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Contemporary vertical multifamily construction: challenges in the face of changes in the age profile of the population

Habitação multifamiliar vertical contemporânea: desafios frente às mudanças no perfil etário da população

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Abstract

This research addresses the living in the contemporary city and the search for active and healthy aging, themes that gain notoriety due to the growth of the elderly population added to the concerns about the architectural and urban quality of contemporary ways of living. Considering such a scenario, especially the increase in the population of young elderly (between 60 and 79 years) in the state of Espírito Santo, it is questioned how apartment buildings can better meet the desires of this public. This article, therefore, reflects on the main parameters of architectural and urban quality that can be applied in contemporary vertical multifamily housing in view of the demands of the ways of living of the young elderly capixabas. The research was carried out in two methodological stages: the first: which was characterized by the bibliographical and documentary review; and the second: characterized by the data collection and analysis of the results, in which questionnaires were conducted with the elderly and the real estate market capixaba. As a result, it is understood that quality parameters related to urban, building and housing unit scales must be considered. The public in question prioritizes apartment buildings located near shops, services, public leisure spaces and gardens for pets. They also opt for buildings with elevators, physical concierge and collective areas that facilitate socialization and security of residents. In the housing unit scale, the adequate dimensioning of the wet areas and the thermal-acoustic comfort of the project were also highlighted, signaling that architectural and urban adjustments need to be incorporated into the standard of the local real estate market.

Keywords: Active and healthy aging. Apartment Buildings. Contemporary living. Elderly population. Young elderly.

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Resumo

Esta pesquisa aborda o habitar na cidade contemporânea e a busca pelo envelhecimento ativo e saudável, temas que ganham notoriedade devido ao crescimento da população idosa e às preocupações com a qualidade arquitetônica e urbanística dos modos de morar contemporâneos. Tendo em vista tal cenário, especialmente o aumento da população de idosos jovens (aqueles entre 60 e 79 anos), questiona-se como os edifícios de apartamentos podem melhor atender aos anseios e necessidades desse público. Este artigo, portanto, reflete sobre os principais parâmetros de qualidade arquitetônica e urbanística que podem ser aplicados na habitação multifamiliar vertical contemporânea, considerando as demandas dos modos de morar dos jovens idosos capixabas. A pesquisa foi realizada em duas etapas metodológicas: a primeira, caracterizada pela revisão bibliográfica e documental; a segunda, pelo levantamento de dados e análise dos resultados, resultantes da aplicação de questionários com idosos e com o mercado imobiliário dos municípios de Vitória e Vila Velha, ES. Como resultado, compreende- se que parâmetros de qualidade ligados às escalas urbana, de implantação do edifício e da unidade habitacional devem ser considerados. Na escala urbana, o público em questão prioriza edifícios de apartamentos próximos a comércios, serviços, espaços de lazer e jardins para pets. Optam também por edifícios com elevadores, portaria física e áreas coletivas que facilitam a socialização e a segurança dos moradores. Já na escala da unidade habitacional, o dimensionamento adequado das áreas úmidas e o conforto térmico-acústico também foram ressaltados, sinalizando que adequações arquitetônicas e urbanísticas precisam ser incorporadas ao padrão do mercado imobiliário local.

Palavras-chave: *Idosos Jovens. Edifícios de Apartamentos. Morar Contemporâneo. População Idosa. Envelhecimento ativo e saudável.*

Introduction

As stated by the Statute of the Elderly, Federal Law No. 10,741 of October 1, 2003 (Brasil, 2003), in Brazil, individuals aged 60 years or older are considered elderly. However, considering the socioeconomic conditions that lead to different life expectancies among populations worldwide, the World Health Organization (WHO) defines elderly individuals as those over 65 years old – if residing in developed countries – or those aged 60 years or older, if living in developing countries (Camarano; Pasinato, 2004).

According to data from the United Nations (2019), it is estimated that the number of elderly people worldwide, aged 60 years or older, will double by 2050 and triple by 2100, rising from 962 million in 2017 to 2.1 billion in 2050 and 3.1 billion in 2100. In 2022, the global population reached 7.98 billion inhabitants, with 1.1 billion people aged 60 years or older (representing 13.9% of the total). Among this segment, the number of elderly women reached 604.7 million, while elderly men accounted for 503.9 million, resulting in a female surplus (Alves, 2022).

Data from the Continuous National Household Sample Survey (Instituto Brasileiro de Geografia e Estatística, 2021) further indicate that the number of women in Brazil exceeds that of men, with 48.9% men and 51.1% women. However, gender distribution changes when compared across age groups. In younger groups, there is a higher proportion of men; in the 25-to-29-year group, the number of men and women is similar. From age 30 onward, the percentage of women becomes higher than that of men (Instituto Brasileiro de Geografia e Estatística, 2021). Thus, in 2022, the number of Brazilian women over 60 years old reached 17.6 million, whereas the number of men in the same age group was 13.9 million (Alves, 2022). Therefore, within the elderly population in Brazil, the proportion of women stands out.

In the view of Navarro, Costa, and Lima (2015), elderly individuals of different age groups may behave in distinct ways when facing the obstacles of the environments they inhabit. To better understand this difference, the authors divide this population into two groups: "old elderly" and

"young elderly". The "old elderly" are those aged 80 years or older, while the "young elderly" are those within the age range of 60 to 79 years.

Among the elderly, there is a significant proportion within the "young elderly" age group that deserves special attention. According to population projections and estimates for Brazil and its Federative Units, conducted by Instituto Brasileiro de Geografia e Estatística (2022), approximately 13.57% of Brazilian citizens can be considered "young elderly", whereas among the "old elderly", this percentage is around 2.26%. In the state of Espírito Santo, about 14.16% of *capixabas*[3] fall into the "young elderly" category, while the "old elderly" account for 2.31% of the population. Thus, the proportion of "young elderly" *capixaba* citizens is significant and close to the national figure, differing by only 0.59%.

The growth of the elderly population, driven by advances in quality of life, technology, and investments in healthcare, makes it necessary to reconsider social issues involving this group (Pinheiro; Areosa, 2019). The development of public policies for older adults has been a prominent topic on the agenda of international health organizations, especially concerning the proposal of guidelines for nations that still need to implement social and welfare programs to meet the emerging needs of this population segment (Fernandes; Soares, 2012). Launched in 2016 by the World Health Organization (2016), the Global Strategy and Action Plan on Ageing and Health promotes age-friendly environments, health systems aligned with the needs of older people, and the creation of sustainable long-term care systems.

