建筑是怎样炼成的

——建筑创意与策略

How the architecture was Tempered

先锋空间 | HKASP 编　博远空间 策划

向大师学创意

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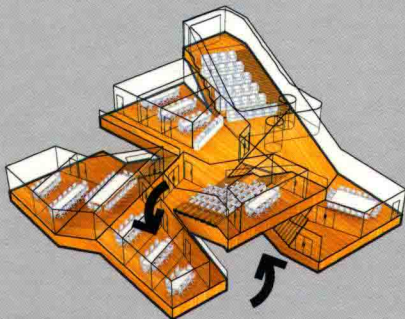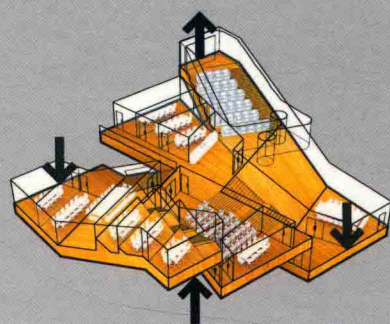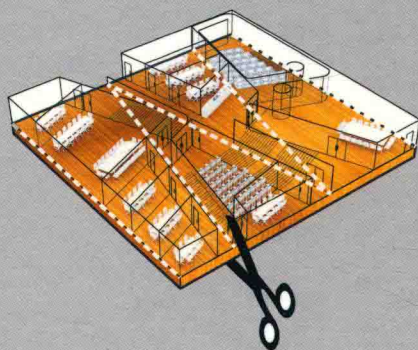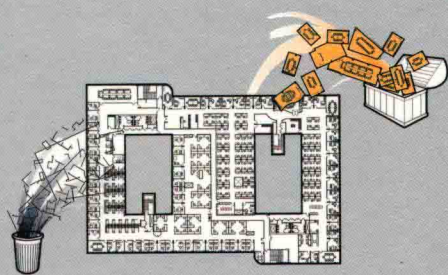墨菲/扬、
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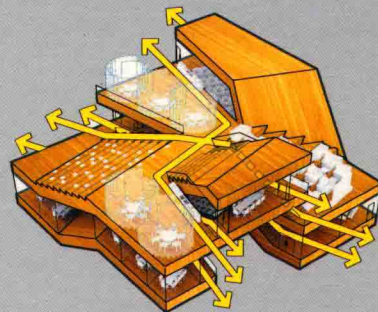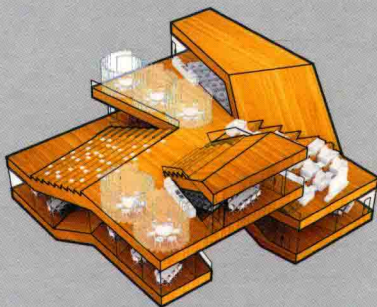
筛选世界建筑级大师 45 个创意非凡
的项目，深入解读近 150 种设计常见
的问题和解决策略！

中国林业出版社

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How
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HOW THE ARCHITECTURE WAS TEMPERED

先锋空间 | HKASP 编

建筑是怎样炼成的 建筑创意与策略
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SYNOPSIS

All students studying architecture or urban planning will want to know what the right design method is when they begin to learn design. The situation is basically no different to teachers. Corresponding to the beginners' question, teachers will ask what the right way to teach design is. There are at least two different possibilities in the main dimensions: one is the selected distinguished examples, and the other is about the methods to develop solutions. This book adopts the first one and elaborates specific design process to everyone in the form of selected distinguished examples.

This book is not the practice of architectural theory, but the display of excellent practical achievements under the guidance of design science. Architectural theory mainly shows the historical architects' different positions and styles and their reflections on architecture. The objects of the architectural theory cover the dominant ideas of a certain period or an architect, a design team. Different from this theory, the theory of design science is about the phenomenon of architectural works and similar objects. Its core concern is not on history but on structure. Its questions are: What is design? How is design carried out? What do designers mainly do? What kind of rationality do they follow?

