



Kenya Affordable Housing Programme

Building Design Guidelines

June 2018

Document History

A	First Issue	20.06.2018
Revision	Purpose Description	Date



Definition and Abbreviations

Entity or Term	Abbreviation
Square Metre	sqm



Contents

Section	Page
1. Introduction	1
1.1 Purpose and Intent	1
1.2 Intended Users	1
1.3 Aims and Objectives	1
1.4 Section Organisation	2
2. Design Strategy	3
2.1 Efficiency	3
2.2 Sustainability	4
2.3 Building Regulations	4
3. Unit Typologies	5
3.1 Studio	5
3.2 One Bedroom Apartment	6
3.3 Two Bedroom Apartment	6
3.4 Three Bedroom Apartment	7
3.5 Linear Apartment with Ground Floor Retail Unit	8
4. Typical Floor Plans	9
4.1 Apartment Block Floor Plan Configuration	9
4.2 Typical Floor Plan Configuration	10
5. Finishes Schedule	15
5.1 Internal Finishes Options	15
5.2 External Finishes Options	15
6. Structural Design & Building Services	16
6.1 Structural Engineering	16
7. Building Cost	18
8. Building Codes and Standards	19
8.1 National Codes	19



List of Tables

Table 3.1 – Room Areas (Studio Unit)	5
Table 3.2 – Room Areas (One Bedroom Unit)	6
Table 3.3 - Room Areas (Two Bedroom Unit)	7
Table 3.4 - Room Areas (Three Bedroom Unit)	8

List of Figures

Figure 2.1 – Apartment Layout	3
Figure 2.2 – Fire Strategy	3
Figure 2.3 – Modular design set	3
Figure 2.4 – Solar Water Heating	4
Figure 2.5 - Ground Floor Bays	4
Figure 3.1 – Studio Unit	5
Figure 3.2 – One Bedroom Unit	6
Figure 3.3 – Two Bedroom Apartment Typology	7
Figure 3.4 – Three Bedroom Unit	7
Figure 3.5 – Linear Apartment with Ground Floor Retail Unit	8
Figure 4.1 - Apartment Block Floor Plan Configuration	9
Figure 4.2 – L-Shaped Typical Ground Floor Plan with Retail Units	10
Figure 4.3 – L-Shaped Typical Floor Plan	11
Figure 4.4 – Affordable Unit Typology – Linear Floor Plan Option 1	12
Figure 4.5 – Affordable Unit Typology – Linear Floor Plan Option 2	12
Figure 4.6 - Affordable Unit Typology – Linear Floor Plan Option 3	12
Figure 4.7 – Affordable Unit Typology – Alternative Linear Floor Plan, Mixed Block	13
Figure 4.8 - Affordable Unit Typology – Alternative Linear Floor Plan, Studio Block	13
Figure 4.9 - Affordable Unit Typology – Alternative Linear Floor Plan, One-Bedroom Block	13
Figure 4.10 - Affordable Unit Typology – Alternative Linear Floor Plan, Two-Bedroom Block	13
Figure 4.11 - Affordable Unit Typology – Alternative Linear Floor Plan, Three-Bedroom Block	14
Figure 4.12 – Social Housing Typology – Linear Floor Plan, 1 & 2 Room Unity	14
Figure 5.1 – External Finishes Options	15
Figure 6.1 - Structural Framework & in-fill	16
Figure 6.2 - Precast Frame	16
Figure 6.3 - In-situ System	17



1. Introduction

1.1 Purpose and Intent

The Building Design Guidelines and development standards contained in this document are set out for new affordable housing development that falls under the Affordable Housing Programme.

This document is intended to provide building design and architectural guidelines for a range of social, affordable and gap housing within an overall sustainable community and in so doing meet the desired vision for affordable housing development within Kenya.

This document supplements current Planning Regulations, Building Codes and Standards administered by the Government of Kenya, and by City and County Authorities across Kenya.

1.2 Intended Users

These Guidelines are essential in the design process and are to be used by Developers, Contractors, Consultants, and City and County Authorities in the design, review and development of affordable housing projects being implemented through the affordable housing programme.

The authorities shall also use these guidelines in assessing and determining the appropriateness of development and building proposals and applications received for affordable housing developments under the affordable housing programme.

1.3 Aims and Objectives

The aims of the Guidelines are not to be prescriptive upon developers and their consultants and contractors but rather to illustrate what is considered to be acceptable design approaches and principles to be adopted within the affordable housing programme.

This is through:

- Creating a safe and secure and environment for all people who live and work in the affordable housing community;
- Creating healthy and dignified living conditions for all inhabitants;
- Supporting universal access and walkability within and between buildings;
- Creating distinctive socially inclusive and integrated building communities;
- Promoting the efficient use of building floor plates and heights;
- Integrating with access to public open space to promote healthy lifestyles and living;
- Minimising adverse environmental impacts, through the implementation of sustainable building materials and technologies.

The objectives of these Guidelines are to create, enhance and protect a high-quality living environment for all affordable housing developments within the affordable housing programme.

For this purpose, all buildings should -

- Be legible - easy to understand and move around;
- Be socially inclusive and used by all members of society;
- Be responsive to its physical and natural settings;
- Respond to desirable orientation and promote natural ventilation;
- Be economically sustainable and able to adapt to changing needs over time;
- Have a mix of unit typologies which promote social integration.



