



高等职业教育“十二五”规划教材
全国高职高专土木工程专业系列规划教材

建筑工程英语 |



English *for* Civil Engineering

| 马彩玲 主编



科学出版社

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北京

内 容 简 介

本书从培养面向第一线高技能人才的目标出发,提供了土建类专业学生毕业后所需要的英语知识和实用交际材料,旨在通过多项训练来培养学生实际应用英语的能力,特别是用英语处理与未来职业相关业务的能力,其中包括口语、阅读、翻译和应用文写作的能力。

本书适合高等专科院校和高等职业院校相关专业作为教材使用,也可供各类成人院校及广大科技、管理人员自学使用。

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Preface

前言

《建筑工程英语》依据《高职高专教育英语课程教学基本要求(试行)》和《高等职业教育英语课程教学要求(试行)》编写,供土建类院校专业英语学习使用。

本书从培养面向第一线高技能人才的目标出发,结合本专业学生毕业后的实际,提供了土建领域所需要的英语知识和实用交际材料,旨在通过多项训练来培养学生实际应用英语的能力,特别是用英语处理与未来职业相关的业务能力,其中包括口语、阅读、翻译和应用文写作的能力。

本书共 12 个单元,每单元中语言知识的学习,语言技能的培养与训练都围绕同一交际话题展开。

1. Listen and Talk (听与交谈)

本书重视英语口语实用表达能力的培养和训练。以小组活动为主的任务型学习不仅能培养学生进行涉外口语交际的能力,而且还有助于培养学生的职业意识和合作精神。“听与交流”内容由美籍专家录音,刻录于随书光盘中,供教学使用。

2. Read and Explore (读与探索)

阅读部分由两篇文章及阅读技能指导组成。文章 A 的阅读训练重点是培养学生用英语获取信息、处理信息、传达信息的能力和探索创新的能力;文章 B 的阅读训练重点是提高学生用英语进行思维的能力和从上下文来理解所读材料的确切含义的能力。



3. Simulate and Write (模拟写作)

写作部分涉及土建类专业领域商务往来的种种类型。为了便于学生掌握，每一种类型都有范文，并附有译文，突出了高等职业教育的针对性和实用性，目的是培养学生在实际工作中的英语交际能力。

4. Formulate and Apply (语法运用)

本书总结了一些英语语法运用规律及在科技英语中常见的语法现象，目的是使学生在专业英语的学习中，夯实英语基础，提高语言运用的准确性，重点培养学生在听、说、读、写中准确运用英语的能力。

在编写过程中，我们遵循了三项原则：

一、重视语言学习的规律，坚持“全面提高听、说、读、写、译能力”的原则。

二、遵循“以应用为目的”的原则，体现培养高技能人才的特点。

三、注重“打好语言基础和培养多种能力并重”的原则，通过个性化和协作化的学习，培养学生的交际能力和自主学习能力。

本书由马彩玲任主编，负责全书统稿，并承担第1~12单元的听力理解、对话、小组任务、阅读材料、模拟写作和语法运用的编写。张梅英负责第1~6单元的阅读训练和补充阅读材料1~3的编写。郭玉兔负责第6~12单元的阅读训练和补充阅读材料4~6的编写。

本书在编写过程中，参阅了大量的国内外出版物，广泛听取了学生、专业课教师和用人单位的意见，特别是山西建筑职业技术学院多年来从事建筑设计和结构、施工等课程教学的张维俊副教授和研究建筑技术科学的王晓华老师给予了很大的帮助，在此表示衷心的感谢。

由于编者水平有限，书中难免有不妥之处，敬请广大读者予以指正。

编 者

2012年3月

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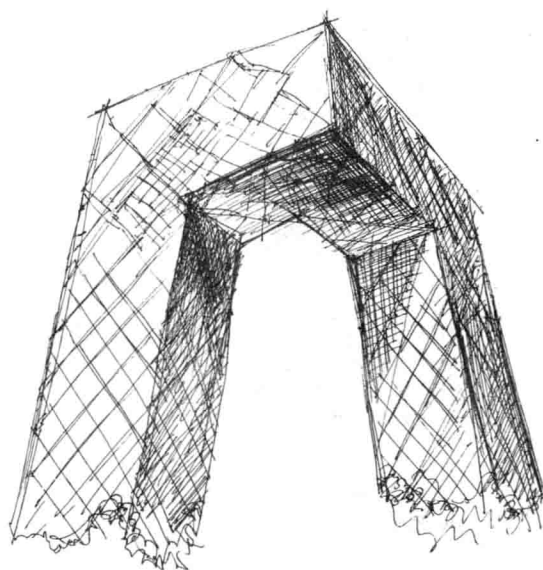


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Unit One

Building

(建筑物)

- Listen and talk about skyscrapers
- Read about buildings and bridges
- Have knowledge of the reading skill: compounding
- Translate an advertisement into English
- Practice the use of "it"

LISTEN AND TALK

Listening Practice

Listen to the following passage and try to fill the missing word (words) in each blank.