The World Health Organization (2005) identifies as one of the objectives of active ageing the extension of healthy life expectancy while simultaneously improving the quality of life for aging citizens, including those who are frail, physically disabled, and require greater care. According to WHO (2005, p. 43), "[...] the goal must be to recognize and harness the skills and experience of older people and to ensure adequate living standards for them while encouraging harmonious intergenerational transfers".

The WHO considers ageing as a process that begins already in adulthood; however, some studies and public policies identify sub-age ranges to define the onset of this process, particularly between the ages of 50 and 59, as a stage of "pre-old age" or active ageing (World Health Organization, 2015). This is relevant for health and labor policies, which recognize that biological, social, and psychological changes associated with ageing may begin before the age of 60, thus preparing this age group for healthy ageing (Instituto de Pesquisa Econômica Aplicada, 2010; Ministério da Saúde, 2005).

Physical environments adapted to age-specific needs can represent the difference between independence and dependence for everyone, but especially for those undergoing the ageing process (World Health Organization, 2005). The active mobility of older adults, particularly walkability in urban spaces, is essential for active and healthy ageing, serving as a determinant of individual health, access to urban services, and social interaction (Bonatto; Alves, 2022). Therefore, in a context that seeks active and healthy ageing, the architectural and urban quality of housing goes beyond the simple function of sheltering individuals; it highlights the responsibility to design appropriate environments both at the building and housing unit scale and at the urban scale (Ferreira *et al.*, 2012), taking into account both present and future generations who will experience ageing.

It is important to highlight that living in vertical multifamily housing, commonly known as apartment buildings, has become a frequent choice for residents of Brazilian metropolitan areas,

[3] *Capixaba* is a term used to refer to individuals born in or residing in the state of Espírito Santo, Brazil.

particularly those near the coast, where increasing real estate appreciation is observed in waterfront areas, as occurs in the cities of Vila Velha and Vitória, located in the state of Espírito Santo, Brazil. Among the reasons for this preference are security, location, practicality, and the concentration of services commonly associated with this housing model (Villa, 2020). Vertical multifamily buildings are one of the main residential typologies found in cities both in Brazil and worldwide. It was only during the 1990s that this housing typology consolidated itself as an increasingly accessible alternative for different social classes in Brazil (Villa, 2008).

In Brazil, apartment buildings have become a reality for many citizens, not only in large metropolitan areas but also in medium-sized cities. According to Ferreira *et al*. (2012), housing production in Brazil has historically prioritized the housing unit itself to the detriment of the urban quality of its surroundings. The notion of "homeownership" fueled the aspirations of the middle class, while high-end apartments in luxury condominiums located in affluent neighborhoods represented the ideal for wealthier groups (Ferreira *et al*., 2012). The current real estate market continues to be largely characterized by standardized projects, repeatedly adopting a single proposal for spatial organization: compartmentalized units based on the nineteenth-century tripartite model, which divides the dwelling into social, private, and service areas (Villa, 2008).

Considering the context of population ageing, particularly the growth of the "young elderly" population in Brazil and in the state of Espírito Santo, the following questions arise: How can vertical multifamily housing better meet the profile and aspirations of the "young elderly", and how can it contribute to a more active and healthy ageing process? In this regard, this article discusses architectural and urban quality parameters applicable to apartment buildings, considering the new ways of living among older adults, especially within the "young elderly" group. This research, developed within the master's program in Architecture and Urbanism, in addition to fostering further studies on the subject, aims to assist architects and real estate developers in designing architectural and urban projects for vertical multifamily housing that are more inclusive for the elderly population.

Methodological Procedures

This is an applied research study with both quantitative and qualitative approaches, featuring exploratory and descriptive objectives, in which the object of analysis serves as a direct source for data collection and results interpretation. The activities carried out were structured into two methodological stages, namely: (1) Literature and documentary review; (2) Data collection and analysis. Table 1 below links the procedures adopted in the research to the corresponding methodological stages.

The first stage focused on the literature and documentary review, which provided the theoretical foundation for the research and guided the analysis decisions. This stage provided an in-depth understanding of the context of population ageing to comprehend the current changes in

Table 1 – Objectives and procedures x methodological steps.

Methodological Stage	Procedures Adopted
Stage 1: Bibliographic and Documentary Review	Bibliographic and documentary research
Stage 2: Data Collection and Analysis	Bibliographic and documentary research; Questionnaire administration

Source: Prepared by the authors, 2024.

the age profile of both the Brazilian and *capixaba* populations. The review also explored the concept of active and healthy ageing and its interrelations with contemporary urban living. Additionally, this stage included a brief overview of vertical multifamily housing in Brazil from the 20th century onwards to understand the transformations in housing production in the country.

The second stage consisted of data collection and analysis. This was conducted through the application of questionnaires with two distinct target groups: (I) elderly individuals and (II) the real estate market – real estate agents and representatives of construction companies. It is worth noting that the questionnaires for the elderly group (I) were applied to individuals aged 50 or older, as the objective was to understand housing-related demands both from the "young elderly" group – aged 60 to 79 – and from those also undergoing the ageing process – aged 50 to 59, as defined by the World Health Organization (2015). Questionnaires for the real estate market group (II) were directed to local professionals registered with the Regional Council of Real Estate Agents of the 13th Region of the state of Espírito Santo and/or construction companies located in the *Região Metropolitana da Grande Vitória* (RMGV, Greater Vitória Metropolitan Region), working with both mid- to high- end properties as well as the economic segment.

The questionnaires included questions to characterize the profile of the target audiences, along with multiple-choice items aimed at identifying the main demands and needs related to living in apartment buildings. The questions were based on architectural and urban quality parameters for housing, with references primarily drawn from Ferreira *et al*. (2012) and Montaner, Muxi, and Falagán (2011), as well as the Global Age-Friendly Cities Guide (World Health Organization, 2008). These parameters were grouped into three spatial scales: urban insertion scale, building implantation scale, and housing unit scale (Ferreira *et al*., 2012).

The urban insertion scale considers characteristics that ensure a good relationship between the building and the neighborhood or city in which it is located. The building implantation scale refers to the relationship between the building and its immediate surroundings, the way it occupies the land, and the integration between the building and outdoor spaces. The housing unit scale addresses aspects related to the interior of the dwelling, considering the specific needs and demands of its users (Ferreira *et al*., 2012). These scales will be further detailed in the following sections of this article.

