

## ACUPUNCTURE-REGENERATION OF SONGYANG VILLAGE BASED ON TYPO-MORPHOLOGY THEORY

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### ABSTRACT

*This paper studies the transformation and renewal process of typo-morphology of Songyang county during the years of "urban acupuncture" intervention (2015-2018). The term "urban acupuncture" was proposed by Spanish architect and urban planner Manuel de Solà-Morales, it refers to a small-scale progressive urban renewal strategy. Songyang county has a history of more than 1800 years and retained hundreds of traditional villages. Chinese architect Xu Tiantian has completed more than ten buildings with "urban acupuncture" strategy there. According to the different characteristics of villages, the development strategy of small investment, progressive way, point activation, and string connection is emerged.*

*Through a diachronic study, the paper analyses the diagrams of typo-morphology evolution under acupuncture intervention by the architect. The elements of urban morphology can be divided into three aspects: public space, street and landscape. (1) For the morphology of public space, the renewal of the abandoned small dwellings, industrial buildings (Brown Sugar Factory), cultural architectures such as museums (Hakka Indenture Museum, Pingtian Village Center) and ancestral halls (Wang Jing Memorial Hall), from points to plane, repairing the damaged fabric of the village. (2) For the morphology of street, the establishment of infrastructures (Shimen Bridge, Pine Pavilion) connect the two sides the village, from points to lines, leading the crowd into the surrounding villages. (3) For the morphology of landscape, landscape node (Bamboo Theatre, Damu Mountain Teahouse, Bamboo Pavilion) from points to plane, activates the village's original natural landscape. Finally, the paper demonstrates the effectiveness of "urban acupuncture" in rural areas. It has morphological inspiration to other rural areas in China.*

*Keywords: urban morphology, acupuncture intervention, rural areas*

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### INTRODUCTION

Rural construction is constrained by many sites and concepts. Architects should intervene in a way acceptable to society and actively seek mutual recognition. The rural design practice of different architects in Songyang in recent years has morphological significance. Through architectural acupuncture, from point to line to surface, all aspects of the rural public space, streets and landscape have been improved. Songyang's acupuncture and moxibustion strategy also includes controlling project funds, investing a small amount of construction funds, strengthening the participation of all parties, influencing the sustainable development of villages, and exploring a sustainable social development model. This model is not only limited to Songyang, but also can be widely extended to other areas.

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### BACKGROUND

DnA Architectural atelier has been participating in the rural construction of Songyang County since 2014. According to the historical and traditional crafts, industries and living needs of different

villages, it selects the most representative cultural or industrial elements in the area, takes the public functions of villages as the carrier, promotes the traditional cultural elements or industries, and adds public functions and cultures. Space. Xu Tiantian, the main architect, said that Songyang advocated "Chinese medicine acupuncture and moxibustion activation" in the rural revitalization, which means that it does not want to make a big move in rural areas, but slowly restores its vitality through moderate stimulation on the spot. The vivid practice in recent years has proved that, on the basis of fully respecting the local tradition, culture, industry and spatial texture, artistic architecture intervenes in the countryside in a small way, extracts and interprets the characteristic culture and industries of each village, and forms a series of small and refined, small and beautiful, small and special cultural spaces and production spaces. Reproducing the power of culture and the value of the countryside has brought profound significance to the revitalization of Songyang countryside. (see Figure 1)

Her work in Songyang in the past five years is also a kind of adjustment and transformation of traditional architect identity. They also need to participate in the pre-project research and the establishment of work content, organize some teaching and cultural exchanges, and even expand business operations. In a few years of practice, they took local materials and adopted low-cost and low-tech construction according to local conditions.