1.4 Section Organisation

The Building Design Guidelines are organised into the following sections:

- **Design Strategy** – this section sets out the key building design principles that have informed the strategies and guidelines adopted for affordable housing development.
- **Unit Typologies** – this section presents the range of unit / apartment types to be considered within the affordable housing development.
- **Typical Floor Plans** – this section sets out the general and specific guidelines for new development and redevelopment of plots by identifying the applicable site standards to be addressed as part of any affordable housing development within the affordable housing programme

DRAFT



2. Design Strategy

2.1 Efficiency

2.1.1 Double Loaded Corridor

The architectural layout has apartments on either side of the corridor to maximize efficiency

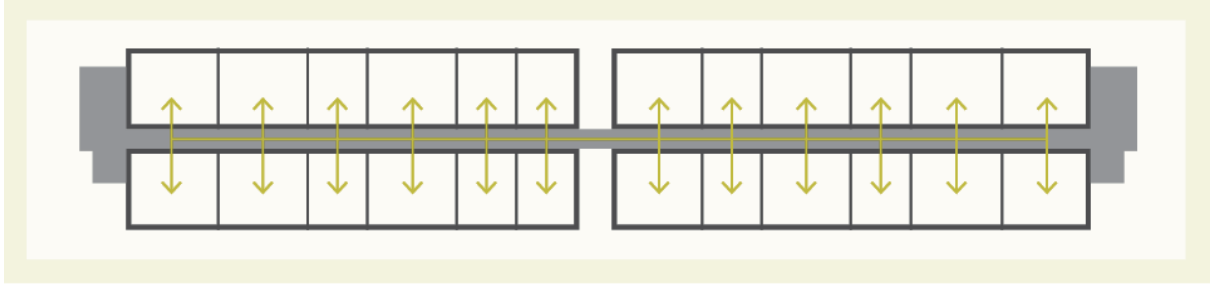


Figure 2.1 – Apartment Layout

2.1.2 Fire Strategy

In order to reduce the number of cores and fire exits, the width of the building is linked to the maximum allowed fire exit route as shown in Figure 2.2

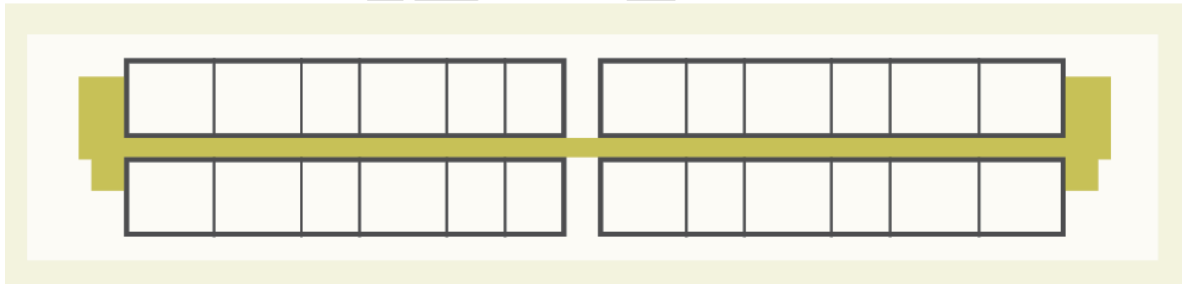


Figure 2.2 – Fire Strategy

2.1.3 Modular Design

A modular design was set in place in order to maximize efficiency in terms of structure and utilities shown below in Figure 2.3 **Error! Reference source not found.**

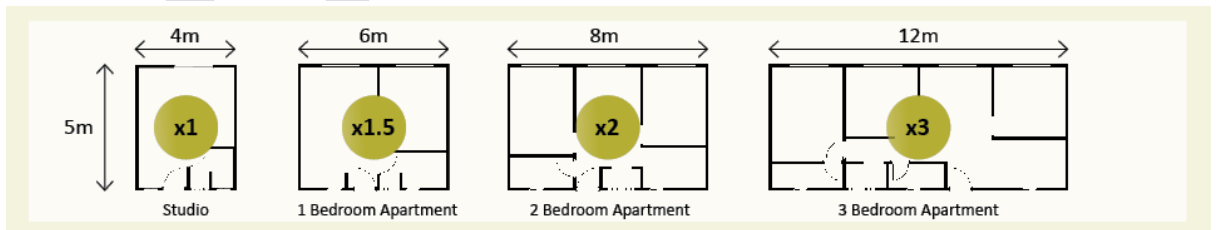


Figure 2.3 – Modular design set



2.2 Sustainability

2.2.1 Natural Ventilation

The apartment unit layout allows for cross air ventilation, eliminating the need for any mechanical ventilation. The architectural layout of the building allows for cross air ventilation through the corridor and massing breaks.

2.2.2 Solar Water Heating

Solar thermal collectors will be placed on the roof of the buildings to convert sunlight into heat for water heating as per Figure 2.4

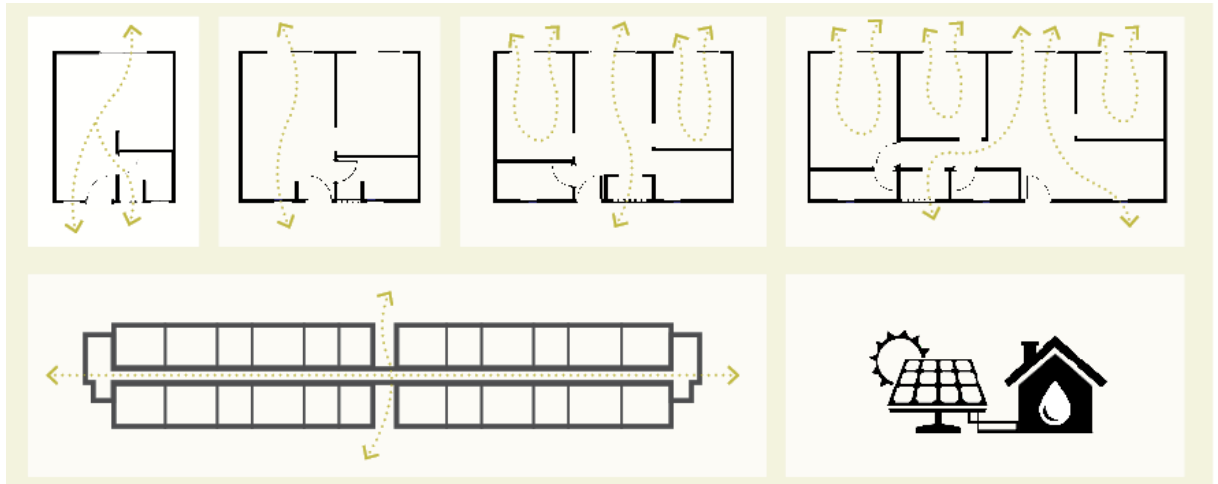


Figure 2.4 – Solar Water Heating

2.2.3 Building Materials

Minimum standards for building materials for the three categories of units - being Social, Affordable and Gap - will be determined by the developer in conjunction with SDHUD technical team. Counties shall be required to conduct research and to document Appropriate Building Materials and Technology, and advance the use of locally available resources that are found suitable, and whose use can be sustained.

