



## human settlements

Department:  
Human Settlements  
**PROVINCE OF KWAZULU-NATAL**

# **POLICY GUIDELINES ON THE USE OF INNOVATIVE TECHNOLOGIES WITHIN THE KWAZULU-NATAL DEPARTMENT OF HUMAN SETTLEMENTS**

## TABLE OF CONTENTS

1. Definition of terms.....	3
2. Introduction.....	4
3. Background.....	4
4. Objectives.....	5
5. Key Legislation.....	5
6. Principles that underpin the guidelines.....	5
7. Departmental Procedure for presentations.....	6
8. Registration and Processes for obtaining the necessary certification.....	7
9. National Home Builders Registration Council.....	8
10. SABS approval certificate.....	9
11. Agree'ment Certification.....	10
12. Monitoring and evaluation.....	11
13. Key Indicators.....	12

## DEFINITION OF TERMS

**‘Alternative technologies’** are technologies which are more environmentally friendly than the functionally equivalent technologies dominant in current practice.

**A competent person** as defined in the Housing Consumers Protection Measures Act (Act 95 of 1998) as: “a registered person in terms of the Engineering Professions of South Africa Act (Act No 14 of 1990) or a person registered in terms of section 11 of the Natural Scientific Professions Act 1993 (Act No 106 of 1993) and holding indemnity insurance”

**‘Beneficiary’** refers to a person that receives a housing benefit.

**‘Capacity building’** often refers to strengthening the skills, competencies and abilities of people and communities in developing societies so they can overcome the causes of their exclusion and suffering.

**‘CIDB’** an abbreviation for Construction Industry Development Board

**‘Department’** refers to the KwaZulu-Natal Department of Human Settlements.

**‘NBR’** an abbreviation for National Building Regulations

**‘NHBR’** an abbreviation for the National Home Builders Registration Council

**‘Rational design’** means any design by a competent person involving a process of reasoning or other suitable document

**‘SABS’** an abbreviation for the South African Bureau of Standards

## **1. INTRODUCTION**

The housing industry is a fundamental and strategic sector linked to improving the standard of living and it depends highly on technological innovation as a constant driving force. Technological innovation creates added value by improving the product, and sometimes cut the costs, thus allowing for a greater distribution of the product on the market. They also have the potential to significantly support and help to realize the aims and objectives of the department by fast tracking housing delivery in the province.

The use of sustainable alternative technologies is also gaining momentum in the country and there is a need for developments in KwaZulu-Natal to also start utilizing these sustainable and efficient technologies rather than relying on conventional technologies only. The Department of Human Settlements has adopted a more holistic approach focusing more on the restoration of dignity, the creation of integrated communities and sustainable developments. This has coincided with the growing concerns of global warming and the imperative for future housing to be increasingly energy efficient and environmentally friendly. Propelled by this notion, the Department of Human Settlements has realized the importance of close collaborations with innovative technology certificate holders by improving communication as well as providing guidance on the processes to be followed when approaching the Department with an innovative product, hence these guidelines.

## **2. BACKGROUND**

The concept of innovation and technology in housing originates from the desire to illustrate that the housing sector can be transformed such that the housing needs of the poor are catered for in a manner that gives options in housing developments. These technology innovations can assist and be used as a vehicle for skills transfer, job creation, for providing quick to erect, quality, affordable and aesthetically pleasing products that would aid in eradicating the housing backlog. The KwaZulu-Natal Department of Human Settlements has

initiated a process where it invites presentations for innovative products quarterly. Products are viewed and the providers of the alternative products are given a platform to sell their products and respond to questions and concerns that come up following their presentations. They are also informed of the quality assurance and registration with certain bodies within the housing industry and getting the necessary certificates for their products. The aim is to identify, draw-in and support innovative housing systems developed locally and internationally, with the ultimate aim of providing a wider choice of quality and affordable homes to the housing beneficiaries and end-users.

