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Quick reference to colour-coded icons

REGULATION
Development proposals must comply with these criteria as they are entrenched in an act of parliament, municipal by-law or regulation. These criteria are legally enforceable and non-compliance may result in severe penalties.

POLICY
Development proposals should comply with these criteria as they are entrenched in City policy or strategy. Non-compliance with these criteria may result in the rejection of a building or land use application.

BEST PRACTICE
These criteria are (voluntary) best practice and demonstrate innovation. It is likely that these guidelines may in future be incorporated in legal instruments or policy and it is therefore advisable that developments aim to adhere to these criteria.

PROCESS
This specifies a process, standards or standard operating procedure that developments or proposals must comply with for approval.

Please note that this document (and the content/requirements it contains) will be updated over time. Check the City of Cape Town’s website for more updated versions:
www.capetown.gov.za/ResourceEfficiencyCriteria
Produced by the Planning and Building Development Management Department (PBDM) and the Environmental Resource Management Department (ERMD) of the City of Cape Town.
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Although based on law, the information provided in this document is presented in an informal and plain language format for the purposes of providing advice and guidance on development matters and procedures to customers and members of the public. Should there be any discrepancy with provisions in the underlying legislation, the actual legislation takes precedence and should be consulted directly. Alternatively, please obtain independent professional advice on the matter. The City of Cape Town does not accept any liability for any action taken on the basis of the information contained herein.

For queries e-mail: Planning.BuildingManagement@capetown.gov.za
1. Introduction, purpose and how to use the document

The City of Cape Town has the legal competency and authority to regulate, enforce and manage development and land use. The City has also made significant commitments to sustainability and resource efficiency in the built environment. Notably, resource efficiency and an eco-friendly city region are two of the top goals of the long-term City Development Strategy (October 2012). Ensuring that growth is environmentally sustainable in the long-term is one of the five strategic areas which the City’s Economic Growth Strategy (July 2013) is focused on and forms part of the current five-year Integrated Development Plan (IDP).1

The aim is to facilitate more resource-efficient development amongst land owners and developers.

This Resource Efficiency Criteria for Development document is a reference guide to a large number of policy and legal directives and guidelines that form part of the City’s overall sustainability framework related to the built environment, and presents them conveniently in one document. Collectively, these are criteria for development in a broad sense.

While some are still voluntary and some are mandatory and require compliance, they are all considered important by the City of Cape Town as criteria for development.

The aim is to facilitate more resource-efficient development amongst land owners and developers and their teams who want to put forward proposals for new developments, and for those who want to improve the efficiency of their existing buildings, landscapes and infrastructure (a retrofit).

It provides developers, architects, draughtspersons and planning professionals (and the building sector in general) with the information and guidance required to comply with national regulations and City policy and legal requirements related to resource efficiency. It has relevance in building plan, site development plan and land-use submission processes.

The document covers seven categories of environmental resource-related areas, namely:

- Site Selection
- Transport Efficiency
- Construction Materials
- Energy Efficiency
- Water Efficiency
- The Natural Environment
- Waste Management

Decisions made in each of these areas have a high environmental and socio-economic impact. It starts with the nature and location of development, which has important consequences for Cape Town’s urban form and for the people who live and work here. The City of Cape Town recognises that resource efficiency is critical to economic growth and increases a city’s competitiveness and resilience. This is reflected in the City’s Energy 2040 Vision’s goals, which includes a 37% reduction in carbon emissions, with 22% coming from energy efficiency alone. Following a business-as-usual trajectory would result in a doubling of energy costs by 2040, and other negative impacts.

To become a lower carbon, more resource-efficient and equitable city, Cape Town needs to be remodelled with increased densification and mixed use in areas of economic activity, with modal shifts to public transport and more efficient private transport (e.g. higher passenger occupancy), increased water and energy efficiency and use of renewable energy.

For each of the categories, the guidelines, policy and legal directives are colour-coded according to their legally binding nature:

Development proposals must comply with these criteria as they are entrenched in an act of parliament, municipal by-law or regulation. These criteria are legally enforceable and non-compliance may result in severe penalties.

Development proposals should comply with these criteria as they are entrenched in City policy or strategy. Non-compliance with these criteria may result in the rejection of a building or land use application.

These criteria are (voluntary) best practice and demonstrate innovation. It is likely that these guidelines may in future be incorporated in legal instruments or policy and it is therefore advisable that developments aim to adhere to these criteria.

This specifies a process, standards or standard operating procedure that developments or proposals must comply with for approval.

The criteria are presented in FAQ-format (frequently asked questions) with the intention of making it as user-friendly as possible.

2. Site selection

2.1 Does the City consider whether the proposed development is a brownfield or greyfield site?

The City’s Densification Policy provides that the development and zoning of greenfield developments will be guided by the targeted average gross base density and the density decision-making framework. The policy gives preference to the redevelopment of greyfield and brownfield sites.