导读

建筑学或城市规划的学生开始学习设计之初，都会希望知道什么才是正确的设计方法。这种情况对老师而言基本上也没有什么不同，与初学者的问题相对应，老师也会问，什么才是正确的方法来进行设计教学。在主要的维度上至少有两种不同的可能性，一个是精选优秀范例，一个是讲如何发展解决方案的方法。而本书采用前一种方法，采用精选优秀范例的形式，跟大家阐述具体的设计过程。

本书不是建筑理论的实践，而是在设计科学的指导下优秀实践成果的的展示。建筑理论主要显示了历史上建筑师的不同立场和风格以及对建筑的反思，其对象涉及到某个时期的主导思想或者一个建筑师、一个设计小组的主导思想。与这种理论不同，设计科学要发展的理论是关于建筑作品和相似对象的现象，它主要关注点不在历史而是结构，它的问题是：什么是设计？设计是怎样进行的？设计者主要做什么？他们遵循什么样的合理性？

ABOUT DESIGN

What is design?

The definition of design should be sufficiently general and has covered a variety of different designs including industrial design, landscape design, architectural and urban design. There are many different definitions of design in literature. They individually emphasise different aspects. Some focus on the visual aspect, some put particular emphasis on the problem-solving process, and some concern on information processing. But all definitions admit such a fact, that is, design is a behaviour, not a result and the definition of design has nothing to do with that of "architecture".

Design is :
-A process of developing reasonable solutions.
-A process of developing knowledge about problems related to solutions. These problems mix with emerging visual imaginations at the same time and become the objects for further refinement and development.
-A behaviour of processing purposes, conditions, means and other information in the interaction process of creating and reducing possible plans.
-A behaviour aiming at putting a plan into practice and getting the desired results caused by the realisation of the plan.

关于设计

设计是什么？

设计的定义应该足够普遍已涵盖各种不同的设计，包括工业设计、景观设计、建筑和城市设计，文献中对设计有许多不同的定义，它们各自强调不同的方面。有些主要关注视觉方面，有些侧重问题解决的程序，有些侧重信息处理。但所有的定义都承认这样一个事实，设计是一个行为，不是一个结果，也跟"建筑"的定义无关。

设计是

一个创造合理解决方案的过程。

一个开发关于解决方案相关问题的知识的过程，这些问题同时与出现的视觉想象相混合，成为进一步推敲和发展的对象。

是一个在创造和缩减可能方案多样性的交互过程中处理关于目的、条件、手段等信息的行为。

是一个旨在将计划付诸实施的行为，并且如果计划实现将会导致期望的结果。

ABOUT DESIGN PROCESS

Design is complex and even a very simple problem will be very complex in design. Firstly, it is difficult to define the scope of problems and determine the space to find the answers. Secondly, it can be seen that the solutions of problems depend on the definitions of relevant aspects which influence the definitions of the problems in turn. The final decisions do not come from particular rational routes. They are the results of bargaining among architects, business owners, market analysts, manufacturers, economists, marketing experts and other stakeholders.

Dealing with complex problems means it is necessary to face conflicting value systems of a variety of parties and face the difficulty of limiting or reducing solutions, because the design solutions are unlimited theoretically and a large number of factors from all aspects and their unusual interaction ways need to be taken into account.

Among the many factors, there are three aspects having a relatively large impact on design: one is contexts, one is human factors, and another one is functions. Most designers will begin to design from the three aspects. And according to specific projects, every designer will have a certain emphasis or priority when considering these three aspects.

