

CIB2007-228

## **The Strategy of Building System Design Based on the Influence of “Feng Shui” in Traditional Culture**

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### **ABSTRACT**

Culture is a crucial factor in architecture. In Taiwan, there is a traditional local aspect of culture called the “Feng Shui” which has been to date to a certain degree influential to architecture. Architects, engineers, and constructors have had more or less experiences regarding this issue. However, the science and credibility of Feng Shui have long been disputable. Facing this long-standing local culture, a building system becomes more complex in its design and management.

In this paper, we mainly target on the design strategy of a building system under the influences of Feng Shui, and not to explore on Feng Shui itself. A concept of a building system level with the consideration of Feng Shui is proposed by this paper to serve itself as the base in establishing the processing procedure of a building system design. Further, we developed the response design strategy of a building system.

**KEYWORDS:** Local Culture, Feng Shui, Building System Level, Building System Design

### **1.1 INTRODUCTION**

The contribution this research makes to the “Construction for Development” lies in the international perspectives on design management and design integration. It explores on the influences of the concept “Feng Shui” from the traditional Taiwanese culture on the design procedure of architecture and the responding strategies.

Culture is an important factor in architecture. In a building system design, professional fields like architecture, engineering, and construction, etc. are considered as a whole, which are then combined with cultural factors to satisfy the material and spiritual needs of the people.

An aspect of traditional local culture in Taiwan is called "Feng Shui." It has been to some extent influential to the architecture in Taiwan even today. Architects, engineers, and constructors have more or less the experience of encountering such an issue. It was observed (Gene, 2004) that no architect practicing in Taiwan can claim to have escaped the constraints and demands of Feng Shui, mostly at the request of his clients. However, the scientific credibility of Feng Shui has long been disputable, and the building system gets more complex in the design and management when it faces this history-long local culture.

Feng Shui originated in China. The Chinese Feng Shui in the ancient time was a combination of religions, science, astrology, etc., and it has played an important role in the Chinese traditional culture. Mainly, Feng Shui bases its theory in the terrain of the mountains and rivers, Chi, Yin-Yang, the Five Elements, I-Ching and the Eight Trigrams, etc., and tries to construct an ideal residential environment through actual practices on site selection, orientation, placement, etc.

In this research, a concept of levels in Feng Shui is being proposed with references to the theories of Feng Shui along with the general taboos in architecture in Taiwan for the construction of a Feng Shui system and a Feng Shui model. Furthermore, we explore further on the special features of building system and the design strategies of a building system when they are under the influence of Feng Shui. However, in this research, we do not extend our discussion to the Feng Shui itself.

A concept of a building system level with the consideration of Feng Shui is proposed by this paper to serve itself as the base in establishing the processing procedure of a building system design. Further, we developed the response design strategy of a building system and cited an actual example as the illustration.

## 1.2 FENG SHUI IN TAIWAN

Feng Shui is the Chinese art of placement based on Yin-Yang and Chi. Smith and Stewart (2006) point out that Feng Shui is the study of all forms of energy, including the energies of spaces, and how those energies affect people. (Cheng and Kong, 2005) point out that Feng Shui mainly refers to the overall judgment the ancient people made regarding all the architectural environmental factors, such as the weather, geology, landscape, ecology, scenic views, etc. and the general inclusion of some skills and all sorts of taboos when it comes to architecture and construction.

Architects who practice in Taiwan often encounter the problems of Feng Shui. They have to also incorporate Feng Shui into their design process as an important issue. Other related fields in the building system have to consider Feng Shui a crucial factor as well, for example, in fields like architecture, engineering and construction, etc. They need to take Feng Shui into consideration in the planning, design, construction and management and avoid problems originated from Feng Shui that might accidentally affect the plan, progress, budget and quality, etc.

### 1.2.1 The Origin of Feng Shui

Feng Shui originated in ancient China. The Chinese words Feng Shui mean "Wind and Water." Rossbach 1988 points out the Chinese worship of Nature developed into the early religions, sciences and astrology. In the end, these religions, sciences and astrology merged into Feng Shui. The first appearance of the term "Feng Shui" can be found in the "Funeral Book" by Guo, Pu in Jin Dynasty. Guo mentions in the "Funeral Book": "Chi scatters when it encounters the wind, and stops at the verge of water. The ancient people accumulated Chi to avoid its being scattered and circulated it before it stopped." This is why it is called Feng Shui. Guo also mentions that the best choice of a location according to Feng Shui is to obtain water, while wind hidden comes next.

