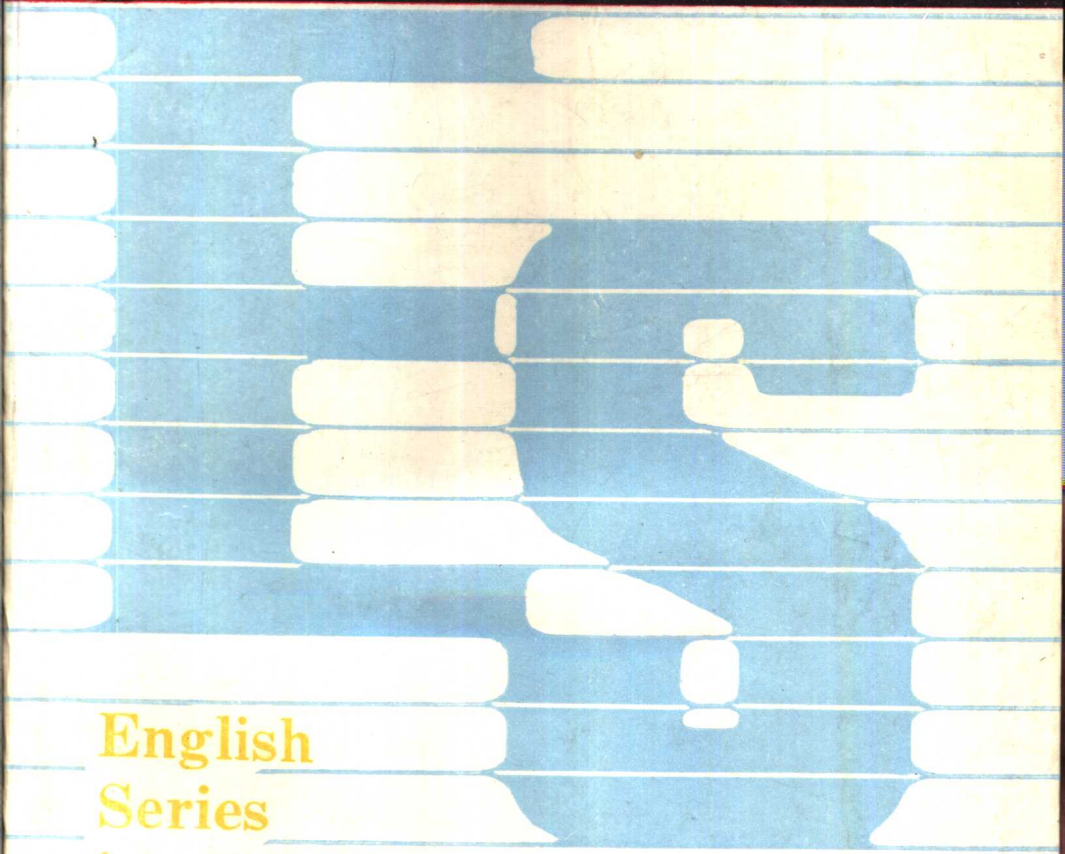
土木建筑系列英语

中国建筑工业出版社

第三级　工业与民用建筑



English Series in Architecture and Civil Engineering

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第三级　工业与民用建筑

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致 读 者

土木建筑行业是我国社会主义经济的重要支柱之一。建筑土木行业职工素质如何，对这个行业发展关系极大。全国土木建筑行业职工约2000万人，其中工程技术人员和管理人员约300万人。随着对外开放的不断扩大，我国同世界各国之间的人员往来、学术交流、信息传播、经济活动以及工程承包等业务日益频繁，土木建筑行业不同领域不同层次的读者，尤其是中青年知识分子，学习和进修英语的要求越来越迫切。奉献在读者面前的《土木建筑系列英语》读本，正是为满足这样的需要而编撰的。

《土木建筑系列英语》是一套结合土木建筑类各专业的英语分级读本，整个系列按文章难度分为四级。第一、二级，不分专业，内容为土木建筑方面的浅显易懂的科学普及文章。第三级暂分八个专业，即：建筑学与城市规划、工业与民用建筑、给水与排水、供热与通风、道路与桥梁、工程机械、管理工程、计算机与自动化，每个专业一册，其他专业视情况再行编撰；内容为各有关专业一般性的科学普及或科学技术文章。第四级内容选收专业性较强的科学技术文章；目前暂出版建筑学与城市规划、工业与民用建筑专业各一册，其他专业留待以后考虑。

