BOOK OF PROCEEDINGS

2nd INTERNATIONAL CONFERENCE ON HOUSING, PLANNING, AND RESILIENT DEVELOPMENT OF THE TERRITORY

TOWARDS EURO-MEDITERRANEAN PERSPECTIVES

OCTOBER 16th-17th, 2025

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2nd International Conference on Housing, Planning, and Resilient Development of the Territory

Towards Euro-Mediterranean Perspectives

Conference Theme and Rationale

This conference returned for the second time within the Albanian and Mediterranean academic context, aiming to build a tradition of collaboration centered on scientific research and academia. Following the success of the first edition held on October 13th-14th, 2023, where proceedings were published in the Book of Proceedings, Albanica journal, and various international academic platforms, POLIS University and the Academy of Sciences of Albania relaunched this important event. The 2025 edition focused on housing, urban planning, and resilient territorial development, offering a platform for researchers, policymakers, and experts from the region and beyond.

Albania and the Western Balkans have faced major transformations in urbanization, spatial planning, and environmental management. Demographic changes, economic pressures, and environmental challenges created a need for new strategies in architecture, planning, and governance. This conference brought together diverse voices to explore these themes and promote resilient and sustainable development.

Key topics included architecture and the city, with emphasis on urban form, housing typologies, and the role of cultural heritage in modern urban design; urban mobility, addressing traffic challenges, public transport, and the use of technologies like GIS and AI in planning; and new housing models, focusing on affordability, energy efficiency, and innovative materials.

Discussions also covered demography and economy, exploring territorial governance, smart cities, social enterprises, and digital technologies such as AI, VR, and the Metaverse in urban management. Finally, the urban and natural environment was addressed through topics like pollution, adaptive planning, and nature-based solutions for climate resilience.

Through this conference, POLIS University and the Academy of Sciences of Albania aimed to foster a broad interdisciplinary debate on these pressing issues, combining academic and practical perspectives to offer concrete recommendations for future urban and territorial development policies and projects.

Organizers' Announcement

The International Scientific Conference on Housing, Urban Planning, and Resilient Territorial Development: Toward Euro-Mediterranean Approaches was held on October 16th-17th, 2025, in Tirana, Albania. Organized by POLIS University in collaboration with the Academy of Sciences of Albania and supported by national and international partners, including the University of Ferrara and Co-PLAN, Institute for Habitat Development, the event brought together researchers, academics, policymakers, and professionals to address key challenges in urban development, with a focus on resilience and sustainability in the Euro-Mediterranean region. The first day of the conference took place at the Academy of Sciences, while the second day was hosted at POLIS University.

The conference explored five main themes:

I. Architecture and the City, which investigated the typological and morphological dimensions of urban form, the evolution of collective and individual housing types, the relationship between architectural design and urban identity, and the role of historical and cultural heritage in shaping contemporary cities;
II. Urban Mobility and Resilient Cities, which addressed traffic congestion, infrastructure challenges, and public transportation, while also promoting the redesign of public spaces – such as streets, squares, and pedestrian zones – to improve accessibility and mobility; it also explored the integration of digital technologies like GIS, AI, and simulation tools to enhance planning, automation, and infrastructure management;
III. New Housing Models, which examined innovative approaches to affordable and social housing in response to demographic shifts and technological change, along with energy efficiency strategies, passive energy systems, and the application of new sustainable materials and construction technologies;
IV. Demography and Economy, which focused on macro-regional and national dynamics impacting territorial development, including urban governance, disaster risk reduction, and the rise of smart and inclusive cities; it also explored how emerging technologies – such as AI, VR, and the Metaverse – along with social enterprises and circular economy practices, could foster more equitable and adaptive urban systems; and
V. Urban and Natural Environment, which analyzed environmental degradation in urban settings, including air, water, and soil pollution, and promoted nature-based solutions, ecosystem-based planning, and adaptive strategies to enhance environmental sustainability and climate resilience.