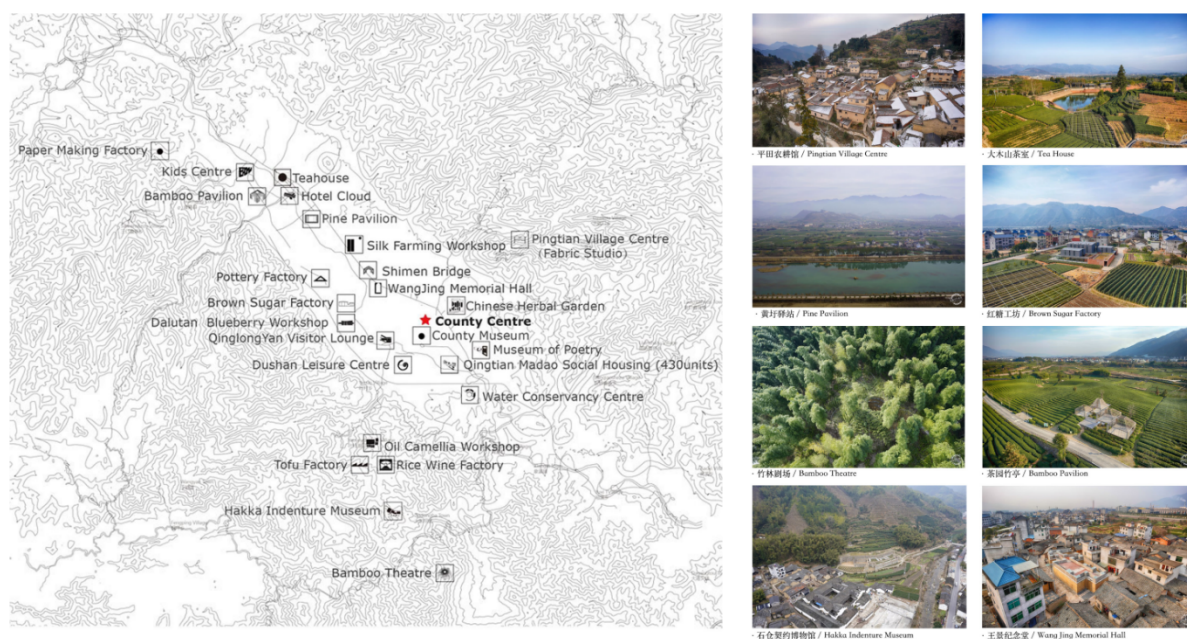


Figure 1. DnA Architectural atelier's design practice in Songyang © DnA Architectural atelier

## METHODOLOGY

The term "urban acupuncture" was proposed by Spanish architect and urban planner Manuel de Solà-Morales, it refers to a small-scale progressive urban renewal strategy. The acupuncture strategy helps to deal with the small setbacks encountered in development. It is correct for time-critical experimental development. Once errors are found, they can be corrected immediately. Different from the urbanization process of large-scale demolition and construction, the village is not simply investing funds for commercial development, but with villagers as the main body, using public space as the carrier to enhance local traditional cultural elements or industries, and add

public functions and cultural spaces. The strategy is activated and connected in series. (see Figure 2)

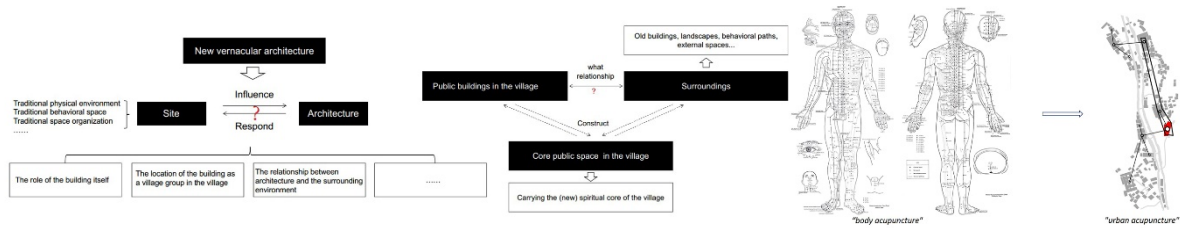


Figure 2. The acupuncture strategy © Author

This paper analyzes the application of architectural acupuncture and moxibustion strategies to nine projects in Songyang, studies the application of architectural acupuncture to the renovation and renewal of traditional villages from two aspects of humanistic elements and spatial form elements, and then summarizes the types and design methods of architects' architectural vocabulary.

