

## Assessment of Typological Classification of Multi-Storey Housing Stock in Lagos, Nigeria

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### ABSTRACT

Multi-storey housing has emerged as a principal architectural and planning response to land scarcity and rising urbanisation pressure in Lagos Nigeria, yet little empirical attention has been paid to the specific typology and classification that characterises these multi-storey housing. This study evaluated the different and principal categories of multi-storey housing in Eko, the historic core of Lagos, focusing on apartment type, building height, ownership structure and building age. A multi-method approach combined a structured questionnaire administered across eleven multi-storey residential developments selected through multistage sampling, with key informant interviews and structured observation. Descriptive statistics and one-way analysis of variance (ANOVA) with Tukey post-hoc comparison were used to analyse the data. Findings showed that three-bedroom units, whether flats or maisonettes, accounted for 51.8% of sampled apartments, while the entire sample fell within a twelve to twenty-five floor range, confirming a lower-to-mid high-rise profile rather than an ultra-high-rise one. The sampled buildings were dominated by multi-ownership arrangements (91.2%) and housing above twenty years old (59.3%). ANOVA confirmed statistically significant variation in apartment type mix across buildings,  $F(10, 215) = 4.83, p < 0.001$ , with post-hoc analysis attributing much of this variation to contrasting developer strategies between older, high-density estates and newer, mixed-unit developments. These findings extend the international literature on architectural typology and vertical housing classification to an under-researched Sub-Saharan African context and demonstrate that building age and ownership structure, rather than apartment design alone, should inform risk-based regulatory inspection and future unit-mix planning in rapidly verticalising cities.

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### INTRODUCTION

Housing constitutes an essential social determinant of wellbeing, health and quality of life, extending well beyond the mere provision of physical shelter (Ezeanah, 2021; Rolfe *et al.*, 2020). Improved housing conditions are widely associated with disease prevention, poverty reduction and progress toward global health and sustainable-cities targets (World Health Organisation, 2018). In Lagos Nigeria, chronic land scarcity combined with accelerating urbanisation has driven the national housing deficit from an estimated 16 million units in 2013 to 28 million units in 2024 (Kabir & Ikwuagwu, 2025), prompting a shift toward multi-storey residential development as a land-efficient architectural response (Fakere, Ayoola & Daramola, 2021).

Lagos, the most densely populated city in Nigeria and one of the fastest-growing cities in Africa, has experienced this vertical housing trend particularly intensely, as horizontal expansion has become progressively constrained by the city's lagoon geography and by the escalating cost of land within its historic core. A growing body of research has examined residents' privacy and comfort in multi-storey dwellings (Kennedy, Buys & Miller, 2015), maintenance challenges in multi-owned buildings (Folorunsho, Izobo-Martins & Aduwo, 2015) and users' satisfaction with multi-storey housing (Fakere *et al.*, 2021), yet comparatively little is known about the specific architectural typology and principal categories, namely apartment type, building height,

ownership pattern and building age, that characterises these multi-storey housing in Lagos. This is a notable omission, since these same studies of privacy, maintenance and satisfaction implicitly assume a housing stock whose underlying architectural composition has not itself been systematically documented.

Architectural typology is widely recognised as forming the empirical basis for housing policy formulation and cost determination (Oladimeji, 2023), since a systematic classification of building forms allows planners and regulators to match design standards, infrastructure provision and maintenance oversight to the actual composition of the housing stock rather than to assumed or idealised models (Keyes, 2010). Yet studies on housing typology and classification in Nigerian cities have concentrated on peri-urban settlements within metropolitan Lagos (Adedire & Iweka, 2017), the urban fringe of Ibadan (Odunjo, Okanlawon, Ayinla & Ayanda, 2015) and mass housing schemes in Ilorin (Oladimeji, 2023), leaving the core, high-rise multi-storey sector of Lagos comparatively unexamined despite its rapid expansion.