The conference was conducted in English and Albanian (with self-translated texts where applicable) and was free of charge, with all registration fees fully covered by POLIS University in support of open academic exchange. Key deadlines included abstract submission by June 15th, acceptance notification by June 30th, first draft of papers by September 15th, and final submissions by October 31st.

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Urban regeneration and conservation / Cultural and historical heritage / Regenerative approaches to design and adaptive reuse of spaces.

Game of Towers

Vertical Growth - Horizontal Tensions

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Abstract

Tirana's urban landscape has undergone significant changes in recent years, transitioning from a spread-out, low-rise style to a more concentrated, high-rise approach. This change has affected not only the city's appearance but also its overall architectural look. This transformation has led to increased population density and a more modern aesthetic, but has also raised concerns about preserving the city's cultural heritage and addressing infrastructure challenges, such as traffic congestion and inadequate public spaces.

The increase in high-rise buildings reflects changes in culture, economics, and design, as housing and public spaces are rethought to accommodate rapid city growth, market demands, and global architectural styles. These buildings aim to create a modern city image but often clash with its history and traditional building styles. The completion of the 85-meter-high TID Tower in 2015 symbolizes Tirana's shift towards modernity and new heights, but has sparked debates about how to develop the city while preserving historic sites and public spaces. Some argue that the construction of towers represents progress and economic development, as they believe these modern structures attract investment, create jobs, and provide much-needed housing for a growing urban population. But, at what cost? How to define the balance between preserving and evolving to meet the demands of the future?

As towers have changed Tirana's morphology and appearance, the purpose of this paper is to examine how they have affected public spaces, created a new identity for the city, and been integrated into the existing urban fabric. It questions whether these buildings help create a unified city or break up its structure. By placing this within the larger discussion of urban renewal, the research suggests a new approach on assessing the balance between modern architectural goals and the need to protect historical heritage while maintaining consistent building styles.

Keywords

Urban morphology, vertical urbanism, heritage and continuity, fragmented fabric, high-rise architecture

1. Introduction

Over the last two decades, the city of Tirana has experienced a significant transformation in its urban structure and architectural appearance. After the 1990s, economic growth, internal migration, and liberalization of the construction market have resulted in a shift from low-rise typologies to a prominent vertical development (Lulo, 2003; Imami, 2018).

This change is not simply a physical phenomenon of development at height, but also represents a morphological evolution, which affects the way the city functions, is perceived and experienced by its inhabitants. For this reason, there is a need to analyze their impact on Tirana's urban identity, on public spaces, and above all on the cultural and architectural heritage that the city has cultivated over the years.

The main purpose of this paper is to explore and debate on the impact of tall buildings on Tirana's urban morphology, highlighting how this vertical development conflicts or harmonizes with existing building typologies in the city's horizontal urban fabric. It focuses on the tension between old and new construction, between the city's need for modern development and urban identity preservation.

In this context, the research focuses on the questions: How is the urban landscape of Tirana changing through vertical construction? Is a unified city being created or a fragmentation of an existing structure? Is this modern vertical development a need for the city, and if so, how can it be balanced with the protection of public spaces and heritage?

2. Literature review

2.1. Background

Moudon (1997) describes urban morphology as the study of the physical form of cities based on elements such as road networks, the layout of land parcels, building typologies, and public space organization. In the case of Tirana, it would be the study of the urban fabric of the city, how the city's recent developments have changed from low-rise courtyard houses to high-rise towers, by analyzing the height of the buildings, their density, the dimensions of the communication roads and the arrangement of public spaces.

This approach makes it possible to read the changes in urban stratifications and the ways of life that they represent. Meanwhile, the concept of vertical urbanization is related to development in height, as a response to the pressure of population growth, the lack of urban land and the globalization of architecture (Lehmann, 2015), the horizontal pressure that is created in the mosaic of existing buildings around remains to be judged, as it is always felt after the construction has been applied.

