DEPARTMENT OF LOCAL GOVERNMENT AND HUMAN SETTLEMENTS

GUIDELINES FOR THE USE OF INNOVATIVE BUILDING TECHNOLOGIES IN LOW COST HOUSING DEVELOPMENTS IN THE NORTH WEST PROVINCE

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ABBREVIATIONS

ABBREVIATION	FULL DESCRIPTION
BBBEE	Broad-Based Black Economic Empowerment
BNG	Breaking New Ground
BOQ	Bill of Quantities
CBE	Council for Built Environment
CIBD	Construction Industry Development Board
CSIR	Council for Scientific and Industrial Research
ECSA	Engineering Council of South Africa
EIA	Environment Impact Assessment
FIDIC	International Federation of Consulting Engineers (French)
GCC	General Conditions of Contract for Construction Works
GBCSA	Green Build Council of South Africa
GPS	Global Positioning System
HIA	Heritage Impact Assessment
HOD	Head of Department
HSDG	Human Settlements Development Grant
HSS	Housing Subsidy System
IBT	Innovative Building Technologies
IDoW	Identification of Work
IDP	Integrated Development Plan
IRDP	Integrated Residential Development Programme
JBCC	Joint Building Contracts Committee
LGHS	Local Government and Human Settlements
MEC	Member of the Executive Council
NBR	National Building Regulations
NHBRC	National Home Builders Registration Council
NRCS	National Regulator for Compulsory Specifications

PD	Provincial Department
PICC	Presidential Infrastructure Coordinating Commission
PPPFA	Preferential Procurement Guidelines Framework Act, Act 5 of 2000
PROCSA	Professional Consultants Services Agreement
PSC	Professional Services Contract
PSSC	Professional Services Short Contract
RFP	Request for Proposal
SABS	South African Bureau of Standards
SACAP	South African Council for the Architectural Profession
SACPCMP	South African Council for Project and Construction Management Professions
SACQSP	South African Council for Quantity Surveying Professionals
SAHRA	South African Heritage Resource Agency
SAIA	South African Institute of Architects
SAICE	South African Institution of Civil Engineering
SANAS	South African National Accreditation System
SANS	South African National Standards
SBD	Standard Bidding Document
SIA	Social Impact Assessment
SPLUMA	Spatial Planning and Land Use Management Act, Act 16 of 2013
TOR	Terms of Reference
VAT	Value Added Tax

DEFINITIONS

Agrément Certificate refers to a certificate that confirms fitness-for-purpose of a non-standardised system, element or component and the conditions pertaining thereto (or both) issued by the Board of Agrément. As it relates to Innovate Building and Sanitation Technologies, the National Building Regulations and Building Standards Act, Act 103 of 1977, as amended, follows a performance-based method of compliance, where non-standardised construction needs to satisfy the functional regulations through Agrément certification. In most cases, where the properties are not known, a preferable Agrément Certificate will be required that evaluates the performance aspects thoroughly. The Agrément certification will validate the system in terms of the performance (fire, structure, water penetration and rising damp); habitability (thermal performance and energy usage, condensation, acoustics, and durability); and the quality management system.

Alternative technologies refers to technologies that are more environmentally friendly than the functionally equivalent technologies dominant in current practice.

Appropriately qualified Professional Expert refers to a professional person with the necessary qualifications and relevant experience to provide the required input.

Appropriate technology refers to the sustainable application or operation of a technology to meet national imperatives within the local institutional, financial, social, cultural, ethical, economic and environmental requirements and constraints experienced by the authority or consumer responsible for the technology.

Basic services refers to services such as electricity, water, sanitation, refuse and waste removal which are critical services to improve the quality of the lives of people and in South Africa, government has committed itself to providing a basic amount of free water and electricity to the poor, which are most commonly referred to as free basic services.

Beneficiary refers to a person that receives a housing benefit.

Bill of Quantities refers to the cost analysis completed by a Professional Quantity Surveyor who provides a detailed cost breakdown. The Contractor is paid an amount for the item of work in the bill, which is the rate for the work multiplied by the quantity completed.

Board of Agrément South Africa refers to a body operating under the delegation of authority of the Minister of Public Works.

Broad-Based Black Economic Empowerment refers to a Guidelines of the South African government which encourages companies to help transform the country and encourage broad-based activities that benefits black people. Compliance is measures by means of a scorecard which is based on various elements and a company is measured out of a maximum of one hundred (100) points. The elements on which a company is measured is related to ownership (this measures the percentage of shares in the business that are owned by black people); management control (this measures the percentage of directors, top management and employees that are black); skills development (this measures the amount of money spent on training of black employees); enterprise and supplier development (this measures the amount of money the company spends on helping other black-owned enterprises grow); and socio-economic development (this measures the amount of time the company spends on assisting charitable organizations or charitable activities).

Building refers to construction works that have the provision of shelter for its occupants or contents as one of its main purposes, usually partially or totally enclosed and designed to stand permanently in one place.

Certification body refers to a member of a Council approved certification scheme who provides certification services through certifiers in their employ.

Certificate of compliance refers to a certificate with a unique number obtainable from an approved scheme issued by a certifier in terms of such a scheme.

Certifier refers to a member of a Council approved certification scheme who is in good standing and who is employed by the certification body appointed by the home builder to issue certificates or certificates of compliance with the NHBRC Technical Requirements.

Certificate Holder refers to a person or and entity in whose name an Agrément Certificate is issued.

Compliance method refers to the application of design and construction rules or compliance with referenced standards in order to achieve performance requirements.

Component refers to a product manufactured as a distinct unit to serve a specific function or functions.

Competent Person refers to a Competent Person whose credentials are accepted by the National Home Builders Registration Council (NHBRC) and is admitted to the Council's list of Competent Persons. A Competent Person is a registered person in terms of the Engineering Professions Act, Act 114 of 1990, or a person registered in terms of the Natural Scientific Professions Act, Act 106 of 1993, as amended by Act 27 of 2003.

Contractor refers to the party that will be responsible for constructing the whole house and the housing project such as the Innovative Building Certificate (IBT) certificate holder/licensee who will have respective responsibilities, depending in the type of contractual agreement. The IBT system owner/licensee must be registered as a home building/contractor with the National Home Builders Registration Council (NHBRC) and the Construction Industry Development Board (CIDB) and have relevant experience, financial capability and track record of good quality work to roll-out the required number

of houses (they can sub-contract the other system of the house such as the foundations, roof, services and finishes).

Conditional Assessment Tool refers to the National Home Builders Registration Council (NHBRC) tool used to assess the conditions of innovative building technologies (IBT) that have been built and graded according, which appear in the dynamic IBT database.

Deemed-to-satisfy refers to the Code of Practice for the application of the National Building Regulations with deemed-to-satisfy rules which are applicable for house construction in South Africa as found in SANS 10400. The Code of Practice for construction of dwelling houses in accordance with the National Building Regulations specifically covers the deemed-to-satisfy rules for housing and includes conventional housing, incremental housing and informal housing. It is the National Home Builders Registration Council that enforces National Building Regulation requirements by home builders in the home building industry.

Delegation refers in terms of the Housing Act, Act 107 of 1997, Part 3, Section 7, Sub-sections (1), (2), (3) and (5):

(1) Every provincial government, through its MEC, must after consultation with the provincial organizations representing municipalities as contemplated in section 136(a) of the Constitution, do everything in its power to promote and facilitate the provision of adequate housing in its province within the framework of national housing Guidelines.

(2) For the purposes of sub-section (1) every provincial government must through its MEC:

(a) determine provincial Guidelines in respect of housing development;

(b) promote the adoption of provincial legislation to ensure effective housing delivery;

(c) take all reasonable and necessary steps to support and strengthen the capacity of municipalities to effectively exercise their powers and perform their duties in respect of housing development;

(d) co-ordinate housing development in the province;

(e) take all reasonable and necessary steps to support municipalities in the exercise of their powers and the performance of their duties in respect of housing development;

(f) when a municipality cannot or does not perform a duty imposed by this Act, intervene by taking any appropriate steps in accordance with section 139 of the Constitution to ensure the performance of such duty; and

(g) prepare and maintain a multi-year plan in respect of the execution of the province of every national housing programme and every provincial housing programme, which is consistent with national housing Guidelines and section 3(2)(b), in accordance with the guidelines that the Minister approves for the financing of such a plan with money from the Fund.

(3) An MEC must:

(a) administer every national housing programme and every provincial housing programme which is consistent with national housing Guidelines in section 3(2)(b), and for this purpose may, in accordance with that programme and the prescripts contained in the Code, approve:

(I) any projects in respect thereof; and

(II) the financing thereof out of money paid into the provincial housing development fund as contemplated in section 12(2);

(b) determine provincial housing development priorities in accordance with national housing Guidelines;

(c) apply procurement Guidelines in respect of housing development determined by the Minister in terms of section 3(2)(c); and

(d) administer the assets contemplated in section 14.

(4) The MEC may, subject to conditions he or she may deem appropriate in any instance:

(a) delegate any power conferred on him or her by this Act; or

(b) assign any duty imposed upon him or her by this Act,

to an officer or employee of the department responsible for the administration of housing matters in a province, either in her or her personal capacity or by virtue of the rank he or she holds or the post he or she occupies: Provided that the delegation or assignment does not prevent the person who made the delegation or assignment from exercising that power or performing that duty to himself or herself.

Design life refers to the period of time for which the structural system, element or component performs above the specified level of structural safety and serviceability performance.

Design working life refers to the assumed period for which a home or a part thereof is to be used for its intended purposes without major repair being necessary.

Developer refers to the organ/institution planning and implementing human settlement developments. In the case of the North West Province, the Department of Local Government and Human Settlements remains the Developer, unless a local municipality have been assigned/accredited under the Housing Act, Act 107 of 1997, and the Municipal Accreditation Framework.

Dwelling unit refers to a single unit providing complete, independent living facilities for one or more persons including permanent provisions for living, sleeping, eating, cooking and sanitation which may be separated from or linked horizontally or vertically to other units.

Element refers to a major functional part of a building.

Emerging Contractor refers to emerging contractors as defined by the Guidelines of government statues who can qualify to be a licensee to promote empowerment in technical skills.

End-user education refers to consumer education on alternative or innovative building technologies and its associated service rights, responsibilities, facility operation and maintenance, environmental conservation and demand management including on how to reduce, reuse and to recycle.

Engineer refers to a Competent Person who is registered in terms of the Engineering Professions Act, Act 46 of 2000, and holds an indemnity insurance prescribed by the National Home Builders Registration Council to cover the design and construction of innovative building and sanitation technologies.

Extra-ordinary human settlement development conditions refers to site characteristics which necessitate that some measures over and above the "norm" are required to ensure satisfactory housing outcomes and therefore require intensive precautionary measures to ensure a durable product with investment value. Extra-ordinary human settlement development conditions relate to climatic, topographic (natural ground slope of a site) and geotechnical (inherent geology) conditions.

Factual data refers to materials, statistics, and properties that can be seen, measured or identified by means of accepted or standardised criteria, classifications and tests.

Fire resistance refers to the shortest period for which an element or component complies with requirements for stability, integrity and insulation when tested in accordance with SANS 10177-2 *Fire testing of materials, components and elements used in buildings – Part 2: Fire resistance tests for building elements.*

Fit-for-purpose refers to the ability of a system, element or component to be consistently developed, manufactured, applied and installed such that it fulfills its intended purpose.

Foundation refers to the foundational structure with the primary function to provide adequate support to the structures which they carry, which implies sufficient load bearing capacity to safely resist the effects of the various combinations of permanent and transient loads transmitted to the founding strata, without excessive deformation, which could otherwise compromise the integrity of the structure or impair its use. The safe or allowable bearing pressure is therefore a function of the ultimate load bearing capacity of the ground at the founding level and the load-settlement characteristics of the underlying layers.