### 1.2.2 The Theories of Feng Shui

The theories of Feng Shui are a history-long culture of China. It originates in and develops from the life experience, wisdom, and the thinking of the ancestors. Shen (2006) points out that in ancient China, observation on the climate, geography, constellation and human atlas developed into theories of Chi, Yin-Yang, the Five Elements, I-Ching and the Eight Trigrams. On the basis of these ancient theories, more Feng Shui theories thrive on. Two major schools of the Feng Shui theories to date are (1) the school of form, (2) the school of Li-Chi.

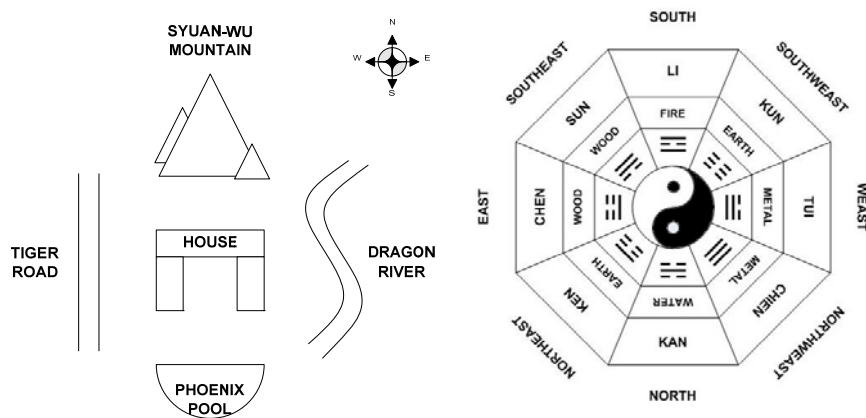
The school of form is also called the school of Luan-Tou (hilltops). The foundation of its theory is the concept of natural environment. It mainly observes the variation of the landscape and the ups and downs of the terrain to study the significance inhibited in the terrain of the mountainous environment in order to decide on the goodness and badness of the Feng Shui. Shen 2006 points out that the school of form studies the layout of residences, villages, public constructions, graveyards and the relationships among the geographical factors like the mountain, the water, the earth and the vegetation. These factors later became the basic guiding rules for Feng Shui masters of the school of form in the past few centuries.

Furthermore, the school of form considers the location with the four divine animals the best of all: Green Dragons, White Tigers, Black Snake-Turtle, and the Redbirds. These landscapes can bring good fortune and avoid ill fortune. With the Dragon in the east, the Tiger on the west, the Snake-Turtle in the north, and the Redbird in the south. The four divine animals have each their significance in Feng Shui: the Dragon refers to long winding mountain range that is low in altitude, the Tiger refers to mountains with high altitude, the Snake-Turtle (Syuan-Wu) refers to high mountains and the Redbird, meaning the Phoenix, refers to plains or water flows. The model of the school of form is shown in Figure CIB2007-228.1.

The school of Li-Chi is a comparatively more complex Feng Shui theory. It is mainly based on the knowledge of direction. It explores on both interior and exterior placement, orientation, the time and the space, to decide on the

good or the bad fortune of the object according to the innate and acquired Eight Trigrams in I-Ching, He-tu Luo-shu (River Graph and Luo Book), and theories of Yin-Yang, along with the Five Elements. The school of Li-Chi is also called the school of compass. In practice, the good or bad fortune is decided by a “compass” to determine the fortune. Cheng<sup>2005</sup> points out that a Feng Shui compass directs on the direction with a magnetized needle. A dish clearly marked with directions is set against the magnetized needle, and it could be used to point out the directions, like a compass.

There are two types of Eight Trigrams, the innate Eight Trigrams and the acquired Eight Trigrams. The acquired Eight Trigrams is most widely in use now. According to the Chinese traditional customs, the phenomenal trigrams that symbolizes the South should be put on the uppermost place and then the order goes clockwise from the South to the North from Li, Kun, Tui, Chien, Kan, Ken, Chen, Sun, all together there are eight trigrams. Li trigram is the South, Kun trigram is the Southwest, Tui trigram is the West, Chien trigram is the Northwest, Kan trigram is the North, Ken trigram is the Northeast, Chen trigram is the East, and Sun trigram is the Southeast. The acquired Eight Trigrams is shown in Figure CIB2007-228.2. Han<sup>2006</sup> points out most Feng Shui masters habitually categorize a residence under the Eastern-Four Residences or the Western-Four Residences, and they are mainly using the acquired Eight Trigrams. The direction where the residence sits on is a basic requirement in judging whether there is good fortune or bad fortune in terms of Feng Shui.

