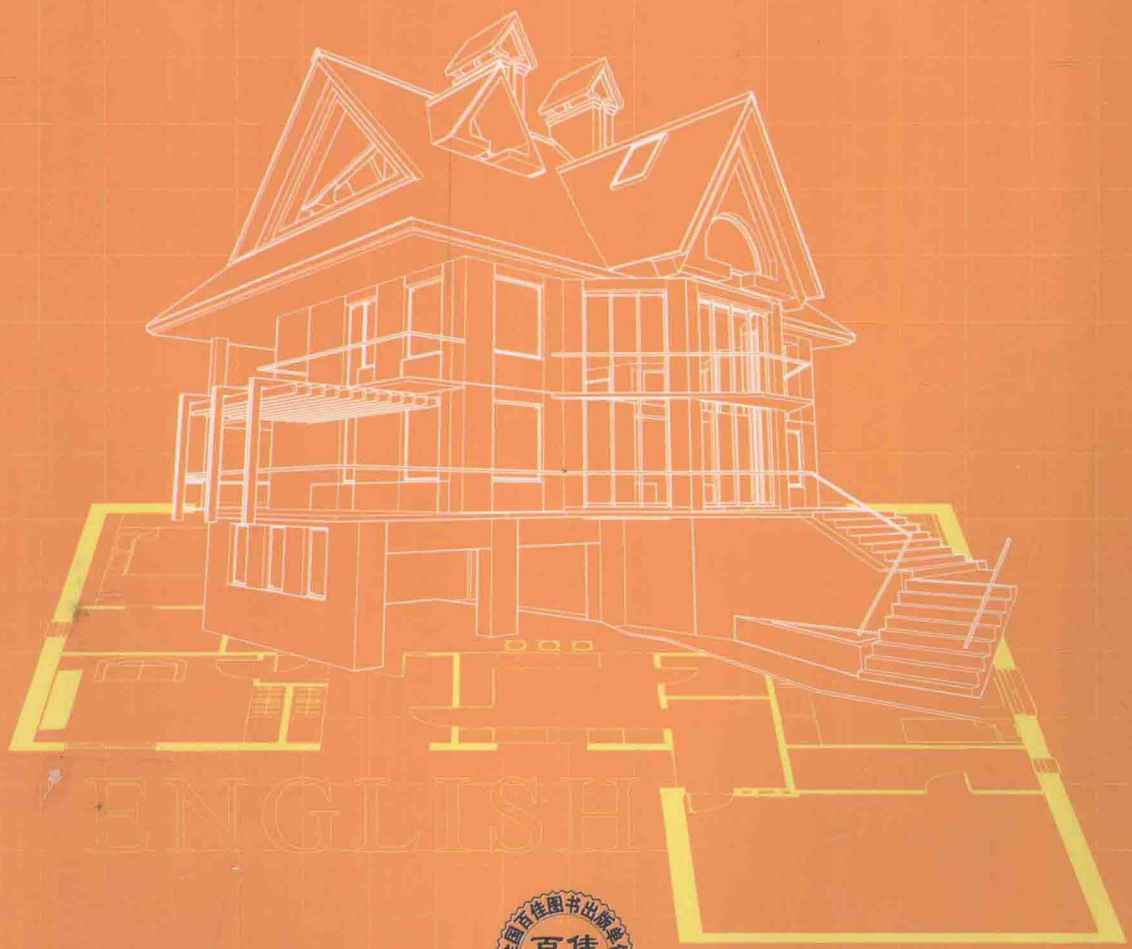
高等职业教育技能型精品教材

建筑专业英语

主编 曹 玲



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编者的话

近年来，社会对人才的需求呈多元化的趋势，以往高校培养出的单一外语专业或单一技能型的人才已无法适应社会经济发展的需要。因此，我国高等教育英语教改最高的呼声之一是要实现英语学习与专业学习的结合，在提高专业水平的同时，提高英语应用和实践能力，培养适应社会需求的复合型、应用型人才。

