A Study on National Characteristics in Contemporary Chinese Architecture through Architects' Design Theories

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1. Introduction

Since China's reform and opening up (1978), international architecture scenes have poured in the country as the signal of Chinese government's open gesture to the world. In responding to the drastic changes, Chinese architects have been discussing national identities in architecture design so far. Some have been extracting the syntax of traditional buildings while others accentuating the spiritual values.

The design theories written by architects interpreting their works express their thoughts on national characteristics. Besides, their design approaches to realize their thinking in architecture works are also described in the texts.

This research aims to clarify national characteristics in contemporary Chinese architecture through the analysis of architects' design theories.

1.2 Material Establishment

Based on the impact factors and the contents, "Architecture Journal"（建筑学报）is selected as the source of research materials. As the first-class core journal in the field of architecture, it publishes architects' interpretation of their projects. Related design theories published since 1980 till 2020 are extracted and analyzed.

1.3 Research Methodologies

In order to determine the criteria for selecting research materials, five keywords have been defined as follow: 中国，我国，中华，东方，华夏 (China, Our country, Chinese nation, oriental, Hua xia). The texts containing the five keywords while discussing about Chinese characteristics are selected as research objects. Selected texts are analyzed to extract the contents of Chinese characteristics and design approaches. As Tab.2 shows, the content of Chinese characteristics He Jingtang discussed is "Dougong", a unique structural element in traditional Chinese architecture. The design method interpreted focuses on architecture form.

2. Contents of National Characteristics

Based on KJ method, architects' thoughts about national characteristics are analyzed and illustrated in Fig.1. They are summarized as 7 types: [I. Spiritual Value & Cultural Expression] [II. Spiritual Aspects of Architecture] [III. Architecture Form & Style] [IV. Spatial Organization] [V. Structure Schema], [VI. Architectural Detail] [VII. Relationship with the Context]. From the number of each content's frequency, [I] is playing an essential role in representing Chinese characteristics. The contents of [II], such as atmosphere and experience are also discussed frequently. Regarding architecture itself, spatial arrangement in [IV] has been discussed for 215 times, which indicates that it is treated as important characteristic to generate unique oriental experience.

These contents are further categorized as three major groups: [Spirit, Culture & Society], [Architecture] and [Urban & Landscape]. According to the attribute of the contents being discussed, they are classified into [Abstractness] and [Concreteness] groups.

Fig.1 reflects that the arguments about Chinese characteristics mainly focus on [Abstractness] aspects. In [concreteness] aspects, architecture form and style are discussed emphatically as well.

3. Design Approach Analysis

Architects' understanding about Chinese characteristics are embodied in their design works. Their design approaches are analyzed in Chapter.3.

3.1 Criteria for Directly & Indirectly

Based on the analysis of the selected articles, architects' approaches are categorized into two groups: [Directly] and [Indirectly]. The criteria of categorization is illustrated in Tab.3.

[Directly] refers to the situation in which the contents of [Concreteness] in Chapter 2 are adopted in the design works directly without medium.

[Indirectly] contains 2 situations: (1) [Abstractness] is translated to architecture design. (2)[Concreteness] is embodied in architecture through the process of abstraction, destruction & restruction, metaphor, variation, image schematization, symbolization and modern interpretation.

《建筑学报》 "Architecture Journal"	Checked Years	The Number of Selected Articles	The Number of Selected Texts
	1980-2020	582	1058

Tab.1 Number of Research Materials

Journal No.		Project Name	Location	Architect
《建筑学报》 [Architecture Journal] 2009.06		World Expo Shanghai China Pavilion	Shanghai	He Jingtang
Text containing the keywords			Analysis	

国家馆的构成方式吸取了中国传统建筑的屋架体系、斗拱造型的特点，以纵横穿插的现代立体构成手法生成一个逻辑清晰、结构严密、层层悬挑，以 27m 为模数的三维立体空间造型体系。

The form of China Pavilion draws on the characteristics of 'Dougong', one of the structural element in traditional Chinese architecture. Its overlapping composition creates a three-dimensional cantilevered space a module of 27m system.