## FINDINGS

The change of morphology with architectural acupuncture in public space: (see Figure 3)

Brown Sugar Factory :

The Brown Sugar Factory, which is also called Village Museum, is a place where outsiders and villagers meet and share, combining the characteristics of each village, presenting different forms. The brown sugar workshop is not only a living exhibition space for brown sugar production, but also a venue for various public events in the village, which is different from a museum with strict urban management. These cultural and public spaces in the countryside are more open, which can be used for cultural exhibitions and flexible use of leisure spaces. Villagers can enter and leave freely to relax and enjoy the coolness. Folk performances and activities can also be held during festivals. They all hope to reduce management requirements as much as possible and open to the villagers as much as possible. In the usual sense, the service facilities of the museum use the surrounding idle houses as much as possible to effectively activate the village's idle assets and attract foreign investment to drive the village industry. After the establishment of the factory, planting brown sugar promoted the development of the surrounding fields and improved the lives of more villagers around.

The open space design enables the production site to be like a theatrical performance site. Brown Sugar Factory emphasizes the value of traditional culture, which can be described as a museum of living exhibition. The performance and exhibition of the factory endow it with the nature of "stage", which is not only the stage of village production activities, but also the stage of rural life

Hakka Indenture Museum:

The museum is built on the hillside and is made of bricks and stones. It provides visitors with a place to learn about the Hakka culture. At the same time, the museum has promoted the functional industry renewal of surrounding villages, forming restaurants and hotels.

From the very beginning, the architect fully captures the key clues to prescribe the right medicine. The water channel on the Hakka Indenture Museum site serves as a guide through the space. The

sound of water flow and the spray device using the water channel all bring more layers to the space and Indenture content.

#### Wang Jing Memorial Hall:

Wang Village, a flat village surrounded by industrial areas, needs a booster. The village space is occupied by the seven node stages of Wang Jing's life, using space to reverse the dilapidation of the external environment. The establishment in the village has led to the renovation of the surrounding old ancestral halls, and the function of the museum has also increased the morphological changes of the surrounding tourist service centers, shops and other villages.

#### Pingtian Village Center:

The formation of the tourist center promotes the formation of surrounding buildings such as hotels and catering, attracting tourists to come, improving the public space environment of the village, and gradually developing into a public activity center of the village.

The change of morphology with architectural acupuncture in street: (see Figure 3)

#### Shimen Bridge.

The bridge was built on a wide river in the village. The rest seats and vegetation are added on the bridge, which makes the bridge become the viewing place and the activity center of villagers. At the same time, it connects the surrounding villages and enhances the connection of scattered settlements. The architect designed a simple wooden structural element, which defines the new space with its additive sequence. The visual connection to the river, but, even more, the cultural elevation of the bridge, assists the two neighboring villages in defining a shared cultural space that makes it possible to experience their historical link in a new way.

#### Pine Pavilion:

Located in a pine forest outside Huangxu Village under the ancient town, Pine Pavilion expands linearly along the dike, combining the density and density of the pine forest and collecting rosin images on the glass wall to make rosin images and pine superimpositions, to form a multi-dimensional performance of the rosin culture of Huangxu Village and Songyang. The pavilion is located by the river. It is a place with a very good landscape. It gradually attracts the old people in the village to come here. It has gradually become a scenic spot to enjoy the river and a leisure space for farming. The residents of the surrounding villages also gradually came here to rest. Pine Pavilion integrates the installation art with pine resin as the design element into the architectural space sequence, making the architecture a place for communication with between people and nature or art.

	SITE	1st STEP	2nd STEP	3rd STEP
<b>·PUBLIC SPACE</b>				
Brown Sugar Factory				
Hakka Indenture Museum				
Wang Jing Memorial Hall				
Pingtian Village Center				
<b>·STREET</b>				
Shimen Bridge				
Pine Pavilion				
<b>·LANDSCAPE</b>				
Damu Mountain Teahouse				
Bamboo Pavilion				
Bamboo Theatre				

Figure 3. The change of morphology with architectural acupuncture © Author

The change of morphology with architectural acupuncture in landscape: (see Figure 3)

Damu Mountain Teahouse:

The tea house is built on the mountain, forming a rest space for villagers in the mountain, and providing a place for tourists to enjoy sightseeing and entertainment

Bamboo Pavilion:

A fairyland has been built far away from the village with local materials. Villagers come here for entertainment and leisure, attracting more and more villagers and tourists from other parts.