This dearth of typological evidence is significant because architectural classification is not a purely descriptive exercise. Building height, apartment configuration, ownership structure and age jointly shape the regulatory, maintenance and habitability profile of a housing stock, and a regulatory regime built without reference to this classification

risks applying uniform standards to a fundamentally non-uniform stock. This paper addressed that gap by reporting part of a wider habitability study, which is to evaluate the different and principal categories of multi-storey housing in Lagos, Nigeria. In doing so, it contributes empirical typological evidence on apartment mix, building height, ownership and age to the international literature on architectural typology and vertical housing classification in rapidly urbanising Sub-Saharan African cities.

Three research questions guided the empirical investigation. RQ1 examined the distribution of apartment types across the sampled multi-storey buildings in Eko, Lagos. RQ2 examined how building height, ownership structure and building age characterised the sampled multi-storey housing stock. RQ3

examined whether apartment type mix varied significantly across the sampled developments.

### Study Area

The study was conducted in Eko, one of the five administrative divisions of Lagos (Figure 1) comprising of Apapa, Eti-Osa, Lagos Island, Lagos Mainland, Surulere, Ajeromi-Ifelodun and Amuwo-Odofin (Lagos State Government, 2024) Local Government Areas, purposively selected as the area housing the majority of Lagos's multi-storey housing stock. The concentration of multi-storey housing in Eko reflects the area's historical role as the commercial and administrative centre of Lagos, its high land values and the resulting pressure toward vertical rather than horizontal residential development.



Figure 1: Lagos State Map showing Eko

### Conceptualising Multi-Storey Housing and Architectural Typology

Multi-storey housing is generally defined with reference to the number of floors a building has, comprising structures of four or more levels and including apartment blocks, condominiums and comparable dwelling types (Jussila, Häyrynen, Franzini & Lähtinen, 2023). Three broad categories are commonly distinguished in the literature; low-rise buildings of up to four storeys, often described as walk-up or garden-style apartments; mid-rise buildings of five to eleven storeys, typically fitted with elevators; and high-rise buildings of twelve or more storeys, and considered skyscrapers once they exceed forty to fifty storeys (Jussila *et al.*, 2023). High-rise buildings generally offer more units and denser occupation than their lower counterparts, often at the expense of privacy, while low-rise buildings offer greater privacy and easier access to shared green space but comparatively fewer amenities (Major, 2023). For the purpose of this study, and consistent with the verticalisation trend documented in Lagos housing supply (Afolabi, Oyeyipo, Ojelabi & Tunji-Olayeni, 2019), the term multi-storey housing was restricted to buildings of twelve floors or more.

Architectural typology, understood as the systematic classification of building forms according to shared physical and functional characteristics, has long been used as an analytical tool in housing studies to organise otherwise heterogeneous housing stock into comparable groups (Keyes, 2010). Applying this approach to Lagos is complicated by the fact that typological studies in the wider metropolitan area have tended to focus on low-density, peri-urban housing development rather than the vertically dense, high-rise stock concentrated in the historic city core (Adedire & Iweka, 2017). This leaves a typological gap that this study sought to close by classifying the multi-storey stock in Eko along four architecturally and managerially significant dimensions, namely apartment type, building height, ownership structure and building age.

### Building Safety and Security Considerations

Classification along the dimensions of height, apartment type, ownership and age also has direct implications for building safety and security. Fire safety measures, for instance,

become more consequential as building height increases, since occupants are located progressively further from ground level and escape routes become correspondingly more complex to design and maintain (Major, 2023), a challenge compounded in the Lagos context by the same weak regulatory compliance implicated more broadly in the city's building-failure risk (Ohenhen & Shirzaei, 2022). Security provision, similarly, tends to vary systematically with building category, with high-rise, multi-ownership developments generally requiring more elaborate access-control and surveillance arrangements than smaller, single-ownership, low-rise buildings, precisely because the absence of a single accountable landlord under multi-ownership can leave responsibility for shared security infrastructure as diffused among owners as responsibility for maintenance already is (Folorunsho, Izobo-Martins & Aduwo, 2015; Adeleke, Odachi and Ogunbiyi, 2023). As buildings age, moreover, security infrastructure such as perimeter fencing, access gates and surveillance systems is prone to the same deterioration affecting structural and mechanical systems more broadly, so that older stock may combine elevated structural risk with diminished security provision. These implications are consistent with the established Crime Prevention Through Environmental Design (CPTED) framework, which links the physical design and management of the built environment to opportunities for crime and to residents' perceived security (Newman, 1972), and reinforce the case for treating architectural typology and classification as a foundation for regulatory practice rather than as an incidental feature of housing description.