Researchers such as Rem Koolhaas have discussed the "Generic City" where the homogeneity of international style replaces local context (Koolhaas, 1995). This phenomenon, widespread in Europe, is also evident in Tirana, where new buildings usually adopt forms or materials borrowed from foreign models, without having a clear connection or reference to the local climate, history or typology. We can add that various studies by urban planners such as Jane

Jacobs emphasize the importance of organizing urban life at human levels, intertwined with lively streets and social interaction, principles that are often ignored in vertical construction without sustainable planning (Jacobs, 1961).

2.2. High-rise towers and vertical urbanization

The phenomenon of tall buildings in Tirana is a last decade occurrence, driven by the free market, foreign investments, and the unstable urban planning policies (Goci & Dhamo, 2021). Buildings such as TID Tower (2015), Downtown One (2024), and the Eyes of Tirana (2025) are such examples. These structures are not just tall; they symbolize the ambition of the city to reposition its identity and enter the next phase of its evolution.

However, they are often positioned without an appropriate urban context. For example, TID tower stands next to block of historic low-rise buildings from the communist era. The contrast between its vertical typology and the surrounding horizontal layout is stark, highlighting a lack of an integrated approach to planning. In the absence of thorough morphological analysis, these interventions risk cutting the city's roots to its past and creating an urban fabric that is alien to the local reality.

High-rise buildings have also a direct impact on the availability and accessibility of public spaces. For instance, in the area around the National Stadium, it can be easily observed how the new constructions have reduced green areas and transformed public access into commercially controlled spaces (Dovey, 2016). This translates into a loss of collective space and a diminished sense of belonging to the city.

3. Methodology

3.1. Morphology in transition

The shift from low-rise to high-rise buildings is not a wrong development approach in itself. In many cities, vertical urbanization has been used to address and solve problems such as overcrowding and land scarcity. However, in the absence of a strategic and comprehensive approach, as is the case of Tirana, this shift results in fragmentation of the urban structure, increased spatial inequalities and loss of historical identity (Bafna, 2003).

A sustainable development should be based upon detailed analyses of existing urban strata, density studies, and the architectural character of the surrounding areas. This paper explores a new tool for analyzing urban data related to towers and evidencing the facts. Mapping before and after the construction of towers can evidence how the mobility network, public spaces, shading or natural lighting of surrounding houses have been changed – elements that directly affect the quality of life.

3.2. Mohr's urban circles

Mohr's circle is a very well-known notion in the world of engineering, which has roots in material mechanics and is applied to other fields such as mechanical, geotechnical and structural engineering. It is a graphical method used to visualize and analyze the stress state at a single point within a body.

Mohr's circle is a circle drawn on a graph that has normal stress (σ) on the horizontal axis and shear stress (τ) on the vertical axis. An example for a plane two-dimensional stress case is shown in the figure 1. Each point of the circle defines the (σ) and (τ) components for a certain orientation of the stressed element. The figure shows the stress elements for three different points on Mohr's circle, corresponding to three different orientations.

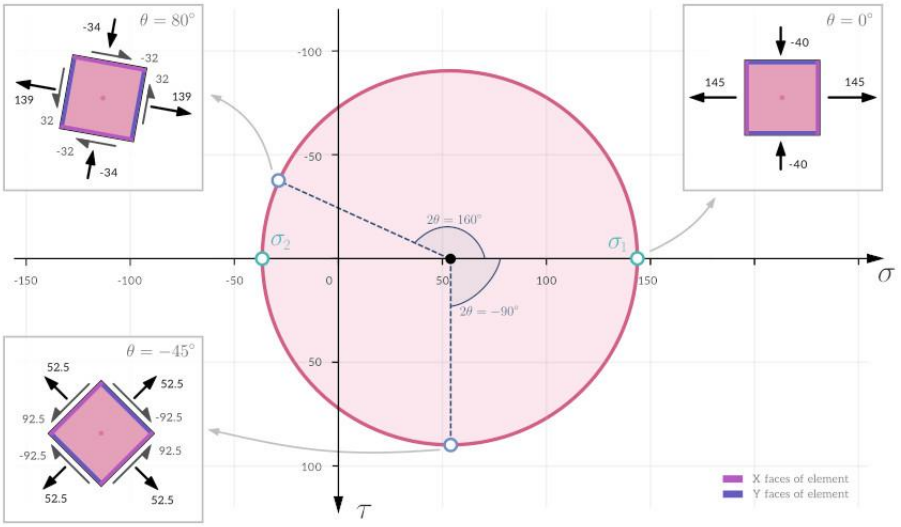

Figure 1. *An example of Mohr's circle providing the normal and shear stresses for three different orientations of the stressed element.*
Source: efficientengineer.com.