本教材共有 12 个单元，每单元由预习（Warming-Up）、听与说（Learn to Speak）、阅读与翻译（Reading and Translating）、模拟写作（Simulated Writing）、夯实基础（Laying a solid foundation）五部分组成。

本教材有如下特点：（1）选材广泛。既讲解了建筑专业的基础知识，也介绍了著名的建筑家；既介绍了世界最高的迪拜酒店，也涉猎了中国古建筑的特点。（2）难度适中。本教材针对高职教学的实际情况，从经典著作和网络资源中用心挑选了内容浅显、语句优美、逻辑性强、覆盖面广的部分，从而极大地增强了文章的可读性，适合高职学生的实际英语水平。（3）实效性强。由于当今建筑理论和技术的迅猛发展，知识更新越来越快。本教材在设计安排内容时，注重体现当前建筑业的发展状况。（4）全面服务教学。因为在开设专业英语课程时还有一部分学生没有通过高等学校英语应用能力考试 A 级，因此，我们特意在每单元后配有英语 A 级试题中的词汇、语法结构、阅读及翻译练习。此部分既有助于学生深入思考课文，也可丰富教师课堂讨论和平时考核的素材，方便教师有机灵活地组织课时。

本教材由曹玲担任主编，负责前期的构思、材料收集，后续的统稿、修订等工作。王雪、康春艳担任副主编，林琳、石成琳参编。具体编写情况：曹玲负责全书 Part One、Part Two、Part Four、Part Five，以及第 1~5、10、12 单元 Part Three、习题与答案、参考译文的编写工作。王雪负责第 7、9 单元 Part Three、习题与答案、参考译文的编写工作。康春艳负责第 6 单元 Part Three、习题与答案、参考译文的编写工作。林琳负责第 11 单元 Part Three、习题与答案、参考译文的编写工作。石成琳负责第 8 单元 Part Three、习题与答案、参考译文的编写工作。Appendix III 由曹玲、王雪共同编写。高美华教授、刘春霞副教授担任主审。

本书配有丰富的教学资源库，内容包含本教材习题答案、译文，以及中英文对照版的招投标法、国际建筑承包合同等内容，读者可登录 www.bjjqe.com 下载。

本教材参考并引用了许多相关文献资料，在此对其作者表示诚挚的感谢。由于编者水平有限，书中内容难免有疏漏和错误之处，敬请广大授课教师和读者不吝指正。

编　者

2013 年 3 月

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Contents

Unit One Buildings

Unit Objectives

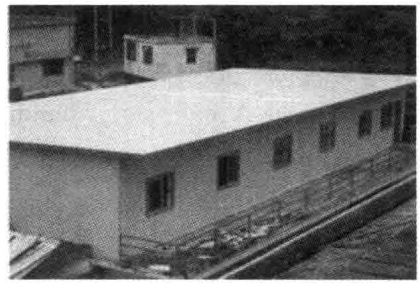
After studying this unit, the students should be able to

1. keep abreast of current development in architecture at home and abroad;
2. learn the relation between technique and forms;
3. understand the text and grasp the main idea.

Part One Warming-up

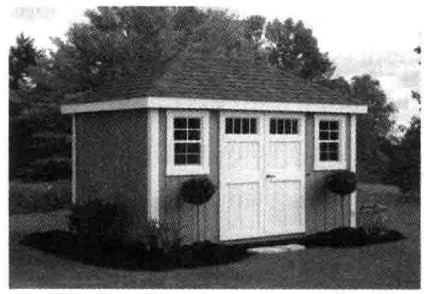
Look at the pictures of the most common roofs in use and match them with the correct names.

Arched Roof



Flat Roof

Hip and Gable Roof



Hip Roof

Gable/Comb Roof

Shed Roof

单坡屋顶	歇山屋顶	人字屋顶	四坡屋顶	拱形屋顶	平屋顶

Part Two Learn to Speak English

Talking about Kind of Buildings

Peter: Excuse me, Miss. I don't know anything about construction. Can you tell me what buildings you are going to build here?

Laya: Yes, Sir. A multi-storey building.

Peter: A multi-storey building. How high is it?

