MODERN ARCHITECTURE AND CONSTRUCTION

Министерство образования и науки Российской Федерации
Тамбовский государственный технический университет

СОВРЕМЕННАЯ АРХИТЕКТУРА И СТРОИТЕЛЬСТВО

Учебное пособие по английскому языку

Тамбов
Издательство ТГТУ
2004

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пособие по английскому языку / Авторы-сост.: Е.В. Рябцева, А.А. Гвоздева, Л.В. Михеева, Л.П. Циленко. Тамбов: Изд-во Тамб. гос. техн. ун-та, 2004. 96 с.

Данное пособие предназначено для обучения различным видам чтения профессиональных текстов, владение которыми необходимо будущим специалистам, а также формирования устной речи, письма, переводческих навыков. Эффективное практическое овладение языком обеспечивается системой языковых упражнений, стимулирующих интерес студентов и их творческую активность.

УДК 802.0(076)
ББК Ш13(Ан)я923

Учебное издание

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CONTENTS

UNIT 1
CONCRETE CONSTRUCTIONS

Lesson 1
Concrete – a Yearning for the Monolithic

Pre-reading Discussion

1. What is a construction?
2. Concrete has become an important construction material, hasn't it?
3. What do you think about the construction architecture of the 19th and 20th centuries?
4. How can you explain the phrase "a monolithic construction"?
5. Does good knowledge of drawing help to create perfect buildings?

Monolithic buildings radiate a sense of strength. The pervasiveness of a single material, in conjunction with only a few restrained details, creates an agreeable impression of *archaic* simplicity in our modern society. If one seeks to achieve a unified design for the structure, facade, *paving* and other *ancillary* elements of a building in temperate climatic zones, *the versatility* of concrete makes it the ideal material. Many different *surface* treatments are possible for the design of facades. In the Swiss embassy in Berlin, Diener sought *to achieve* a monolithic effect by avoiding all trace of working joints. The walls were concreted in a continuous process over a period of 26 hours.

Another method of circumventing the constraints of joints can be seen in an office building in Munich by MVRDV, where a series of U-shaped *precast* concrete elements were offset to each other from *storey* to storey to create a series of *projections* and *recesses*. Sometimes the pattern of formwork ties may be exploited to lend the surface a certain structure. In the Scholler Bank in Vienna, however, Jabornegg and Palffy used an elaborate expanding shuttering technique to avoid precisely this effect. The monolithic *outward appearance* of a concrete building often results in *internal complexity*, especially in the building physics. An adequate solution can normally be achieved only through the creation of thermally separated inner and outer skins, in which case, care must be taken to avoid *cracking* caused by extremes of temperature. In the 16-meter-high exposed concrete facade to the Pinakothek der Moderne in Munich, which was executed without *joints*, flexible *anchors* were inserted between the two skins, and the external wall was prestressed. Monolithic structures may also be differentiated and given an individual character through the use of color. In the housing group on the Zurichberg by Gigon/Guyer, *mineral pigments* were applied to the surface of the concrete to create a matt, "pollen-like" texture. With its red-brown coloration, the guesthouse by Auer and Weber in Chile merges into the desert surroundings to become a monolithic relief in the landscape.

Different surface qualities may also be desired internally and externally. The black memorial structure in Sachsenhausen by Schneider/Schumacher seems dematerialized externally by reflections of the surroundings in the long shiny walls. The rays of light entering through the glazed roof strips, however, highlight the rough-textured natural grey face of the internal skin, thereby *augmenting* the massive effect of the interior.

The various forms of surface treatment that are possible with concrete also allow the simulation of naturally monolithic materials. Rem Koolhaas, for example, used the texture of traditional Japanese fortifications as a kind of collage in his housing development in Fukuoka.