### **3. OBJECTIVES**

- 1) To promote the use of alternative technologies in the delivery of human settlements in KwaZulu-Natal through reservation of subsidies, provision of platform for marketing alternative technologies through presentations etc.
- 2) To facilitate better access to a range of energy products and services to low income human settlements beneficiaries by facilitating consumer education and awareness to beneficiaries.
- 3) Facilitate partnerships and mobilize necessary capacity, including local capacity
- 4) To pilot houses built using alternative technology in order to evaluate impact

### **4. KEY LEGISLATION**

1. National Building Regulations and Building Standards Act 103 of 1977.
2. Occupational Health and Safety Act No. 85 of 1993.
3. Housing Consumer Protection Measures Act 95 of 1998.
4. South African National Standards, SANS 10400 (2005). Code of Practice for the application of the National Building Regulations, Pretoria, RSA.
5. South African National Standards, SANS 10400 (2005). Code of Practice for the construction of Dwelling Houses in accordance with the National Building Regulations, Pretoria, RSA.

6. Home Building Manuals Parts 1, 2 & 3 (1999), National Home Builders Registration Council, Revision 1, Bryanston, Johannesburg, RSA.
7. Department of Human Settlement's National Housing Code.

## **5. POLICY GUIDELINES FOR THE USE OF ALTERNATIVE TECHNOLOGY**

The KwaZulu-Natal Department of Human Settlements has made strides in trying to provide a platform for promotion of alternative/innovative technology by inviting quarterly presentations of innovative products to the Department. However, in the light of quality concerns on human settlements, it became imperative to develop guidelines that will formalize the implementation of these innovative/alternative products should they comply with all the necessary standards. These guidelines include reservation of subsidies and requirements, products presentations to the Department and letters of confirmation, registration and processes for obtaining the necessary certification. These are outlined in the section below.

### **5.1 RESERVATION OF SUBSIDIES AND REQUIREMENTS**

1. In order to introduce and promote the use of innovative technology, it is proposed that, the service provider must construct at least one show house. The allocation of work will be based on community acceptance of the product, the general performance criteria for residential structures, thermal efficiency and fire resistance.
2. The innovative products must have the following certification:
  - a) Agr'ement certification or South African Bureau of Standards ((SABS)
  - b) National Home Builders Registration Council's (NHBRC) letter of support
3. It is also proposed that each municipality should have at least one percent of houses build using innovative products piloted in every projects for 2012/2013 financial year. These will be allocated to beneficiaries and they must indicate reasons for their choices

4. The proposals and costs must be based on NHBRC plans for a forty square meter, forty five square meter, double storey and walk-ups of three storeys high.
5. The construction of the house must be within the applicable subsidy quantum as announced by the National Minister of Human Settlements.
6. Providers of these alternative systems and technologies should conduct sufficient marketing of their products.
7. The Department should ensure that there is budget reserved for innovative/ alternative technology.
8. Service providers to use local labour and train community members properly on the use and maintenance of the product.
9. Briefing session and exhibition of the building method should be arranged prior the commencement of the project in order to get buy in and/ support from the beneficiaries.
10. Beneficiaries should be formally approached and consent to the arrangement with an understanding of the product and its limitations.
11. The option will only be available to beneficiaries who qualify for housing subsidies as stipulated in the qualification criteria contained in the housing code.
12. To ensure sustainability after the house has been constructed, the owners of the product should ensure that an effective maintenance team is in place and trained from day one, including the beneficiary.

13. A study of local conditions should be conducted before any unconventional building technology can be used.

14. The departmental inspectors should undergo intensive training as they may not be experienced in the quality assurance of alternative building materials.

15. The capacity building directorate together with the providers of alternative systems will have to conduct capacity building workshops to ensure understanding of the products.

16. Every implementing agent would be required to partner with providers of innovative products and sign an agreement detailing their partnership.

