



## Roma Park Commercial

### Development Framework Design Guidelines

Version 1: November 12

**ALL BUILDING MUST COMPLY WITH ZAMBIAN BUILDING CODE AND LOCAL AUTHORITY BUILDING BY-LAWS**

**COMMERCIAL PROPERTY TO PROMOTE INTERNATIONAL PARKING STANDARDS REQUIREMENTS**

*\*The image – conscious ROMA PARK insists the use of Architects as they are uniquely qualified to handle projects from inception to completion. Architects are uniquely experienced in design for the Zambian environment and are conversant with the local regulations, authorities, and construction industry.*

## Contents

.....	1
General Architectural Guidelines.....	3
1.1. Plot Coverage .....	3
1.2. Architectural Guidelines for buildings in Precincts.....	3
1.3. Energy Efficient Design .....	4
1.4. Interfaces .....	4
2. Security .....	5
3. Contractors Agreement .....	5
4. Compliance .....	6
<b>Energy Standards</b> .....	7
Water performance standards for Commercial Industrial tenants: .....	11
Solid and Waste Water Standards .....	11
<b>Industrial Waste Standards</b> .....	12

## General Architectural Guidelines

In order to ensure that the character and functionality of the Roma Park development is achieved and sustained, all developments have to comply with certain minimum architectural guidelines which are intended to ensure that developments contribute to the creation of a sense of place, add finesse and bring the place to life. Compliance with these guidelines will ensure that Roma Park does not become characterized by haphazard, *ad hoc and* unattractive development.

### *a. Architectural styles*

A diversity of architectural styles and expressions is encouraged that contribute to the realization of a contemporary feel. Consequently, indifferent, imitative, pastiche, kitsch, and retrogressive (i.e. imitative of historic, particularly European, styles such as gothic, baroque, Tuscan, etc.) architecture is discouraged.

### *b. Materials*

All materials specified (used) must be of a high standard to the satisfaction of the POA. Property owners and architects are required to acknowledge the regional and local context and to respond to it in a contemporary and creative manner.

### *c. Exterior wall surfaces and colours*

All buildings will be painted on completion and the colour of the exterior shall be limited to white and beige colours. Any exceptions to this must be approved the POA

## 1.1. Plot Coverage

A 40% plot coverage ratio will apply to all plots sold within the Roma Park Development.

**Definition:** *Total area of a building divided by the total area of the plot the building is located on.*

## 1.2. Architectural Guidelines for buildings in Precincts

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*c. Exterior wall surfaces and colours*

All buildings will be painted on completion and the colour of the exterior shall be limited to white and beige colours, provided that the POA may agree to exceptions where this supports the overall architecture and them of the estate/precinct.

### **1.3. Energy Efficient Design**

Building design must:

- ensure optimum orientation of the building with respect to the specific local climate and site characteristics
- ensure optimum dimensions and proportions of buildings for specific climate conditions
- allow for passive heating and cooling
- ensure good day lighting that allows for good quality and optimal quantity natural light.

### **1.4. Interfaces**

Site development plans to be approved by the POA must address the interfaces with the public realm. These address:

- the distance of the building from the from the street boundary  
This will be determined on a case-by-case basis and should be approached in line with the objectives of the overall development guidelines stated above

- treatment of the space between the street boundary and the building front  
These areas as far as possible, should not be paved and should consist of gardens
- interface between and with neighbouring properties  
Buildings should be designed so that they do not overlook neighbouring properties and as far as possible respect the privacy of neighbouring properties
- types of boundary barriers  
In this regard, no wire/mesh fencing will be permitted within Roma Park. Any boundary walls, or internal garden walling, built within Roma Park must be constructed from brick and mortar and approved by the POA.

## 2. Security

The access control system installed at Roma Park has been designed in such a way as to enable maximum safety but also maximum flexibility. Each internal gatehouse will be able to control its own access system independently from the overall access control system of Roma Park.

