

East Meets West: On Feng Shui and Western Environmental Models

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Abstract:

Environmental principles in architecture have drawn increasing awareness internationally. Conventional decision approaches such as those defined and analyzed by Olgyay, McHarg, and other researchers, emphasize western principles for basic aspects of the natural environment, including climate, physiography, hydrology, vegetation, and the life of the inhabitants. As both an alternative and complement to contemporary environmental design, feng shui is an ancient wisdom that examined the sites of cities and determines the desirable layouts of buildings. However, less focus is on the comparison of contemporary and traditional environmental principles and the possible incorporation of the two. In this paper, we will compare contemporary environmental principles and feng shui, and emphasize the integration of environmental issues into architectural design.

Our comparison will focus on several aspects, including philosophical background, analysis methods, and application fields. Traditionally, the Western view is based on the philosophical, religious, and cultural belief that man is the center of the universe. The environmental study is to seek the harmony of the human and nature by analyzing the climatic influences on human activities. However, in the view of feng-shui, human is part of the nature. It is argued that design with feng shui principles can follow the natural law and can help to accumulate a good energy field, and eventually improve the life cycle of nature. In addition, contemporary environmental principles are more practical with quantifiable figures and numbers. While feng shui methods focus on the observation and calculation of the primordial causes, including the movements of planets and stars, and the balance of subtle energy changes.

However, considering the design process as a whole, two approaches have similar systematic thinkings. In bio-climatic design, four major elements (temperature, radiation, air movement, and humidity) are “assembled” together after the studies have been done separately. In eastern culture everything in the universe is related. The climatic factors cannot be separated from the topology, vegetation, and psychology. When further applying rules in design, similarities can also be seen in several fields: certain restrictions in topographical study, emphasizing geological and hydrological factors, and analyzing the vegetation. Comparisons of other rules show some factors are emphasized in feng-shui, but might not be the major factors for the western rules; or vice versa.

Although feng shui can be used in buildings and human settlements, in this research, we only compare the principles more applicable to building designs, and intend to connect the "art" and the "science" with the focal point of environmental issues. Therefore, this research seeks to establish a combined analysis approach based on the comparison of contemporary environmental principles and feng shui. Case studies will also be conducted based on both theories. The

combination of two sets of principles will be helpful to enable students and professionals to learn and apply the knowledge in the design process.

EAST MEETS WEST: ON FENG SHUI AND WESTERN ENVIRONMENTAL MODELS

Feng shui is an ancient wisdom that examined the sites of cities and buildings, and determined desirable arrangement of interior space. It has been used by Chinese since the Western Zhou dynasty (1100 B.C. - 771 B.C.). Following the simple observation that environment influenced the decline or rise of civilizations, the ancient Chinese concluded that the energy or force of nature, feng shui (literally meaning wind and water) creates mountains and rivers, nurtures plants and animals, and is essential to human life. Therefore they argued that selection of land for a city or construction of a house should follow the principles of feng shui. Thus, feng shui was developed as a comprehensive environmental evaluation system that examined issues related to astronomy, climate, geology, topology, ecology, and landscape. This system was used when the ancient Chinese selected the sites of cities and determined the desirable layouts of buildings and tombs. It also incorporates various taboos and certain symbols that can be used to achieve a favorable environment in site selection, building construction, and interior design.

The potential benefits of feng shui have been recognized by westerners since the mid 19th century (Yates, 1868; Eitel, 1873; Dukes, 1914; Needham, 1962; Rossbach, 1983). Since the first Christian Missionary went to China, differences between western models and feng shui in dealing with the environment were noticeable. For example, in the late 19th century and early 20th century, architectural activities of Christian missionaries such as Gothic churches were rejected by the Chinese people, because these buildings were not in harmony with their surroundings and were not consistent with feng shui. Mining of metals and coal were prohibited in order to maintain the Qi vein (Yu, 1994).