The questionnaires for the elderly group (I) were developed using Cognito Forms – a platform specialized in form creation – with the link distributed via email and social networks of elderly groups in the municipalities of Vila Velha and Vitória, supported by Senior Community Centers. In addition to the online option, in-person application of the questionnaire was necessary in institutions that serve older adults (such as church ministries, prayer groups, gyms for seniors, family networks, among others) to reach a larger number of respondents and diversify the social classes represented among the young elderly. The questionnaires for the real estate market group (II) were also created in Cognito Forms and distributed via email and social media to local market representatives, with support from members of local construction companies.

Questionnaire I was distributed through social media and conducted in senior community centers from October to December 2022. The responses collected in person were manually recorded on printed forms and later digitized. A total of 107 responses were obtained. Questionnaire II remained available between January and February 2023 and collected 27 responses, including real estate agents, developers, and contractors operating in the Greater Vitória Metropolitan Region.

Living in the context of active and healthy ageing

The growth of the elderly population prompts the development of living and housing models more aligned with the needs, aspirations, characteristics, and limitations arising from the ageing process. It is essential to emphasize that, even with increasing physical restrictions during ageing, healthy and active habits must be encouraged to achieve better quality of life and independence for these citizens.

According to the World Health Organization (2005), the concept of "ageing in place" reflects the goal of being able to live and age at home and within the community, safely and independently. This generates the need to adapt both the physical and social environments to daily life as citizens age, particularly regarding housing. It is worth highlighting that, beyond the elderly's preference to age in the same home, close to their social interactions, the physical space of the dwelling represents a condition that can either facilitate or hinder the performance of various activities carried out daily by this specific group (World Health Organization, 2015).

However, ageing at home alone does not necessarily guarantee independence and, consequently, quality of life, as this depends on the individual's functional capacity and on how well personal needs align with the surrounding context. Thus, environmental characteristics, such as isolated locations or lack of accessibility and safety, may accelerate the functional decline of older adults, contributing to their dependence and loss of autonomy (Gitlin *et al*., 2006).

For an older person to recognize a new environment like home, it is essential that the characteristics of their lifestyle accompany them throughout this process. According to Toni (2012), older adults move into a new home carrying a long-life history and established social and emotional ties, which must be taken into account. Therefore, it is important to create flexible spaces that can be personalized with personal belongings, enhancing the environment and promoting emotional memory. Furthermore, proposing solutions that meet the specific needs of the elderly is part of a complex process involving decisions about physical, constructive, behavioral, bioclimatic, economic, technological, and other factors (Barbosa; Araújo, 2014).

To achieve this, Barbosa and Araújo (2014) identify some characteristics that should be incorporated into multifamily housing, including factors such as: inclusion of areas that respect individuality along with spaces for social interaction; specification of furniture adapted to the limitations of each user, providing comfort and safety; and creation of humanized, cozy, and pleasant environments. Additional considerations involve natural lighting and ventilation, landscaping, spaces for social interaction and individualized areas; creating situations that remind the user of positive memories that contribute to a good recovery and are pleasant for staying in the space; and possibilities for requalification and readaptation of spaces.

Thus, housing projects intended for older adults must include spaces where they can enjoy privacy, security, and tranquility, while also meeting mobility and accessibility needs. It is important to stress the relevance of social interaction with family members and the availability of places that foster social life, physical exercise, games, and contact with nature. Therefore, housing quality is one of the factors that supports residents' well-being, manifesting itself through their appropriation of space. Consequently, understanding lifestyles becomes essential for assessing architectural quality, as the requirements and demands of each resident are individual and distinct, thereby enabling diverse ways of living.

Quality of multifamily housing

Although not specifically aimed at the elderly population, Ferreira *et al*. (2012) suggest architectural and urban parameters for housing quality, subdivided into three (3) design scales: (1) Urban insertion, (2) Building implantation, and (3) Housing unit. According to the author, such parameters ensure higher-quality housing by promoting a good relationship among the scales, combined with the project's dialogue with its socio-spatial context.

For Ferreira *et al*. (2012), adequate urban insertion of a vertical multifamily housing project is ensured by the development's good location within the city, in areas with infrastructure and the presence of urban services and facilities. Additionally, apartment buildings well integrated into the urban fabric should be located near commercial and service establishments, as well as educational, health, cultural, and leisure facilities. The author also highlights the importance of proper accessibility to regional and local centers, along with integration into the public transportation network. Thus, a housing development with proper urban insertion is one committed to a fair and democratic urbanization process, ensuring quality of life for residents and other citizens directly or indirectly impacted by it (Ferreira *et al*., 2012). Regarding the urban scale, Ferreira *et al*. (2012) point to the following quality parameters: urban infrastructure and services; location; accessibility; and urban flow, as indicated in Table 2.

At the building implantation scale, Ferreira *et al*. (2012) suggest that this should ensure the project's integration into the urban fabric, with common and leisure areas connected to the city, prioritizing public access and mixed uses, while always adapting the building complex to the scale of its surroundings. The adaptation of the housing development to the site is highly important, as it minimizes local intervention, reducing environmental and cost impacts. Moreover, environmental comfort must be ensured by opting for green areas and creating pleasant environments that promote a gradual transition between public and private spaces. Therefore, for the building implantation scale, Ferreira *et al*. (2012) identify quality parameters described in Table 2: adaptation to site topography; landscaping; land use patterns; common and leisure areas; density and development size.

Regarding the housing unit scale, quality parameters, according to Ferreira *et al*. (2012), must primarily enable cost-efficiency, safety, and comfort in construction, while ensuring that floor units are arranged to provide privacy and ease of access. Furthermore, spaces must be sized according to their intended use, adapted to the family profile without compromising circulation, and always allowing internal adaptation of these environments to emerging needs (Ferreira *et al*., 2012). Quality parameters at the housing unit scale include construction cost; environmental comfort; distribution of units on a typical floor; sizing; flexibility; performance and efficiency; and sustainability.

In addition to the proposals by Ferreira *et al*. (2012), Montaner, Muxi, and Falagán (2011) propose an analysis system and design methods for contemporary housing, addressing urban, social, technological, and environmental issues. This system is based on four essential concepts: Society (family diversity, productive/reproductive work), City (the influence of housing on the urban structure), Technology (infrastructure, flexibility, transversality), and Resources (energy efficiency, sustainability).

According to Montaner, Muxi, and Falagán (2011), basic housing is that which adapts to different groups and needs. Therefore, the building must meet the basic needs of family members while allowing for future modifications, such as the inclusion of another person into the household. It is important to understand that dwellings are not and cannot be autonomous elements, as

they can promote the creation of social and community networks based on good urban design (Montaner; Muxi; Falagán, 2011).