General Conditions of Contract for Construction Works (GCC) refers commonly to GCC 2004, is a form of contract that consists of 58 clauses that establishes the general risks, liabilities and obligations of the contracting parties and the administrative procedures for the administration of the contract, i.e. the general conditions of the contract.

Geotechnical site investigations refers to the process of evaluating the geotechnical character of a site in the context of existing proposed works or land usage, which may include:

a) evaluation of the geology and hydrogeology of the site;
b) examination of existing geotechnical information pertaining to the site;
c) excavating or boring in soil or rock and the systematic description of the soil and rock profiles;
d) determining the depth of any fill that might be present;
e) *in-situ* assessment of geotechnical properties of materials;
f) recovery of samples of soil or rock for examination, identification, recording, testing or display;

g) testing of soil or rock samples to quantify properties relevant to the purposes of the investigation;
h) evaluation of geotechnical properties of tested soils;
i) reporting the results; and
j) solutions (where relevant) and conclusions.

Geotechnical solutions refers to a solution designed to reduce total ground movements to levels which can be tolerated by the surface beds, if any, and structural system.

Global positioning system refers to a device capable of receiving time and special information from a constellation of geostationary satellites and translating these degrees of latitude and longitude and elevation with respect to a universal coordinate system.

Greenfield site refers to an undeveloped site earmarked for a new human settlement development project.

Hazard refers to the inherently dangerous quality of a substance, procedure or an event.

High sensitivity site refers to a site that is identified as a site of special significance in terms of requiring and Environmental Impact Assessment (EIA) in terms of the National Environmental Management Act, Act 107 of 1998; or a Heritage Impact Assessment (HIA) in terms of the National Heritage Resources Act, Act 25 of 1999; or a Social Impact Assessment (SIA) in terms of the Local Government Municipal Systems Act, Act 32 of 2000.

Home refers to a meaning assigned in the Housing Consumer Protection Measures Act, Act 95 of 1998:

a) excluding:

a. any building which is constructed with less than two thirds of the floor area designed for residential purposes;
b. homes that are co-owned in terms of the Share Blocks Control Act, Act 59 of 1980 or Property Time-Sharing Control Act, Act 75 of 1983;
c. any home forming part of an informal settlement;
d. any temporary building as contemplated in the National Building Regulations issued in terms of the National Building Regulations and Building Standards Act, Act 103 of 1977; and
e. a shack or caravan.

b) including:

a. a unit to be occupied for residential purposes as contemplated in the definition of "social housing" in Section 1 of the Social Housing Act, Act 16 of 2008;
b. a residential section registered in terms of the Sectional Titles Act, Act 95 of 1986, and any common building;
c. a unit as contemplated in the Housing Development Schemes for Retired Persons Act, Act 65 of 1988;
d. a unit forming part of a housing programme contemplated in the National Housing Code issued in terms of the Housing Act, Act 107 of 1997;
e. the private drainage system from the home up to the municipal connection or up to and including a conservancy or septic tank;
f. water services from the point of supply to the point of discharge at fixtures and appliances;
g. any ancillary buildings such as storerooms, covered walkways, garages, and common facilities;
h. any retaining wall necessary to ensure the structural integrity of the home; and

Housing development or human settlement development is defined in terms of Housing Act, Act 107 of 1997, as the establishment and maintenance of habitable, stable

and sustainable public and private residential environments to ensure viable households and communities in areas allowing convenient access to economic opportunities, and to health, education and social amenities in which all citizens and permanent residents of the Republic will, on a progressive basis, have access to permanent residential structures with secure tenure, ensuring internal and external privacy and providing adequate protection against the elements, and potable water, adequate sanitary facilities and domestic energy supply.

Identified land parcel refers to a tract of land, comprising of one or more farm portions or erven registered in a Deeds Registry, identified for the purpose of housing development under the subsidy scheme.

Indigent refers to a person who is needy.

Infrastructure delivery refers to the combination of all planning, technical, administrative and managerial actions associated with the construction, supply, renovation, rehabilitation, alteration, maintenance, operation or disposal of infrastructure.

Infrastructure procurement refers to the procurement of goods and services including any combination thereof associated with acquisition, renovation, rehabilitation, alteration, maintenance, operation or disposal of infrastructure.

Innovation refers to the introduction of something new as derived from the Latin word "novus" meaning "new"; an innovation is something new bringing along positive elements bettering what existed previously.

Innovative Building Technologies Analyser refers to a tool used by officials, planners and designers that can compare a number of Innovate Building Technology Systems, taking into account 14 climatic zones. The categories that can be rated are

energy performance, distance from suppliers, and economies of scale, local labour forces, lead-time flexibility, accessibility, durability, acoustics, consideration, and fire.

Innovative Building Technologies refers to innovative or alternative building technologies associated with non-standardised construction.

Innovative Building Technologies Database refers to the National Home Builders Registration Council (NHBRC) database of innovative building systems (foundations, walls and/or roofs), which have an active Agrément Certificate or NHBRC rational design approval and have demonstrated adequate performance on the ground, based on a defined set of criteria.

Innovative Building Technologies projects refers to building projects that in this context require the construction of new houses and temporary houses and a whole team of professionals to be appointed.

In situ refers to the original place.

International Federation of Consulting Engineers (FIDIC) refers to the international federation of consulting engineers and prescribes a family of contracts for the civil/mechanical engineering sector and the contracts are normally divided into two parts, with the first part consisting of general conditions and the second part consisting of conditions of particular application to be used in a project.

Joint Building Contracts Committee refers to a series of contracts for the building industry, structure for use by both the private and public sectors. When the employer is a government institution, the document will require an Addendum to be compiled of all the substitutions that are required to be standard clauses as published.

Licensee refers to a person or an entity that is certificated by Agrément South Africa under a certificate holder.

Lifecycle costing refers to a method of economic analysis for all costs related to building, operating and maintaining an energy conservation measure for a project over a defined period of time.

Listed competent person refers to a competent person whose credentials are accepted by the Council of Geoscience and/or the National Home Builders Registration Council, and is admitted to the Council's list of competent persons.

Mixed-use development refers to the development of structures and communities that contain a mixture of residential, business and retail uses.

Municipality means a municipality as contemplated in Section 155 of the Constitution of the Republic of South Africa, Act 108 of 1996.

National Building Regulations refers to building regulations as set out under the National Building Regulations and Buildings Standards Act, Act 103 of 1977, of which regulations includes mandatory performance requirements that support the objectives of the Act which is to ensure the safety and health of persons living or working in any building. It contains SANS 10400 which contains prescriptive rules given for any form of construction that are deemed-to-satisfy.

National Department refers to the National Department of Human Settlements.

National Home Builders Registration Council is established in terms of the Housing Consumers Protection Measures Act, Act 95 of 1998 and the objectives of the Council includes to:

a) represent the interests of housing consumers by providing warranty protection against defects in new homes;
b) regulate the home building industry;
c) provide protection to housing consumers in respect of failure of home builders to comply with their obligations in terms of the Act;
d) establish and promote ethical standards in the home building industry;
e) improve structural quality in the interests of housing consumers and the home building industry;
f) promote housing consumer rights and provide housing consumer information;
g) communicate with and assist home builders to register in terms of the Act; and
h) assist home builders, through training and inspection, to achieve and maintain satisfactory technical standards of home building.

NEC3 Contracts refers to form of integrated and multi-disciplinary sets of contracts for Engineering and Contraction projects covering both construction and associated professional services. However, should an Architect be appointed to lead, contractually one will use the full Professional Services Contract (PSC) for all. If the Architect is appointed to solely carry out architectural duties, the Professional Services Short Contract (PSSC) should be used as well as for other individual professional appointments.

Non-conforming products refers to products and materials that do not meet South African National Standards (SANS) or Agrément South Africa's performance requirements.

Non-standardised construction refers to any form of building that utilizes building systems, methods, materials, elements or components that are not fully covered by existing standards and specifications or codes of practices and/or are not described or referred to in the "deemed-to-satisfy" rules of the National Building Regulations.

Passive design refers to a design approach that uses natural elements, often sunlight to heat, cool or light a building.

Precautionary measures refers to preventative measures required to ensure a durable product with investment value.

Principal Agent refers to an entity appointed by the employer with full authority and obligation to act in terms of the Joint Building Contracts Committee (JBCC) Agreement. There is no mandatory requirement of who should be the Principal Agent, however, a tertiary qualification in a building-related field is deemed appropriate as well as the ability to manage people and the project in terms of relevant experience.

Principal Consultant refers to a person or entity appointed by the employer to manage and administer the services of all other consultants.

Procurement refers to procedures that must be fair, equitable and transparent for the acquisition of housing goods and services.

Project Manager refers to a person appointed by a Provincial Department of Human Settlements who deals with the programming, time control and other management aspects related to project management.

Provincial Department refers to the North West Provincial Department of Local Government and Human Settlements, which can inter-changeably used with "Employer", of which the Provincial Department/Employer refers to the Provincial Department contracting with the Contractor for the execution of the works.

Rational Design Approval refers to a rational design approval by a Competent Person and involves a process of reasoning and calculation, which may include a design based on the use of standard or other suitable documents. It is the system owner's (who is registered with the Engineering Council of South Africa in a professional category) responsibility to provide rational design calculations that satisfy National Building Regulations and the report must contain design assumptions, detailed calculations,

references to necessary design standards and detailed design drawings and the structural design calculations must demonstrate structural integrity and stability as well as connection details. Critical topics that must also be included in the submission should cover the strength and stability of structural performance, fire resistance, water penetration, condensation, thermal abilities, acoustics, as well as a construction process manual and quality control manual. The National Home Builders Registration Council Technical Division reviews rational designs and once it demonstrates compliance to the National Building Regulations, a letter of approval is issued to the system owner. The performance of alternative or innovative systems are reviewed annually and letters of approval are renewed, provided that the National Home Builders Council have not received any reports of system failure.

Reliability refers to the ability of a structure or a structural element to fulfill the specified requirements, including the design working life, for which it has been designed.

Risk management refers to the identification, assessment and prioritization of risks followed by coordinated and economical application or strategy of resources to minimize, monitor and control the probability and/or impact of unfortunate events or to maximize the realization of opportunities.

Risk management strategy refers to an approach or set of principles according to which plans are built to reduce risk.

South African National Accreditation System refers to a single National Accreditation Body that gives formal recognition that Laboratories, Certification Bodies, Inspection Bodies, Proficiency Testing Scheme Providers, and Good Laboratory Practice test facilities are competent to carry out specific tasks.

Standard refers to a document that provides for common and repeated use, rules, guidelines or characteristics for products, services, or processes and production methods,

including terminology, symbols, packaging, marking or labelling requirements as they apply to a product, service, process or production method.

Structural system refers to the system of constructional elements and components of a home which is provided to resist the loads acting upon it and to transfer such load to the ground upon which the home is founded.

Technical Assessment Tool refers to a tool used for scoring Innovative Building Technology systems on the database in terms of technical performance.