## **5.2 PRODUCTS PRESENTATION TO THE DEPARTMENT AND LETTERS OF CONFIRMATIONS**

### **5.2.1 Who can approach the Department?**

- Those with the necessary certification, i.e. NHBRC registration, SABS approval, agreement certificate, CIDB registration
- Those who are registered with the supply chain provincial database at KwaZulu-Natal Treasury Department
- Companies seeking to market their innovative technology product to the Department
- Those who want to advance the objectives of the Department through innovative technology products

### **5.2.2 Request for a presentation and inclusion in the data base**

- Applicants must have relevant certification with supporting documents i.e. registration with NHBRC, Agreement certification and SABS support.
- Send a request letter in writing for an opportunity to present the product
- The Department will issue a form on which the applicant should indicate the relevant certificates and approvals that one has prior the presentation.  
(Proposed form attached **as annexure A**)



- Wait for invitation to present the product. The Department shall conduct at least one (1) session per quarter.
- Applicants will be required to fill in the form and return it prior the presentation.
- Send a presentation to the department two days prior the presentation day
- Present the product and respond to questions and concerns
- The company may be invited to do presentations to municipalities at a later date to be determined after the presentations
- After the presentation the Department may issue a proforma letter stating that a presentation has been done to the Department. (Proposed profoma letter **attached as annexure B**)

### **5.2.3 Critical quality aspects to be considered**

- Structural strength and stability
- Thermal and energy performance and/ or efficiency
- Water penetration
- Behavior in fire
- Durability
- Condensation
- Quality management system
- Cost and design

### **5.2.4 Types of innovative/ alternative products that would be considered**

- Alternative energy sources
- Alternative water management systems
- Green buildings and Green infrastructure etc
- Innovative building systems in terms of human settlements designs and delivery processes

### **5.2.5 What are innovative housing systems**

- Use of new materials in building houses
- New ways or methods of applying traditional materials
- Improvements in designs to enhance functionality of a house
- System designs (designing for energy efficient house)
- Performance based design-fit for purpose.

### **5.3 REGISTRATION AND PROCESSES FOR OBTAINING THE NECESSARY CERTIFICATION**

#### **5.3.1 The National Home Builders Registration Council (NHBRC): (Product registration)**

All new homes built in the Republic of South Africa are required to comply with the provisions of the Housing Consumer Protection Measures Act (Act 95 of 1998). The NHBRC has a responsibility of ensuring that any housing product utilized in the provision of homes for the consumer, does meet National Building Regulation rules. The role of NHBRC is to enforce compliance with National Building Regulation requirements by the home builders in the home building industry. NHBRC has established a database of housing products that satisfy the National Building Regulations excluding those covered in the SANS Codes of Practice. The process at which NHBRC assess whether a product meets necessary technical requirement is done in four stages as shown in Figure 2, namely: Submission, Technical Evaluation, Practical Evaluation and Registration.

#### **5.3.2 RATIONAL DESIGN SUBMISION TO NHBRC**

- The report must include design assumptions, detailed calculations, references to the necessary design standards and detailed design drawings.
- The structural design calculations must clearly demonstrate structural integrity and stability, including connection details
- Design calculations should have proper sketches annotated in English

### **5.3.3 NHBRC APPROVAL OF RATIONAL DESIGN/ASSESSMENT**

- Structural safety: resistance to static and dynamic actions, both individually and in and in combination, impacts, intentional and unintentional abuse, accidental actions.
- Structural serviceability: resistance to loss of function, damage and avoidance of user comfort.
- Structural durability: performance retention of the structure