Beyond these concepts, it is essential to recognize that housing must also follow the principles of Universal Design, aiming to define product and environment designs that accommodate everyone. These principles include: (1) equitable use: the design does not disadvantage or exclude user groups; (2) flexibility in use: the design adapts to individual preferences and abilities; (3) simple and intuitive use: easy for users to understand; (4) perceptible information: the design communicates effective information to users; (5) tolerance for error: the design minimizes risks and accident consequences; (6) low physical effort: the design must be used efficiently and comfortably; and (7) size and space for approach and use: appropriate dimensions and spaces for access, handling, and use, regardless of user body size or mobility *Associação Brasileira de Normas Técnicas* (Brazilian Association of Technical Standards), 2020.

Table 2 – Architectural and urban characteristics for housing quality.

Scale of Analysis	Definition of the Scale of Analysis	Quality Parameters
Urban Insertion	Relates the development to the city and neighborhood in which it is located.	• Urban infrastructure and services; • Location; • Accessibility; • Urban flow.
Building Implantation	Refers to the development, its relationship with the immediate surroundings, the land use configuration, and the integration between buildings, green areas, and open spaces for social interaction and circulation.	• Suitability to site topography; • Landscaping and environmental impact; • Site occupation patterns; • Common and leisure areas; • Density and spatial dimension.
Housing Unit	Refers to the features of the building or the individual housing unit.	• Construction cost; • Environmental comfort; • Unit distribution on standard floor; • Spatial layout; • Flexibility; • Performance and efficiency; • Sustainability.

Source: Organized by the author (2024), based on Ferreira *et al.* (2012).

Thus, it is understood that housing is fundamental to security and well-being. Therefore, appropriate dwelling design and access to community and social services are interconnected, influencing the independence and quality of life of older adults. It is evident that housing and the support services that enable older adults to age comfortably and safely within society are valued aspects (World Health Organization, 2008).

It is also important to stress that, whenever possible, older adults should have the opportunity to properly choose where they wish to live, a factor that must be incorporated into policies and programs (World Health Organization, 2002). Furthermore, the "Global Age-Friendly Cities Guide" (2008) presents nine parameters that assist in discussing healthy housing, as shown in Table 3 below.

Therefore, considering the previously presented parameters for the quality of contemporary vertical multifamily housing – at the scales of Urban Insertion, Building Implantation, and Housing Unit, identified in Table 2 of this article – the main architectural and urban characteristics to be considered in apartment building projects were systematized, taking into account the context of a more active and healthy ageing population (Table 4). It is noteworthy that the data collection stage of this research, which involved applying questionnaires to older adults and the real estate

market, was conducted based on the quality parameters and architectural and urban characteristics compiled in Table 4. The preparation of the following table was based on the recommendations cited in this chapter, following the organization proposed by Ferreira *et al*. (2012).

Table 3 – Architectural and urban features for housing quality.

Parameter	Characteristics
Economic Accessibility	The need for more affordable housing prices, given that housing directly impacts quality of life. Many older adults rely on retirement income, and lower costs enable access to housing better suited to their lifestyle.
Basic Services	This shows that access to quality basic sanitation, electricity, and internet services improves a citizen's standard of living. (Access to basic sanitation, electricity, and reliable internet enhances citizens' quality of life).
Home Design	Housing needs to provide greater comfort for older adults. This includes constructing homes with appropriate materials, solid structures, and flat surfaces to help prevent falls. It also involves implementing elevators; providing adequate wet areas, more ergonomic spaces, and passages and doors suitable for circulation; and using equipment that protects against climatic conditions.
Flexibility	The possibility of making modifications to the homes they live in, according to the needs that arise over the years, also qualifies as an improvement in the comfort of life for older adults.
Maintenance	The availability of affordable assistance services from municipalities is needed to ensure that homes remain well-maintained, since the inability to perform maintenance tasks increases with age.
Aging in Place	A large number of older adults choose to remain in the residences where they have spent most of their lives, primarily due to a feeling of affection and belonging to that place. As a right for older adults, access to services and infrastructure that enable them to stay in their desired home must be guaranteed, with the assurance that these services will be available.
Community Integration	The creation of familiar environments in which older adults feel part of a local community.
Housing Options	The existence of housing options for older adults, with economically accessible possibilities that are connected to the rest of the community.
Living Environments of Older Adults	The existence of privacy for older adults within their residences. This includes the possibility of installing security equipment, if necessary, in addition to keeping their homes out of zones prone to natural disasters.

Source: Adapted from the Global Age-Friendly Cities: A Guide (World Health Organization, 2008).

Table 4 – Architectural and urban characteristics for the analysis of housing quality in the context of population aging. 1 of 2

Scale of Analysis	Quality Parameters	Architectural and Urban Characteristics
Urban insertion	• Urban infrastructure and services; • Location; • Accessibility; • Urban flow.	• Proximity to commercial areas; • Proximity to healthcare services (hospitals, clinics, etc.); • Proximity to basic educational services (schools, daycare centers, etc.); • Proximity to beaches, squares, and parks; • Proximity to tourist and cultural spots (museums, churches, etc.); • Proximity to public transport networks (bus stops, bus terminals, etc.); • Existence of accessible sidewalks and ramps in the building's surroundings; • Building located on a flat street/plot; • Existence of bike paths in the building's surroundings; • Existence of tree-lined and well-lit streets.

Source: Prepared by the author based on the parameters studied (2023).

Table 4 – Architectural and urban characteristics for the analysis of housing quality in the context of population aging.
2 of 2

Scale of Analysis	Quality Parameters	Architectural and Urban Characteristics
Building Implantation	• Suitability for the topography of the land; • Landscaping and environmental impact; • Forms of land occupation; • Common and leisure areas; • Density and Dimension.	• Existence of elevators in the building; • Existence of ramps for access at the building's entrance; • Existence of areas with vegetation/gardens in the building; • Existence of a sauna and pool; • Existence of a multi-sport court; • Existence of a party area (party hall, barbecue grill); • Existence of a garage; • Existence of a gym; • Existence of a playground/game room; • Existence of a bicycle rack; • Existence of stores on the ground floor of the building; • Existence of a physical concierge; • Existence of a pick-up and drop-off space (for taxis, Uber); • Few apartment units on the same floor; • Cost of the condominium fee.
Housing Unit	• Construction cost; • Environmental comfort; • Distribution of units on the standard floor; • Sizing; • Flexibility; • Performance and efficiency; • Sustainability.	• Existence of good ventilation; • Good acoustics (low level of noise and sound from one apartment to another, for example); • Good lighting; • Guarantee of privacy for the residential unit; • Ease of access to the residential unit; • Good sizing of bedrooms and bathrooms; • Good sizing of the living/dining room and balcony; • Good sizing of the kitchen and service area; • Floor coverings that ensure safety (prevents slipping); • Number of bedrooms in the apartment; • Furniture suitable for family size and profile; • Bathroom with external ventilation (windows to the outside); • Compatible cost of the property/maintenance; • Rooms that allow for expansion according to the individual's needs.