The Densification Policy states that greyfield and brownfield sites represent a huge opportunity to realise greater socio-economic urban integration. The policy also states that ‘the City will proactively pursue the release of specific City-owned greyfield and brownfield sites for redevelopment’.

The City’s Smart Building Handbook promotes greyfield and brownfield redevelopment and the avoidance of development of greenfield sites.

2.1.2 How compact should urban development be?

The City’s Spatial Development Framework includes a range of policy statements, guidelines and strategies aimed at improving the compactness of Cape Town’s spatial form. Many of these apply to proposed new developments. The Spatial Development Framework promotes:

- Development concentrated in accessible and high-opportunity locations
- Land use intensification (higher density) across the city
- Land use intensification (higher density) within areas well served by public transport
- Public transport-orientated development
- Land use intensification (higher density) within areas close to work and social facilities
- Growth management through urban and coastal edges
- Mixed-use development

2.1.3 Do I have to develop within the urban edge?

The City delimited an urban edge and coastal edge in order to phase and manage the development of land suitable to urban development over the medium to long term. New development must accordingly be situated according the City’s urban and coastal edge and comply with the City’s Development Edges Policy and Spatial Development Framework. The City has also established an urban edge management zone, which is a buffer area on either side of the urban edge where land uses are to be managed to protect the integrity of the urban edge line.

In terms of City policy, in the medium term (next 15 years), new urban development must take place within the existing urban edge. No urban development should be encouraged beyond the urban edge unless exceptional and unique circumstances exist.

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6 City’s Smart Building Handbook: www.capetown.gov.za/greenbuilding
7 A greyfield site is any site previously developed, with at least 50% of the surface area covered with impervious material.
8 A brownfield site is a property of which the expansion, redevelopment or reuse may be complicated by the presence or potential presence of a hazardous substance, pollutant or contaminant.
9 Greenfield sites are those that have not been previously developed in any way.
10 The CTSDF has been approved in terms of two different sets of legislation. It has been approved as a component of the City’s Integrated Development Plan in terms of section 34 of the Municipal Systems Act, Act 32 of 2000 (MSA) and section 4(6) of Land Use Planning Ordinance 15 of 1985 (LUPO). Together with the Provincial Spatial Development Framework (PSDF), it is the spatial planning document applicable to the municipal area of Cape Town with the highest legal status.
11 Note that the Development Edges Policy is now integrated into the 2012 Spatial Development Framework under section 6.
2.1.5 How does the City assess applications according to densification criteria?

In terms of the City’s Densification Policy, decisions in this regard will be guided by a ‘density decision-making framework’ and will be balanced by resource limitations and infrastructure availability. The City’s decisions on densification are informed by a range of criteria related to the location, form, extent, scale, height and orientation of densification. The City of Cape Town Development Management Scheme (DMS), which is part of the City of Cape Town Municipal Planning By-law (2015)14, density guides, local density plans and spatial development plans all inform density criteria. Moreover, particular areas are targeted for densification and contain associated density parameters. Contextual informants of density decisions include: the natural environment, heritage, infrastructure, transport impact assessment, social facilities and socio-economic conditions. Criteria that inform decisions include:

- Access to public transport
- Proximity to places of employment, services and facilities
- Proximity to open spaces
- Infrastructure capacity

2.1.4 Are there any densification criteria I need to follow for a proposed development?

Proposed new developments need to align with the City’s Densification Policy13. Any stakeholder planning a new development should carefully scrutinise the contents of the Densification Policy to ensure that the proposed development is in line with the City’s policy objectives. In brief, the policy states:

- The City aims to achieve a minimum average gross base density of 25 du/ha in the next 20 to 30 years.
- The City will promote densification in all areas. However, an approach of ‘one size fits all’ will not guide density decisions.
- Higher levels of densification will be encouraged at specific spatial locations, particularly in areas with good public transport accessibility, at concentrations of employment, commercial development and/or social amenities, and in areas of high amenity.
- The intensification of all types of land uses, not only residential land uses, will be encouraged, and a better mix of land uses will be supported.
- A variety of erf and dwelling sizes are to be promoted within any one area. On smaller erven, the urban rather than suburban model of development will be encouraged.
- The City will proactively encourage densification in density priority zones (DPZs) and urban civic upgrade areas.

2.2 Transport efficiency

2.2.1 Should a proposed development be in close proximity to public transport?

The City’s Spatial Development Framework prioritises development close to public transport opportunities and development corridors\(^{15}\) and directs:

- Land use intensification (higher density) within areas well served by public transport.
- Land use intensification on and adjacent to the accessibility grid, particularly the primary accessibility grid (corridors and routes), to establish the thresholds required for sustainable, cost-effective and efficient public transport and to generate accessible economic opportunities.
- Economic development (both formal and informal) and higher density forms of residential development to locate in areas well served by public transport.
- Public transport-orientated development.

The City intends to place over 85% of the city’s population within one kilometre of a high-quality public transport system. New developments need to align to this goal.

The City’s Spatial Development Framework requires ‘provision of and access to public transport to be adequately taken into consideration in the assessment of development applications’.