### **5.3.4 NHBRC ASSESSMENT PROCESS**

#### **1) SUBMISSION**

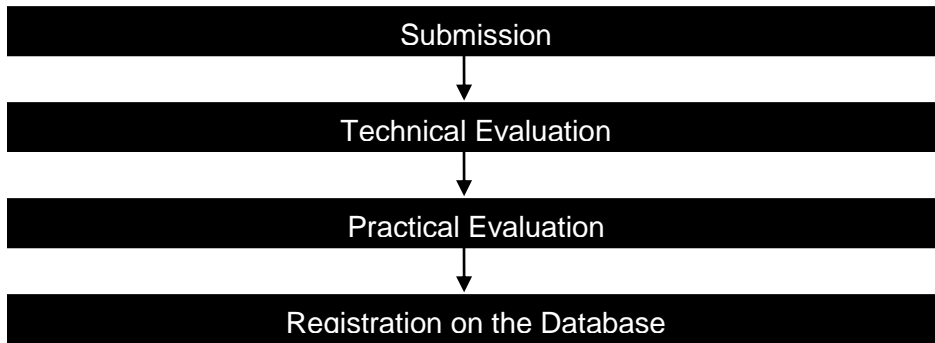
The product information is submitted to NHBRC Technical Division either directly or through a provincial office. The following information is required for successful submission:

- Product description
- Detailed technical information on how the product meets National Building Regulation (NBR's) rules, and NHBRC technical requirements
- Project history of the product (if available)

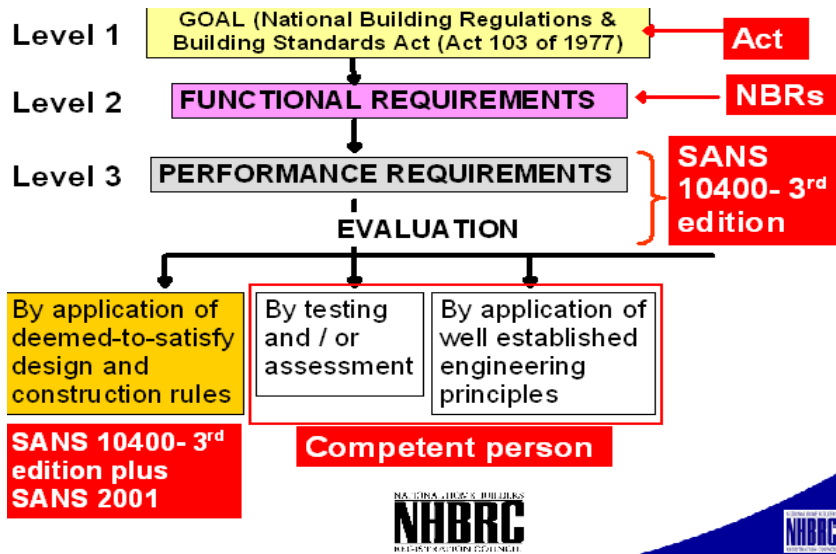
#### **2) TECHNICAL EVALUATION**

The NHBRC technical division will assess the rules and how quality control will be done to ensure consistent quality repetition. Most importantly, a comprehensive quality control document must be available, and must be part of the submission. Then approval will be granted should all the requirements be met.

### 5.3.5 Flow chart FOR NHBRC' S registration process



## 6. NATIONAL BUILDING REGULATIONS AND SABS 0400 (SANS 10400)



### LEVEL 1: The Act

The requirements of the National Building Regulations shall be complied with by adhering to the requirements of all the prescriptive regulations, i.e compliance with the National Building Regulations and Building Standards Act (Act 103 of 1977).

## **LEVEL 2: Functional Requirements (NBR's)**

Products should satisfy all functional regulations by adopting building solutions that comply with the requirements of the requirements of the relevant part of SANS 10400; or

## **LEVEL 3: Performance Requirements: SANS 10400-3<sup>rd</sup> edition**

They should reliably demonstrate, or predict with certainty to the satisfaction of the appropriate local authority that the building solution has an equivalent or superior performance to a solution that complies with the requirements of the relevant part of SANS 10400. This could be based by the application of the deemed -to- satisfy design and construction rules (SANS 10400-3<sup>rd</sup> edition) or by testing and/ or assessment or by application of well established engineering principles (competent person).