Bamboo Theatre:

Hidden in the dense jungle, the theater is surrounded by private and open forest. The mountain path connects the theater and the village, expanding the boundary of the village.

Through instructions, villagers can bend the bamboo in a pattern, and weave them to form a vault, which creates a space of leisure for the villagers to stay in while continuing to grow sustainably. Each year, old bamboo can be removed, and new bamboo can easily join the existing structure, making it a metabolic architecture. This light landscape structure provides a casual leisure space as well as a stage in the nature for local traditional opera performances.

Study of typology for architecture vocabulary types: (see Figure 4)

In formal language, there are four types of DNA in Songyang's rural construction.

The first type is the new structure. Wang Jing Memorial Hall use the niches to organize the space, and Hakka Indenture Museum uses double wall as the vocabulary of exhibition cabinet and space formation. While using the new structure, it also needs to echo the old building, for example, Hakka Indenture Museum's organizational form of space courtyard originated from the nested courtyard space of the old houses in the Qing Dynasty

The second type is the form of nature. Bamboo Theatre and Bamboo Pavilion form space through bamboo and simple overlapping. These natural forms are highly compatible with the site and integrate with the disappearance and nature.

The third type is the relationship between buildings. For example, Pingtian Village Center needs to deal with the relationship between buildings and mountain. The stairs coming up along the village entrance are divided into two rows and three floors. This also becomes the basic level of design, the public activity level, while the first tier retains the basement attributes. On display, the second floor of the second row is elevated private residence. The new project Brown Sugar Factory is divided into two parts: north and south. The north side is surrounded by red bricks near the sugarcane field. It becomes a sugarcane stacking and logistics service area. The south side is open to villages and fields and becomes an open exhibition area for brown sugar production. The three lifted lightweight steel bodies are as follows: leisure experience area, sugarcane stacking area and traditional brown sugar processing area with 6 stoves and 36 pots. Linear corridors around the three blocks form a ring stand and a streamline for the brown sugar production theater.

The fourth type is a repetitive and narrow linear space sequence. Shimen Bridge, Pine Pavilion, Tea House all have the characteristics of flat and narrow in space. It uses a single matrix to repeat

and change slightly. This sequential space has rhythm in space experience. It can form narrative and montage fragments, overlap with the scenery in the environment, and form a heavy screen landscape.