2.2.4 Economical Sustainability:

As a source of income for some of the tenants, ground floor bays facing the street will be utilized as stores as shown in Figure 2.5

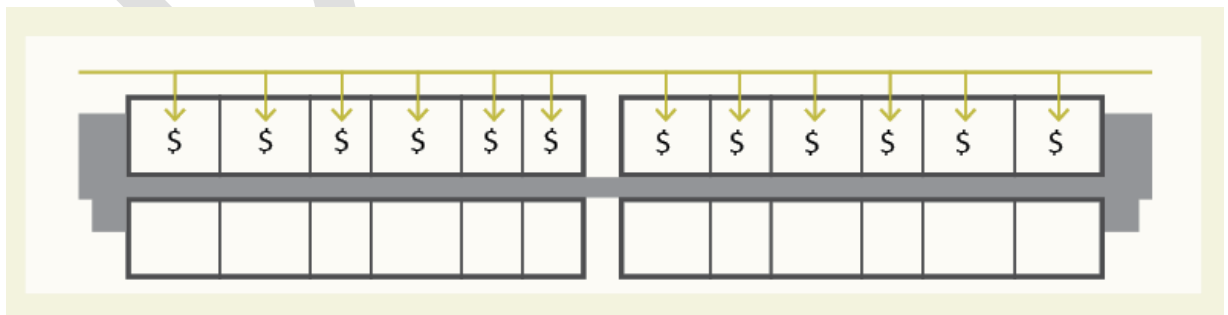


Figure 2.5 - Ground Floor Bays

2.3 Building Regulations

All relevant building regulations and standards pertaining to the development based upon its location are to be considered and implemented as deemed appropriate.



**lift/ elevator provision: : Every building comprising 6 or more storeys above the ground level shall be provided with one or more passenger lifts as per 2009 Building Code. This shall be applied in the AHP.

3. Unit Typologies

3.1 Studio



Figure 3.1 – Studio Unit

Room	Areas (sqm)
Bedroom	12.5
Kitchen	3.14
Bath	2.9
Total	18.54

Table 3.1 – Room Areas (Studio Unit)



3.2 One Bedroom Apartment

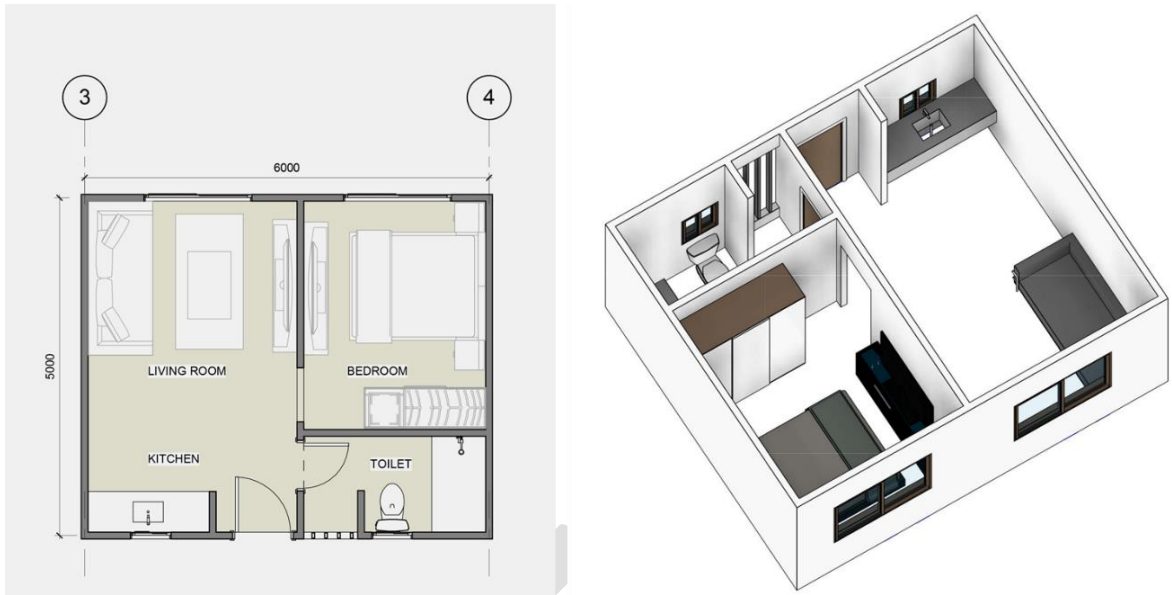


Figure 3.2 – One Bedroom Unit

Room	Areas (sqm)
Living /Dining	10.6
Bedroom	9.2
Kitchen	4.6
Bath	3.8
Total	28.2

Table 3.2 – Room Areas (One Bedroom Unit)

3.3 Two Bedroom Apartment





Figure 3.3 – Two Bedroom Apartment Typology

Room	Areas (sqm)
Living /Dining	10.6
Bedroom 1	9.1
Bedroom 2	8.05
Kitchen	4.1
Laundry	1.05
Bath	3.14
Total	36.04

Table 3.3 - Room Areas (Two Bedroom Unit)

3.4 Three Bedroom Apartment



Figure 3.4 – Three Bedroom Unit

Room	Areas (sqm)
Living	8.55
Bedroom 1	11.1
Bedroom 2	8.2
Bedroom 3	8.3
Kitchen / Dining	7.4
Laundry	1.6
Bath1	2.8
Bath2	2.2
Total	50.15