"Mohr's urban circle" is a created tool on the scope of this research, in order to show visually the urban tension through an engineering analogy, or better "an engineering reading of urban morphology". Based on Mohr's circle as explained above, in urban morphology the same logic can be applied as analytical metaphor, where:

1. Vertical stress $(\sigma_v) \rightarrow$ is linked to the pressure that the tower exerts on the territory (height intensity, no. of floors, FSI – floor space index, the ratio of the building's total floor area to the land area);
2. Horizontal stress $(\sigma_h) \rightarrow$ is linked to the influence that the tower has on the horizontal urban layout (ground density, land utilization, GSI – ground space index, measuring the ratio of the building's ground floor area to the land area);
3. Tangential stress $(\tau) \rightarrow$ is linked to the tension between towers and the urban context (e.g. when a tower is inserted into a traditional neighborhood, it creates morphological "frictional" forces).

These three parameters can help to better understand the existing situation of towers built in Tirana and to give a picture of the influence of new towers that will be built in the near future.

The first two parameters (*sigmas* - σ) are pretty straight forward and numerically understandable, whereas the third parameter (*tau* - τ) is more related to the "friction", as it represents the morphological and cultural conflict that arises from the coexistence of towers with existing typologies and historical heritage (Kostof, 1991; Djamal & Nguyen, 2024). This third parameter is not measurable in a classical engineering manner but translates into indicators such as the loss of urban coherence, fragmentation of public spaces, and negative perceptions by the community (Jacobs, 1961; Rossi & Lee, 2023).

In the urban sense: the more the tower reaches extreme altitudes without a wide base, or in context with low buildings, the more it creates morphological friction as: sudden change of the urban vertical profile, shading, blocked views and pressure on public spaces.

4. Results

In order to obtain results and use the tool proposed of "Mohr's urban circle", data has been collected for 12 selected towers, from credible resources, such as: ASIG, OpenStreetMap and Google Earth. This data, shown in table 1, contain information about the tower's coordinates, year of completion, height in meters and floors, underground number of floors, footprint, total floor area above ground, and site area. From this data are further calculated the FSI – Floor Space Index and GSI – Ground Space Index, accordingly:

$$FSI = \frac{Total\ Floor\ Area\ Above.Gr\_m^2}{Site\ Area\_m^2} \quad \text{and} \quad GSI = \frac{Footprint\_m^2}{Site\ Area\_m^2}$$

No	Name of Tower	Coordinates	Year	Height_m	Height_ floors	Underground_ floors	Footprint_m2	Total Floor Area Above.Gr._m2	Site Area_m2	FSI - Floor Space Index	GSI - Ground Space Index
1	Alban Tower (4-Ever Green)	41.32612°N 19.81652°E	2023	107	25	-6	590	12400	1370	9.05	0.43
2	Downtown One	41.32412°N 19.82386°E	2025	144	40	-5	1600	77000	4380	17.58	0.37
3	Eyes of Tirana	41.32232°N 19.81984°E	2025	135	31	-7	2000	63500	3350	18.96	0.60
4	InterContinental Hotel Tirana	41.32833°N 19.81722°E	2025	133.5	33	-4	1105	36500	2500	14.60	0.44
5	TID Tower (Maritim Plaza)	41.32778°N 19.82154°E	2015	85	24	-4	1050	46000	3550	12.96	0.30
6	Tirana's Rock (Skanderbeg Building)	41.3245°N 19.8179°E	2024	89	26	-5	1700	35000	3000	11.67	0.57
7	Tirana Garden Building	41.3235°N 19.8087°E	2024	85	24	-4	4300	65000	6000	10.83	0.72
8	Sky Tower (Sky Hotel)	41.3235°N 19.8175°E	2002	74	20	-3	1090	22000	1750	12.57	0.62
9	Arena Center Tower	41.31833°N 19.82389°E	2019	112	24	-4	26500	54000	43000	1.26	0.62
10	Tirana Vertical Forest	41.318°N 19.8215°E	2025	75	21	-4	1100	23100	2150	10.74	0.51
11	Ekspozita Building	41.3237°N 19.8177°E	2025	93	24	-5	3300	70000	8500	8.24	0.39
12	ABA Business Center (COIN Tirana)	41.32°N 19.82278°E	2009	83	21	-3	1800	30000	3000	10.00	0.60