Roma Park Gatehouse, however, is able to control and monitor the access of all internal gatehouses. The Roma Park Gatehouse will have both day and night guards (i.e. 24 hours). Future internal gatehouses will be determined by the POA according to the needs of the Roma Park Development. Visitors will only be allowed access into the Roma Park Development if permitted by a resident. All domestic workers and gardeners will have to be registered with security before they can enter the Roma Park Development.

## 3. Contractors Agreement

The purpose of this agreement is to ensure integration between residential living and control over building activities within the Roma Park Development with minimal impact to the environment and residents.

The agreement will be enforced by the POA (or its designated employee) and will allow for fines to be imposed on any contractor where repeated transgressions occur. The contractor's agreement must be signed and submitted to the Roma Park Development Manager prior to the commencement of any building operations.

Contractors will be required, among other things, to:

- erect Boarding approved by the Development Manager to screen the site during the entire building process
- use access and egress routes designated by the Development Manager
- dispose of all rubble and building materials in an approved manner

- repair any damage to roads, verges, and the like caused by their building operations
- carry out building operations at agreed times
- register all workers and sub-contractors and issue identification tags to all employees and sub-contractors and their employees
- not allow any worker to sleep on the property at night unless employed and registered as a security guard.

## 4. Compliance

In order to ensure compliance with these guidelines, all site development plans and building plans are to be approved by the POA prior to approval by the local authority. The POA (and pending its establishment, the developer), which will establish a Design Review Panel (DRP) for these purposes. Any subsequent alterations or additions will require approval from the ACC. In this regard, property owners and their architects are encouraged to work with the DRP during the design process to facilitate the approval process.

These design guidelines will be enforced strictly by the POA and no deviations will be permitted. Occupation certificates and consents from the POA to transfer properties in the event of a sale are withheld in the event of non-compliance.

**The design guidelines include certain environmental regulations and good housekeeping practices that must be adhered to by all contractors.**

### GUIDELINE STANDARDS

Classification	Includes	Resource Management	Toxicity / Environmental Quality	Performance	Notes
<i>Division 06</i> <b>Wood Treatment</b>	Wood treatment Natural decay & insect resistant wood	Some species of wood are naturally decay-resistant due to weather or termite attack. These include cedar. <b>Only naturally decay-resistant species should be used where vulnerable to termite or weather.</b>	Exposed/vulnerable Wood based construction products are often required by code to be preservative treated. Three broad preservative categories: 1 Creosote 2 Oil Borne 3 Water Based Creosote and oil-bornes are usually of low volatility but may outgas over time. <b>Some water bornes such as chromate copper arsenate are very commonly used but contain</b>	Make wood resistant to fungus growth and termite attack. <b>Codes require that vulnerable structural wood be of naturally durable wood or preservative treated.</b> <b>Naturally durable wood is strongly preferred.</b>	-

Classification	Includes	Resource Management	Toxicity / Environmental Quality	Performance	Notes
			arsenic and should be absolutely avoided, especially for residential uses. <b>Preservatives containing chromium or arsenic will not be permitted.</b> Fire retardant wood products shall be free of halogens, sulfates, ammonium phosphate and formaldehyde.		

Classification	Includes	Resource Management	Toxicity / Environmental Quality	Performance	Notes
<i>Division 06</i> <b>Rough Carpentry</b>	Framing with dimensional lumber; Engineered wood; Wood furring, grounds, nailers & blocking	Wood is renewable. <b>Certified sources of sustainably harvested wood are available thus permissible.</b> <b>Engineered wood such as plywood and laminated veneer wood and oriented strand board are frequently more efficient than solid sawn lumber, and are recommended.</b>	Adhesive binders used in engineered wood products pose varying degrees of human health risks. <b>Manufacturer MSDS sheets for VOCs should be carefully vetted in selection.</b> <b>Products shall contain no added urea formaldehyde.</b>	Wood is natural and efficient.	-

Classification	Includes	Resource Management	Toxicity / Environmental Quality	Performance	Notes
<i>Division 7</i> <b>Joint Sealants</b>	Interior & exterior joint sealants	Hardly any organic or recycled options are available.	VOCs may be emitted during curing. Sealants generally continue to outgas through their life. <b>Sealants containing aromatic solvents, fibrous talc, formaldehyde, halogenated solvents, mercury, lead, cadmium, chromium and their compounds are not permitted.</b>	<b>Verify correct sealant for specific application.</b>	<b>Provide ventilation during work.</b>

