

Urban Spatial Design for Future High-quality Development: New Ideas, New Methods, and New Paradigm of Urban Design

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Abstract: As China shifts from an era of incremental growth to one of stock-based development, urban renewal and the enhancement of spatial quality have become paramount. Urban design serves as a critical technical instrument in achieving these goals. However, evolving societal needs, shifting design philosophies, challenges from modern technologies, and reforms in the spatial planning system have rendered traditional urban design theories, methods, and paradigms increasingly inadequate, leading to theoretical and practical disputes. Addressing these new challenges, this paper systematically elaborates on the new people-oriented design concept, the green and intelligent design methodology, and the emerging paradigm of spatial development design. It explores new concepts, such as shifting from mere physical form design to comprehensive spatial development design, implementing multi-dimensional spatial design across all domains and elements, and facilitating multi-level collaborative design throughout the entire process. Spatial development design is defined here as value-driven design that encompasses the entire lifecycle—planning, construction, management, and governance—while adapting to future societal and technological trends. By establishing this new conceptual and methodological framework, this paper offers fresh insights for advancing modern urban design to align with the requirements of a new era.

Keywords: modern urban design; urban spatial design; new concept of people-oriented design; new method of green wisdom design; new paradigm of spatial development design

After over four decades of rapid expansion and infrastructure development, China has entered a "stock era." Consequently, urban renewal and the improvement of spatial quality have become top priorities. Simultaneously, reforms in the national spatial planning system, coupled with the demands of a new era and the challenges of emerging technologies, have catalyzed a transformation in modern urban design.

In 2023, the Ministry of Natural Resources mandated that urban design be conducted in accordance with the *Guidelines for Urban Design in Territorial Spatial Planning*, emphasizing that "urban design is an integral part of the territorial spatial planning system and a vital support for high-quality territorial development, running through the entire process of planning, construction, and management". This indicates that a new system and technical approach for regulatory urban design are emerging, enabling refined control over urban patterns, features, and various spatial types.

1. New Concept: People-Oriented Design

The new design era prioritizes a people-oriented approach, marking a revolutionary shift in philosophy driven by new understandings of human behavior and advanced technological capabilities.

1.1 From Object-Oriented to People-Oriented

Traditional models relying on abstract concepts of "economic man" or "social man"—standardized and monolithic—are being challenged. The new people-oriented philosophy emphasizes multi-scalar, multi-perspective, and comprehensive spatial experiences. It advocates for the protection of diverse cultural traditions and focuses on the sense of gain for specific groups. Furthermore, the operational model is shifting from developer-led land exploitation to "co-creation" (joint efforts in planning, investment, construction, and management), which fosters organic renewal and social equity.

1.2 From Morphological Study to Visual Perception

While traditional morphology focused on static spatial forms, the new approach utilizes digital technologies—such as eye-tracking, virtual simulation, and big data—to analyze the interaction between physical space and human behavior. By integrating psychology, behavioral science, and spatial syntax, we can now achieve a more nuanced understanding of continuous, systemic visual perception, facilitating better communication between designers, investors, and the public.

1.3 From Image-Driven to Place-Based Context

Modern urban design is moving beyond mere aestheticism to emphasize "social places" and "historical context." The concept of "spatial genes"—unique, stable spatial patterns formed through long-term interaction between the city, natural environment, and society—is now central to preserving urban identity and cultural heritage.

2. New Method: Green and Intelligent Design

The era of ecological civilization demands a symbiotic relationship between human society and the natural ecosystem, necessitating a fusion of green strategies and intelligent technologies.

2.1 Green and Low-Carbon Requirements

This approach prioritizes ecological safety baselines and respects natural laws. It advocates for urban development that is "determined by land, water, and environment," ensuring that spatial design minimizes the human footprint while optimizing carbon circulation.

2.2 Ecology-First Design Strategies

Strategies include adopting a "blue-green" foundation for spatial layout, shifting from simple green-space area indicators to ecological system performance, and applying context-specific,

appropriate technologies that are socio-economically sustainable. Furthermore, urban form is increasingly shaped by the flow of elements such as wind, light, and heat, promoting a symbiotic relationship between morphology and natural processes.