Skyscrapers

The development of the high-rise buildings follows closely the growth of the city. The process of urbanization (城市化), (1)_____ started with the ages of industrialization, is still (2)_____ in many parts of the world. In the United States, this process began in the nineteenth century. People moved from the countryside to the city, increasing the density of cities.

For many big cities, the tall building is the only answer to the increase of the (3)_____. It should not be put aside just as a symbol of technological achievement. The research workers should study the high-rise building environment and its context (4)_____ its living conditions.

American architecture is at its best when it is concerned with buildings that have a practical purpose. Skyscrapers have been known as the trademark (标志) of America (5)_____ the late nineteenth century.

The name skyscraper is poetic. It transformed the appearance of the American city, giving it a uniquely "American" look (6)_____ that of any other city in the world. It (7)_____ a symbol, perhaps, of the American desire to combine beauty with usefulness, to fit form to (8)_____. An American architect named Louis Sullivan once called it, "every inch a proud and soaring (翱翔的) thing".

Dialogue

A: Why do people put up high buildings?



B: The chief reason is to make the best use of the limited and expensive land areas available in the world's major cities. New York City, largely confined to an island, could not spread outward, so it spreads upward.

A: Is there a limit to the height of buildings?

B: Yes. Structure engineers have calculated that buildings up to 500 meters tall are technically feasible.

A: It's said that a large tower block is the size of a village. Many skyscrapers are complete with shops, restaurants, and recreation facilities. What are the advantages and disadvantages?

B: The advantages are that the whole of a large company's staff can be housed together, with obvious gains in efficiency. Large buildings for homes, such as tower blocks of apartments, also make the best use of land and simplify the installation of services such as electricity and heating. On the other hand, they can create social problems. Living many meters above street level can lead to lack of contact with the surrounding community.

A: Another problem is that too many high buildings in a district may deprive their neighbors of solar access.

B: That's the point. Now solar zoning is becoming more and more popular.

A: Quite right. Modern buildings and modern functions should be combined with a modern zoning plan.

New Words

limit	/ˈlɪmɪt/	<i>n. & vt.</i>	限制, 极限
confine	/kənˈfaɪn/	<i>vt.</i>	限于范围内
calculate	/ˈkælkjuleɪt/	<i>vt.</i>	计算
feasible	/ˈfiːzəbl/	<i>adj.</i>	可行的, 可做的
recreation	/ˌrekriˈeɪʃn/	<i>n.</i>	娱乐, 消遣
facility	/fəˈsɪlɪti/	<i>n.</i>	设施
staff	/stɑːf/	<i>n.</i>	全体职员
efficiency	/ɪˈfɪʃnsi/	<i>n.</i>	效率
simplify	/ˈsɪmplɪfaɪ/	<i>vt.</i>	简化
installation	/ˌɪnstəˈleɪʃn/	<i>n.</i>	就职, 安装



Phrases and Expressions

put up	举起, 建造 (房屋等), 张贴 (布告等)
make use of...	利用……
be confined to	限制在……范围内
It is said that...	据说……
on the other hand	另一方面
lead to	导致
in detail	详细地
be made of...	由……制成
so far	到目前为止

Notes

1. New York City, largely confined to an island, could not spread outward, so it spreads upward.
 纽约市, 大部分区域限制在一个岛上不能向外扩展, 因而只能向高处发展。
 “largely confined to an island” 是过去分词短语作定语。
2. ...with obvious gains in efficiency.
 这会明显提高效率。
 “with” 的复合结构作状语。
3. Now solar zoning is becoming more and more popular.
 现在阳光小区越来越受到欢迎。

Group Work

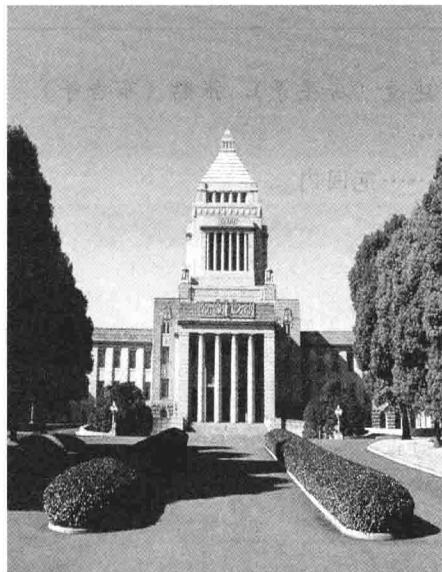
1. Describe the teaching buildings and dormitories in your college.
2. Say something about the highest building in your neighborhood.