### **6.1 SABS**

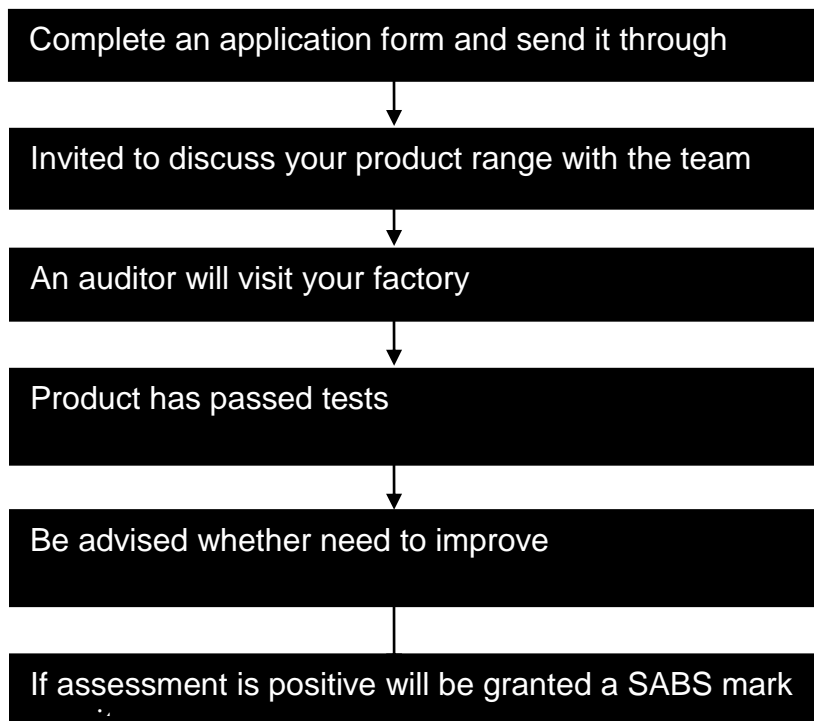
- SABS publishes national standards through technical committees. Committees have industry representatives that include NHBRC.
- Test and certifies products and services.
- Develops technical regulations (compulsory specifications).
- Promotes design excellence, and
- Provides training on aspects of standardization.

#### **6.1.1 Product Certification**

SABS's Mark Scheme is a highly recognizable symbol of credibility and a powerful marketing tool, which reinforces a product's intrinsic features and as a result all products must be SABS approved. Because the SABS Mark Scheme ensures independent third-party certification, it gives clear evidence that the product bearing the SABS mark conforms to a specific South African or International standard.

When a person contacts SABS, s/he would be advised on the right steps to take towards certification. This includes identifying the relevant SABS mark (performance mark, safety mark, approved performance, environmental friendliness, packaging and other specialized certification marks) and the relevant standard, which will set out the characteristics and the performance criteria of your product.

