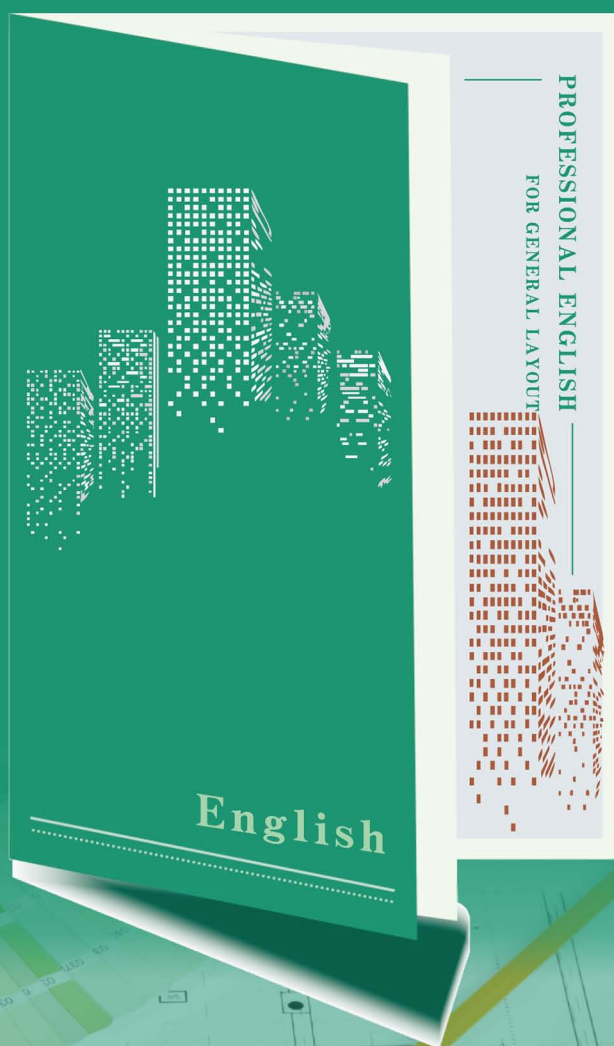


张琦 主编

总图设计专业英语

Professional English for General Layout



陕西新华出版传媒集团



陕西科学技术出版社
Shaanxi Science and Technology Press

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内容简介

全书分为两个部分。第一部分为总图设计相关经典英文文献,共计 11 个单元。其中:第一单元至第七单元的内容以场地设计为主线,包括场地设计的价值、场地自然条件、设计纲要、设计原则和方法、交通设计、土方工程及管线、工业区规划等;第八单元至第十一单元的内容以工厂布置为主线,包括工厂布置简介、建筑物及移动因素的影响、工厂布置的指导原则等。第二部分为总图设计国际工程的中英文翻译实例,共计 4 个单元。其中:第十二单元至第十四单元分别介绍了电力、机械、市政行业的总图设计说明书翻译;第十五单元则简介总图设计典型工程图纸的翻译。

本书可作为高等院校交通运输(总图设计与工业运输)专业的教材或参考书,同时也可供从事国际工程设计、建造、管理的技术人员使用。

在当前深入推进“一带一路”国家战略的大背景下,中国工程设计业将迎来分布开放多元、规模不断递增的全球市场。一方面,中国的工程设计公司主动拓展海外能源、矿产和基础设施市场的步伐加快,他们主持或参与设计的境外勘察设计项目越来越多;另一方面,海外知名设计企业也积极进入中国市场,由此带来境内工程项目需要中外设计企业及人员对接系统方案、技术要点的情况也与日俱增。上述情况决定了总图设计从业者必须提高自身专业英语水平,以期胜任国际化工程建设项目中前期规划、可研、初步设计及施工图设计任务。为此,我们根据西安建筑科技大学总图设计与工业运输专业多年的英语教学实践经验,结合中国工程设计公司参与国际工程的素材积累,编写了这本教材。

本书具有两个特点:一是在文献选材方面把握了总图设计的学科交叉特性。分别选用 Kevin Lynch 和 Richard Muther 在场地设计和工厂布置方面的英文经典文献,并以附录形式给出了中文全文译文,使学习者可以从建筑规划和系统管理的不同学科视角来理解总图设计相关内容的英文表达。二是在实践应用方面突出了指导国际工程中英文翻译的参考价值。从相关工程设计公司搜集到第一手海外项目技术资料,继而对其中的总图设计内容进行梳理、优化,并力求图文并茂,以期帮助使用者有效应对总图设计技术资料及图纸的中英文翻译任务。

本书由西安建筑科技大学张琦主编、西安建筑科技大学张倩主审。编写人员分工为:西安建筑科技大学张琦编写第三、六、八、九、十、十一单元,中国电力工程顾问集团东北电力设计院有限公司郑振雷编写第十二、十三、十四、十五单元,西安建筑科技大学李锐编写第一、二单元,西安建筑科技大学李微编写第四、五、七单元。本书的编写工作得到了山东电力工程咨询院有限公司谭学龙,中国市政华北设计研究院有限

公司张雷,中国联合工程公司郝琦等同志的大力帮助,西安建筑科技大学研究生李沛妍、王凯、王柯婷、王皎等帮助绘图、校对,在此向他们表示衷心的感谢!