我们在组织和编撰《土木建筑系列英语》时，力求使这套读本具有自己的特点。

首先，起点低。这套系列读本的起点为1000个单词。凡初中毕业或具有同等英语程度的读者，都可以从第一级开始自修或听课。这就大大地拓宽读者面，使土木建筑行业多数人员有条件有

兴趣利用这套读本来学习英语。

其次，便于自学。编撰的四级读本尽量保持一个较为平缓的"坡度"。全部课文均附参考译文，每个练习都有答案，争取使读者在普通英语的"浅基础"上，一步一步地学会阅读专业英语。通过学习第一、二级读本，可以掌握土建类科技英语最常用的2500个单词以及阅读科技英语书刊和有关资料所必需的基本语法知识。继之，通过学习第三级读本，可以累计掌握本专业最常用的3500个单词和比较系统的英语构词法知识，获得阅读本专业英语书刊和有关资料的能力。最后，通过学习第四级读本，可以累计掌握本专业4500个单词和比较全面的英译汉知识；这样，比较流利地阅读和翻译本专业英语书刊和有关资料，就有了比较牢固的语言基础。

这套系列英语读本第一、二级均配有录音磁带，由英、美文教专家朗诵，口音纯正，声质清晰，语调自然，使读者听来亲切、生动。

第三，适应性强。各级英语读本既彼此衔接，又相对独立，可以适应各种不同程度的读者的需要。一般读者如果从第一级学起，循序渐进，持之以恒，每周自修或听课3～4小时，经过一年半左右，便可学完前三级读本，为阅读本专业英语书刊和有关资料创造条件。有意深造的读者，再用半年左右，攻读第四级读本，就可以达到比较流利地阅读和翻译本专业英语书刊和有关资料的目的。对于英语基础较好的读者，如高等院校高年级学生，可把第一、二级读本作为泛读教材，第三、四级读本作为精读教材来学。对于硕士研究生或具有同等英语程度的工程技术人员，则可直接阅读第三、四级读本；在掌握英语构词法和英译汉技巧方面，这两级读本对他们会有所帮助。而广播电视大学、函大、夜大、职大、业大及有关中等专业学校的学生，也可依照自己的水平和需要，选学有关读本。

第四，语言规范可靠。这套系列读本的全部课文，均选自近

年来面世的英语国家的出版物。但为了适应系统地学习英语的需要，编撰者对不少课文作了必要的删改和加工；而在删改和加工之后，均送各校聘请的英、美文教专家审阅，使之保持规范的科普或科技文体的现代英语的特点。全部练习均由编撰者按统一要求编写，目的在于帮助读者更好地掌握课文中重要的语言材料。全部参考译文均由有关专业教师一一校阅，术语比较准确，行文比较通达。

《土木建筑系列英语》读本是集体智慧的结晶。十几所土木建筑高等院校的五十多位英语教师和专业教师参加了编撰、审订工作，其中某些分册还聘请校外的有关专家过目。哈尔滨建筑工程学院、重庆建筑工程学院、北京建筑工程学院、沈阳建筑工程学院、吉林建筑工程学院、南京建筑工程学院、山东建筑工程学院、西北建筑工程学院、苏州城市建设环境保护学院和河北建筑工程学院等，都对编撰、审订工作表示关怀和支持。各学院聘请的十多位英、美文教专家也提出过宝贵的意见。在本书编撰过程中，还得到哈尔滨建筑工程学院高伯阳、吴振声、张跃春、计学润、王世芳、杨可铭等热情帮助。对此我们表示深切的谢忱。

本书经哈尔滨建筑工程学院工民建八四级试用。在试用过程中发现的不妥之处，均一一作了修正。

目前，尚未见到紧密结合本学科、本专业编撰的系列英语分级读本，我们只是做了初步的尝试。万事开头难。尽管编撰、审订人员做了大量的细致的工作，但这套《土木建筑系列英语》读本还不是尽善尽美，毫无瑕疵的。我们期待着读者和同行们的批评和指正。

《土木建筑系列英语》编审委员会
中国建筑工业出版社编辑部

1987年3月8日

Contents

Lesson 1

Careers in Civil Engineering

Engineering is a profession, which means that an engineer must have a specialized university education. Many countries also require engineering graduates to pass an examination, similar to the bar examinations for a lawyer①, before they can start on their careers.