\(^{15}\) Development corridors are broad areas of high-intensity urban development, focused predominantly on activity or development routes serviced by mass rapid public transport services (rail or BRT).

2.2.2 What about non-motorised transport?

The City’s Non-Motorised Transport (NMT) Policy and Strategy (2005)\(^{16}\) require integrated land use development appropriately suited for non-motorised transport. The policy and strategy provide the following policy statements applicable to new developments:

- NMT is to be given proper consideration in the design of buildings
- NMT needs and requirements must take priority in the development and management of residential areas and open space networks
- NMT considerations should be addressed in all developments in Cape Town through integrated planning

The City’s Spatial Development Framework requires new developments to integrate ‘walking and cycling as essential components of land use planning’.

The City’s Urban Design Policy 2013 requires that non-motorised transport facilities be considered from commencement of the design process for developments that are likely to attract public patronage (shopping centres, public facilities and public transport interchanges). The facilities provided must cater for the different needs of end users (residents, staff and visitors) and should include cycle parking, change and shower rooms and storage facilities. The location of these facilities must ensure safe and convenient access. Furthermore, the Urban Design Policy requires new developments to comply with the following criteria:

- Must achieve greater levels of integration, spatial continuity and improved permeability for pedestrians and cyclists.
- Must provide linkages and generous sidewalks around and to important destinations that attract high levels of pedestrian traffic.
- Must ensure universal access to all buildings and transport facilities and access along popular pedestrian routes.

2.3 Construction materials

2.3.1 Are there any criteria for the type of materials to be used in a development?

Locally sourced: The City’s Smart Building Handbook promotes the use of locally sourced materials and local labour for new developments. Products and materials sourced and manufactured in the vicinity of a development reduce the energy embodied in transporting materials over long distances to the site.

Robust: The City’s Design and Management Guidelines for a Safer City encourage the use of locally sourced and robust materials so that a locality maintains ‘its physical quality over time’. In a lifecycle assessment approach, the use of robust materials reduces carbon emissions and embodied energy.

Natural building methods: The City’s Smart Building Handbook encourages the use of natural building methods such as straw-bale construction; cob, adobe and mud-brick construction; rammed-earth construction; stone construction; and thatched roof.

‘Green’ materials: There are useful local guidelines and resources available for materials which help achieve more environmentally sustainable buildings. Green Cape’s Catalogue of Green Building Materials (2013) is a guide towards SANS 10400 XA Compliance in the Western Cape. Ecostandard is a certification body which sets environmental standards of excellence to measure and rate products, manufacturers and/ or service providers within the building sector in South Africa. See their website for the portfolio of certified and rated products which have been awarded with an EcoProduct label for their transparency and outstanding environmental practice. Ecospecifier is an eco-products knowledgebase providing information to assist the design of eco-preferable buildings, interiors, infrastructure and landscapes.
2.4 Energy efficiency

2.4.1 What do I have to do to comply with the SANS 10400-XA?

Note that the SANS 10400-XA building regulation\(^\text{23}\) referred to here is the 2011 Edition 1 version, which will be updated over time. Energy efficiency standard SANS 10400 Part XA is mandatory whereas SANS 204 is currently a voluntary standard (although some of it incorporated in 10400 XA). SANS 204 contains performance levels that are higher than SANS 10400 XA and defines the minimum requirements that must be adhered to. It is anticipated that within 3-5 years the performance level in SANS 10400-XA will be increased to SANS 204 levels and it is therefore advised that future buildings are designed to SANS 204.

In terms of the National Building Regulations\(^\text{24}\) and Building Standards Act, Part XA (Energy Usage in Buildings), all new proposed building works, including extensions, are required to be designed and constructed so that they:

a. are energy efficient whilst fulfilling user needs in respect of thermal comfort, lighting, hot water and vertical transport and

b. have a building envelope and services which facilitate the efficient use of energy appropriate to their function and use, internal environment and geographical location, in the assessment of development applications.

Compliance: Building work will comply with these regulations if they follow one of the following processes:

a. Adhere to a ‘deemed to satisfy’ process by following SANS 10400. In this case the competent person (trained in the SANS 10400 Part XA content) appointed by the owner must ensure that:
   - The orientation of the building is in accordance with SANS 204;
   - The fenestration is in accordance with the requirements of Regulation XA or SANS 204;
   - The building envelope, including the roof assembly is in accordance with Regulation XA or SANS 204;
   - Hot water production is in accordance with the requirements of Regulation XA.

b. A competent person prepares and submits a ‘rational design’ that ‘demonstrates that the energy usage of such building is equivalent to or better than that which would have been achieved by compliance with the requirements of SANS 10400-XA’.

c. The building has a theoretical energy usage performance, determined using certified thermal calculation software, less than or equal to that of a reference building in accordance with SANS 10400-XA.

