Research Article

Urban Morphology and Architectural Typology as for Achieving Sustainable City Identity

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Abstract

Urban sustainability has become a central concern in contemporary architectural and urban studies. This research investigates the role of urban morphology and architectural typology in shaping sustainable city identity. By analyzing theoretical frameworks proposed by Aldo Rossi and Rob Krier, the study explores how structural coherence, spatial continuity, and typological clarity contribute to environmental, social, and cultural sustainability. The research adopts an analytical–comparative methodology, examining selected urban models to highlight the relationship between form, function, and identity. The findings demonstrate that cities with clear morphological structures and coherent typological systems achieve higher levels of sustainability and long-term urban resilience.

Keywords: *Urban Morphology, Architectural Typology, Sustainability, City Identity, Urban Structure style.*

Introduction

The rapid transformation of contemporary cities has led to fragmented urban forms and the loss of architectural identity. In response, architects and urban theorists have emphasized the importance of urban morphology and typology as foundational tools for understanding and guiding sustainable urban development. This research addresses the question: How can urban morphology and architectural typology contribute to achieving sustainable city identity

Research Problem

Despite the widespread adoption of sustainability principles, many urban projects lack spatial coherence and cultural continuity. This results in urban environments that are environmentally inefficient and socially disconnected.

Research Hypothesis

A city that adopts a clear urban morphological structure and consistent architectural typology can achieve sustainability not only environmentally, but also culturally and socially.

Research Objectives

1. To clarify the concept of urban morphology and architectural typology.
2. To analyze their role in forming sustainable urban identity.
3. To compare theoretical approaches of Aldo Rossi and Rob Krier.
4. To extract design principles applicable to contemporary urban projects.

Methodology

The research employs a descriptive–analytical and comparative methodology, relying on:

- Theoretical literature review
- Analytical comparison of urban models
- Morphological and typological analysis

Theoretical Framework

1.Urban Morphology

Urban morphology studies the physical form of cities, including street patterns, blocks, plots, and building forms. It emphasizes spatial continuity and structural hierarchy.

The roots of planning

If we are to understand the nature of the city it is useful to remember that the word itself derives from the Latin civil is which means 'befitting a citizen'. We should remember also that the same root underlies our word civilization. Civilization is that which takes place in great cities! Kenneth Clark (1959) opened his television series on 'Civilization' and the associated book by looking at the centre of Paris; at Nôtre Dame, the Louvre, the Institute de France, the town houses and the bookstalls lining the quais of the Seine. Here, he suggested, are all the things which civilization means to us.

Classical planning

At figure 1 Straight streets, meeting at right angles, were known in Nebuchadnezzar's Babylon which was planned between 1126 and 1105BC (Fig. 1.1). Aristotle in Politics (ii, 5) seems to have thought such planning was invented by Hippodamus of Miletus (479 BC) who, he says: 'discovered the method of dividing cities'. Miletus was planned on a checkerboard or grid as many later cities have been. But so was its neighbour, Priene, built on steeply sloping ground with the main streets running along the contours and the (stepped) minor streets crossing them (figure 1 and figure 2). Indeed, as Kostoff says (1985), the preferred Greek method of planning was per strigas, that is to say by bands in which east-west avenues were crossed, at right angles, by one or more north-south streets.
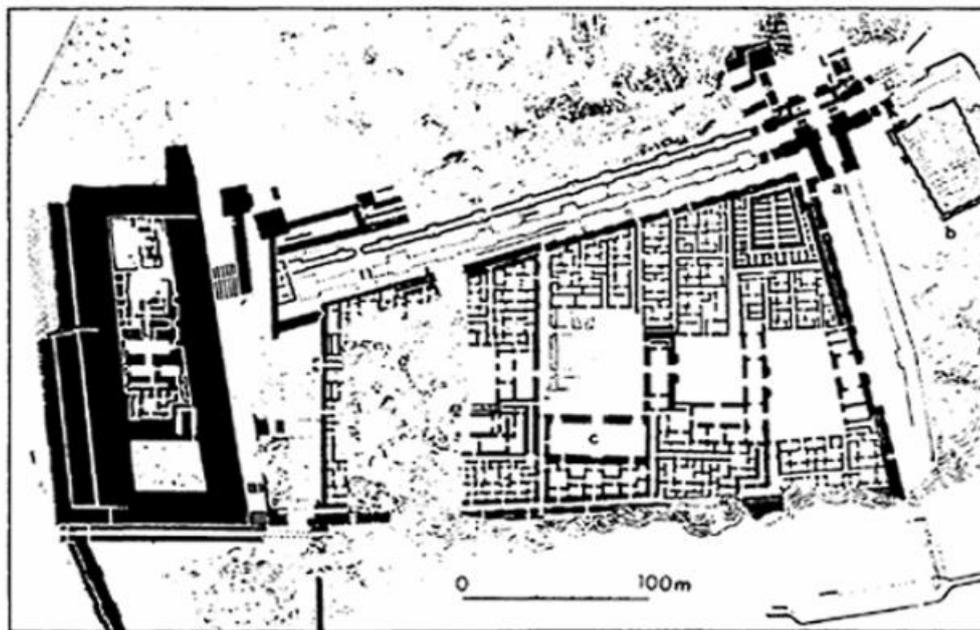