With its 50 cm external walls, the house in Flasch by Andrea Deplazes is truly monolithic. To achieve the necessary thermal insulation, a special type of expanded concrete was developed, foamed to form hollow pores in the material. Steel reinforcement was replaced with polypropylene fibers. The use of sawn vertical boarded formwork reduced the danger of pockets and defects. The outer surface was treated with *a water-repellent coating*. The building is certainly experimental, but it also marks a step back to the original qualities of simple monolithic forms of construction, which hold a promise for the future.

Vocabulary List

– *monolithic* – монолитный

– *archaic* – архаический, устарелый

– *paving* – мостовая, дорожное покрытие

– *ancillary* – дополнительный, вспомогательный

– *versatility* – эксплуатационная гибкость, многосторонность

– *a surface* – поверхность

– *to achieve* – достигать, добиваться

– *precast* – заводского изготовления, сборного типа

– *a storey* – этаж, ярус

– *a projection* – выступ, выдающаяся часть

– *a recess* – углубление, ниша

– *outward appearance* – внешний вид

– *internal complexity* – внутренняя комплексность

– *to crack* – давать трещину, трескаться

– *a joint* – соединение

– *an anchor* – крепеж

– *a mineral pigment* – минеральный краситель

– *to augment* – увеличивать

– *a water – repellent coating* – водоотталкивающее покрытие

📖 Answer the following questions.

1. Why is concrete an ideal material for building?
2. How could Diener achieve a monolithic effect?
3. What can you say about the method of circumventing the constraints of joints in an office building in Munich?
4. May the use of color give an individual character to monolithic structures?
5. How does light affect monolithic constructions?

📖 Find the English equivalents in the text.

Создавать приятное впечатление; ощущение силы; умеренный климатический пояс; обработка поверхности; достигать эффекта монолитности; непрерывный процесс; возмещать; придавать поверхности определенную форму; внутренний и наружный слои; перепад температуры; вставлять; напыление; вливаться; луч света; имитация естественных монолитных материалов; расширяющийся цемент; воздушное пространство.

📖 Give synonyms.

A unified design; an ancillary element; versatility; to achieve; a storey; a tie; to exploit; a technique; an adequate solution; to insert; simulation; to reduce.

📖 True or false?

1. Concrete is a collapse for the monolithic.
2. If you want to have a unified design for the structure the versatility of concrete makes it the ideal material.
3. The use of color does not affect the monolithic structures.
4. Different forms of surface allow the simulation of naturally monolithic materials.
5. The rays of light entering through the glazed roof strips highlight the rough-textured natural grey face of the internal skin, thereby augmenting the massive effect of the interior.

Определенный и неопределенный артикли.
Множественное число существительных (See Grammar Reference)

✎ **Put in -*a* or -*an* where it is necessary.**

1. This is … easy text.
2. That is … good idea.
3. These are … low tables.
4. This … table is low.
5. This is … low table.
6. … roses are beautiful flowers.
7. This rose is … beautiful flower.
8. … London and … Rome are big cities.
9. … Naples is … big city, too.
10. I like … sugar in my … tea.
11. The … tea is hot.
12. Tea is … hot drink.

✎ **Put in -*a*, -*an* or -*the* where it is necessary.**

1. Come to ... blackboard and write... Exercise 5.
2. You have ... mistake in ... word "correspondence".
3. I heard ... knock at ... door and went to open it.
4. John saw ... small girl entering ... house where he lived.
5. He is still ... young man, and we hope he'll become ... good pianist.
6. I don't like ... milk with my tea.
7. We bought ... oranges and ... butter.
8. Are ... rooms in your flat tidy?
9. They are going to build ... new house; ... house they've been living in is too small for ... family of six.
10. There is ... love in her eyes.
11. I like ... jam on ... piece of bread.
12. I prefer ... book of ... good poetry to ... detective novel.
13. Can you give me ... piece of ... advice?
14. I worked as ... shop-assistant in ... local supermarket.
15. ... young woman dressed in ... red entered... room where ... whole company gathered.
16. ... London is on ... Thames.
17. .... Mexico is south of ... United States of America.
18. ... Urals separate ... Europe from ... Asia.
19. ... Mississippi is ... longest river in ... world.
20. What is ... capital of ... Spain?