Source: Prepared by the author based on the parameters studied (2023).

Capixaba multifamily housing in the context of population ageing

Young Elderly and the *Capixaba* Multifamily Housing

Based on the compilation of these characteristics, questionnaires were designed to understand the main demands of young elderly and to verify how the real estate market of Greater Vitória Metropolitan Region incorporates such needs. Based on the compilation of these characteristics, questionnaires were designed to understand the main demands of young elderly and to verify how the real estate market of Greater Vitória Metropolitan Region incorporates such needs. Thus, regarding the questionnaires applied to the elderly public (I), the sample considered a total of 107 (one hundred and seven) responses. Among participants, 68.2% (73 individuals) identified as female and 31.8% (34 individuals) as male. Accordingly, similar to the populations of Brazil and the state of Espírito Santo, the percentage of older adults who responded to the questionnaire was predominantly female.

Regarding marital status, a large portion of the survey participants were married, at 50.5% (54 people). However, it was observed that a significant part of the sample (49.5%) reported not having a spouse, even under different social circumstances. As for their place of residence, it was found that the majority (68.2%, or 73 citizens) of the respondents resided in the municipality of Vila Velha. Regarding the age group, the number of "young elderly" (adults aged 60 to 79 years) corresponded to 78.5% of the individuals participating in the survey. It is important to note that the

questionnaire also included people over 50 years of age due to the need to understand the demands of both future and current young elderly.

Concerning monthly family income per minimum wage (MW), the survey predominantly reached individuals from classes B and C (45.4%), as well as classes A and B (43.2% total). Another important characteristic is the number of retirees: 56.1% (60 people), representing the majority of the sample. Additionally, a crucial aspect for understanding the profile of young elderly is their family arrangements. The percentage of people who live alone stood out at approximately 33.6%, as did the percentage of those who live with other family members (20.6% with spouses and children; 14% with children; and 4.7% with children and parents).

Among respondents, 74.8% (80 individuals) lived in apartment buildings (vertical multifamily housing) and 25.2% (27 individuals) in houses (single-family housing). For those in single-family residences, main motivations were the presence of a yard/outdoor area and ensured privacy, justified by pet ownership and the possibility to cultivate plants and vegetables.

Among those residing in vertical multifamily housing, 46.3% have lived in apartment buildings for more than 25 years; followed by the population that has inhabited this typology for 5 to 15 years (27.5%, or 22 people); and a minority, those with less than 5 years (13.8%, or 11 people). Regarding the size of the residential units (Figure 1), 31.3% live in units between 100 m^2 and 150 m^2; 27.5% (22 people) live in apartments larger than 150 m^2; followed by those between 75 m^2 and 100 m^2 (25%, or 20 people). Analyzing the number of bedrooms per residential unit (Figure 2), the majority of the target audience resides in buildings with units of 3 or more bedrooms, which comprises 75% (60 people) of the respondents.

Regarding the residential unit, considering all respondents, the most preferred rooms were the living room (33 people, or 30.85%) and the bedroom (29 people, which corresponds to 27.1%). The living room was selected because of the possibility of hosting friends and family and for being the room where the television is placed, highlighting the importance of this device, especially for the interviewees' age group. The bedroom was highlighted for being the room in the house that offers the most privacy, even though some respondents also indicated a preference for specific rooms, such as a bedroom/sewing atelier and a backyard/garden.

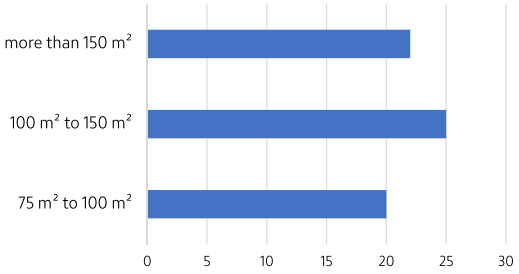

Figure 1 – Housing Unit Size.
Source: Prepared by the author (2023).

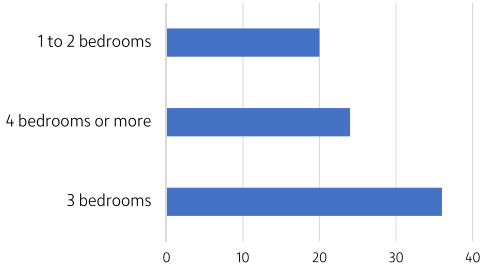

Figure 2 – Number of Bedrooms.
Source: Prepared by the author (2023).

A representative number (45%, equivalent to 48 people) responded that they were satisfied with their dwelling and would not like to make any changes. However, those who expressed complaints cited the need for renovations, especially in the kitchen, with a view to increasing the dimensions of the space and adapting the furniture. In addition to the kitchen, it was observed that the bathroom and the service area were also cited multiple times due to the reduced size of these spaces, highlighting that, in most apartments, the wet areas are small and inadequate for daily

activities. Another point evidenced regarding the possibilities for alteration refers to the resizing of the living room, balcony, and the number of bedrooms.

Participants were also asked if they had the opportunity to live in another apartment building, to indicate five (5) items in each of the three scales that they considered essential for an apartment building. The main characteristics highlighted by young elderly are compiled in Figure 3.

Accordingly, the results indicate that on the Urban Insertion Scale, the most frequently selected characteristics were: "Proximity to commercial areas", "Proximity to beaches, squares, and parks", and "Existence of tree-lined and well-lit streets". In contrast, the least evidenced were: "Proximity to basic educational service points", "Existence of bike paths in the building's surroundings", and "Proximity to tourist and cultural spots". Among those who suggested other specifics on the Urban Insertion Scale, the preference for calm streets with low noise stood out, as well as the presence of selective waste collection in the neighborhood and the proximity of the building to places for walking pets. It is clear, therefore, that there is a preference for vertical multifamily housing close to commercial areas and public leisure spaces (squares, parks, and beaches), in addition to flatter, quieter, and greener areas with tree-lined, accessible, well-lit streets and pet-friendly gardens.