In the university, mathematics, physics, and chemistry are considered very important throughout the engineering curriculum, particularly in the first two or three years. Mathematics, of course, is very important in engineering, so it is greatly stressed. Today, mathematics includes courses in statistics, which deals with gathering, classifying, and using numerical data, or pieces of information②. An important part of statistical mathematics is probability, which deals with what may happen when there are different factors that can change the results of a problem. Before the construction of a bridge is begun, for example, a statistical study is made of the amount of traffic the bridge will be expected to control.③ In the design of the bridge, factors such as water pressure on the foundations, the effects of different wind forces, and many other factors must be considered.

Because a great deal of calculation is involved in solving these problems, computer programming is now included in almost all engineering curricula. Computers, of course, can solve many problems involving calculations with greater speed and accuracy than a human being can.④ But computers are useless unless they are given clear and accurate instructions and information — in other words, a good program.

In spite of the importance of technical subjects in the engineering curriculum, a current trend is to require students to take courses in the social sciences and the language arts. We have already discussed the relationship between engineering and society. It is, therefore, sufficient to say again that the work done by an engineer affects society in many different and important ways that he or she should understand.⑤ An engineer also needs a good command of language to be able to prepare reports that are clear and persuasive. An engineer doing research work will need to be able to write up his or her findings for publications.

The last two years of an engineering program include subjects within the student's field of specialization. For the student who is preparing to become a civil engineer, the specialized courses may deal with such subjects as soil mechanics, or hydraulics.

In today's society, people who have technical training are, of course, in demand.⑥ Young engineers may choose to go into environmental engineering, for example. They may choose construction firms that specializes in highway work. They may prefer to work with one of the government agencies that deals with water resources.⑦ Indeed, choices are many and varied.

When the young engineer has finally started real practice, the theoretical knowledge acquired in the university must be applied. He or she will probably work with a team of engineers at the beginning. Thus, on-the-job training⑧ can be acquired that will demonstrate his or her ability to translate theory into practice.

The civil engineer may work in research, design, construction supervision, maintenance, or even in management. Each of these areas involves different duties and different uses of the engineer's knowledge and experience.

New Words

1. career [kə'riə] *n.* 专业
2. engineering [endʒi'niəriŋ] *n.* 工程(学)
3. profession [prə'feʃən] *n.* 职业，专业
4. graduate ['grædjueit] *n.* 大学毕业生
5. lawyer ['lɔ:jə] *n.* 律师
6. curriculum [kə'rikjuləm] *n.* 课程
   curricula [kə'rikjulə] *pl.*
7. particularly [pə'tikjuləli] *ad.* 特别是，尤其
8. stress [stres] *vt.* 着重，强调
   n. 应力
9. statistics [stə'tistiks] *n.* 统计(学)
10. classify ['klæsifai] *vt.* 分类
11. numerical [nju:'merikəl] *a.* 数字的
12. datum ['deitəm] *n.* 数据，资料
    data ['deitə] *pl.*
13. statistical [stə'tistikəl] *a.* 统计的
14. program ['prəugrəm] *n.* 程序；教学计划
    vi. 编制程序
15. design [di'zain] *n., v.* 设计
16. accuracy ['ækjurəsi] *n.* 准确度
17. accurate ['ækjurit] *a.* 准确的
18. unless [ʌn'les] *conj.* 除非，如果不
19. current ['kʌrənt] *a.* 当前的，现行的
20. trend [trend] *a.* 趋势，倾向
21. social ['səuʃəl] *a.* 社会的
22. sufficient [sə'fiʃənt] *a.* 充分的
23. persuasive [pə'sweisiv] *a.* 有说服力的
24. finding ['faindiŋ] *n.* 发现，研究结果
25. publication [pʌbli'keiʃən] *n.* 发表，刊物
26. specialization [speʃəlai'zeiʃən] *n.* 专业化
27. hydraulics [hai'drɔ:liks] *n.* 水力学
28. firm [fə:m] *n.* 公司，合伙商行
29. environmental [invaiərən'mentl] *a.* 环境的
30. prefer [pri'fə:] *vt.* 更喜欢
31. agency ['eidʒənsi] *n.* 机构，部门
32. acquire [ə'kwaiə] *vt.* 获得
33. supervision [sju:pə'viʒən] *n.* 管理