✎ **Put the nouns into the plural form.**

Month, eye, ear, brother, spoonful, deer, army, Frenchman, chimney, machine, top, hill, bush, man, son, factory, memorandum, basis, boy, roof, chief, box, tooth, phenomenon, handful, airman, river, lake, name, place, watch, bridge, armchair, formula, ship, mistake, farm, hat, bank, rifle, gun, mine.

Lesson 2
High – Performance Concrete

Pre-reading Discussion

1. Which construction materials can you name?
2. How can you describe concrete in your own words?
3. Is it possible to consider concrete to be the main construction material?
4. For what purpose do usually people use concrete?

5. In designing a building the choice of construction materials is of vital importance, isn't it?

Concrete technology *has undergone* a constant process of development over the past 50 years. Today, it provides planning engineers and architects with a broad range of possibilities *in terms of* both structural and formal design. In office construction, for example, high-strength concrete offers *scope* for saving space by reducing the dimensions of the load-bearing structure and thereby increasing the rentable floor area. This type of concrete also allows the construction of building elements that have a great resistance to weathering, that are durable and that, in certain circumstances, can *protect* the environment against harmful liquids.

High-strength concrete has a long tradition. With extremely low water/cement ratios (below 0.4) and with the addition of pozzolanic, highly-reactive aggregates such as powdered *silica* or metakaolin, a compression strength of up to 150 N/mm^2 can be achieved (compared with a strength of 20-50 N/mm^2 for normal concrete). Assuming the same amount of *reinforcement* and the use of concrete C70/85, the cross-section could be reduced by 30 per cent. In many situations, a reduction in the amount of reinforcement may be required instead, in order *to facilitate* the execution of the work. In most cases, however, a solution will be sought between these two extremes.

Only by using this type of concrete was it possible to keep the thickness of the walls on the lower floors within reasonable limits. With concrete of standard strength, a wall thickness of about 2 m with a very large amount of reinforcement would have been necessary. It was possible to reduce the thickness to roughly 1.40 m and to use only a moderate amount of reinforcement. Nevertheless, for walls of this thickness, it is necessary to reduce the cement content to well below normal levels and to add pulverized fly ash to the mix. Preliminary trials allowed the appropriate combination of cement and fly ash to be determined in order to avoid *deleterious* cracking through *the discharge* of setting heat. In Germany, solutions of this kind require a special certification of the relevant state planning authorities. Even with the use of an optimum mix of concrete, however, newly constructed concrete elements still need appropriate curing *subsequently* to prevent heat escaping too quickly.

In view of the very low water/cement *ratio* and the addition of pozzolanic additives, high-strength concrete is not only strong, but also *dense*. Both properties can be exploited in areas like bridge building, where highly *durable* concrete is required to ensure long life as well as slender cross-sectional dimensions. Where harmful liquids are used in buildings such as clinics, hospitals or chemical laboratories, additional measures will be necessary to protect the ground and groundwater from *contamination*. Dense concrete mixes have proved particularly suitable in such cases.

The advantages of high-density concrete *slabs* include their greatly reduced *permeability* in comparison with normal concrete, and their higher *tensile* strength. In slabs of smaller area (up to a maximum dimension of 15 m), their greater strength means that they are not subject to cracking. Cracks in construction elements are especially critical in buildings where water-polluting organic liquids are used. With the use of high-density concrete, it is often possible to do without an additional protective coating.

As far as cementicious building materials are concerned, new developments have taken place in recent years that will considerably *extend* the use of concrete in this area. This applies in particular to high-strength concretes with compressive strengths of up to 800 N/mm^2 (in comparison with standard applications of about 300 N/mm^2). Considerable reductions in the cross-sections of reinforced and prestressed concrete members can be achieved with this type of concrete. Slender elements also mean a lower overall weight, as well as a more sustainable form of construction through the conservation of resources.