由于编者知识水平有限,加之世界各国的工程技术标准差异明显,使得书中难免存在错误和不周之处,敬请读者批评指正。

张琦

2017年6月

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Unit 1 The Art of Site Planning

Site planning is the art of arranging structures on the land and shaping the spaces between, an art linked to architecture, engineering, landscape architecture, and city planning. Site plans locate objects and activities in space and time. These plans may concern a small cluster of houses, a single building and its grounds, or something as extensive as a small community built in a single operation.

Site planning is more than a practical art, however complex its technical apparatus. Its aim is moral and esthetic: to make places which enhance everyday life—which liberate their inhabitants and give them a sense of the world they live in. Professional skill—that easy familiarity with behavior settings, grading, planting, drainage, circulation, microclimates, or survey—is only a path to that result.

Roads and buildings, even gardens, do not grow by themselves. They are shaped by someone's decision, however limited or careless. The economic and technical advantages of large-scale development incline us to organize sites in a more comprehensive and convulsive way than when there was time for the gradual adjustment of use and structure. But regardless of scale or the degree of deliberation, any human site is somehow planned, whether piecemeal or at one sweep, whether by convention or by conscious choice.

1. Normal process

Site planning is usually accomplished in a regular sequence. This typical process has its flaws and admits of variations. But we begin by mapping that normal stream.

In the most common case, a site plan is made by a professional for some paying client, who has the power to carry it out. The development is to consist of a collection of buildings, which will be built on some largely open piece of ground, already chosen for the purpose. In a project of moderate size, site planning and the design of the buildings will be done simultaneously, preferably in a single office. Development will be completed in a few years' time. Once occupied, the site will continue to be used in the same way, as far as can be foreseen. For a

larger and more complex work to be created over a longer period of time, the site plan may be prepared first and the building designs later.

2. What is the problem

Let this stand as the normal case. The first step—the most difficult and most often bungled step—is to ask what the problem is. Defining the problem means making a whole cluster of decisions: for whom is the place being made? for what purpose? who will decide what the form is to be? what resources can be used? what type of solution is expected? in what location will it be built? These decisions set the stage for the entire process to come. *Although they will to some extent be modified as the process develops—and should be modified more frequently than they are—later changes are painful and confusing*^[1].

3. Site and user analysis

Every site, natural or man-made, is to some degree unique, a connected web of things and activities. That web imposes limitations and offers possibilities. Any plan, however radical, maintains some continuity with the preexisting locale. Understanding a locality demands time and effort. The skilled site planner suffers a constant anxiety about the “spirit of place”.

Analysis of the site begins with a personal reconnaissance, which permits a grasp of the essential character of the place and allows the planner to become familiar with its features^[2]. Later, then, she can recall mental images of those features as she manipulates them. Analysis proceeds to a more systematic data collection, which may follow some standard list, but lists are treacherous. Certain information, such as a topographic base map, is almost always required. Other data are special to particular places. Some data are best gathered early, and some later. No data should be gathered unless they will have a significant influence on the design. New and unforeseen information will be needed as the design progresses.

4. Program

When the problem has been set and site and users analyzed, then a detailed program can be made out. Traditionally this has been a perfunctory affair: no more than a list of the number and size of required spaces and structures (“twelve one-bedroom apartments, a common laundry room, a tot lot, parking for twenty cars, and a management office of 200 square feet”). The paying client presents this to the designer, who fits it onto the site. The quality of those spaces, the behavior expected to occur in them, and how they will match the purposes of

their users, are not mentioned. This quantitative schedule is confined to routine categories of form and neglects much that will make for success or failure of the plan. Unwittingly, the site has been pre-designed by a narrow set of financial and administrative considerations. Important purposes are not served; trivia are overemphasized. Freedom of solution is restricted, and unforeseen consequences develop.

5. Schematic plan

Once the program has been defined, designing in the conventional sense begins, although images of form have been latent in all the preceding stages, and program and design interact continuously throughout the remaining process.