As for the parameters on the Building Implantation Scale, the most prominent were, in descending order: "Existence of elevators in the building", "Existence of a garage", "Existence of a physical concierge", "Existence of ramps for access to the building", and "Existence of a party hall". Conversely, the items that were least frequently selected were: "Existence of stores on the ground floor of the buildings", "Existence of a multi-sport court", "Existence of a bicycle rack", and "Existence of a playground and game room". It is important to note that, among those who showed a preference for the presence of a sports court and an area for games and play, they selected these items with their grandchildren's use in mind. Another specific detail mentioned was the need for a pet-friendly area within the condominium, once again emphasizing the importance of pets to the young elderly demographic.

Regarding the parameters on the Housing Unit Scale, the most evidenced items were: "Good ventilation", "Good lighting", and "Good acoustics", characteristics related to the comfort and environmental quality of the building. The aspects related to the "Sizing of the apartment rooms", especially the bedrooms and bathrooms, were also highlighted. In contrast, the items with less emphasis were: "Furniture suitable for family size and profile", "Bathroom with external ventilation", and "Ease of access to the residential unit". Another characteristic specified by the young elderly was the need for bathrooms with wide doors, at least 80 cm (eighty centimeters), and a layout that allows for wheelchair circulation. Even if there is no immediate need for mobility aids (wheelchairs, crutches, among others), it is important to remember the possibility of future use. Therefore, even though they are active and healthy, "young elderly" consider the possibility of reaching a more advanced age or even suffering an accident and needing such support.

Based on the questionnaires, it is therefore understood that people between 60 and 79 years old prioritize vertical multifamily housing that enables connection to the outdoors and ensures safety in its surroundings. Additionally, they prefer locations that facilitate socialization among neighbors, friends, and family. It is also important to highlight that the spatial layout, thermal comfort, and acoustic comfort of the development were strongly emphasized. However, when considering the appropriate sizing of the rooms within the residential unit, those of greatest relevance were the bedrooms and bathrooms, followed by the kitchen, living/dining room, and balcony.

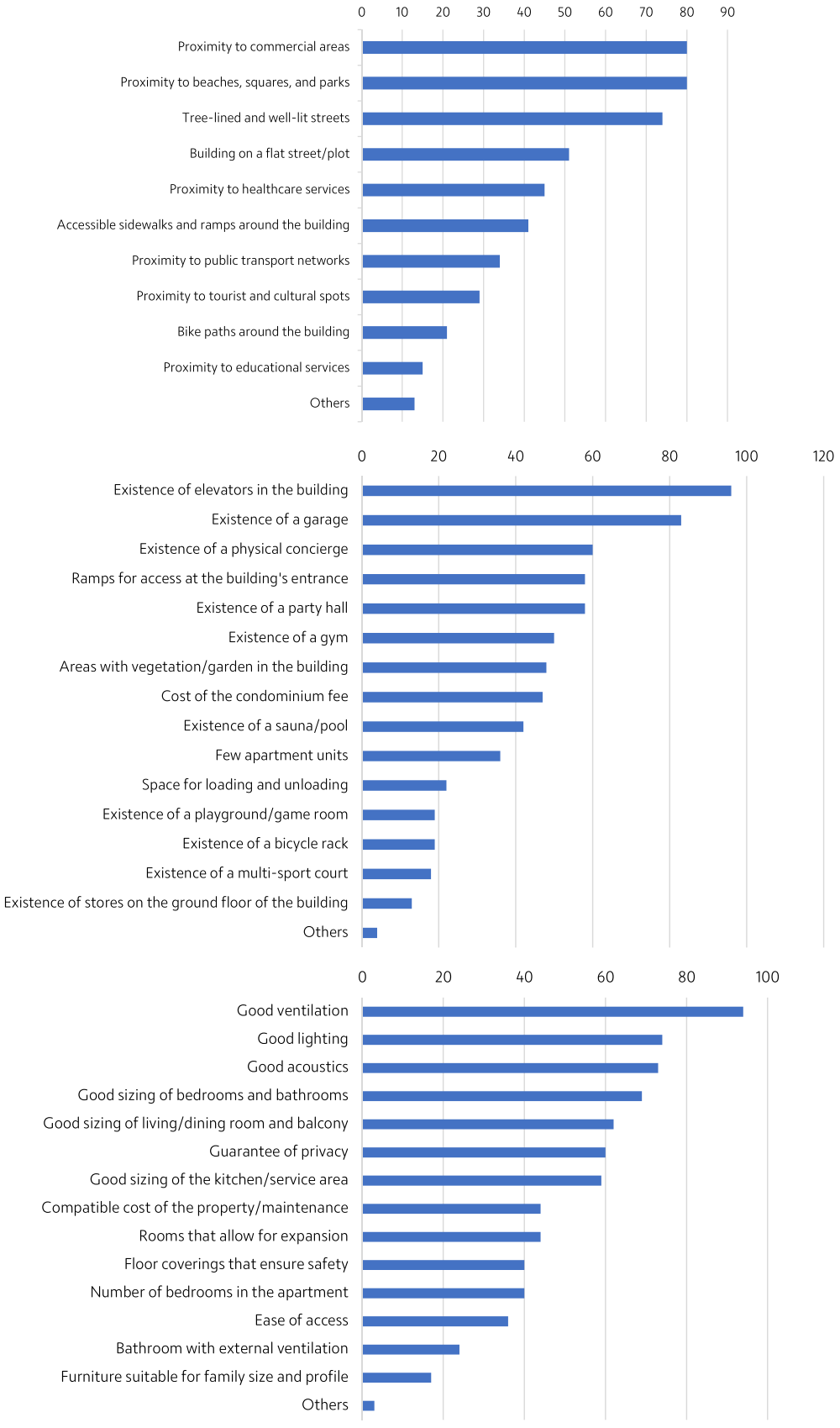

Figure 3 – Main urban, building implantation, and housing unit characteristics demanded in an apartment building, considering the young elderly demographic.

Source: Prepared by the authors (2023), based on questionnaire I.

Real estate market and the *capixaba* Multifamily Housing

To examine how the *capixaba* real estate market incorporates the needs and demands of young elderly in vertical multifamily housing, questionnaire II was applied to market representatives. Among the 27 (twenty-seven) responses, 44.4% (12 individuals) were real estate agents; 29.6% (8 individuals) civil engineers; and 11.11% (3 individuals) construction entrepreneurs.

