

# Creating Urban Spaces through the Interplay of Void and Solid

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## Abstract

Through the urban design of the Ma'anshan Street in Hefei, we apply the theory of "Space existing with Building" and explore "ecological greenbelt, visual space, behavior and psychology" of the modern city design. Some virescence spaces were inserted in the crowded buildings, the city's ecology circumstance was improved; in the design of this street's appearance, density was regarded, and multilayer visual shape was constructed; resting places were set at regular intervals as 500 m. In a word, in the design of the Ma'anshan Street, the theory of "Space existing with Building" was applied to make a rhythmic and humanistic street space.

## Keywords

Urban Design, Landscape Design, Space Creation, Ecological

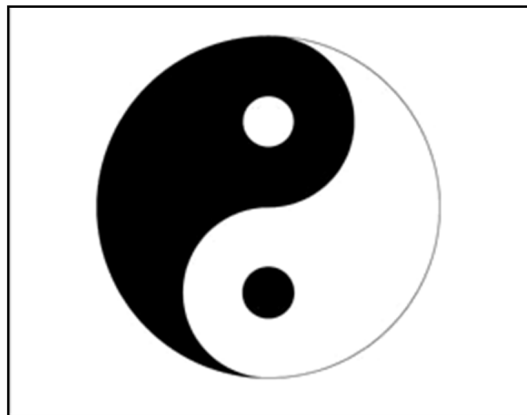
## 1. Introduction

Recently, construction on Ma'anshan South Road in Hefei City has been thriving, and it's expected to become one of the most beautiful stretches in Hefei. However, Ma'anshan North Road remains cluttered and congested, significantly less appealing by comparison. Sidestepping the obvious, I'd like to share some insights based on the landscape renovation of Ma'anshan North Road that I worked on this summer.

What are the issues necessitating the renovation of Ma'anshan North Road? After comprehensive research and analysis by the designers, the overarching concern is the suffocating closeness of the buildings. How can one create a relaxed and rhythmically harmonious street space in such a stifling environment? Perhaps the answer lies in delving deep into the essence of "space".

In the pre-Qin era, Laozi delved deeply into the concept of space, perceiving it

as a continuous, unified movement where the intangible and undefined “void” interacts with tangible entities or “solid”. This conceptual depiction is visually represented by the Tai Chi symbol (see **Figure 1**). The Tai Chi, also known as the Yin-Yang diagram, uses black and white to represent “solid” and “void” respectively. On one hand, they contrast and complement each other, existing in reliance upon the other. Without the “void”, there is no “solid”; without “black”, there is no “white”. On the other hand, the polarities of black and white are not mechanically opposed. Observe in the Tai Chi symbol: the black half contains a small white circle, and the white half similarly encloses a black presence. There exists a mutual inclusivity between black and white, solid and void (Pan, 2015).



**Figure 1.** Tai Chi diagram.

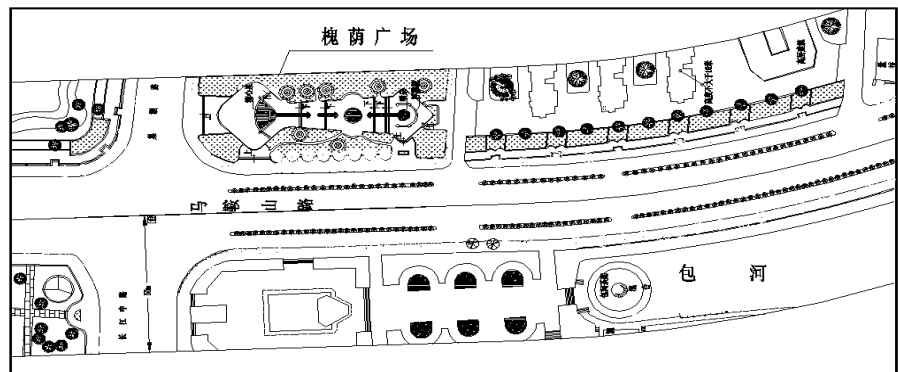
To put it succinctly: Space is born from the interplay of “void” and “solid,” and there are two fundamental relationships between them: 1) mutual contrast, and 2) mutual inclusion. There are innumerable examples of spaces that adhere to this basic principle. For instance, in the Summer Palace, the Wanshou Mountain and Kunming Lake establish a relationship of mutual contrast. However, on the eastern side of Wanshou Mountain, there is a water courtyard called the Garden of Harmonious Interests, while within Kunming Lake, there’s a small island named the Dragon King Temple. One represents water within a mountain, and the other symbolizes a mountain within water. This epitomizes the relationship of mutual inclusion.