READ AND EXPLORE

Passage A

Buildings

People have learned a lot about building since prehistoric times. We've learned to use new methods to make buildings taller, stronger and safer. We have developed new building materials. We can cool our houses in summer and heat them in winter.



A building generally comprises outer and inner walls, floors, roofs, doors, window frames and so on. Whatever the size is, a building must shelter people from the elements and have some systems for controlling the climate. It must provide space for specific use and such services as elevators or stairways for its users. As structures, buildings must be able to carry not only their own load, but also the weight of the people and objects within them.

The foundations can be of many types, but since they form the base of the whole structure, they must be adequate to support its weight, distributing this as evenly as possible over the ground. In stonework or brick buildings the bearing walls support the floors of the various storeys, besides putting a wall around the building and keeping apart from its surroundings. In buildings of steel or reinforced concrete, the walls serve only as screens for enclosing and isolating the rooms.

The framework, when construction of steel, is a complex cage of horizontal girders and vertical columns. Now welding is widely used to join its members because it makes the operations easier and makes for a lighter structure. The walls can be of the stone, brick or cement blocks. The floors may be constructed of wood or of steel girders with special honeycomb slabs, or they may be of reinforced concrete.

The roof covers the building to protect it from the weather. It can vary in shape from a sharply pointed ridge to a flat surface. In areas of much rain or snow, roofs are usually built very high. The space under the roof may be used in a number of ways, according to the size of the building. In general roofs have three purposes. They (1) protect the interior of the house against the weather, (2) prevent the escape of heat from the interior during the cold weather, and (3) are decorative.

As to the height of the buildings, they can be divided into four categories: low-level buildings (1~3 storeys), multi-storey buildings (4~6 storeys), medium-high level buildings (7~9 storeys), and high-rise buildings (10 storeys or higher). The early high-rise buildings began with structural steel framing. Economically and competitively has reinforced concrete been used in a number of structures for many purposes. Greater height needs increased column and beam sizes to make the buildings more rigid.



New Words

generally	/ˈdʒenərəli/	adv.	通常地, 普遍地
comprise	/kəmˈpraɪz/	vt.	包括, 由……组成
frame	/freɪm/	n. & vt.	框架, 构造; 给……装框架
shelter	/ˈʃeltə/	vt.	庇护, 保护, 掩护
element	/ˈelɪmənt/	n.	元素, 成分
adequate	/ˈædɪkwɪt/	adj.	充足的, 足够的
distribute	/dɪˈstrɪbjʊt/	vt.	分布, 分发
support	/səˈpɔ:t/	vt.	支撑, 支持
screen	/skri:n/	n.	屏幕, 隔板
isolate	/ˈaɪsəleɪt/	vt.	隔离
complex	/ˈkɒmpleks/	adj.	复杂的, 综合的
cage	/keɪdʒ/	n.	笼子, 框架构造
welding	/ˈweldɪŋ/	n.	焊接
operation	/ˌɒpəˈreɪʃn/	n.	操作, 运转
honeycomb	/ˈhʌnɪkəʊm/	adj.	蜂窝状的
decorative	/ˈdekəreɪtɪv/	adj.	装饰性的
surface	/ˈsɜ:fɪs/	n.	表面, 外表
economically	/ˌi:kəˈnɒmɪkəli/	adv.	节约地, 经济地
competitively	/kəmˈpetɪtɪvli/	adv.	竞争地, 比赛地
rigid	/ˈrɪdʒɪd/	adj.	坚硬的, 不易弯的

Phrases and Expressions

not only...but also	不但……而且
be adequate to do sth.	足以……
serve as	用作
protect...from	保护……使免于
a number of	若干, 许多

Notes

- It must provide space for specific use and such services as elevators or stair-ways for its users.