Variation calculator refers to an electronic calculator has been developed for use when calculating the adjustment of the subsidy amount. The formulas used in the calculator are based on the extraordinary development conditions and the subsidy amount available during a specific financial year. Following the adjustment of the subsidy amount, an updated calculator is made available by the National Department of Human Settlement. To facilitate the evaluation of project applications, the Variation Manual is supported by an automatic variation amount calculator. This calculator operates through the software programme Microsoft Word Excel and is available from the National Department of Human Settlement. The calculator will annually be adjusted by the National Department of Human Settlements in line with the subsidy quantum changes. It is important to note that although the calculator can be used to determine variation amounts required for the adjustment of the project cost at project application stages, the actual variation amount must be determined based on professional assessment of the extraordinary development conditions and the costing of the precautionary measures designed by the professionals. A geotechnical calculator was developed for the Department, in line with the National Department's variation calculator, in 2004, by Sonderland and Schutte Consulting Engineers, to be used by the Department for the calculation of geotechnical variations, which remains in use in the Department until such time deemed otherwise by the Accounting Officer of the Department.

1. INTRODUCTION

It is the legislative mandate of the Department of Local Government and Human Settlements (LGHS) to ensure that beneficiaries of low cost housing development options are provided with quality housing that provides an investment value for beneficiaries in the long run. Human dignity, quality of life and environmental security at household level is key in developing sustainable and viable human settlements. The housing sector is a fundamental and strategic sector that is linked with improving the standard of living and it depends highly on technological innovation as a constant driving force to provide quality housing at scale but at minimum cost simultaneously.

It is generally not known that innovative and non-standardised building technologies need more analysis to ensure health, safety and safe environments due to technical complexities as compared to bricks and mortar, hence innovative building technologies are subject to well-designed systems that follow a systematic approval and selection process due to its technical complexities. Therefore, good governance in terms of public procurement is critical in the implementation of innovative building technologies to ensure that delivery of quality products remains the key ingredient to procurement of experienced and certificated innovative building expert developers. Through employing innovative ideas in the building of low-cost housing at scale will assist in addressing the huge housing backlog and it will through innovative and sustainable solutions create jobs, improve low-carbon designs and include social responsibility and upliftment.

Employing innovative building technologies have its desirous advantages, of which the desirous benefits determines whether government or prospective home owners will choose non-standardised construction as a preferable option. The major benefits of innovative building technologies are classified into four categories of economic factors whereby it proves to have improved upfront costs, improved market values, and improved profitability in the long run through life cycle costing or cost benefit analysis of the total building; construction factors whereby it eases construction, it lowers maintenance, and

improves the rate of construction and reduces labour costs; environmental factors as it improves energy efficiency, improves embodied energy and ensure less wastage; and social factors as it is socially acceptable through architectural enhancement.

Innovative building technologies are relevant, especially from the housing subsidy perspective as government is concerned with the huge backlog in housing delivery as well as the increasing slum conditions that seems non-eradicable. Its relevance is found in improving the quality of houses by finding ways that the poor can access affordable housing.

Protocols as it pertains to deemed-to-satisfy and fit-for-use innovative building technologies have been developed through the National Home Builders Council in respect of innovate building technologies in line with all relevant and applicable legislation. In the planning, inclusion and implementation of innovative building technologies in low cost housing or human settlement developments, it becomes imperative to observe these protocols in order to ensure that the Department approves the use of the best cost-effective alternative technologies which are safe, healthy, easily maintainable, affordable, socially and culturally acceptable.

The aim of this Guideline is to assist the Department of Local Government and Human Settlements to plan, budget and construct good quality innovative build subsidized houses with innovative building designs through the application of legislation and Guidelines guidelines/frameworks guiding innovative building technologies.

An array of research and legislative prescripts are available on innovative building technologies, and therefore this Guideline should not be read and implemented in isolation from all the relevant, listed and referred legislation in this Guideline. The Guideline should further be read in conjunction with all relevant and applicable legislation, whether directly referred to or not in this Guideline.

2. PURPOSE OF THE GUIDELINE

The purpose of this Guideline serves as a guide in respect of the application and implementation of quality innovative building technologies in low-cost human settlement development housing programme options and therefore serves as an aiding decision-making tool for the Department to make well-informed selections.

It is critical that innovative building technologies should be selected in terms of their benefits and functionality such as improved construction turnaround time, lifecycle costing, bulk upfront costs, energy efficiency, sustainability principles, maintenance plans, environmental soundness, reliability, serviceability, and so on, hence the purpose of this Guideline.

The risk of not complying with the standards in this Guideline in conjunction with relevant legislation ultimately bears negative consequences of development and a legal risk of applying poor quality innovative building technologies in low cost housing developments and therefore, the risks needs to be managed and the responsibility thereof lies with the accountable officials within the Department.

3. SCOPE OF APPLICATION

This Guideline applies to decisions to be made in respect of the application and implementation of innovative building technologies in national housing programmes that are implemented in the North West Province as it pertains to innovative building technologies employed in the of delivery low-cost housing to beneficiaries of government subsidized assistance.

4. OBJECTIVES OF THE GUIDELINE

The main objectives of this Guidelines are to:

4.1. Ensure the best innovative building technologies are employed in low-cost human settlement developments at scale within acceptable cost, effectively and efficiently.

4.2. Ensure that the use of alternative or innovative building technologies in low cost housing developments are healthy, safe, environmentally sound, simple to use, affordable, culturally and socially acceptable, and requires minimum operation and maintenance.

4.3. Promote the use of alternative or innovate building technologies in the delivery of low-cost human settlement developments.

4.4. Ensure uniform implementation guidelines in respect of all aspects of employing innovative building technologies for low-cost human settlement developments.

4.5. Ensure good governance in public procurement as it relates to innovative building technologies for low-cost human settlement developments.

5. PRINCIPLES UNDERPINNING THIS GUIDELINE

This Guideline is underpinned by the following principles:

5.1. Creating an environment where the rights to access to adequate, safe, healthy and dignified housing is upheld in respect of all citizens of the North West Province.

5.2. Creating integrated, viable, sustainable, healthy and safe human settlement environments.

5.3. Creating homes that are safe and healthy for human consumption.

5.4. Creating an enabling environment where applicable legislation, rules and regulations and observed and implemented to ensure health and safety of beneficiaries of housing programmes.

6. LEGISLATIVE MANDATE

6.1. Accreditation for Conformity Assessment, Calibration and Good Laboratory Practice Act, Act 19 of 2006

The South African National Accreditation System (SANAS) is responsible for carrying out accreditations in respect of conformity assessments mandated through this Act. It is a single National Accreditation Body that gives formal recognition that Laboratories, Certification Bodies, Inspection Bodies, Proficiency Testing Scheme Providers, and Good Laboratory Practice test facilities are competent to carry out specific tasks.

6.2. Broad-Based Black Economic Empowerment Act, Act 53 of 2003, as amended by Act 46 of 2013

It is the main objective of the Broad-Based Black Economic Empowerment Act to promote economic transformation in order to enable meaningful participation of black people in the economy to achieve a substantial change in the racial composition of ownership and management structures and in the skilled occupations of existing and new enterprises thereby increasing the extent to which communities, workers, cooperatives and other collective enterprises own and manage existing and new enterprises by increasing their access to economic activities, infrastructure and skills training, as well as to increase the extent to which black women own and manage existing and new enterprises. The Act further promotes investment programmes and access to finance that lead to broad-based and meaningful participation in the economy by black people in order to achieve sustainable development and general prosperity.

6.3. Building Regulations and Building Standards Act, Act 103 of 1977

The Building Regulations and Building Standards Act provides for the promotion of uniformity in law relating to the construction of buildings and prescribing of building standards. The Regulations consists of the following parts, ALL equally applicable to human settlement developments for government: Part A: Administration; Part B: Structural Design; Part C: Dimensions; Part D: Public Safety; Part E: Demolition Work; Part F: Site Operations; Part G: Excavations; Part H: Foundations; Part J: Floors; Part K: Walls; Part L: Roofs; Part M: Stairways; Part N: Glazing; Part O: Lighting and Ventilation;

Part P: Drainage; Part Q: Non-waterborne means of Sanitary Disposal; Part R: Storm water Disposal; Part S: Facilities for Disabled Persons; Part T: Fire Protection; Part U: Refuse Disposal; Part V: Space Heating; Part W: Fire Installations.

The National Building Regulations are concerned with the protection of property and general safety, health and convenience of the public in relation to the building of homes, the design and construction of homes which are not harmful to the health or well-being of users and occupiers, and ensuring that certain solutions that are adopted for homes contribute positively to environmental sustainability. South African National Standards (SANS) establishes the level of performance (quantitative requirements) and "deemed-to-satisfy" provisions and the means by which functional requirements established in the regulations may be satisfied by application of a set of rules, national assessments or rational designs by a Competent Person and Agrément certification. All applicable SANS regulations should be consulted in conjunction with this Guidelines.

6.4. Constitution of the Republic of South Africa, Act 108 of 1996

The Constitution of the Republic of South Africa, in Section 10, prescribes that everyone has an inherent right to dignity and the right to have their dignity respected and protected, which is critical in the implementation of housing programme. Essential for the Department to observe is Section 26 which prescribes that everyone has a right to have access to adequate housing and that the state (the Department) must take reasonable legislative measures within its available resources to achieve this progressive right.

Emphasis is on placed on adequate housing as adequate housing is inclusive of housing that is safe, meaning that all reasonable precaution should be taken where human settlements are developed such that safety of beneficiaries are guaranteed, as it also states in Section 24(a) that *everyone has the right to an environment that is not harmful*

to their health or well-being whereas Section 152(1)(d) states that *the objective of local government is to promote health and safety of its inhabitants.*

6.5. Consumer Protection Act, Act 86 of 2008

This Act provides for the protection of the interests of consumers and for that purpose to make provision for the establishment of consumer councils and other authorities for the settlement of consumers' disputes and for matters connected therewith. This Act has an impact particular on the design of homes as it gives every consumer a right to receive goods (tangible objects) that are not only reasonable suitable for purposes of which they are generally intended, but also comply with any applicable standards as set out under the Standards Act, Act 8 of 2008.

6.6. Council for Built Environment Act, Act 43 of 2000

The Council for Built Environment Act promotes and protects the interests of the public in the built environment. It further promotes and maintain sustainable built and natural environments in cohesion with each other. It promotes ongoing human resource development in the built environment. The Act facilitates participation and sound governance by built environment professionals in integrated development in the contact of national goals and priorities. The Act promotes compliance with and uniform implementation and application of applicable norms and standards in the built environment. It establishes a professional forum where professionals can engage regarding the built environment.

6.7. Engineering Profession Act, Act 46 of 2000

The Engineering Professions Act establishes the Engineering Council of South Africa which provides through this Act for the registration of professionals, candidates and specified categories in engineering professions. The Act further provides for the regulation of the

relationship between the Engineering Council of South Africa and the Council for the Built Environment. Of importance is the mandatory requirement of Principal Agents and the professional teams that are appointed, that they are registered with the Engineering Council of South Africa and that their registrations are valid and current when bidding to participate in the implementation of innovative building technologies in low cost housing developments.

6.8. Environment Conservation Act, Act 73 of 1989

This Act provides for the effective protection and controlled utilization of the environment and therefore forthrightly states that no development, which has a detrimental effect on the environment, can take place without the consideration of the Minister for Environmental Affairs and Tourism in terms of Part V of this act. The Minister may grant exemption from compliance with any or all of the provisions of the regulations in the Act, or may refuse to do so. The steps for application for exemption are listed in the Act.

6.9. Environmental Management Act, Act 107 of 1998

The main objective of this Act is to ensure that environmental management must place people and their needs at the forefront related to their environment. This Act states that *all actions by organs of state that may significantly affect the environment shall apply alongside all other appropriate and relevant considerations* which includes government's obligation to protect, respect, fulfill and promote the economic and social rights of all people.