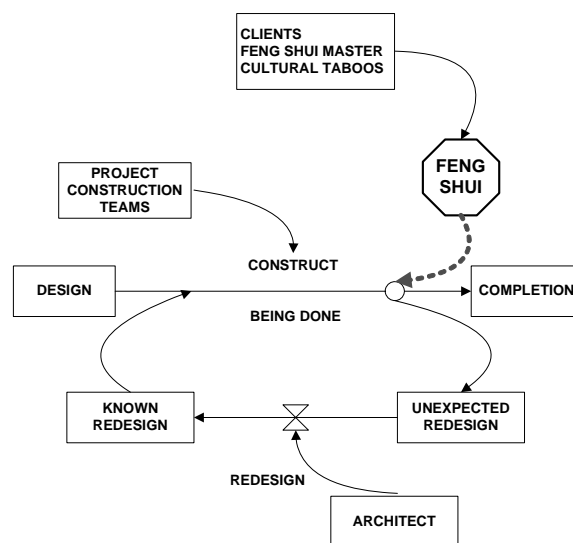


**Figure CIB2007-228.1** The form model **Figure CIB2007-228.2** The acquired Eight Trigrams

Generally speaking, the school of form puts more emphasis on the overall analysis of the architecture and the environment. The school of Li-Chi emphasizes more on the applications of Yin-Yang, the Five Elements, the Eight Trigrams, and I-Ching. As for the other respect of the culture that entwines with Feng Shui, for example, Taoism, Buddhism, Confucianism, Chinese medicine and Fortune-telling, these, in return, have considerable influences on the development of the Feng Shui theories.

### 1.2.3 The Influences Feng Shui has on the Building System in Taiwan

In Taiwan, building system is influenced by Feng Shui and that many issues have developed from this influence. The most disturbing of all to the participants in the professional building system is the indeterminacy that makes a decided project impossible. The major cause is the indeterminate factors with Feng Shui, which makes it difficult for the project to anticipate all kinds of possible situations that are not included in the initial planning. The indeterminate factors about Feng Shui often come from the property owners, Feng Shui masters and Feng Shui theories. The system dynamics between Feng Shui and project is shown in Figure CIB2007-228.3.



**Figure CIB2007-228.3** The system dynamics between Feng Shui and project

People hold different ideas towards Feng Shui. Some people do not believe in it and chides it as superstitions. Some believe part of it and some do not believe in it at all. The most disturbing of all for the architects is the attitude of the residence owner shifts from completely disbelief in Feng Shui to his rather believing in the existence of Feng Shui. After the construction is completed, and the residence owner moves in, if, for any reason, the family does not enjoy smooth luck, for example, misfortunes like someone in the family gets sick or injured in an accident, or perhaps if the residence owner's business is not well, the residence owner would think there must be something wrong with the Feng Shui. The residence owner then asks Feng Shui masters to reinvestigate the residence and make alterations to it. In a minor case, furniture is moved around in the house or the location of the doors is changed; in major severe cases, even the main structure of the house might be altered. The professional building

participants often encountered such Feng Shui related psychology.

In Taiwan, traditional architecture is deeply affected by Feng Shui. It is observed (Lin, 1990) that among the residential houses and temples in Taiwan, there are some which are obviously built according to the Feng Shui concept of the school of form, some partially followed the form Feng Shui principles and concepts, and some adopted the form Feng Shui concepts completely. However, the school of Li-Chi is often adopted by residence built on the plains. Most of the large residences in central Taiwan sit on the North and face the South, with their doors facing the southeast. There is a semi-circular pond in front of the front-yard; these are apparent results of the influence of Feng Shui. Other than these, the Lu-Ban ruler that is being used to judge on the good or bad fortune of the length, Feng Shui evil-casting items that can be used to cast away evils and bad luck have a certain assertion in the traditional architecture in Taiwan.