3.1 Directly or Indirectly — Directly

3.2 Design Appoach Analysis — Form ⇒ 形态 Form & Style

2. Contents of National Chracterics — "Dougong" ⇒ V 建筑的架构 Structure Schema

Tab.2 Example of Analysis

I 精神价值与文化表现 Spiritual Value & Cultural Expression

Abstractness 抽象性 | Concreteness 具象性

Spirit, Culture & Society 精神文化&社会

- 【National Spirit/Character】22 — 不屈不挠 崇尚自然 兼收并蓄 含蓄内敛
- 【Population】5 — 子孙同堂 家庭结构核心化
- 【Symbols & Elements】87 — 九天 太极图 八卦 十二生肖 器物 灯笼 中国锦 祥云 屏
- 【Customs/Behaviors】60 — 庙会 登山远望 聚集而居 烹饪方式 讲究私密性 宋人观法
- 【History, Literature & Art】84 — 山水画散点透视 "计白当黑" 虚实相生 起承转合 "三远" 棋局 宣纸 水袖
- 【Thoughts & Theories】140 — 宗教: 佛教 道教 禅宗；哲学思想/价值取向: 风水理论 天人合一 阴阳相合 天圆地方 人与自然和谐 强调节俭 栖居山水 生生不息

II 建筑的精神层面 Spiritural Aspects of Architecture

- 【Design Theories】55 — "因借体宜" "幽旷开合" "欲扬先抑" "虚实相生" "位置经营" "叠山理水" "得景随形" "对景框景障景借景"

- 【Artistic Conception】42 — "曲径通幽处，禅房花木深" "庭院深深几许" "咫尺林"
- 【Atmosphere & Experience】60 — 崇高感 通透 "行望居游" 步移景异 时间观 路径体验为导向
- 【Social Attributes of Spaces】6 — "园"的私密属性 "街坊"的公共性

VI 建筑细部 Architectural Detail

- 【Construction】14 — 通风构造 遮阳构造 双层瓦缓解暑热
- 【Furniture】23 — 隔断 漏窗 屏风 纹样 美人靠 博古架

Architecture 建筑

IV 建筑的空间组织 Spatial Organization

- 【Scale】9 — 模数 木构寸法 街巷尺度
- 【Space Arrangement】215 —
  - 总括: 以"院落"为中心 内外空间相互渗透 轴线组织 座北朝南 平面序列、层次 隐秘性
  - 民居: 以"间"为单位 序列组织 单位大院 四水归堂 四合院
  - 园林: 互为对景 自由布局 大小对比 曲折迂回 疏密有序 层层递进
  - 宫式建筑: 宫廷院落 明堂布局

V 建筑的架构 Structure Schema

- 【Structure】47 — "墙倒屋不塌" 以"间"为单位 结构和空间高度整合 干栏式 外露的举架体系 木构体系 斗拱
- 【Materiality】23 — 瓦 竹 砖 生土

III 建筑的形制 Architecture Form & Style

- 【Style】154 — "三段式" 粉墙黛瓦 "如鸟斯革，如翼斯飞" 屋檐深远 "宫殿式" 抬梁式屋架 悬山 歇山
- 【Composition】83 —
  - 建筑: 大屋顶 台基 马头墙 城楼 门 圆柱 滴水
  - 园林: 花草竹木 叠山 边界 廊 榭 轩 台 亭