6.10. Environmental Management: Waste Act, Act 59 of 2008

This Act provides for rules and regulations with regards to contaminated land. In line with this Act, contaminated land refers to the *presence in or under any land, site, buildings or structures of a substance or micro-organism above the concentration that is*

normally present in or under that land, which substance or micro-organism directly or indirectly affects or may affect the quality of soil or the environment adversely.

This Act applies to all hazardous substances that can contaminate land and water and therefore, in the event there is any suspicion of contamination of land and water in an area of proposed human settlement development, the Department of Environment and Conservation and the Department of Water Affairs should be consulted on the basis of this Act to test for the contaminants to be able to establish whether development in such areas should take place or not.

6.11. Geoscience Amendment Act, Act 16 of 2010

This Act provides for the establishment of the Council for Geoscience as the custodians of geotechnical information and to act as an advisory authority in respect of geohazards related to infrastructure and development. The Act permits the Council to review and evaluate all geotechnical reports in respect of geohazards that may affect infrastructure and development.

6.12. Heritage Resources Act, Act 25 of 1999

The Heritage Resources Act provides for an integrated and interactive system for the management of national heritage resources and promotes good governance at all levels as well as empowering civil society to nurture and conserve their heritage resources so that they may be bequeathed to future generations. The Act lays down general principles for governing heritage resource management in the country as well as systems for the identification, assessment and management of heritage resources. It further establishes the South African Heritage Resources Agency with its Council which coordinates and promotes the management of heritage resources. As it pertains to low cost housing developments, this Act provides for the facilitation of heritage impact assessments for human settlement developments that might have a detrimental impact on the heritage

resources of the country and such assessments should be conducted by qualified and competent Heritage Consultants.

6.13. Housing Act, Act 107 of 1997

The Housing Act is the primary piece of legislation for the housing mandate in South Africa and it legally entrenches Guidelines principles outlined in the 1994 White Paper on Housing which provides for sustainable housing development processes, laying down general principles for housing development in all spheres of government, defining functions of national, provincial and local governments in relations to housing development; and it lays a foundation for the financing of national housing programmes.

In terms of this Act, Section 1 (vi) housing development can be seen as the *establishment and maintenance of habitable, stable and sustainable public and private residential environments to ensure viable households and communities in areas allowing convenient access to economic opportunities, and to health, educational and social amenities in which all citizens and permanent residents of the country will on a progressive basis have access to permanent residential structures with secure tenure, ensuring internal and external privacy and providing adequate protection against all the elements and potable water, adequate sanitary facilities and domestic energy supply.*

Part 3, Section 7, Sub-sections (1), (2), (3) and (5) delegate provincial Guidelines making functions in terms of human settlement development in a Province to the Member of the Executive Council (MEC) for Human Settlements. It further provides for the Housing Code setting out principles, guidelines, and norms and standards which apply to government's various housing assistance programmes that were introduced since 1994 and which were updated on a regular basis.

6.14. Housing Code, 2009

The National Housing Code sets out the underlying principles, guidelines, and norms and standards which apply to government's various housing assistance programmes that were introduced since 1994. The main purpose is to provide an easy to understand overview of the various housing subsidy instruments available to assist low income households to access adequate housing.

6.15. Housing Consumer Protection Measures Act, Act 95 of 1998

This Act requires the NHRBC to publish a Home Building Manual, which contains the Technical Requirements (2014) prescribed by the Minister and guidelines established by the NHBRC to satisfy such requirements. The NHBRC Home Building Manual, amongst others, describes the roles and responsibilities of different role players assigned in terms of the primary pieces of legislation governing the design and construction of homes, i.e. the National Building Regulations and Building Standards Act, Act 103 of 1977; the Housing Consumer Protection Measures Act, Act 95 of 1998; and the Occupational Health and Safety Act, Act 85 of 1993. The NHBRC Technical Requirements includes standards in line with the prescripts of the National Standards Act, Act 8 of 2008, i.e. performance requirements, evaluation, geotechnical investigations to determine foundation parameters, development of land underlain by dolomite, greenfield developments, approved certification schemes, and a Council list of Competent Persons.

6.12. Municipal Systems Act, Act 32 of 2000

The Municipal Systems Act sets out legislation that enables municipalities to uplift their communities by ensuring access to essential services. The Act defines the legal nature of a municipality as including the community and clarifies the executive and legislative powers of municipalities. The Act seeks to boost effective local government by establishing a framework for municipal planning, performance and the use of resources. The Act also ensure that municipalities put in place service tariffs and credit control

policies that take the needs of the poor into account and it promotes the participation of local communities in local governance.

6.13. National Treasury Standard for Infrastructure Procurement and Delivery Management, 2016

This Guidelines establishes a control framework for the planning, design and execution of infrastructure projects and infrastructure procurement as it relates to institutional arrangements, demand management, acquisition management, contract management, logistics management, disposal management, risk management, as well as providing minimum requirements for infrastructure procurement. It is of great importance that the Department adheres to these guidelines in all instances of procurement that is related to infrastructure management.

6.14. National Regulator for Compulsory Specifications Act, Act 5 of 2008

This Act enables the National Regulator for Compulsory Specifications (NRCS) to issue compulsory specifications, especially technical requirements that require conformity of a product or service to health, safety or environmental protection requirements of a standard, or specific provision/s of a standard.

6.15. Occupational Health and Safety Act, Act 85 of 1993

This Act provides for the health and safety of persons at work and for the health and safety of persons in connection with the use of plant and machinery and the protection of persons other than persons at work against hazards to health and safety arising out of or in connection with the activities of persons at work.

6.16. Preferential Procurement Guidelines Framework Act, Act 5 of 2000

The Preferential Procurement Guidelines Framework Act provides for the implementation of a procurement Guidelines for a category of preference in awarding contracts and for the protection and/or advancement of persons or categories of persons disadvantaged by unfair discrimination. The Act stipulates that when government assesses contracts, it must take into account a preference system which prescribes functionality, price, and reconstruction and development programme goals.

6.17. Social Housing Act, Act 16 of 2008

The Social Housing Act establishes and promotes sustainable social housing environments by outlining the roles and responsibilities of all spheres of government and the establishment of Social Housing Regulatory Authority. It further provides for the establishment and operations of SHRA who is responsible for the accreditation of SHI's as well as the implementation of SH and CRU projects as grant funding for these projects are now allocated to SHRA, and no longer to provinces.

6.18. Spatial Planning and Land Use Management Act, Act 16 of 2013

This Act provides a framework for spatial planning and land use management and specifies the relationship between spatial planning and land use management systems and other kinds of planning by providing a framework for policies, principles, norms and standards for spatial development planning and land use management. This Act redresses past spatial and regulatory imbalances and promotes greater consistency and uniformity in the application procedures and decision making by authorities responsible for land use decisions and development applications. This Act seeks to address sustainable development of land which requires integration of social, economic and environmental considerations in both forward planning and ongoing land use management to ensure that development of land serves past, present and future generations and promote ongoing social and economic inclusion.

6.19. Standards Act, Act 8 of 2008

The Standards Act provides for the development, promotion and maintenance of standardization and quality in connection and rendering of related conformity assessment services to ensure provision of an internationally recognized standardization system that continue to support the needs of South African enterprises. The South African Bureau of Standards (SABS) is a statutory body that was established in terms of the this Act as the national standardization institution of South Africa which is mandated to develop, promote and maintain South African national standards, promote quality in connection with commodities, products and services, and render conformity assessment services and assist in matter connected therewith.

It becomes necessary to differentiate between the SABS and the Board of Agrément South Africa, of which the latter is an independent body under a ministerial delegation of authority from the Minister of Public Works. Agrément South Africa assesses and certifies fitness for purposes of systems, elements and components intended for use in construction of buildings and infrastructure which fall outside the scope of existing standards established by the SABS. Fitness-for-purpose in this context means the ability of the system, element or component to be consistently developed, manufactured, applied and installed such that it fulfills its intended purposes.

6.20. Value-Added Tax Act, Act 89 of 1991

The Value Added Tax (VAT) Act provides for tax that is levied on the supply by a vendor of goods or services in the course and furtherance of any enterprise carried on by a vendor. VAT is an indirect tax based on consumption of goods and services in the economy. It is a tax added to the cost of a product or service and is levied for purposes of generating revenue for the government.

6.21. Guidelines on Geotechnical Site Investigations in relation to Extra-Ordinary Human Settlement Development Conditions and Applicable Variations, LGHS, 2018

The purpose of this Guidelines is that it serves as guidelines in respect of extra-ordinary human settlements development conditions which may influence the design and economic appraisal of geotechnical site investigations performed by consultants who are Competent Persons appointed by the Department. It further provides a basis for decision-making regarding the application of variations in terms of extra-ordinary human settlement development conditions as well as to provide for the correct processes that should be followed to determine whether variations and which variations should be applied or not as precautionary measures in the development of human settlements in order to ensure the delivery of the highest quality of housing products that are acceptable to beneficiaries and that will ensure durable products with investment value.

The main objective of this Guidelines is to ensure that correct measures are applied through Competent Persons in cases where human settlement developments are taking place in areas where extra-ordinary development conditions are evident. To comply with this objective Developers must investigate the proposed development site through Competent Persons for any extra-ordinary development conditions as identified in the Guidelines before submission of the application; the investigation and confirmation of the existence of extra-ordinary human settlement development conditions must be done by appropriately qualified Competent Persons; all precautionary measures must be confirmed and designed by appropriately qualified Competent Persons; the construction and/or installation of the precautionary measures must be supervised by appropriately qualified Competent Persons and the departmental Technical Services Advisor; the responsible appropriately qualified Competent Persons and the departmental Technical Services Advisor must certify in writing compliance with the design and construction specifications of the precautionary measures before any payment of milestones; and any housing subsidy project application that includes an application for an adjustment of the

subsidy amount due to extra-ordinary development conditions will require quantitative verification in the form of a comprehensive report by an appropriately qualified Competent Persons to the specifications of the National Home Builders Regulation Council (NHBRC).

6.22. Guidelines on Housing Development Project Processes, LGHS, 2018

This Guidelines seeks to, in line with the purpose of the Guidelines, provide guidelines and procedures in relation to housing development processes which are project based to ensure that all human settlement projects are implemented uniformly, effectively, efficiently ensuring optimum utilization and minimal wastage of state resources. The purpose of this Guidelines is to assist with the development and implementation of quality contract and project management plans for housing projects that will be undertaken by the Department; ensure that quality is an integral part of every housing project; reduce re-work and/or extensions on/of housing projects; compliance with all relevant sector-related norms, standards and legislative prescripts; ensure that houses meet the satisfaction of the beneficiaries of low cost housing options as the customers of the Department.

6.23. Supply Chain Management Guidelines for Infrastructure Procurement and Delivery Management (SIPDM) for the Department of Local Government and Human Settlements, 2017

This Guidelines was established to regulate infrastructure delivery management in LGHS in accordance with the provisions of the regulatory frameworks for procurement and supply chain management and includes the procurement of goods and services necessary for the building of new facilities to be used as functional entities. The Guidelines directs that all infrastructure procurement and delivery management shall be undertaken in accordance with the applicable legislation and relevant requirements of the National Treasury Standard for Infrastructure Procurement and Delivery Management and that no

departure will be made from the provisions of this Guidelines without the approval of the Accounting Officer of LGHS and the National Treasury.

7. ROLES AND RESPONSIBILITIES

7.1. National Department of Human Settlements

7.1.1. Sets national Guidelines in terms of technical requirements and publish subsidy quanta with applicable variations under the authority of the Minister for Human Settlements from time to time as it pertains to human settlement delivery.

7.2. Provincial Department of Local Government and Human Settlements

7.2.1. Only the MEC for the Department can approve the use of innovative building technologies in housing development programmes and relevant approval must be sought from the MEC through inclusion in the Department's Human Settlements Business Plan and proper submission to the MEC for approval.