Table 3.4 - Room Areas (Three Bedroom Unit)

3.5 Linear Apartment with Ground Floor Retail Unit

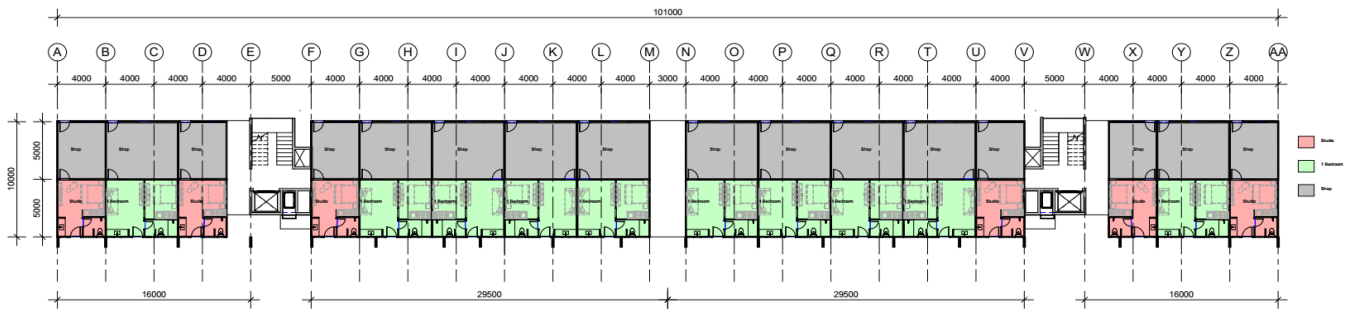


Figure 3.5 – Linear Apartment with Ground Floor Retail Unit

DRAFT



4. Typical Floor Plans

4.1 Apartment Block Floor Plan Configuration



Figure 4.1 - Apartment Block Floor Plan Configuration



4.2 Typical Floor Plan Configuration

4.2.1 L-Shaped Typical Ground Floor Plan with Retail Units

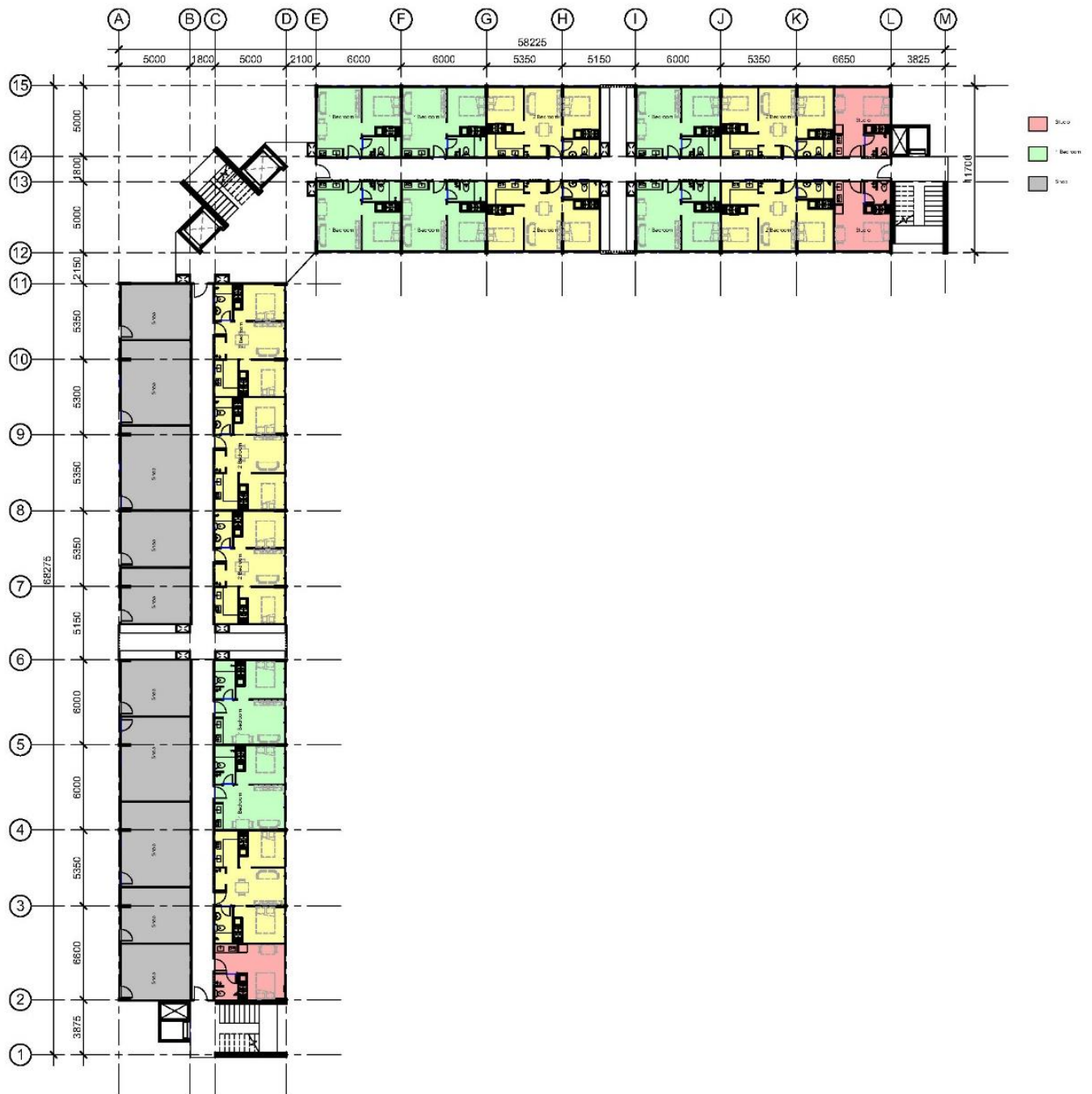


