电梯英语 立体化教程

肖青 邹娟娟 主编

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主 编 肖 青 邹娟娟 副主编 刘 淼 周 祥 熊有生

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内容简介

《电梯英语立体化教程》是一本针对高等院校电梯工程技术专业,或从事电梯行业工作的人员迅速提高电梯行业英语水平,了解电梯行业历史及发展动态,熟悉电梯典型类型及维修检测指南,解读电梯安装过程及安装管理安全条例,熟练使用电梯行业英语,掌握电梯从业人员工作岗位需要用到的专业英语而编写的专业英语教材。本书选材权威,内容新颖,所涉及知识系统全面,课后习题丰富,附录词库实用,具有重要的参考价值。本书突出专业特色,又紧紧把握职业发展需求,适合高等院校的电梯专业教学使用,也可作为电梯行业英语爱好者及从业者提高电梯英语水平的科普读物,同时也是一本极具参考价值的工具书。

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(Preface)

电梯经过 150 多年的发展,不仅是代步的工具,也是人类文明的标志。随着 我国现代化建设的不断发展,中国已成为世界上最大的电梯市场。广东,作为珠 三角地区电梯行业蓬勃发展的聚集地,汇聚了大量的电梯企业。在中外技术合作、 交流、接轨的今天,客观上对电梯相关的生产、安装、维护等技术人才提出了诸 如既懂技术又懂外语的更高的时代新要求。

正是基于以上形势,我们组织了校内外具有丰富经验的专业人士编写了这本 电梯英语教材,希望能为电梯专业的学生提供基本的电梯听、说、读、写、译的 学习教材,从而为将来与国际电梯技术同行进行技术交流与合作储备必要的专业 英语知识。

本教材,主要由 Before-class Activities, In-class Activities, Check Your Understanding, Case Studies 和 Extension 几大部分构成。主要目的之一,就是力图提高电梯专业学生的英语听、说、读、写和译方面的语言技能。本书具有如下特点:

- 1. 实用性。本书大体遵循"基于工作过程"的编写思路来选取相应的电梯教 学内容,更好地将电梯英语的学习过程与将来的职业工作场景相融合,实现高等 教育培养"实践性人才"的目标。
- 2. 参与性。为了更好地调动高等院校大学生学习电梯英语的积极性,本书设计了不同的,便于师生互动的听、说、读、写、译的模块,而且为了跟上教育信息化的节奏,还增加了很多"扫二维码便可以看电梯短视频"的信息化手段,力图吸引学生参与电梯英语教学的各个环节。
- 3. 循环性。为了充分挖掘电梯专业学生的听、说、读、写、译的英语能力, 在电梯英语有关材料的安排设计上,还注意了电梯英语相关内容的循环呈现,以



更好地利用有限的材料强化学生对电梯英语相关术语和内容的记忆与认知力度。

4. 新颖性。为了适应"90后"大学生的学习特点,本文在配备了大量的专业图片供学生认知相关电梯专业知识的基础上,还结合了最新的翻转课堂的教学模式,配备了扫二维码即可课前观看相关视频、音频等在线资源,从而把教学活动很好地从课内延伸到了课外,促进了学生自主学习习惯的养成。

本书在编写过程中,在参考了大量的书籍与网络资源的同时,也从电梯企业 收集了众多的技术资料,由于篇幅有限,未能一一列出,在此向相关单位和人士 表示衷心的感谢。由于编写时间仓促和水平有限,书中不妥之处在所难免,敬请 广大专家和读者批评指正。

> 编 者 2016年6月于广州



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Chapter One General Introduction to Elevators

Unit One

Elevator History

Before-class Activities: Getting Things Ready

Task 1 Listen to the following words and then repeat them after the recording.

hoist [hoist] v. & n. 升起; 升降机 crane [kren] n. 吊车,起重机; 鹤 era ['irə] n. 年代; 历史时期 pre-industrial [ˌpri:ɪn'dʌstrɪəl] adj. 工业 化前的 vertical ['vɜ:rtɪkl] adj. 垂直的,直上的 ancient ['enʃənt] adj. 古代的 medieval [ˌmidi'ivəl] adj. 中古的,中世 纪的 enhance [ɪm'hæns] v. 加强; 提高

device [dr'vaɪs] n. 装置,设备 electric [r'lɛktrɪk] adj. 电动的;电的 enterprise ['entərpraɪz] n. 企(事)业单位;事业 innovative ['ɪnəˌvetɪv] adj. 创新的;革新的 modernization [ˌmɑdənə'zeʃən] n. 现代化 human power ['hjumən 'pauə] 人力 steam power [stim 'pauə] 蒸汽动力 skyscraper ['skaɪˌskrepə] n. 摩天大楼

Task 2 Listen to the following sentences and then repeat them after the recording.