7.2.2. The Department must observe and comply with all relevant and applicable legislation pertaining to innovative building technologies in order to ensure quality standard products are delivered at a value for money.

7.2.3. The Department must ensure that communities that will be receiving innovative building technologies, should be trained in all aspects of the innovative building technology as well as maintenance of such technologies, inclusive of their rights and responsibilities as housing consumers through the IBT system holder/certificate holder/licensee at cost of the IBT system holder/certificate holder/licensee. This should

commence before the project is implemented as well as just before handover takes place and the Department must keep record of each beneficiary having received innovative building technology consumer education.

7.2.4. The Department must appoint a Champion, who should be a Technical Expert in Human Settlement Development, located in Human Settlements for the implementation of this Guideline who will be working hand-in-hand with the relevant sections in the Department to ensure that quality innovative building technologies are implemented at scale, as well as the direct liaison with the MEC in the implementation of this Guideline.

7.2.5. The Department, Supply Chain Management, must at each and every tender process for the application of innovative building technologies consult with the relevant protocols and databases and provide proof of consultation to ensure decisions are made based on technical and functional assessments of such technologies to ensure that poor performing technologies are not considered for inclusion in low cost housing developments.

7.2.6. All Supply Chain Management bid evaluation and adjudication panels should include a Human Settlement Technical Services expert as it pertains to tenders related to innovative building technologies.

7.2.7. The Department's Professional Team, who will be conducting the evaluation of already-implemented IBT systems in the Province for future IBT projects, will be headed by a Technical Expert from the Human Settlements division, and will comprise of a panel comprising of a Building Inspector, an Engineer, a Quantity Surveyor, an official from Human

Settlements Monitoring and Evaluation, and an official from Supply Chain Management.

7.3. **Municipalities**

7.3.1. Municipalities are obliged to ensure that the health and safety of inhabitants living within its jurisdiction is ensured in line with Section 152(1)(d) of the Constitution of South Africa, Act 108 of 1996, meaning that Municipalities must put in place risk prevention mechanisms to deal with the health and safety of its inhabitants.

7.3.2. Municipalities are obliged to ensure that all buildings are constructed in terms of the National Building Regulations and Building Standards Act, Act 103 of 1977, and the National Building Regulations.

7.4. **NHBRC**

7.4.1. NHBRC maintains the NHBRC Accredited Database of Innovative Building Technologies Developer for the construction of houses that are constructed through innovative building technologies.

7.4.2. The NHBRC promotes the implementation of IBT's at scale throughout low cost housing human settlement developments.

7.4.3. The NHBRC guides the effective and efficient implementation of IBT that are of high quality and that proves to have value for money.

8. DELIVERABLES OF THE GUIDELINE

SECTION 1:
GUIDELINES FOR IMPLEMENTING INNOVATIVE BUILDING TECHNOLOGIES

8.1. Budgeting for the implementation of innovative building technologies (IBT's)

8.1.1. A minimum of five percent (5%) of the total Human Settlements Development Grant (HSDG) allocation for new structures (foundations, walls, roofs, finishes and services) must be set aside for IBT's and thereafter incrementally increased on its merits and this ring-fencing must take place at a Provincial level.

8.1.2. The Department must therefore ensure that the minimum of five percent (5%) is included in the HSDG business plan annually and linked with the budget of the HSDG.

8.2. Demand, feasibility and preferential implementation of IBT's

8.2.1. Development of IBT structures must only commence when municipalities have completed township establishment and included infrastructure for water, roads, drainage and electricity; and the services must be verified by Engineers to ensure houses are completed in compliance with health and safety requirements.

8.2.2. It has to be verified that proper preparation has been done which comprises of a demand analysis and feasibility studies on the location and type of the development to foster well-planned communities. The desired achievement in settlement formation must be clarified and

outlined in terms of the CSIR Guidelines for Human Settlement Planning and Design Volumes 1 and 2.

8.2.3. IBT can only be implemented in national housing programmes that are being implemented by the province which were identified through relevant consultation processes and the Department must follow processes outlined in this Guideline that will improve the overall quality of low-income IBT houses and ensure social acceptability.

8.3. Procurement processes in respect of IBT's

8.3.1. All Supply Chain Management bid evaluation and adjudication panels must include a Human Settlement Technical Services expert as it pertains to tenders related to innovative building technologies.

8.3.2. It is preferable that a priced document or a target cost pricing strategy is selected. The target cost could be the best option as it provides better collaboration between the employer and consultant because they have a degree of risk with regard to cost. The target cost is estimated and upon completion, the difference between the target cost and the actual cost is paid.

8.3.3. The Construction Industry Development Board (CIDB) have recommended forms of contracts such as:

8.3.3.1. FIDIC (French acronym for the International Federation of Consulting Engineers) 1999;

8.3.3.2. General Conditions of Contract for Construction Works (GCC2004);

8.3.3.3. JBCC (Joint Building Construction Committee) Series 2000; and the

8.3.3.4. NEC3 family of standard contracts.

8.3.4. The FIDIC, GCC2004 and NEC3 are recommended for all construction and engineering contracts. JBCC Series 2000 is recommended for low-cost housing developments as it mainly consists of building works, but this Guideline does not preclude using the other forms of contracts for low-cost housing developments.

8.3.5. In terms of JBCC contracts, there are two main types of appointment that can be considered:

8.3.5.1. The Department can follow a package deal approach and appoints a professional as the Principal Consultant and Principal Agent who in turn appoints the consultants/team. Payments are made through the Principal Consultant who will have to negotiate a special indemnity insurance for carrying the risk of liability, should any consultant be negligent. The Principal Consultant can enter into a Joint Practice agreement with all other consultants.

8.3.5.2. The Department can appoint and pay consultants individually. Professionals are responsible for their work to the employer in terms of best-practice principles of the relevant professional councils. The Principal Consultant and Agent take responsibility for their contractual role in terms of the JBCC and coordinates the consultants accordingly.

8.3.6. A standard client/consultant document is used to confirm the agreement:

8.3.6.1. Make use of the Professional Consultants Services Agreement (PROCSA) or consensus agreement composed and accepted by all of the constituent/professional bodies, of which agreement regulates the terms of engagement between the client and the consultants.

8.3.6.2. Make use of the South African Institute of Architects (SAIA) agreement that sets out the services and related conditions of the agreement between the client and the architect.

8.3.7. There are two types of building works contracts prescribed by the JBCC Series 2000. The Minor Works Agreement is recommended for projects up to approximately R3m; and above that amount, the Principal Building Contract is prescribed; of which contract is signed between the Department of the Principal Agent and Contractor.

8.3.8. The scope of works for the Principal Consultant/Agent is clarified in the client/architect agreements, in the PROCSA agreement or in specially formulated legal agreements. There are six work stages prescribed by PROCSA, as follows:

8.3.8.1. Stage 1: Inception: Establish client requirements and preferences, assess user's needs and options, appointment of necessary consultants and establish a project brief and project objectives.

8.3.8.2. Stage 2: Concept and viability: Finalize the project concept and feasibility.

8.3.8.3. Stage 3: Design development: Develop the concept design into a final stage and define the parameters for scope, time and quality.

8.3.8.4. Stage 4: Tender documentation and procurement: Prepare procurement and construction documentation and ensure that appropriate procurement strategies are in place for effective execution of the project.

8.3.8.5. Stage 5: Construction: Manage, administer and monitor contract processes and procedures to ensure effective execution of works.

8.3.8.6. Stage 6: Close-out: Complete project close-out and handover.

8.3.9. The request for proposal/tender must include the following (Section 2 of this Guideline outlines the recommended format of a request for proposal/tender invitation):

8.3.9.1. A definition of what IBT's are and why they are used in human settlement developments.

8.3.9.2. General requirements for the IBT project, i.e. the site, the house description, specific requirements on sustainability, site sensitivity, location, social investigation and budget.

8.3.9.3. Project overview, i.e. the objective, scope of works, terms of reference for building works, budget, appointment of professionals and the whole team, context, professional works required, documentation, project management, required outputs, and project schedule.

8.3.9.4. Technical data required to be submitted by the bidder.

8.3.9.5. Technical evaluation criteria.

8.3.9.6. All types of certification that will be required to be submitted with the bid by bidders.

8.3.9.7. Proof of bidders experience should be provided, and the proof of experience would differ according to the scale of the IBT project.

8.3.9.8. The Department must indicate any special extra-ordinary geotechnical conditions that may have an impact on the delivery of low cost housing as it pertains to IBT's.

8.3.10. At a tendering stage, when appointment of contractor occurs for new building projects, they must be registered with the CIDB and the NHBRC. CIDB registered contractors are graded in terms of financial and work capability and NHBRC provides a status for contractors in terms of the quality of work on the relevant scale of housing project completed.

8.3.11. For any building works, the Department should obtain relevant guarantees and warrantees and the Department should request from the contractors the Contractors All Risk Insurance Covers which refers to the ability to carry the project financially, registration, experience and reference.

8.3.12. A warranty should be provided by the IBT manufacturer that applies after the defects liability period.

8.3.13. The contractor in an IBT project must be an IBT certificate holder or licensee who must in essence prove his/her capability in delivering good quality homes for the relevant scale of the project, which are durable, require minimum maintenance and provide a proper maintenance plan.

8.3.14. The Department must verify the IBT contractors/certificate holders/licensees against the NHBRC IBT Database and the systems must be verified against the IBT Analyser, of which comprises of multiple

criteria in various climatic conditions in the country. The categories for multi-criteria that are rated are energy performance, distance from suppliers, and economies of scale, local labour forces, lead time flexibility, accessibility, durability, acoustics, condensation and fire.

8.3.15. A better cost evaluation must be ascertained by requesting a lifecycle cost analysis compared to conventional bricks and mortar.

8.3.16. It necessary to add the necessity of passive design solutions.

8.3.17. A licensee must not be used if the licensee does not have the relevant experience to complete a relevant scaled project. IBT certificate holders must be graded as contractors in terms of their experience.

8.3.18. An IBT certificate holder/licensee who cannot carry a project financially must provide proof of obtaining financial assistance to be able to complete the project.

8.3.19. To prevent large-scale project from not being completed, projects must be divided into phases of smaller-scale projects and they should appoint more than one IBT system.

8.3.20. Should the IBT certificate holder/licensee not be able to complete the project for financial or capacity reasons, they project should be finished off according to the contractual requirements (extent of work to be completed and handing over of maintenance manuals) after which the Department has a right to appoint another IBT system owner to continue with the project.

8.3.21. National Treasury supports the deviation from normal tender procedures on condition that all accredited IBT developers are requested to participate in each bid/quotation for the construction of homes through innovative building technologies.

8.4. Identification of well-performing IBT's and making suitable appointments

8.4.1. The NHBRC IBT Database must be used to make suitable selections that comprise of building systems with either an active Agrément Certificate or rational design approval, which has passed the NHBRC technical performance assessment of the built IBT homes. The systems are graded by the NHBRC as A, B and C, using a Condition Assessment Tool to provide better information on how the inspected houses performed on the ground. The value of using this database is that special conditions may apply to poorer performing systems.

8.4.2. Selections must be made from the NBHRC IBT Database for procurement processes in terms of national procurement policies.

8.4.3. To be able to determine the short-listed IBT systems for a relevant climatic zone, the Department must use the IBT Analyser at a procurement stage and attached print-out/s from the Database/Analyser as it pertains to the short-listed IBT systems that are deemed-to-satisfy and fit-for-purpose.

8.4.4. The Department, i.e. Supply Chain Management, must check updates on the NHBRC IBT Database every time the Department is selecting IBT systems during procurement processes.