### **1.3 THE FENG SHUI SYSTEM**

From the primitive simple activities to incorporate good fortune and avoid bad luck, to the forming of a unique culture in China through thinking, philosophy, constellation, geography, etc., Feng Shui has been developed into many subgroups. Due to the fact that the theories and perspectives among all these subgroups are never completely identical to each other, added to that all kinds of taboos and folklore customs, Feng Shui gets forever more tremendous and complex. Therefore, it is hard to find clear guidelines to follow when we have to practically work on Feng Shui. In this research, we base our study on the concept of Feng Shui system level and propose a Feng Shui system level. We will also apply this Feng Shui system on the building system for strategic references in the building system design.

#### **1.3.1 The Concept of the Levels in Feng Shui System**

The Feng Shui system constructs ideal residential environment through practical operations like site selection, orientation, and placement, etc. The actual practices of Feng Shui mostly follow the practices in China. From the thesis about Feng Shui, we know the Feng Shui researches in Taiwan roughly include researches on the site selection, the planning of the environment, the design of the residences, the operational system of Feng Shui, Feng Shui customs and legends about Feng Shui, etc.

Regarding the building system, Ching [1979] focuses on an analysis of the interrelationships among building's elements and system and proposes the concepts of spatial system, structural system, enclosure system and circulation system. Habraken (1998), on the other hand, proposes the concept of a level system with levels specified as street network, building, infill, furniture and utensils. Such a concept can be used as a reference when building the levels in Feng Shui system. Based on the relationship between the Feng Shui culture in Taiwan and the building system as well as

referring to the above-mentioned concept, we propose with this research the levels in the Feng Shui system should be categorized into the Feng Shui level of natural environment, architecture, interior space, furniture, and Feng Shui items.

The Feng Shui level of natural environment has to do with site selection, orientation, and environmental planning, etc. The Feng Shui level of architecture is mainly about the operational system of Feng Shui and the operational methods of Feng Shui, etc., those that have to do with the main object of the architecture. The Feng Shui level of interior space contains mainly the application of interior design, interior layout, etc. The Feng Shui level of furniture mainly deals with the application of furniture design, furniture placement, etc. The level of Feng Shui items mainly deal with the customs regarding Feng Shui in terms of the application of Feng Shui items. The major functions of Feng Shui items are to cast away the evils and avoid ill luck, for example, the mirror with the Eight Trigrams, the stone gods (Shi-Kan-Dang), the Wind-Lion gods (Fong-Shih-Ye), etc. The Feng Shui items of the Eight Trigrams are shown in Figure CIB2007-228.4. The Feng Shui items in An-Ping village, Figure CIB2007-228.5, were investigated and reported by Tzeng, *et al.* [2006].



**Figure CIB2007-228.4** The Feng Shui items of the Eight Trigrams



Figure CIB2007-228.5 The Feng Shui items in An-Ping village

### 1.3.2 The Feng Shui System Level

The application of Feng Shui system level on the building system can be used as the strategic reference in the building system design. Based on the concept of Feng Shui level, this paper proposes the Feng Shui system level be shown in Figure CIB2007-228.6.