Figure 1: Babylon: Nebuchadnezzar's South Palace (c. 1126–1105 BC) (from Oates, 1979, p. 100).
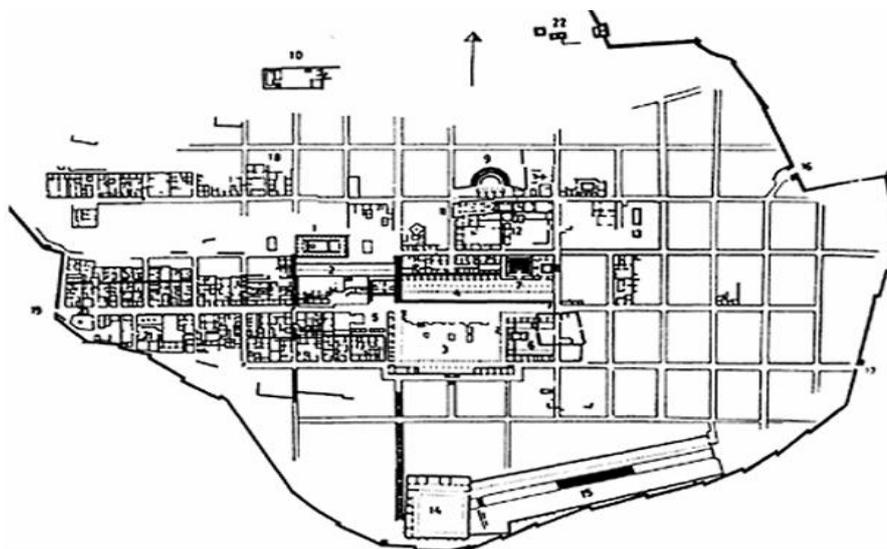

Figure 2: Priene (c. 350 BC): Gridiron plan (from Akurgal, 1978).

Architectural Typology

Typology refers to the classification of buildings based on form, function, and cultural meaning. Rossi considers typology a collective memory, while Krier emphasizes geometric clarity and symmetry.

Comparative Analysis
Rob Krier

Rational – my appearance
Symmetry, pure geometric shapes
Rob Krier dealt with the urban structure through urban space, on the basis that the physical structure of the city is necessitated by the relationship between private - public space that refers to inside – outside

Its positional characteristics determine the interface and the syllable that surrounds it, and he relied in conveying meaning on the iconic similarity of forms of urban space. As for Leon Krier, he emphasized the street and the square, the relationship between them and the specificity of each sector of the sectors that constitute the comprehensive urban structure as a whole.