Design is the imaginative creation of possible form and is done in many ways. It develops clouds of possibilities, both fragments and whole systems, in places vague, in others precise, in a state of mind which alternates between childish suggestibility and stern criticism. *It is a dialogue between the designer and the growing, shifting forms that she is developing—not a determinate, logical process but an irrational search over a ground prepared by a knowledge of principles, of prototypes and the characteristics of site and users*^[3].

6. Detailed plan and contract documents

Given that choice, the designer now proceeds to a detailed development of the plan, which will allow more exact cost estimates and final client approval. *Plan development produces an accurate site plan, showing the location of all buildings, roads, and paved surfaces; the planted areas by type; the existing and proposed ground contours; the location and capacity of utilities; and the location and nature of site details*^[4]. These plan drawings will be accompanied by sections, studies of detailed areas, typical views, and outline specifications. Any detailed tests of the plan—such as of wind effect—are made, and any formal impact analyses are prepared. An accurate cost estimate is drawn up, covering both construction and maintenance. Program and construction schedule are adjusted to fit this detailed plan.

Once the detailed plan is approved, the site planner goes on to make the contract documents, on which bids can be based. These usually consist of a precise layout of roads and structures; a complete grading plan and earthwork computation; a utility layout and road and utility profiles; a planting plan; and plans and sections of site details and site furniture.

The client now asks for bids by contractors, based on these drawing and specifications. If there is an acceptable bid, the drawing and specifications become the contract documents, and construction begins. If the bids are not acceptable, plan and program must be revised once more.

7. Supervision and occupation

Normally, the last professional step is to supervise construction on the ground, in order to ensure compliance, but also to make detailed adjustments as unexpected problems and opportunities arise^[5]. If properly made, the plans were based on a thorough knowledge of construction procedure and equipment, and so they allowed for the movement of machinery, the storage of material, the succession of site operations, and similar events.

But the designer is also responsible for helping to make a smooth transition between construction and management of the site. Management support should have been part of the program from the beginning and is just as essential to success as the form itself.

To summarize, there are eight stages in the typical site planning cycle in which the designer is properly involved. The stages of site planning proper are:

- (1) defining the problem;
- (2) programming and the analysis of site and user;
- (3) schematic design and the preliminary cost estimate;
- (4) developed design and detailed costing;
- (5) contract documents;
- (6) bidding and contracting;
- (7) construction;
- (8) occupation and management.

(Kevin Lynch, Gary Hack, *Site Planning, Third edition, Cambridge, Massachusetts and London, England: The MIT Press, pp. 1 - 11*)

Vocabulary

1. site planning 场地设计
2. architecture *n.* 建筑学, 建筑风格
3. landscape *n.* 景观, 地形
4. inhabitant *n.* 居民, 住户
5. grading *n.* 坡度
6. drainage *n.* 排水系统; 排水; 排水区域
7. piecemeal *adj.* 零碎的
8. client *n.* 业主
9. man-made *adj.* 人工的, 人造的
10. preexist *v.* 先前存在
11. reconnaissance *n.* 勘查

12. manipulate *v.* 巧妙地处理
13. topographic *adj.* 地质的, 地形学上的
14. laundry room 洗衣室, 洗衣房
15. tot lot 小型儿童游乐场
16. approval *n.* 批准, 认可
17. contour *n.* 等高线
18. paved surfaces 铺砌面
19. utilities *n.* 公用事业管线
20. section *n.* 断面
21. cost estimate 成本估算
22. construction schedule 施工进度表
23. bid *n.* 招标
24. earthwork *n.* 土方工程

Notes

[1] 此句为复合句,由主句与 although 引导的让步状语从句构成。主句为 later changes are painful and confusing,意为后来的变更是痛苦而混乱的。从句中 they 指代 these decisions, to some extent 意为在某种程度上, as 引导的为时间状语从句,意为随着过程的深入。句意为后来的变更是痛苦而混乱的,尽管随着过程的深入,它们将在某种程度上加以修改——而且应当比现在修改得更加频繁。

[2] 此句为复合句,由主句与 which 引导的非限制性定语从句构成。主句为 Analysis of the site begins with a personal reconnaissance,句意为场地分析从设计师亲自踏勘开始。整句句意为场地分析从设计师亲自踏勘开始,通过踏勘,能够掌握并逐步熟悉场地的基本特征。

[3] 此句为复合句,由主句与 that 引导的定语从句构成。主句中 between...and...,在...和...之间,介词短语作后置定语,修饰 dialogue。从句中 not...but...,不是...而是...; prepared by 过去分词短语作定语,修饰 ground。句意为这是设计师和他正在发展的、变更着的形式之间的对话——它不是一个明确的、合乎逻辑的程序,而是对场地所作的非理性的探索,场地的准备基于对原则、典型、场地及使用者特征的了解。