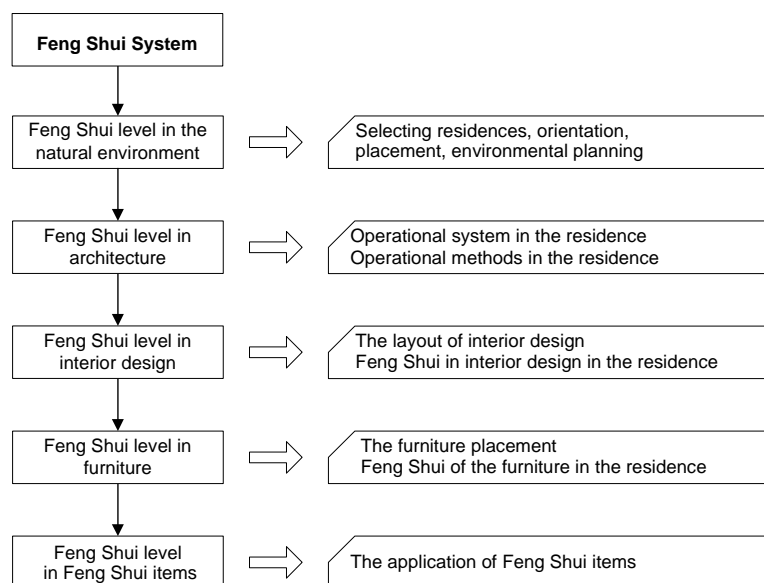


Figure CIB2007-228.6 The Feng Shui System level



### 1.3.3 The Feng Shui Models

In Taiwan, architects often have to handle with Feng Shui issues. It would be better if the participants of building projects equip themselves with basic knowledge in Feng Shui, as well, they should have the ability to communicate with the Feng Shui masters. However, given the fact there are so many theories and schools in the vast and complex system of Feng Shui, perspectives frequently vary. There are even enormous number and different folklore and taboos that derived from Feng Shui customs and Feng Shui legends, which bother the building professionals to no avail. Therefore, it is highly necessary to construct principles that can be followed during the design of the project. A Feng Shui model should be established according to various Feng Shui theories and the commonly-known taboos in architecture, so that it can be served as a reference when dealing with Feng Shui. The model should base itself on the two major school of Feng Shui, we can established the model of form and the model of Li-Chi. General architectural taboos can also help construct a model of general taboos.

The model of form mainly focuses on the establishment of external environment, for example, the mountains and hills, the trees and woods, water flows, water scenes, lanes and alleys, open spaces, visions and views, the orientation of the sites and the establishment of the operational principles. The model of Li-Chi is more complicated. There are many operational details according to the finely categorized schools; however, it mainly uses the directions as the main consideration of the operation. As for the general taboos, they are so vast in number and differ in nature, so our major concerns are toward the major taboos that are known to everyone. The main architectural taboos include: locating at the dead-ends of roads or alleys, over-head beams, sharp corner of columns, the front doors in align with the rear doors, doors facing doors or doors facing the toilets, or when the toilets are located in the center of the houses, the dining rooms or the kitchens face the toilets, or when the bed faces the doors, etc.

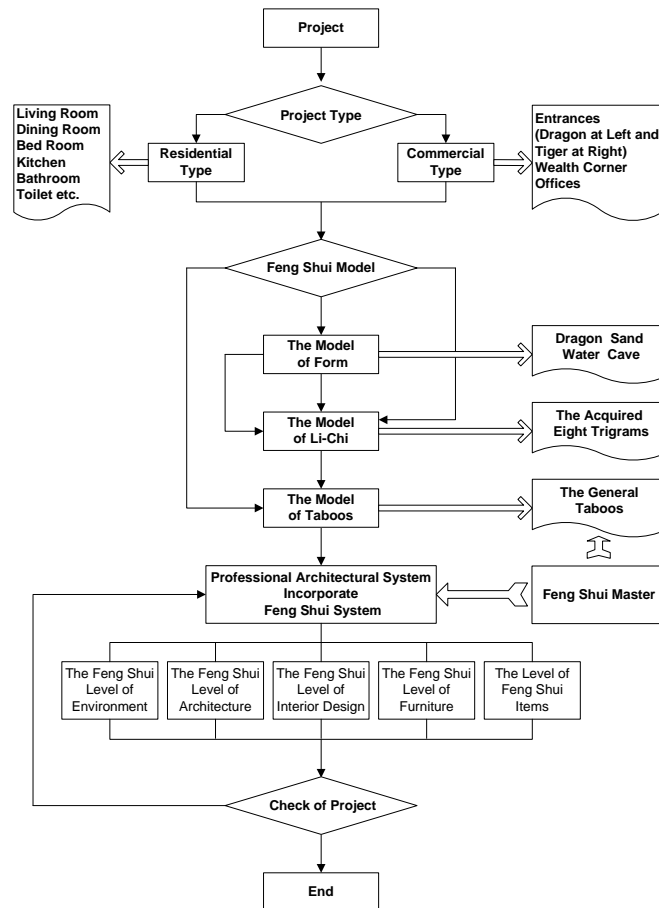
## 1.4 THE STRATEGY OF BUILDING SYSTEM DESIGN

The planning, design, and construction of a project in Taiwan is constantly under the influences of indeterminate factors of Feng Shui. Therefore, we should establish a set of responding strategies in the building system design to avoid rework from happening. We should consider the level concept of the Feng Shui system and apply it on the building system to be used as a strategic reference in the building system design.

#### **1.4.1 The Operational Workflow of Design**

We base this research on all kinds of Feng Shui theories and Feng Shui system level, and propose a strategic reference when the planning and design of a project under the influence of Feng Shui. The operational workflow of project design with the consideration of Feng Shui is shown in Figure CIB2007-228.7.