它必须为居民提供特殊功能的用地和诸如电梯或楼梯这样的设施。

“such...as” “像……那样的”。



2. The framework, when construction of steel, is a complex cage of horizontal girders and vertical columns.

钢结构的框架是由水平梁和垂直柱组成的复杂的框架结构。

3. It can vary in shape from a sharply pointed ridge to a flat surface.

它的形状是各式各样的，从尖顶式到平顶式。

4. Greater height needs increased column and beam sizes to make buildings more rigid.

建筑物的高度较大时，必须增大柱子和梁的尺寸，以便增大它们的刚度。

Exercises

I. Answer the following questions.

1. What does a building generally comprise?
2. How can the members of the complex cage be joined?
3. Roofs are usually built very high in Beijing, aren't they?
4. Has reinforced concrete been widely used nowadays?
5. Why must columns and beams be increased when the buildings are very high?

II. Complete the sentences with the given words or expressions. Change the form where necessary.

comprise	adequate	serve	a number of
protect...from	vary	keep...from	support

1. Foreign languages can ____ as a tool.
2. Our courses ____ structure, construction, mechanics, mathematics and English.
3. We should ____ our plants ____ the cold.
4. A dam is a wall that holds back water and ____ it ____ running away.
5. The water in the reservoir is not ____ to meet the needs of the local people.
6. We have to ____ the roof with pillars.
7. The walls can be made of ____ materials: stone, brick or cement blocks.
8. Roofs ____ in shape from place to place.

III. Translate the following words or phrases into English.

- | | |
|----------|-----------|
| 1. 承重墙 | 2. 隔板 |
| 3. 水平梁 | 4. 垂直柱 |
| 5. 楼板 | 6. 蜂窝砖 |
| 7. 木梁 | 8. 钢梁 |
| 9. 尖顶式屋顶 | 10. 平顶式屋顶 |

IV. Translate the following sentences into Chinese.

1. We can cool our houses in summer and heat them in winter.
2. A building generally comprises outer and inner walls, floors, roofs, doors, window frames and so on.



3. As structures, buildings must be able to carry not only their own load, but also the weight of the people and objects within them.
4. The roof covers the building to protect it from the weather.
5. The early high-rise buildings began with structural steel framing.

V. Explain the following words, phrases or expressions in English.

- | | |
|---------------|-----------------------|
| 1. support | 2. isolate |
| 3. weld | 4. comprise |
| 5. roof | 6. floor |
| 7. inner wall | 8. high-rise building |

VI. Explore.

What is the highest building in the world? What is the oldest structure in the world? What is a pneumatic building? Please visit the relative websites for more information. Download some pictures and show them to your classmates.

Passage B

Bridges

Bridges are among the most important, and often the most spectacular of all civil engineering works. The imposing bridges that have survived from ancient times are arched structures of heavy masonry, usually stone or brick. Herodotus, the Greek historian of the fifth century B.C., however, mentioned a wooden bridge across the Euphrates River at Babylon. In Rome, the bridge of Fabricius, built in 62 B.C. and named for its engineer, still carries traffic across the Tiber River, so does the San Angelo Bridge, built in about 136 A.D. Both of these bridges, and many other Roman bridges, have a series of arches supported by heavy piers that extend down to bedrock.



The simplest type of span is a beam bridge, consisting of a rigid beam between two supports. Today most simple beam bridges are strengthened by a truss, which is based on the triangle. Diagonal beams that extend between the horizontal and vertical beams give support against both compression and tension. Many early truss bridges were built of wood; one that was erected across the Susquehanna River in Pennsylvania in 1815 had a span of 110 meters.

Another type of beam bridge is the cantilever, in which a horizontal beam extends beyond its support. Cantilever bridges, like trusses, had also been built before iron and steel became available.



Most cantilever bridges have two arms of truss structure that meet or support a section between them. Cantilever enabled bridge builders to span longer distances than truss bridges. During the nineteenth century, cantilevers were frequently used to build railroad bridges. The Quebec Bridge, which crosses the St. Lawrence River in Canada, is the longest cantilever bridge in the world, with a span of 540 meters.

A third type of modern bridge is the steel arch bridge, which can carry a roadway either above or below its arch of steel beams. An arch exerts strong downward and diagonal thrusts, so the piers that support it must be especially strong. Probably the most famous steel arch bridge is the Sydney Harbor Bridge in Australia, with a span of 495 meters.

Suspension bridges span even longer distances than other types of bridges. The longest bridge of any type is the Verrazano-Narrows Bridge in New York, with a span of 1 280 meters. The deck or roadway of a suspension bridge is suspended from steel cables that are supported by massive towers. The first modern suspension bridges used linked chains made of wrought iron. Some of them survived for many years, like the one across the Danube River in Budapest, Hungary. It was completed in 1 849 and destroyed during World War II, nearly a hundred years later.