关于设计过程

设计是复杂的，在设计中即使非常简单的问题也会非常复杂。首先是难以界定问题的范围并确定寻找答案的空间，其次，我们可以看到问题的解决方案取决于相关方面的定义，而这些方面又影响着对问题本身的定义。最后的决定并非来自于某一特定的理性路线，而是建筑师、企业主、市场分析师、生产商、经济师、营销专家和其他利益相关者之间讨价还价的结果。

处理复杂性问题意味着要面对各种参与者之间冲突的价值体系、面对限定缩小解决方案范围的难度，因为理论上设计的解决方案是无限的，需要考虑大量方方面面的因素以及它们不同寻常的相互作用方式。

在众多因素里，主要有以下三个方面对设计有比较大的影响，一个是文脉，一个是人的因素，还有一个是功能，设计师们大多在做设计时都从这三个方面着手。而根据具体的项目，每个设计师在考虑这三个方面时，都会有一定的侧重点，或者优先级。

ABOUT CONTEXTS

No houses are isolated and they are connected with the outside world, linked with law, society, environment, profession, economy, politics, culture, etc. When facing these complex information, architects need to be dedicated and treat the systems including the design objects and their site conditions as an entity. Architectural design is an intervention to the real world. When the works of architects meet with the real world, there is causality between them. Context is a part of the real world and it exists before a new building is created. From the perspective of context treatment, it can be seen that architecture is neither autistic, specific behaviour, nor an artist's autonomous aesthetic statement. However, as an intervention to the real world, architectural design is often a behaviour of gaining inspiration through contexts. Context treatment may be seen as a constraint, but architects still have free space to treat contexts.

Contexts are not independent objects or ideas like geometric graphics, colours, etc. Contexts are always related to other things which are the main concerns and are implanted into the contexts. Context indicates a relationship. Architects must take contexts into account when they begin to design. Sometimes, context is an intervention, a basis, a motivation for design.

Context can be defined as a system composed of all elements in a particular piece of the real world the architect intends to intervene and consider. These "elements" have different natures.They can be physical elements like adjacent buildings, can also be spiritual elements like happiness and satisfaction and so on, but also be mental elements such as knowledge, habits, customs and other things about a culture. By extension, they can also describe the considerations affecting ecosystems from many aspects. To this extent, context has represented the whole known network of all possibilities of influence factors in a general sense, and is the source of stimulating design inspiration and the results of

关于文脉

没有一座房子是孤立的，它们是与外界相连的，与法律、社会、环境、职业、经济、政治、文化等相联系，建筑师们在面对这些复杂性的信息时，需要专注的将包含设计对象及其所处场地情况的系统作为一个整体来处理。建筑设计是对现实世界的干预，建筑师的作品与现实世界相遇，彼此并非没有因果，文脉就是这个现实世界的一部分，在一个新建筑加入之前就已经存在。从处理文脉的角度能够看出，建筑既不是自闭的、特异的举动，也不是艺术家的自主性美学陈述，然而，作为一种对真实世界的干预，建筑设计往往是一种通过文脉来赢得其灵感的行为。对文脉的处理可能会被看作是一种制约，但建筑师还是有处理文脉的自由空间。

文脉不是一个像几何形、色彩等独立存在的事物或构想，文脉总是与其他的一些事物相关，这些事物是主要关注的对象并且植入于文脉之中，文脉指明了一种关系。文脉是建筑师开始设计时必须考虑到的问题，有时，文脉对于设计是一种干预，一种依据，一种激发。

文脉可以定义为建筑师打算干预和考虑的某个现实世界片段中所有元素集合而成的系统。这些"元素"具有不同的本性，它们可以是物质元素如相邻建筑物，也可以是精神元素如幸福和满足等，同样也可以是心理元素如关于一种文化的知识、习惯、习俗等，扩展开来还有描述影响生态系统诸多方面的考虑等等。从这个程度上讲，文脉从普遍意义上代表了影响因素所有可能性的整个已知

these design interventions in various systems such as villages, cities, regions, etc.

Contexts contain many elements, such as climate, energy, topography, natural environment, local culture, advance technology, etc. However, among the various aspects of contexts, there is a trade-off in architects' brains or based on the actual project needs. There is no fixed importance degree for the context's various aspects. If an architect considers the artistic side, he will provide a sculptural plan or a conceptual statement; If considering technology, he will display the most innovative materials or structures; If the architect considers ecological guidance, then energy efficiency technology will be adopted and displayed with the architectural form or organisation. Some architects will consider the physical characteristics of the surrounding environment, such as materials, colours, landscapes, etc., while others may consider the symbol needs of developing countries or in cultural process. The cases on the left are for your reference.