New methods of construction are also *emerging* through the use of so-called "reactive-powder concrete", as can be seen in the bridge constructed by Bouyges in Quebec, Canada, in 1997. *In the meantime*, this technology has been applied to other structures, such as the footbridge in Seoul, South Korea.

Vocabulary List

– *to undergo* – испытывать
– *in terms of* – с точки зрения
– *scope* – возможности
– *to protect* – защищать, предохранять
– *silica* – кварц, кремнезем
– *reinforcement* – арматура, укрепление
– *to facilitate* – облегчать, способствовать
– *deleterious* – вредный, ядовитый
– *a discharge* – выделение, выпускание
– *subsequently* – впоследствии, потом
– *a ratio* – коэффициент

– *dense* – густой
– *durable* – прочный, надежный
– *contamination* – заражение
– *a slab* – плита, пластина
– *permeability* – проницаемость
– *tensile* – растяжимый
– *to extend* – продлевать, пролонгировать
– *to emerge* – появляться, возникать
– *in the meantime* – тем временем, между тем

📖 Answer the following questions.

1. What do you know about the development of concrete technology?
2. High-strength concrete has a great number of advantages, hasn't it?
3. In what areas is the high-strength concrete exploited?
4. What are the main concrete properties?
5. What is "reactive-powder concrete"?

📖 Find the English equivalents in the text.

Позволять; большие возможности; экономить площадь; сопротивляемость погодным условиям; при определенных обстоятельствах; поперечный разрез; в большинстве случаев; средняя величина; предварительные испытания; решение; утечка тепла; присадка; ядовитая жидкость; давать трещину.

📖 Give synonyms.

A constant process, to reduce dimensions, to protect, a property, an advantage, a construction, water-polluting liquids, in recent years, to emerge.

📖 True or false?

1. The use of high - performance concrete protects the environment against harmful liquids.
2. High-strength concrete appeared in the 19th century.
3. High-strength concrete has a low water ratio.
4. New methods of construction emerged through the use of so-called "reactive-powder concrete" in Japan.
5. Cracks in construction elements appear with the use of this type of concrete.

Типы вопросов в английском языке (See Grammar Reference)

✍ Ask the general questions.

1. There is a tea-pot on the table.
2. I work from nine to ten.
3. We are leaving for Hamburg next Saturday.
4. I have been busy the whole evening.
5. My friend studied in Sorbonne when he was young.
6. It is winter.
7. I can swim in cold water.
8. I had to go there in the daytime.
9. I will show you how to do it.
10. You must work hard.
11. She didn't play well that evening.
12. I can't read English authors in the original.
13. I wasn't prepared to this sort of questions.

✍ Ask as many special questions as possible.

1. John visited me in the hospital yesterday.
2. A yellow bird fell on the roof of his Pontiac.
3. I was taken by surprise.
4. Despite the stormy weather he was able to swim to the shore.
5. He couldn't reach the hammer which lay on the shelf.
6. Our bus was broken.
7. I have been cheated by the best friend.
8. A girl from Barbados wrote a letter to BBC.
9. The clock stopped an hour ago.
10.   You have to stop near the traffic lights.

✍ Put in *-a, -an* or *-the* where it is necessary.

There were only ... two people in ... hall when I went in, ... man with ... long beard and ... child. ... child was sitting on ... chair by ... window, playing with ... small kitten, while ... man with ... beard was reading ... newspaper. Suddenly he put ... newspaper on ... table which stood by, and said, "... president is shot dead in ... Alabama". ... child burst into ... tears. "Don't cry", said ... man, "you wanted to be ... president, and you'll be ... next one."

