

Energy Performance Certificate Guideline

Understanding the application and implementation of EPCs for buildings in South Africa

Guidance to Compliance

Version 2 | Last updated: October 2023



mineral resources
& energy
Department:
Mineral Resources and Energy
REPUBLIC OF SOUTH AFRICA



sonedi
South African National Energy
Development Institute

This EPC Guideline is a quick and easy reference based on Regulations and Standards, to assist you with your EPC journey.

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www.sanedi.org.za

Nomenclature

Terminology	Meaning
Compulsory Registration	Based on the regulation promulgated on the 3 rd of August 2023, registration of the type (occupancy classification) and size (in square meters) of your building onto the National Building Energy Performance Register (NBEPR) maintained by SANEDI by 02 August 2024.
Energy Efficiency	Minimising energy consumption while still achieving the required output
Energy Performance	Net energy consumed in kilowatt hours per square metre per annum (kWh/m ² /a) to meet the different energy needs associated with the use of the building excluding measured or assessed energy consumed by garages, car parks and storage areas as well as energy consumed by outdoor services (for example landscape lighting and security), which may include, inter alia, heating, hot water heating, cooling, ventilation and lighting. (SANS 1544:2014)
Energy Performance Assessor	An Inspection Body personnel responsible for conducting an energy performance assessment in accordance with SANS 1544:2014
Energy Performance Certificate	A certificate issued by a SANAS accredited inspection body prior 31st July 2024 and thereafter by a registered professional in respect of a building in accordance with SANS 1544:2014.
Energy Zone	A region or zone that is characterised by a generally consistent climate also known as a climatic zone. The updated SANS 10400-XA:2021 moved from climatic zone to energy zone. <i>Please note that throughout the guideline the term energy zone is used for what once was the climatic zone.</i>
Measured Energy Performance	Operational energy performance. Energy performance based on measured amount of energy consumed.
Net Floor Area	Net floor area is the sum of all areas between the vertical building components (walls or partitions), excluding garages, car parks and storerooms (SANS 1544:2014).
Registered Professional	An individual professional registered by SANEDI
SANAS Accredited IB	South African National Accreditation System (SANAS) accredited Inspection Bodies who are qualified to assess energy use in buildings and issue an EPC.
SANS 1544: 2014	The South African National Standard (SANS 1544:2014) - Energy performance certificates for buildings published by the South African Bureau of Standards Act, 2008 (Act No. 8 of 2008)
SANS 10400-XA: 2021	The South African National Standard – A standard that provides requirements for compliance with the energy usage in buildings in terms of the National Building Regulation
Technical Signatory	An Inspection Body Personnel who verifies and signs an EPC

Nomenclature

Abbreviations	Meaning
DMRE	Department of Mineral Resources and Energy
EE	Energy Efficiency
EPC	Energy Performance Certificate
Er	Reference value – standard value against which an energy indicator/rating is compared. (SANS 1544:2014)
GHG	Greenhouse Gas Emissions
IB	Inspection Body
kWh/m²	Energy Performance in kilowatt-hour per square metre
NBEPR	National Building Energy Performance Register
NEES	National Energy Efficiency Strategy
p.a.	Per annum; in or for each year
SANEDI	South African National Energy Development Institute established under section 7 of the National Energy Act, (Act No. 34 of 2008).

Introduction

This Energy Performance Certificate (EPC) Guideline will assist and guide various stakeholders (in particular accounting officers and building owners) that need to adhere to and implement the newly promulgated regulation stipulating the mandatory display and submission of Energy Performance Certificates for buildings.

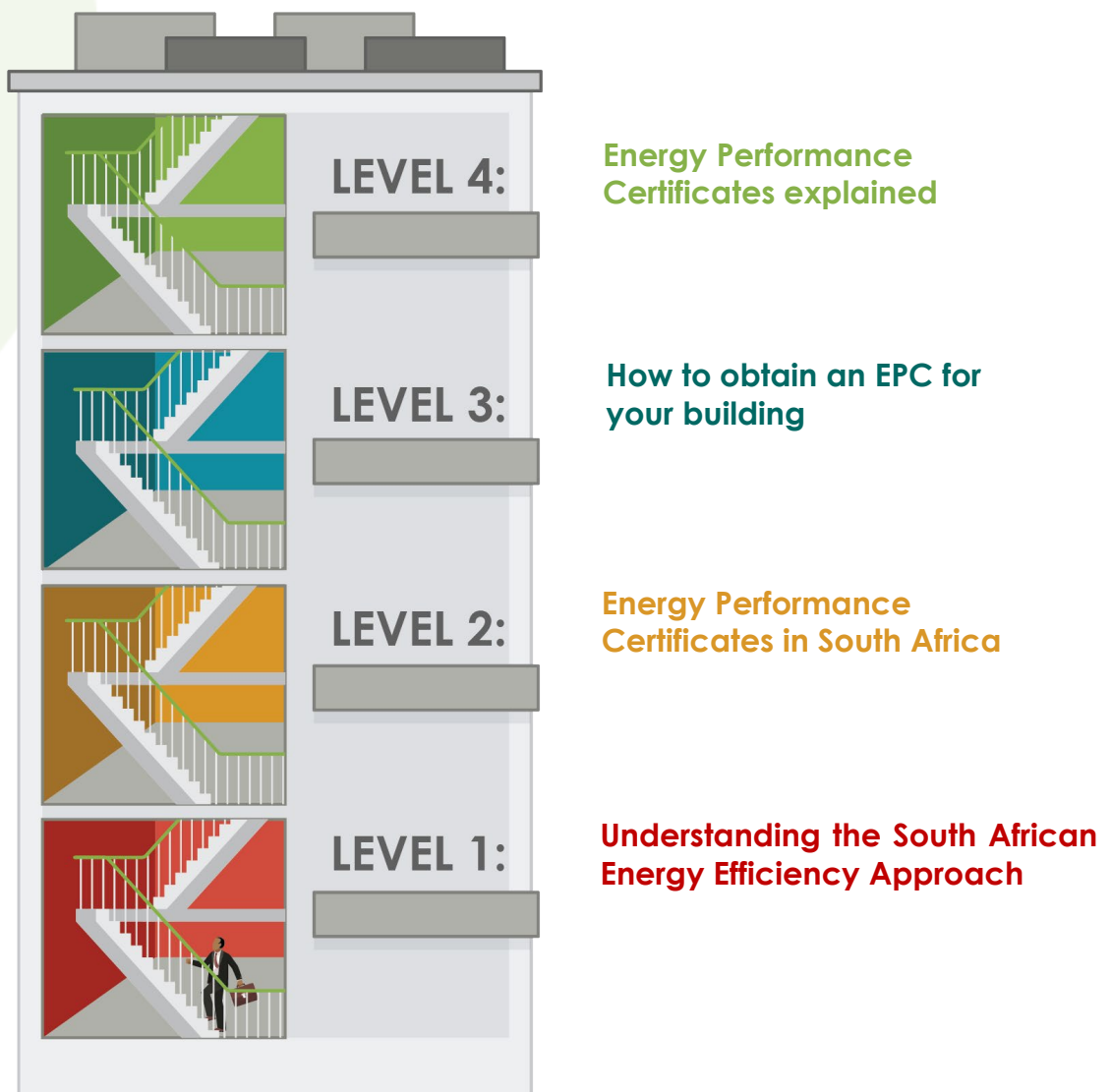
This EPC Guideline outlines the following:

- the South African energy efficiency journey up to date
- the various regulations regarding energy efficiency
- the South African Energy Performance Label for buildings and building classifications, building assessment and energy measurement
- the Energy Performance Certificate concept, illegalities, display of certificate and validity criteria

After reading the EPC Guideline, you will be able to successfully undertake and complete the EPC certification process for your building/s.

There are four (4) levels that you have to work through in order to complete this EPC Guideline.

The EPC Guideline Levels



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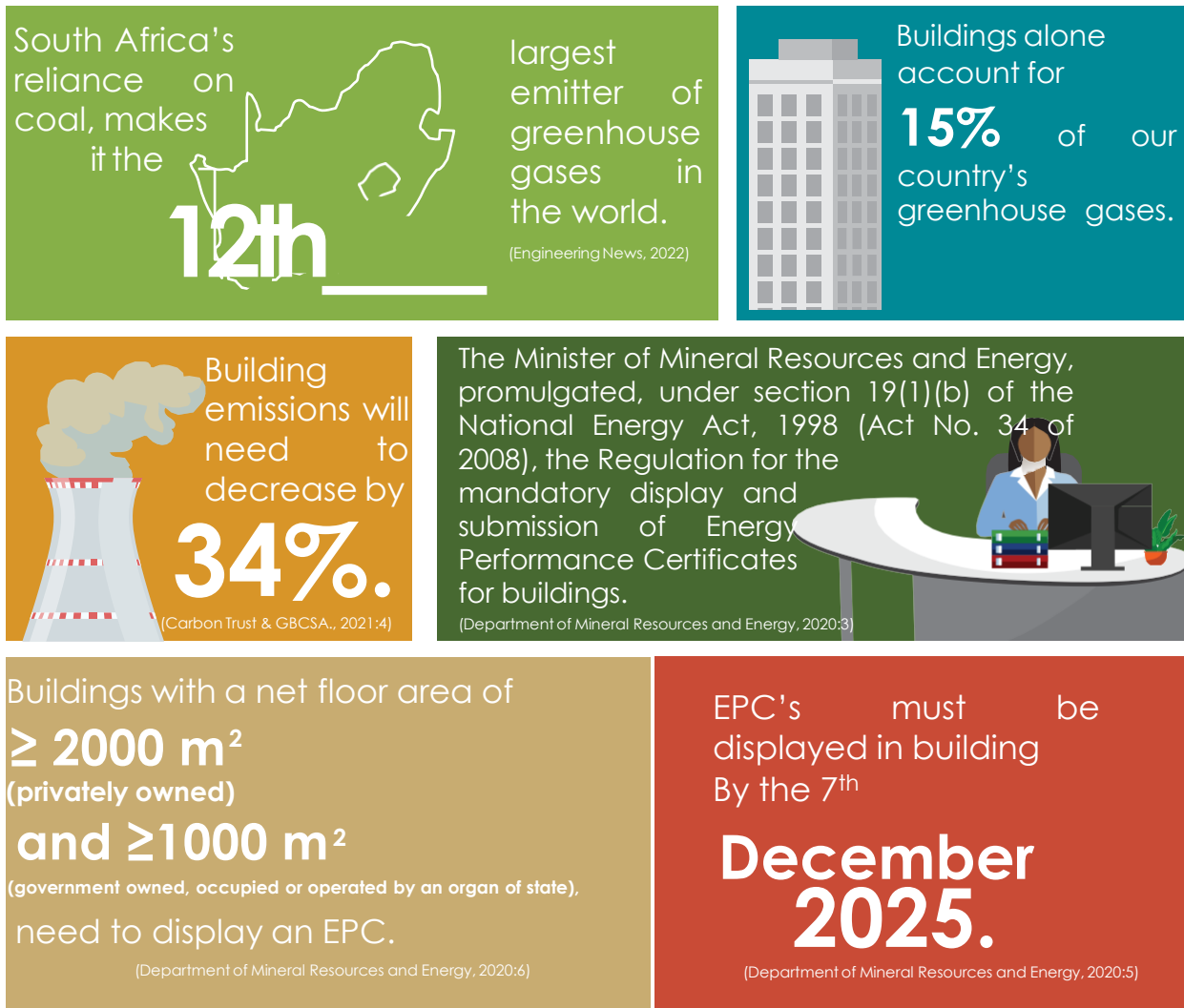
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LEVEL 1:

Understanding the South African
Energy Efficiency Approach

1.1. Understanding the South African Energy Efficiency Approach



In recent years, moving buildings to a greener life cycle and striving for increased energy efficiency has become more than just another point on the current world agenda. South Africa has been moving towards energy efficiency for the past 15 years, with the National Energy Efficiency Strategy (NEES) and various regulations. Understanding the South African environment and what is required from the accounting officers, building owners and other stakeholders to ensure that the changes are made gradually and with the bigger picture in mind. In order to align the South African built environment with international best practice and increased targets for the reduction of Greenhouse Gas (GHG) emissions, the Government has legislated the mandatory display and submission of Energy Performance Certificate of existing buildings across South Africa.