2.3 Comprehensive Application of Digital Technology

Digital twins and comprehensive data platforms enable "real-time perception, accurate systemic cognition, and intelligent 全域 (holistic) control." This transition transforms design from an aesthetic creative exercise into a scientific, logical process based on big data, artificial intelligence, and smart computing.

3. New Paradigm: Spatial Development Design

The reform of the territorial spatial planning system requires a shift in paradigm toward "spatial development design."

3.1 From Form Design to Spatial Development Design

Spatial development design transcends physical form to encompass social, economic, and operational dimensions. It moves from static, terminal blueprints to dynamic, process-oriented guidance and control, functioning with greater elasticity to meet the changing needs of society and the economy.

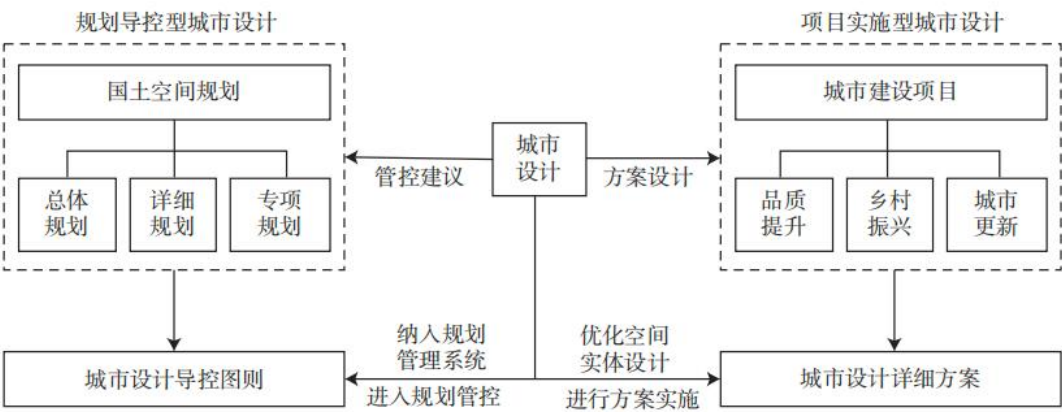


Fig.1 Framework of new urban design

3.2 Multi-Dimensional Design Across All Elements

Breaking away from the constraints of urban construction boundaries, spatial development design covers the entire territorial domain—including mountains, forests, farmlands, lakes, grasslands, and seas. It aims to harmonize artificial elements with natural landscapes, treating the entire urban-rural landscape as an organic, unified system.