He also emphasized urban blocks as key elements for social and physical communication in the city's structure and the return to the cities of the mid-eighteenth century in their space organization and design standards with the aim of rediscovering space patterns that achieve communication in the urban structure.
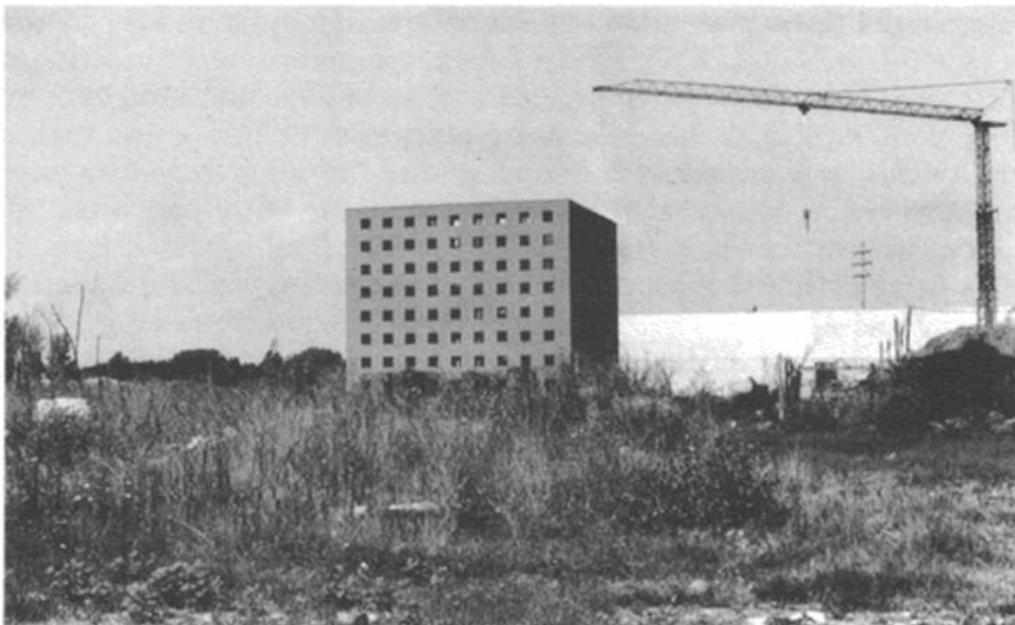
Note that while (Rossi) confirmed.

Figure 3: 8.26 Modena Cemetery: House of the Dead (author's photograph).

Cemetery at Modena (figure 3). Like many Italian cemeteries, Costa's was a large elongated courtyard—long, that is from east to west surrounded by (rather heavy) brick neo-Classical ossuaries with wide, top lit, corridors lined, on both sides, by five storeys of niches each large enough to take a coffin with room also for flower vases and memorial lamps. The central courtyard of Costa's Cemetery is a sea of more or less conventional tombs.