Urban & Lanscape 城市与景观

VII 与场地环境的关系 Relationship with the Context

- 【Layout】48 —
  - 建筑与自然关系: 依山而建 "前街后河" "背山面水" "因者随势势高下"
  - 城市: 模仿天宇河汉 "瓮城" 里坊制度 方格网布局 分级结构
  - 村落: 前方有案山，水流环绕
  - 园林: "城市山林" 粉墙围合——与城市的边界
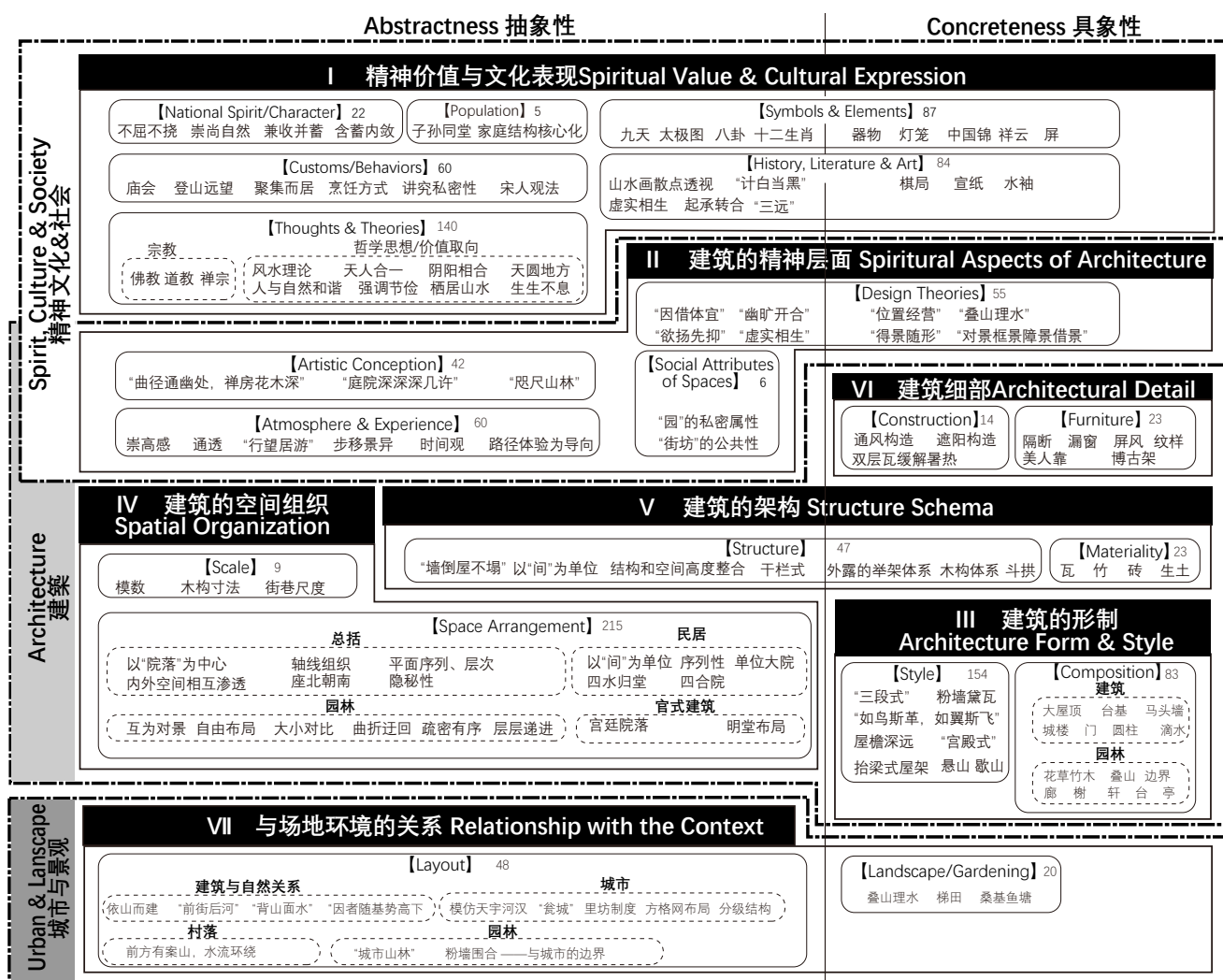- 【Landscape/Gardening】20 — 叠山理水 梯田 桑基鱼塘

Fig.1 Contents of National Characteristics

3.2 Design Phase Analysis

Architects' design phases are analyzed and categorized as 2 main types: [Architecture] and [Landscape]. They are subdivided into [形态 Form & Style] [空间 Space] [配置 Layout] [结构 Structure & Construction] [内饰 Furnishing] [景观 Landscape].