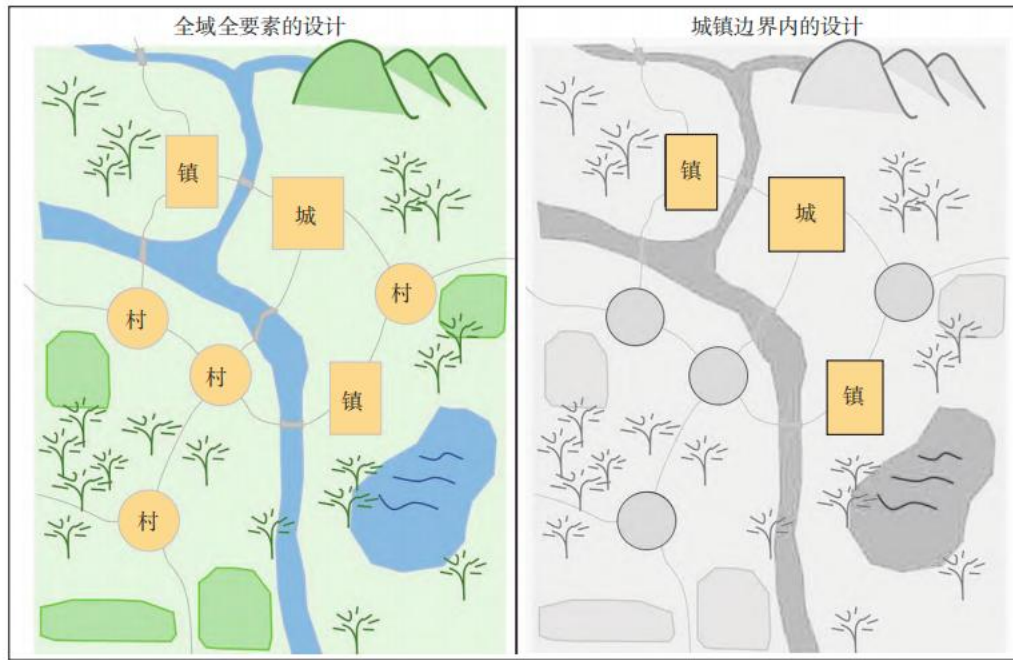


Fig.2 The difference of boundaries between spatial development design and traditional urban design

3.3 Multi-Level Collaborative Design

A new operational mechanism is proposed, linked to the "five-level, three-class" planning system:**Regional Level:** Coordinates cross-boundary ecological and cultural protection.

Urban Level: Guides large-scale spatial patterns and landscape character.

Rural Level: Emphasizes integration, local materials, and cultural heritage.

District/Section Level: Provides refined control requirements for priority control zones.

Specialized Level: Integrates design logic into engineering projects to mitigate negative externalities like environmental damage or aesthetic chaos.

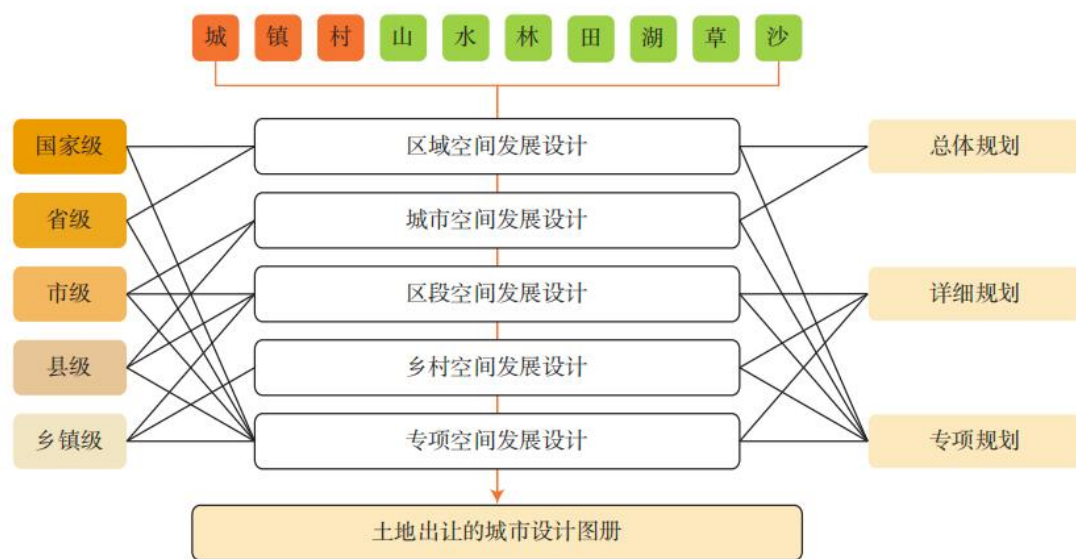


Fig.3 Relationship between multi-level spatial development design and five-level three-class planning

4. Conclusion

Spatial development design is characterized by its value-driven nature, its focus on the entire process of planning and governance, and its adaptability to future challenges. It moves beyond the limitations of traditional urban design by embracing complexity and systemic thinking. By integrating scientific, data-driven methods with a commitment to people-oriented and sustainable development, this new paradigm effectively bridges the gap between macro-level planning and micro-level implementation, thereby playing a crucial role in enhancing the quality of urban and rural spaces in the new era.

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