Explanatory memorandum on the proposed revision of the NHBRC's Technical Requirements

This explanatory memorandum provides background and clarity on the proposed NHBRC Technical Requirements 2014 which are to be gazetted by the Minister of Human Settlements for public comment.

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1 CONTEXT

1.1 NHBRC's mandate for a warranty scheme

The Housing Consumer Protection Measures Act of 1998 (Act No. 95 of 1998) requires the NHBRC to establish a fund for the purpose of providing assistance to housing consumers where a home builder fails to rectify major structural defects or a roof leak attributable to workmanship, design or materials which has manifested itself within 5 years or 12 months from the date of occupation, respectively. The Minister is required to prescribe the NHBRC Technical Requirements relating to the warranty scheme. The NHBRC is required to publish a Home Building Manual which contains not only the NHBRC Technical Requirements but also guidelines to satisfy these requirements. Registered home builders are required to comply with the provisions of the Home Building Manual and to rectify at their own expense major structural defects in a home caused by the non-compliance with the scheme and which occur within the stipulated period.

The Act does not exempt a person from any provision of the National Building Regulations and Building Standards Act of 1977 (Act No 3 of 1977). Although there are many similarities in the approach between the National Building Regulations and its associated deemed to satisfy provisions relating to structural safety and structural serviceability and rain penetration and the NHBRC Technical Requirements and associated guidelines relating to major structural defects and roof leakage, the onus is on the owner of a building to satisfy requirements in the case of the former and on the home builder in the case of the latter.

The NHBRC Technical Requirements were gazetted on 1 December 1999. The Home Building Manual was also published during 1999. No amendments to these documents have been made since their publication.

1.2 Background to the development of the NHBRC's Home Building Manual

The Home Building Manual 1999 is an updated and revised version of the NHBRC's Standards and Guidelines which were published in 1995 when the NHBRC operated as a private, non-government, non-profit company. The Standards and Guidelines were developed to provide rules to enable valid defects to be interpreted on a non-compliance basis and, hence, warranty cover to be established and associated risks to be managed. The drafters of this document recognised that structural and roofing defects could be minimised, if not eliminated, if those responsible for the design and construction of homes:

- adopted design practices and construction specifications that provided satisfactory performance; and
- used materials, products and building systems that were suited for their intended purpose.

The deemed to satisfy provisions of the National Building Regulations contained in SANS 10400:1990, *The application of National Building Regulations*, for the structural design of foundations, walls, floors, stairways and roofs was inadequate and suffered from several fundamental shortcomings. For example, the rules for foundations were only valid for soil horizons which did not have heaving, shrinking or collapse characteristics, the application of South African structural design codes for masonry by structural engineers resulted in smaller (more conservative) wall panels than that permitted by the empirical design rules, no construction rules whatsoever were provided and the

standard was silent regarding Agrément certification. The NHBRC could as a consequence not rely on compliance with the provisions of SANS 10400:1990 to mitigate their warranty exposure.

The Joint Structural Division of the Institution of Structural Engineers and the South African Institution of Civil Engineering published in 1995 a state of the art *Code of Practice for Foundations and Superstructures for Single Storey Residential Buildings of Masonry Construction* which addressed all these shortcomings. It also provided a site classification system which linked differential movement of problem soil horizons in non-dolomitic areas to foundation design and building procedures in a manner readily understood by bankers, builders, building control officers, owners and designers. This site classification system provided an essential tool to manage the NHBRC's exposure.

The Standards and Guidelines were accordingly based on the Joint Structural Division's Code of Practice. It also contained extensive construction rules to ensure that the structural elements of buildings that were not designed or constructed under the direction of a structural engineer would be of sound quality should a home builder apply these rules.

During the late 1990s the Council of South African Bankers refused to grant mortgage lending finance to certain towns underlain by dolomite land. Dolomite land constitutes approximately 23 percent of South Africa's most populous province, Gauteng. Urban development usually results in a disturbance of the meta-stable conditions in the dolomite environment that can result in sinkholes or subsidence. Such events commonly have negative social and financial implications in the affected and immediately surrounding areas. Entire communities have, for example, had to be relocated due to severe ground instability.