Urban space
Figure 4   Robert Krier's Leinfelden and his Tower Bridge housing both represent worked examples of a study which he had been undertaking into Urban Typology.
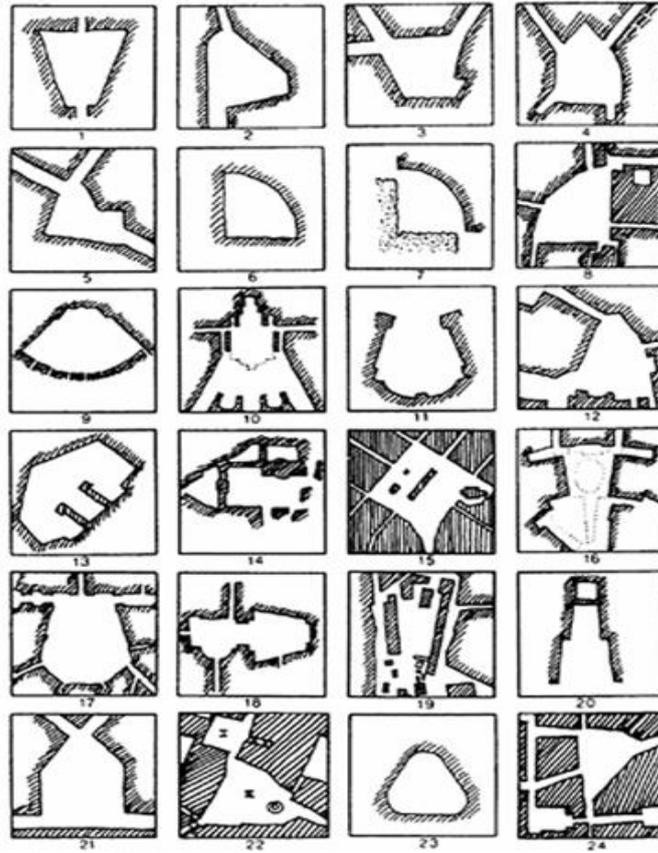
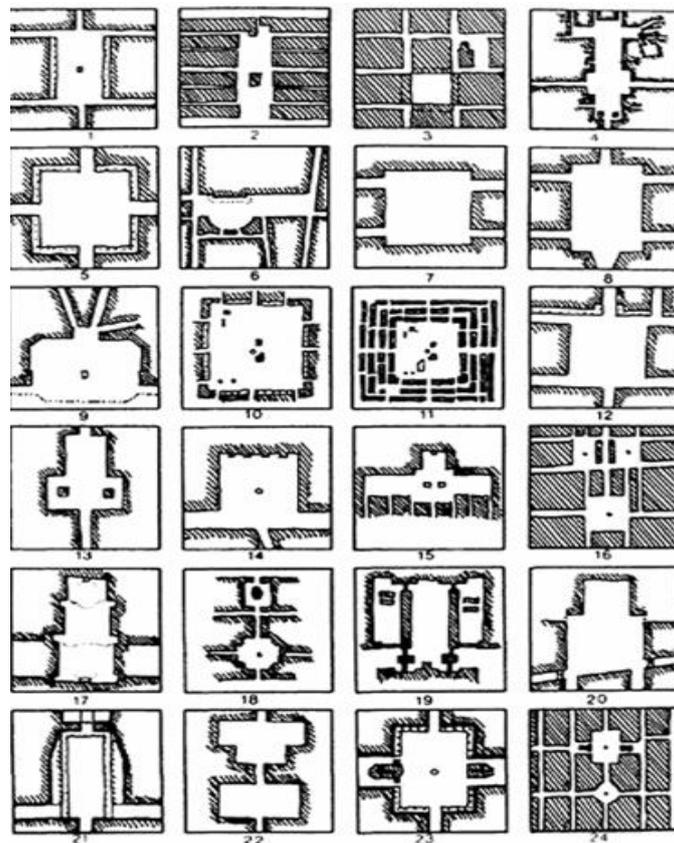**Figure 4:** Triangular urban spaces (from Krier, 1975).