Laya: It's very, very high. Maybe more than eighty metres and there should be so many storeys.

Peter: What's the difference between a high-rise building and a low-rise one, I'd like to know?

Laya: A high-rise building is more than ten storeys (including ten storeys), and a low-rise building less than four (1~3) storeys, and also can be divided into multistoreys (4~6 storeys), and medium-high storeys (7~9 storeys).

Peter: Oh. I know it. The classification belongs to dwellings. How about public buildings?

Laya: Less than twenty-four metres belong to a single storey/multi-storey building and more than twenty-four metres high-rise building, and over one hundred metres belong to superhigh building.

Peter: I see. Thank you for your detailed explanation. How many storeys does this building have?

Laya: It has thirty-two or so.

Peter: Naturally it belongs to high-rise building. But what's the usage of this building?

Laya: As likes as not, some storeys are for the usage of business, and others for the living.

Peter: Which storeys are for the usage of department stores or shops?

Laya: Lower part, that is to say, ground and first floor, I think.

Peter: Why do you think so?

Laya: Because there aren't any partitions in these two storeys. The big rooms are usually for the usage of offices and department stores or shops...

Peter: What about the others?

Laya: However, there're many partitions in the others, so they become many small rooms, for the small rooms are usage of bedrooms, sitting room, bathroom...

Peter: Right, miss, but does the building belong to Chinese style architecture or western one?

Laya: It's just like that one over there. I think it belongs to western style architecture without a overhanging roof. With a overhanging roof, it belongs to Chinese style, or ancient architecture.

Peter: It's a modern architecture. The different between modern architecture and ancient architecture has a overhang roof, right?

Laya: I suppose it should be. But there're so many differences between modern architecture and ancient architecture, for example, using materials, adopting structures, choosing types, etc. , overhang roof is a typical different at least.

Peter: I don't quite clear. Pleas give me some examples about ancient architecture, OK?

Laya: OK. The Forbidden City (also called Imperial Palaces) in Beijing and Bell tower and Drum Tower in Xi'an, etc. are all the glaring examples.

Peter: Nice. Please show me some examples about modern architecture?

Laya: OK. So many examples for the modern ones, too numerous to mention, the People's Hall in Beijing and Orient Pearl in Shanghai.

Peter: I really understand. So modern architecture is buildings big and small, high and low along both sides of every street.

Consolidation:

Ⅰ. Decide whether the following statements are "true" or "false" (T/F).

1. ( ) We are going to build a low-rise building here.
2. ( ) High-rise building is less than six storeys and low-rise building more than six.
3. ( ) The multi-storey building belongs to Chinese style architecture with a over-hanging roof.

4. ( ) The big rooms in ground and first floor are for the usage of offices and shops...

5. ( ) The other storeys are too small to use as dwelling.

Ⅱ. Surf the Internet or look up the dictionary to put the following construction enterprises into Chinese.

China State Construction Engineering Corporation _____

Civil Construction Engineering Corporation _____

Construction Installation Engineering Corporation _____

Road & Bridge Engineering Corporation of China _____

No.1 Construction Engineering Company _____

Construction Decoration Company _____

Construction Materials Supplying Company _____

Construction Transportation Company _____

Construction Engineering Branch _____

Construction Engineering Brigade _____

Part Three Text

The structure and development of the building

[1] Materials and structural forms are combined to make up the various parts of a building, including the load-carrying frame, skin, floors, and partitions. The building also has mechanical and electrical systems, such as elevators, heating and cooling systems, and lighting systems. The superstructure is that part of a building above ground, and the substructure and foundation is that part of a building below ground.

[2] The construction of a building proceeds naturally from the foundation up to the superstructure. The design process, however, proceeds from the roof down to the foundation(in the direction of gravity), In the past, the foundation was not subject to systematic investigation. A scientific approach to the design of foundations has been developed in the 20th century. Karl Terzaghi of the United States pioneered studies that made it possible to make accurate predictions of the behavior of foundations, using the science of soil mechanics coupled with exploration and testing procedures. Foundation failures of the past, such as the classical example of the leaning tower in Pisa, have become almost nonexistent. Foundations still are a hidden but costly part of many buildings.