The risk of sinkholes and subsidence can be managed on dolomite land by placing restrictions on land use and establishing requirements for the management and monitoring of surface drainage and dewatering, the installation and maintenance of water bearing structures and services and design requirements for buildings and structures to allow the safe evacuation of occupants in the event of a sinkhole occurring. The Joint Structural Divisions worked with the NHBRC on this issue and published an addendum to their Code of Practice in 1998 which established dolomite area designations linked to mandatory precautionary measures to enable housing developments on dolomite land to be financed by the mortgage lenders.

The Home Building Manual 1999 not only incorporated the provisions of the Standards and Guidelines but also updated, refined and expanded the content of this base document in the light of lessons learned since the launch of the warranty scheme in 1995 and the increase in the scope of the scheme in the wake of the establishment of the NHBRC as a statutory body. It also established requirements for the safe development of dolomite land, based on the aforementioned addendum to the Joint Structural Division's Code of Practice.

A home builder can currently satisfy the NHBRC design requirements by:

- applying design rules described in detail in Part 2 of the Home Building Manual; or
- appointing a competent person (person registered in terms of the Engineering Professions Act) to prepare a rational design based on engineering principles or codes of practice; or
- obtaining Agrément certification from Agrément South Africa.

Similarly, a home builder could satisfy the NHBRC's construction requirements by:

- complying with the construction rules described in Part 3 of the Home Building Manual; or
- complying with the specifications issued by the appointed competent person; or
- complying with the conditions for construction associated with Agrément certification.

1.3 Recent revisions to the National Building Regulations and SANS 10400

Significant amendments to the National Building Regulations were made in 2008 which introduced Agrément Certification as a means of complying with National Building Regulations and expanded the role of the competent person in demonstrating compliance with functional requirements. It also introduced requirements for geotechnical investigations and the development of dolomite land and expanded the requirements for construction.

The third edition of SANS 10400, *The Application of the National Building Regulations*, which was published in separate parts between 2010 and 2012, provides comprehensive design and construction rules which overlap with those contained in the Home Building Manual. Most of the contents of Part 2 of the Home Building Manual (Design Standards) have now been incorporated into various parts of SANS 10400 while almost all of the contents of Part 3 (Construction Standards) have been incorporated in parts of SANS 2001, *Construction standards*. (SANS 10400 establishes construction requirements for the construction of elements and components that are designed using the design rules established therein by reference to parts of SANS 2001).

2 THE NEED TO REVISE THE NHBRC TECHNICAL REQUIREMENTS AND THE HOME BUILDING MANUAL

The NHBRC identified the need to update the NHBRC Technical Requirements and the Home Building Manual primarily due to:

1) the publishing of significant amendments to the National Building Regulations;

2) the publication of the third edition of SANS 10400, *the Application of National Building Regulations,* and SANS 2001, *Construction Standards*.

3) the extension of the NHBRC's Structural Warranty Scheme cover to subsidy housing;

4) the introduction of new technologies to the South African market; and

5) address identified shortcomings in the management of the NHBRC's exposure.

3 THE STRATEGIC APPROACH TO THE MANAGEMENT OF THE NHBRC'S RISK EXPOSURE

The strategic approach to the management of the NHBRC's risk exposure in the current Technical Requirements and Home Building Manual 1999 which was formulated at a time when there were several shortcomings in the National Building Regulations and its associated deemed-to-satisfy provisions, needs to be revised. The risks to the warranty scheme relating to the lack of suitable technical standards have now been adequately addressed. The revised Technical Requirements and Home Building Manual can tap into current technical standards to manage the NHBRC's exposure with minor modifications.

Experience over the last 14 years in running the NHBRC's warranty scheme has indicated that the NHBRC exposure can be better managed should a systematic approach be introduced to certify compliance with both design and installation requirements as well as the certification of site class and dolomite land designations. The efficacy of the current approach of placing reliance solely on a competent person's professional status to mitigate risks is questionable.