In [Directly] group, [形态] is the major phase, which means large quantities of projects apply traditional form and elements directly to modern form. For example, the China Pavilion at World EXPO 2010 extracted the form of "Dougong"and stimulated it with overlapping architecture composition.

In [Indirectly] group, it is shown that most architects realize national characteristics indirectly in [空间], such as space arrangement, spatial scale, etc. [形态] ranks the 2nd in [Indirectly] group, indicating that the form or style of many projects abstract, symbolize or interpret traditional form and elements in a metaphorical way. Besides, the high proportion of [配置] and [景观] shows architects also emphasize on the relationship between architecture and external, based on the fact that the concept of symbiotic with nature has been deeply rooted in Chinese culture. The oriental poetic feeling, or situatedness also relies on the relationship between internal and external space.
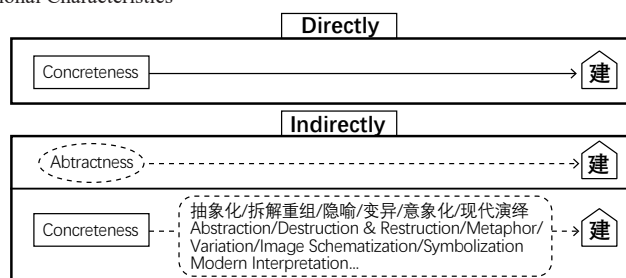

Directly: Concreteness → 建

Indirectly: Abstractness ---> 建 ; Concreteness → 抽象化/拆解重组/隐喻/变异/意象化/现代演绎 Abstraction/Destruction & Restruction/Metaphor/ Variation/Image Schematization/Symbolization Modern Interpretation... → 建

Fig.2 Criteria for Directly & Indirectly

Design Aproaches		Directly	Indirectly
形态 Form&Style	Form	165	229
	Facade/Material		
空间 Space	Space Arrangement	46	407
	Scale		
	Material		
	Light & Shadow		
配置 Layout	Architecture & Nature	28	118
	Architecture & Urban Context		
	Urban/Village Layout		
结构 Structure & Construction	Structure	27	48
	Technique & Detail		
内饰	Furnishing	37	32
景观 Landscape	Gardening	64	119
	Site Planning		

建筑 Architecture 1137 ; 景观 183 Landscape

Tab.3 Design Phase Analysis

4. Combination of Content and Design Approach

In this chapter, the associations between contents and design approaches are analyzed to reveal their reciprocal relationships. The strong inner bonds between contents and design approaches are illustrated in Fig.3.

23 groups shown in Fig.3 are mostly presented combinations in the articles. They reveal the different ways in which architects realize different aspects of Chinese characteristics. For example, (S) means evoking experience and artistic conception (situatedness) by integrating nature to architecture. (T) means translating traditional form to modern form.

Concerning the aspect of [Spirit, Culture &Society], most design works embody it in an indirectly way. And the design approaches mostly focus on 3 ways: form/façade, space arrangement, layout of architecture and external. For example, (K) Translate Chinese calligraphy and drawing in form/façade; (M) Arrange spaces based on philosophic theories and ritual system; (R) Evoke experience and artistic conception with space arrangement and atmosphere.

As for the aspect of [Architecture], [Indirectly] also prevails over [Directly]. Traditional form, space arrangement and structure are translated into modern language indirectly. (U) has the largest number, showing that most of the design works organize spaces according to traditional space arrangement, such as the courtyard surrounded by living spaces in traditional dwellings.

In [Urban & Landscape], relationship between traditional architecture and external, such as nature and urban context, has also been emphasized frequently. The overall consideration of external and internal as an entity is treated as important way to embody Chinese characteristics.

5. Chronological Study

The design theories selected from "Architectural Journal" from 1980 to 2020 can reveal the changes of architects' thoughts on Chinese characteristics during the rapid social development process. The contents of Chinese characteristics and design approaches are studied chronologically in this chapter.