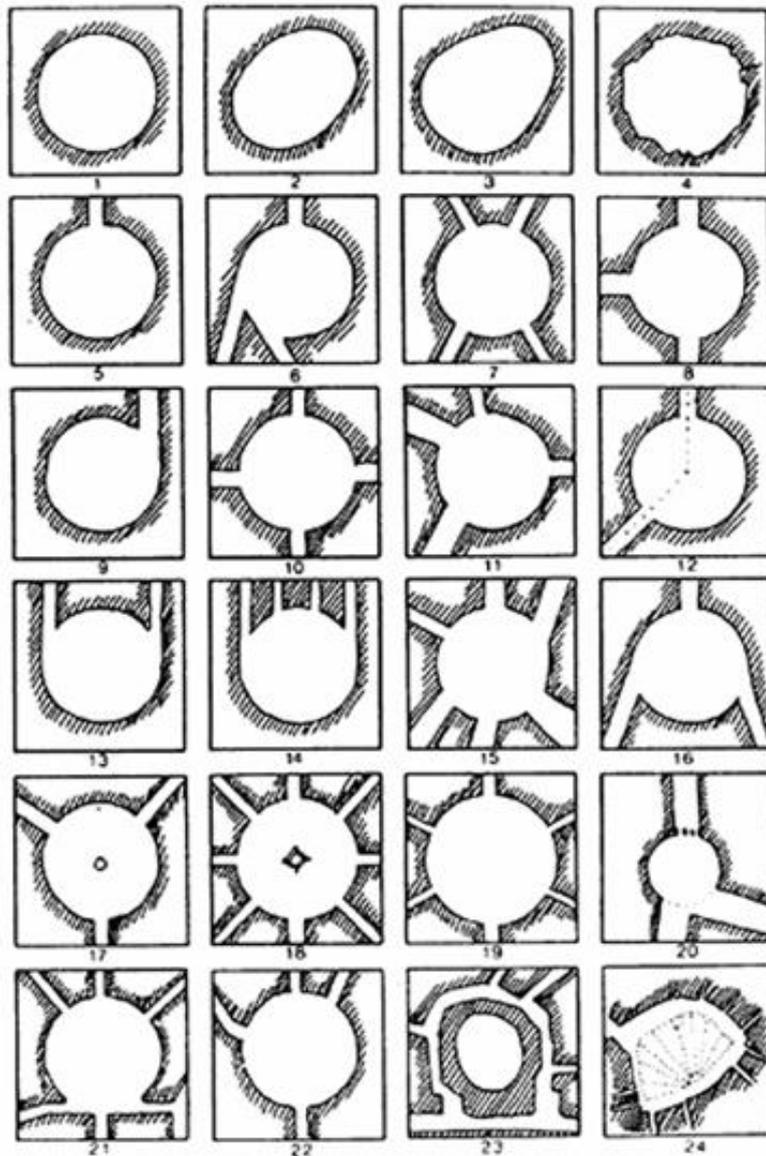**Figure 5:** Triangular urban spaces (from Krier, 1975).

Figure 6: Circular urban spaces (from Krier, 1975).

His Stadtsraum in Theorie und Praxis (1975) was translated into English as Urban Space in 1979 (figure 5 and figure 6). It includes a massive analysis—some 350 examples in plan alone—of significant urban spaces in different cities of Europe.

Krier defines urban space as openly as he can as 'comprising all types of space between buildings in towns and their localities'. These range from the courtyard within an individual building by way of contained urban space, such as the Piazza Navonna in Rome, to the wide open spaces of, say, a Chandigarh where such containment as there is seems to be provided by the landscape the mountains beyond rather than by any group of buildings!

At the time of the Tendenza Exhibition the Krier brothers were both engaged in schemes for London (1973–74) in the projects for what Robert calls Tower Bridge Housing (R.Krier, 1973) and Leon the Royal Mint Square (L.Krier, 1974).

Tower Bridge Housing is quite modest in scale but interesting, nevertheless, in the light of Krier's future work. It took a form he was to develop in Berlin of placing an urban square in the centre of a rectangular block and connecting it to the perimeter by streets running north, south, east and west. There is housing around the perimeter of the block just as for Leinfelden which seems to be almost a catalogue of Krier's elevational Types.

Leon Krier

Luxembourg   By 1973 Leon Krier had started moving further in Rationalist directions as he prepared an Appeal to the citizens of Luxembourg to rehabilitate their city. He said (Architectural Design 1/1979): If shoemakers decided one day to make shoes in the shape of bananas, if cabinet makers started to make tables in the shape of a toboggan, if greengrocers one day sold you pebbles apples, I think there would be a revolution.
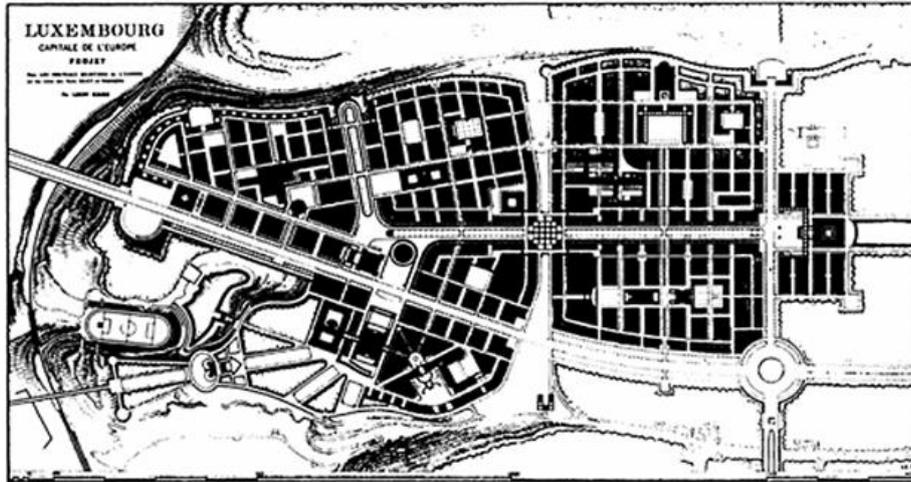