The current National Building Regulations makes provision for competent persons to self-certify their designs and the implementation thereof as well as their determinations regarding site class and dolomite area designations. The Regulations place the onus on the local authority to accept the credential of competent persons. A local authority may decline the credentials of a competent person if such a person does not have the required professional indemnity, is not professionally registered in terms of the Engineering Professions Act, 2000, or the National Scientific Professions Act, 2003, or is in the opinion of the local authority inadequately qualified or has insufficient experience or contextual

knowledge to make the determinations that are required in terms of the regulations. In practice, local authorities only decline the credentials of a competent person if they are not registered with the stipulated statutory councils.

In other jurisdictions this is dealt with very differently. Self-certification commonly links professional registration to peer recognised competencies. Alternatively certification schemes are put in place whereby companies who employ suitably qualified persons certify designs and installations. The sanction for poor or substandard work in these schemes is the withdrawal of recognition.

The NHBRC risks can be better managed should a systematic approach be introduced to certify compliance with both design and installation requirements. The NHBRC can maintain a list of competent persons in a number of service areas. Applicants to the list can be admitted should they satisfy criteria designed to manage the NHBRC's exposure in addition to being in possession of the requisite professional registration. The names of those who are poor performers can also be removed from the list.

The NHBRC can also approve certification schemes proposed by juristic persons who satisfy criteria stipulated by the Minister. Such schemes can be required to register certification bodies (companies or organizations) who employ certifiers (suitably qualified individuals) with demonstrated ability to provide services to home builders which are necessary to satisfy the NHBRC's Technical Requirements. Such a scheme needs to be run in parallel to the lists of competent persons. Home builders are then free to choose a listed competent person or a certification body to provide the required service to satisfy the requirements of the scheme.

4 PROPOSED NHBRC TECHNICAL REQUIREMENTS 2014

4.1 Introduction

The Housing Consumer Protection Measures Act of 1998 requires that the Home Building Manual which is published by the National Home Builders Registration Council contain the NHBRC Technical Requirements which are prescribed by the Minister as well as the guidelines prescribed by the Council to comply with the NHBRC Technical Requirements. The Technical Requirements have been designed so that they can be reproduced as the first part of the Home Building Manual without alteration. As such they do not include the effective date or make reference to the deletion of the current Technical Requirements which have previously been prescribed by the Minister.

4.2 Part 1: Definitions and standards

The definitions that are included in this part do not repeat terms included in the Act. The definition for a "home" includes the inclusions and exclusions permitted in terms of Section 1 of the Act. The inclusions extend the coverage of the Home Building Manual to homes financed by a state housing subsidy. The term "dwelling unit" which is included in the definition of a "home" in terms of the Act is now defined.

All the defined terms provide clarity on the meaning of terms used in the text of the Technical Requirements.

Section 28 of the Standard Act, 2008, permits the provisions of South African National Standards to be incorporated into a law. The referencing of standards in this manner facilitates the incorporation of the provisions of a number of South African National Standards into the NHBRC Technical Requirements in the manner envisaged in the Standards Act.

4.3 Part 2: Performance requirements

The NHBRC Technical Requirements need to establish both performance descriptions (performance demanded or expected to be fulfilled by an attribute) and performance parameters (a group of variables used to quantitatively describe performance of attributes) for structural strength and stability, serviceability, materials, behaviour in fire, drainage and storm water management and water

installations in relation to the warranty scheme, taking into account overlaps in requirements with the functional regulations contained in the National Building Regulations.

Both performance descriptions and performance parameters are required to fully describe performance (see Figure 1). This approach not only enables design rules to be formulated but also establishes the benchmark against which solutions not covered by the design rules can be objectively assessed in a fair and equitable manner.

It is essential that performance is fully described in order to mitigate the NHBRC's exposure.

