

Case Study Summary: 5-Storey Apartment Block – Kawangware, Nairobi

Project Overview

The project involved the design and construction of a 5-storey residential apartment block in Kawangware, Nairobi. The development comprises 20 units with a mix of 1-, 2-, and 3-bedroom apartments, targeting the middle-income residential market. The structure is reinforced concrete framed, designed to comply with the Kenya Building Code and Nairobi City County regulations.

Objectives

- Provide affordable, safe, and comfortable housing in Kawangware.
- Optimize the use of limited urban land while maintaining adequate open space.
- Incorporate modern amenities such as elevators, secure parking, and common areas.
- Ensure sustainability and energy efficiency through natural lighting, ventilation, and water-saving features.

Design Highlights

- **Structural System:** Reinforced concrete columns, beams, and slabs designed for load-bearing and lateral stability.
- **Architectural Layout:** Functional floor plans with efficient circulation, balconies for all units, and adequate lighting.
- **Finishes:** High-quality, durable finishes for interiors and exteriors, with tiled floors in living areas, laminated kitchen counters, and water-resistant finishes in wet areas.
- **Utilities:** Mains water, sewerage, and electrical connections; provision for solar water heating; rainwater harvesting potential.

Construction Methodology

- **Site Preparation:** Clearing, excavation, and leveling with proper drainage provision.
- **Foundation:** Strip foundations and isolated pads based on soil investigation results.
- **Superstructure:** Reinforced concrete frame with block masonry infill walls.
- **Roofing:** Flat roof with waterproofing membrane and provision for a rooftop terrace.
- **MEP Works:** Installation of electrical, plumbing, and HVAC systems in accordance with standards.

Challenges

- **Site Constraints:** Limited space in a dense urban area requiring careful staging of construction activities.
- **Logistics:** Transporting materials through narrow access roads in Kawangware.
- **Regulatory Compliance:** Ensuring adherence to county building codes and environmental impact requirements.

Outcomes

- Completed within the projected 18-month timeline.
- Delivered 20 functional, modern apartments suitable for middle-income residents.
- Achieved compliance with structural safety, fire safety, and accessibility standards.
- Enhanced the neighborhood by providing quality housing and supporting infrastructure.

Lessons Learned

- Urban projects require careful planning of material logistics and site management.
- Early engagement with county authorities ensures smoother regulatory approvals.
- Incorporating sustainable features increases long-term building efficiency and resident satisfaction.