Table 1. *Data collected for the twelve selected towers and calculation of FSI and GSI.*
Source: Author.

After defining the FSI and GSI for each tower, these two main parameters, just as mentioned in the methodology are considered as key components for creating Mohr's Urban Circle per each tower. The calculations performed altogether with formulas are shown in table 2.

No	Name of Tower	Sigma_v (σ_v = FSI)	Sigma_h (σ_h = GSI)	Radius_R ($\tau_{max} = [\sigma_v - \sigma_h]/2$)	Center_C ($C = [\sigma_v + \sigma_h]/2$)
1	Alban Tower (4-Ever Green)	9.05	0.43	4.310	4.74
2	Downtown One	17.58	0.37	8.607	8.97
3	Eyes of Tirana	18.96	0.60	9.179	9.78
4	InterContinental Hotel Tirana	14.60	0.44	7.079	7.52
5	TID Tower (Maritim Plaza)	12.96	0.30	6.331	6.63
6	Tirana's Rock (Skanderbeg Building)	11.67	0.57	5.550	6.12
7	Tirana Garden Building	10.83	0.72	5.058	5.78
8	Sky Tower (Sky Hotel)	12.57	0.62	5.974	6.60
9	Arena Center Tower	1.26	0.62	0.320	0.94
10	Tirana Vertical Forest	10.74	0.51	5.116	5.63
11	Ekspozita Building	8.24	0.39	3.924	4.31
12	ABA Business Center (COIN Tirana)	10.00	0.60	4.700	5.30

Table 2. *Indicators database for drafting Mohr's Urban Circles per each tower.*
Source: Author.

With the data from table 2 are drafted the graphs of Mohr's Urban Circle per each tower, some of which can be seen below. In the horizontal axis are plotted the $(\sigma_v\ ;\ \sigma_h)$ whereas in the vertical axis the (τ). Interpreting vertical tensions (σ_v) as the intensity of the city's height, horizontal tensions (σ_h) as the use of land for building, and tangential stress (τ) as the morphological and cultural tensions, it allows to see how disproportions between these parameters lead to visible transformations of the urban landscape.