Figure 4.2 – L-Shaped Typical Ground Floor Plan with Retail Units



4.2.2 L-Shaped Typical Floor Plan

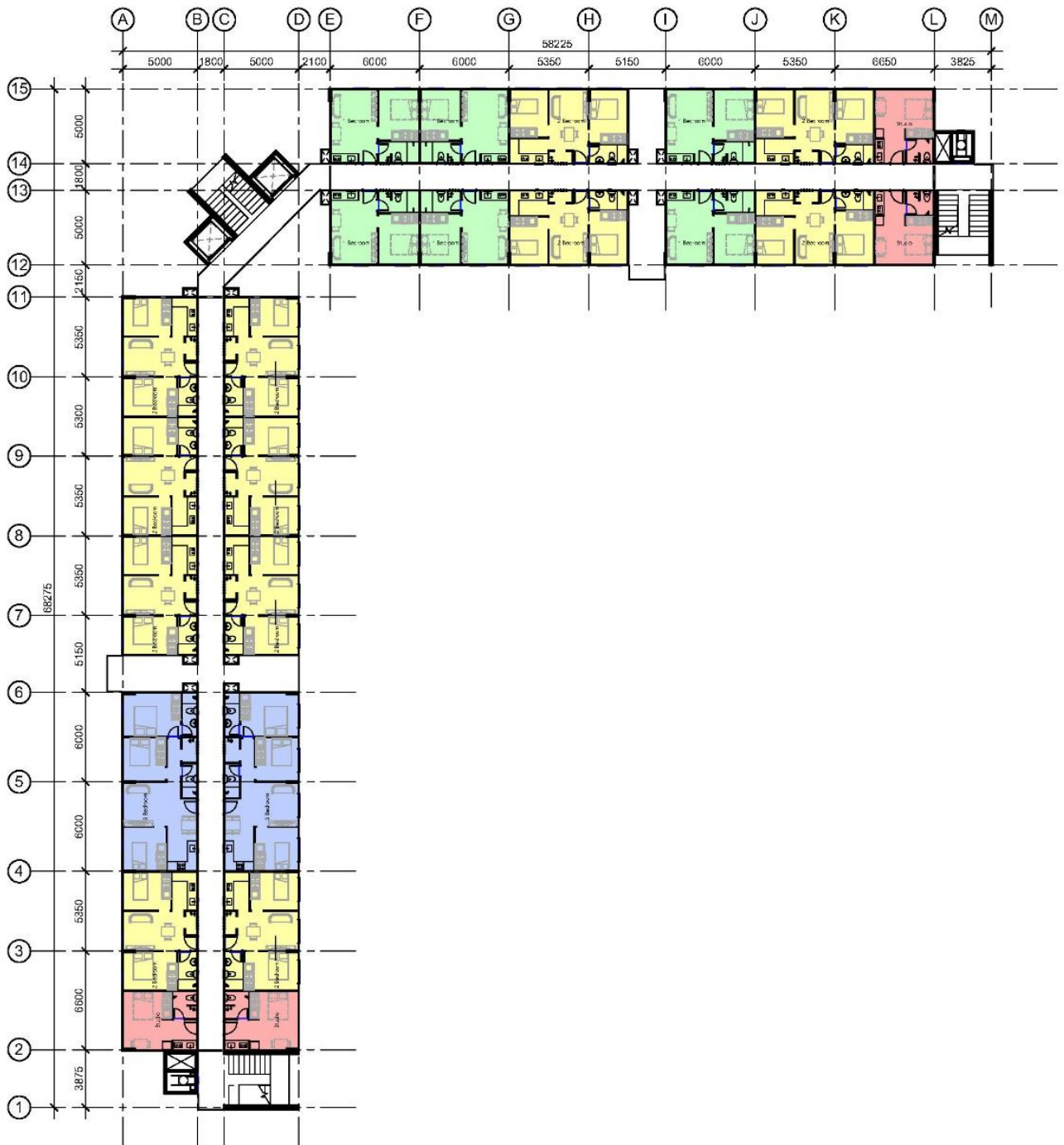


Figure 4.3 – L-Shaped Typical Floor Plan



4.2.3 Affordable Unit Typology – Linear Floor Plan Option 1

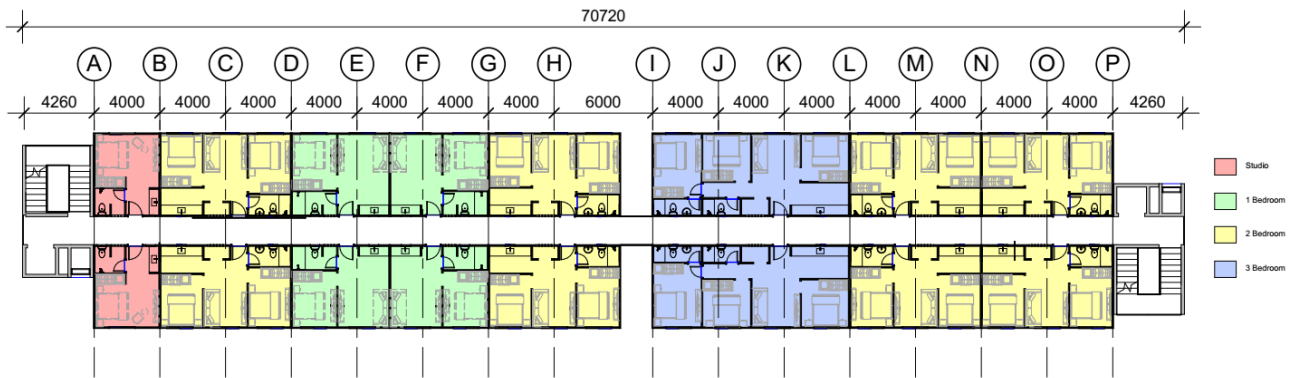


Figure 4.4 – Affordable Unit Typology – Linear Floor Plan Option 1

4.2.4 Affordable Unit Typology – Linear Floor Plan Option 2

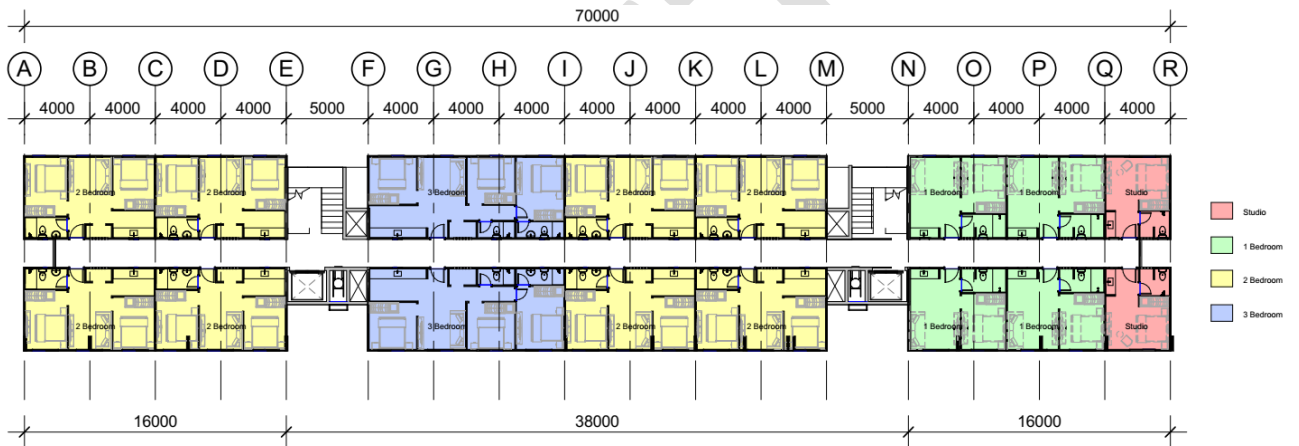