In South Africa, the requirement of having an EPC will play a key role in GHG emissions reduction (also known as decarbonisation) in the country's building sector, which is a key requirement to improve energy efficiency.

Buildings are a key part of South Africa's decarbonisation challenge, as they account for 15% of the country's Greenhouse Gas (GHG) inventory.

Building emissions will need to decrease by 34% in relation to the Reference Technology Scenario (Carbon Trust & GBCSA., 2021:4).

The Reference Technology Scenario is a baseline scenario that takes into account existing energy and climate-related commitments of countries by 2050.

Alternatively, if South Africa is to align itself to a Two Degrees Scenario - *this scenario translates to deep cuts in emissions, as much as 70% by 2050, with a decarbonised or even carbon negative economy* (Stolark, 2015).

Unfortunately, due to South Africa's reliance on coal, we are the 12th largest emitter of greenhouse gasses (GHGs) (Engineering News, 2022). Therefore, our response to climate change has two objectives:

1. Effectively manage inevitable climate change impact through interventions that build and sustain South Africa's social, economic and environmental response capacity.
2. Make a fair contribution to the global effort to stabilise GHG concentrations in the atmosphere at a level that avoids dangerous anthropogenic (*resulting from the influence of human beings on nature*) interference with the climate system within a timeframe that enables economic, social and environmental development to proceed in a sustainable manner (National Climate Change White Paper, 2011:5).

All of these facts, led to the Minister of Mineral Resources and Energy under section 19(1)(b) of the National Energy Act, promulgating the Regulation for the mandatory display and submission of an EPC in public and private non-residential buildings, on 8 December 2020.

The Regulation requires an accounting officer (*organ of state*) or the building owner (*private sector*) to display an EPC at the entrance of their building and submit a certified copy of the EPC to SANEDI, within 3 months from date of issue. These buildings must have a net floor area of $\geq 2000 \text{ m}^2$ (privately owned) and $\geq 1000 \text{ m}^2$ (government owned). The validity of the EPC will be for a period of 5 years from date of issue.

Secondly, on the 03rd of August 2023 the regulation was amended, introducing compulsory registration of buildings where, building owners and accounting officers must register the type and size of their building on the NBEPR within 12 months from the date the amendment was promulgated. The amendment also introduced a new definition of Energy Performance Certificates. (Department of Mineral Resources and Energy, 2023:6).

Lastly, accounting officers and building owners have three (3) years to comply and get their EPCs.

According to SANS 1544:2014, EPCs will be determined by:

Measured annual net energy consumption, in kilowatt-hour per square meter of the net floor area.

This is the first time in South African history that it is mandatory for accounting officers and building owners to publicly display their buildings' energy performance.

The promulgation of the EPC Regulation plays an important part in the cleaner energy future of South Africa.



Did you know?

South Africa is the 12th largest emitter of greenhouse gases.

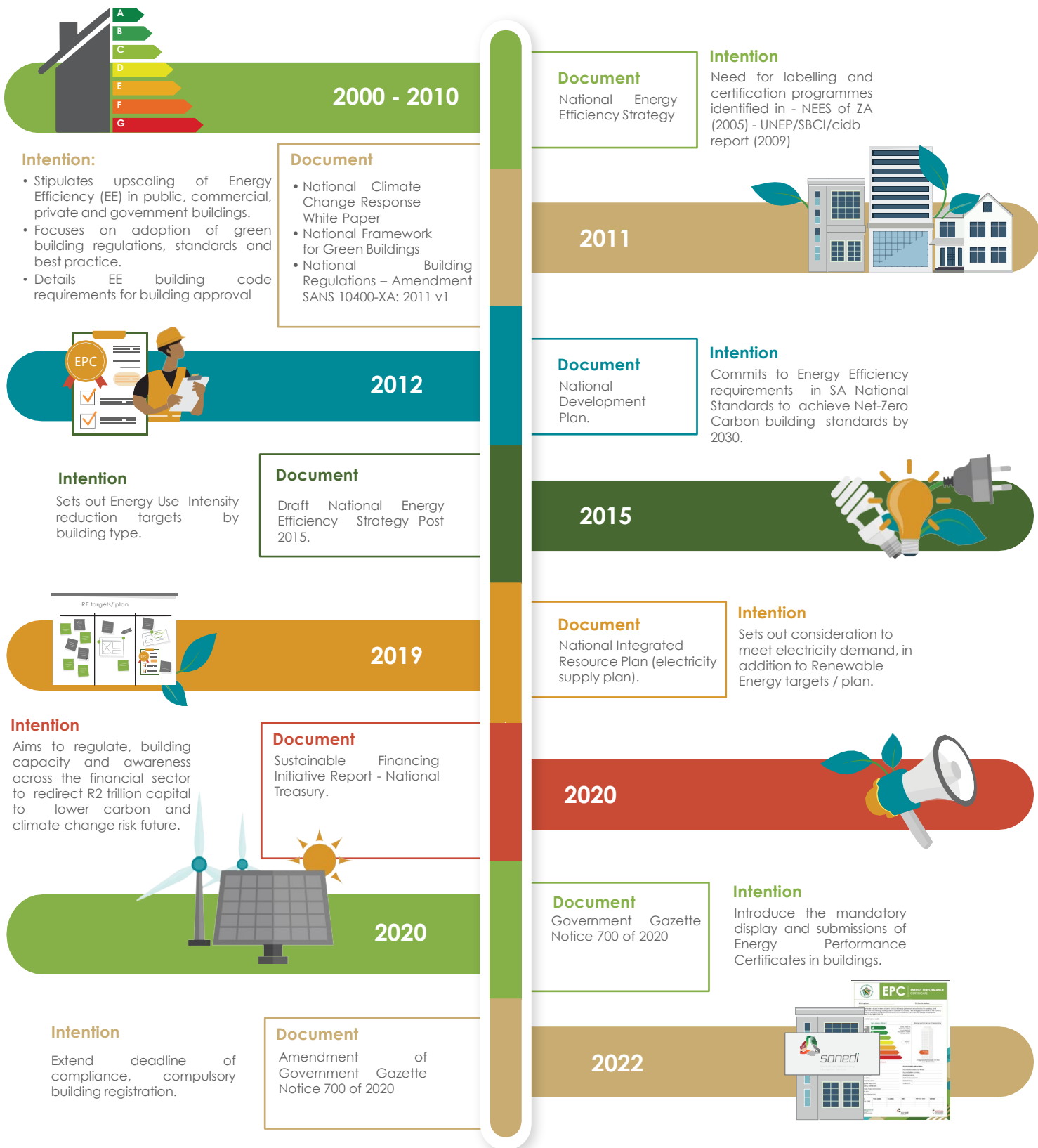


A building with a net floor area of $\geq 2000 \text{ m}^2$ (privately owned) and $\geq 1000 \text{ m}^2$ (government owned, operated or occupied by an organ of state), need to submit a certified copy of the building's EPC to SANEDI **by the 7th of December 2025** or prosecuting steps will be taken.

EPCs will create an understanding of energy performance across South Africa, in addition provide a baseline on the status of energy efficiency (kWh/m^2) in existing buildings, initiating a turnaround for energy efficiency in South Africa.

1.2. South African Energy Efficiency Timeline

The first energy efficiency and climate change related policies for the building industry were developed more than a decade ago. Specific regulations stipulate mandatory requirements that need to be adhered to in order for South Africa to reach its GHG emission reduction targets. These practical and attainable regulations will ensure a steady incline towards positive and responsible energy consumption.



(SANEDI, 2021:5 and Carbon Trust & GBCSA., 2021:78)

1.3. Interpretation of the Standards

Energy Performance Certificates follows the South African National Standards (SANS) as reference and guidance to establish what is required and what is measured. The primary SANS used and referred to within the EPC process are:

SANS 1544:2014



Addresses the measured energy consumption in buildings and specifies the requirements for producing Energy Performance Certificates (EPCs)

SANS 10400-XA:2021

The technical requirements that new buildings must meet in order to comply with the energy-related parts of the National Building Regulations.

Note: SANS 204:2011 and SANS 10400-XA:2011 are no longer relevant as all requirements are now covered in SANS 10400-XA:2021.



The SANS 10400-XA:2021 requirements largely cover new buildings. EPCs have been introduced to get a handle on energy consumption in the existing building stock. EPCs will initially act as an indication of energy consumption but the aim is for it to drive energy efficiency in existing buildings and contribute to the transition to a low carbon economy.

Reviewing and familiarising yourself with the standards will provide you with insight as you work through the EPC process and will ensure you know what to expect when you approach an inspection body to review and measure your building's energy performance in order to obtain an EPC.

The South African National Standards can be purchased via the SANAS website.



Objective of EPCs:

EPCs will initially act as an indication of energy consumption but will eventually drive energy efficiency in existing buildings and contribute to the transition to a low carbon economy.



Flagship programmes including Energy Efficiency, Demand-side Management and Energy Performance Certificates, linked to legislative requirements, have resulted in proven reduction of CO₂ emissions in other countries.



LEVEL 2:

Energy Performance Certificates
in South Africa



Did you know:

The National Building Energy Performance Register (NBEPR) provides data for future benchmarking for building's energy consumption.

LEVEL 2: Energy Performance Certificates in South Africa

On the 8th of December 2020, accounting officers and building owners were mandated to display and submit EPCs for their buildings by 07 December 2022. However, on the 25th of November 2022, the first amendment was promulgated extending the deadline to compliance to 07th December 2025, thereafter, on the 03rd of August 2023 a second amendment was promulgated, now building owners and accounting officers are required to register their buildings within 12 months of the promulgation of the amendment. Failure to publicly display an EPC is in contravention of the National Energy Act (Act No. 34 of 2008).

The EPC process measures and normalises building energy consumption. All specified data used to determine the EPC-rating has to be submitted to the South African National Energy Development Institute (SANEDI). In addition, a certified copy of an EPC must be submitted within 3 months by accounting officers or building owners from the date the EPC is issued by the Inspection Body. **The energy performance of a building is measured in terms of kilowatt-hours per square meter of net floor area, per annum (kWh/m²/pa) in accordance with SANS 1544:2014.**

What is an EPC?

An Energy Performance Certificate (EPC) is a certificate issued by a SANAS accredited inspection body prior 31st July 2024 and thereafter by a registered professional in respect of a building in accordance with SANS 1544:2014 that displays the energy consumption per square meter of a building. This energy performance is measured against a benchmark based on two factors:

1. the building occupancy class, and
2. the energy zone of where the building is located.

Energy efficiency rating is determined by measuring a building's **energy performance** and giving it a colour coded grade from A to G.

An "A" grade indicates that a building is most energy efficient and "G" indicates the least efficient, while a "D" score indicates the best practice for buildings, benchmarking the building's energy performance against the average figures (*minimum requirement*) is contained in SANS 10400-XA: 2021.



The EPC displays the energy consumption per square meter of a building.

2.1. The importance of EPCs

EPCs in South Africa are important as they are:

1. Mandatory in South Africa	2. Global best practice	3. Sustainable	4. Positively influencing climate change
<p>Since 8 December 2020, it is mandatory for privately and publicly owned qualifying buildings to display an EPC</p>	<p>Energy efficiency for buildings is becoming a common practice and will set your building apart from others</p>	<p>Energy efficiency is a step towards overall sustainability in any economic sector and is endorsed by the DMRE. Become part of the solution!</p>	<p>Buildings account for around 30% of all energy consumption globally, representing a major share of greenhouse gas emissions. Contributing towards a lower energy footprint will ensure you do your part in climate change</p>

By rolling out EPCs across South Africa, these are the key benefits that will be gained:

- Create an understanding of our energy consumption in buildings across South Africa,
- Energy efficiency improvement, and
- Reducing our contribution to greenhouse gas emissions in South Africa.

Penalties for non-compliance as stated in the National Energy Act 34 of 2008 (the building owner and/or accounting officer of an organ of state will be guilty of an offence):

(a) a fine not exceeding five million Rand;

(b) imprisonment for a period not exceeding five years ; or

(c) both such fine and such imprisonment.