8.5. Planning approvals and enrolment of IBT's

8.5.1. Also, all new housing developments, as well as for housing developments that contains IBT's, must be enrolled with the NHBRC directly after the plans have been approved by the local authority and at least fifteen (15) working days before construction commences.

8.5.2. All plans, specifications and certificates for any building to be built for the government or on behalf of the government, must be lodged with the local authority for its comment and approval before the commencement of construction.

8.6. Social acceptability of IBT's

8.6.1. The Department must, after identification of projects which must include IBT's, before going out on tender, obtain social acceptability certificates/letters from beneficiaries of IBT's in low-cost human settlement developments wherein they clearly state that they have been consulted before construction and that they accept being provided housing opportunities through the implementation of IBT's.

8.6.2. Short-listed IBT certificate holders, before appointment, should have constructed IBT dwellings in the Province before tendering for a project, and proof to this extent should be presented by all bidders of IBT at the bidding stage.

8.6.3. The Department's Professional Team must inspect the built IBT houses as an aiding instrument to decide on the most suitable system for a relevant community. A report from the evaluators must be included in the tender evaluation and adjudication processes.

8.6.4. The Department's Professional Team will be headed by a Technical Expert from the Human Settlements division appointed by the Head of Department, and will comprise of a panel comprising of a Building Inspector, an Engineer, a Quantity Surveyor, an official from Human Settlements Monitoring and Evaluation, and an official from Supply Chain Management.

8.7. Developing skills in IBT's

8.7.1. On appointment, the IBT certificate holder, at his/her own cost and in conjunction with the NHBRC, should arrange training sessions on IBT's two (2) weeks prior to construction for the following parties:

8.7.1.1. Officials from the Department and the Local Municipality who will be monitoring/inspecting the progress of the project such as project manager/s and departmental/municipal/NHBRC inspector/s.

8.7.1.2. At least two (2) and maximum five (5) emerging/general contracting companies from the Province, with the possibility of becoming and IBT system certificate holder or licensee.

8.8. Accountability of IBT certificate holders as the contractor

8.8.1. The IBT certificate holder/licensee appointment for any government low cost housing project is accountable for the quality of any scale housing project.

8.8.2. If, to the discretion of the NHBRC, the IBT certificate holder or licensee, as the contractor, is not abiding by the NHBRC technical requirements as stipulated in the Housing Consumer Protection Measures Act, Act 95 of

1998, as amended, disciplinary action processes can be taken as stipulated in this Act, which will include the suspension of the IBT certificate holder or licensee.

8.9. Reducing the risks of poor standard construction of IBT's

8.9.1. Only low-cost IBT systems should be built or utilized, which provide a post-construction warranty cover for the IBT over and above the NHBRC warranty cover and latent defects liability period in an housing development programme project.

8.9.2. NHBRC inspectors should inspect each IBT house at least five (5) times during construction in respect of the casting of foundations, wall construction, roof erection, services, and finishes (as it is aligned with HSS) in order to:

8.9.2.1. Inspect the technical requirements in terms of the National Building Regulations and standards, and to keep record thereof; and to

8.9.2.2. Check that the IBT certificate holder's Engineer/s has completed his/her inspections at the four (4) above-mentioned stages and verified the inspections and necessary instructions by signing the site instruction book at each sit visit.

8.9.3. Short-listed IBT certificate holders must provide a Quality Management Plan and Project Plan to ensure consistency for the relevant scale of the project at procurement stage.

8.9.4. Short-listed IBT certificate holders must provide a Fire Plan to ensure fire hazards are minimized to a maximum.

8.9.5. Completion and occupancy certificates must be provided in line with the National Building Regulations and Building Standards Act, Act 103 of 1977, as amended, Section 14.

8.10. Preventing the use of non-conforming products as it relates to IBT's

8.10.1. Professionals should provide specifications of materials that refer to specific SANS standards. Where no SANS standard exists, thorough specifications should be provided, ensuring the quality of materials, e.g. dimensions, description, performance requirements (strength and fire rating), fixing methods and finishes.

8.10.2. Materials and products should comply with performance requirements of the National Building Regulations and the National Regulator of Compulsory Specifications (NRCS).

8.10.3. Other innovative technologies related to energy use, water use, sanitation solutions, and waste disposal that are incorporated into the design of the low-income homes, must satisfy the functional regulations through South African standards, Agrément certification and certification by a certification body or relevant Competent Person.

8.10.4. A list of generally known poor quality product must be obtained from the NHBRC by the Department's Supply Chain Management in order to exclude poor performers from the onset and be attached to the tender evaluation documentation to ensure that no poor performers are adjudicated tenders as it poses a risk from the onset.

8.11. **Community service plans**

8.11.1. A housing consumer education and awareness plan as it pertains to IBT's should be included at bidding stage to ensure that social acceptability is obtained even before the project commences.

8.11.2. A community service plan for maintenance should be provided for each residential project and IBT system, that will ensure the general maintenance and additions, will be provided for the post-construction phase, according to an agreed upon period.

8.11.3. A strategy should be developed on who and how the maintenance of IBT's should occur and must include:

8.11.3.1. Each beneficiary must receive a proper maintenance manual, of which the beneficiary must be workshopped on before handover, clarifying the processes to be followed for maintaining (rectifying defects, replacing materials and adding onto) an IBT home.

8.11.3.2. An additional warranty cover must be provided by the IBT certificate holder over and above the NHBRC warranty and latent defects liability period.

8.11.3.3. The IBT system owner must provide a sustainable disposal plan for materials to be recycled or reused.

8.11.3.4. The services for maintaining IBT systems, which should be accessible to all human settlement developments.

8.11.4. Innovative building technologies housing consumer education, which will also include the manuals on the operation and maintenance of innovative building technologies, costs must be borne by the IBT system

holder/certificate holder/licensee, and all housing consumer education must be conducted in the presence of NHBRC and Technical Experts in Human Settlement Development.

SECTION 2:

PRO FORMA TEMPLATE OF REQUEST FOR A TENDER PROPOSAL

(Numbering in the following section deviates from the normal Guidelines numbering for purposes of quoting the recommended tender proposal and sample/s extracted from the NHBRC – everything in italics should be determined before the request for tender proposal is drafted in order to insert to relevant information in the request for tender proposal)

Tender name: Appointment of a suitable service provider for an Innovative Building Technology (IBT) Housing Project for inclusion at a *(insert NAME OF HOUSING DEVELOPMENT PROJECT AND UNDER WHICH PROGRAMME THE PROJECT FALLS)*

Tender number: .....

Closing date: .....

Closing time: .....

1. Terms and conditions

Bidders submitted a bid in response to this Request for Proposal (RFP) or Terms of Reference (TOR) are deemed to do so, on the basis that they acknowledge and accept the terms of conditions as provided in this section. *The Department to specify any other terms and conditions if not covered by the Request for Proposal or Terms of Reference.*

2. Background

2.1. This project will make use of innovative building technologies (IBT) as a method of solving typical issues encountered in government low cost subsidized houses. It will be used to improve some or all of the following factors of which relevant proof needs to be provided and attached with the bid response:

2.1.1. Economics to include the market value, upfront costs and life cycle costing;

2.1.2. Construction to include the rate of construction, ease of construction and lower maintenance;

2.1.3. Environmental issues to include energy efficiency, embodied energy and less waste; and

2.1.4. Social acceptability plans must be included.

2.2. Although the construction industry interchangeably uses the terminology of either alternative or innovative building technology to describe the new technology of building, this tender focusses on the term innovative building technology (IBT), which is more inclusive of all innovation in artefacts or processes. It is also stipulated in the Housing Consumer Protection Measures Act, Act 95 of 1998, as amended, what non-standardised construction means to which IBT relates, which is defined as any form of building that utilizes building systems, methods, materials, elements or components which are not fully covered by existing standards and specifications or codes of practice and/or which are not described or referred to in "deemed-to-satisfy" rules of the National Building Regulations. IBT's are also often contrasted with conventional/standards building systems, which can be defined as a building system, method, materials, elements or components, which are fully covered by existing standards and specifications or codes or practices. An innovation can for example include a standard material, but has an innovative method of putting it together.

2.3. IBT's must be certified by Agrément South Africa and can include products or systems (foundation, wall, roof and services). The Agrément certification will

validate the system in terms of the performance (fire, structure, water penetration and rising damp); habitability (thermal performance, energy usage, condensation, acoustics, and durability); and the Quality Management System.

2.4. In cases of the IBT's being more standard (e.g. SANS 10082 for timber frame building and SANS 517 for light steel frame building or where the behaviour of a particular IBT system is known) a rational design must be provided as approved by the NHBRC.

2.5. When compared to conventional building systems (brick and mortar and light steel frame structures according to standards), the innovation in the low cost house should provide benefits for which proof must be provided.

3. General requirements for the IBT project

To be formulated by the Department and inserted into this section: *These are the requirements for the IBT project which must be specified by the Department related to the context of this project, which includes background information to complete the project incorporating factors such as the site, houses, specific requirements on sustainability, site sensitivity, social investigation completed, budget and cost-benefit analysis:*

3.1. All analysis and impact assessments must be completed by the Department and must be provided before a development can start such as the suitability of the site; infrastructure; geotechnical report/s; social, environmental and heritage impact assessments; feasibility studies on integrated development, etc. A summary of all these impact assessments must be included under the general requirements for the project by the Department.

3.2. The scale of the housing project, housing type/s; location; number of houses; and other home owner requirements must be provided under the general requirements for the project by the Department.

3.3. The Department should include the extent of sustainability principles that must be adhered to. This can include requirements such as energy efficiency (SANS 10400XA), renewable energy, passive design, water, waste, embodied energy and food.

3.4. The Department should indicate the level of sensitivity of the site, which is a site with a special social, environmental or heritage significance such as declared protected areas and urban conservation areas, as the Professional Team that is appointed, is appointed according to the complexity of a project which can include scale and site sensitivity in terms of the relevant Profession's Acts.

3.5. The Department, having completed the investigation on the social and/or cultural requirements specific to a community, needs to be included in the specifications.

3.6. A fire protection plan and specifications must be completed and included by the Department to prevent any fire hazards to occur.

3.7. The anticipated budget for the project may not exceed the prescribed amount, which includes the amount for individual houses or total costs (exclusive of VAT), whichever is relevant.

3.8. The Department must request a report on the cost benefits of a specific IBT such as using a life-cycle costing method. The costs benefits must focus on the savings in terms of upfront costs, energy efficiency, labour and running costs.

4. Project overview

4.1. Objective of the project

4.1.1. The purpose of this tender is for the service provider to design, manage and construct low cost houses using innovative building technology/ies that provide relevant benefits as compared to standards brick and mortar. These benefits must be validated to justify the use of the system for a specific project.

4.1.2. The service provider will be the Principal Agent who will oversee all the project work stages from inception to completion according to professional best practice and the JBCC.

4.2. Scope of works (Terms of Reference)

The scope of works/terms of reference for this project is divided in four (4) parts, and entails the work for the tender submission of the Principal Agent and the following:

4.2.1. Part 1: Appointment of all required professionals to JBCC:

4.2.1.1. The entire professional team needs to be proposed by the Principal Agent at the tender stage and on employment appointed for the design and construction of IBT houses to comply with all professional registration councils. Proof of registration and experience must be attached.

4.2.1.2. A copy of all the signed contractual agreements between the Principal Agent and the professionals must be submitted with this tender proposal response.

4.2.1.3. Professional indemnity insurances must be provided by all appointed professionals.

4.2.1.4. The Principal Agent (bidder) will appoint a building contractor and project manager to manage the project and professional

work and construction processes according to the JBCC within one (1) month of bid adjudication.

