ungalvanized for inland areas. External walls must be at least 140mm thick and Internal walls must be at least 90mm thick unless the internal wall is load-bearing where it should also be 140mm.

b) Mortar Mix

Ready-mix concrete is recommended to be used where possible to ensure a mixture of accurate proportions.

c) Lintels

Concrete lintels or U-blocks filled with steel and concrete should be used over all door and window openings in the blockwork to prevent cracking. If Clisco window frames are used it is not necessary to use a separate lintel over the opening

4.4 WINDOWS AND DOORS

a) Windows

The width of steel window frames must be 1mm thick residential windows (either F7 or FX7). Window stays must be durable against weather and continued use.

b) Window Sills

Window Sills must be installed to guide water running down the window away from the wall. Sills must extend at least 15mm out from the wall, be sloped down and have damp proofing installed. Use of clisco surrounds in window frames excludes the need for lintels, dpc (plastic membrane) and window sills.

c) Doors

The width of steel door frames must be 1mm thick rebated frames in the size of 813 x 2 032mm high. Door and Window Frames must be properly fixed with hoop iron ties or lugs into the walls during construction. Mortar must be placed between the frame and wall.

4.5 ROOFS

The roof must be designed by a specialist to suit specific area conditions. If corrugated/ IBR galvanized roof sheeting is used for roofing it must be 5mm or more thick. To assist with preventing leaks, it is preferred if a single roof sheet is used instead of joining separate sheets or using ridge capping. Roof Ties must be incorporated at least two block courses below the wall plate into the block work. Roof ties should be tied to the brick force layer at window height.

4.6 Walls

To ensure the health and safety of the occupants, the external walls must be adequately waterproofed. Although plastered walls are preferred, the minimum requirement must include bag-washing and paint to the walls externally.

Name	S.RAMLUCKAN	D.DUVAL	M.MILNE	S.ADAM	MEC
Initials					

4.7 FINISHES & AESTHETIC ENHANCEMENTS

Due to the different and subjective nature of communities' perceptions on what is aesthetically pleasing, a standard cannot be prescribed. Furthermore, varying environmental factors will influence the choice of aesthetic enhancements suitable for different project locations e.g. concrete roof tiles are not suitable for areas with heavy hail. However the following are recommended where the above issues and budget permit.

a) Walls

External walls may be plastered and painted where possible with paint of varying available shades. Internally, if not plastered, the brick/block should be neatened and smoothed down.

b) Windows

Window sills should be smoothed internally and externally, if not plastered. Window frames may be painted to compliment the colour of the house.

c) Doors

The external doors should be waterproofed Pine wood or better, or painted to co-ordinate with walls and windows.

d) Roofs

Where recommended by the engineer, concrete tiles should be used. Alternatively, colour roof sheeting may be used that is compatible with the environment. The roof structure should be designed to facilitate incremental improvements such as ceilings and electrical fittings, etc. Barge boards, fascia boards, gutters and downpipes may be provided. These can be painted to co-ordinate with exterior wall colours.

e) Orientation & design

While keeping in mind passive solar design, the orientation of the house on the site should be varied to enhance the landscape. Projects need to encourage creative designs and allow at least 3 different facades for greater aesthetic appeal.

f) Internal enhancements

Splash tiles may be fitted around the kitchen sink. The wall area around the bathroom basin and shower should be waterproofed. A waterproof coating may be used through the internal floor area to enhance the appearance while also increasing thermal efficiency.

5. SOCIAL HOUSING UNITS

The minimum specifications for Social Housing Units as prescribed by the National Department of Human Settlement's Social Housing Programme Guideline will apply for rental stock in designated restructuring zones. Since these zones are in established urban areas, a minimum level of service (no electricity) is inappropriate. The levels of service applied are thus medium or high. The required level of service (to units either in cluster complexes or multi-storey buildings) is:

- ◆ 100 to 120m² average stand size for detached units in development complexes, smaller stand sizes for attached units where applicable.
- ◆ Water reticulation with metered water connections.
- ◆ Midblock sewer reticulation with unit connections – generally open system with gulleys and inspection eyes at units.
- ◆ Surfaced roads with either edge strip or mountable kerbs.
- ◆ Surface and underground (where required) storm water drainage system.
- ◆ Underground electrical reticulation with metered connections – generally 30 to 60 amp supply.
- ◆ Fire supply (hydrants) to meet relevant fire safety regulations.