5.1 Chronological Change in Content of Chinese Characteristics

Generally speaking, Fig.4 reveals the increase of the discussions about Chinese characteristics after China's reform and opening up. The frequency of the discussions reached its climax in the period of 2006-2010, during which several important international public events were held in China, such as Beijing 2008 Summer Olympics and Expo Shanghai 2010.

In particular, in regard to the ratio of the contents being focused on, fig.4 shows significant increase in [Spirit, Culture &Society] and decrease in [Architecture]. Especially from 1990s till now, [I] group has been the mostly discussed aspects of national characteristics. This trend indicates that architects have emphasized on spiritual aspects more while architecture itself less.

When the contents are divided into [Directly] and [Indirectly] groups, it is shown that realizing the contents of [Architecture] directly has decreased enormously, while realizing the contents of [Spirit, Culture &Society] indirectly has increased.
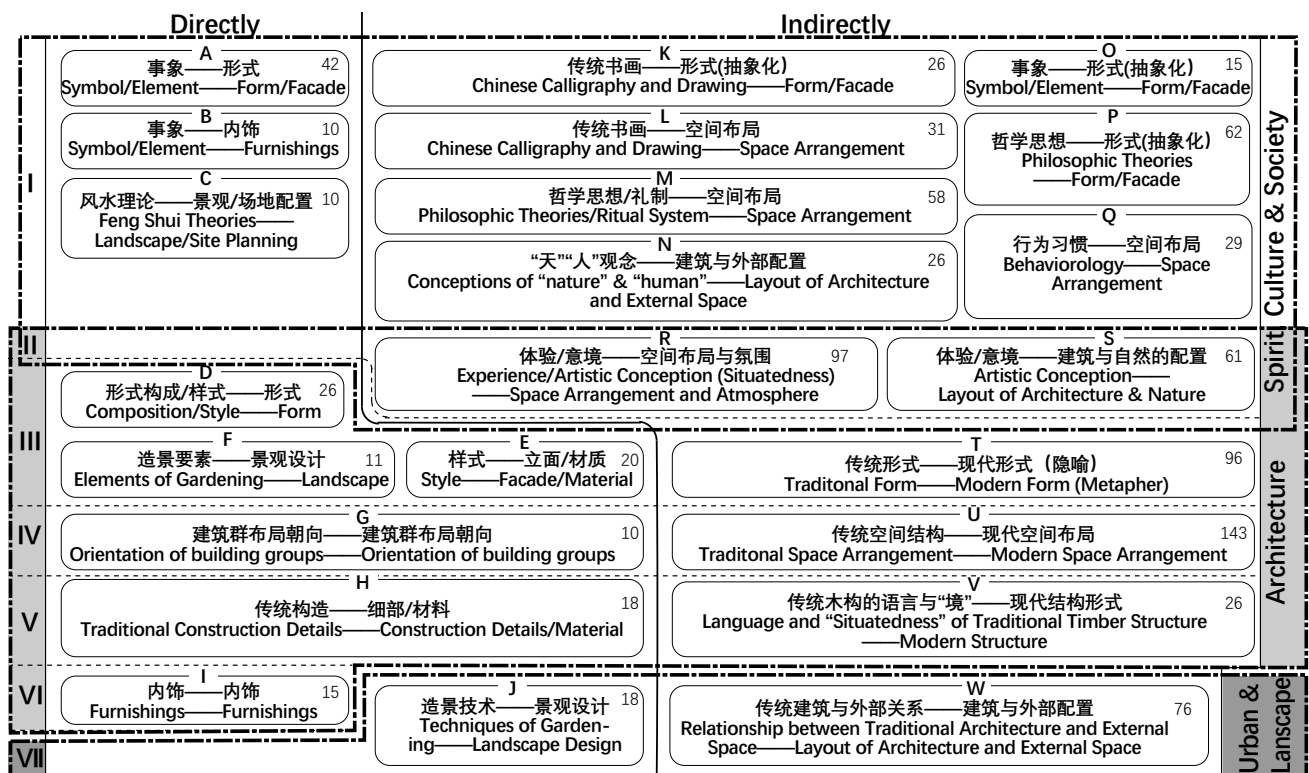

Fig.3 Combination of Content & Design Approach

5.2 Chronological Change in Design Approach

Generally speaking, according to Fig.5, the ratio of [Directly] group has been declining while [Indirectly] group growing since 1990s. The iconic approaches are gradually replaced by metaphoric or symbolic approaches.