For 44.4% (12) of the professionals, young elderly (aged 60 to 79) comprise between 10% and 25% of their clients, with another 15% of professionals highlighting that this demographic represents between 25% and 50% of their clientele. Even though young elderly are not the majority of the public seeking a new apartment building, for 96.3% (26) of the companies surveyed, the elderly are considered a market niche to be explored, especially considering that 85.2% of professionals said that adults aged 40 to 59 represent their main clients – a demographic currently in the aging process, a phase known as "pre-old age". Notably, two professionals commented on this group: one stated that "within this profile, couples seek smaller, more compact apartments as a way to reduce costs and maintenance" (Professional A); another noted that "there is a lack of products specifically designed for the elderly" (Professional B).

Thus, it is clear that the sample of individuals representing the *capixaba* real estate market is aware of the changing client profile due to population aging. These professionals understand the need to incorporate new architectural and urban planning parameters into vertical multifamily housing to meet the needs of an increasingly active and autonomous elderly population. However, for 59.3% (16) of respondents stated that the apartment buildings available on the *capixaba* market, up to 2023, only partially met the needs of older adults, and 25.9% state that they do not meet them at all. Only 14.8% (04) qualify current developments as adequate for the demands and needs of young elderly.

Just as with the questionnaire for older adults, the participating real estate market representatives were also asked to select five (05) items from each of the three scales that they considered essential in an apartment building, given the current scenario of population aging. The main characteristics highlighted by the real estate market are compiled in Figure 4.

The main characteristics on the Urban Insertion Scale for apartment buildings most frequently selected by professionals in the *capixaba* real estate market were: "Proximity to commercial areas", "Proximity to beaches, squares, and parks", and "Existence of accessible sidewalks and ramps in the building's surroundings". In contrast, those least in demand, according to the professionals' opinion, were: "Proximity to public transport networks", "Proximity to basic educational service points", and "Proximity to tourist and cultural spots". Among other specifics, apartments with pet areas were also suggested, as many older adults visit properties accompanied by their pets.

For the Building Implantation Scale, the main parameters highlighted were: "Existence of elevators in the building", "Existence of ramps at the building entrance", and "Presence of a physical concierge and spaces for pick-up and drop-off". Less frequently mentioned were: "Existence of a sauna and swimming pool", "Fewer apartment units," and "Existence of a bike rack". Additional suggestions included rooms equipped for Pilates, dance floors, and coffee machine areas.

Finally, for the Housing Unit Scale, the most demanded parameters were: "Good ventilation", "Good lighting", and "Proper sizing of bedrooms and bathrooms". The least mentioned by professionals were: "Number of apartment bedrooms", "Proper sizing of kitchen and service area", and "Furniture adapted to family size and profile".

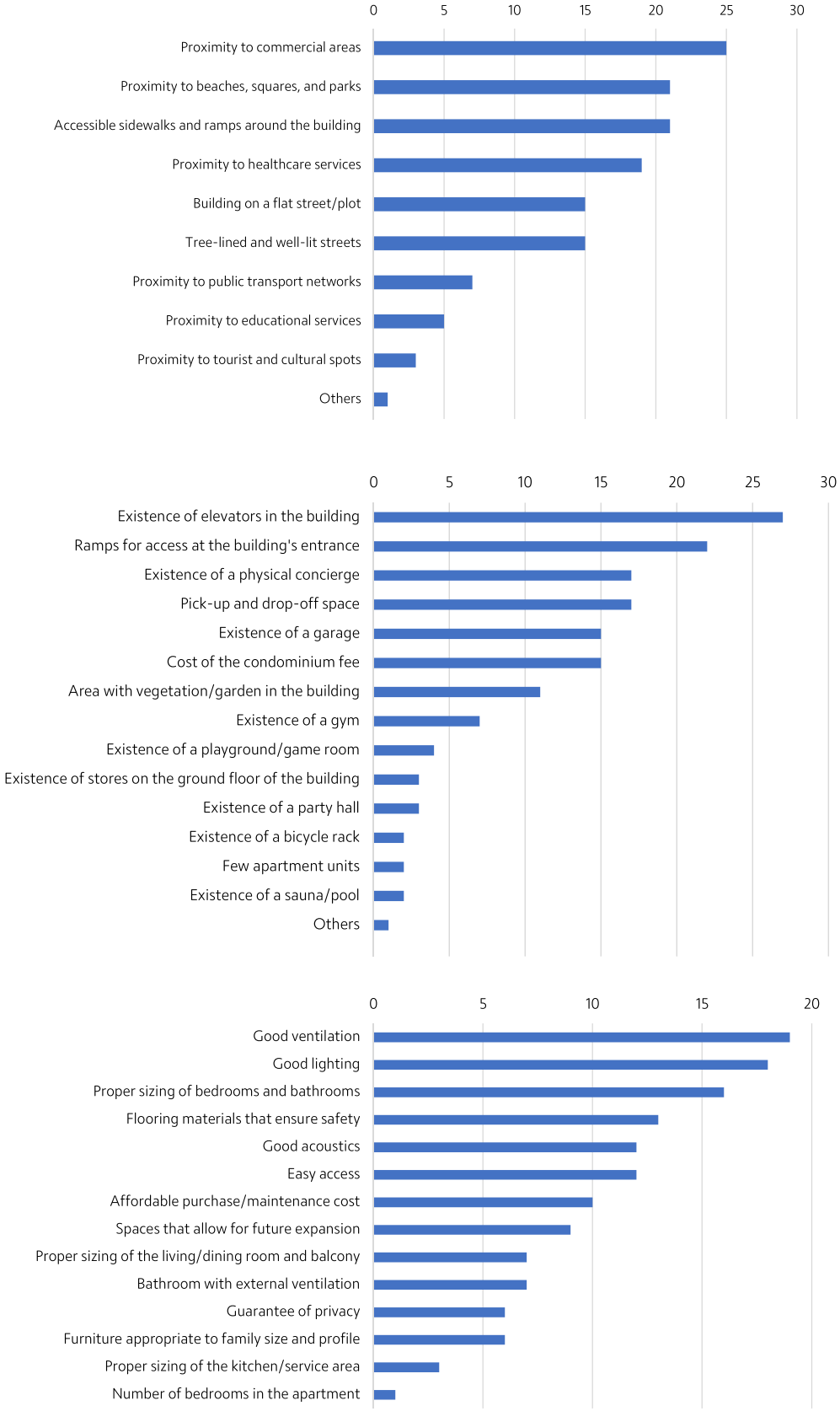

Figure 4 – Main characteristics of Urban Insertion, Building Implantation, and the Housing Unit according to the real estate market.
Source: Prepared by the authors (2023), based on questionnaire II.