Figure 4.5 – Affordable Unit Typology – Linear Floor Plan Option 2

4.2.5 Affordable Unit Typology – Linear Floor Plan Option 3

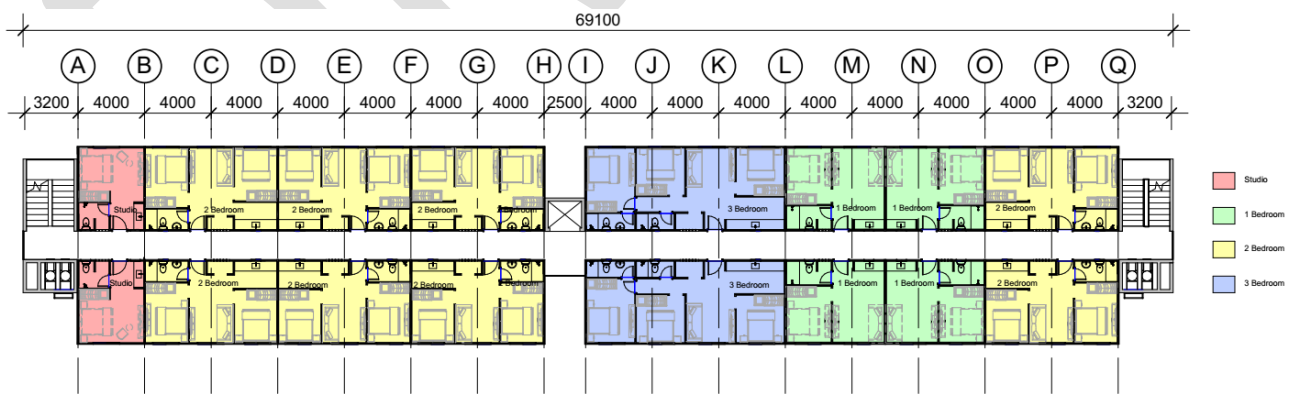


Figure 4.6 - Affordable Unit Typology – Linear Floor Plan Option 3



4.2.6 Affordable Unit Typology – Alternative Linear Floor Plan, Mixed Block

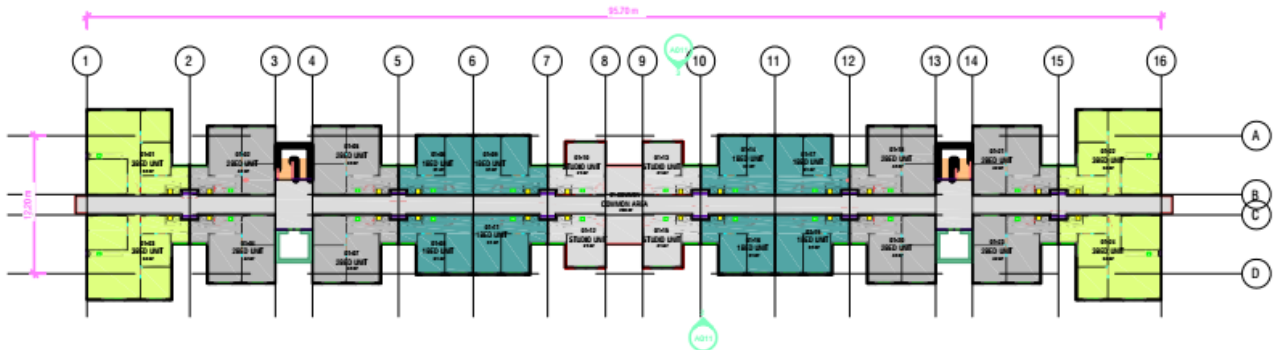


Figure 4.7 – Affordable Unit Typology – Alternative Linear Floor Plan, Mixed Block