After the industrial revolution, western approaches to environmental integration are in many ways similar to the eastern tradition of feng shui. Since the 1940s, industrial and chemical processes have caused irreversible damage to our natural resources, such as depletion of the ozone layer and global warming. With this awareness, effective environmental control and improvement methods become one of the most urgent tasks for scholars and professionals in every field. There have been several environmentally conscious approaches to architecture as demonstrated in various projects and publications. During the 1940s and 1950s, Buckminster Fuller invented *Dymaxion*, an object can perform at “the greatest possible efficiency with the most current technology.” The result was the Dymaxion house. In the 1960s, Paolo Soleri invented the term Arcology to integrate architecture and ecology. A prototype arcology for 5000 people named Arcosanti was constructed near Phoenix, Arizona. In its West and East Housing, passive solar strategies are used to make the indoor space comfortable; while the structure of foreground, named the Foundry, is designed to respond to changes in the sun angle and to control the amount of shade. After the oil crisis of 1973, many pioneers also began to design houses, such as the “integral urban house” of Ken Baer and Sim van der Ryn, using solar energy and other alternative sources. Meanwhile, books and publications, including Rachel Carson’s *Silent*

Spring (1962), E. R. Schumacher's *Small is Beautiful* (1976), and David Pearson's *The Natural House Book* (1989), have helped to raise awareness of environmental issues.

Recently, combinations of eastern and western approaches are more obvious. Contemporary architects of several projects in New York and Washington DC have considered input from feng shui experts on architectural and interior design projects (Rossbach, 1983). However, there is less focus on comparison and a possible incorporation of the two. In this paper, we will compare contemporary environmental principles and feng shui. Our comparison will focus on several aspects, including epistemological background, analysis methods, and evaluation criteria.

I. Western Environmental Models and Feng Shui

In the West, the environmental emphasis in architectural design has a long history. Early in the first treatise in architectural history, *Ten Books on Architecture*, Vitruvius emphasized the importance of climate in the sixth book, “[i]f our designs for private houses are to be correct, we must at the outset take note of the countries and climates in which they are built.” From Rousseau’s rural utopia to the latest Earth Day activities, every milestone in the history of modern architecture reminds us of the hard journey toward achieving a better understanding of the relation between man and nature. Systematic examination leads to new ecological movements and disciplines. Since the 1950s, researchers have proposed design approaches and methods focused on the relationships between architecture and the environment, including climate, physiography, hydrology, vegetation, and the lives of the inhabitants. Among them, two widely accepted models will be used for comparison with feng shui: Olgyay’s bioclimatic model (1973) and the environmentally conscious model represented in McHarg’s *Design with Nature* (1969).

Bioclimatic Model

Concentrating on the relationships between buildings and the environment, Victor Olgyay (1973) analyzed examples from around the world and documented his findings in *Design with Climate*. He noted that regional architectural characteristics could be found in response to certain climates, although in different geological locations and cultures. Olgyay investigated a series of steps to interpret climatic factors in relation to human comfort. Then the designers could focus on specific issues of the synthesis model (Fig. 1).

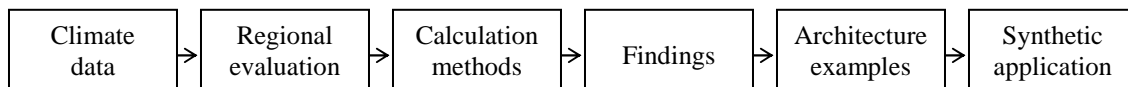


Figure 1 Bioclimatic design steps (Hyde, 2000)

Based on Olgyay’s research, four most important climatic elements were identified – air temperature, radiation, air movement, and humidity. The following bioclimatic chart not only assembles individual factors, but also shows the correlations between the various climatic elements in the context of the comfort zone (Fig. 2). In addition, when the climatic conditions are not located within the comfort zone, several modification strategies are suggested. Olgyay also suggested that bioclimatic evaluation must be associated with regional climatic conditions.

For example, four regions are selected to represent major climatic zones within the United States: Minneapolis, Minnesota for cool climate, the New York – New Jersey area for temperate climate, Phoenix, Arizona for hot-arid climate, and Miami, Florida for hot-humid climate.