Lesson 3
High - Strength Concrete

Pre-reading Discussion

1. What types of concrete do you know?
2. What are the main characteristics of high-performance concrete?
3. Do you agree that to construct a building designers must take many things into consideration?
4. It's important to take into account the climate of the region while constructing the building, isn't it?
   5. What has been the greatest step forward in concrete technology in recent years?

High – Strength Concrete

Today, new types of concrete are available that mark a considerable advance on normal concrete in terms of their strength and *ductile* behavior. It has been possible, for example, *to increase* the compressive strength. In addition to purely technological developments, there has also been a great increase in the use of cementicious elements in composite forms of construction. Of special interest in this respect is the creation of fiber-reinforced and textile-reinforced concrete.

Fibre-reinforced concrete, for example, has helped to improve the ductile properties of the material. Indeed, in certain situations, such as load-bearing walls in housing construction, fibres can replace *conventional* steel *rod* reinforcement. Glass-fibre-reinforced concrete is mostly used for slender constructional elements, e.g. roof coverings, *shell* structures, and facade slabs.

Textile-reinforced concrete is a logical development of glass-fibre-reinforced concrete, since it allows the direction of the load-bearing reinforcement to be controlled, in contrast to the *random* arrangement of reinforcing fibres. With textile-reinforced concrete, it is possible to create extremely thin and lightweight elements, which have a great potential in architectural design. The development of self-compacting concrete marks a quantum leap in processing techniques. The properties of this type of concrete *afford* virtually unlimited scope for design in terms of unit geometry and surface treatment. The materials used in high-performance concrete usually mean that it is considerably more expensive than normal concrete. Depending on the application, an increase in costs ranging from 50 to as much as 200 per cent or more may be expected. These figures are related to a cubic meter of concrete, however, so that the additional costs may be offset in part by *reductions* in the cross-sectional dimensions of elements and the resulting increase in rentable space.

The fibres used may be of plastic, glass or steel. Plastic fibres are mostly used to reduce cracking as a result of early *shrinkage* in concrete, but they also serve to increase fire resistance; for example, in high-strength concrete. Polypropylene fibres, which are most commonly used for this purpose, *vaporize* at high temperatures, but the precise mechanism involved has not been finally established. Glass fibres are used to reduce cracking in set-

ting concrete, but they also have a structural function in smaller building elements. In addition, they provide an alternative to asbestos, which was widely used as a means of reinforcing cement-bonded elements in the past. In view of its ductile properties, its high strength and durability, glass-fibre concrete has a wide range of applications, including semi-finished products and other elements. The use of steel-fibre-reinforced concrete is also possible in the field of engineering construction; for example, in precast reinforced concrete floor elements or for load-bearing walls without additional steel reinforcement. It is also used in industrial floor finishes or for securing excavations in tunnel construction.

Textile-reinforced concrete is a logical development of fibre-reinforced concrete. Textile-like structures allow the alignment of the load-bearing reinforcement to be controlled and facilitate an economical exploitation of the material. In conventional reinforced concrete construction, the concrete has the additional function of protecting the reinforcement against corrosion. The use of technical textiles made of glass or carbon means that the concrete cover can be reduced, thereby allowing the construction of thin-walled and three-dimensionally shaped elements. The use of textile reinforced concrete is conceivable in many areas, even for complex load-bearing shell structures. Used in precast elements as a kind of "integrated formwork" in combination with in-situ concrete, it offers a number of advantages.

Various applications of textile-reinforced concrete are possible today, including the construction of facade slabs with simple geometric forms, and the creation of shuttering components integrated in compound wall and floor systems.

Production processes need to be developed that will allow the economical manufacture of various building components with these materials. One possible application for textile-reinforced concrete lies in the creation of finely dimensioned forms that would allow the actual load-bearing behavior to be visualized. As far as the surface design is concerned, similar scope exists with this type of concrete as with self-compacting concrete.