4.2.7 Affordable Unit Typology – Alternative Linear Floor Plan, Studio Block

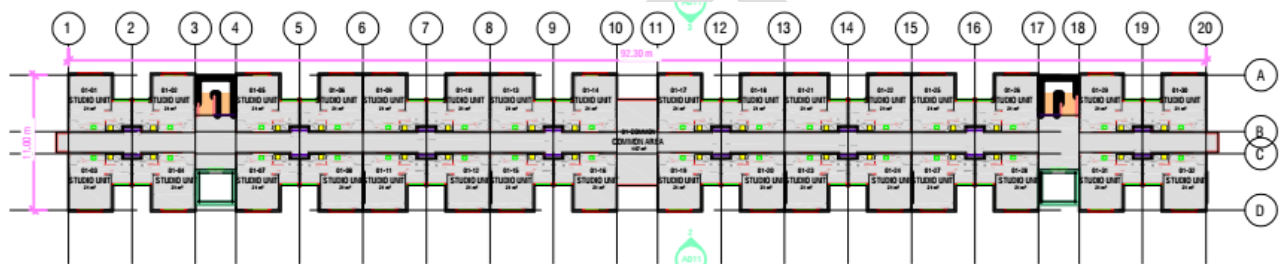


Figure 4.8 - Affordable Unit Typology – Alternative Linear Floor Plan, Studio Block

4.2.8 Affordable Unit Typology – Alternative Linear Floor Plan, One-Bedroom Block

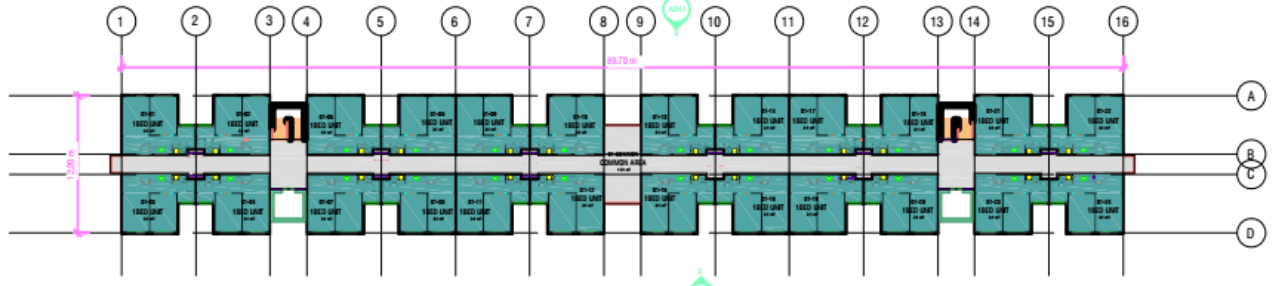


Figure 4.9 - Affordable Unit Typology – Alternative Linear Floor Plan, One-Bedroom Block

4.2.9 Affordable Unit Typology – Alternative Linear Floor Plan, Two-Bedroom Block

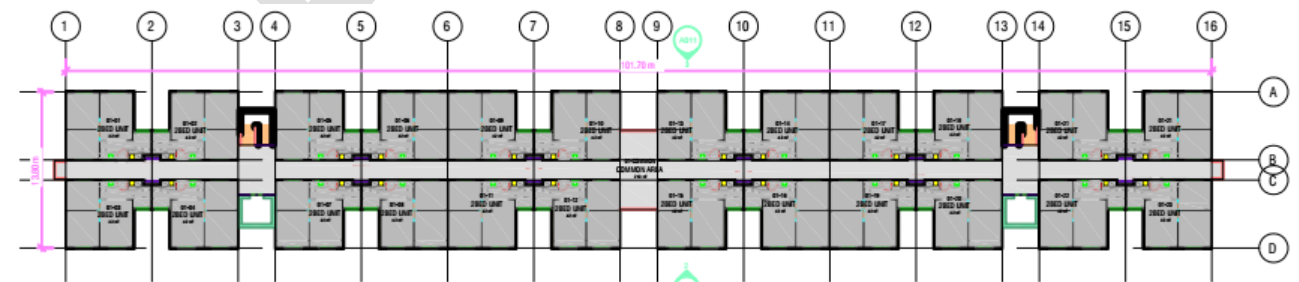


Figure 4.10 - Affordable Unit Typology – Alternative Linear Floor Plan, Two-Bedroom Block



4.2.10 Affordable Unit Typology – Alternative Linear Floor Plan, Three-Bedroom Block

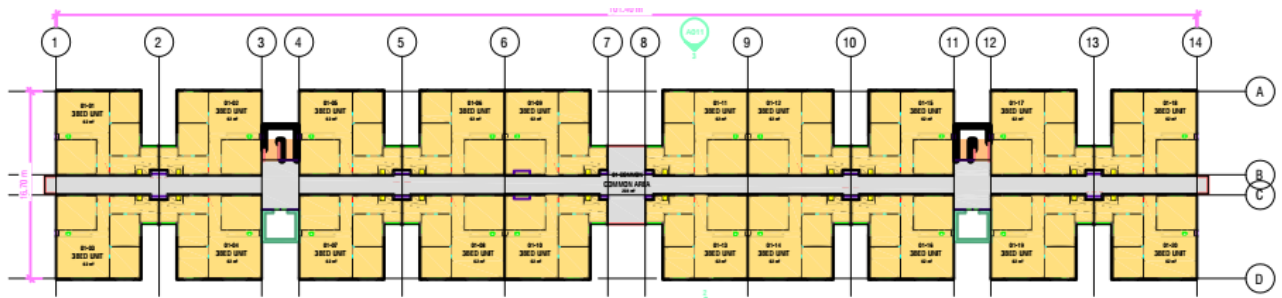


Figure 4.11 - Affordable Unit Typology – Alternative Linear Floor Plan, Three-Bedroom Block

4.2.11 Social Housing Typology – Linear Floor Plan Configuration, 1 and 2 Room Units



Figure 4.12 – Social Housing Typology – Linear Floor Plan, 1 & 2 Room Unity

DRAFT



5. Finishes Schedule

5.1 Internal Finishes Options

Minimum standards for internal finishes for the three categories of units - being Social, Affordable and Gap - will be determined by the developer in conjunction with the SDHUD technical team

5.2 External Finishes Options

Minimum standards for external finishes for the various apartment block typologies and the three categories of units - being Social, Affordable and Gap - will be determined by the developer in conjunction with the SDHUD technical team.