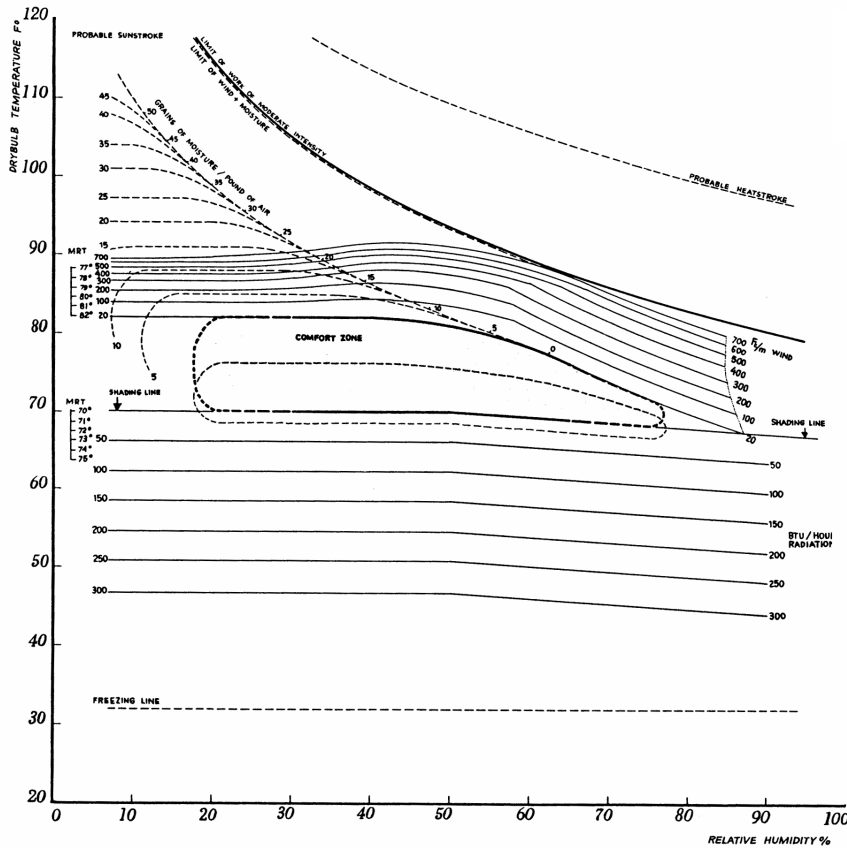


Figure 2 Bioclimatic chart, for U.S. moderate zone inhabitants (Olgyay, 1973)

Environmental Conscious Model

In addition to Olgyay, Ian McHarg proposed a model of design with nature related to architecture. In his book McHarg established guidelines for choosing sites for urban developments in various geographic locations, especially in metropolitan areas. By using mapping and measurement techniques, eight natural processes related to land use were identified. Further interpretation of the values can be seen in the following case study of Staten Island in New York City:

- Identify the major physical and biological processes. The basic information includes the data on climate, geology, physiography, hydrology, pedology, vegetation, wildlife habitats and land use.
- Establish a value system to interpret the data. The factors are ranked in importance using a gradient of five values, and also in a hierarchy using color and tonal intensity.
- Map the relevant factors to show the result of “the maximum concurrence of all the positive factors and the least restrictions.”

In terms of the residential development, positive factors to consider include features such as good soil and bedrock foundation conditions as identified by the geology and pedology studies, riparian water features in the physiography study, and historical and scenic value in the land use category. Negative factors include excessive slopes, poor drainage, susceptibility to flooding or

erosion area, and existing forest. More detailed criteria are also developed: “the land should have slopes of no greater than five per cent inclines; it must not be in the 50-year floodplain, nor in an important aquifer recharge area, nor in fog pockets or high and exposed elevations” (McHarg, 1969).

Feng Shui Model

Feng shui came from the observation that Qi, a Chinese term describes energy flow related to these forms, could be dispersed by the wind and be gathered by the water (Gu, 1995). Qi is the most important concept in feng shui as well as in other forms of traditional Chinese culture and science. It is a philosophical category of Chinese origin -- its full implications cannot be vividly translated into any single English word or even a phrase, such as “cosmic breath” (Wheatley, 1971), “matter-energy” (Needham, 1962), and the Greek term *genius loci* (Norberg-Schultz, 1980). In the human body, Qi is the energy that flows through the acupuncture points. On the earth, Qi is the energy carried by wind and water. In housing design, when Qi is abundant, the site will bring health and strength to those who live there. Qi can be influenced by orientation, land form, wind, water, and the surrounding environment of the site.