Given that space is born from the interplay of “void” and “solid,” we can qualitatively determine the “void” and “solid” aspects of the space we intend to design, carefully scrutinizing their relationship to achieve mutual contrast and inclusion. In the landscape renovation design of Ma’anshan North Road in Hefei, we precisely applied the “interplay of void and solid” methodology to categorize the existing street space into “void” and “solid” and to integrate their structure. Ma’anshan North Road in Hefei starts from Changjiang East Road in the north and extends to the Second Ring South Road in the south, spanning a length of 5.5 kilometers. It is one of the five major north-south thoroughfares in Hefei. As Hefei is a nationally renowned garden city, its overall urban planning possesses unique

features. The city park based on the moat resembles a green necklace embedded in the city center. Geographically, Ma'anshan Road starts from the city park in the north and connects to the Chaohu scenic area in the south. Therefore, our vision for Ma'anshan Road should not be a monotonous thoroughfare cluttered with tangible buildings. Instead, employing the “interplay of void and solid” approach, it should resonate with the parks and scenic areas to the north and south. By considering ecological greenery, visual space, and behavioral psychology, we aim to transsolid Ma'anshan Road into a scenic boulevard, a green landscape axis.

## 2. Employing the “Interplay of Void and Solid” Approach to Cultivate Rich Ecological Greenery

Ma'anshan North Road starts from the city park along the Baohe River. On the west side of the road, the waters of Baohe are crystal clear and serene, offering the most captivating views along the stretch. In stark contrast, the east side is marred by the haphazardly organized Science Committee compound and residential buildings that seemingly disregard the beauty of the Baohe River, encroaching close to the road's edge. These architectural entities are overly arrogant and rigid, failing to resonate with the fluidity of the Baohe waters, thereby contradicting the intertwined relationship of void and solid. In our design, we took this into full account: the re-planned residential buildings are set back 15 meters from the road's boundary line. We've incorporated spaces characterized by “void,” such as the Locust Tree Plaza and linear green belts, nestled between the tangible structures of the residential area. These spaces engage in a dialogue with the Baohe River on the opposite side, lifting the spirits of passersby (see [Figure 2](#)).



**Figure 2.** Huaiyin Square, Linear Greenbelt, and Bao River in Harmonious Reflection.

On the day of the field research, as we approached the intersection of Ma'anshan Road and Wuhu Road, there was an immediate sense of oppression. The surroundings were in a dire state, especially the disordered houses on the west side. They tried to hide their unsightliness behind a curved, low wall, which only accentuated their flaws. Adhering to the principle of the “Interplay of Void and solid,” it is feasible to demolish this wall and the old houses, creating a modest street-side green space. This “void-like” humble space would harmonize with the

environment, offering a recreational spot for the nearby residents. Such natural green pockets, though small and tucked away in city corners, are warm and welcoming, and they temper the intense rhythm of urban life (Dong, 2000). They act like the few rests in a fast-paced march or pleasant green strokes in a vivid painting, achieving a charm and balance that vast squares might fail to provide.

### **3. Shaping a Pleasing Visual Space through the “Interplay of Void and Solid”**

Ancient Chinese gardeners, when crafting garden spaces, emphasized the principles of concealment and revelation, sparsity and density, allowing for mutual permeation to achieve rich spatial layers (Lou, 2016). In fact, “concealment” and “sparsity” represent the void spaces, while “revelation” and “density” epitomize the physical spaces. The notion of “permeation” is about employing void spaces for screening and backdrop, using techniques like framing and juxtaposition, to guide one’s gaze to the physical spaces, ensuring a structured and dynamic spatial sequence. Due to centuries of traditional thinking, when we think of classical Chinese gardens, an image often comes to mind: a distant small red pavilion, of which only the tip of a corner is visible, subtly nestled beneath verdant trees and winding corridors. This pavilion, appearing both concealed and revealed, exudes an air of understated depth. This ambiance is precisely the result of the interplay of void and solid. Without the backdrop of the “green trees” and “winding corridors” serving as void spaces, the little red pavilion would lose its ethereal charm.