[4] 句子主语为 plan development,谓动词为 produces,宾语为 an accurate site plan, showing 是现在分词,做伴随状语。句意为场地设计详图产生精确的场地总平面布置图,标明所有建筑、道路和地面铺砌的位置;不同类型种植面积;现状及设计等高线;公用事业管线的位置及容量;场地细部的位置和性质。

[5] 此句为复合句,由主句与 as 引导的时间状语从句构成。主句中, the last professional step 是主语, is 是系动词作谓语, to supervise construction 与 to make detailed adjustments 是动词不定式作表语, in order to 介词短语作目的状语。句意为通常,最后一个专

业步骤就是监督现场施工,以保证其符合设计;但当未预见的难题或机会出现时,也要作详细的调整。

Exercises

Directions: Read and answer the following questions carefully according to the text.

1. What can we infer from the first part?
 - A) Site plans locate objects and activities in direction and time.
 - B) Site planning is no more than a practical art.
 - C) Roads, buildings and gardens can grow by themselves, and they are not shaped by someone's decision.
 - D) Site planning's aim contains two aspects.
2. Which of the following is true according to parts two and three?
 - A) Site planning and the design of the buildings will be done at the same time.
 - B) Site planning has a constant sequence.
 - C) In the most common case, the most difficult and most easily spoilt step is to ask what the problem is.
 - D) These decisions will be modified frequently as the process develops.
3. Which of the following is true according to parts four and five?
 - A) Analysis proceeds to a more systematic data collection, which may follow some standard list, because lists are reliable.
 - B) All the data are best gathered early.
 - C) The quality of those spaces, the behavior expected to occur in them, and how they will match the purposes of their users, are mentioned in the program.
 - D) The site has been predesigned by a narrow set of financial and administrative considerations.
4. Which of the following might have happened when the program has been defined?
 - A) Designing in the real sense begins.
 - B) It develops clouds of possibilities, both fragments and whole systems.
 - C) The designer is in a state of mind always like childish suggestibility.
 - D) Design is a rational search over a ground prepared by a knowledge of principles, of prototypes and the characteristics of site and users.
5. In the author's opinion, design _____.
 - A) in the conventional sense begins once the program has been defined
 - B) has many hazy possibilities with developing
 - C) is not a fuzzy, logical process
 - D) is a mystery, like all human thought

Appendix of Unit 1

I. Translations to the text.

第一单元 场地设计的艺术

场地设计是在场地上布置建构物、塑造空间的艺术,是一门涉及建筑学、工程学、景观学和城市规划的艺术。场地设计要从空间和时间两方面布置建构物及活动。场地设计可以涉及住宅小区、单体建筑及其场地,也可以涉及一次实施完成的小规模社区那样较大范围的场地。

场地设计不仅是一门实用艺术,而且是复杂的技术手段。它的目标是从道德和美学两方面塑造场地,以提高日常生活质量,使居民融入其中,感到自由自在。专业技术——掌握行为环境、地面坡度、绿化、排水、交通、微观气候或勘测,仅仅是达到上述目标的途径。

道路、建筑甚至花园都不会自行发展形成,而是根据某个人的决定形成的,不论这个决定多么局限或是漫不经心。过去曾经是逐步调整使用与建筑的关系,而大规模开发的经济技术优势使我们倾向于以更综合、更大扰动的方式去组织场地。但不管规模大小或考虑周密程度,任何场地都会以某种方式进行规划,不论是零星地段还是整片地块,不论是按照惯例还是经过选择。

1. 正常的程序

场地设计通常按照一定的顺序来完成。这个典型的过程会有不妥之处,容许变更。但是,我们将从描绘正常流程开始。

在大多数普通实例中,总平面图是由专业人员为某个出资并且有权实施的业主而设计的。场地开发就是在之前为某个目的而选定的大片空旷场地上建造建筑群。在中等规模的项目中,场地设计和建筑设计最好在同一设计事务所中同时完成。开发将在几年内完成。场地一旦交付使用,在规划期内场地将按同样的方式使用。对于较大、较复杂

且工期长的工程,需要先进行场地设计,然后再进行建筑设计。

2. 课题是什么?