Phrases and Expressions

1. similar to ... 相似于…
2. start on 开始，从事
3. a human being 人
4. write up 写成，述细记述
5. go into 参加，从事，深入研究
6. specialize in ... 专门从事
7. translate ... into ... 把…转变为…

Notes

① the bar examination for a lawyer 中，the bar (常作 the Bar) 为"律师资格"。因此整个短语可译为"律师的资格考试"。

② information 是不可数名词，一份资料是 a *piece* of information. 这里用 *pieces* of information 表示复数，可译为"各项信息"。

③ ... a statistical study is made of the amount of traffic *the bridge will be expected to control.*

斜体部分是定语从句，引导从句的关系代词作宾语，已省略。

④ Computers, of course, can solve many problems involving calculations with greater speed and accuracy *than a human being can.* 斜体部分由 than 引导比较状语从句，与主句中相同部分 solve many problems involving calculations 已省略。

⑤ It is, therefore, sufficient to say again *that* the work done by an engineer affects society in many different and important ways *that* he or she should understand.

这是一个长句，It 为形式主语，to say... 为逻辑主语。第一个 that 引导的是 say 的宾语从句，第二个 that 引导的是修饰 ways 的定语从句，he or she 指的是 an engineer。

⑥ demand 的原意是要求、需要、需要量；

in demand 可译为"很需要"。

⑦ deal with 在本课中多次出现，通常的意思是涉及，论述；如：

(1) statistics, which deals with gathering, classifying and using ... 涉及…的收集、分类和使用的统计学；

(2) probability, which deals with what may happn when there are different factors ... 论述有不同因素存在时会发生什么情况的概率论；

但是在 one of the government agencies that deals with water resources 中，根据上下文应译为"开发水力资源的政府部门"。

⑧ on-the-job 是复合词，作形容词用，意为"工作岗位上的"。

Exercises

I. Are these statements true or false according to the text ?

1. Many government jurisdictions (司法部门) require graduates to pass the bar examinations for a lawyer before they can actively start on their careers.
2. In all engineering curricula, mathematics, physics and chemistry are most important so they are taught in the first two years.
3. In order to consider the numerous factors that will act on the construction, a statistical study must be made before the construction is begun.
4. Computers are useful only when they are given clear and accurate instructions.
5. Social sciences and language arts are equally stressed as technical subjects in engineering cirriculum.
6. An engineer also needs to have a good command of language so as to be able to prepare reports that are clear and persuasive or to write up his findings for scientific publications.
7. For the student who is preparing to become a civil engineer, the courses he takes during the last two years may include foreign language, statistics, computer programming, etc.
8. It is very difficult for people who have technical training to find a job in the western society of today.
9. The choices of civil engineers are many and varied. They may work in research centres, designing companies, construction firms or government agencies.
10. The on-the-job training enables the engineering graduates to learn to translate theory into practice.

II. Choose the right answer according to the text.

1. In statistical mathematics probability is _____.

   A. a number expressing the likelihood (可能性) of occurrence of a

specific event

B. a probable condition

C. a state of being probable

2. In spite of the importance of technical subjects in the engineering curriculum, a current trend is to require students to take courses in the social science and the language arts.

The sentence means _____.

A. Though the technical subjects are important in the engineering curriculum, students are also required to study the social sciences and the language arts.

B. The technical subjects are very important, but the students are required to study the social sciences and the language arts as the major subjects.

C. Though the technical subjects are very important in the engineering curriculum, the students prefer to take courses in the social sciences and the language arts.

3. In the university, _____ throughout the engineering curriculum.

A. the social sciences and the language arts are very important

B. mathematics, physics and chemistry are considered very important

C. the course in computer calculation is greatly stressed

III. Match each of the words on the left with the phrase on the right that most closely matches its meaning.

1. sufficient	a. desire of people for sth.
2. command	b. give a sense of importance to
3. similar	c. change from one state to another
4. demand	d. the ability to control and use
5. acquire	e. partly or almost the same
6. translate	f. enough
7. stress	g. get for oneself by skill or ability

IV. Word Building

A compound word is made up of two or more words to have one meaning.

note + book = notebook

class + room = classroom

Below are some compound words. Draw a line between the two words in

it and give out its meaning.

1. pipeline
2. storehouse
3. driveway
4. payroll
5. passport
6. breakfast
7. throughout
8. highway
9. airport