Context is not static. The analysing of contexts is also an objective behaviour basically, but context treatment and the responses to the existing contexts are all related to the architects' values, preferences and interests. Besides, the establishment of context consciousness will become the decisive incentives of creativity and judgment in design.

Dimension of freedom of our own imagination must be built in the form of context establishment and treatment. It seems that the value of freedom is freedom itself, but freedom makes action harder: creative concepts' methods, inventions and personal judgments cannot be obtained by relying on context unless there is a more conscious basis.

网络，是我们考虑作为激发设计灵感的源泉以及这些设计干预在各个系统如村庄、城市、区域等的影响结果。

文脉包含的元素众多，如气候，能源，地形，自然环境，当地文化，先进技术等等，但是在文脉的各个不同方面之间，建筑师在大脑中或者因为实际项目的需求，都会有一个权衡。文脉各个方面的重要性没有固定的等级之分，如果建筑师考虑的是艺术方面，他将提供一个雕塑感强的方案或概念性陈述；如果考虑的是技术，他会展示最创新的材料或是结构；如果是生态导向，那么会采用能效技术并将其展示与建筑的形态或建筑的组织。有些建筑师会考虑到周围环境的物理特性如材料、色彩、景观等，而另一些建筑师可能会考虑到发展中国家或文化进程中的对符号的需要。如参左侧考案例所述。

文脉不是一成不变的，对于文脉的分析大多也是客观的行为，但是对于文脉的处理，以及如何对已有的文脉做出回应，都与建筑师的价值观、喜好和兴趣的导向相联系，同时文脉意识的建立将成为设计中创意和判断力的决定性诱因。

在文脉的建立与文脉处理的形式上要建立我们自己想象的自由维度，自由似乎是其本身的价值所在，但它却使行动更为困难：即使依赖于文脉，仍然无法得到创意概念的方法、发明和个人判断，除非建立在更有意识的基础上。

ABOUT PEOPLE

Architecture is not only a single participant in which architects advocate aesthetic concepts or products of developers who are the representatives of functionalism and economic pragmatism, but also a question of how to deal with social needs and the needs of people as building users.

The people, in the entire construction activities, include architects, planners, customers or developers, users and other relevant participants. But users are usually unknown, and because users and architects are two kinds of people with two backgrounds and preference systems, different educational backgrounds, social reference standards and professional environments, they have different understandings to what is success, what is happiness, what is beautiful, what is the full range of daily life, etc.

Therefore, architects need to communicate with users first and develop theoretical background material about the interested themes. Besides, architects have to make a reasonable estimate of the difference of the preferences of architects, users and other relevant people.

Dealing with the questions of users and other participants is a basic problem in actual design process. The work of architects and urban planners is in a social context. Careful investigation of needs, desires and preferences of social actors including users is an important part of our work. Although it always makes design and planning process longer and more complex, the results will be better accepted and will be more sustainable and can enrich our knowledge on the basis of better planning and design.

关于人

建筑不仅是单个参与者，如作为美学概念倡导者的建筑师或作为功能和经济实用主义代理者的开发商的产品，同时 也是一个如何处理社会需求以及作为建筑使用者的人的需求问题。

人，在整个建造活动中，包括建筑师，规划师，客户或开发商和使用者等相关参与者。但是通常使用者都是未知的，使用者与建筑师，两个人，两种背景，两种偏好系统，不同的教育背景，不同的社会参考标准，不同的专业环境，对什么是成功，什么是幸福，什么是美观和什么是充分的日常生活情况等等都有不同的理解。

所以，建筑师首先需要与使用者进行沟通，而且应该就关心的主题制定有关这一问题的理论背景材料。同时，建筑师必须对自己的偏好与使用者及其他相关人群偏好的差异做出一个合理的估计。

处理使用者和其他参与者的问题，是实际设计过程中一个基本问题。建筑师和城市规划师的工作处于一个社会文脉之中，包括使用者在内的社会参与者的导向，对需求、愿望和偏好的细致调查是我们工作的重要组成部分，虽然它总是使设计和规划过程更长、更复杂，但结果会更好地被接受和更可持续发展，可以少犯错误，并在更好的规划和设计基础上丰富我们的知识。

ABOUT FUNCTIONS

A function is a collection of activities that serve a particular purpose. It indicates a use of things. The collection can be microscopic and macroscopic according to interests and different concerns.

