The legal framework of ABT

Dr J Mahachi, Pr.Eng, Pr.CPM, FSAICE
National Home Builders Registration Council
Email: JeffreyM@nhbrc.org.za
Sunninghill, South Africa

Contents

- Housing delivery & challenges
- Role of NHBRC
- Innovative Building Technologies
- Housing Typologies: Where From?
- Role of SABS
- Role of NRCS
- Role of Agrèment SA
- National Building regulations (NBR)
- Agrèment Certification Requirements
- NHBRC Way forward
Housing Delivery

Problems with housing delivery in SA:
- Shortfall of accommodation *(Housing backlog in 1994 was in excess of 4 million)*;
- Proximity of development to potential workplace;
- Banks not providing mortgage to the low-income housing market; and
- Exclusion or marginalisation of emerging home builders in the mainstream of home building.

Formulation and implementation of National Housing Policy in 1994

Challenges with Quality Houses

- Good quality affordable housing products
- Materials and products that meet the National Building Standards requirements
- Quality of imported materials & products
- Unsafe and environmentally unfriendly products being used in the market
- Low prices for housing consumers and a demand for high quality
- High price for contractors (maximisation of profit)

Establishment of a Regulatory Body
National Home Builders Registration Council (NHBRC)
RSA’s Housing Perspective

- National Home Builders Registration Council (NHBRC) is mandated to regulate and protect housing consumers;
- Housing Market is divided into:
  - Mortgaged (Bank financed) & Cash-Build Houses;
  - Social (Affordable) Houses; and
  - Low-income (BNG) Houses
Challenges in Housing Delivery

- Physical production capacity;
- Availability of funds, land etc.;
- Most popular method of construction is “Brick and Mortar” – Reliable Technology & Meets technical standards
- Pitfall Brick & Mortar – Rate of delivery!

Need to investigate Innovative Building Technologies to take advantage of shorter per unit construction periods - No compromise on quality & integrity of house

What are Innovative Building Systems?

Any or a combination of the following:

- Use of new materials in building houses;
- New ways or methods of applying ‘traditional’ materials;
- Improvements in designs to enhance functionality of a housing
- System design (e.g. designing for energy efficient house);
- Performance based design – ‘fit for purpose’.
Why promote Innovative Building Technologies?

- Sustainable, durable materials
- Good thermal properties
- Reduction in carbon footprint
- Social acceptability
- Cost effectiveness
- Fast track construction processes (time saving = cost saving)
- Bankability and resale value

Assist Govt in delivering good quality homes and reducing the current backlog

Challenges in implementing IBT

- Misunderstanding of cost, i.e. cost of construction vs Life Cycle Costing
- Life Cycle Costing – initial design, construction, maintenance (operation) and decommissioning.
- Initial Capital Outlay required
  - Banks unwilling to provide loan
  - Clients unwilling to provide projects with no assurance of local productivity

For conventional construction, in order to comply to SANS 10204, additional items such as the ceiling, roof insulation, energy efficient glass and window frames and the solar water heater resort to additional costs of approx. R30k. A 35% increase!!!
Challenges in implementing IBT

- Misunderstanding the benefits
  - Cost savings in the long-term
  - Reducing energy poverty
  - Improving health and productivity
  - Creating jobs
  - Mitigating climate change
  - Ensuring that sustainability is achieved
  - Carbon credit

- A move from 40m$^2$ to 60m$^2$ – costs become cheaper

RSA Government’s vision for human settlements

The strategy incorporated in the Government’s vision for Sustainable Human Settlements is to:
- accelerate delivery,
- use housing provision as a job creation strategy,
- ensure access to property and home loans by all,
- leverage economic growth, combat crime, reduce duality within the housing market, and
- develop integrated and sustainable human settlements
HOUSING TYPOLOGIES: WHERE ARE WE COMING FROM?