Name	S.RAMLUCKAN	D.DUVAL	M.MILNE	S.ADAM	MEC
Initials					

Superstructure Specifications

The existing social housing “product” and AML minimum grade spec units detailed below would apply. *Unit sizes will comply with minimum standards, i.e. no less than 40m ² . The unit must be self-contained, i.e. have a separate bathroom and, at least a kitchen area if it is a bachelor unit.	
Minimum Unit Specification:	
Foundation	Reinforced concrete raft or other foundation type as specified by engineer (for either individual units or multi-storey buildings).
Slab	Integral with foundations, as specified by engineer.
Superstructure	Minimum 40m ² for new construction, refurbishment or conversion. Walls constructed typically with 140 x 290 x 90mm concrete bricks, bedded in Class 2 mortar; internal walls; blocks on edge, DPC under all walls and brick reinforcing conventionally applied.
Windows	Standard steel section windows and glazing.
Doors	Standard pressed steel door frames, at least 1 exterior solid door with undercoat and enamel paint with weatherbar; interior doors to be hollow core door with undercoat and enamel paint; all doors with two lever locks and keys.
Roof	26° roof pitch (double pitch) with concrete or similar roof tiles. Ceilings, gutters and downpipes included.
Plumbing	Hot and cold water and sewer plumbing to bathroom and kitchen, minimum 80 litre geyser included. Single stopcock on the outside to cut off water supply, water meter.
Electricity	Minimum 2-core internal (hidden) electrical wiring, separate light and power circuits, earth leakage and lightning conductor – all housed in db board with electricity meter.
Finishes and Fittings	Floor slab power floated. All walls plastered and painted. Floors carpeted, and ceramic tiles in kitchen area and bathroom. Ceilings with cornices painted. All door frames enamel painted. Window frames one coat red oxide plus enamel. Internal walls, all to ceiling height, 90mm wide plastered and painted. Window panes minimum 4mm gauge, with concrete external window sills, all internal window sills to be plastered. Single track curtain rails above all windows. Obscured glazing for bathroom windows. Minimum 3-layer splashback glazed wall tiling in kitchen in bathroom. Towel rails & toilet roll holders to be fitted in bathroom. Ceramic toilet cisterns, bath, hot and cold water system. Internal electrical reticulation (including db board) to include stove point, light and plug points and standard fittings in all rooms, external light and light only to bathroom. Standard kitchen units and fittings – kitchen sink and drying board; with cupboard and extra high-level cupboard. Boundary fencing and walling.
Fencing	Boundary fencing or pre-cast walling for individual detached units.

**Converted units in existing buildings may have unit sizes that are smaller but should be compensated by a higher quality of finishes to ensure value.*

6. CONSULTATION

The consultation with Project Management, the NHBRC and implementing agents revealed through the above suggested standards that the revised National Norms and Standards: Technical Guidelines and NHBRC inspection manual provides a sound basis to guide top structure requirements. It is further noted that these manuals will be updated by the NHBRC (especially in view of recent amendments to SANS10400 and new environmental design requirements).

Name	S.RAMLUCKAN	D.DUVAL	M.MILNE	S.ADAM	MEC
Initials					

7. COMMENTS

- 7.1 The need for case studies on quality practices has been identified and is part of the Product Development Component's business plans.
- 7.2 Research will also be undertaken by the Product Development Unit in the latter part of the year in an attempt to identify factors contributing towards non-compliance with prescribed norms, standards and building practices.
- 7.3 Shortly prior to the departure of the former Cuban officials, research reports were submitted by the Project Management Chief directorate to the Product Development Unit. Concerns regarding methodology (e.g. referencing, points of clarity, etc were noted). These were not addressed by the Cuban team due to time constraints. The main risk here relates to intellectual property rights. The information submitted, however, could still be used to guide the Department in delivery matters, especially in relation to quality assurance.

8. RECOMMENDATION

It is recommended that:

- 8.1 The National Home Builder's Registration Council Home Building Manual, Parts 1,2 and 3; read in conjunction with the National Department of Human Settlements Minimum Norms and standards (as may be amended from time to time); and the agreed standards as set out in Section 4 and 5 of this submission, serve to guide the technical specifications for all housing delivery subsidized through the conditional grant;
- 8.2 The following documents (Annexures A to F attached hereto), be noted and forwarded to the NHBRC for consideration inclusion into the revisions of the manual:
- Environmental guidelines for house designs
 - Concept document for quality assurance
 - Guidelines on basic parameters to improve the housing product
 - Design criteria for reducing the effects of wind on building in KZN
 - Costing schedule

<p>PREPARED BY</p> <p>_____</p> <p>MS S. RAMLUKAN ASSISTANT MANAGER PRODUCT DEVELOPMENT</p> <p>DATE _____</p>	<p>SUBMITTED BY</p> <p>_____</p> <p>MS D. DUVAL DEPUTY MANAGER PRODUCT DEVELOPMENT</p> <p>DATE _____</p>	<p>SUPPORTED / NOT SUPPORTED</p> <p>_____</p> <p>MRS M. MILNE ACTING GENERAL MANAGER PLANNING AND DEVELOPMENT</p> <p>DATE _____</p>
<p>RECOMMENDED/NOT RECOMMENDED/RECOMMENDED AS AMENDED</p> <p>_____</p> <p>MR SIDDIQ ADAM HEAC CHAIRPERSON DEPARTMENT OF HUMAN SETTLEMENTS, KZN</p> <p>DATE _____</p> <p>COMMENTS _____</p>	<p>APPROVED/NOT APPROVED/APPROVED AS AMENDED</p> <p>_____</p> <p>HON. MRS M GOVENDER MEC FOR HUMAN SETTLEMENTS & PUBLIC WORKS</p> <p>DATE _____</p> <p>COMMENTS _____</p>	

Name	S.RAMLUKAN	D.DUVAL	M.MILNE	S.ADAM	MEC
Initials					