[3] The form of a building is an outgrowth of its function, its environment, and various socioeconomic factors. An apartment building, an office building, and a school differ in form because of the difference in the functions they fulfill. In an apartment building every habitable space, such as living rooms and bedrooms, must have natural light from windows while bathrooms and kitchens can have artificial light and therefore can be in the interior of the building. This set of requirements places a natural limit on the depth of an apartment building. In office buildings, on the other hand, artificial light is accepted for more uniform illumination, and therefore the depth of such buildings is not limited by a need for natural light.

[4] Environment may affecting blank walls to both the shape and appearance of a building. An urban school may create its own environment by us seal out the city completely, and a country school may develop as an integral part of the landscape, even though both schools fulfill the same function.

[5] Finally, the form of a building is affected by a variety of socioeconomic factors, including land costs, tenancy, building budget, and zoning restrictions. High land costs in urban areas result in high buildings, while low land costs in the country result in low buildings. A housing project for the rich will take a different form than a low-cost housing project. A prestige office building will be more generously budgeted for than other office buildings. The bulk of a building and its outline may be limited by zoning restrictions. In all these examples, buildings with similar functions take on different forms.

[6] Architecture is the art of building. Virtually all architecture is concerned with the enclosure of space for human use. The precise activities to be housed in any specific building—ranging from an assembly line in a factory to a living room in a home—should dictate the size and shape of the several areas within. These spaces also must be arranged in some logical relation to each other. Furthermore, the movement of human beings within the building—"circulation" in architectural parlance—requires halls, stairs, or elevators whose size is governed by the expected load of traffic. The plan of a structure, always the first consideration of an architect, is the resolution of these different purposes into an organization of spaces that will fulfill the intent of the building. Good planning guides the visitor to his destination in the structure and impresses him, perhaps subconsciously, by visibly relating the several units of the edifice. Conversely, a bad plan results in inconvenience, waste, and visual confusion.

[7] Although there have been many advancements in building construction technology in general, spectacular achievements have been made in the design and construction of ultrahigh-rise buildings.

[8] The early development of high-rise buildings began with structural steel framing. Reinforced concrete and stressed-skin tube systems have since been economically and competitively used in a number of structures for both residential and commercial purposes. The high-rise buildings ranging from 50 to 110 stories that are being built all over the United States are the result of innovations and development of new structural systems.

[9] Systems compiling both concrete and steel have also been developed, an example of which is the composite system developed by Skidmore, Owings & Merrill in which an exterior closely spaced framed tube in concrete envelops an interior steel framing, thereby combining the advantages of both reinforced concrete and structural steel systems. The 52-storey One Shell Square Building in New Orleans is based on this system.

[10] Greater height entails increased column and beam sizes to make buildings more rigid so that under wind load they will not sway beyond an acceptable limit. Excessive lateral sway may cause serious recurring damage to partitions, ceilings, and other architectural details. In addition, excessive sway may cause discomfort to the occupants of the building because of their perception of such motion. Structural systems of reinforced concrete, as well as steel, take full advantage of the inherent potential stiffness of the total building and therefore do not require additional stiffening to limit the sway.

【Words & Expressions】

various ['vɛəriəs]	adj. 各种不同的，各种各样的
partition [pɑ:'tiʃən]	n. 分开；隔墙　vt. 分开，隔开
elevator ['eliveitə]	n. 电梯，升降机
superstructure ['sju:pə,strʌktʃə]	n. 上部结构，上层建筑
substructure [sʌb'strʌktʃə]	n. 基础
proceed [prə'si:d]	vi. 前进；行进；进行；继续下去
approach [ə'prəutʃ]	vt. & vi. 接近，走近，靠近 n. 途径；方式，方法
pioneer [,paiə'niə]	n. 先驱者；创始者；先锋　vt. 开拓，创始
outgrowth ['aut,grəuθ]	n. 产物；后果，结果
artificial [,ɑ:ti'fiʃəl]	adj. 人造的，人工的
illumination [i,lu:mi'neiʃən]	n. 照明；强度；解释；启发
budget ['bʌdʒit]	n. 预算；政府预算案；预算额；经费
virtually ['və:tʃuəli]	adv. 实际上；事实上
innovation [,inəu'veiʃən]	n. 改革，革新，创新
rigid ['ridʒid]	adj. 刚硬的；僵硬的；不弯曲的
make up	组成，构成；弥补；和解

be not subject to	不受制约
an assembly line	生产线
ultrahigh-rise building	超高层建筑
reinforced concrete	钢筋混凝土
in addition	另外