2.2. Stakeholders and role players in the EPC process

The EPC process involves various role players, varying from energy supply, conversion, efficiency, and regulation, with each role player having their own mandate to fulfil.

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2.2.1. DMRE

The Department of Mineral Resources and Energy's (DMRE) mission is to regulate, transform and promote the minerals and energy sectors, providing sustainable and affordable energy for growth and development, and ensuring that all South Africans derive sustainable benefit from the country's mineral wealth. The DMRE is **the custodian of all energy policies and Regulation in South Africa.**

The DMRE is also responsible for:

- Implementation of EPC Regulation
- Compliance monitoring



2.2.2. The South African National Energy Development Institute (SANEDI)

SANEDI was established in 2011 under the National Energy Act, (Act No. 34 of 2008). SANEDI's primary function is to direct, monitor and conduct applied-energy research and undertake specific measures to promote the uptake of green energy and energy efficiency in South Africa. SANEDI is responsible for supporting the objectives of the National Energy Efficiency Strategy (NEES), which is the main strategy that guides energy efficiency implementation in South Africa.

SANEDI is responsible for:

- The development, operation and maintenance of the NBEPR.
- The registration of professional
- Issuing of unique certificate numbers for the EPCs.



Did you know

Your building's EPC will be uploaded to the NBEPR where building owners and accounting officers can access the database to verify if their building has undergone the EPC certification process.



South African Bureau of Standards

2.2.3. South African Bureau of Standards (SABS)

The objective of the SABS Standards Division is to develop, promote and maintain South African National Standards.

SABS is responsible for:

- The development of the standards used for EPCs, namely SANS 1544:2014 and SANS 10400XA:2021



2.2.4. South African National Accreditation System (SANAS)

SANAS is one of the Department of Trade, Industry & Competition's (DTIC) Technical Infrastructure (TI) Institutes. The TI institutes are responsible for standards, quality assurance, accreditation, and metrology activities.

SANAS is responsible for:

- Setting out criteria around inspection bodies and will also carry out accreditations of institutions and organisations that will be required to issue EPCs to accounting officers and building owners.

Registered Professionals from 01 August 2024

2.2.5. Registered Professional

According to the Amendment Regulation Notice 1937 of 2023 a Registered Professional means an individual professional registered by the South African National Energy Development institute (SANEDI)



2.2.6. Accounting officers and building owners

The accounting officers and building owners are responsible for:

- Registering the size and type of their buildings onto the NBEPR
- Complying to the mandatory display of an EPC at the entrance of their buildings.
- Appointing a SANAS accredited IB to conduct an energy performance assessment and issue a certificate for their building.
- Submitting a certified EPC copy to SANEDI within 3 months from the date of issue.

The below table is a summary of the primary and secondary stakeholders in the energy efficiency process and shows who takes responsibility for which actions.

Primary stakeholders are those that are responsible and essential to the implementation of the EPC process and secondary stakeholders are responsible for following and endorsing the EPC process.

● Primary Stakeholder ○ Secondary Stakeholder

	Stakeholder Group						
	DMRE	SANEDI	BEPR	Building owners/ managers	Inspection Bodies	SANAS	Eskom and Utilities
Energy Efficiency Standards	●	○		○		●	○
EPC Labelling	○	●		○	○	●	○
Certification and Accreditation		●		●	●	●	
Education and Awareness	○	●	●	●	○	○	○
Research and Technology		●					●
Regulation	●	○				○	
Energy Audits					●		
Energy Management	○	●		●			○
Policy, Mandate and Governance	●	●		○	○	●	○

(Department of Mineral Resources and Energy, 2005:25)



LEVEL 3:

How to obtain an EPC for your building

LEVEL 3: How to obtain an EPC for your building

The information below is a step-by-step guide to start the EPC certification process for your building.

STEP 1



Determine if your building falls within the required **occupancy class/es and building size**. If yes, then collect all the necessary data and register your building onto the NBEPR, using the link <https://epc.sanedi.org.za>.

STEP 2



Once the building has been registered, contact and appoint a **SANAS accredited EPC Inspection Body/Registered Professional** to conduct an assessment of the energy performance of your building.

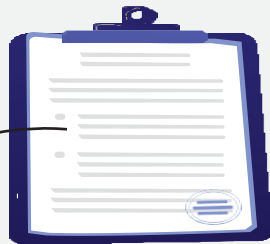
STEP 4

Step 4a: The SANAS accredited EPC IB /Registered Professional to upload all collected data to the NBEPR.

Step 4b: SANEDI to issue a unique EPC Number.



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South African National Energy Development Institute



STEP 3

The SANAS accredited EPC IB/Registered Professional will **conduct the Energy Performance Assessment (EPA)** according to SANS 1544:2014.



STEP 5

The SANAS accredited EPC IB /Registered Professional to issue **the EPC to the building owner/ accounting officer to display at the entrance of their building.**



STEP 6

The building owner/ accounting officer to submit **a certified copy of the EPC to SANEDI within 3 months from the date the EPC is issued.**



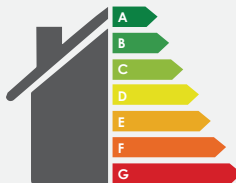
STEP 7

DMRE appoints and commissions **random spot-check compliance audits and monitors the display of EPCs**



STEP 8

SANEDI sends an **initial renewal reminder after 3 years and final reminder after 4 years** to building owner/ accounting officer



The building registration and EPC certification processes starts with you, the building owner or accounting officer. It is your responsibility to register your building onto the NBEPR and reach out to a SANAS accredited EPC IB (prior to 31 July 2024)/Registered Professional, indicating that you would like to start the EPC process for your building. The SANAS accredited EPC IB/Registered Professional will take up the responsibility to conduct an assessment of your building's energy performance and issue an EPC for the building.

When the SANAS accredited EPC IB's assessor/Registered Professional, visits your building, they will assess a number of factors to determine the energy performance of the building therefore, determining the energy performance grading of your building. The assessor will need to have access to energy data and every part of the building to be able to carry out the assessment properly.

Gather data needed beforehand and submit to the assessor BEFORE their visit to provide them with the necessary information.

This information includes the:

- Energy zone (previously climatic zone) of your building,
- List of all energy carriers
- Building services (electricity and/or gas use for a year) of your building
- Occupancy of your building
- Building address
- Operation hours
- Size of Building (building floor plans if available)

The time to complete an EPC is dependent on the preparedness of the building owner having all relevant data on hand, this allows for the speedy completion of the process.

STEP 1: Determine if your building falls within the required occupancy class/es or building sizes and register your building onto the NBEPR.

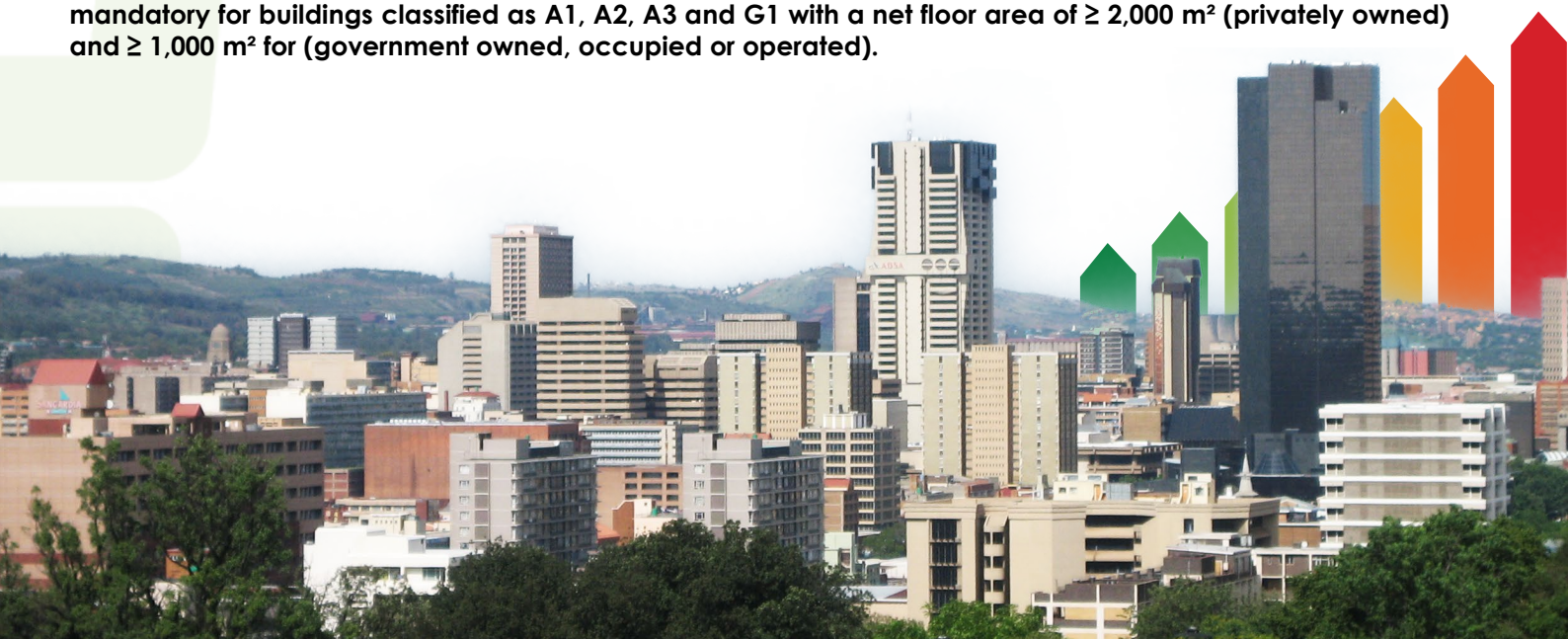
The occupancy class of a building has an impact on how the building's energy consumption is measured.

Once the building classification and size are determined, you will know whether a registration and an EPC should be obtained for your building.

Buildings are classified using these key factors:

1. Building location (energy zone),
2. Year of the initial construction and or current renovations,
3. Building services, use and,
4. Building occupancy.
5. Building size

Buildings are classified from A1 to H5. According to the Regulation, **building registration and EPCs are mandatory for buildings classified as A1, A2, A3 and G1 with a net floor area of $\geq 2,000 \text{ m}^2$ (privately owned) and $\geq 1,000 \text{ m}^2$ for (government owned, occupied or operated).**



Do you need to register your building?

The Building registration process is the responsibility of the building owner/accounting officer. Once the building classification and size are determined, you will know whether a registration is needed for your building.

