

A Brief Exploration on the Green Urban Design for Carbon Neutrality

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Abstract : China's emission peak and carbon neutrality strategies lead to the transformation of development patterns and call for new green urban design thinking. This paper begins by revealing the evolution of green urban design thinking during the periods of carbon enlightenment, carbon dependency, and carbon decoupling from the perspective of the energy transition. Combined with the current energy situation, national strengths, and technological trends, the emergence of green urban design towards carbon neutrality becomes inevitable. Based on the preliminary analysis of its connotation, the characteristics of the new type of green urban design are generalized as low-carbon orientation, carbon-related objects, carbon-reduction means, and carbon-control patterns. Its theory is briefly clarified in terms of the human-earth synergism, quality-energy interconnection, and form-flow interpromotion. Then, its mechanism is analyzed combined with the core tasks of carbon neutrality, and the scope of design issues is defined, including carbon flow mapping, carbon source regulation, carbon sink construction, and carbon emission management. Finally, a multi-scale spatial response system is proposed across the region, city, cluster, and neighborhood level. The discussion aims to provide support for the innovation of green urban design theories and methods in the context of peak neutrality.

Keywords : carbon neutrality, green urban design, energy transition, theoretical exploration

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