2.4.2 What mandatory energy efficiency criteria are required?

Building envelope: According to SANS 10400-XA (which refers to SANS 204) the building envelope needs to comply with the specifications of two tables which outline the maximum energy demand and maximum annual energy consumption, related to different building types and climatic zones/locations. Buildings which are cooler in summer and warmer in winter bring greater thermal comfort and reduce the need for expensive heating and cooling. Related to the building envelope are the following key areas which have an impact on energy efficiency in the Cape Town area. (Note that these are not the full set of requirements, which should be read in the SANS 10400-XA and SANS 204):

Orientation: According to SANS 204, the building should be compact in plan with rooms that are used most and the major areas of glazing placed on the northern side of the building to allow solar heat to penetrate the glazing during the winter months.

The major axis of the building should run east-west and the roof overhang should provide shading to the windows from the midday summer sun.

Floors: Exposed slabs should be insulated to the R values specified in SANS 204.

External walls: Conventional construction has a ‘deemed to comply ruling’, whilst non-conventional construction needs to comply to a minimum R value for each climatic zone (using insulation and/or cavity) to moderate heat loss and gain. The appointed competent professional should advise on how best to achieve compliance.

Fenestration: If a floor of a building has windows which are the equivalent of more than 15% of the net floor area in size, then special requirements are set in SANS 204 which need to be met to reduce the impact of energy losses and gains through windows and glazed doors. These include the glazing/glass, frames and shading of the window/door opening. These additional requirements and checks are related to conductance and solar heat gain.

Roof assemblies: The combination of the roof and ceiling are required to achieve a minimum R value set out in SANS 10400 for different kinds of buildings in different climate zones. In Cape Town’s temperate coastal zone, the main heat losses are through the roof so that is the best place to insulate. The objective is to reduce heat gain in summer and heat loss in winter.

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\(^{23}\) SANS 10400-XA: http://sans10400.co.za/download-regulations/

\(^{24}\) National Building Regulations: https://www.capetown.gov.za/en/Planningportal/Pages/Legislation.aspx
2.4.3 What type of development does SANS 10400-XA apply to?

Applications for new building work, including extensions in the following building categories must comply with these requirements: entertainment and public assembly, theatrical and indoor sport, place of instruction and worship, exhibition hall, museum, place of detention, hospital, other institutional (residential), hotel, healthcare, large shop, small shop, wholesaler’s store, offices, dormitory, domestic residence, dwelling house and hospitality.

2.4.4 Does SANS 10400-XA apply to subsidy houses?

In response to the introduction of SANS 10400-XA, the Department of Human Settlements introduced amendments to the ‘Norms and Standards for the Construction of Stand Alone Residential Dwellings’ and ‘Adjustment of the Housing Subsidy Quantum’. The new standards were based on the requirements of the SANS 10400-XA, which require the addition of measures to improve the thermal performance of dwellings.

Reference documents:
SANS 10106 and SANS 6210

Note that if a renovation or addition is required for a building which is older than 60 years or which is located in a heritage protection overlay zone, advice on how to position a solar water heater should be sought from heritage officials at the City of Cape Town’s Environmental Resource Management Department.

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2.4.4 Does SANS 10400-XA apply to subsidy houses?

Accordingly, all subsidy houses now require:

- The installation of a ceiling with a prescribed air gap for the entire dwelling;
- The installation of above-ceiling insulation comprising a 130 mm mineral fibreglass blanket for the entire house;
- Special low-emissivity clear and emissivity opaque safety glass for all window types;
- Plastering of the internal walls;
- Rendering on external walls;
- Smaller size windows;
- Public-transport-orientated development.

26 Low-emissivity glass is a high-tech product with enhanced energy efficiency and includes a silver or metal oxide coating applied to one surface of clear float glass.

2.4.5 Should I install a smart meter to improve a building’s energy management?

In terms of national electricity regulations, proposed developments which have a large theoretical energy usage (monthly consumption of 1 000 kWh and above) must have a smart meter installed.

The City’s Smart Building Handbook promotes the use of real-time monitoring. In terms of the guidelines, ‘the effective operation of buildings requires an environment rich in data on building performance. Real-time feedback on building performance is the only way for facilities managers to be alerted to poorly performing systems’.

2.4.6 Are there any procedures I need to follow for installing energy efficiency technologies?

Solar photovoltaic systems: Applicants wishing to install a solar photovoltaic system must comply with the City’s Planning and Building Development Management Standard Operating Procedure, which reads as follows:

- No building plans are required to be submitted, provided the panel(s) in its installed position does not project more than 1,5 metres, measured perpendicularly, above the roof and/or not more than 600 mm above the highest point of the roof.
- Full building plans, including an engineer’s endorsement, are required if the panel(s) in its installed position projects more than 1,5 metres, measured perpendicularly, above the roof and/or more than 600 mm above the highest point of the roof. Note that a departure from the City of Cape Town Development Management Scheme may also be required.
- Installations on the ground: No building plans need to be submitted, provided the panel(s) in its installed position does not project more than 2,1 metres above the natural/finished ground level. Full building plans are required where any part of the installation projects more than 2,1 metres above the ground level.