4.2.1.5. Any other required professionals/specialists not mentioned in this document need to be motivated for approval by the Department. These new appointments will be approved on the basis of professional registrations and relevant experience. Proof must be attached of registration and experience.

4.2.2. Part 2: Evaluation of the context including the location, social aspects and culture, and environmental aspects:

4.2.2.1. This entails first investigating all town planning requirements, geotechnical investigations, site layouts, infrastructure and orientations of the integrated development project. A report of all the investigations' outcomes must be attached.

4.2.2.2. The social and cultural preferences of the identified community must be investigated and a report should be attached.

4.2.2.3. To establish if there are any other outstanding impact assessments that must be commissioned or completed, i.e. social, environmental and heritage impact assessments, which should be costed.

4.2.2.4. Bidder must include all sustainability principles for the low cost housing project.

4.2.2.5. Include the infrastructure layout and analysis as it pertains to geotechnical conditions/investigations and the influence it will have on the design of the low cost houses.

4.2.3. Part 3: Completing all work on documentation and procurement:

4.2.3.1. The preliminary design concept must be submitted at the tender stage and developed further on the appointment of the relevant bidder of which the design concept must contribute to the social acceptability and durability of the IBT use for the applicable low cost housing development project.

4.2.3.2. A preliminary cost estimate of the low cost housing development project must be included and all cost savings must be identified. A clear and concise cost-benefit analysis must be provided and must be compared to conventional brick and mortar, which can include, amongst others, savings related to upfront costs, the rate of construction, labour costs and/or life-cycle cost savings.

4.2.3.3. A rational housing consumer education and awareness plan as it pertains to IBT's must be included at tender stage.

4.2.3.4. A rational training plan (of which training must include at least two [2] weeks training before, during and after construction) must also be submitted as part of the tender which is aimed at departmental/local government officials, community members and emerging contractors (as it pertains to potential licensees). This training plan must be accompanied with a comprehensive construction manual (which includes amongst others construction methods, processes, detailing, fixing methods, equipment to be used and specifications) and this training plan must be attached to the training plan that is submitted at tender stage.

4.2.3.5. The working drawings as well as construction drawings must be completed for approval by the Local Municipality on the approval design.

4.2.3.6. The NHBRC enrollment must be completed for the warranty covers which includes a 3-month workmanship, 1-year roof leakage, and a 5-year structural warranty.

4.2.3.7. The tender process for appointing a building contractor must be followed and all JBCC contracts must be signed and submitted to the Department and the building contractor must be a registered IBT system holder/licensee.

4.2.3.8. A Bill of Quantities must be completed based on the working drawings according to which the contractor bids are compared to.

4.2.4. Part 4: Project management from inception to the close out of the project:

4.2.4.1. The entire project will be managed by the Principal Agent (the Bidder) or the appointed Project Manager.

4.2.4.2. The Department, who appointed the Principal Agent who is the client, must attend all site meetings to monitor progress.

4.2.4.3. The Principal Agent must complete all minutes of meetings and signed minutes must be kept and distributed to the Department and the respective Local Municipality.

4.2.4.4. The Principal Agent must provide the Department with monthly progress reports which must be submitted within the first five (5) days of a new month after the month on which is being reported.

4.2.4.5. Any deviation/s from municipal approved working drawings must be fully motivated for the Department to approve before commencement of any new work based on deviation/s.

4.2.4.6. Variation orders, which must be limited to the maximum, must be approved by the Department before any commencement of any new work based on variation/s.

4.3. Required outputs/deliverables

The following outputs have been identified as deliverables at the conclusion of the IBT low cost housing project:

4.3.1. Fully completed high quality IBT houses according to the agreed upon and signed JBCC contract.

4.3.2. Fully completed post-construction processes on the defects liability period accordingly to the JBCC contract until final close-out.

4.3.3. Guarantees for the construction of the project as well as all warranties for the innovative materials/products/systems used in the project.

4.3.4. Additional warranties must be provided by the IBT system owner/s for the innovative building technology/ies for houses after the latent defects liability period.

4.3.5. The maintenance manual on general maintenance and additions must be handed to all beneficiaries of IBT houses and all such beneficiaries must be trained on the maintenance manual. The maintenance manual must contain a list of all contact details of accessible IBT service providers.

4.3.6. The Occupational Certificate must be obtained from the Local Municipality.

4.3.7. All building certificates for professional works and services must be obtained.

4.3.8. Completed "as-built" drawings must be provided to the Department and the Local Municipality.

4.4. Project schedule

4.4.1. The Principal Agent (the Bidder) must provide the Department with a Project Plan at appointment which must include all the professional work stages and construction phases and preliminary plans of the project.

4.4.2. The Department expects the project to be completed within the set time period as agreed with the Principal Agent in the form of a contract within approved costs from date of appointment. No extensions will be considered.

5. Technical data to be submitted by the bidder

5.1. General information

5.1.1. The Department requires the services of interested and competent service providers who are experienced in the construction of IBT homes to take on the role of a Principal Agent to manage the project and construct the house/s.

5.2. Requisites of the Principal Agent Consultant/Service Provider

5.2.1. The service provider will act as the Principal Agent who will manage the project or will appoint an experienced Project Manager to manage the project.

5.2.2. The Principal Agent will be a fully registered, experienced and qualified professional in terms of the JBCC contract or if performing the role of Project Manager, must be fully registered with the South African Council for Project and Construction Management Professions (SACPCMP) with relevant qualifications.

5.2.3. The Principal Agent will appoint all relevant agents and the main contractor (of which contractor must be a licensee of IBT) and payments will be made through the Principal Agent/alternatively, the Department will make all appointments and make payments, but the Principal Agent will coordinate the project.

5.2.4. The Principal Agent must have sufficient experience in the management of projects for IBT houses at scale from inception to completion with a proven track record, which must be submitted with the bid response.

5.3. Documents to be submitted (additional to documents already mentioned throughout the tender/request for proposal)

5.3.1. Prior to responding to this tender/request for proposal, during the past five (5) years, the bidder must have acted as a Principal Agent for at least two (2) low cost housing projects whereby IBT systems were implemented/incorporated into the low cost housing projects for a total value per project exceeding *Rx million inclusive of VAT (Department to determine the amount as part of tender specifications)*. The bidder must submit a summary of the projects in the prescribed template below:

Projects completed in the low cost housing industry in the past five (5) years				
Name of project	**Project description**	**Contract value including VAT**	**Client name**	**Client contract details**
Total		**R**		

5.3.2. Additionally, the bidder must provide the project details of the two projects as mentioned in Section 5.3.1. that were successfully completed in the past five (5) years in the template below. For each of the two (2) fully completed projects, "happy letters" of successful

completion of the projects must be provided by the client/s on the client/s letterheads and signed off by an authorized delegated employee of the client/s which must also be signed off by a Commissioner of Oaths:

Name of project:	
Name of client:	
Contact person:	
Role of contact person in the project:	
Contact details (all applicable telephone numbers):	
Project commencement date:	
Project completion date:	
Contract amount inclusive of VAT:	
Summary of the project (maximum of 200 words):	
Please attach a letter from the client indicating the successful completion of the project as per the client's brief and this letter must be signed-off by a Commissioner of Oaths.	

5.3.3. In terms of the capability of the project team, the bidder must also attach a summary detail of each of the project professionals in the below template:

Full names	Role in the project	Current academic qualifications	Key area of specialization	Years of experience	Professional Registration
Principal Agent					
Project Manager					
Architect					
Civil Engineer					
Structural Engineer					
Geotechnical Engineer					
Fire Consultant					
Quantity Surveyor					

5.3.3.1. The bidder must attached certified copies that are not older than three (3) months of all academic and professional registrations.

5.3.3.2. In addition, the bidder must attached in respect of each professional, attach an abridged/summarized curriculum vitae which highlights specific and relevant qualifications and experience.

5.3.4. The bidder must submit a document outlining the proposed approach to the project in terms of the design concept, cost estimates, suitable IBT system/s in context, detailed training programme, a detailed housing consumer awareness and education programme, contractual agreement/s, payment/s and site meeting/s.

5.3.5. The bidder must submit a project plan with proposed dates and milestones of which project plan must indicate key tasks, activities and deliverables.

5.3.6. The bidder must also include a summary of a proposed fee structure, which must include:

5.3.6.1. Professional fees;

5.3.6.2. Project stages/phases;

5.3.6.3. Estimates for construction stage/phase;

5.3.6.4. Disbursements; and

5.3.6.5. Cost escalations.

6. Technical and price evaluation criteria

6.1. In line with the Department's Supply Chain Management Guidelines and Procedures, the bid evaluation process shall be carried out in the three (3) stages of:

6.1.1. Stage1: Supply chain compliance checks and mandatory requirements are stipulated in Section 13 of this tender request for proposal and bidders must ensure that all compliance checks and mandatory requirements are met in full.

6.1.2. Stage 2: Functional evaluation: All bids must comply with stage 1 compliance checks and meet all mandatory requirements in order to qualify for functional evaluation and those bids which fails to comply with all requirements of Stage 2 will be invalidated or disqualified from the process. The following values will be applicable when evaluating bids:

Key:
5 = Excellent
4 = Very good
3 = Good
2 = Average
1 = Poor
0 = Non-compliant

Item #	Evaluation criteria		Weight
1.1.	**Construction Industry Relevance**	Section 1.1. assesses the bidders experience in acting as a Principal Agent for low cost housing developments as it pertains to IBT's:	
	Refer to Section 5.3.1. of this tender request for proposal	During the past five (5) financial years, the bidder must have completed at least two (2) IBT housing projects. For total project/s value, including VAT, exceeding the value of the specific project which is tendered for will be 5 *(Department to determine and specify value)*: *<R m* *Score 0* *≥R m but < R m* *Score 1* *≥R m but < R m* *Score 2* *≥R m but < R m* *Score 3* *≥R m but < R m* *Score 4* *≥R m* *Score 5*	20 points

	Refer to Section 5.3.2. of this tender request for proposal	Two (2) IBT low cost housing projects successfully completed as per the client brief. Point will be allocated as follows: • If the two (2) or more projects were successfully completed as per the client brief and requirements – Score = 5. • If only one (1) project was successfully completed as per the client brief and requirements – Score = 2. • If no projects were completed successfully – Score 0. *These points must be awarded based on information provided by the bidder and the "happy letter" signed by the client and the Department reserves the right to contact the client to obtain further information.*	15 points
1.2.	**Professional Capability**	Section 1.2. will be used to assess professional capability for which relevant experience must be in low cost housing developments as it pertains to IBT's. The project team must demonstrate expertise in the areas of Principal Agent, Architect, Engineers (Civil and Structural), Quantity Surveyor and Fire Consultant.	
	Refer to Section 5.3.2. of this tender request for proposal	The Principal Agent must be registered as a Civil Engineer – Pr.Eng.; Architect – Pr.Arch.; Quantity Surveyor – Pr.QS; and/or Project Manager – Pr.CPM/Pr.CM: • Score = 5 • Anything else/no registration = 0	5 points

		The Project Manager must be registered as a Project Manager – Pr.CPM/Pr.CM with the SACPCMP: • Score = 5 • Anything else/no registration = 0	5 points
		The Architect must be registered as an Architect – Pr.Arch with the SACAP or the IDoW: • Score = 5 • Anything else/no registration = 0	5 points
		Engineers must be registered as a Civil Engineer/Geotechnical Engineer/ Structural Engineer – Pr.Eng. with ECSA: • Score = 5 • Anything else/no registration = 0	10 points
		The Fire Consultant must be registered as a Technical Engineer – Pr.Tech.Eng. with a Degree in Fire technology and at least 5 years' experience and must be registered with ECSA: • Score = 5 • Anything else/no registration = 0	5 points
		The Quantity Surveyor must be registered as a Quantity Surveyor – Pr.QS with SACQSP: • Score = 5 • Anything else/no registration = 0	5 points
1.3.	**Project proposal tender submission – refer to Section 5.4. of this**	Quality of tender proposal submission – the provision of a tender submission that clearly demonstrates the service required by the Department, including the evaluation, and fees whereby points	20 points

	tender request for proposal	will be allocated based on the panel's assessment of the adequacy of the tender submission documents and score a 5 = Excellent; 4 = Very good; 3 = Good; 2 = Average; 1 = Poor; or 0 = Non-compliant.	
		Project Plan – the bidder must provide a detailed project plan that clearly demonstrates an understanding of the project and is within the stipulated time frame. The project plan that is provided must indicate the project delivery dates/milestones in months with specific dates and score a 5 if compliant and score 0 for non-compliance.	15 points

6.1.3. Stage 3: Technical/functional assessment pass mark:

6.1.3.1. Total possible score = 100 – after considering the functional pre-qualifying criteria, a bidder is considered to have passed Stage 2 (functional requirements), and if the total score is equal to or greater than 80 points, bids will be then further evaluated.