Determining factors for building registration:

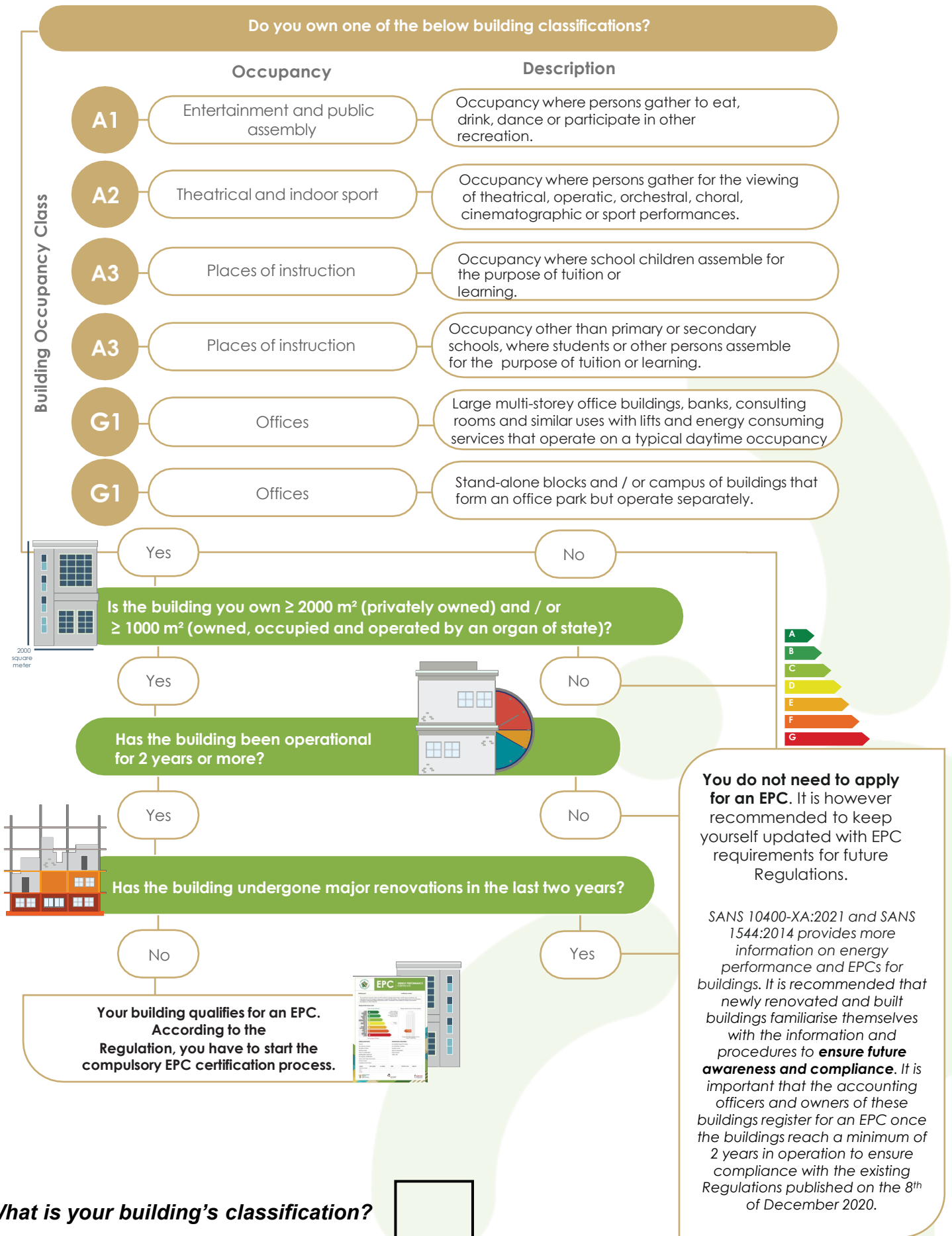
1. Building occupancy and,
2. Building size

Buildings are classified from A1 to H5. According to the Regulation, **building registration is mandatory for buildings classified as A1, A2, A3 and G1 with a net floor area of $\geq 2,000 \text{ m}^2$ (privately owned) and $\geq 1,000 \text{ m}^2$ for (government owned, occupied or operated).**

Following are the steps of registering your building on the NBEPR using this link <https://epc.sanedi.org.za> :



Do you need to obtain an EPC?

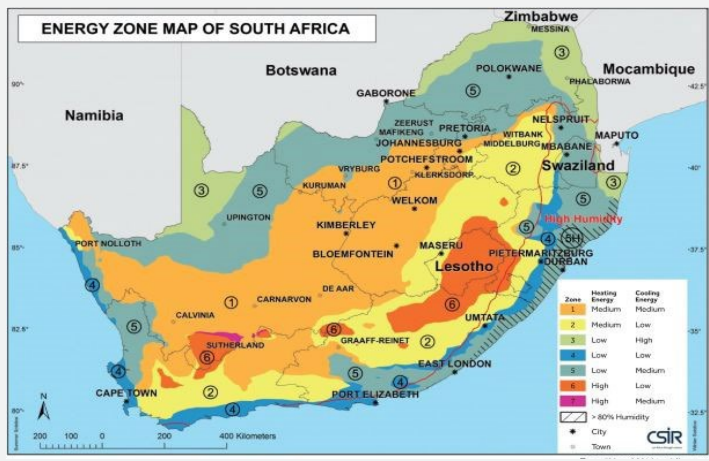


Step 2: Contact and appoint a SANAS accredited inspection body

The Regulations place responsibility on accounting officers and building owners to publicly display an Energy Performance Certificate at the entrance of their building/s, by the 7th of December 2025. The accounting officers and building owners are responsible to appoint a SANAS accredited inspection body to conduct an Energy Performance Assessment for their buildings and issue them with Energy Performance Certificates.

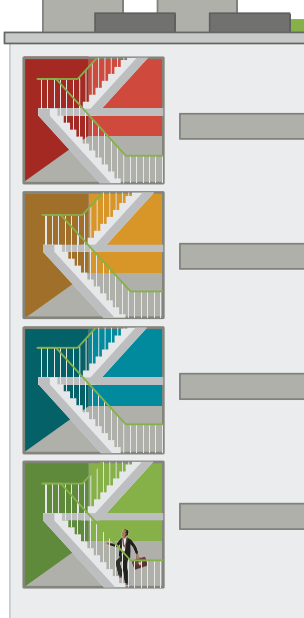
The following is the data to be submitted to the SANAS accredited inspection body:

Building Location



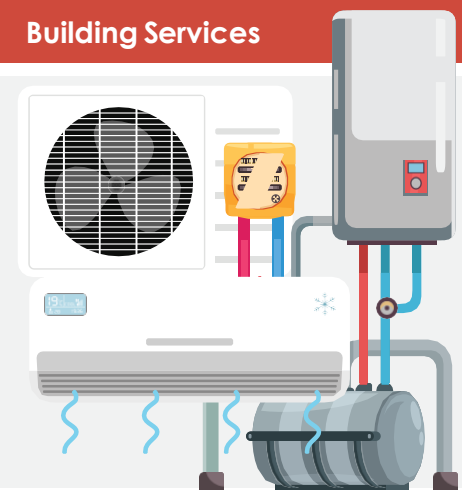
Source: CSIR

Building Design



Net floor area
Net floor area is the sum of all areas between vertical building components (walls or partitions), excluding garages, car parks and storerooms.

Building Services




Energy sources

Energy sources / energy carriers refers to how a building gets powered

Building Occupancy

Occupancy profile of the building



Determination of Energy Performance:

$$\text{Building Energy Performance (kWh/m}^2\text{/annum)} = \frac{\text{measured net energy consumption (kWh/annum)}}{\text{occupied net floor area (m}^2\text{)}}$$

The occupied net floor area is normalised to account for the unoccupied floor area for the performance period. All energy sources are accounted for in the calculation.



2.1. Measurement of energy performance

The operational energy performance of your building – which is the amount of energy consumed by the building – expressed in terms of measured annual net energy consumption in kilowatt hours per square meter per annum (kWh/m²/a) of the net floor area.

The energy consumption shall include the amount of all energy carriers and shall be assessed as accurately and as reasonably practicable from recorded data, energy bills or measurements. This shall only be conducted for existing buildings which have been in operation for 2 years or more and have not undergone major renovations within those 2 years.

2.1.1. Energy Performance Scale

The performance scale consists of seven grades of performance, ranging from Grade A (most energy efficient) to Grade G (least energy efficient).

Grade D is the reference energy performance (Er) – best practice for energy performance in buildings (SANS 1544:2014)

Performance scale determination	Meaning	Label as found on certificate
Energy performance < 0,30.Er	Highest energy performance	A
0,3.Er ≤ energy performance < 0,6.Er	Energy efficient	B
0,6.Er ≤ energy performance < 0,9.Er	Energy efficient	C
0,9.Er ≤ energy performance < 1,1.Er	Energy efficiency best practice	D
1,1. ≤ energy performance < 1,4.Er	Not energy efficient	E
1,4. Er ≤ energy performance < 1,7.Er	Not energy efficient	F
Energy performance ≥ 1,7.Er	Lowest energy performance	G

Performance scale resource: SANS 1544:2014, pg. 7 - 8

2.1.2. Energy Performance Indicators

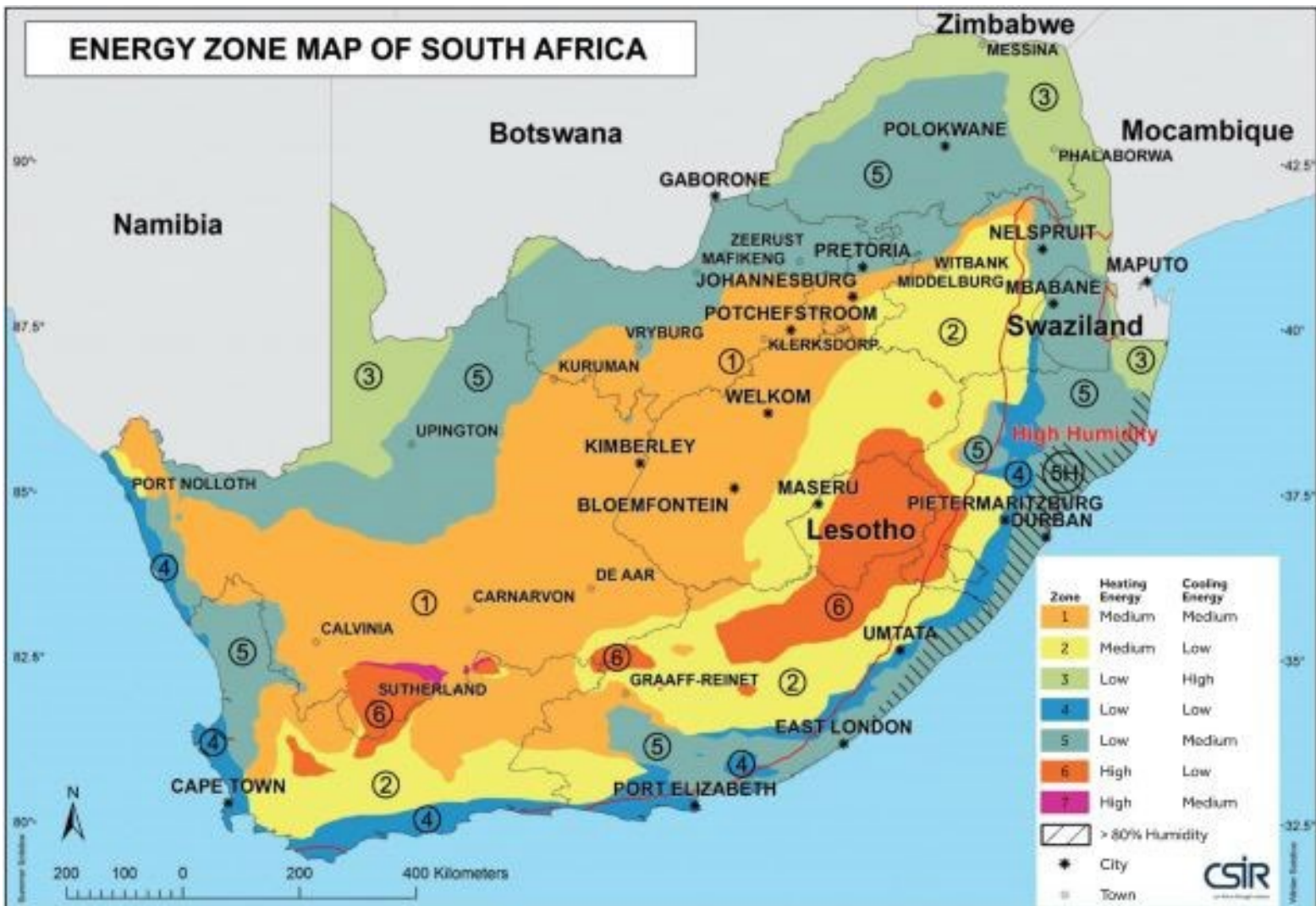
The building's energy performance will be indicated against the abovementioned energy performance scale.

Where the energy consumption of the exclusions (see Step 4 on page 29) exceeds 10% of the building's energy performance, the total energy performance of the building will also be indicated against the energy performance scale.

2.2. Building energy zone

The energy zone is a region in which the climate conditions are similar. The zones have been adjusted to simplify the use of the energy efficiency measures.

Using the map, in which energy zone does your building fall?



EPCs are only applicable for **existing buildings**

2.3. Building Occupancy

Building occupancy is the particular use or the type of use to which a building or portion thereof is normally put or intended to be put as defined by the relevant national legislation (National Building Regulations and Building Standards Act, 1977 (Act No. 103 of 1977)).