28 City’s Smart Building Handbook: www.capetown.gov.za/greenbuilding
2.5 Water efficiency

2.5.1 Are there any water conservation criteria that need to be incorporated into a development?

The City’s Water By-law (2010) contains a range of legally enforceable requirements that should be fully incorporated into the design and management of buildings. In terms of the Water By-law, no person may negligently, purposefully or wastefully:

1. Permit pipes or water fittings to leak;
2. Use water fittings that are incorrectly adjusted or defective or permit such use;
3. Inefficiently use water or allow an inefficient use of water to persist.

Accordingly, new developments must ensure that any equipment or plant connected to the water installation uses water in an efficient manner.

2.5.2 What type of water fittings should I use for my development?

The Water By-law has a range of water conservation and demand management legal requirements that relate to new developments, including:

- **Hosepipes** (used to irrigate a garden, park, or sports field) connected to a potable water source must have a controlling device, such as a sprayer, attached to the hose end and must be fitted with an automatic self-closing device.
- Developers may not use automatic top-up systems with a float valve fed from a potable water source to supply swimming pools and garden ponds.
- **Hand basins** provided in public facilities must be fitted with demand-type taps. The maximum flow rate from any tap installed in a hand basin may not exceed six litres per minute.
- **Showers** provided at public facilities must be fitted with demand-type valves. The maximum flow rate from any showerhead may not exceed 10 litres per minute.

Moreover, applicants seeking to install small-scale embedded generation (solar photovoltaic, micro-hydro or wind turbines) systems must complete the City’s Application Form and Supplemental Contract for Installation of Small Scale Embedded Generation (SSEG)

An information booklet about safe and legal installation of rooftop photovoltaic (PV) systems in Cape Town has also been compiled by the City.

Small-scale wind turbines: Wind turbine infrastructure is listed as a consent use in a number of zones in the City of Cape Town Development Management Scheme. This means that the installation of wind turbine infrastructure requires permission from the City.

Solar water heaters: The installation of solar water heaters is guided by SANS 10106. New developments should fully comply with these standards.

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Solar water heaters: The installation of solar water heaters is guided by SANS 10106. New developments should fully comply with these standards.
Where a new irrigation system, which is to be supplied from an existing domestic connection or another existing irrigation connection, is installed -

a. The size of the existing connection must be reviewed by the City; and
b. All materials used in the system must comply with SABS requirements.

Terminal water fittings installed outside any buildings other than a residential dwelling must –

a. Incorporate a self-closing device; or
b. Have a removable handle for operating purposes; or
(c. Be capable of being locked to prevent unauthorised use; or
(d. Be of a demand type that limits the quantity of water discharged in each operation.

Water closet cisterns may not exceed 9,5 litres in capacity. All automatic flushing cisterns fitted to urinals must be replaced with either manually operated systems or non-manual apparatus which causes the flushing device to operate only after each use of such urinal. No automatic cistern or tipping tank may be used for flushing a urinal.

Pipes and water fittings in a water installation must:

a. Bear the standardisation mark of the SABS in respect of the relevant SANS specification issued by the bureau;

b. Bear a certification mark issued by the SABS to certify that the pipe or water fitting complies with an SABS mark specification or a provisional specification issued by the SABS, provided that no certification marks must be issued for a period exceeding two years.

The City’s Water Conservation and Demand Management Strategy outlines particular goals and policies for water conservation and demand management relevant to new developments, including:

- Ensuring the efficient use of water in new connections and developments
- Promoting alternative water resources and technologies
- Promoting the efficient use of water to consumers and customers

In achieving the above policy goals, the City will prioritise alternative water resources such as greywater reuse, rainwater harvesting and water-wise gardening practices in an effort to conserve our valuable potable water in new developments.

Water-wise gardening practices

2.5.4 What about greywater systems?

Greywater is defined as water from baths, showers and hand basins. Wastewater discharged by kitchen sinks and washing machines (except if environmentally friendly laundry detergents are used) is excluded due to its high solid content and the negative impact of softeners and other undesirable chemicals on the environment.

The City promotes the installation of greywater systems in new developments for garden and landscaping irrigation and toilet flushing. There are many greywater systems available on the market, some of which are very economical and easy to install.

The City’s Water and Sanitation Department has published a pamphlet for further information on installing greywater systems.\(^{37}\)

2.5.5 What about rainwater harvesting?

The City encourages the installation of rainwater harvesting in new developments. Rainwater harvesting is an insurance policy for developments against short-term water outages.

A rainwater tank may be connected for the use of garden irrigation, washing, cleaning and toilet flushing or topping up the pool. Rainwater tanks may also be plumbed to feed toilet cisterns and so reduce the considerable amount of water used daily for flushing.

One can obtain 500 ℓ of water if 5 mm of rain is collected on a 100 m\(^2\) roof. A 5 000 ℓ tank used primarily for flushing the toilet in winter rainfall areas could save up to 15% annually.