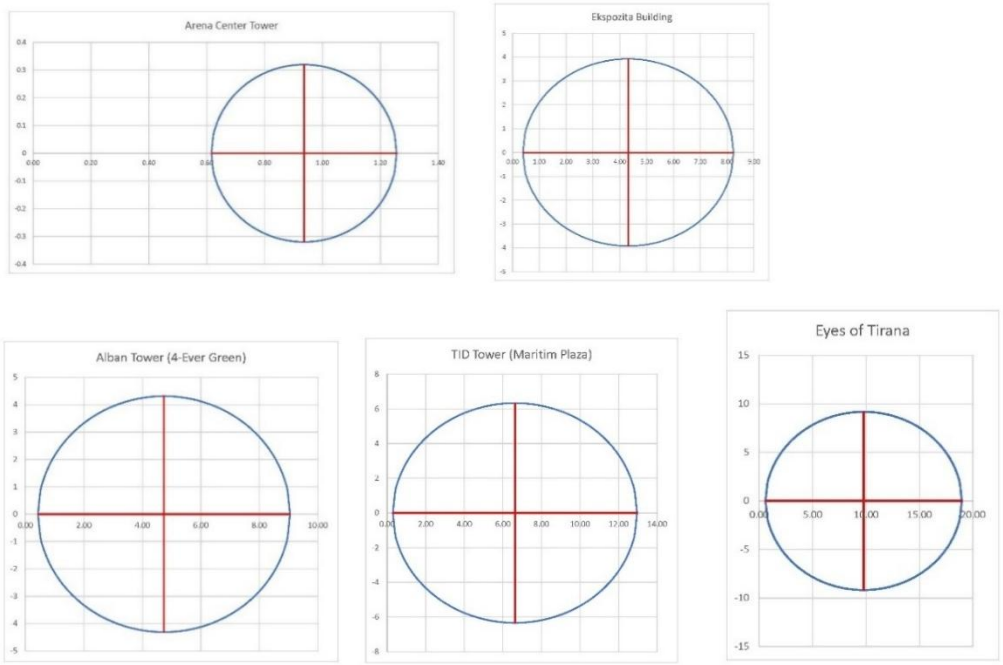

Figure 2. *Mohr's Urban Circles plotted for each tower.*
Source: Author.

Considering that looking at individual circles do not give a significant interpretation, they have been combined in one graph, from which can be seen an interesting pattern, as shown in figure 3.

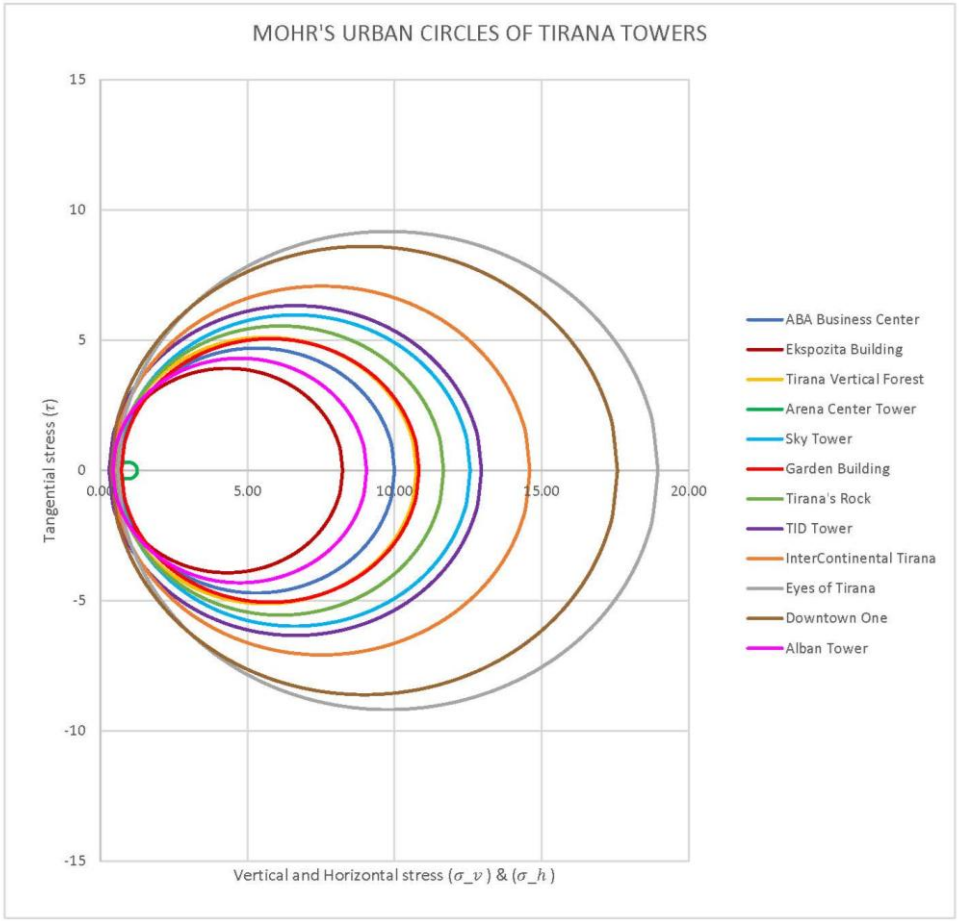

Figure 3. *Mohr's Urban Circles of Tirana Towers.*
Source: Author.