### Energy Standards

The energy efficiency strategy can be introduced as comprising the following broad principles:

- A. Appropriate planning and passive design strategies, such as building orientation.
- B. Good material selection, buildings envelop design, efficient lighting, and equipment and appliance selection.
- C. Renewable alternative energy sources such as on-site and neighborhood scale technologies; eg photovoltaic.

Classification	Includes	Resource Management	Performance	Notes
<b>Office Equipment</b>	Computers,	-	Modern office equipment manufacturers have developed ranges of	<b>ONLY specify office equipment that</b>

Classification	Includes	Resource Management	Performance	Notes
	monitors, printers, copiers		equipment of superior energy efficiency; often labeled with the “Energy Star” label. <i>Energy Star</i> [ES] labeled computers use 70% less electricity in sleep mode, than computers without power management. ES labeled monitors use 90% less electricity in sleep mode than monitors without power management. ES labeled printers can cut the equipments electricity use by at least 60% ES labeled copiers use 40% less electricity in sleep or power-down mode.	<b>has power management built in and an internationally recognized power use rating system.</b>

Classification	Includes	Resource Management	Performance	Notes
<b>Residential Equipment</b>	Refrigerators, washers, freezers, tumblw dryers	Most mainstream manufacturers now produce super-efficient or at least efficient models. Side-loading washers require much less water. ES labeled washers use 18-25 gallons of water per load compared to a standard machines 40 gallon use.	Energy efficient appliances require less electricity to operate. Top-bottom refrigerators are also more efficient than side-by-side units. ES labeled freezers are 45% more efficient than standard models.	<b>Specifiers and developers should look for ES labeled or other equivalent label for all residential equipment.  Energy efficient equipment configurations are strongly recommended.</b>

Classification	Includes	Resource Management	Performance	Notes
<b>Elevators</b>	Hydraulic. Traction, variable voltage – variable frequency elevators	-	Elevators can be major energy consumers in buildings. <b>Efficient variable voltage-variable frequency (VVVF) elevators exist for low and mid-rise applications as well as high-rise buildings.</b> <b>Designers should provide a non-emergency use (daily use) staircase option close to the elevator core to avoid exclusive dependence on elevators, especially for short trips such as movement between adjacent floors to eliminate over dependence on lifts.</b> <b>ME should specify energy efficient motors only.</b>	-

Classification	Includes	Resource Management	Performance	Notes
<b>HVAC Air Distribution; Heating, Ventilation, &amp; Air Conditioning Equipment</b>	Ductwork & filters HVAC Systems	<b>Maximize passive opportunities to reduce HVAC loads.</b>	<b>Proper sizing and sealing of equipment and distribution ducts/plenums greatly increases efficiency.</b> Space cooling can account for approximately 15% of electricity use in commercial buildings; second to lighting. <b>Specifiers should be very conscious of the <i>Energy Efficiency Rating</i> of any equipment used in this section.</b>	- <b>Locate outside air intakes away from potential contamination such as vehicle exhaust, or other HVAC exhaust.</b> <b>CFC based refrigerants are undesirable.</b>

Classification	Includes	Resource Management	Performance	Notes
			Chillers: depending on the application, chiller efficiency should be specified using either full-load or integrated part-load; as many chillers spend over 95% of their operating hours at part load.	

Classification	Includes	Resource Management	Performance	Notes
Lighting	Interior & exterior luminaires, lighting control devices, accessories.	Coordinate use of and design for day-lighting with requirements for artificial lighting so as to minimize sole dependence on the latter.	Lighting can account for the largest electricity consumption in many buildings, especially commercial installations. New technologies such as LED luminaires have much better performance than traditional lamps. <b>Use of incandescent bulbs is not allowed.</b> <b>Recommended Technology includes:</b> <b>Light-level sensors:</b> Adjust artificial lighting levels and lit unit counts depending on the amount of natural light available. <b>Occupancy sensors:</b> Activate lights only if the specific space is occupied. <b>Time switch:</b> Turn lights off or on at certain preprogrammed times of the day.	- Mercury is common in fluorescent lamps, therefore their use should be limited.