2.3.1. Unoccupied floor area

Is an area that is not being used for its intended function and that is not consuming any net energy. The vacant area shall be prorated to the measurement period, for example:

- Area A = Unoccupied for 30% of the year
- Area B = Unoccupied for 60% of the year
- Area C = always occupied (100% occupied)

A, B and C make up the net floor area. Therefore, usable net floor area = $(A + B + C) - ((0.3 \times A) + (0.6 \times B))$

(SANS 1544:2014)

Unoccupied net floor area is the net floor area minus the occupied floor area.

Determination of the reference energy performance (E_r)

The standard value against which an energy indicator/rating is compared.

Single occupancy



building in which a discrete occupancy accounts for $\geq 90\%$ of its net floor area

The reference energy performance, E_r , shall be determined by the maximum annual energy consumption per building classification for each climatic zone



Multiple occupancy



building in which no discrete occupancy accounts for $\geq 90\%$ of its net floor area

The reference energy performance, E_r , shall be determined by prorating the net area of each individual occupancy with the maximum annual energy consumption as provided for in SANS 10400-XA for the relevant occupancy class and climatic zone. Any occupancy that comprises $\leq 10\%$ of the net floor area of the total building shall be included in the predominant occupancy provided such occupancy does not contribute to $\geq 10\%$ of the energy performance of the predominant occupancy.

Resource: SANS 1544:2014

2.3.2. Occupancy profile of the building

The below table gives an outline of the maximum energy consumption (in kWh/m².a) that your building can use per year. If your building's maximum energy consumption is higher than the below figures, this will impact your energy grade. The calculations made to determine a building's energy performance are based on the building classification, the energy zone and the reference energy performance (Er) value as defined in SANS 10400-XA:2021.

The Er value is the best practise for your building, in your specific energy zone and using that value against your building's operational energy consumption will allow the SANAS accredited IB to assess and establish the accurate energy rating for your building (A – G).

1		2							
Class of occupancy	Description of building	Maximum annual energy consumption per building classification for each energy zone (kWh/m ² /a)							
		Energy Zones							
		1	2	3	4	5	5H	6	7
A1	Entertainment and public assembly Occupancy where persons gather to eat, drink, dance or participate in other recreation	75	75	95	70	95	95	80	80
A2	Theatrical and indoor sport Occupancy where persons gather for the viewing of theatrical, operatic, orchestral, choral, cinematographical or sport performances	95	95	110	90	110	110	105	105
A3	Places of instruction Occupancy other than primary or secondary schools, where students or other persons assemble for the purpose of tuition or learning	110	155	110	125	140	140	120	120
A3	Places of instruction Occupancy where school children assemble for the purpose of tuition or learning	60	65	55	60	55	60	65	65
G1	Offices Large multi-storey office buildings, banks, consulting rooms and similar uses with lifts and energy consuming services that operate on a typical daytime occupancy	90	105	110	95	110	95	100	100
G1	Offices Stand-alone blocks and / or campus of buildings that form an office park but operate separately	70	150	190	145	180	165	75	75

The maximum energy consumption is the best practice of energy consumption for your building classification in your buildings energy zone

Activity
What is the classification of occupancy for your building?

For more information on the occupancy classification of a building, refer to SANS 10400-XA:2021

Activity
Referring to your building's classification and the energy zone, what is the best practise maximum energy consumption (in kWh/m²) that your building can use per year?

For more information on the Energy Consumption of a building, refer to SANS 10400-XA:2021

Note 1: The annual consumption per square metre shall be based on the sum of the monthly consumption of 12 consecutive months.

Note 2: Non-electrical consumption, such as fossil fuels, shall be accounted for on a non-renewable primary energy thermal equivalence basis by converting megajoules to kilowatt hours.

Resource: SANS 10400-XA:2021

Please note that only building classification A1, A2, A3 and G1 is listed above. For other building classifications refer to SANS 10400-XA:2021 – Note that SANS 10400-XA:2011 was updated and should be used in accordance with SANS 10400-XA:2021.

If you do not have a building occupancy certificate you may use either a:

- Fire certificate or
- Municipality certificate (approval of the development)



2.4. Building Design

When conducting an EPC Assessment, the SANAS accredited EPC IB will need to understand the internal layout of the building and the purposes it was designed for. This is to calculate the energy consumption of each individual space in accordance with its designed use.

If there are no plans for the building, the SANAS accredited EPC IB will need to survey the building during the site inspection to gather the appropriate information.

If you have up to date information and building plans, along with utility bills, the site inspection will be less time consuming.

The SANAS accredited EPC IB is responsible for ensuring that the information used, in the energy consumption calculations, are accurate. Even when detailed plans are available for existing buildings, the SANAS accredited EPC IB must validate the information by doing a site inspection.

2.4.1. Net floor area

Net floor area is the sum of all areas between the vertical building components (walls or partitions), excluding garages, car parks and storerooms (SANS 1544:2014).

Unoccupied floor area: Normalisation shall be undertaken to account for unoccupied floor areas, as follows:

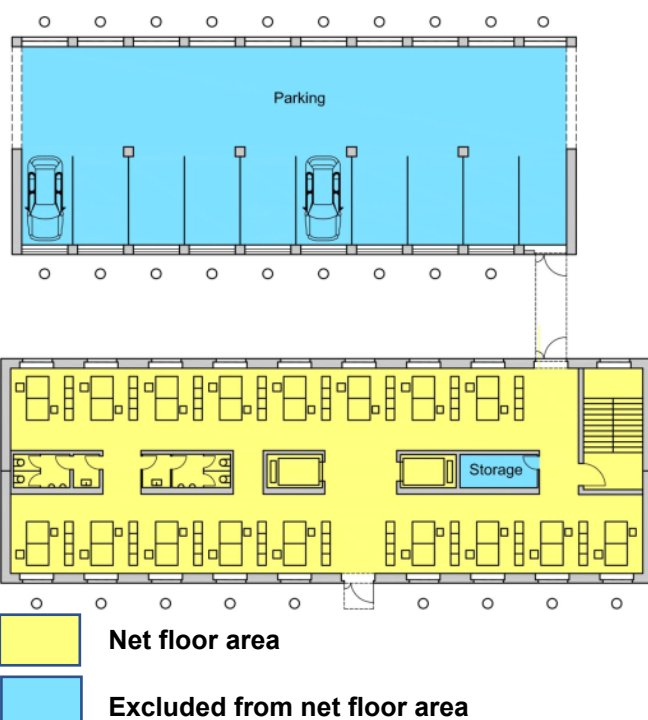
$$\text{Effective energy consumption (kWh/m}^2\text{/a)} = \frac{\text{measured net energy consumption (kWh/a)}}{\text{occupied floor area (m}^2\text{)}}$$

Where - Occupied floor area is the net floor area minus the unoccupied floor area.

SANS 1544:2014 prescribes that unoccupied floor area shall be prorated to the measurement period, for example:

Area A is unoccupied for 30% of the year, Area B is unoccupied for 60% of the year, Area C is always occupied – 100% occupied. A, B and C make up the net floor area. Therefore, useable floor area = $(A+B+C) - ((0.3 \times A) + (0.6 \times B))$.

Example of occupied and excluded floor area (SANS 1544:2014):



Occupied floor area is the net floor area minus the unoccupied floor area.

Did you know?

A building owner and an accounting officer may determine the Net floor area of their building – during the year of assessment.



2.5. Building Services

Building services are what makes a building functional, comfortable and safe for occupation and use. These services include:

- Heating
- Cooling
- Lighting
- Generators
- Gas and/or electricity and/or fuel use

Did you know?

An **energy carrier** is an energy form or system, including but not limited to, electricity, gas, fossil fuels, and renewable energy (SANS 1544:2014)



2.5.1. Fuels

As part of the building services, fuels used for the building will be measured. Fuel measurements are added to your energy consumption and an understanding of the various fuels will assist you to grasp what your EPC means and what is measured and assessed by the SANAS accredited EPC IB.



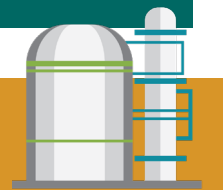
Metered
fuels

- The energy use is the difference of two readings of the meter taken at the beginning and the end of the assessment period.
- If energy used by rented premises is metered and billed separately, such energy shall be included.
- Exported energy shall be deducted from the metered amounts.

Fuel bills or records of bought fuel shall be collected.

- The fuel level in the tank shall be measured at the beginning and the end of the assessment period, using a calibrated scale. The fuel use during the assessment period is then assessed as follows:

$$\begin{aligned} E &= \text{content of the tank at the beginning of the assessment period} \\ &- \text{content of the tank at the end of the assessment period} \\ &+ \text{quantity of fuel bought during the assessment period.} \end{aligned}$$



Liquid
fuels in
tanks

Any fuel not forming part of the bulk storage facility shall be assessed on the basis of records kept. Alternatively, if a burner/generator/turbine operates at fixed power (not modulating) and is equipped with a burning time counter, the fuel use is the difference of the two readings taken at the beginning and the end of the assessment period, multiplied by the fuel flow rate of the burner/generator/turbine. This flow rate shall be measured before the first reading and after each adjustment or cleaning of the burner. The energy use corresponding to the amount of fuel used should be obtained by multiplying the measured amount by its gross calorific value (SANS 1544:2014).



Solid fuels

- The energy content of solid fuels (coal, wood, etc.), depends on their calorific value and density. The most accurate way of assessing it, is to weigh the fuel. If volume is measured, it shall be multiplied by the density of the fuel to calculate the mass of solid fuel.

The solid fuel use shall then be assessed as follows:

$$\begin{aligned} E &= \text{fuel weight in stock at the beginning of the assessment period} \\ &- \text{fuel weight in stock at the end of the assessment period} \\ &+ \text{fuel weight bought during the assessment period.} \end{aligned}$$

- The energy value use corresponding to the amount of fuel used shall be assessed by multiplying this amount by its gross calorific value.

Resource: SANS 1544:2014

For more information on fuels – refer to SANS 10400-XA:2021

2.6. Example of the determination of an EPC – Single Occupancy

Examples for the determination of the reference energy performance and its position on the energy performance certificate performance scale are given in the tables below. Please note that the data from the examples does not reflect reality and serve the sole purpose of demonstrating how the energy performance calculations are done. The data does not necessarily represent energy consumptions of buildings in these particular classes and energy zones. For more information refer to SANS 10400-XA:2021 and SANS 1544:2014.

Example 1: Single Occupancy – Energy zone 1						
1	2	3	4	5	6	7
Classification of Occupancy	Description	Measure overall energy performance kWh/m ²	Reference energy performance Er kWh/m ²	Variance kWh/m ²	Multiple of reference value	Performance scale
G1	Office block	230	90	-140	2.6	Grade G
A2	Theatrical and indoor sport	550	95	-455	5.8	Grade G

The energy performance calculated by the inspection body.

Offices: Large multi-storey office buildings, banks, consulting rooms and similar uses with lifts and energy consuming services that operate on a typical daytime occupancy.

The maximum annual energy consumption per building classification for each energy zone, refer to SANS 10400:XA 2021.

The difference between the maximum energy consumption and energy performance of the building.

The ratio between the building energy performance and reference value. Refer to SANS 10400-XA:2021 Edition 2 and SANS 1544:2014 for more information on the multiple of reference value.

The energy rating that will be displayed on your certificate.

Both sample buildings shall thus be placed in Class G as they perform much worse than the reference energy performance (Er).

Example 2: Single Occupancy – Energy zone 3						
1	2	3	4	5	6	7
Classification of Occupancy	Description	Measure overall energy performance kWh/m ² /a	Reference energy performance Er kWh/m ² /a	Variance kWh/m ² /a	Multiple of reference value	Performance scale
G1	Office block	120	110	-10	1.1	Grade E
A2	Theatrical and indoor sport	105	110	5	0.95	Grade D

The building occupancy class G1 shall thus be indicated in Grade E as it performs worse than the reference energy performance (Er). The building occupancy A2 shall thus be indicated in Grade D as it performs better than the reference energy performance (Er).