House Built Pre- 1994

- “Match” Box houses were built
- Size of houses were 12 to 17m²
- No standards existed
- Poor Quality houses
Post 1994 to 2004 Subsidy Houses

- Govt’s approach was mainly to provide land
- Little emphasis was placed on top structure
- Size of houses increased to 30m².
- Regulations for the subsidy (social) houses introduced in 2002.
- Quality slightly improved.

Post 2004 – 2009

40m² Breaking New Ground

- NHBRC engaged by government to assist in delivery of better quality products.
- Minimum of 40m² houses introduced
- Govt introduces a variety of housing typologies.
2009 - 2014
Sustainable Human Settlements (SHS)

- Govt moves from provision of houses to SHS
- Promote innovation:
  - Energy efficiency
  - Affordability
  - Constructability (easy to construct)
  - Sustainable construction principles
  - Quick to construct
  - Low maintenance, and
  - Easy to have additions or alterations to the houses

The Houses:
- Are planned and designed in terms of energy efficiency principles before construction;
- Located in a neighbourhood that facilitates the sustainable use of resources;
- Just large enough to satisfy demand and built with materials with minimum embodied energy; and
- Have windows that allow for cross ventilation for cooling
South African Bureau of Standards

SABS Prior to 2008

SABS REGULATORY Division

SABS COMMERCIAL Division

SABS STANDARDS Division
SABS Post 2008

- NRCS Act in 2008
- Act transferred the Regulatory Division of SABS and all regulatory functions of the SABS to a new statutory – NRCS in Dept of Trade & Industry

SABS Objectives

- SABS publishes national standards (South African National Standards - SANS) through technical committees. Committees have industry representatives, that include NHBRC
- Standards are derived through a consensus process by industry captains
- Test and certifies products and services
- Promotes design excellence, and
- Provides training on aspects of standardisation
SANS

The South African National Standards

These Building standards provide one solution to satisfy the functional requirements set by the regulations. It is usually the way in which most buildings are constructed and follows the yardstick which measures in bricks and mortar. The usual building methodology of South Africa.

Tensions associated with standards development

Owners / developers don’t want to pay anything more

Academics wish to get things technically correct

Practioners want something simple and quick to apply
National Regulator for Compulsory Standards (NRCS)

Who is NRCS?

- The National Regulator for Compulsory Specifications (NRCS) is a public entity reporting to the Minister of Trade and Industry.
- Responsible for administration of technical regulations, including:
  - Automotive
  - Electro technical & Gaming,
  - Chemical, mechanical and materials
  - Food Industries departments.
The NRCS also administers:
- the Trade Metrology Act and the
- the National Building Regulations and Building Standards Act

NRCS Mandate:
Administer technical regulations
in the interests of public safety and health
or for environmental protection

Agrèment Board of South Africa
Agrément SA

- Agrément is a French word and it means consent or approval.

- **AGRÉMENT SOUTH AFRICA** was established in 1969 as an objective, independent agency to provide assurance to building products and systems as fit-for-purpose.

- It operates under a ministerial delegation of authority from the Minister of Public Works.

- It is administrated by the CSIR, Built Environment

Agrément SA supports and promotes innovation and technology development in the construction industry.

**Objective:** To provide re-assurance of the fitness-for-purpose of construction products, systems, materials which are not covered by SABS or codes of practice.
National Building Regulations

All new building work in South Africa must comply with the National Building Regulations as it is the Building Code. It is a performance-based code, which means it states how a building and its components must perform as opposed to describing how the building must be designed and constructed.

If you ignore the requirements you are breaking the LAW

“you criminal you”
The National Building Regulations set minimum standards of performance for all buildings so that the buildings will be: safe, health and Structurally stable for all inhabiting our buildings.

- The NBR can be described as the Building Code of South Africa and thus set minimum performance criteria for all buildings.
- Municipalities are obliged to ensure that no buildings are constructed or altered without first ensuring that the drawings conform to these Regulations.