Table 1 Living Qi and dead Qi

	mountain	river	soil	vegetation	air
living Qi	smooth	clean, slow, meander	thick, rich	green, flourish	warm, clean, dry
dead Qi	steep	turbid, swift, straight	damp	barren	cold, stale, moist

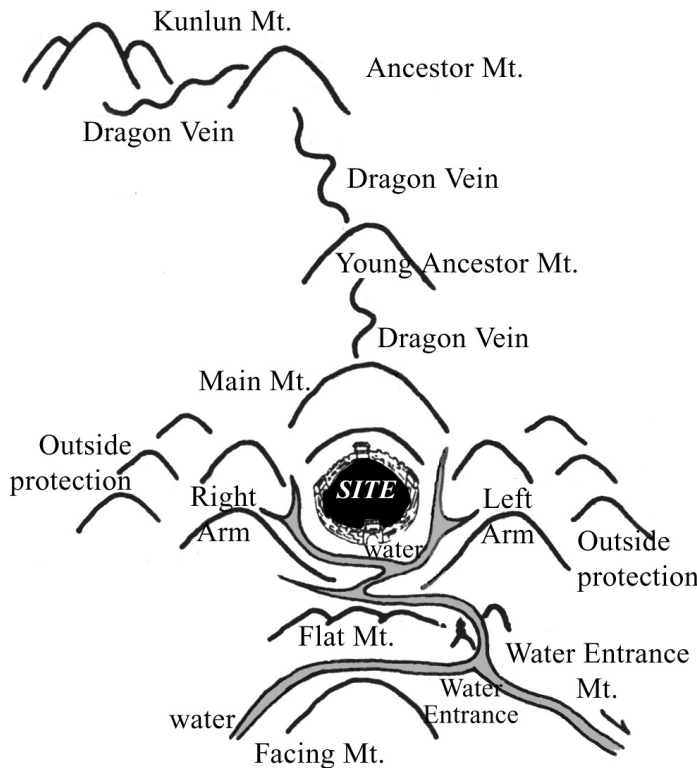



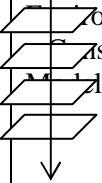

Figure 3 Ideal feng shui model (Yi, Yu, and Hong, 1996)

There are two types of Qi: living Qi and dead Qi. Summaries of separating live Qi and dead Qi into different natural elements is shown in Table 1-1 (Yi, Yu, and Hong, 1996). The simplest concept in feng shui is searching for a place where living Qi is abundant. Feng shui masters examine and arrange Qi by analyzing the land form (Fig. 3) and using a feng shui compass.

II. Comparison of Feng Shui and Western Models

Several aspects of feng shui and western models are compared and analyzed in detail. They are research subjects, analysis method and structure, and criteria. The following table shows the simplified comparison results.

Table 2 Brief comparisons of three models

	RESEARCH SUBJECTS	ANALYSIS METHODS		ANALYSIS STRUCTURE	ANALYSIS CRITERIA
	Climatic factors: temperature, humidity, wind, radiation	Individual analysis and their correlation effects, psychometric chart, and comfort zone	tangible	Frame structure	Human comfort
	Nature process, including geology, physiography, hydrology, climate, vegetation, etc.	Identify values for different categories and select a better fit environment and adaptation		in-tangible	Layer structure
	Qi and its relation with environment	Survey the mountain and water, find suitable area, and arrange Qi			From big system to small sub-system

Research Subjects

During the process of investigation, it gradually becomes clear that both western models share a common epistemological background. This explains the similarity in the two research subjects. Since the 17th century, the task of exploring the foundations of physical science, which is symbolized by Newton's physics, turned the philosophers to epistemology. As part of this trend, modern environmental study seeks the harmony of man and nature by analyzing the climatic and other natural influences on human activities.