### MATERIALS AND METHODS

The study adopted a multi-method research design combining quantitative and qualitative techniques, an approach recommended for built-environment research where numerical classification benefits from contextual corroboration (Creswell & Creswell, 2023). A comparable mixed-method logic has previously been applied to residential satisfaction research, where quantitative survey data were paired with qualitative accounts to strengthen interpretation of housing outcomes (Riazi & Emami, 2018). Quantitative data were collected using a structured questionnaire administered to residents, capturing building

height and apartment type and size, and were supplemented by a structured observation checklist used to verify selected responses during site visits. Qualitative data were obtained through key informant interviews with facility managers, used to corroborate resident-reported building categorisation and to provide institutional context on regulatory classification practice.

### Method of Data Collection

The first stage stratified Lagos State into its administrative divisions, of which Eko was purposively selected as the zone

housing majority of the state's multi-storey stock. The second stage identified the twenty-one multi-storey developments within Eko, and the third stage randomly selected eleven of these for inclusion in the study. The fourth stage identified the total housing units within the selected buildings, yielding 1,269 housing units, from which the fifth stage drew the resident sample. Table 1 presents the eleven sampled buildings together with their location, height, units count and questionnaire allocation.

**Table 1: Profile of Sampled Multi-Storey Housing in Eko, Lagos**

| Multi-Storey Housing | Location        | Floors | Units | Questionnaires Administered |
|----------------------|-----------------|--------|-------|-----------------------------|
| Building 1           | Ikoyi           | 25     | 41    | 10                          |
| Building 2           | Victoria Island | 20     | 155   | 37                          |
| Building 3           | Ikoyi           | 20     | 41    | 10                          |
| Building 4           | Lekki Phase I   | 17     | 128   | 31                          |
| Building 5           | Victoria Island | 16     | 140   | 33                          |
| Building 6           | Victoria Island | 14     | 564   | 135                         |
| Building 7           | Surulere        | 13     | 72    | 17                          |
| Building 8           | Ikoyi           | 13     | 36    | 9                           |
| Building 9           | Ikoyi           | 13     | 20    | 5                           |
| Building 10          | Victoria Island | 12     | 40    | 10                          |
| Building 11          | Victoria Island | 12     | 32    | 8                           |
| Total                |                 |        | 1,269 | 305                         |

Source: Field survey (2026).

The sampled buildings varied considerably in scale, from Building 11 with 32 units to Building 6 with 564 units, a range that itself illustrates the heterogeneity of the multi-storey stock that a single, undifferentiated classification would otherwise obscure. This variation in scale was carried through proportionally into the questionnaire allocation for each building, ensuring that larger developments were not under-represented in the final sample relative to their share of the total 1,269 housing units identified across the eleven sampled buildings.

### Questionnaire Administration

Sample size was determined using the Slovin formula,  $n = N / (1 + Ne^2)$ , at a 5% margin of error, producing a target sample of 305 residents selected through simple random sampling and the questionnaires were administered at household level. A total of 226 questionnaires were retrieved in usable form, representing a 74% response rate, exceeding the 60% threshold regarded as acceptable for survey research (Sekaran & Bougie, 2019). Two facility managers per building were also interviewed ( $n = 22$ ).

### Data Analysis

Descriptive statistics, including frequency counts, percentages and cross-tabulation, were used to summarise the distribution of apartment type, building height, ownership and age. One-way analysis of variance (ANOVA) was used

to test for statistically significant variation in apartment type mix across the sampled buildings, with Tukey's Honestly Significant Difference (HSD) test applied post-hoc to identify which specific buildings differed significantly, since ANOVA alone indicates that a difference exists across groups without identifying which specific pairs of housing differ. Qualitative data from the key informant interviews were analysed using thematic analysis, following the established six-phase approach of data familiarisation, initial coding, theme searching, theme review, theme definition and reporting (Braun & Clarke, 2006), and were used to corroborate and contextualise the quantitative classification of apartment type, height, ownership and age (Nguyen, 2017; Akinyode & Khan, 2018).