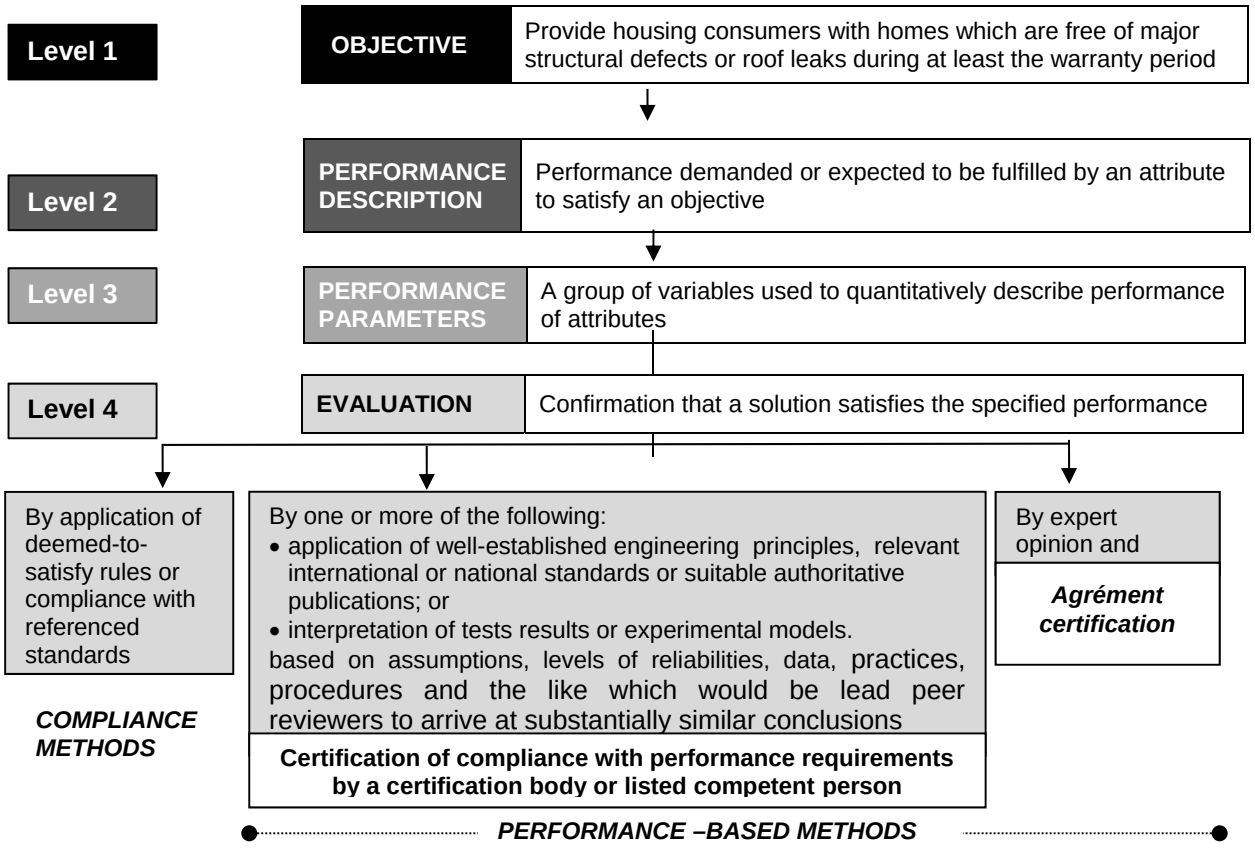

Figure 1: The performance framework for the design and appraisal of a structural system sand the roof of a home

The specified performance levels are essentially the same as previously contained or implied in the Home Building Manual 1999. New requirements for water services have, however, been introduced.

4.4 Part 3: Evaluation

Evaluation deals with the manner in which a home builder can objectively demonstrate that a solution satisfies the specified performance for a system, element or component by means of a compliance method or a performance-based method as indicated in Figure 1.

The material differences between the proposed requirements and those previously contained in the Home Building Manual are:

a) the introduction of certifications by a certification body (see Part 7) or a listed person (Part 8) as opposed to a person who is simply registered with the required statutory council and is in possession of the prescribed indemnity cover;

b) the introduction of the principle that the failure by a competent person or certification body to provide copies of documents setting out the reasoning for making a determination when called

upon to do so is interpreted that the design does not satisfy the performance requirements and the certification was made fraudulently; and

c) confirmation of compliance in a test report issued by an accredited SANAS laboratory;

4.5 Part 4: Site class designations

The site class designations are the same as those contained in the Home building Manual 1999.