New Words

spectacular	/spek'tækjʊlə/	adj.	壮观的
masonry	/'meɪsnrɪ/	n.	坊工
pier	/pɪə/	n.	桥墩
bedrock	/'bedrɒk/	n.	基岩
span	/spæn/	n. & v.	跨度, 跨越, 跨距
diagonal	/'daɪ'æɡənəl/	adj.	斜的, 对角线的
cantilever	/'kæntɪlɪ:və/	n.	悬臂, 悬臂梁, 悬臂桥
deck	/dek/	n.	桥面, 甲板

Phrases and Expressions

survive from	幸存, 留下来
arched structure	拱结构
beam bridge	梁桥
suspension bridge	悬索桥
wrought iron	锻铁链



Reading Comprehension

Match each expression on the left with one of the statements on the right.

- | | |
|----------------------|---|
| 1. beam bridge | A. a structure in which a horizontal beam extends beyond its support |
| 2. suspension bridge | B. the traffic-bearing surface of a bridge |
| 3. cantilever | C. a bridge consisting of a rigid beam between two supports |
| 4. steel arch bridge | D. a bridge with an arch of steel |
| 5. deck | E. a bridge that hangs from steel cables that are supported by towers at each end |
| 6. span | F. the distance between two supports of a bridge |

Reading Skill

利用构词法推敲单词的意思 (一)

英语单词的构成有一定的规律,掌握构词法,可以帮助我们熟悉词的形式、结构、词性和词义,进而猜出该词的意思。

合成法 (Compounding): 合两个或两个以上的词构成一个新词,称为合成法。

- | | |
|---------------------------------|---|
| 1. door-frame 门框 | 2. software 软件 |
| 3. warehouse 仓库 | 4. worksite 工地 |
| 5. out-of-date 过时的 | 6. man-made 人造的 |
| 7. underground 地下的 | 8. first-class 一流的 |
| 9. high-rise (building) 高层 (建筑) | 10. air-conditioning (equipments) 空调 (设备) |

SIMULATE AND WRITE

Advertisements (广告)

广告的特点是使用最简洁的语言传递最大量的信息。广告词的句子结构不一定是完整的,常用单个的词、短句或省略句,只要读者能看明白就可以了。广告的种类很多,常见的有招聘广告、招生广告、销售广告、房屋租售广告、娱乐广告和服务行业的各种广告。在这个单元里,我们主要介绍招聘广告和房屋租售广告。

1. Job Advertisements (招聘广告)

招聘广告首先用简明的语言对招聘单位的情况作大致的介绍,其内容包括本单位的性质、规模、业务范围及经营状况等,以便求职者对此有一基本的了解。然后,广告要表述招聘的职位,对求职人的具体要求以及聘方所提供的条件。最后应公布联系方式。



【Sample 1】

Personal Assistant/ Secretary

Hongtu Office of Project Cost, under the Command of Hongtu Building Company needs a conscientious, adaptable graduate from an architectural engineering college. He (She) can cope with computers.

Benefits include lunch, traveling allowance and private medical insurance.

Phone Miss Li for further details on 010-58516269.

招聘私人助理 / 秘书

宏图工程造价事务所隶属于宏图建筑公司, 招聘一名责任心强, 适应能力强, 毕业于建筑工程学院的学生, 应会使用计算机。

福利包括午餐、交通津贴和医疗保险。

有意者请致电 010-58516269, 详询李小姐。

【Sample 2】

Wanted

A well-known Chinese building corporation requires a company manager. We are seeking the following staff member:

1. with at least 5-year working experience in a building company;
2. familiar with the building markets;
3. active and cooperative;
4. understanding English for civil engineering

We offer competitive salary and good benefits package. Anyone interested in it, please send your CV by fax to 010-63442515 or e-mail to www.ludacorp@yahoo.com.cn.

招聘

某知名的中国建筑公司需要一名经理, 现诚聘符合下列条件的人选:

1. 在建筑部门工作 5 年以上;
2. 熟悉建筑市场;
3. 工作积极, 易于合作;
4. 懂土木工程英语。

我们的薪水优厚, 福利好, 有兴趣者请将简历传真到 010-63442515 或发电子邮件至 www.ludacorp@yahoo.com.cn。

2. Advertisements of Lease (房屋租售广告)

房屋租售广告属于纪实广告, 内容包括房屋的位置、房屋的条件(房间数, 平米数, 是否新屋, 是否配置家具, 交通、购物、上学、就医是否方便, 环境如何等)、价格和联系方式。这种广告严肃客观, 文字简明, 措辞得体, 大量采用缩写形式是其特点之一。