(1) [Directly] Group: [形态] is the majority of design approaches in Directly group. For example, project {c} incorporates traditional big roof and facade directly. However, it has decreased year by year since 1990s, which means retaining traditional architecture form or Chinese elements in modern works has become less. Besides, the change of [内 饰] group's proportion reveals that architects' attention to furnishings has declined.

(2) [Indirectly] Group: [空 间] has the highest ratio in [Indirectly] group and has increased over time. On behalf of it, spatial operation generates oriental experience and are likely to be anologized to Chinese literature and art. For example, the architect of project {b} in Fig.5 mentions that the openings between different spatial layers embody the experience of permeability in traditional Chinese architecture. Moreover, The increase in [配置] and [结构] since 2000s indicates that Chinese architects have gradually increased their attention to structure design and layout of internal and external space. For example, project {a} translates the aesthetic theory in the language of separated arch structures. Project {e} shows the architect's intention to intergrade garden and architecture as a whole.

6. Conclusion

In the study, the design theories by architects were viewed as the carrier of their thoughts about Chinese characteristics. Architects' multifaced thoughts were summarized as 7 types. Through the analysis of architect's design approaches, two general groups: [Directly]and [Indirectly] were sorted out. Then, architects' different ways of embodying different aspects of Chinese characteristics were summarized as 23 groups (A-W).

From the perspective of chronological trends, Chinese architects have stressed on spiritual and cultural aspects more emphatically so far. To interpret that aspect in architecture, architects tend to adopt implicit and obscure approaches.