Classification	Includes	Resource Management	Performance	Notes
Solar Energy Electrical Power Generation Equipment	Roof & site collection systems	A very good alternative to main power supply. <b>Supplemental Solar generation for low energy uses - such as lighting - is highly recommended.</b>	Solar renewable energy systems are characteristically high on initial costs but have a low operating cost. They are typically expected to have 25year lifetimes.	- Onsite photovoltaics generate power with no toxics or emissions. <b>Solar water heaters should preferably utilize food-grade propylene glycol as the heat transfer fluid.</b>

Classification	Includes	Resource Management	Performance	Notes
Alternative fuels	Liquefied Petroleum Gas (LPG) Charcoal, Firewood	Can reduce Operation cost for industrial, commercial and institution.	<b>Alternative fuels are very strongly recommended for heating applications such as water heating and cooking. Specific building types such as residential occupancies might require alternative fuel heat generation (gas) only, as opposed to electrical source heating.</b>	

Classification	Includes	Resource Management	Performance	Notes
Wind Energy Electrical Power Generation Equipment	Wind turbing	Wind energy is a clean abundant renewable resource.	Wind generators are available to generate power on site with no toxic emissions.	Wind turbing range from small turbing 500watts- 100KW to large utility. 250KW to 3.5MW <b>If utilized, should be intentionally positioned and designed.</b>

Classification	Includes	Resource Management	Performance	Notes
Building Energy Management	Energy monitors	BMS systems encourage innovative energy management regimes.	Contribute to overall building energy efficiency savings. <b>A BMS is highly recommended for all commercial buildings as well as</b>	

Classification	Includes	Resource Management	Performance	Notes
Systems			multifamily residential buildings. Special units for single family homes are also available and recommended.	

Classification	Includes	Resource Management	Performance	Notes
Streetscape and Site Trees	Landscaping	Trees are natural shading devices and create a local climate.	Landscape and hardscape design should aim at decrease the amount of tar road/sidewalk surfaces in hot areas. Light colored materials are preferable as far as is feasible.	

Classification	Includes	Resource Management	Performance	Notes
Shading and Natural Ventilations	Shading devices & Windows	Limit heat gain across the building envelope.	Design for passive natural ventilation and solar shading to protect from direct solar radiation.	Design buildings according to an efficient built form.

Classification	Includes	Resource Management	Performance	Notes
Indoors or Outdoors Drying Space	At individual units or communal spaces	A great natural & costless alternative to tumble dryers.	Designers should allow for the utilization of natural outdoor ambient temperature for line drying as the season allows for it. All residential building types should have such provision, but should be designed to be discrete.	

Classification	Includes	Resource Management	Performance	Notes
ICT	Computers, Data Centres, & related equipment- infrastructure	<ul style="list-style-type: none"> <li>-Data Centres and ICT equipment can be very major users of electrical power. <b>The related cooling demand form a large part of this, therefore designers should very carefully focus attention on the best and most efficient cooling strategies possible.</b></li> <li>-See and coordinate with guidance under <b>Office Equipment.</b></li> <li>-<b>Designers/engineers should leverage alternative energy generation and latest technology in energy efficient fixtures and infrastructure.</b></li> </ul>	<p><b>Data Centre energy efficiency principles:</b></p> <ul style="list-style-type: none"> <li>-high efficiency processors are able to reduce consumption by up to 10%.</li> <li>-high efficiency power supply.</li> <li>-servers with power management ; so that equipment can resort to idle mode when not in use; when power management is enabled, power draw reduces to 45%.</li> <li>-Blade servers rather than rack based servers. In this multiple servers share common power supply.</li> <li>-Best practice in innovative cooling; scalable, targeted and super efficient.</li> </ul>	<b>ONLY specify ICT equipment that has power management built in.</b>