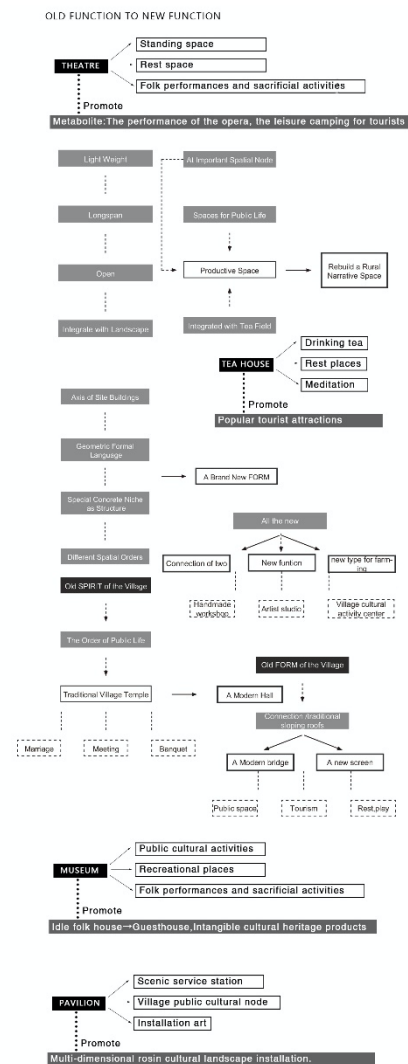
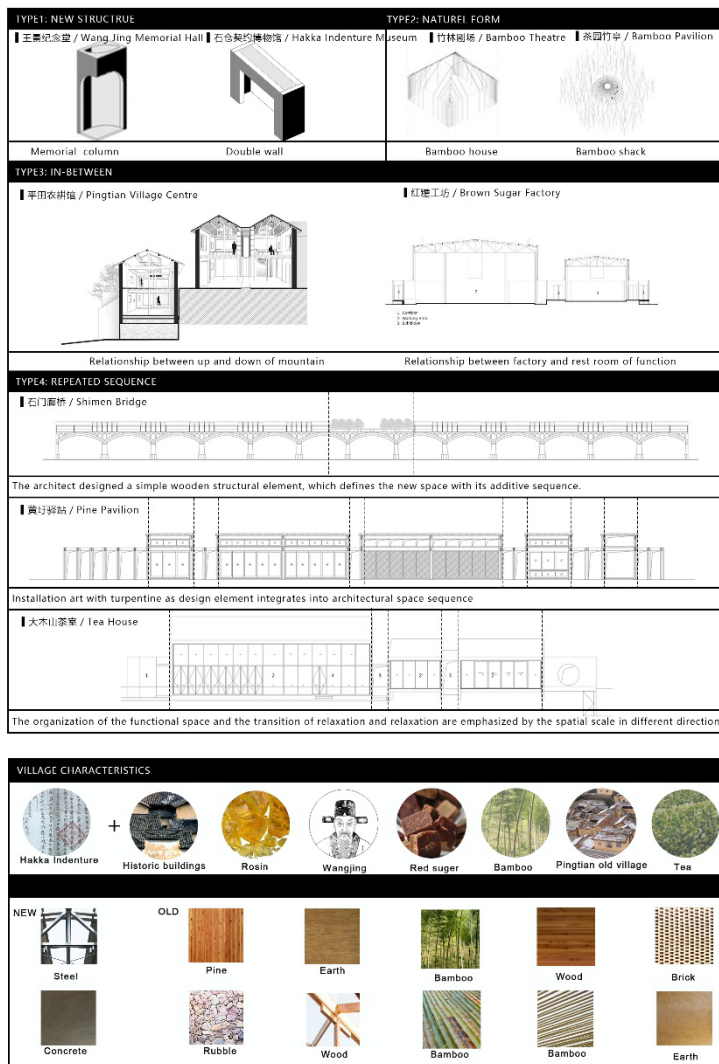


Figure 4. Architecture vocabulary types © Author

The design method in Songyang: (see Figure 5)

Through the investigation of each village, the first step of Xu Tiantian's acupuncture design strategy is to select the most representative historical-cultural or industrial elements, such as Wang Jing celebrities, Hakka contracts, rosin, bamboo and brown sugar industries.

The second step is to do the function program according to the elements extracted from the first step. Different from the functions of traditional villages, the Songyang functional strategy gradually introduces new modern functions to adapt to local development on the basis of traditional villages' functions. Museums, teahouses and post stations are also places where outsiders and villagers meet and share. Besides the function of external display, they are also places of public cultural activities and entertainment for villagers. The design also includes the renovation of the idle residential buildings around the village, taking the residential quarters as the operation carrier rooted in the local village and organizing the peasant women who are idle at home to make bamboo knitting and other local non-legacy craft products.

The third step is site. Songyang has excellent natural environment. The site retains the original natural environment of the site, such as phoenix tree, canals, and so on. Meanwhile, the entrance and exit are coordinated with the village to fill in the mechanism of the lack of the village.

The fourth step is the spatial strategy. We can see that the space of the nine new projects is similar to that of the original buildings. The space of the nine new projects are similar but different from the original villages. Shimen Bridge also uses modern assembly technology for rapid construction.

The fifth step is material and tectonic. Apart from Brown Sugar Factory's steel structure, the other nine rural construction projects are made of natural materials from the countryside, including concrete from the countryside in the process of modern development. These bricks, bamboo, timber and rammed earth are integrated with the environment of the village.