Before a building becomes a reality, activities that may or should occur within the building will be set generally. Then regions, space, rooms and their properties will be created. Finally, we can develop a list of rooms. In many cases, such as in most architectural design competitions, the lists of rooms are given, but more and more architects and planners still have to develop the lists by themselves or at least give suggestions.

When designing the Blizzard Headquarters, on the basis of determining the original building structure, REX made a detailed analysis of the features of functional units, listed a variety of functions and scenes of activities by taking the function flow as orientation. Then REX set different space according to a variety of scenes. Finally REX connected these units or rooms together in accordance with certain logic.

"Form follows function." The slogan of Sullivan represents an architectural design direction based on functions in modern movement. "Follow" can be interpreted as providing a process emerging from logic.

Function-oriented design ideas can be roughly divided into two directions: one is the interpretation of structuralism which holds that the external forms should obey basic structural rules, bearing and compression functions, force transmission, the separation of bearing structure and envelop enclosure, etc. This idea was the mainstream ideological trend until 1980s and Ludwig Mies Van der Rohe and Walter Gropius are the representatives of this ideological trend.

The other tendency is to carefully analyse the characteristics of functional units and holds that the creation of forms is related to the requirements of various activities and takes the function flow as orientation. The above-mentioned Blizzard Headquarters designed by REX is an example.

关于功能

CONCLUSION

结语

功能是一个服务于特殊目的的活动的集合，它指明了事物的一种用途，依据对利益和考量的不同关注点，这个集合可以是微观的，也可以是宏观的。

在建筑物成为现实存在之前，一般都会对建筑内可能会发生的活动，应该会发生的活动进行一个设定，然后根据这样的活动及其需求建立区域，空间，房间及其属性，最后我们可以发展出一个房间的列表，很多情况下，如在大多数建筑设计竞赛中，这是给定的，但是越来越多的建筑师和规划师还是得自己进行或者至少要给出建议。

REX 设计的 Blizzard Headquarters，就是在原建筑结构确定的基础上，细致分析了功能单元的特征，以功能流程为导向，罗列了多种功能和活动场景，然后根据各类活动场景设定不同的空间，最后按照一定的逻辑将这些单元或房间联系起来。

"形式追随功能"沙利文的这句口号代表了现代运动中以功能为基础的一种建筑设计导向。"追随"可以被解释为提供由逻辑应运而生的过程。

功能导向的设计思路大概可以分为两个方向：一个是结构主义的诠释，认为外部形式要服从基本的结构法则、承载和受压的功能、力的传递、承重结构和围护结构的分离等等，这种主张进而成为主流思潮，以密斯·凡德罗和沃尔特·格罗皮乌斯为代表人物这一思潮一直持续到 1980 年代。

另一个倾向则是细致分析功能单元的特征，认为形式的创造与各种活动的要求有关，是以功能流程为导向的。上面提到的 REX 设计的 Blizzard Headqurters 就是一个例子。

Design intends to change the real world, not to discover or analyse it, or to keep it running or explain it. As a special human activity, design has characteristics different from other activities such as scientific research, organisation, communication and can be supported with the methods adapt to its specific problems. Design problems are complex and show network structure. It is hard to define them because of the unusual interactions of their elements and local schemes, the uncertainty of the effects of the considered schemes, the reliance on judgments, etc. Besides, the processing of knowledge in design process is also special. Except the factual knowledge and instrumental knowledge, moral knowledge, conceptual knowledge and interpretive knowledge are also used. Capacities such as problem solving, analysing, social negotiation, conceptual thinking, future simulation, judging and so on are required for design activities. The capacities can be supported and enhanced with the methods in this book.