Olgay noticed that man in the same environment as other living species “must either adapt their physiology, through selection or mutation, or find other defenses against the impacts of environment.” This is because it has been widely accepted that human physiology and cultural development have close relationships with climate and environment. With the identification of four major elements of climatic environment, Olgay presents clear and profound analytical results of their correlated impacts on human comfort. In his research system, nature and human beings are different entities. The development of science and technology provides opportunities to investigate in depth each sub-system and their antagonistic relations.

McHarg's approach is similar to that of Olgay, although his model of design with nature consists of eight major factors including climatic influences. He criticized traditional man-nature

relationships. From his perspective, human beings are a part of nature. He believes that by understanding and considering the manifestation of the natural processes and interactions of these factors, plans can be developed based on intrinsic suitability and limitations of the land. In addition, McHarg noticed that time may also become a major factor. So the investigation of “surficial geology” or hydrology and soils can show geological and meteorological history.

In the view of feng shui, man is part of nature and is also a form of Qi like everything else in the universe. Qi is the holistic concept that encounters natural phenomenon and human experiences, which cannot be simplified by any individual scientific factor such as energy and/or material. It is an entity of the earth and the stars, the divinities and the mortals, and human being on the earth. In addition, the ancient Chinese believed that everything in the universe was produced by changes, the results of the balance between Yin and Yang. Yin (- -) symbolizes the moon, the female, the dark, and the stillness; while Yang (→) symbolizes the sun, the male, the brightness, and motion. The concept of Yin Qi and Yang Qi is the basic for feng shui to express the ideal that man and nature can be and should be in harmony. Thus, it is argued that design with feng shui principles follows the natural law and can help to accumulate a good energy field, and eventually improve the life cycle of nature.

The differences of epistemological background and research subjects also reflect their various criteria. Human comfort is one of the fundamental goals of the bioclimatic model. It becomes the major criteria. In McHarg’s model, the basic criterion is fitness of environment for certain land development. The scientific understanding of the natural processes helps to select an appropriate plan. According to feng shui, living Qi should be harmonious with the surroundings. The important criteria thus become the balance between yin Qi and yang Qi, and abundant living Qi.

Analysis Methods and Structure

The method analysis and structure of the three approaches are different. Bioclimatic design emphasizes the major results of climatic changes, such as temperature and humidity, and focuses more on the correlations of these factors. Analytical results come from quantifiable figures and numbers. The analysis structure of the bioclimatic model is a frame structure, while each factor has liner connections with other factors.

In McHarg’s model, both tangible and intangible methods are used. For example, the thresholds of five phenomena ranking slope are defined as 2%, 5%, 10%, and 25%; while the results only show high or low ranking for air pollution with no specific standard. The model of design with nature has a layer structure. Factors of different categories are analyzed on separated layers and projected together; while factors within a major category are considered simultaneously.

Feng shui focuses on the observation and calculation of primordial causes, including the movements of planets and stars, and the balance of Yin Qi and Yang Qi. It is hard to use modern equipment and technology to implement the concepts. In terms of the analysis structure, the feng shui model considers every object or phenomena as a unit within a hierarchical-order system. For example, the site as a unit needs to have living Qi. According to the feng shui literature, vegetation is considered as the hair of the earth, soil as the flesh, land form as the bones, and

water as the blood. Using this metaphor, feng shui intends to protect the vegetation and soil, to enhance the land form, and to free and clean the circulation of the water.

III. Conclusion and Discussion

In summary, the differences among the three models show a change in the degree of tangibility from the bioclimatic model to feng shui other than conflicts between the western models and feng shui. It is also worth noticing the similar structure of the two western models. Both analysis processes follow a sequential order, although in the model of design with nature, the factors within a category also form a parallel structure – so the analysis sequences are from one unit to the other (Fig. 4a). On the contrary, feng shui has a different model with a hierarchical order. The unit can also be considered as a sub-system (Fig. 4b).