Figure 7: Leon Krier (1973–78) Luxembourg, capital of Europe: proposed new Quartiers (from Architectural Design, 49 (1), 1979).

The most destructive force, he argued, had been the zoning of cities into areas of different functions: sleeping, working, consumption (figure 7). The only way to restore the social, economic and cultural health of the city would be to revive the Quartier—an area up to 33 hectares within which there would be all urban functions (figure 7). It is, he says the size of a pre-industrial urban community 'based on the human figure.

It is a size of territory which a man can cross in less than ten minutes'. Such an area could house, comfortably, some '10 000 to 15 000 people, including work and culture'. The crucial point was that each would be.

Aldo Rossi

Structural - Cultural

Assembly memory, fixed style

break in the continuity of the old system in growth and transformation.
Rossi emphasizes the exploration of the structure of the city through the patterns of structural relations between the specialities and the squares that achieve the collective memory of man considering:
1. The properties or monuments are: the fixed urban forms of the city over time in physical or symbolic form
2. Elements of an association that achieves communication in meaning and controls transformation as one of the laws of self-control in the growth of the urban structure, which makes dealing with the urban system organically, and not a break in the continuity of the old system in growth and transformation.

Figure 8: Modena Cemetery: Interior of Ossuary (author's photograph).

As Rossi says:

The longest element is therefore the lowest while the shortest element is the tallest, thus a shape analogous to the vertebrae of some osteological formation results' (Figure 8). The last of these narrow buildings extends much further east and west than the others, turning north at both ends to frame the triangle and, almost, the Cone in a wide, squared-off U-formation.

The fourteen parallel buildings form the galleries of a complex ossuary but instead of being double-loaded—as Costa's and Rossi's perimeter ossuaries are—these have vaults or niches only on one side so they open, north and south, towards each other across the spaces they enclose. The number of storeys available in each naturally depends on its height within the triangular system or, as Rossi says: 'When the section.

Results

- Urban morphology plays a crucial role in achieving spatial sustainability.
- Typological consistency enhances cultural continuity and identity.
- Rational geometric planning contributes to environmental efficiency.
- Proving that architecture is the product of an urban system and not an independent entity
- The study showed that the shape and meaning of the building are determined mainly by the morphological structure of the surrounding urban fabric, not by isolated design decisions.
- Morphology is a crucial factor in the continuity of architectural identity
- The results confirmed that the adoption of historical morphological patterns (Typologies) ensures the continuity of urban identity, even as functions and uses change.
- Urban design directs architectural language
- The research showed that the organization of streets, squares and urban blocks imposes a rhythm, proportions and a human measure that is directly reflected on the architectural composition.
- The failure of modern architecture separated from morphology
- The results showed that projects that ignored the morphological context produced disintegrated urban environments, poor social interaction, and limited sustainability.

Conclusions

The integration of urban morphology and architectural typology provides a comprehensive framework for sustainable urban design. Cities that respect structural coherence and typological clarity are more capable of maintaining identity and resilience over time.

Recommendations

- Adoption of typological design guidelines in urban planning.
- Reinforcement of morphological continuity in new developments.
- Integrating sustainability indicators within typological frameworks.

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