It is helpful to clarify complex problems by determining key words or key problems, discussing them according to argumentation rules and using orderly procedures. Every design is an intervention to the existing contexts. The contextual analysis must be based on different aspects not just material aspect. When dealing with questions of relevant people, relevant methods such as empiricism investigation, participation, round tables, mediation and intervention can be adopted. Charts help ttraighten out function problems. Some techniques such as brainstorming or morphological tree diagrams, morphological block diagrams help support originality.
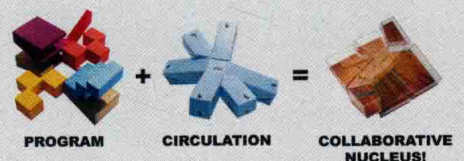
When designers are concerned about the future acts, the challenge will be how to prove the validity of these results through refutation and argument. Any improvement, reinforcement and additional methodology is very important. Our world is too fragile, too sensitive, and too beautiful to be a designed object without carefulness, thoughtfulness and careful consideration.

设计意在改变真实世界，而非发现或分析它，或让它保持运转或解释它，设计作为一项特殊的人类活动具有与其他活动诸如科学研究、组织、沟通等不同的特点，可以由适合其特定问题的方法来支持。设计问题是复杂的并呈网状结构，很难界定它们，其元素和各局部方案的不同寻常的交互关系，所考虑方案影响的不确定性，依赖于判断等等。同时设计过程中知识的加工也是特殊的，除了事实性知识和工具性知识还使用到道义知识、概念性知识和解释性知识。设计活动需要诸如问题解决、分析、社会谈判、概念性思考、模拟未来以及判断等能力，这样的能力可以用本书的方法支持和增强。

通过建立主要关键词或关键问题、根据论证规则讨论它们、使用秩序化的程序等有助于厘清复杂问题。每一个设计都是一个对现有文脉的干预，文脉的分析必须根据不同的方面而不仅仅是物质方面。在处理相关人的问题时，相关的方法如经验主义调查、参与、圆桌会议、仲裁调停等。图表有助于理顺功能问题。一些技巧如头脑风暴或形态树形图、形态框图等有助于支持创意。

设计师关注未来的行为，其挑战将会是如何通过反驳和辩解来证明这些结果的有效性，任何改进、任何强化、任何额外的方法论帮助都是十分重要的，我们的世界太脆弱、太敏感、太美丽，不应该是粗心、考虑不周、没有经过深思熟虑的设计对象。

PROGRAM + CIRCULATION = COLLABORATIVE NUCLEUS!

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HOW THE ARCHITECTURE WAS TEMPERED

先锋空间 | HKASP 编

SYNOPSIS

All students studying architecture or urban planning will want to know what the right design method is when they begin to learn design. The situation is basically no different to teachers. Corresponding to the beginners' question, teachers will ask what the right way to teach design is. There are at least two different possibilities in the main dimensions: one is the selected distinguished examples, and the other is about the methods to develop solutions. This book adopts the first one and elaborates specific design process to everyone in the form of selected distinguished examples.

This book is not the practice of architectural theory, but the display of excellent practical achievements under the guidance of design science. Architectural theory mainly shows the historical architects' different positions and styles and their reflections on architecture. The objects of the architectural theory cover the dominant ideas of a certain period or an architect, a design team. Different from this theory, the theory of design science is about the phenomenon of architectural works and similar objects. Its core concern is not on history but on structure. Its questions are: What is design? How is design carried out? What do designers mainly do? What kind of rationality do they follow?