## RESULTS AND DISCUSSION

### Apartment Type Distribution

Table 2 present the distribution of apartment types across the sampled multi-storey housing. Three-bedroom flats were the most common unit type (30.1%), followed by three-bedroom maisonettes (21.7%), two-bedroom maisonettes (15.5%), two-bedroom flats (11.5%), studio or single-room units (10.2%) and other configurations (11.1%). Combined, three-bedroom units, whether flats or maisonettes, accounted for 51.8% of all sampled apartments, indicating a housing stock skewed heavily toward family-sized units rather than smaller household configurations.

**Table 2. Categories of Multi-Storey Buildings by Apartment Type**

| Apartment type           | Frequency (N) | Percentage (%) |
|--------------------------|---------------|----------------|
| Single room / studio     | 23            | 10.2           |
| Two-bedroom flat         | 26            | 11.5           |
| Three-bedroom flat       | 68            | 30.1           |
| Two-bedroom maisonette   | 35            | 15.5           |
| Three-bedroom maisonette | 49            | 21.7           |
| Other configurations     | 25            | 11.1           |
| Total                    | 226           | 100.0          |

Source: Field survey (2026).

### Building Height

All sampled multi-storey housing fell within a twelve to twenty-five floor range, with 81.0% comprising twelve to eighteen floors and the remaining 19.0% comprising nineteen to twenty-five floors (Table 3). No sampled building

exceeded twenty-five floors, indicating that the study area's multi-storey stock occupies a lower-to-mid high-rise bracket rather than the ultra-high-rise category associated with global skyscraper developments.

**Table 3: Categories of Multi-Storey Buildings by Number of Floors**

| Building height (floors) | Frequency (N) | Percentage (%) |
|--------------------------|---------------|----------------|
| 12–18 floors             | 183           | 81.0           |
| 19–25 floors             | 43            | 19.0           |
| Total                    | 226           | 100.0          |

Source: Field survey (2026).

### Ownership Structure

The overwhelming majority of sampled housing (91.2%) operated under multi-ownership arrangements, in which individual units were owned or let by separate parties, while only 8.8% operated under single ownership (Figure 2). This

distribution indicates that strata-type, multi-ownership governance is the dominant institutional arrangement in the study area's multi-storey housing stock rather than a marginal exception.

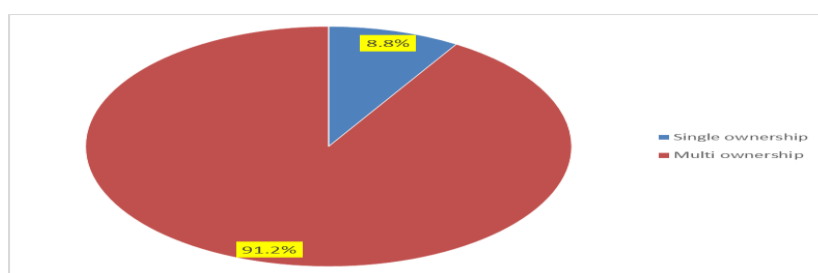


Figure 2: Ownership structure of sampled multi-storey buildings

Source: Author's Field Survey (2026)

### Building Age

More than half of the sampled houses (59.3%) were above twenty years old, 24.3% were between six and ten years old, 12.8% were between eleven and fifteen years old and only 3.5% were between one and five years old; no sampled

building fell within the sixteen to twenty year bracket (Figure 3). This age profile confirms that the study area's multi-storey stock is dominated by older estates, with comparatively few recent additions.