### Act 103 of 1977

<table>
<thead>
<tr>
<th>Act 103 of 1977</th>
</tr>
</thead>
<tbody>
<tr>
<td>To provide for the promotion of uniformity in the law relating to the erection of buildings in the area of jurisdiction of the Local Authorities.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>NRCS = REGULATOR = NBR</th>
</tr>
</thead>
<tbody>
<tr>
<td>National Building Regulations</td>
</tr>
<tr>
<td>Chapters contained in Regulations</td>
</tr>
<tr>
<td>TECHNICAL REGULATIONS</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Regulations contain: Policy, Principal provisions, Procedures and other detail</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>SABS = National Standards</th>
</tr>
</thead>
<tbody>
<tr>
<td>SANS 10400 Deemed-to-satisfy</td>
</tr>
<tr>
<td>Chapters A to X</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Other SANS documents:</th>
</tr>
</thead>
<tbody>
<tr>
<td>SANS 204, SANS 10252, SANS 10005 for protection of timber</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Local Authority Building By-laws:</th>
</tr>
</thead>
<tbody>
<tr>
<td>To be endorsed by the Minister before it has jurisdiction and Town Planning Schemes, ordinances, regulations</td>
</tr>
</tbody>
</table>

An Act always trumps regulations and regulations always trump standards or any other document incorporated into their regulations by reference.

By-laws are subservient to the regulations. Building By-Laws can only be made with the approval of the Minister of the dti.

Standards and best practices are purely technical documents that do not contain any policy or principles based provisions.

Standards can be called up into Regulations thus making them mandatory.
GOAL (National Building Regulations & Building Standards Act (Act 103 of 1977))

Level 2
FUNCTIONAL REQUIREMENTS

Level 3
PERFORMANCE REQUIREMENTS

Level 4
EVALUATION

By application of deemed-to-satisfy design and construction rules

By testing and / or assessment

By application of well established engineering principles

By expert opinion and judgment

SANS 10400XA plus SANS 10204

Competent person

SANS 10400-3rd edition

AGREEMENT Certification
PERFORMANCE ASSESSMENT
Agrément Technical Requirements

- **Structural safety**
  Resistance to static and dynamic actions, both individually and in combination, impacts, intentional and unintentional abuse, accidental actions.

- **Structural serviceability**
  Resistance to loss of function, damage and avoidance of user discomfort.

- **Structural Durability**
  Performance retention of the structure

- **Fire Safety**
  Egress, fire suppression, fire resistance, risk of outbreak of fire and of spread of fire, physiological effects (smoke control and ventilation), and evacuation time (escape routes)

NHBRC approval of rational design/assessment...

- **Constructability (Quality Assurance)**
  Transportation to site, erection procedures, quality control, health and safety.

- **Energy Efficiency**
  The extent to which the building envelope optimises the amount of energy required to achieve a required level of indoor climate control.

- **Condensation** depending on area

- **Construction Quality Manual**
A TYPICAL AGREEMENT CERTIFICATE
What is an Agrèment licensee?

• Any person or company appointed by the certificate holder and registered with Agrément South Africa to market innovative Building Systems and products in accordance with conditions of certification and authorized by him to claim compliance with the certificate.

• It is the certificate holder’s responsibility to ensure that the licensee carries out the works in compliance with this certificate and in accordance with the approved quality system.

• The licensee must provide a letter of confirmation from Agrément South Africa.

• The verification of a licensee can also be done by contacting Agrément South Africa.

NHBRC Involvement in IBT

TechMINMEC tasked NHBRC:

- Greater efforts to promote pilot IBT housing projects and raise the level of housing industrialization in South Africa;
- Application of new materials and technologies be vigorously promoted;
- Housing materials and technologies that are not in compliance with energy-saving standards and are likely to cause pollution to the environment be eliminated more quickly; and
- Various systems concerning housing quality warranty and management be set-up and implemented so that housing quality can be remarkably improved and the legitimate rights and interests of housing consumers be protected.
Implementation Strategy

• Identified key role players and stakeholders to support the implementation of IBT

NHBRC – Quality is our Priority
Thank You