Projects are mainly classified into residences, commercial spaces, and offices. The Feng Shui model to be built may have different considerations according to the opinions of the residence owners, the conditions of the construction sites, and the advice from the Feng Shui masters. It is possible that they choose to take all Feng Shui models into consideration: the model of form, the model of Li-Chi, and the model of general taboos. It is also possible that they would choose only two of them, or even just one of them. Regarding the levels in Feng Shui system, we have to equally incorporate different thinking and opinions from the residence owners, the Feng Shui masters and the conditions of the construction sites. A project has to consider not only the professional knowledge of architecture, but it also needs to be planned and designed with all sort of Feng Shui theories, including all the related levels, the Feng Shui level of natural environment, the Feng Shui level of architecture, the Feng Shui level of interior design, the Feng Shui level of furniture and the Feng Shui level of Feng Shui items.



**Figure CIB2007-228.7** The operational workflow of project design with the consideration of Feng Shui

#### 1.4.2 Strategies of the Building System Design

In Taiwan, the planning, design, and construction of a project are all affected by the indeterminate factors of Feng Shui. In this research, we propose the responding strategies in the building system for the reference of architecture related fields.

##### 1. Strategies for innovative construction

Research and develop responding constructional methods for Feng Shui issues. For example, RC wall structure system can avoid the problems of the pressing of a beam and the sharp angles of the columns, etc.

##### 2. Strategies for operational models

Establish various operational models based on different Feng Shui theories. For example, the model of form, the model of Li-Chi, the model of general taboos, and the operational model consists of different Feng Shui theories. The school of Li-Chi is categorized into many subgroups; each has its own operational model.

### 3. Strategies for Feng Shui items

The strategies of apply in Feng Shui evil-casting items to the building system. For example, decorate on the proper position of the architecture with the mirrors with the Eight Trigrams, the stone gods or the Wind-Lion gods that go with Feng Shui principles.

## 1.5 CASE STUDY

The actual case cited in this research is the project of "Hu-Mei Star-Gazing Villa" which was executed by the Research and Development team of the New Structure Construction Company in 1997-1998. The site of the project is located in the Hu-Mei region in Tainan City of Taiwan. It is a group of architecture combined with store-residences and villa-residences.

The site of the grouped villas locates in the Hu-Mei area. It is perfectly plain, so there is not much Feng Shui to be used with the form. The hypothesis of this study is that the construction company of this grouped villas built the houses first before introducing them into the market, so there is no way to know who the future residence owners would be. The Feng Shui school of Li-Chi has developed into many subgroups and so the most commonly seen method is to study the natal-chart of the users, and therefore it does not apply here, either.

The criteria of this study will focus on the general taboos and their responding strategies. The company and the team of research and development then decided to adopt the strategies for "innovative construction." Most of the architecture in Taiwan is built with the RC beam-column frame structure system. After the construction of the house is done and it is handed over to the owner, the residence owner very often will hire an interior designer to redo the interior design and the construction. Sometimes the residence owners hire workers to do the interior construction and furnishing. Such a process is often the result of the common belief the people hold towards taboos in residences. So the team of research and development decided to adopt "RC wall structure system." The advantage of earthquake-proof RC wall structure system makes the interior space, including the ceiling, the walls, and the floor, are smooth and beautiful without protruding or concave areas, the columns and beams. Thus, the taboos of pressing over-head beams and sharp corners of columns are solved.

This study finds that the strategies for "innovative construction" can avoid problems originated from the general taboos. Also, the residence owners had not hired workers to redo the interior construction and furnishing due to the taboos.

## 1.6 CONCLUSION

This research finds that integrating strategies for Feng Shui models into project design were beneficial to projects. It can improve the problems originated from Feng Shui that might accidentally affect the plan, progress, budget and quality, etc.

The conclusions of this research can thus be drawn as follows:

1. In this paper, we propose a level concept for the building system that takes Feng Shui into consideration, which will serve as the basis for the establishment of the executive procedure of building system design.
2. In this paper, we propose the operational workflow of project design with the consideration of Feng Shui.
3. Proposing responding strategies for the building system design for the future applications and researches in related professions of the building system.

A further research will be done on the establishment of all kinds of customized building products from the perspective of customization and all kinds of Feng Shui theories.

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