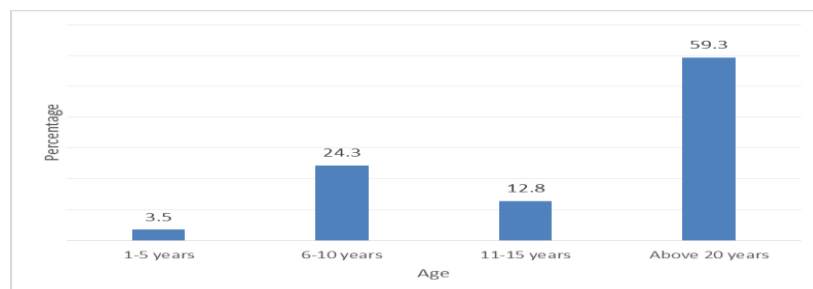


Figure 3: Distribution of building age across sampled multi-storey buildings

Source: Author's Field Survey (2026)

### Variation in Apartment Type Mix across Buildings

One-way ANOVA confirmed statistically significant variation in apartment type mix across the eleven sampled

buildings,  $F(10, 215) = 4.83$ ,  $p < 0.001$  (Table 4), with the between-buildings sum of squares (4.832) substantial relative to the within-buildings sum of squares (21.497).

**Table 4: One-way ANOVA Summary for Apartment Types across Sampled Buildings**

| Source of variation | Sum of squares | Df  | Mean square | F    | p     |
|---------------------|----------------|-----|-------------|------|-------|
| Between buildings   | 4.832          | 10  | 0.483       | 4.83 | 0.000 |
| Within buildings    | 21.497         | 215 | 0.100       |      |       |
| Total               | 26.329         | 225 |             |      |       |

Source: Field survey (2026).

Post-hoc Tukey HSD comparison identified Building 6, the oldest and largest building in the sample at forty-seven years and 564 units, as significantly different in apartment type mix from five newer, smaller buildings, including Building 1 ( $p = 0.003$ ), Building 2 ( $p = 0.017$ ), Building 3 ( $p = 0.048$ ),

Building 4 ( $p = 0.021$ ) and Building 5 ( $p = 0.025$ ), and from Building 7 ( $p = 0.043$ ) (Table 5). By contrast, comparisons between Building 6 and other single-ownership, newer buildings, such as Building 8, Building 10, Building 9 and Building 11, were not statistically significant, suggesting

shared developer strategies among these buildings. The effect size ( $\eta^2 = 0.184$ ) indicated that approximately 18.4% of the

variance in apartment type mix was attributable to building-level differences.

**Table 5: Tukey HSD Post-Hoc Comparison of Apartment Types across Buildings**

| Building comparison (vs. Building 6) | Mean difference | SE    | P     | Significance    |
|--------------------------------------|-----------------|-------|-------|-----------------|
| Building 1                           | 0.687           | 0.185 | 0.003 | Significant     |
| Building 2                           | 0.524           | 0.162 | 0.017 | Significant     |
| Building 3                           | 0.513           | 0.201 | 0.048 | Significant     |
| Building 4                           | 0.496           | 0.165 | 0.021 | Significant     |
| Building 5                           | 0.481           | 0.163 | 0.025 | Significant     |
| Building 7                           | 0.412           | 0.178 | 0.043 | Significant     |
| Building 8                           | 0.398           | 0.205 | 0.051 | Not significant |
| Building 9                           | 0.365           | 0.214 | 0.072 | Not significant |
| Building 10                          | 0.342           | 0.221 | 0.089 | Not significant |
| Building 11                          | 0.328           | 0.227 | 0.094 | Not significant |

Source: Field survey (2026).

## Discussion

### *Apartment Type Mix and Household Fit*

The dominance of three-bedroom units within the sampled stock points to a supply-driven strategy in which developers favour unit types perceived to carry lower market risk, rather than a demand-led response to the full range of household sizes present in the sample, where 25.7% of households comprised only one to two persons. This mismatch between unit supply and household composition carries direct implications for space adequacy, privacy and the risk of both under-occupancy and overcrowding, and it illustrates why apartment type alone is an insufficient basis for architectural classification without reference to actual household composition. This imbalance, whereby three-bedroom units constituted 51.8% of the sampled stock against a household population in which just over a quarter comprised only one to two persons, indicates a structural mismatch between unit supply and household size: under-occupancy is likely among smaller households allocated three-bedroom units, while larger households seeking smaller, more affordable units may face constrained choice within the sampled buildings.