Did you know?

Delivered Energy is energy per energy carrier, supplied to the building system, to satisfy the uses taken into account (heating, cooling, ventilation, domestic hot water, lighting, appliances, etc.) or to produce electricity (SANS 1544:2014)



2.7. Example of the determination of an EPC – Multiple Occupancy

Please note that the data from the examples does not reflect reality and serve the sole purpose of demonstrating how the energy performance calculations are done. The data does not necessarily represent energy consumptions of buildings in these particular classes and energy zones. For more information refer to SANS 10400-XA:2021 and SANS 1544:2014.

Building that is used by two or more occupancies. The example below is a building that is being used as an office and a theatre.

The energy performance as measured and calculated by the inspection body.

The prorated contribution is determined by the occupancy percentage of the building. For more in-depth information in terms of building and floor occupancy review SANS 10400-XA:2011 and SANS 1544:2014 respectively.

Value calculated using the **prorated** measurements from each classification and adding them together.

The variance between the reference energy performance and the measured energy performance.

Example 3: Multiple Occupancy – Energy zone 1

1	2	3	4	5	6	7	8	9	10	11
Classification of occupancy	Description	Measure energy performance of occupancy (kWh/m ² /a)	Prorated contribution to overall Value	Measured overall energy performance (kWh/m ² /a)	Reference energy performance (kWh/m ² /a) SANS 10400-XA:2021 (Energy zone 1)	Prorated contribution to reference value	Prorated reference value	Variance (kWh/m ² /a)	Multiple of reference value	Performance scale
G1	Office block	230	230 x 12% = 27.6	27,6+484 = 511.6	90	90 x 12% = 10.8	10.8+83.6 = 94.4	-	5.42	Grade G
A2	Theatrical and indoor sport	550	550 x 88% = 484		95	95 x 88% = 83.6				

The energy performance score used to indicate your energy efficiency on the performance scale. For more information on Energy Performance scoring refer to SANS 1544:2014 and SANS 10400-XA:2011 Edition 1.

The energy performance rating that will be displayed on your certificate.

Offices: Large multi-storey office buildings, banks, consulting rooms and similar uses with lifts and energy consuming services that operate on a typical daytime occupancy.

Using the **measured energy performance** from both classifications and adding them together to gather the overall energy performance.

maximum energy consumption per classification for each energy zone, refer to SANS 10400:XA 2021.

The **prorated contribution** is determined by the occupancy percentage of the building. In the example the office block occupancy is only 12% of the overall occupancy whilst the theatre occupancy is 88%, leading to a 100% occupancy. The maximum annual energy consumption is multiplied by the prorated contribution to reference value.

The sample buildings shall thus be placed in Grade G as they perform much worse than the reference energy performance (Er).

For more examples of the energy consumption included in an EPC review SANS 1544:2014, for more information on energy efficiency, review SANS 10400-XA:2021

2.7. Example of the determination of an EPC – Multiple Occupancy (Continue)

Example 4: Multiple Occupancy – Energy zone 1										
1	2	3	4	5	6	7	8	9	10	11
Classification of occupancy	Description	Measure energy performance of occupancy (kWh/m ² /a)	Prorated contribution to overall Value	Measured overall energy performance (kWh/m ² /a)	Reference energy performance Er (kWh/m ² /a) SANS 10400-XA:2021 (Energy zone1)	Prorated contribution to reference value	Prorated reference value	Variance (kWh/m ² /a)	Multiple of reference value	Performance scale
G1	Office block	120	120 x 9% = 10.8	10.8 + 95.55 = 106.35	90	90 x 9% = 8.1	8.1 + 86.45 = 94.55	-11.8	1.12	Grade E
A2	Theatrical and indoor sport	105	105 x 91% = 95.55		95	95 x 91% = 86.45				
<p>Please note that the data from the examples does not reflect reality and serve the sole purpose of demonstrating how the energy performance calculations are done. The data does not necessarily represent energy consumptions of buildings in these particular classes and energy zones. For more information refer to SANS 10400-XA:2021 and SANS 1544:2014.</p>										

Energy performance of G1 occupancy contribute more than 10% of the Energy Performance of A2, The sample buildings shall thus be placed in grade E as they perform much worse than the reference energy performance (Er).

Everything less than 1 is more efficient, (1 = Grade D). Everything more than 1 is less efficient, (Grade E and above).

Grade D is best practise

For more examples of the energy consumption included in an EPC review SANS 1544:2014, for more information on energy efficiency, review SANS 10400-XA:2021



STEP 3: SANAS accredited EPC IB to conduct the Energy Performance Assessment according to SANS 1544:2014.

All energy consumption data [for an EPC] shall be assessed by an assessor, thereafter, verified by a SANAS accredited EPC IB. This is to ensure that the energy consumption data collected is accurate (with calibrated instrumentation or utility bill information), is traceable and in line with international standards.

All EPC IBs need to be SANAS accredited and can be found by visiting the [SANAS](https://www.sanedi.org.za/SANAS_Certificates.html) and/or [SANEDI](https://www.sanedi.org.za/SANAS_Certificates.html) website (https://www.sanedi.org.za/SANAS_Certificates.html).

You will also receive a quote from the SANAS accredited EPC IB whereafter you can decide whether or not you want to step into a contractual agreement with the SANAS accredited EPC IB.

Once you as the building owner/ accounting decide to enter into a contractual agreement with SANAS accredited EPC IB, conducts the EPA according to the SANS 1544:2014 standard.

South African EPCs will be calculated on **operational consumption**, reflecting a need for simplicity as EPC's are introduced. Local EPCs will only be **a declaration of energy consumption**, considering tenant loads and existing buildings.

Operational energy performance is the energy performance based on measured amount of energy consumed over a period of 12 consecutive months. The operational energy data for the building has to be collected and measured by the building owner and signed off by the SANAS accredited IB.

It is important to note that the SANAS accredited EPC IB must verify all the energy carries of the building and the quantity of fuels used.

3.1. Exclusions

The SANAS accredited EPC IB will acknowledge the below as part of exclusions:

Energy consumed by garages, car parks and storage areas as well as energy consumed by outdoor services (for example landscape, lighting and security) shall be excluded through measurements or assessments from the energy performance. In buildings where such energy has been excluded, such energy shall be normalised by the net floor area and shall be indicated separately on the EPC.

In cases where the energy consumption of the excluded areas exceeds 10% of the energy performance, the total of the energy performance and the excluded energy shall be indicated graphically on the EPC (SANS 1544:2014)





3.2. Example of the energy consumption included in an EPC

The below tables is reference to energy consumption data used in the determination of the energy performance of a building. For more information on energy consumption and the reference energy per energy zone of a building, refer to SANS 10400-XA:2021.

The SANAS accredited EPC IB will use the data to determine the energy grading of your building. As the building owner / accounting officer you are responsible for data collection.

Name of building		A Government Building				
Occupancy class	Office (G1)	Energy zone		1 (Cold interior)		
Occupancy rate (in net floor area)			C (100 %)			
A - Energy used in entire building complex						
Energy used for	Heating	Cooling	Lighting	Electrical appliances	Outside net floor area (specify under B)	
Please tick	x	x	x	x	X	
Energy source		From (date)		To (date)		kWh used
Electricity		2011/01/01		2011/12/31		415,000
Gas		n/a		n/a		
Other		n/a		n/a		

B - Energy used outside net floor area					
Energy used for	Watts	N°	Time of use	Calculation	kWh used
Lights parking	58	25	24/7	$0,058[\text{kW}] \cdot 25 \cdot 24[\text{h}] \cdot 365[\text{d}]$	12,702
Outside lights	100	120	8 h/d	$0,1 [\text{kW}] \cdot 120 \cdot 8[\text{h}] \cdot 365[\text{d}]$	35,040
Ventilation storage	45	1	24/7	$0,045[\text{kW}] \cdot 25 \cdot 24[\text{h}] \cdot 365[\text{d}]$	9,855
Fridge's storage	500	2	24/7	$0,5[\text{kW}] \cdot 2 \cdot 24[\text{h}] \cdot 365[\text{d}]$	8,760
Total					91,761*
* Represents more of 10 % of total consumption [415,000 kWh] therefore displayed in EPC as excluded energy in kWh/(m ² ·a) [91,761/1,250]					73

Please note that the information above is an example of energy consumption included in an EPC and might differ from assessment to assessment.

3.3. Example of the energy consumption included in an EPC (continue)

C - Net floor area					1,250 m²
Energy used in entire building complex in kWh	415,000	Consumption outside net floor area in kWh			91,761
Energy consumption net floor area in kWh					323,239
Energy consumption net floor area in kWh/(m²·a)					259
Maximum energy consumption (SANS 10400-XA: 2021)	Occupancy class	G1-Office	Energy zone	1	90
Variance kWh/(m ² ·a) [90 - 259]					-169
Multiple of reference value [259/90]					2.9
Performance scale (see 2.1.1.1)					G

Please note that the information above is an example of energy consumption included in an EPC and might differ from assessment to assessment.

Did you know?

- **Exported Energy** is energy, per energy carrier, delivered by the building system and used outside the building system
- **Net Energy** is delivered energy minus exported energy (SANS 1544:2014)





LEVEL 4:

Energy Performance Certificates
Explained

STEP 4a: SANAS accredited EPC IB/ Registered Professional to submit all collected data on the NBEPR

It is the inspection body's responsibility to submit all the data they have gathered during the Energy Performance Assessments for your building – which will be used to determine the EPC – to SANEDI.

Step 4b: SANEDI to issue a unique EPC Number

SANEDI will use the provided data to populate on the National Building Energy Performance Register and issue a unique EPC number.

STEP 5: SANAS accredited EPC IB/ Registered Professional to issue the EPC to the building owner/ accounting officer

Upon receiving the unique EPC number from SANEDI, the SANAS EPC IB will then issue the formal EPC for the building to the building owner or accounting officer.



STEP 6: Building owner / accounting officer to submit a certified copy of the EPC to SANEDI

Once you have received your EPC from the Inspection Body, it is your responsibility as the building owner/Accounting officer to send a certified copy of the EPC to SANEDI within 3 months from the date of issue.

It is compulsory for building owners and accounting officers to complete this step, as they will be fully compliant to the Regulation.

STEP 7: DMRE appoints and commissions random spot-check compliance audits and monitor the display of EPCs

Once the building owner or accounting officer is compliant to the EPC Regulation, the DMRE will randomly select buildings on the NBEPR to conduct compliance and monitoring of the display of Energy Performance Certificate.

STEP 8: SANEDI to send renewal reminder to building owners/accounting officers

SANEDI will send building owners/ accounting officers EPC renewal reminders on the 3rd and 4th year within the 5 years validity period of their EPCs.

LEVEL 4: Energy Performance Certificates Explained

The EPC process is implemented not only to gain access to accurate and reliable building data for energy efficiency monitoring and GHG emission obligations but to encourage accounting officers and building owners to improve the energy performance of their buildings and aspire to eventually achieve an A-rating for those facilities.

The EPC process will be implemented by an accounting officer or building owner, and the assessment will be conducted by SANAS accredited IB, once this is done, the data and the particulars of the building will be sent to SANEDI and they will give out a unique EPC number and register the building to the NBEPR. The DMRE will then send a representative to monitor the compliance of the regulation.

Once you have completed the EPC process, you will need to display the certificate at the entrance of your building, where it can be easily viewed by any person entering the building.

The certificate can only be used as a reference to the building's energy performance. The below information provides an overview of the certificate that you as the building owner will receive and can be used as a reference in the determination of authenticity and reading your certificate correctly.

4.1. Certificate concept

A sample of the South African Energy Performance Certificate that an accounting officer or building owner will receive from the inspection body can be seen in this Level. This certificate will be displayed at the entrance of the building and would need to be submitted to SANEDI for inclusion in the National Building Energy Performance Register (NBEPR).

Important to note

SANEDI will send a renewal reminder to you after three years. Thereafter, they will send a final renewal reminder to you and the IB after four years.

4.2. Energy Performance Certificate

Certificate is valid for 5 years

The energy performance certificate was designed in accordance with the standard based on a unique look and feel that will be the standard for South African EPC's.