Reference:
1. Chen Ye, Keisuke Kitagawa, Polymorphism of "Chineseness" in Text Description of Buildings after 2000, J. Archit. Plann., AIJ, Vol.84 No.759
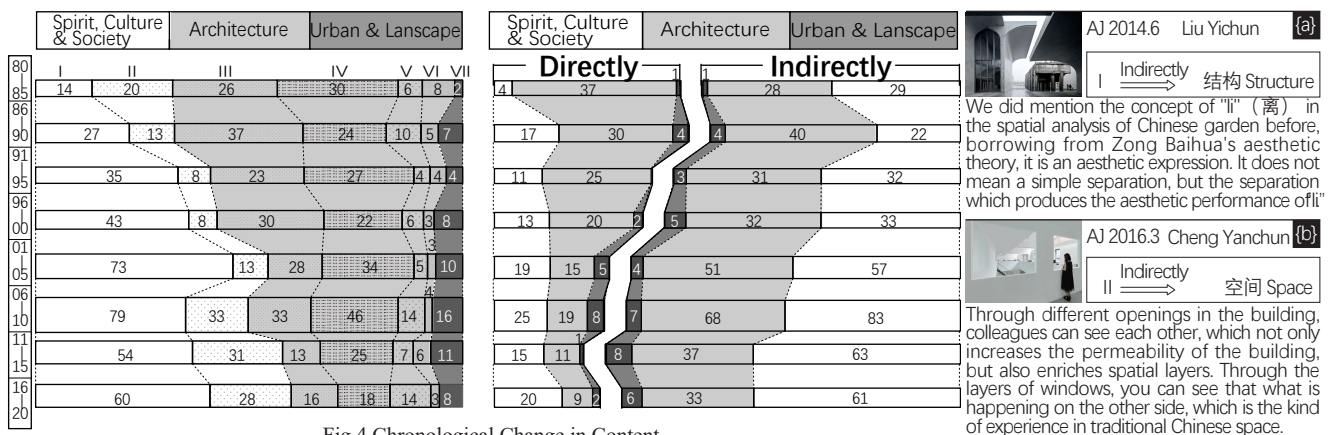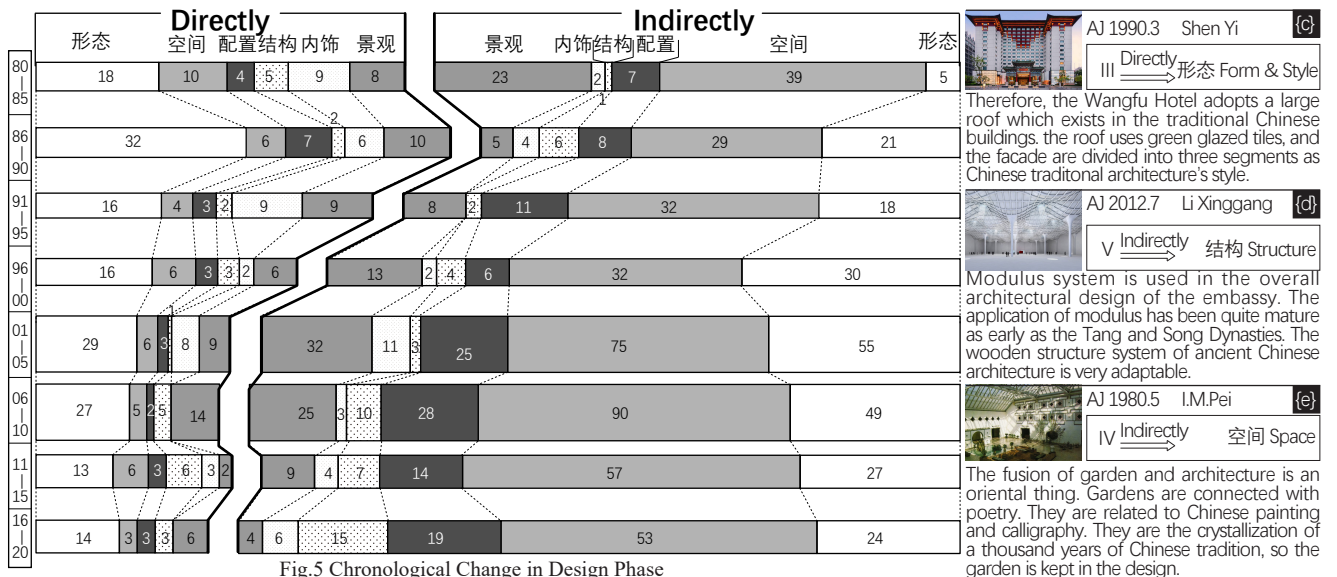
Fig.4 Chronological Change in Content

Fig.5 Chronological Change in Design Phase

AJ 2014.6 Liu Yichun {a}
I Indirectly 结构 Structure

We did mention the concept of "li"（离）in the spatial analysis of Chinese garden before, borrowing from Zong Baihua's aesthetic theory, it is an aesthetic expression. It does not mean a simple separation, but the separation which produces the aesthetic performance of li"

AJ 2016.3 Cheng Yanchun {b}
II Indirectly 空间 Space

Through different openings in the building, colleagues can see each other, which not only increases the permeability of the building, but also enriches spatial layers. Through the layers of windows, you can see that what is happening on the other side, which is the kind of experience in traditional Chinese space.

AJ 1990.3 Shen Yi {c}
III Directly 形态 Form & Style

Therefore, the Wangfu Hotel adopts a large roof which exists in the traditional Chinese buildings. the roof uses green glazed tiles, and the facade are divided into three segments as Chinese traditonal architecture's style.

AJ 2012.7 Li Xinggang {d}
V Indirectly 结构 Structure

Modulus system is used in the overall architectural design of the embassy. The application of modulus has been quite mature as early as the Tang and Song Dynasties. The wooden structure system of ancient Chinese architecture is very adaptable.

AJ 1980.5 I.M.Pei {e}
IV Indirectly 空间 Space

The fusion of garden and architecture is an oriental thing. Gardens are connected with poetry. They are related to Chinese painting and calligraphy. They are the crystallization of a thousand years of Chinese tradition, so the garden is kept in the design.