Table 5 synthesizes, based on the questionnaires, the main architectural and urban characteristics for apartment buildings highlighted by the "young elderly" public and the *capixaba* real estate market. It is noticeable that the five (05) most relevant characteristics in each scale of analysis (Urban Insertion, Building Implantation, and Housing Unit) coincide in almost all aspects, with the exception of those highlighted in bold.

Table 5 – Main Architectural and Urban Characteristics Demanded by People Aged 60 to 79, According to the Real Estate Market and Young Elderly.

Scale of Analysis	Main Characteristics Demanded by Young Elderly	Main Characteristics Demanded by the Real Estate Market	Other
Urban Insertion	• Proximity to commercial areas; • Proximity to beaches, squares, and parks; • **Existence of tree-lined and well-lit streets;** • Building located on a flat street/plot; • Proximity to healthcare services.	• Proximity to commercial areas; • Proximity to beaches, squares, and parks; • **Existence of accessible sidewalks and ramps in the building's surroundings;** • Proximity to healthcare services; • Building located on a flat street/plot.	Proximity to places for walking pets.
Building Implantation	• Existence of elevators in the building; • Existence of a garage; • Existence of a physical concierge; • Existence of ramps for access at the building's entrance; • **Existence of a party hall.**	• Existence of elevators in the building. • Existence of ramps for access at the building's entrance; • Existence of a physical concierge; • **Existence of a pick-up and drop-off space;** • Existence of a garage.	Existence of a place for pets
Housing Unit	• Good natural ventilation in the apartment; • Good natural lighting in the apartment; • Good acoustics in the apartment; • Good sizing of bedrooms and bathrooms; • **Good sizing of the living/dining room and balcony.**	• Good natural ventilation in the apartment; • Good natural lighting in the apartment; • Good sizing of bedrooms and bathrooms; • **Floor coverings that ensure safety;** • Good acoustics in the apartment.	

Source: Prepared by the authors based on the questionnaires (2023).

For each scale of analysis, there was only one architectural and urban characteristic that differed among the main ones. On the Urban Insertion Scale, young elderly emphasized the "existence of tree-lined and well-lit streets", while real estate market professionals emphasized the "existence of accessible sidewalks and ramps in the building's surroundings". On the Building Implantation Scale, older adults more frequently highlighted the "existence of a party hall", while for real estate brokers and construction company owners, the "existence of spaces for drop-off and pick-up" was highlighted. On the Housing Unit Scale, the "good sizing of the living/dining room" was selected more often by older adults, whereas for the real estate market in Espírito Santo, the presence of "non-slip floor coverings" (to prevent falls) stood out more.

Although the majority of the responses from the questionnaires of older adults and professionals from the *capixaba* real estate market are similar, it is noted that, for the real estate market, characteristics focused on accessibility and mobility – such as the "existence of accessible sidewalks and ramps" and "spaces for drop-off and pick-up" – as well as those related to safety, especially regarding fall prevention with the use of adequate coverings, are of greater relevance. For older adults, the neighborhood, security, the possibility of socialization, the adequate sizing of wet areas, and the appropriate thermal-acoustic comfort of the development are considered items of greater relevance in a vertical multifamily housing.

Final Considerations

The growth of the elderly population in Brazil and worldwide results in the need to develop architectural and urban parameters that better address the difficulties and expectations arising from the aging process. Thus, to ensure better quality of life, aging actively and healthily must be encouraged among the elderly. Within this context, the role of architecture and urban planning in promoting aging is highlighted.

Given the accelerated aging of the Brazilian population, the development of studies, strategies, and public policies aimed at young elderly is becoming increasingly urgent in order to meet their demands and needs, assisting them in leading a more active and healthy life. Furthermore, as pointed out in the research, housing is part of this demand, as it is configured as the place where the individual experiences daily life, personal and cultural bonds, and their well-being.

The objective proposed in this study consisted of questioning how vertical multifamily housing in the Greater Vitória Metropolitan Region can better meet the aspirations of "young elderly" and how it can contribute to active and healthy aging. This was achieved through the application of questionnaires, which revealed the architectural and urban characteristics of housing quality considered most important for the target audience in question.

It is understood that older adults prioritize apartment buildings close to commercial areas, services, and public leisure spaces that allow for contact with the external environment, open spaces, and places for pets, also located on tree-lined and well-lit streets. They also opt for buildings with communal areas that facilitate socialization, convenience, and the security of residents, with emphasis on buildings with elevators, access ramps, physical concierges, garages, and drop-off/pick-up spaces. On the Housing Unit Scale, the thermal and acoustic comfort of the development and the appropriate dimensioning of the rooms – with emphasis on bedrooms and bathrooms – are more important than their quantity. The following contradiction is also noted: young elderly expressed a preference for living in apartment buildings close to commercial areas, yet they do not want stores to exist on the ground floor of the building itself.

It was also possible to observe, through the questionnaires administered to the *capixaba* real estate market, that even with the existence of a demand for the young elderly demographic (60 to 79 years), the vertical multifamily housing models in Greater Vitória have design flaws in relation to the aspirations of this public regarding housing quality. It is evident that the Housing Unit Scale is the one with the most significant gaps in the design of an apartment building.

During the course of the research, opportunities for further study and new directions were identified. Therefore, with the aim of disseminating and expanding reflections on the studied theme, the following recommendations for future studies are presented:

- To expand the study in question to understand the aspirations of young elderly in other types of housing, such as single-family housing, social interest housing, among others;
- To conduct research in other cities and regions of the country to understand how the real estate market of each city includes the young elderly in the projects of vertical multifamily housing;
- To delve deeper into a specific scale of vertical multifamily housing (urban insertion, building implantation, or housing unit) to study more in-depth the needs and aspirations of the 60 to 79 years old demographic in relation to each of them;
- To understand teaching and learning strategies, aimed at architecture and urban planning programs, which contribute to the creative and design process with a focus on the young elderly public, in order to comprehend housing characteristics that favor active and healthy aging.

Finally, it is highlighted that this study contributes to more inclusive architecture and urban planning projects for young elderly by guiding professionals and the real estate market in the awakening of possibilities for specific projects for this demographic. It is concluded that a vertical multifamily housing that meets the needs of young elderly is not limited to access to housing, but also includes adequate conditions of urban infrastructure, the habitability of the buildings and their housing unit, and human interaction as a way to favor daily life throughout all stages of the aging process.

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Contributors

I. C. Bazzarella contributed to the development and writing of the article, bibliographic review, data collection, and the analysis and interpretation of the data obtained. L. L. A. Ramos contributed to the research guidance, analysis and interpretation of the data obtained, revision, and the final approval of the article.