导读

建筑学或城市规划的学生开始学习设计之初，都会希望知道什么才是正确的设计方法。这种情况对老师而言基本上也没有什么不同，与初学者的问题相对应，老师也会问，什么才是正确的方法来进行设计教学。在主要的维度上至少有两种不同的可能性，一个是精选优秀范例，一个是讲如何发展解决方案的方法。而本书采用前一种方法，采用精选优秀范例的形式，跟大家阐述具体的设计过程。

本书不是建筑理论的实践，而是在设计科学的指导下优秀实践成果的的展示。建筑理论主要显示了历史上建筑师的不同立场和风格以及对建筑的反思，其对象涉及到某个时期的主导思想或者一个建筑师、一个设计小组的主导思想。与这种理论不同，设计科学要发展的理论是关于建筑作品和相似对象的现象，它主要关注点不在历史而是结构，它的问题是：什么是设计？设计是怎样进行的？设计者主要做什么？他们遵循什么样的合理性？

ABOUT DESIGN

What is design?

The definition of design should be sufficiently general and has covered a variety of different designs including industrial design, landscape design, architectural and urban design. There are many different definitions of design in literature. They individually emphasise different aspects. Some focus on the visual aspect, some put particular emphasis on the problem-solving process, and some concern on information processing. But all definitions admit such a fact, that is, design is a behaviour, not a result and the definition of design has nothing to do with that of "architecture".

Design is :

-A process of developing reasonable solutions.
-A process of developing knowledge about problems related to solutions. These problems mix with emerging visual imaginations at the same time and become the objects for further refinement and development.
-A behaviour of processing purposes, conditions, means and other information in the interaction process of creating and reducing possible plans.
-A behaviour aiming at putting a plan into practice and getting the desired results caused by the realisation of the plan.

关于设计

设计是什么？

设计的定义应该足够普遍已涵盖各种不同的设计，包括工业设计、景观设计、建筑和城市设计，文献中对设计有许多不同的定义，它们各自强调不同的方面。有些主要关注视觉方面，有些侧重问题解决的程序，有些侧重信息处理。但所有的定义都承认这样一个事实，设计是一个行为，不是一个结果，也跟"建筑"的定义无关。

设计是

一个创造合理解决方案的过程。

一个开发关于解决方案相关问题的知识的过程，这些问题同时与出现的视觉想象相混合，成为进一步推敲和发展的对象。

是一个在创造和缩减可能方案多样性的交互过程中处理关于目的、条件、手段等信息的行为。

是一个旨在将计划付诸实施的行为，并且如果计划实现将会导致期望的结果。

ABOUT DESIGN PROCESS

Design is complex and even a very simple problem will be very complex in design. Firstly, it is difficult to define the scope of problems and determine the space to find the answers. Secondly, it can be seen that the solutions of problems depend on the definitions of relevant aspects which influence the definitions of the problems in turn. The final decisions do not come from particular rational routes. They are the results of bargaining among architects, business owners, market analysts, manufacturers, economists, marketing experts and other stakeholders.

Dealing with complex problems means it is necessary to face conflicting value systems of a variety of parties and face the difficulty of limiting or reducing solutions, because the design solutions are unlimited theoretically and a large number of factors from all aspects and their unusual interaction ways need to be taken into account.

Among the many factors, there are three aspects having a relatively large impact on design: one is contexts, one is human factors, and another one is functions. Most designers will begin to design from the three aspects. And according to specific projects, every designer will have a certain emphasis or priority when considering these three aspects.

关于设计过程

设计是复杂的，在设计中即使非常简单的问题也会非常复杂。首先是难以界定问题的范围并确定寻找答案的空间，其次，我们可以看到问题的解决方案取决于相关方面的定义，而这些方面又影响着对问题本身的定义。最后的决定并非来自于某一特定的理性路线，而是建筑师、企业主、市场分析师、生产商、经济师、营销专家和其他利益相关者之间讨价还价的结果。

处理复杂性问题意味着要面对各种参与者之间冲突的价值体系、面对限定缩小解决方案范围的难度，因为理论上设计的解决方案是无限的，需要考虑大量方方面面的因素以及它们不同寻常的相互作用方式。

在众多因素里，主要有以下三个方面对设计有比较大的影响，一个是文脉，一个是人的因素，还有一个是功能，设计师们大多在做设计时都从这三个方面着手。而根据具体的项目，每个设计师在考虑这三个方面时，都会有一定的侧重点，或者优先级。