SANS 1544:2014 is in review whereafter the necessary updates will be announced and published.

The South African Energy Efficiency logo is always in the top left corner


Building Address

The seven energy efficiency levels.

Your building's information

Energy carriers of the building, the period of data capture, the net floor area of the building and the kWh/m² used by the carrier.

Logos of the SANAS and the SANAS accredited inspection body



Energy Performance Certificate for Buildings

1

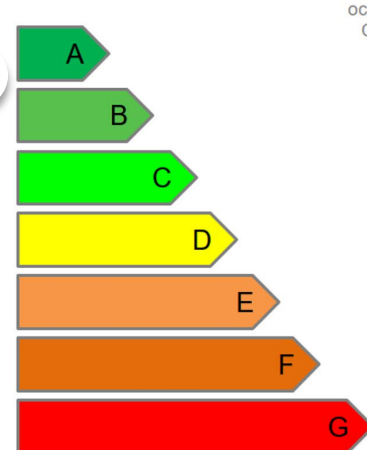
Certificate Number:

12

This certificate is issued in terms of SANS 1544:2014, Energy performance certificates for buildings, and indicates how much energy is being used to operate this building. The energy performance of the building is based on measured energy performance and is compared to maximum energy consumption provided in SANS 10400 XA.

Energy Performance Certificate

Very energy efficient



Not energy efficient

SANS 10400-XA:2011 maximum energy consumption in occupancy class in Climatic Zone 4

185 kWh/(m².a)

138 kWh/(m².a)

Energy performance of your building

Building Information:

Owner:

Occupancy Class/es:

Number of Floors: 5

Net Floor area: 3812 m²

Year of construction:

Building plan approval: 09 January 2019

Occupancy certificate: 14 February 2019

Year of last major renovation:

Climatic zone:

Cadastral information:

Administration information:

Accredited body:

Accreditation nr:

Assessor name:


Date of Issue: 06 August 2021

Valid until: 05 August 2026

Record nr:

Carrier	From (date)	To (date)	Energy [kWh]	Net Floor Area	Performance [kWh/m ²]	Exclusions Performance [kWh/m ²]
Electricity (grid)	2020/05/01	2021/04/30	494 223	3 812	130	9
Gas	N/A	N/A	N/A	N/A	N/A	N/A
Solid Fuel	N/A	N/A	N/A	N/A	N/A	N/A
Liquid Fuel	2020/05/01	2021/04/30	29 114	3 812	8	0
Other	N/A	N/A	N/A	N/A	N/A	N/A

Technical Signatory



EPC0001

Certificate number: Each number is unique and issued by SANEDI

The best practise reference value for your specific building type.

The measured energy performance of your building as determined by a SANAS accredited IB

The information of the SANAS accredited IB

Signature of the assessor of the SANAS accredited inspection body

4.3 Illegalities

As proclaimed in the regulation, it is mandatory to display **your** EPC at the entrance of **your** building, however, there are other legalities to take into consideration for **your** EPC.

1. Your EPC must be issued by a SANAS accredited EPC inspection body.
2. A certified EPC copy must be submitted to SANEDI and will be uploaded on the National Building Energy Performance Register (NBEPR).
3. An EPC must be renewed after a period of five (5) years.
4. Your EPC certificate cannot be copied and shared with another building.
5. An EPC is only valid for the building that was inspected and cannot be used for other buildings owned.

4.4. Energy Efficiency Label

The energy efficiency label is designed to provide South African stakeholders with accurate comparable information on the energy efficiency of the building they occupy, manage and/or own.

The label has seven horizontal colour coded bars, extending from left to right, ranging vertically from dark green on top to dark red in the bottom.

Each colour reflects an energy efficiency rating against which the building performance is positioned. This is indicated on the right of the label, aligning the performance with the colour coded bar in which it falls.

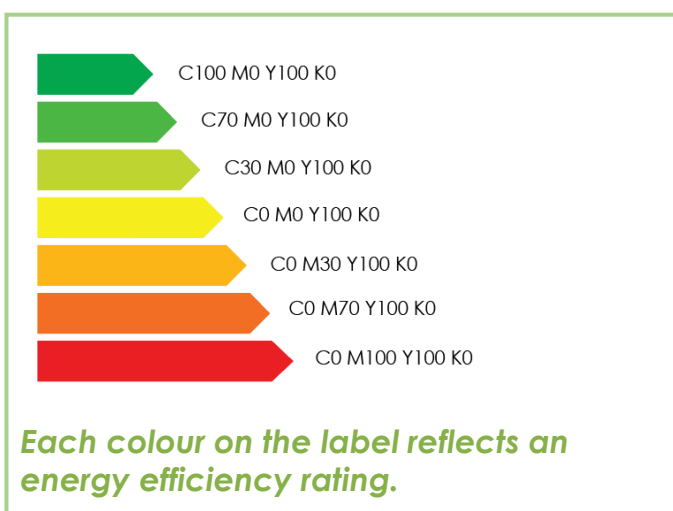
The energy grades vary from A to G with A being very energy efficient, G being least energy efficient and D being the mid-point and best practice for energy efficiency in buildings as defined in SANS1544:2014. The aim would be to improve and move towards an A grading.

Once the inspection body has successfully assessed your building, they will submit inspection reports which contain your building information to SANEDI to obtain a unique certificate number. Once they have received the unique number, the inspection body will provide you with a copy of the EPC. It is your responsibility as the building owner / accounting officer to submit a certified copy of the certificate to SANEDI, who will upload the certificate to the NBEPR system.

4.4.1. Correct use of the label

The energy label is included in the certificate. It is similar to the well known energy labels of appliances.

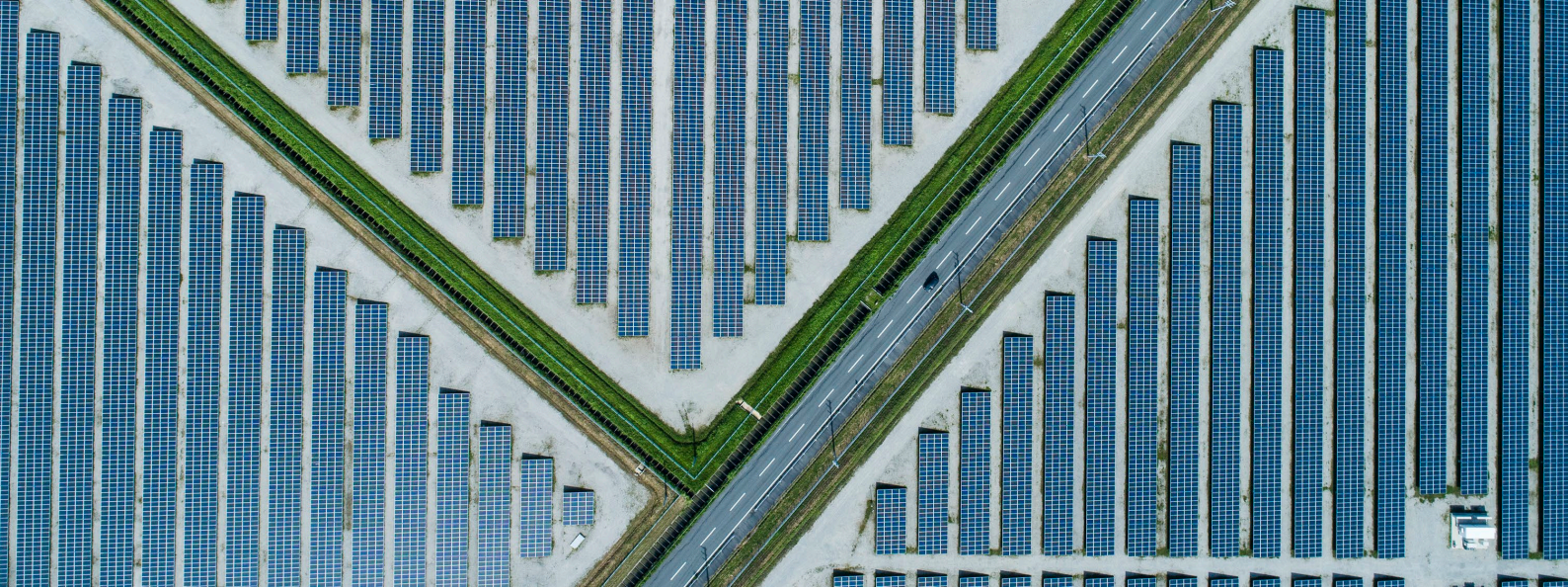
Rating scale colour codes



The energy efficiency label was designed to be internationally recognised and applied as a standard worldwide. Incorrect use of the label includes:

- Change of the colours of any component on the label
- Change of the font of any component on the label
- Stretching of any component on the label
- Changing of the position of the label
- Omitting any information or graphics from the label

The above information can also be applied to verify and check the validity and legitimacy of an Energy Performance Certificate as the label is displayed on the certificate to indicate the building's energy efficiency.



4.5 Timeline

Obtaining an EPC could be a lengthy process due to the involvement of various stakeholders and data collection. Therefore, planning and allocation of resources will be necessary to complete the certification process within the afforded timeframe, i.e., end of 2025.

The energy assessment period shall be one year in respect of the data for the preceding year.



Did you know?

Your certificate must be printed and publicly displayed at the entrance of your building.

4.6 Validity

Once your Energy Performance Certificate is issued, you have five years, before it needs to be renewed. The renewal process is similar to the initial application and compliance process; thus it is recommended to start the renewal process in the fourth year after initially obtaining your EPC certificate to ensure that your building remains compliant.



The EPC must be issued by a SANAS accredited inspection body.

Closing

The EPC process aims to unlock a wider energy efficiency value chain, where building owners / accounting officers work towards implementing more efficient systems and improving the EPC rating of the building.

EPCs allow for access to accurate and reliable building data, that will ultimately support government initiatives in the areas of energy efficiency monitoring, GHG emission obligations, carbon tax, etc., and allow for effective planning towards the future of energy efficiency in South Africa.

You as the building owner / accounting officer are the key activator of the process and your implementation thereof will set the EPC value chain in motion, meaning that you are the leading role and your part is integral in the bigger picture for a greener South Africa and world.

You are now equipped with the tools and information to start and complete your EPC process. For reference and further reading the resource and reference list can be used along with SANEDI's website <https://sanedi.org.za/energy-performance-certificates/index.htm> for guidance.

You are not alone in the process, the energy efficiency value chain (SANAS accredited IB's, Energy Consultants, SANEDI etc.,) has been set-up to support and successfully guide you through the process.



Q&A Sheet and Resource List

Addendum A: Frequently asked questions

Questions	Answers
General EPC questions	
Q: What does the SANAS accredited IB do with your data on completion of the assessment?	A: The SANAS accredited EPC IB submits all specified energy data used to determine your building's energy performance to SANEDI.
Q: What are the direct opportunities arising from the EPC mechanism?	A: EPCs promote energy consciousness, improve energy efficiency across the country, reduce carbon emissions.
Q: By when does my building have to be compliant?	A: By 07 December 2025.
Q: Which buildings are subject to the EPC process?	<p>A: Buildings that are subject to the EPC process are:</p> <p>Ownership and Size</p> <ul style="list-style-type: none"> • Public sector buildings greater than 1000m² • Private sector buildings greater than 2000m² <p>Operational Status</p> <ul style="list-style-type: none"> • Buildings that have been in operation with a particular use for minimum two years or more. • Buildings with no major renovations carried out for the past two years of operation. <p>Occupancy Classes</p> <ul style="list-style-type: none"> • A1: Entertainment and Public Assembly • A2: Theatrical and Indoor Sport • A3: Places of Instruction • G1 Offices
Q: Are shopping malls classified as category A1 occupancy class?	A: A mall/shopping centre is not mandated to acquire the EPC under the current regulation as it is classified under Class F1 of section A20 of the National Building Regulation.
Q: Should an EPC be completed for properties located in Namibia, Lesotho and Swaziland?	A: No, the mandate of this Regulation is only within South Africa. If other countries are required to have an EPC, it will be under the regulation of their respective governments. Therefore, if you have business operations in other countries, you may acquaint yourself with their government building regulation in case you may need to comply.
Q: What is the penalty if I do not comply?	<p>A: Penalties for non compliance as stated in the National Energy Act 34 of 2008 (the building owner and/or organ of state will be guilty of an offence):</p> <p>(a) a fine not exceeding five million rand;</p> <p>(b) imprisonment for a period not exceeding five years ; or</p> <p>(c) both such fine and such imprisonment.</p>
Q: Do I need to submit my EPC to SANEDI?	A: Yes, once you receive your EPC from the SANAS accredited Inspection Body, you have to send a certified copy to SANEDI.