Professional General Knowledge

房屋 一般指上有屋顶，周围有墙，能防风避雨，御寒保温，供人们在其中工作、生活、学习、娱乐和储藏物资，并具有固定基础，层高一般在 2.2 米以上的永久性场所。但根据某些地方的生活习惯，可供人们常年居住的窑洞、竹楼等也应包括在内。

住宅 是指专供居住的房屋，包括别墅、公寓、职工家属宿舍和集体宿舍、职工单身宿舍和学生宿舍等。但不包括住宅楼中作为储藏物资用、不住人的地下室等，也不包括托儿所、病房、疗养院、旅馆等具有专门用途的房屋。

住宅典故

《水浒传》第三十三回："南边有个小寨，是文官刘知寨的住宅。"

清代李渔《巧团圆·梦讯》："以后睡梦之中，不上这座小楼就罢，若还再走上去，定要讨个下落，且看是谁家住宅。"

沙汀《丁跛公》："许多连他不如的人，在这扰乱的岁月中，都已经走上正路了，他们建筑起'四水归堂'的住宅了。"

房屋按建筑质量分类

【完好房屋】指主体结构完好。不倒、不塌、不漏。庭院不积水、门窗设备完整，上下水道通畅，室内地面平整，能保证居住安全和正常使用的房屋，或者虽有一些漏雨和轻微破损，或缺乏油漆保养，经过小修能及时修复。

【基本完好房屋】指主体结构完好，少数部件虽有损坏，但不严重，经过维修就能修复的房屋。

【一般损坏房屋】指主体结构基本完好，屋面不平整、经常漏雨，门窗有的腐朽变形，下水道经常阻塞，内粉刷部分脱落，地板松动，墙体轻度倾斜、开裂，需要进行正常修理的房屋。

【严重损坏房屋】指年久失修，破损严重，但无倒塌危险，需进行大修或有计划翻修、改建的房屋。

【危险房屋】指结构已严重损坏或承重构件已属危险构件，随时有可能丧失结构稳定和承载能力，不能保证居住和使用安全的房屋。

Exercises

Ⅰ. Choose the most suitable alternative to complete the following sentences.

1. The superstructure is that part of a building _____, and the substructure and foundation is that part of a building _____.

A) above ground, below ground B) below ground, above ground

C) above ground, above ground D) below ground, below ground

2. The construction of a building proceeds naturally from the foundation _____. The design process, however, proceeds from the roof _____ (in the direction of gravity).

A) down to the foundation, up to the superstructure

B) up to the superstructure, up to the superstructure

C) up to the superstructure, down to the foundation

D) down to the foundation, down to the foundation

3. _____ pioneered studies that made it possible to make accurate predictions of the behavior of foundations, using the science of soil mechanics coupled with exploration and testing procedures.

A) Alexandra of the United Kingdom

B) Karl Terzaghi of the United States

C) Amanda of the United Kingdom

D) Abigail of the United Arab Emirates

4. Furthermore, the movement of human beings within the building—"circulation" in architectural parlance—requires halls, stairs, or elevators whose _____ is governed by the expected load of traffic.

A) height B) size C) width D) length

5. According to the author, spectacular achievements have been in the _____.

A) tower building

B) constructing suspension bridge

C) development reinforced concrete system

D) the design and construction of ultrahigh-rise buildings

Ⅱ. Choose one word or expression which is most similar in meaning to the word underlined in the given sentence.

1. The construction of a building <u>proceeds</u> naturally from the foundation up to the superstructure.