Below are examples of potential external finishes based on the typical floor plans described above

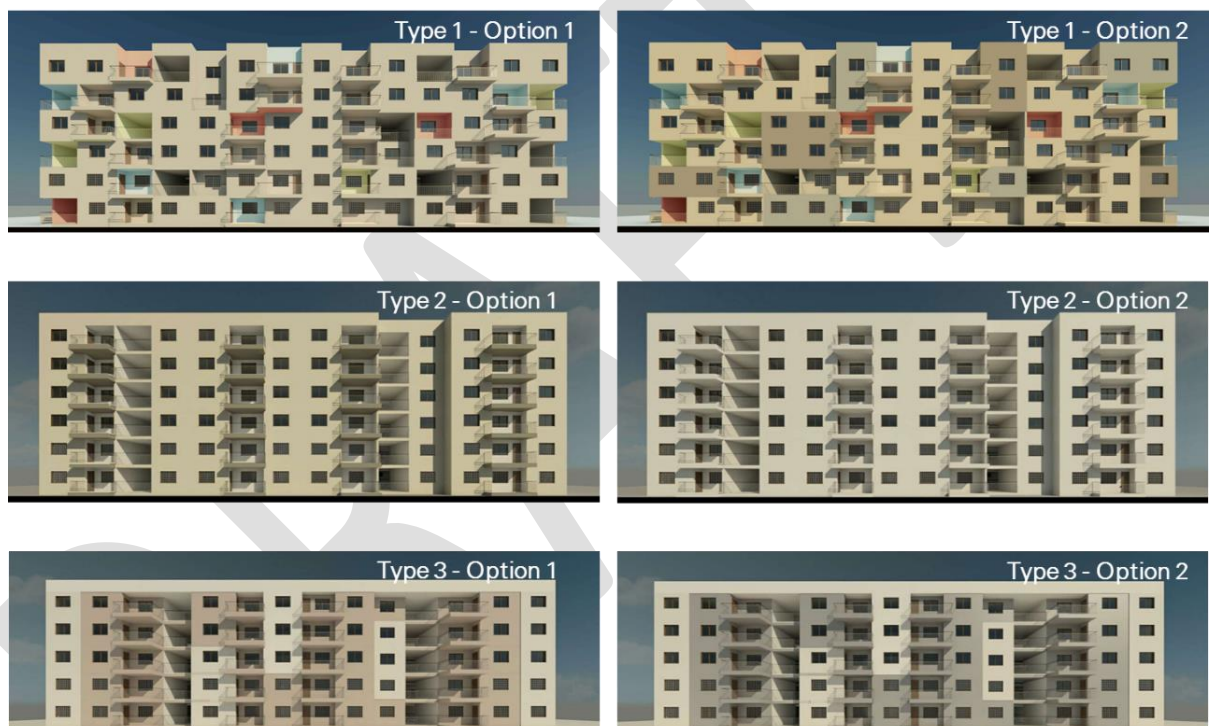


Figure 5.1 – External Finishes Options



6. Structural Design & Building Services

6.1 Structural Engineering

6.1.1 Structural Framework & in-fill

- Structural slab, columns / beams;
- Block in-fill with traditional stone
- Mix of off-site and on-site construction methods
- Maximise local content and contractor's engagement



Figure 6.1 - Structural Framework & in-fill

6.1.2 Pre-Cast Frame

- reduced wet works trades on site;
- created in factory conditions for increased quality;
- logistical opportunities through just in time principles;
- standardisation principles reflected in design



Figure 6.2 - Precast Frame

6.1.3 In-situ System

- reduced wet works trades on site;
- created in factory conditions for increased quality;
- logistical opportunities through just in time principles;



- standardisation principles reflected in design



Figure 6.3 - In-situ System

DRAFT



7. Building Cost

Building costs are currently being assessed and confirmed

DRAFT



8. Building Codes and Standards

The Section provides details on National Codes and laws that govern the Affordable Housing development projects within the Kenya Government initiative.

It complementarily sets out the application of the provisions of the Development Framework Guidelines and the design review and approval process. This process is designed to streamline approvals and to ensure that the guidelines and standards developed to ensure consistency of development across all sites/land parcels are applied. Importantly, the process will ensure certainty and consistent quality of the various developments.

8.1 National Codes

This Section establishes the minimum requirements for the Housing development projects.

The most restrictive requirement in this Section and applicable National Codes and Standards shall be followed.

8.1.1 The 1968 Code:

The Kenya **BUILDING CODE** (*Building*) Order 1968, & *The Local Government (Adoptive By-Laws)* Local Government (Adoptive) Building By-Laws 1968.

Local Government (Adoptive) Grade II Building By-Laws 1968. (apply in all areas where the above do not apply)

8.1.2 The 2009 Code

This Code has not officially been adopted but provides very clear building code guidance]

National Planning & Building Authority, Kenya: **Planning & Building Regulations 2009.**

8.1.3 Environmental Management & Coordination Act 1999

Regarding entitlement to a clean and healthy environment, this law requires that any on-going activity be subjected to an environment audit in accordance with the provisions of this Act.

The Physical Planning (Building and Development) (Control) Rules, 1998 The Physical Planning Act Cap 286

8.2 County Laws

Section 21 of the County Government Act, 2012 bestows legislative power upon counties to create law through Bills passed by the county assembly and assented to by the governor. Such legislation includes county specific physical planning bills, housing bills among others whose provisions shall be taken into consideration in the AHP. Towards the implementation of the county spatial plans, counties have developed zoning guidelines and ordinances that define minimum land sizes, densities and permissible land uses.