The City’s Water and Sanitation Department has published a pamphlet for further information on rainwater harvesting.\(^{38}\)

2.5.6 How do I install storage tanks?

In terms of the Water By-law, any person who installs a storage tank must install it in such a position that its exterior and interior can readily be inspected, cleaned and maintained, unless it is a concrete reservoir that is buried or partly sunk into the ground and has been designed, constructed and tested in accordance with the relevant standard set, where only the interior is accessible for inspection and cleaning – SANS 10100-1 and SANS 1200-G or as amended.


\(^{38}\) City’s Water Services Department’s pamphlet on Rainwater Harvesting (in English) : http://www.capetown.gov.za/en/KeepSavingWater/Documents/Alternative_Water_Resources_Rainwater_English.pdf
2.5.6 (a) Should the landscaping of a development be water-wise?

Landscapes should be planted with indigenous shrubs and flowers that will require less water and almost no fertilisers or pesticides. Plants that can withstand prolonged periods without watering should be grouped together. Generally, water-wise plants can be recognised by their leaves. Plants that need less water have grey, waxy or hairy leaves and have lots of oil in their leaves.

Landscapes should be watered with greywater or rainwater with a properly designed irrigation system that can be overridden if it rains.

Mulching and composting should be used in landscapes to conserve soil moisture and reduce the evaporation of water. Straw, bark chips, gravel, pebbles, exposed aggregate, nut shells and leaves are other materials which can be used for mulching.

The City’s Water and Sanitation Department has published a pamphlet for further information on water-wise gardening. However, while it is being updated there are other useful resources online.\(^{39}\)

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2.5.6 (b) What about wastewater and industrial effluent?

The City’s Wastewater and Industrial Effluent By-law\(^{40}\) contains a range of legally enforceable requirements that should be fully incorporated into the design and management of buildings. The following directives of the by-law are of relevance to new developments.

Every owner of property shall on receipt of written notice by the Council:

a. Construct a private sewer installation on the premises;

b. Connect a private sewer installation to the municipal sewer, whether directly or indirectly as required by the Council;

c. Enlarge the capacity of a private sewer installation to accommodate a greater discharge; or

d. Reconstruct a private sewer installation to comply with the requirements of the Council;

e. Submit and implement a waste management plan including, inter alia, a waste minimisation schedule;

f. Submit and implement a chemical management plan including, inter alia, an inventory.

No owner of property may allow:

a. The ingress of groundwater or stormwater into a private sewer installation on his or her premises, or

b. The seepage of wastewater from a private sewer installation on his or her premises, or

c. The ingress of stormwater into a private sewer installation on his or her premises, except with the written consent of the Council and subject to such conditions as it may impose.

No person shall, except with the written consent of the Council and subject to such conditions as it may impose:

a. Construct, erect or lay any building, structure or other thing over or in such a position or in such a manner as to interfere with or endanger any municipal sewer;

b. Excavate, open up or remove the ground above, next to, under or near any municipal sewer.

Restaurants and office/institutional kitchens should install and appropriately maintain grease traps since oils and fats can cause blockages of the sewer reticulation network and thus contribute to sewage overflows. Grease traps must be connected to the sewer network.

Car washing areas and facilities must not drain to the stormwater network.

\(^{39}\) http://www.stodels.com/index.php/waterwise-gardening

2.6 The natural environment

2.6.1 What are some of the general ‘natural environment’ considerations I have to take into account in my development?

The City’s Urban Design Policy requires new developments to protect, value and enhance the natural environment through sustainable design. These requirements stipulate, inter alia, that developments must:

- Protect and enhance environmental resources and ecologically sensitive areas, ensure that these are suitably integrated into the design of new developments with suitable setbacks and buffers and ensure that buildings relate positively to open space systems through the arrangement of built form and the design of its interface with its associated landscape.
- Ensure the continuity of the city’s open space network by arranging development and new open spaces in such a way that they become viable and meaningful spatial connections which support biodiversity.
- Respond positively to environmental conditions such as orientation, rain and wind patterns.
- Start the design process by understanding and working in harmony with the natural drainage patterns of the site and apply the principles of water-sensitive urban design (WSUD) so as to arrive at a layout that is water sensitive and space efficient, minimises the disruption of the natural hydrological cycle and works together with other related gravity systems such as sewerage.

New developments should seek to combine and connect open space uses like sustainable urban drainage systems (SUDS), playgrounds and allotment gardens to use space more effectively and increase shared use.

2.6.2 What about stormwater management?

The City’s Management of Urban Stormwater Impacts Policy requires new developments above a certain size to use sustainable urban drainage system principles in their design to manage their stormwater run-off on site. Any water passing out of a development area must not flow faster or at greater volumes than before development commenced. Measures to encourage infiltration and reduce water pollution also need to be included. The following are essential means for developments to apply sustainable urban drainage system principles, as entrenched in the Management of Urban Stormwater Impacts Policy:

- Minimise hardened surfaces by using gravel, glass blocks, lawn or porous paving as parking areas and driveways
- Direct gutters into flower beds, lawns or water tanks instead of into drains

New developments should seek to combine and connect open space uses like sustainable urban drainage systems (SUDS), playgrounds and allotment gardens to use space more effectively and increase shared use.