John Michell says “Feng-shui is the art of perceiving the subtle energies that animate nature and the landscape, and the science of reconciling the best interests of the living earth with those of all inhabitants” (Eitel, 1993). The above analysis shows it is possible to suggest an integrated approach (Fig. 4c) -- using a scientific research method and organic system, may lead to a better

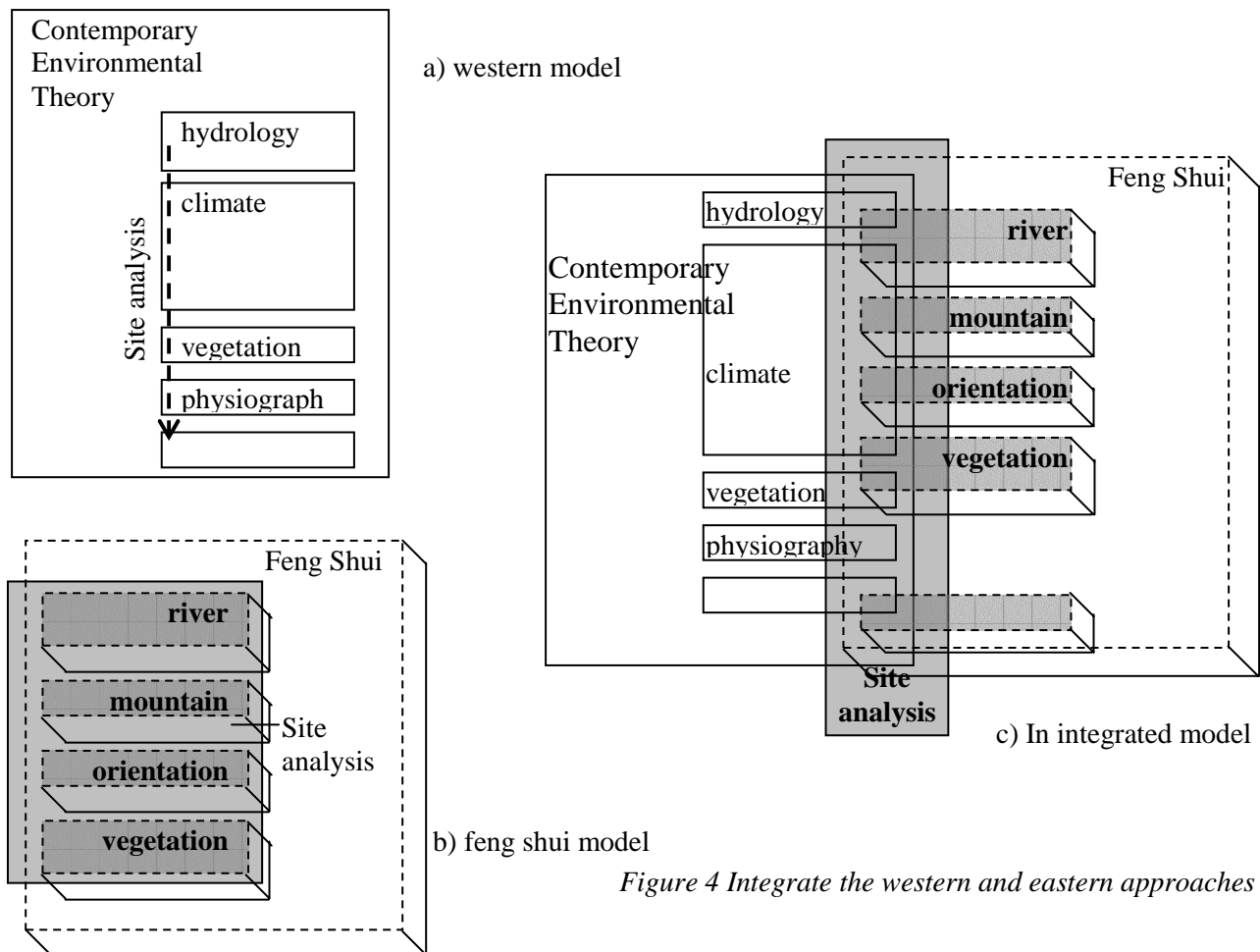


Figure 4 Integrate the western and eastern approaches

understanding of the relationships between humankind and the natural environment, and may create a more harmonious condition. If the applications of feng shui can be well analyzed and possibly combined with contemporary environmental theory, its principles need not remain simply an alternative approach, but could also lead to a new field of environmental science.

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