### **Water performance standards for Commercial Industrial tenants:**

No person shall discharge any waste water, other than strictly domestic waste water, to the sewer without a permit issued by TC WASCO;

No person shall discharge, or permit to discharge or enter into the into the sewage disposal system any sewage or other substance:

- which does not comply with the standards and criteria as prescribed in table 1 or a special permit issued by TC WASCO
- which contains any substance in such concentration as will produce or be likely to produce in the final treated effluent from the TC WASCO Treatment Works any offensive, or otherwise undesirable taste, odour or color or any foam
- which may prejudice the re-use of treated sewage or adversely affect any of the processes whereby sewage is purified for re-use, or treated to produce sludge for disposal
- which contains any substance or thing of whatsoever nature which is not amenable to treatment to a satisfactory degree at The TC WASCO Treatment Works or which causes or is likely to cause a breakdown or inhibition of the processes in use at such works
- which may inhibit the unrestricted conveyance of sewage through the sewage disposal system
- which contains any substance of whatsoever nature likely to produce or give off explosive, flammable, poisonous, corrosive or offensive gases or vapors in any sewer
- No person shall allow any storm water to be directed into the sewer.

### **Solid and Waste Water Standards**

#### **Responsibility of Waste Generator**

Every one shall use designated waste receptacles to dispose of their waste.

Every one whose activities generate waste shall collect, segregate and dispose or cause to be disposed of such waste in a responsible manner.

Everyone whose activities generates waste have an obligation to ensure that such waste are transferred by LWSC to a GOVT licensed waste disposal facility

#### **Segregation of Waste by Generator**

Any person, whose activities generate waste, shall segregate such waste by separating hazardous waste from non-hazardous waste and shall dispose of such wastes in to the good waste and bad waste receptacles respectively.

### **Cleaner Production Principles**

Any person who owns or controls a facility or premises which generates waste shall minimize the waste generated by adopting the following cleaner production Principles:

- (I) improvement of production process through: conserving raw materials and energy
- (ii) Eliminating the use of toxic raw materials as prescribed by LWSC
- (iii) Reducing toxic emissions and wastes monitoring the product cycle from beginning to end by: identifying and eliminating potential negative impacts of the product.
- (ii) Enabling the recovery and re-use of the product where possible.
- (iii) Reclamation and recycling.
- (c) Incorporating environmental concerns in the design, process and disposal of a product.

### **Industrial Waste Standards**

#### **General Obligation to mitigate pollution**

Every trade or industrial undertaking shall install at its premises anti-pollution technology for the treatment of waste emanating from such trade or industrial undertaking; Anti-pollution technology installed pursuant to GOVT regulations and shall be based on the best available technology not entailing excessive costs or other measures prescribed by the GOVT.

#### **Treatment of Industrial Waste**

No owner or operator of a trade or industrial undertaking shall discharge or dispose of any waste in any state into the environment, unless the waste has been treated in a treatment facility and in a manner prescribed by GOVT in consultation with LWSC.

***To facilitate waste segregation and waste collection, property developers shall incorporate the following fixtures within their building designs;Solid waste fixtures***

<b>classification</b>	<b>includes</b>	<b>Resource management</b>	<b>Toxicity/environmental quality</b>	<b>performance</b>	<b>notes</b>
Solid waste collection points	Waste bins in high density areas	two waste bins should be provided for good waste , bad waste and a third bin wheelie for vegetable and garden waste on the ground floor level next to the street where they can be easily serviced by the waste collection track	The bins should be so located that their contents will be shielded from direct sun light where possible to avoid fast decay and fermentation and should also be water proofed to avoid storm water contamination.		The location of bins collection point will be approved by the Development Control Committee (DCC).
Solid waste collection points	Waste bins in low density residential areas	three waste bins should be provided for good waste , bad waste and for vegetable and garden waste on the ground floor level next to the street where they can be easily serviced by the waste collection	The waste bins should be shielded from direct sun light where possible and should also be water proofed to avoid storm water contamination.		Positioning is subject to DCC approval.