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2.6.2 What about stormwater management? (continued)

The City’s Stormwater Management By-law\footnote{City’s Stormwater Management By-law: \url{http://www.capetown.gov.za/en/Laws/Promulgated%20by%20law/Stormwater%20Management%20By-law.pdf}} contains a range of legally enforceable requirements that should be fully incorporated into the design and management of buildings and the greater development site. In terms of this by-law, no person may:

- Discharge or permit anything other than clean stormwater to enter the stormwater network
- Damage any part of the stormwater network
- Infill or obstruct the flow of water through the stormwater network
- Undertake any activity that will increase flood levels or potential flood risk

2.6.3 What if my building interfaces with the natural environment?

A footpath is the preferred interface between an open space and housing development as it facilitates access for management and maintenance and in some cases doubles as a fire belt. The footpath ensures that there are constant movement and activity along the edge of the open space, bringing life and eyes into the space throughout the day. In many instances it will be appropriate to restrict access with the installation of a visually permeable fence, which must be designed, specified and installed appropriately in relation to location and habitat.

2.6.4 Should the development design aim to consolidate ecological areas and open spaces?

The City’s Design and Management Guidelines for a Safer City\footnote{City of Cape Town's Design and Management Guidelines for a Safer City: \url{https://www.capetown.gov.za/en/Planningportal/Pages/Policiesandguidelines.aspx}} state that in planning new developments, ecological areas should be consolidated into larger areas and vulnerable species relocated where the vegetation type allows. Special attention needs to be paid to the interface of the areas with development.

2.6.5 Should a development have ecological buffers around rivers and wetlands?

The City’s Floodplain and River Corridor Management Policy\footnote{Floodplain and River Corridor Management Policy: \url{https://www.capetown.gov.za/en/Policies/Pages/AllPolicies.aspx}} requires all new developments to ensure that adjacent rivers, wetlands and vleis are provided with adequate buffers. Buffer widths may vary between 10 m for small streams or concrete canals, up to 40 m for rivers and 70 m for wetlands. Recommended buffer areas have already been set for many of the larger river systems in the city. Where they have not been determined for a particular system, a wetland or river specialist would need to be consulted.

Applications for new developments adjacent to conservation areas must minimise habitat fragmentation by placing development at degraded portions of habitat. Stormwater facilities should not be located in a critical biodiversity area or ecological support areas. New developments adjacent to conservation areas must be designed to take fire into consideration and flammable materials should be avoided in new developments. Fireproof design should be utilised, which may include non-flammable roof and gutters or fire-resistant landscaping. The City’s Veldfire Related Planning Guidelines (2004) provide practical ways to lower the risk of veldfire damage to infrastructure and development.

Developments adjacent to conservation areas should use local indigenous species in landscaping and may not introduce invasive alien plant species in the landscaping\footnote{Note that this includes South African species from another area that are prone to hybridise with the local species.}. Larger developments are required to formulate an Operational Phase Environmental Management Plan (OEMP), which includes specific rules and regulations as well as environmental education features.

2.6.6 What should I do if my proposed new development is adjacent to a conservation area?

Larger developments are required to formulate an Operational Phase Environmental Management Plan (OEMP), which includes specific rules and regulations as well as environmental education features.
2.7 Waste management

2.7.1 Are there any criteria pertaining to waste that I should consider in my application?

The City’s Integrated Waste Management By-law\(^48\) has a range of directives that apply to both the generation and disposal of construction waste and responsible waste management during the operation of a building. The by-law contains a range of legally enforceable requirements that should be fully incorporated into the design and management of buildings. In terms of the said by-law any waste generator\(^49\), including a generator of construction waste, must:

a. Avoid the generation of waste
b. Separate waste with the aim of minimising waste and its impacts on the environment
c. Reuse, recycle or recover waste wherever possible
d. Store recyclable waste separately from non-recyclable waste
e. Separate industrial waste into liquids, components and materials that can be treated for recycling or reuse
f. Manage waste so that it does not endanger health or the environment or create a nuisance
g. Maintain suitable cleanliness and hygiene standards on their premises\(^50\)
h. Dispose of recyclable waste by contracting with an accredited service provider (recycling facility) or delivering it to a licensed waste disposal facility and ensure that waste is treated or disposed of in an environmentally-sensitive manner
i. Ensure that refuse bin storage areas for developments such as shops, restaurants and residential complexes are isolated from the stormwater network, as bin washing can generate serious pollution which must not be washed into the stormwater network.

2.7.2 Should I set up systems to recycle and reuse waste during the operation of a building?

According to the Integrated Waste Management By-law, new developments should incorporate mechanisms for reuse, recycling and waste minimisation by, for example:

- Providing designated, covered storage and recycling space in buildings and developments
- Providing facilities for separation at source into the following waste categories: recyclable (glass, tin, metal, paper and plastic), compostable, construction, e-waste and general waste
- Providing and using waste compactors
- Entering into agreements with local recyclers
- Establishing formal waste minimisation clubs. In such a case, the club may apply to the City for special dispensation as an enhanced service associated with waste minimisation in terms of the City’s Tariff By-Law\(^51\) and Tariff Policies\(^52\).