- 1. The earliest history of elevators dates back to ancient times, probably over 200 B.C.
- 2. With the need for vertical transport as old as civilization, the elevator history all began with the hoist.
- 3. Over the centuries, mankind has employed innovative forms of lifting.
- 4. The earliest lift used man, animal and water power to raise the load.
- 5. Lifting devices relied on basic forms of power until the beginning of the Industrial Revolution.
- 6. In the industrial era, the development of elevators was led by the need for the movement of raw materials such as coal and wood.



- 7. The ever-advancing technology in relevant industries and the improving construction techniques worked together to provide the passenger and freight elevators in use today.
- 8. If the elevator did not exist, most of the modern architecture would be impossible, let alone office towers, skyscrapers and high-rise apartments.

Task 3	Listen and write.			
1	2	3	4	5
6	7	8	9	10
11	12	13	e.	
14				
15				

In-class Activities: Paragraph Listening and Reading

Task 1 Listen and practice.

Section 1 Listen to the passage and fill in the blanks with the words you hear.

From1_ times through the Middle Ages, and into the 13th century, man or
animal power was the driving force behind hoisting 2. In ancient Greece,
Archimedes developed an improved lifting device operated by ropes and 3, in
which the hoisting ropes (曳引绳) were coiled around a winding drum by a4_ and
arena(竞技场)level of the Roman Coliseum(体育馆).
6 records contain numerous drawings of hoists 7 men and supplies to
isolated locations. Among the most famous is the <u>8</u> at the monastery(修道院)
of St. Balaam in Greece. The monastery stood on a pinnacle (尖顶) approximately 200
feet above the ground. Its hoist, which employed a basket or 9 net, was the
only 10 up or down.
The first elevator designed for a passenger was built in1_ for King Louis
XV at his palace in France. The one-person contraption(新发明)went up only one
floor, from the first to the second. Known as the "," it was on the outside of the

XV at his palace in France. The one-person contraption (新发明) went up only one floor, from the first to the second. Known as the "<u>12</u>," it was on the outside of the building, and was entered by the king via his balcony. The <u>13</u> consisted of a carefully balanced arrangement of weights and pulleys hanging inside a chimney (烟囱). Men stationed inside the chimney then <u>14</u> the Flying Chair at the king's command.

Through the years of developmental accumulation, Today's HD Fuji has become a first-class international modern <u>15</u> enterprise. In the year of 2008, it was



affiliated with16 elevator company limited. The world famous company of Japan
Fuji brings the high17_ and builds advanced flow line craft, which promotes the
company to a better level of 18, leading the world in the future elevators
and The perfect product system is the solid foundation for HD Fuji to serve
the world. Whereas the perfect product quality is a consisting basis of HD Fuji elevator
It currently has 20, observation elevator, hospital elevator, villa elevator, goods
elevator, 21, machineroomless elevator, car elevator, 22, escalator, moving
walk, etc.

Section 2 Practice the passage with your partners.

Task 2 Pre-reading questions.

- (1) Why do people need the help of elevators?
- (2) When was the first elevator invented in the human history?
- (3) What are the differences between traditional transportation tools and elevators?

Elevator History

The elevator history can be traced back to ancient times, probably over 200 B.C. It all began with the hoist, which has been in use since ancient times to draw water or raise building materials. The long history has roughly gone through the following stages.

Pre-industrial era

The first documented proof of hoists' use, however, comes from Greece, in 236 B.C., when Greek mathematician, physicist and inventor Archimedes invented a hoist device with ropes and pulleys, whereby a hoist rope was wrapped around a capstan and manpower used to pull a lever to turn the drum. Some sources from later historical periods mention elevators as cabs on a hemp rope powered by hand or by animals. The hoists using human workers as counterweights to draw water from a well or using simple manpower to raise loads were both believed to be in use in ancient Rome (Figure 1-1).



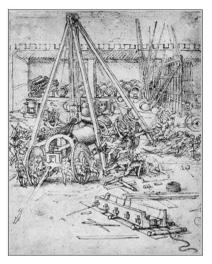


Figure 1-1

In 1,000, the Book of Secrets by al-Muradi described the use of an elevator-like lifting device to destroy a fortress in a battle. In the 17th century, the prototypes of elevators were located in the palace buildings of England and France. Louis XV of France had a so-called "flying chair" built for one of his mistresses at the Chateau de Versailles in 1743. It is also said that the Emperor Napoleon built a caged chair so that the Empress could ascend staircases without effort (Figure 1-2, Figure 1-3).







Figure 1-3

Ancient and medieval elevators used drive systems based on hoists or winders. The invention of a system based on the screw drive was perhaps the most important step in elevator technology since ancient times, leading to the creation of modern passenger elevators. The first screw drive elevator was built by Ivan Kulibin and installed in Winter Palace in 1793. Several years later another of Kulibin's elevators was installed in Arkhangelskoye near Moscow (Figure 1-4).