通常情况下,第一步——是最困难也是最常被贻误的一步——就是课题是什么。弄清课题就意味着要作出一系列决定:为谁改造场地?目标是什么?谁将决定采用什么形式?哪些资源可供使用?期望用哪种解决方法?建造在什么位置?这些决定为即将到来的整个过程做好了准备。后来的变更是痛苦而混乱的,尽管随着过程的深入,它们将在某种程度上加以修改——而且应当比现在修改得更加频繁。

3. 场地与用户分析

每个场地,不论是天然的还是人工的,从某种程度上说都是独一无二的,是事物和活动连接而形成的网络。这个网络施加限制,也提供可能性。任何场地设计,无论多彻底,都会同之前存在的场地保持某种连续性。了解一个地点需要时间和精力。经验丰富的场地设计师常常为“场地的灵魂”而绞尽脑汁。

场地分析从设计师亲自踏勘开始,通过踏勘,能够掌握并逐步熟悉场地的基本特征。当他以后处理时,就能回想起对场地特征的意象。进行到更系统化的数据分析,可以套用某些标准表格,但表格是靠不住的。某些资料比如基本地形图几乎都是需要的。针对特殊场地的其它数据需要专门收集。有些资料最好提前收集,有些可以以后收集。除对设计有重要影响的资料外,其它资料都不应收集。随着设计的深入,将需要收集新的、未预见的资料。

4. 设计纲要

问题提出后,经过分析场地与用户,一份详细的设计纲要就可拟订出来。这个问题经常都是敷衍的:仅仅有一张空间与建筑数量和规模的清单(如12套一室户公寓、1间公共洗衣房、1个小型儿童游乐场、可停放20辆车的停车场、200 ft² (1 ft = 0.3048 m)的管理处等)。出资的业主把这张清单交给设计师,把它布置到场地上。至于这些空间的质量、空间内预期发生的行为以及它们如何与用户的意向相匹配,却未被提及。这张定量的清单局限于例行的形式,却忽视对规划设计成败产生影响的诸多方面。不知不觉地,场地设计被狭隘的资金和管理诸因素事先所确定。重要的意向未能实现,微不足道的细节却被过分强调,自由选择的解决办法受到限制,而未预见的后果却在发展。

5. 设计方案

虽然对形式的想象已蕴藏在之前各阶段中,而且设计纲要与设计的相互影响会继续贯穿于以后的过程中,设计纲要一经决定,传统意义上的设计就开始了。

设计是通过多种方法完成的对可能形式的创作构思。设计发展了众多的可能性,既有局部的,也有整体系统的;既可在不明确的场地上,也可在明确的场地上;时而受到幼

稚的暗示,时而又持严厉的批评态度。这是设计师和正在发展的、变更着的形式之间的对话——它不是一个明确的、合乎逻辑的程序,而是对场地所作的非理性的探索,场地的准备基于对原则、典型、场地及使用者特征的了解。

6. 详图和招标文件

方案一经选定,设计者立刻进行场地设计详图工作,将得到更准确的造价估算和业主的最终批准。场地设计详图产生精确的场地总平面布置图,标明所有建筑、道路和地面铺砌的位置;不同类型种植面积;现状及设计等高线;公用事业管线的位置及容量;场地细部的位置和性质。这些总平面图将随附剖面、复杂地段的研究、典型景观透视和简要说明。设计中的详细测试——如风效应测试——均已进行,正式的环境影响分析也已做出,包括施工和维护的精确费用预算已经拟定。设计纲要和施工进度表要进行调整以适应场地设计详图。

场地设计详图一经批准,场地设计师接着要编制合同文件,作为招标的基础。招标文件包括道路与建筑的准确定位;完整的场地平整和土方工程计算;公用事业管线布置及道路、管线剖面图;绿化布置;场地细部及场地小品的平面与剖面。

业主以这些图纸和说明为基础,提请承包商招标。如果有可以接受的标书,图纸和说明就成为合同文件,并开始施工。如果标书都不能接受,总平面、设计纲要必须再次修改。

7. 监督和交付使用

通常,最后一个专业步骤就是监督现场施工,以保证其符合设计;但当未预见的难题或机会出现时,也要做详细的调整。如果场地设计以对施工过程和设备的透彻了解为基础制定得恰如其分,那么就能保证机械的移动、材料的贮存、现场施工和类似事项的连续性。

但是,设计师也负责帮助促成场地由建设到经营管理的顺利过渡。对经营管理的支持一开始就应该成为纲要的一部分,而且和形式本身一样对于取得成功是必不可少。

综上所述,典型的场地设计过程包括八个阶段,设计师适当参与其中。完整的场地设计阶段应如下:

- (1) 确定课题;
- (2) 编制设计纲要并分析场地和用户;
- (3) 场地设计方案及初步造价估算;
- (4) 场地设计详图及详细造价计算;
- (5) 编制合同文件;
- (6) 招标与承包;
- (7) 施工;
- (8) 交付使用与经营管理。