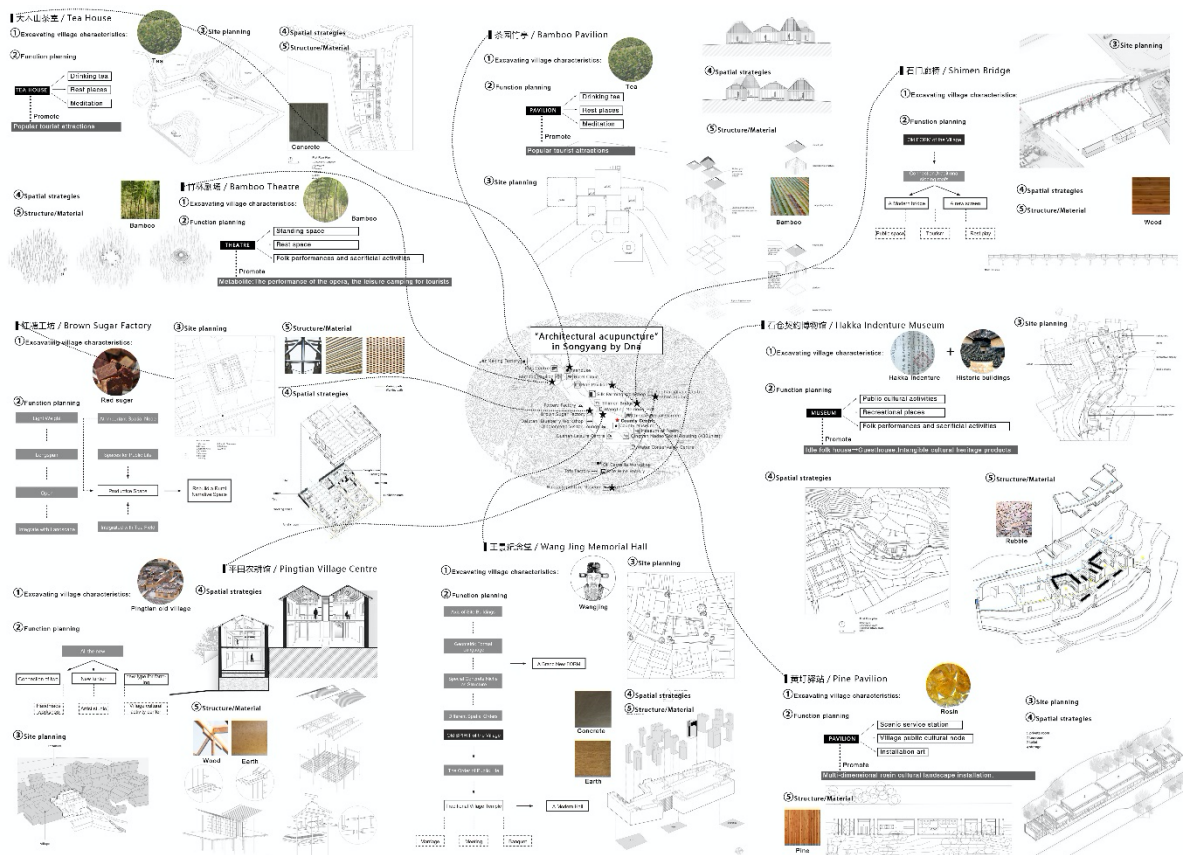


Figure 5. The design method in Songyang © Author

## CONCLUSIONS

Dna's rural construction projects have strong typological characteristics. Xu Tiantian's model of building acupuncture and moxibustion has been successful in Songyang, which has certain reference significance for rural construction in other areas. By sorting out the DNA design methods and classifying the types of vocabulary, we can see that the most important thing in rural construction is to respect the local land, people and nature. The most important thing for the design to be rooted in the countryside is the deep excavation of the site environment. The deep excavation of the heritage of the original village is worth preserving and learning. At the same time, the local people's living habits should be considered, and how to integrate the needs of the local people into the design, even including the process part involved in the design should be considered.



The series of rural museums in Songyang is a huge museum in a broad sense, which divides the large-scale museums that are usually concentrated in the city into parts and distributes them to various villages. The rural venues are not only restored to the original culture, but also can be used as a comprehensive public cultural space in the countryside. And it drives the entire village as a living museum, integrated to form a county museum. Through the study of Songyang, it can also provide reference for other villages in China to renew and protect.

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