Figure 1-4

Industrial era

The development of elevators was led by the need for movement of raw materials including coal and lumber from hillsides. The technology developed by these industries and the introduction of steel beam construction worked together to provide the passenger and freight elevators in use today.

Starting in the coal mines, by the mid-19th century elevators were operated with steam power and were used for moving goods in bulk in mines and factories. These steam driven devices were soon being applied to a lot of purposes—in 1823, two architects working in London, Burton and Hormer, built and operated a novel tourist attraction, which they called the "ascending room." It elevated paying customers to a considerable height in the center of London, allowing them a magnificent panoramic view of downtown (Figure 1-5).



Figure 1-5

Early, crude steam-driven elevators were refined in the following decade; in 1835 an innovative elevator called the "Teagle" was developed by the company Frost and Stutt in



England. The elevator was belt-driven and used a counterweight for extra power.

In 1845, a Neapolitan architect installed in the Royal Palace of Caserta the "Flying Chair," an elevator ahead of its time, covered with chestnut wood outside and with maple wood inside. It included a light, two benches and a hand operated signal, and could be activated from the outside, without any effort on the part of the occupants. Traction was controlled by a motor mechanic utilizing a system of toothed wheels. A safety system was designed to take effect if the cords broke. It consisted of a beam pushed outwards by a steel spring (Figure 1-6, Figure 1-7).





Figure 1-6

Figure 1-7

The hydraulic crane was invented by Sir William Armstrong in 1846, primarily for use at the Tyneside docks for loading cargo. These quickly replaced the earlier steam driven elevators: exploiting Pascal's law, they provided a much greater force. A water pump supplied a variable level of water pressure to a plunger encased inside a vertical cylinder, allowing the level of the platform (carrying a heavy load) to be raised and lowered. Counterweights and balances were also used to increase the lifting power of the equipment.

Henry Waterman of New York is credited with inventing the "standing rope control" for an elevator in 1850.

The mid 19th century marked the dawning of the age of electricity, and the development in elevator technology was being driven by the appearance of the first high-rise buildings in the United States, which necessitated the development of elevators in order to make them practical. As such, the United States emerged as the center of elevator technology development for decades.

In 1852, Elisha Otis introduced the safety elevator, which prevented the fall of the cab if the cable broke. With his installation of the first safe elevator in 1853 he literally started the elevator industry. His invention enabled buildings—and architects'

imaginations—to climb ever skyward, making it practical to have buildings higher than six stories. The Equitable Life Building completed in 1870 in New York City was the first office building to have passenger elevators (Figure 1-8).



Figure 1-8

The design of the Otis safety elevator is somewhat similar to one type still used today. A governor device engages knurled roller(s), locking the elevator to its guides should the elevator descend at an excessive speed. He demonstrated it at the New York exposition in the Crystal Palace in a dramatic, death-defying presentation in 1854, and the first such passenger elevator was installed at 488 Broadway in New York City on March 23, 1857 (Figure 1-9, Figure 1-10).





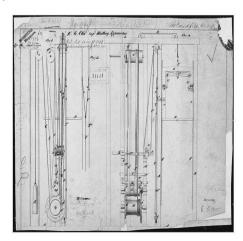


Figure 1-10

In 1867, the practicality of the hydraulic-power elevator was recognized when Leon Edoux exhibited one at the Paris Exposition. With a top speed of 150 meters per minute (492 ft[®]/min), hydraulic-power elevators began appearing in 1878, and became

① 1 ft=0.304 8m.



widely used in Europe and the United States.

The first electric elevator was built by Werner von Siemens in 1880 in Germany. The safety and speed of electric elevators were significantly enhanced by Frank Sprague who added floor control, automatic elevators, acceleration control of cars, and safeties. His elevator ran faster and with larger loads than hydraulic or steam elevators.

In 1887, American Inventor Alexander Miles patented an elevator with automatic doors that would close off the elevator shaft. In 2000, the first vacuum elevator was offered commercially in Argentina (Figure 1-11, Figure 1-12).



Figure 1-11

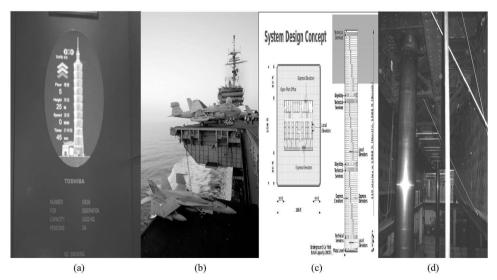


Figure 1-12

- (a) The observation deck elevator floor indicator in the Taipei 101
- (b) An F/A-18C on an aircraft elevator of the USS Kitty Hawk
- (c) The former World Trade Center's twin towers with skylobbies
- (d) Orchestra lift at Radio City Music Hall viewed from beneath the stage