6.1.3.2. The contract will be awarded in terms of Regulation 4 of the Preferential Procurement Regulations in line with the Preferential Procurement Guidelines Framework Act, Act 5 of 2000, and bids will be adjudicated in terms of the relevant preference points and hereby an example is provided for the 90/10 preference point system in terms of which points are awarded to the bidders on the basis of

90/10 preference point system (for acquisition of services, works and goods within a Rand value less than R1 million and all applicable taxes included:

$P\cdot = 90\ (1 - \frac{P\ -Pmin}{Pmin})$

Whereas:

$P\cdot$ = Points scored for comparative price of bid or offer under consideration.

$P\cdot$ = Comparative price of bid or offer under consideration.

P_{min} = Comparative price of lowest acceptable bid or offer.

6.1.3.3. The points scored will be rounded off to the nearest decimal places.

6.1.3.4. The points will be awarded to the bidder for attaining BBBEE status level 1 of contribution in accordance with the following table and points scored for price will be added to the points scored for BBBEE status level to obtain the bidders total points scored out of 100 points:

BBBEE Level	90/10
Level 1	10
Level 2	9
Level 3	8
Level 4	5
Level 5	4
Level 6	3
Level 7	2
Level 8	1
Non-compliant contributor	0

6.2. Prices must be fixed for the duration of the contract, if fees are not fixed, please indicate the percentage as per industry norms and standards and escalation period.

7. Tender request for proposal submission instructions

The Department must determine the submission instructions and include in this section.

8. Availability of the tender request for proposal document

The Department must determine the availability of the tender request for proposal and include in this section.

9. Tender request for proposal closing date

The Department must determine the closing date for the tender request for proposal and include in this section.

10. Validity period of bids

The Department must determine the validity period of bids and include in this section.

11. Administrative enquiries

The Department must determine who in the Department will be responsible for administrative queries and include in this section.

12. Submissions of bids/proposals

The Department must determine where bids/proposals must be submitted in the Department and include in this section.

13. Checklist for compliance and mandatory requirements and SBD forms

The Department must determine compliance checklist, mandatory requirements and SBD forms and include in this section.

SECTION 3.

NHBRC ANALYSER

(Numbering in the following section continues from Section 1.1.)

8.12. The NHBRC IBT Database is a custom-made software tool based on a more comprehensive user manual completed by the CSIR, called the IBT Analyser, which assists with comparison of a number of building systems, taking into context the climate, region of the proposed site as well the performance characteristics of the systems in order to identify the innovative technology deemed most suitable and appropriate in accordance with a set of user-defined criteria and thereby enhance selection and decision-making processes, and therefore, the Department must use it in the selection processes of awarded tender bids to suitable IBT system holders or licensees.

8.13. The NHBRC IBT Database must be used to make suitable selections that comprise of building systems with either an active Agrément Certificate or rational design approval, which has passed the NHBRC technical performance assessment of the built IBT homes. The systems are graded by the NHBRC as A, B and C, using a Condition Assessment Tool to provide better information on how the inspected houses performed on the ground. The value of using this database is that special conditions may apply to poorer performing systems.

8.14. Selections must be made from the NBHRC IBT Database for procurement processes in terms of national procurement policies.

8.15. To be able to determine the short-listed IBT systems for a relevant climatic zone, the Department must use the IBT Analyser at a procurement stage and attached print-out/s from the Database/Analyser as it pertains to the short-listed IBT systems that are deemed-to-satisfy and fit-for-purpose.

8.16. The Department, i.e. Supply Chain Management, must check updates on the NHBRC IBT Database every time the Department is selecting IBT systems during procurement processes.

9. EFFECTIVE DATE OF THE GUIDELINE

This Guideline shall come into effect from the date of approval.

10. GUIDELINE REVIEW

This Guideline will be reviewed as and when changes are made in national legislation pertaining to innovative building and sanitation technologies.

11. APPROVAL

Guideline Developer:

26·08·2019·

MS KV MALOKA **DATE**

Recommendation:

26/08/2019

MS HH DU PLESSIS **DATE**
DIRECTOR:
HOUSING POLICY AND RESEARCH

Recommendation:

27/08/2019

MR T PHETLHU
CHIEF DIRECTOR: HOUSING NEEDS, RESEARCH, PLANNING AND TECHNICAL SERVICES

DATE

Recommendation:

29/08/2019

MR PE MOTOKO
HEAD OF DEPARTMENT

DATE

Approval:

13/09/2019

HONOURABLE MEC MG KEGAKILWE

DATE

12. REFERENCES

12.1. Construction Industry Development Board (CIDB). 2005. *Choosing an appropriate form of contract for engineering and construction works – second edition.* CIDB: Pretoria.

12.2. Construction Industry Development Board (CIDB). 2015. *Standard for Uniformity in Construction Procurement.* CIDB: Pretoria.

12.3. Council for Scientific and Industrial Research (CSIR). 2014. *Delivering Construction Projects Using Innovative Building Technology – A Guidelines for Professional Service Providers.* CSIR: Pretoria.

12.4. Council for Scientific and Industrial Research (CSIR). 2000. *Guidelines for Human Settlement Planning and Design Volumes 1 and 2.* CSIR: Pretoria.

12.5. Department of Housing. 2002. *Engineering Services. Generic Specifications GFSH-8.* Department of Housing: Pretoria.

12.6. Department of Housing. 1994. *White Paper on Housing: A new Guidelines and Strategy for South Africa.* Department of Housing: Pretoria.

12.7. Department of Human Settlements. 2004. *A Comprehensive Plan for the Development of Sustainable Human Settlements "Breaking New Ground".* Department of Human Settlements: Pretoria.

12.8. Department of Human Settlements. 2009. *National Housing Code, 2009.* Department of Human Settlements: Pretoria.

12.9. Department of Human Settlements. 2017. *Project Process Guide for Human Settlements Programmes*. Department of Human Settlements: Pretoria.

12.10. Department of Local Government and Human Settlements, NWP. 2018. *Guidelines on Geotechnical Site Investigations in relation to Extra-Ordinary Human Settlement Development Conditions and Applicable Variations*. LGHS: Mafikeng.

12.11. Department of Local Government and Human Settlements, NWP. 2018. *Guidelines on Housing Development Project Processes.* LGHS: Mafikeng.

12.12. Department of Local Government and Human Settlements, NWP. 2017. *SCM Guidelines for Infrastructure Procurement and Delivery Management (SIPDM).* LGHS: Mafikeng.

12.13. Didiza, S. 2014. *Market Intelligence Report: Built Environment.* Greencape: Cape Town.

12.14. Joint Building Contracts Committee. 2013. *Principal Building Agreement Series 2000.* JBCC: Johannesburg.

12.15. National Home Builders Registration Council. 2017. *Guidelines for Implementing Innovative Building Technologies*. NHBRC: Centre for Research and Housing Innovation: Pretoria.

12.16. National Home Builders Registration Council. 2017. *Innovative Building Technology (IBT) Analyser (version 1.0)*. NHBRC: Pretoria.

12.17. National Treasury/Civilution. 2016. *Focus on: National Treasury Standard for Infrastructure Procurement and Delivery Management.* SAICE: Midrand, Halfway House.

12.18. National Treasury. 2018. *Request for deviation from normal procurement process to utilize the Accredited Database of Innovative Building Technologies Developers, Reference 43/1/2/5/1.* National Treasury: Pretoria.

12.19. Republic of South Africa. 2013. *Broad-Based Black Economic Empowerment Act, Act 53 of 2003, as amended by Act 46 of 2013.* Government Printers: Pretoria.

12.20. Republic of South Africa. 1997. *Building Regulations and Building Standards Act, Act 103 of 1977.* Government Printers: Pretoria.

12.21. Republic of South Africa. 1996. *Constitution of South Africa, Act 108 of 1996.* Government Printers: Pretoria.

12.22. Republic of South Africa. 2008. *Consumer Protection Act, Act 88 of 2008.* Government Printers: Pretoria.

12.23. Republic of South Africa. 2000. *Council for Built Environment Act, Act 43 of 2000.*

12.24. Republic of South Africa. 2000. *Engineering Professions Act, Act 46 o 2000.* Government Printers: Pretoria.

12.25. Republic of South Africa. 1989. *Environment Conservation Act, Act 73 of 1989.* Government Printers: Pretoria.

12.26. Republic of South Africa. 1998. *Environment Management Act, Act 107 of 1998.* Government Printers: Pretoria.

12.27. Republic of South Africa. 2008. *Environment Management Act: Waste Act.* Government Printers: Pretoria.

12.28. Republic of South Africa. 2010. *Geoscience Amendment Act, Act 16 of 2010.* Government Printers: Pretoria.

12.29. Republic of South Africa. 1999. *Heritage Resources Act, Act 25 of 1999.* Government Printers: Pretoria.

12.30. Republic of South Africa. 1997. *Housing Act, Act 107 of 1997.* Government Printers: Pretoria.

12.31. Republic of South Africa. 1998. *Housing Consumer Protection Measures Act, Act 95 of 1998.* Government Printers: Pretoria.

12.32. Republic of South Africa. 2005. *Intergovernmental Relations Framework Act, Act 13 of 2005.* Government Printers: Pretoria.

12.33. Republic of South Africa. 2000. *Local Government: Municipal Systems Act, Act 32 of 2000.* Government Printers: Pretoria.

12.34. Republic of South Africa. 2008. *National Regulator for Compulsory Specifications Act, Act 5 of 2008.* Government Printers: Pretoria.

12.35. Republic of South Africa. 1993. *Occupational Health and Safety Act, Act 85 of 1993.* Government Printers: Pretoria.

12.36. Republic of South Africa. 2000. *Preferential Procurement Guidelines Framework Act, Act 5 of 2000.* Government Printers: Pretoria.

12.37. Republic of South Africa. 2013. *Spatial Planning and Land Use Management Act, Act 16 pf 2013.* Government Printers: Pretoria.

12.38. Republic of South Africa. 2008. *Standards Act, Act 8 of 2008.* Government Printers: Pretoria.

12.39. Republic of South Africa. 1991. *Value-Added Tax Act, Act 89 of 1991.* Government Printers: Pretoria.

12.40. UN High Commissioner for Human Rights. 1948. *Universal Declaration of Human Rights.* OHCHR-UNOG: Switzerland.