Frequently asked questions

Questions

Answers

General EPC questions

Q: Where do I put my EPC?

A: An EPC shall be displayed at the entrance of your building, where it can be easily seen.

Q: Why did South Africa move from modelled measurement (in SANS 10400-XA:2021) to operational measurements in SANS 1544:2014 (for EPC certificates)?

A: SANS 10400-XA:2021 is the standard which provides deemed requirements for compliance with the Energy usage of the National Building Regulation and SANS 1544:2014 is the EPC standard used to determine the measured energy consumption and specifies the requirements for producing EPC for buildings.

We compare the building's measured energy consumption to the maximum annual energy consumption provided in the SANS 10400-XA:2021 to obtain the building energy performance. Both Standards are used and apply in the determination of your building's energy performance.

Q: Should old buildings, even those that are not close to being energy efficient, obtain an EPC?

A: Yes, all buildings that have been in operation for two years or more and that fall within the required sizes which are:

- 1000sqm for public sector buildings.
- 2000sqm for private owned buildings.

And that fall within the required occupancy classifications have to obtain an EPC.

Q: If you sell your building, is it mandatory for the building to have an EPC?

A: No, provided that it does not fall within the required building sizes and occupancy classes which are:

- A1 – Entertainment and public assembly.
- A2 – Theatrical and indoor sport.
- A3 – Places of instruction.
- G1 – Offices.

Q: Do I have to re-do the EPC process if I go through a major renovation before the 5-year period is over?

A: Yes, due to a major renovation, the net floor area and the general building's energy performance will drastically be affected and altered, hence rendering the EPC invalid. The Building owner will have a minimum of two years to re-issue a new EPC after the major renovation.

Frequently asked questions

Questions

Answers

Building Services questions

<p>Q: Is it allowed to calculate energy consumption using appliances wattages and operation hours for buildings without sub-meters and electricity bills.</p>	<p>A: No, is not allowed. It is mandatory for the assessor to use utility bills to calculate the energy consumption of a building, as stipulated in the standard (SANS 1544:2014 page 6) that when conducting an EPC assessment, you need 12 months utility data. When calculating the energy excluded the assessor must use the methodology mentioned in SANS 1544:2014-page 13 Section B which shows the methodology to use when calculating excluded energy.</p>
<p>Q: Does having additional wheeled power change the process of obtaining an EPC?</p>	<p>A: No, it does not affect the process but the additional energy source has to be accounted for, in the EPC calculations.</p>
<p>Q: How does the additional energy resources impact the EPC process?</p>	<p>A: No, it does not impact the EPC process.</p>
<p>Q: There are a lot of areas within a building that are excluded from the EPC process i.e., parking lots and basements. How do I get a baseline of energy supply without the exclusions added to the measurements?</p>	<p>A: Your building metering should assist in this regard or the services of an energy assessor can be used in the data gathering process to ensure collection of accurate energy performance data for your building.</p>
<p>Q: Are fuels part of the building services that is excluded from your EPC?</p>	<p>A: No, as part of the building services, the fuels used for the building will be measured. Fuel measurements are added to your energy demand rating and an understanding of the various fuels will assist you to grasp what your EPC means and what is measured and assessed by the SANAS accredited IB.</p>

SANAS accredited Inspection Bodies

<p>Q: Who can assess my building and provide me with an EPC?</p>	<p>A: An assessor can conduct an energy performance assessment and only a SANAS accredited IB can provide you with Energy Performance Certificate.</p>
<p>Q: Can I only use a SANAS accredited IB in my province?</p>	<p>A: No, any SANAS accredited IB in any province can assist you with your EPC process.</p>
<p>Q: Where do I find a SANAS accredited IB?</p>	<p>A: Use the tab "SANAS Accreditation" on the SANEDI website https://sanedi.org.za/energy-performance-certificates/index.htm for more information.</p>
<p>Q: Will a SANAS accredited IB collect and measure all the data?</p>	<p>A: Yes, the SANAS accredited EPC IB will collect and assess the building's data, in addition the building owner / accounting officer or an assessor can also collect all data needed for the energy performance assessment.</p>
<p>Q: How much are the services of a SANAS accredited IB?</p>	<p>A: Costing varies. It is the responsibility of the building owner / accounting officer to collect quotes from different service providers to estimate the cost for to complete the EPC process.</p>

Frequently asked questions

Questions

Answers

Building Occupancy questions

<p>Q: How do I determine what my building's classification is?</p>	<p>A: Your building classification is depicted on your building's occupancy certificate.</p>
<p>Q: What if I do not have a building occupancy certificate?</p>	<p>A: If you do not have a building occupancy certificate, use one of the below documents:</p> <ul style="list-style-type: none"> • A fire certificate or • Municipality certificate (approval of the development).
<p>Q: In an office park, does each building need an EPC or is there one assessment (and EPC) for the entire office park?</p>	<p>A: Each accounting officer or building owner is responsible for their own separate building block, provided each unit meets the requirements. Each office block needs their own EPC.</p>
<p>Q: If you have an office building with sectional titles and there are a number of owners, how do you go about the EPC process?</p>	<p>A: One energy performance assessment shall be conducted for the office block and each floor shall be prorated accordingly and one EPC shall be produced for the entire building.</p>
<p>Q: Does retail spaces fall under:</p> <ul style="list-style-type: none"> • an A1 building classification as an area of entertainment and public assembly or, • F1, a large shop? 	<p>A: Retail spaces fall under F1, a large shop and not A1.</p>
<p>Scenario 1: A building is privately owned and less than 2000 m² but more than 1000 m², the tenants are government, where does the building fall regarding EPC? And does EPC apply to the building owner?</p>	<p>A: If a building is owned, occupied or operated by an organ of state, and the building is > 1000 m², it is mandatory for the accounting officer from that organ of state to complete the EPC process. Thus, a the privately owned building owner will not be responsible to complete the EPC process. It will remain the responsibility of the tenant (organ of state leasing the building).</p>

Building Design questions

<p>Q: What is net floor area?</p>	<p>A: Net floor area is the sum of all areas between the vertical building components (walls or partitions), excluding garages, car parks and store rooms.</p>
<p>Q: Is unoccupied floor area used in the overall energy performance calculations?</p>	<p>A: No, normalisation shall be undertaken to account for unoccupied floor areas, as follows: Effective energy consumption(kWh/m²/a) = measured net energy consumption (kWh/a)/occupied floor area (m²) where occupied floor area is the net floor area minus the unoccupied floor area.</p> <p>SANS 1544:2014 prescribes that the unoccupied floor area shall be prorated to the measurement period, for example: Area A is unoccupied for 30% of the year, Area B is unoccupied for 60% of the year, Area C is always occupied – 100% occupied. A, B and C make up the net floor area. Therefore, useable floor area = (A+B+C) – ((0.3 x A) + (0.6 x B))</p>

Frequently asked questions

Questions

Answers

SANAS related questions

Q: For reference purposes which SANS should be used: SANS 10400-XA:2011 or SANS 10400-XA:2021?	A: SANS 10400-XA:2021 should be used because it supersedes SANS -XA:2011.
Q: The data from SANS 10400-XA:2011 is still reflected in SANS 1544:2014, what data should be used?	A: Data from SANS 10400-XA:2021 should be used as it supersedes SANS 10400-XA:2011. However, there is a possibility of updating SANS 1544:2014 to correlate with SANS 10400-XA:2021
Q: SANS 1544:2014 refers to the energy zone. Will this terminology still be used?	A: climatic zone was updated to energy zone for future use and reference as it was found to be a more accurate description for the purpose and determinations of reference energy and energy efficiency.
Q: Where do I find the Standards?	A: The South African National Standards can be purchased from the SABS website.



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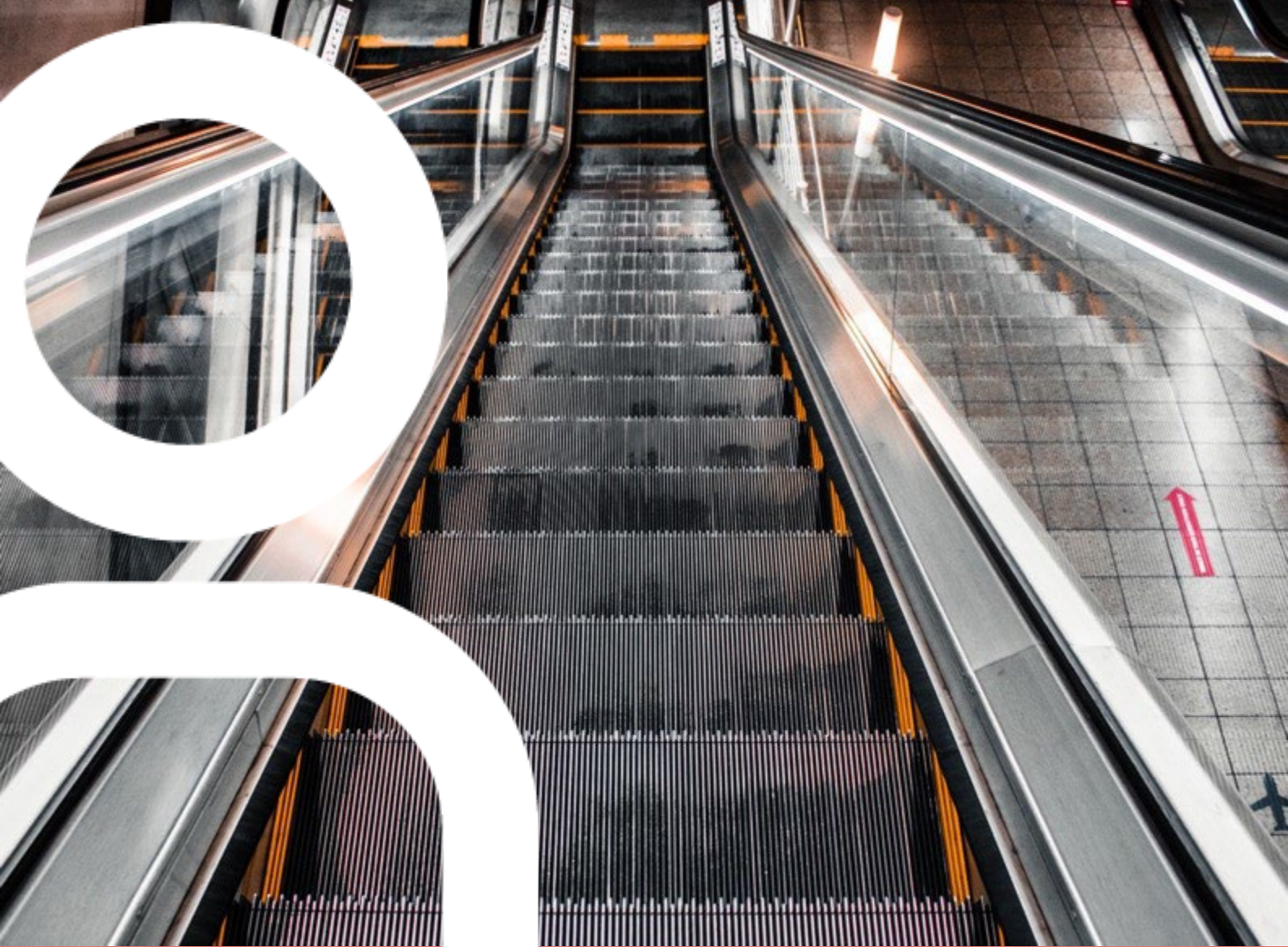
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Energy Zone Map of South Africa
CSIR





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