So, if a towering building stands blatantly in front of you, appearing utterly tangible and jarringly prominent, it would surely be unappealing, wouldn’t it? In today’s cities, such unattractive structures are all too common, and Ma’anshan North Road is no exception.

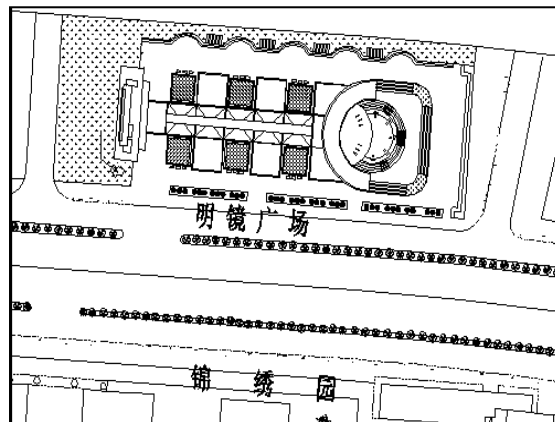
The renowned Meiling Refrigerator Factory, known all over China, is located on Ma’anshan North Road. Regrettably, it stands as one of the most unattractive buildings along this road, starkly positioned by the roadside without any void space to set it off. Through our research, we discovered a triangular plot of land within the factory’s compound. We suggest transsolidating this area into a green space, planting some deciduous trees, and crafting a transitional void space around the building. Additionally, the exterior wall of the factory should be designed to incorporate more “void” elements. Opting for metal railings instead of solid walls would allow the green environment within the factory compound to merge with the roadway, introducing an additional layer to the landscape.

### **4. Employing the “Interplay of Void and Solid” to Cater to Public Behavioral Psychology**

Environmental behavior studies indicate that most people are willing to walk only a limited distance. Under everyday circumstances, a distance of around 500 m is generally acceptable. Thus, in our design, we used intervals of 500 - 600 m to determine the distribution of restful void spaces. As a result, we established a green

patch in the heart of the street at the Wuhu intersection, 500 m from Baohe Park, and another 500 m away, opposite the Jinxiu Garden residential area, we designed the Mingjing Plaza (see **Figure 3**).

In the Mingjing Plaza, the principles of void and solid are employed multiple times to create various visual focal points. According to visual psychology, for singular entities (be it lines, surfaces, or volumes), if they don't serve to divide within the void spaces but are primarily perceived in a sculptural solid, they exert a visual attraction and become the center of attention. This phenomenon is termed the "focal point effect" (Yang, 2006). On the southern side of Mingjing Plaza stands a relief wall, engraved with the life and deeds of Bao Gong. This relief, being the most prominent structure in the plaza, embodies solidity within the void and inevitably becomes a visual focal point. Within the plaza, a clear waterway stretches from south to north, with landscaping and garden furnishings arranged around it, akin to stars surrounding the moon. The waterway culminates at its northern end into a circular pond—the Mingjing Pond, shaped like a clear mirror, alluding to Bao Gong's principle of "hanging a clear mirror high." This pond, set against the hard paving, represents the void within the solid and serves as the heart of the entire plaza (see **Figure 4**).



**Figure 3.** Plan view of Mingjing Square.



**Figure 4.** Conceptual landscape of Mingjing Pond.

## 5. Conclusion

In the landscape renovation of Ma'anshan North Road, we applied the spatial principle of "interplay of void and solid." Efforts were made from ecological greening, visual space, and behavioral psychology perspectives, and this approach received recognition from government departments. Our proposal was selected in the design competition organized by the Hefei City Planning Bureau. However, reviewing the finalized blueprints, certain issues remain. For instance, the creation of void spaces was considerably restricted due to historical topography; the architectural designs on both sides of the road vary greatly, lacking a unified style, among other concerns. This calls for a dynamic design concept where we actively gather feedback from all sectors of society. As new situations and issues arise, we must continuously adjust and refine the design.

In today's China, with rapid development in modern construction, skyscrapers sprout like lively participants in an urban race, making city spaces increasingly crowded and bustling. We firmly believe that the landscape design philosophy of "interplay of void and solid" will gain more and more advocacy and promotion.

## Conflicts of Interest

The author declares no conflicts of interest regarding the publication of this paper.

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