### *Building Height and Vertical Housing Classification*

The building height distribution, concentrated entirely within a twelve to twenty-five floor range with no development exceeding twenty-five floors, situates Eko's multi-storey stock within the lower-to-mid high-rise segment of the international vertical housing typology (Jussila *et al.*, 2023), rather than the ultra-high-rise category associated with the tallest global skyscrapers, whose structural lineage traces to early steel-frame innovation (Ali & Moon, 2022) and which continue to demand rigorous structural design standards as height increases (Khanna & Chand, 2019). Buildings within this height bracket place residents in near-total dependence on mechanical systems for water supply, lift operation and ventilation, meaning that classification by height carries direct servicing implications that a purely apartment-type classification would miss.

### *Ownership Structure and Maintenance Governance*

The predominance of multi-ownership arrangements (91.2%) identified in this study is consistent with the maintenance governance challenges documented in comparable multi-owner, multi-storey housing elsewhere in Lagos, where the absence of a single accountable landlord has been linked to challenges over shared facility costs (Folorunsho *et al.*, 2015). Because no single party bears full responsibility for upkeep under multi-ownership, the maintenance of shared infrastructure such as lifts, generators and roofs depends on collective payment discipline among owners (Adewale *et al.*,

2018), meaning that ownership structure operates as a habitability-relevant classifier independent of a building's physical condition at any given point in time.

### *Building Age and Structural Risk*

The predominance of ageing stock (59.3% above twenty years) identified in this study aligns with structural risk factors reported elsewhere in Lagos, where subsidence and building failure have been linked to low-quality materials, non-compliance with construction standards and weak regulatory oversight (Ohenhen & Shirzaei, 2022), and where machine-learning analyses of building-collapse casualties have identified building age and regulatory non-compliance as recurring predictive factors (Awe *et al.*, 2024). This suggests that the categorisation evidence reported here directly implicates habitability and structural risk in the study area's ageing, multi-owned high-rise housing stock, rather than describing a set of neutral, independent building attributes.

### *Segmentation of Housing Supply across Buildings*

The statistically significant variation in apartment type mix across the houses,  $F(10, 215) = 4.83$ ,  $p < 0.001$ , demonstrates that Lagos's multi-storey housing supply is segmented rather than uniform, shaped by building age, target demographic and developer strategy. Older, high-unit-count estates such as Building 6 were designed predominantly for middle-income families, while newer, smaller developments served a more diverse, higher-income market. This segmentation constrains household choice, since occupants of buildings with a narrow unit mix cannot readily find units matching their household size within that development, a constraint with implications for under-occupancy, overcrowding and, ultimately, social diversity within individual buildings. The moderate effect size ( $\eta^2 = 0.184$ ) further indicates that, while building identity explains a meaningful share of apartment type variation, other unmeasured factors, potentially including specific developer branding strategies or micro-location dynamics, also contribute to the observed segmentation.

### *Global and Policy Implications*

These findings extend the international architectural typology and vertical housing classification literature, developed principally in North American, European and Asian contexts, to an empirically under-researched Sub-Saharan African megacity, demonstrating that apartment type segmentation, ownership structure and building age operate as interdependent, rather than isolated, dimensions of housing categorisation in rapidly verticalising cities. For international housing policy and practice, the findings suggest that risk-

based regulatory frameworks for multi-storey housing should incorporate building age and ownership structure as explicit criteria, alongside conventional structural and compliance indicators, particularly in cities experiencing similarly rapid, land-scarcity-driven vertical development across the Global South.

More broadly, the classification approach adopted here offers a template that other rapidly urbanising cities facing similar land-scarcity pressures could adapt, since the four dimensions examined, apartment type, height, ownership and age, are neither Lagos-specific nor architecturally exotic, but are simply rarely documented together in a single, empirically grounded classification exercise. Where such documentation exists, it becomes possible to move housing policy discussion away from generic, city-wide pronouncements about multi-storey housing and toward differentiated regulatory and investment responses that are proportionate to the actual risk profile of specific building categories.

### Theoretical Integration

The findings can be situated within three complementary theoretical frames. From an institutional-theory perspective, the predominance of multi-ownership identified in this study exemplifies a collective-action problem of the kind described in the commons literature, where the absence of a single accountable authority over a shared resource, in this case shared building infrastructure, tends to produce under-investment in upkeep unless a functioning governance structure specifying rules, monitoring and enforcement is established among the co-owners (Ostrom, 1990). The maintenance challenges documented in multi-owner Lagos buildings (Folorunsho *et al.*, 2015) are not simply a function of building age or physical deterioration, but a predictable outcome of institutional design.