### 6.1.2 Applying for the mark: Process Flow Chart



## 6.2 AGRÉMENT CERTIFICATION

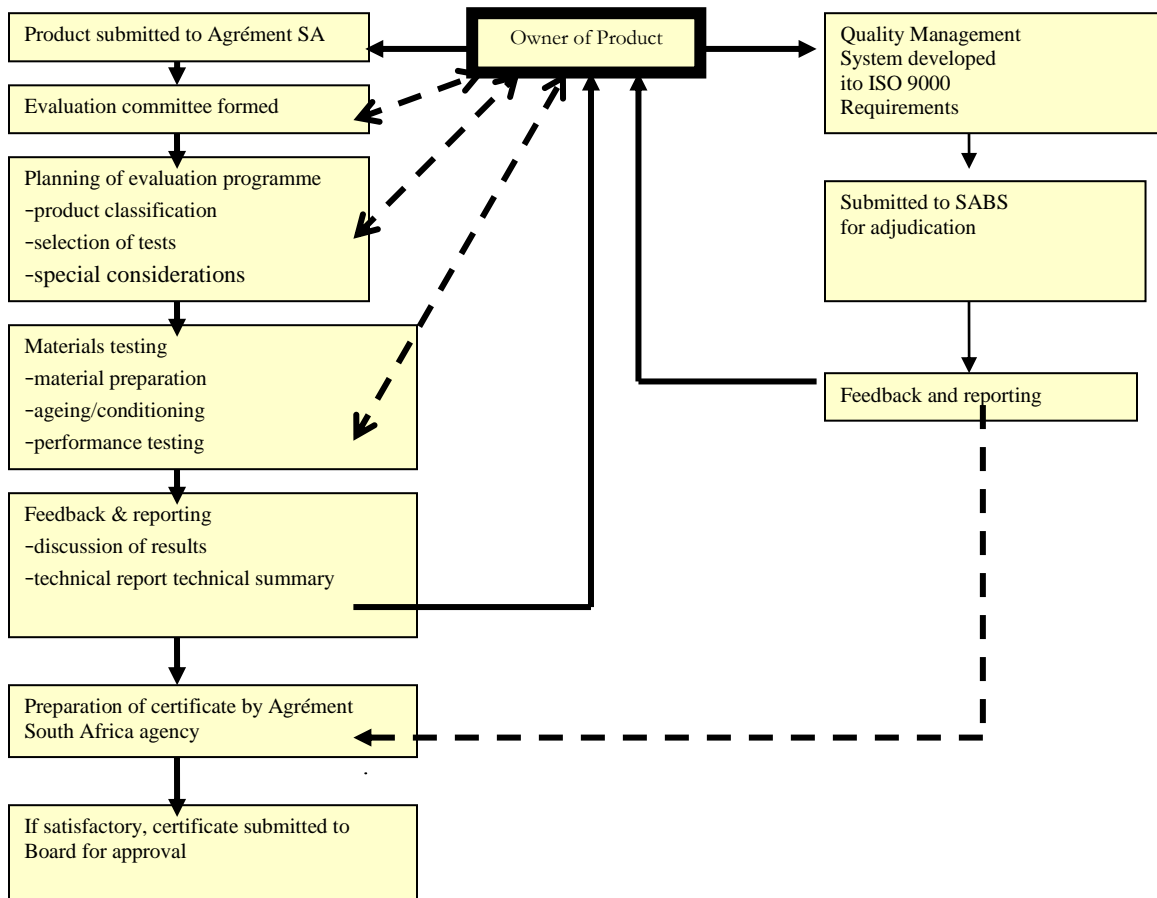
Agrement South Africa is an internationally recognized, independent centre for the assessment and certification of innovative, non-standardised construction systems. As a founding member of the World Federation of Technical Assessment Organisations, Agrement certification is one of the highest standards for non-standardised construction products and is recognised in more than 21 countries around the world. Furthermore, Agrement certification incorporates the requirements of:

- The South African Department of Public Works
- Council for Scientific and Industrial Research (CSIR)
- International Council for Building Research, Studies and Documentation (CIB)
- South African Bureau of Standards (SABS)
- World Federation of Technical Assessment Organisations (WFTAO)
- South African Department of Human Settlements
- South African National Home Builder's Registration Council (NHBRC)
- Council for the Built Environment (CBE)
- The Independent Development Trust (IDT)

**6.2.1 Agrément certification process consists of the following:**

- Formal Application
- Drawing up of a contract
- Evaluation/Assessment i.e approval by the committee of experts,
- Final ratification by the Agrément South Africa Board,
- Publication in the Government Gazette and Publication in Agrément South Africa web site

## 6.2.2 Agreement Certification process flow chart



## 7. MONITORING AND EVALUATION

Product development component will from time to time conduct surveys and case studies to gauge success and note concerns that may arise and allow people to suggest ways to improve the products.

Project management could also get responses from war rooms as to the performance of the innovative products and get a sense of the acceptance levels. Communities have a role to play as well. It is the responsibility of the community to inform their municipality of faulty systems, provision problems and abuses or misuse of the services. They should also make sure that facilities are maintained, are in good condition, and are being used appropriately.



## **8. KEY INDICATORS**

- 1) Every project undertaken during 2012/2013 should at least have one percent beneficiary houses built using alternative/innovative technology
- 2) Case studies would be conducted every two years after the completion of the housing product this would indicate the level of acceptance of the product by the community
- 3) An increase in the number of qualifying beneficiaries approaching the department or municipalities requesting innovative products