\(^{49}\) Obligations of waste generators.

\(^{50}\) As required by the City’s Environmental Health By-law.


\(^{52}\) Tariff Policies: https://www.capetown.gov.za/en/Policies/Pages/AllPolicies.aspx
2.7.3 Should I recycle and minimise construction and demolition waste?

The City’s Integrated Waste Management By-law has a number of directives aimed at managing building waste, including:

- Building waste should, where possible, be reused and recycled (including bricks, window frames, doors and rubble);
- Building waste may not be stored in containers provided by the City for residential waste or deposited in a public litter bin;
- Building waste may not be dumped onto any public place, municipal drain, land, vacant land, stream, water course, street, road, wetland, coastline or any place to which the public has access;
- Building waste should be removed and disposed of at a licensed crushing plant or any other licensed building waste disposal facility;
- Contaminated building waste must be deposited at a licensed waste disposal facility for the treatment and disposal of hazardous waste;
- Developers are required to have a weighbridge certificate as proof that the full mass of building rubble was disposed of at a licensed waste disposal facility for that category of waste, prior to an occupancy certificate or any final approvals being granted;
- In certain circumstances, an integrated waste management plan is required for developments, which includes plans to minimise waste and landfiling.

**Up to 1 500 kg (1.5 tons) of non-hazardous builders’ rubble or recyclables, or garage or garden waste can be dropped off on any day of the week at any of the City’s 24 drop-off sites.**

2.7.4 What about organic waste?

New developments should provide facilities for the composting of organic waste. The City’s Integrated Waste Management By-law directs that ‘garden waste should, where possible, be composted on the property, or it may be stored in a compost heap’.

2.7.5 Do I need to provide refuse bins for a development?

**Provision of bins:** Developments should provide bins in appropriate locations (for example, at the start and end of footpaths) in terms of the City’s Design and Management Guidelines for a Safer City. Bins for the separation of recyclable waste and non-recyclable waste are preferable.

2.7.6 What about waste management plans?

In terms of the City’s Integrated Waste Management By-law, developers of land and buildings must provide for waste management infrastructure according to the Council’s guidelines, and must submit a sustainable waste management plan as part of the Council’s plan approval process.

Applications for developing high-density buildings must ensure that adequate waste management facilities (e.g. waste rooms that include recycling facilities) are included in plans submitted to the Council for approval.

Developers should establish waste minimisation clubs in accordance with the City’s special requirements and tariffs. These clubs may apply to the Council for a special dispensation as an ‘enhanced service’, together with the submission of a waste management plan.

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32 City’s Design and Management Guidelines for a Safer City: [https://www.capetown.gov.za/en/Planningportal/Pages/Policiesandguidelines.aspx](https://www.capetown.gov.za/en/Planningportal/Pages/Policiesandguidelines.aspx)

3. Summary of regulation and policy-related resources

3.1 Site selection


3.2 Transport efficiency

- Parking Policy for the City of Cape Town: www.capetown.gov.za/en/Policies/Pages/AllPolicies.aspx
- City of Cape Town Development Management Scheme: www.capetown.gov.za/en/Planningportal/Pages/Legislation.aspx

3.3 Construction materials

- City’s Design and Management Guidelines for a Safer City: www.capetown.gov.za/en/Planningportal/Pages/Policiesandguidelines.aspx

3.4 Energy efficiency

National policies, regulations and guidelines


City of Cape Town policies, regulations and guidelines

- City’s Application Form and Supplemental Contract for Installation of Small Scale Embedded Generation (SSEG): www.capetown.gov.za/ElecServiceForms
- Guidelines for Embedded Generation: under Resources section at: www.capetown.gov.za/ElecServiceForms
- City’s Smart Building Handbook: www.capetown.gov.za/greenbuilding
- City of Cape Town Development Management Scheme, part of Municipal Planning By-law 2015: www.capetown.gov.za/en/Planningportal/Pages/Legislation.aspx

3.5 Water efficiency

3.6 Natural environment

- City’s Design and Management Guidelines for a Safer City:
  www.capetown.gov.za/en/Planningportal/Pages/Policiesandguidelines.aspx

- City’s Management of Urban Stormwater Impacts Policy:
  www.capetown.gov.za/en/Policies/Pages/AllPolicies.aspx

- City’s Urban Design Policy:

3.7 Waste management

- City’s Design and Management Guidelines for a Safer City:
  www.capetown.gov.za/en/Planningportal/Pages/Policiesandguidelines.aspx

- City’s Integrated Waste Management By-law:

3.8 Strategic intent of the City of Cape Town regarding resource efficiency

- City Development Strategy (October 2012):

- City’s current Economic Growth Strategy (July 2013):

- City’s current Integrated Development Plan (IDP):