A requirement has been introduced for a certification body or listed competent person when called upon to justify in writing their classifications or opinions to consumers, home builders and NHBRC inspectors. Failure to provide such a justification is interpreted that the service does not satisfy requirements and the certification was made fraudulently

4.6 Part 5: Development of dolomite land

The provisions for the development of dolomite land builds upon and updates the approach adopted in the Home Building Manual 1999 without changing the basic philosophy to hazard management. This approach to the management of the hazards on sites underlain by dolomites to within tolerable limits has recently been validated by the National Department of Public Works. (The Department has analysed some 650 sinkholes, which manifested from 1984 to 2004 in an approximately 3700 hectare urbanized environment, located on dolomite land south of Pretoria and a four year period following the implementation of a comprehensive hazard management system.)

The site class designations are the same as those contained in the Home Building Manual 1999.

4.7 Part 6: Greenfield site developments

This part includes the provisions of what is essentially contained in the National Department of Housing's GFSH-2 Specification (September 2002) *Geotechnical Site Investigations for Housing Developments* which was developed for Project Linked Greenfield Subsidy Project Developments. It should be noted in this regard that SANS 634, *Geotechnical investigations for township development*, is based onGFSH-2 and in replaces it.

4.8 Part 7: Approved certification schemes

This part introduces an alternative approach to certification by competent persons. It empowers the Council to approve certification schemes proposed by juristic persons who satisfy prescribed criteria. Such schemes are required to register certification bodies (companies or organizations) who employ certifiers (suitably qualified individuals) with demonstrated ability to act in terms of the Technical Requirements to certify sites in terms of site class designations or inherent hazard classes or to certify township services on sites underlain by dolomites for compliance with requirements. Schemes are required to maintain websites which provide the public and home builders with particulars of the names, registrations and other particulars of certification bodies and certifiers and make certificates issued in terms of the scheme accessible to owners and building control officials. Home builders who require certification in terms of the NHBRC Technical Requirements can contract a certification body (company) who, if required, maintains professional indemnity cover, and allocates an employee who is a certifier to undertake certification activities. The certifier issues a certificate of compliance which is made hen available to the Council, home builders and housing consumers.

This approach links companies to certifiers and streamlines the current approval process for building systems which need to be certified by competent persons. A certification body (company) is prequalified to provide a service. The obligations placed on the certifier in many cases are no different to that placed on the competent person in terms of the current Home Building Manual. All that changes is that the company for whom the certifier works is responsible for providing the service and the scheme assesses the qualifications and experience of the person who makes the determination that a system complies with the NHBRC's Technical Requirements.

The schemes will also enable those who have professional designations granted in terms of the National Qualifications Framework Act of 2008 to certify compliance with requirements in respect of components instead of competent persons e.g. roof trusses.

Approved certification schemes will operate in parallel to lists of competent persons as described in Part 8. Home builders will be free to appoint either a certification body or a listed competent person. Market forces will inform such decisions. There are accordingly no cost implications associated with this proposal for either the Council or home builders. There may be reductions in cost due to efficiencies and the engagement of specialists.

4.9 Part 8: Council list of competent persons

Any person who is registered with the required statutory council and has the requite indemnity cover is currently eligible to certify work. The thinking behind this approach is that a competent person will only perform work within the confines of the statutory code of practice governing his or her professional practice. There are several shortcomings in this approach to managing risk.

A new requirement has been introduced for competent persons to be listed by the Council in a specific category in order for them to be able to certify compliance with performance requirements, to certify sites in terms of site class designations or inherent hazard classes or to certify township services on sites underlain by dolomites for compliance with requirements. Applicants need to satisfy certain criteria before being admitted to the list. The Council is also empowered to remove poor performers from the list. This enables the Council to better manage their warranty exposure and regulate the certification of work by such persons.

The admission criteria are essentially the same as those applied by local authorities when accepting the appointment of a competent person in terms of Regulation A19(c) of the National Building regulations.