From a building lifecycle perspective, the finding that 59.3% of the sampled stock exceeds twenty years in age situates a majority of the sample within the phase in which structural elements and mechanical systems begin to require major retrofit rather than routine maintenance (Adewale *et al.*, 2018), consistent with the broader structural-engineering literature on the progressive demands tall residential buildings place on materials and systems over time (Khanna & Chand, 2019). The near-total absence of stock in the sixteen-to-twenty-year bracket further suggests that the sampled buildings cluster into two lifecycle cohorts, an older cohort approaching or within the critical retrofit phase and a smaller, newer cohort that has not yet reached it, rather than forming a continuous age distribution.

From a market-segmentation perspective, the statistically significant variation in apartment type mix across buildings,  $F(10, 215) = 4.83$ ,  $p < 0.001$ , is consistent with developers targeting distinct demand segments through building-specific unit-mix strategies, so that individual developments function as differentiated market offerings rather than interchangeable units of a homogeneous vertical housing stock. These three frames suggest that the four classificatory dimensions examined in this study are not independent descriptive attributes but outcomes of institutional design, structural lifecycle and market positioning respectively, each of which regulatory practice would need to address through a distinct policy lever.

### Habitability Implications

The four classificatory dimensions examined in this study translate into distinct habitability pathways. The mismatch between a unit mix dominated by three-bedroom apartments (51.8%) and a household population in which a quarter

comprised only one to two persons creates parallel risks of under-occupancy, where smaller households occupy space beyond their functional need, and overcrowding, where larger households are unable to secure units matching their size within a given development. The predominance of multi-ownership (91.2%) creates a maintenance pathway in which shared infrastructure, including lifts, generators, water systems and roofs, depends on collective payment discipline among owners rather than a single accountable landlord, so that habitability outcomes become contingent on governance quality rather than building design alone. The predominance of ageing stock (59.3% above twenty years) creates a structural-risk pathway in which retrofit needs accumulate in tandem with the documented links between building age and collapse risk in Lagos (Ohenhen & Shirzaei, 2022; Awe *et al.*, 2024). Finally, the same ageing process creates a safety-deficit pathway, in which fire-safety systems and security infrastructure degrade alongside structural elements, so that older, multi-owned buildings combine elevated risk across several habitability dimensions simultaneously rather than facing a single, isolated concern.

Future research should extend this categorisation framework to other rapidly verticalising Nigerian and Sub-Saharan African cities to establish comparative typological benchmarks, and should consider longitudinal designs capable of tracking how apartment mix, ownership arrangements and age-related structural risk co-evolve within individual buildings over time. Further work might also usefully examine whether the building-level segmentation identified here corresponds to measurable differences in resident satisfaction, service-charge compliance or maintenance investment, thereby linking architectural classification more directly to habitability outcomes.

### CONCLUSION

The findings established a housing stock dominated by three-bedroom units, concentrated within a twelve to twenty-five floor range, characterised by extensive multi-ownership and an ageing building profile, with statistically significant segmentation in apartment type mix across buildings. The study contributes an empirically grounded architectural classification of Lagos's multi-storey housing stock along four dimensions, apartment type, building height, ownership structure and building age that have previously been discussed largely in isolation within the Nigerian housing literature. By demonstrating statistically that these dimensions interact, most notably that apartment type segmentation is itself shaped by building age and ownership history, the study extends architectural typology research beyond static classification toward an interaction-based framework with direct relevance to regulatory risk assessment in rapidly verticalising Sub-Saharan African cities. Regulatory agencies such as the Lagos State Building Control Agency (LASBCA) should adopt a risk-weighted inspection schedule prioritising buildings above twenty years old and those under multi-ownership, rather than a uniform inspection regime applied without reference to building classification. Developers are also encouraged to diversify unit mix within new multi-storey developments to accommodate a wider range of household sizes and compositions, rather than replicating the narrow unit mix observed in older multi-storey housing.

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