From the results obtained through the application of Mohr's urban circles as a conceptual tool in the morphological analysis of Tirana it can be concluded that the construction of new towers generates urban tensions.

In general, the results show that buildings with balanced dimensions between height and occupied space create smaller "circles" and, therefore, lower tension in the urban fabric. On the other hand, a building that emphasizes its height by minimizing the horizontal footprint creates larger circles, resulting into significant conflicts with the surrounding typologies (Marshall, 2005). The result also confirms the theories of urban morphology that emphasize the importance of balance between vertical density and horizontal spread of a city, for maintaining the visual and functional cohesion (Whitehand, 2001).

The results show that the bigger the towers are in comparison to their context, the more likely they are to create "cracks" in the inherited urban structure (Conzen, 1960). Thus, the results synthesize a picture where new vertical constructions are not merely physical additions but

also producers of conceptual tensions that can serve as an indicator for future changes in the morphology of the city.

4.1. Horizontal tensions in the landscape

According to the proposed methodology of using Mohr's urban circles as a conceptual tool to analyze urban tensions, the presented results provide a clear understanding of the impact of adding new towers on the morphology of Tirana. When several towers are close together, the circles begin to overlap. This visualizes exactly the "interference" of urban tensions. The circles create "pressure waves" in the horizontal urban fabric. The map in figure 5 illustrates this clearly. Moreover, it is evident that the existing towers already interfere irregularly with each other, as well as being clustered primarily around the main boulevard, linking "Skanderbeg" and "Nënë Tereza" square.

Figure 4. *Tirana Tower's Map of Mohr Urban Circles.*
Source: Author.

These overlapping circles highlight areas where resources and infrastructure may be strained, leading to increased traffic, pollution, and competition for space, especially for the public spaces. As these pressure points intensify, they necessitate strategic urban planning to manage growth and maintain livability. Addressing these challenges requires collaboration

among city planners, residents, and policymakers to ensure sustainable development and create environments that reduce stress and enhance the quality of life for residents.

5. Discussion

In any case, the discussion of these results places Tirana on a typical trajectory of cities moving from the traditional horizontal morphology of the dominance of vertical typologies. Tall buildings, along with increasing tensions in the urban environment (as visualized by Mohr's urban circles) are the signs of this morphological transition, where the inherited landscape is challenged by a new monolithic presence.

This is in line with the observations theorized in the literature on the effects of vertical densification in Mediterranean cities (Peterson, 2018). Obviously, towers produce a form of "verticalization" that leads to changes in the scale and perception of the city (Dovey, 2016; Peterson, 2018). However, this verticalization is also associated with a "horizontal pressure", where the footprints of buildings are gradually limiting public spaces and transforming the relationship between private and public (Goci & Dhamo, 2021).

The discussion cannot remain solely at the level of morphology, as the tensions created also have an impact on social and spatial levels. Public spaces, which have always been the key elements that cities rely on to absorb the shocks of urban evolution, are being diminished and usurped by new private developments. This leads to what Gehl (2010) calls "shrinkage" of the collective experience and civic access to the city. In this sense, the Mohr's urban circles are not only a metaphor for the constructive tensions but also an instrument for understanding the limits of urban and social acceptability regarding new developments.

6. Conclusion and recommendations

Vertical urbanization in Tirana is an inevitable reality that requires careful planning and management. Tall buildings can provide solutions to the demands of a growing city, but only if they are carefully integrated into the existing urban fabric. This requires a reassessment of urban policies, a more critical approach to new projects, and a serious commitment to the protection of architectural heritage.

Drafting comprehensive guidelines for vertical development is recommended, defining areas where tall buildings are acceptable and where they should be prohibited. Involving communities in their spatial planning and enhancing the role of cultural heritage organizations in the construction permit process are also essential. In this way, Tirana can create an urban future that respects its history while embracing modernity in a sustainable and reflective manner.

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