Textile-reinforced concrete has a high load-bearing capacity, even with comparatively small cross-sectional dimensions. It is, therefore, a sustainable form of construction, since the use of raw materials is relatively low, thus helping to conserve resources. The high performance of textile-reinforced concrete is shown by the construction of carving skis, which have been tested and function well.

The greatest step forward in concrete technology in recent years is certainly the development of self-compacting types of concrete. Self-compacting concrete differs from vibrated concrete in that it contains a greater proportion of fine-grain cement and aggregate. The concrete *acquires* its self-compacting properties in conjunction with high-performance agents.

Roughly, 30 per cent of the volume of normal concrete consists of the cement-paste matrix. The maximum size of the aggregate may be 8, 16 or 32 mm. The largest ingredient is the aggregate, which makes up more than 70 per cent of the volume. Depending on the water/ cement ratio, the volume of water will probably be slightly less than 20 per cent. Self-compacting concrete differs from standard forms of concrete in that it generally contains aggregate with a maximum size of 16 mm.

In high-performance concrete (i.e. high-strength and high-density concrete) there is a considerably greater proportion of cement. The fine-grain material is generally formed by cement and micro silica. In most cases, the coarse-grain aggregate will also have a maximum size of 16 mm (as in self-compacting concrete), but the water content will be somewhat lower. In view of the much greater proportion of the bonding *agent*, the water/ cement ratio will also be somewhat lower.

Self-compacting concretes usually have a slump value of between 600 and 800 mm, which provides some indication of the *yield* point of this type of concrete. The run-out time from the conical discharge *funnel* - which as a rule lies between 10 and 20 seconds - is an indirect measure of the viscosity of the concrete. The combination of these two values determines the consistency of the self-compacting concrete.

Tests also have *to be carried out* to determine whether self-compacting concrete can flow between the reinforcement. So-called "block ring tests" have been developed for this purpose. The spacing of the bars should be coordinated with the maximum size of the aggregate.

The choice of the appropriate mix proportions and the production of self-compacting concrete *presuppose* specialist knowledge in this field. Although it is not necessary to use vibrators with self-compacting concrete, it is possible to achieve sharply *delineated* forms and surface textures.

The Science Centre in Wolfsburg provides a further example of the architectural design scope *offered* by self-compacting concrete today. This material is particularly *relevant* in the field of prefabrication, where there is also a social dimension to this form of construction.

Vocabulary List

– *ductile* – эластичный, вязкий
– *to increase* – повышать, увеличивать
– *conventional* – обычный
– *a rod* – брус, стержень
– *a shell* – остов, каркас
– *random* – произвольный, случайный
– *to afford* – предоставлять, давать возможность
– *reduction* – понижение, редукция
– *shrinkage* – уменьшение, сужение, сокращение
– *to vaporize* – испарять(ся)
– *to acquire* – приобретать, получать
– *agent* – вещество
– *yield* – выпуск продукции, выход продукта
– *a funnel* – воронка, дымовая труба, дымоход
– *to carry out* – выполнять, осуществлять
– *to presuppose* – предполагать, допускать
– *to delineate* – изображать, описывать, обрисовывать
– *to offer* – предлагать
– *relevant* – актуальный, уместный

📖 Answer the following questions.

1. Which concrete properties do you know?
2. Why are fiber-reinforced and textile-reinforced types of concrete of great importance now?
3. The fibres used may be of plastic, glass or steel, is it true?
4. What is the difference between self-compacting concrete and vibrated concrete?

📖 Make the written translation of the third paragraph of the text.

📖 Give synonyms.

To improve, to offer, a component, to test, a field, to increase, a construction.

📖 True or false?

1. The development of self-compacting concrete marks a quantum leap in processing techniques.
2. Plastic fibres serve to increase fire resistance.
3. Plastic fibres provide an alternative to asbestos.
4. Textile-reinforced concrete has a high load-bearing capacity.
5. In high-performance concrete there is a considerably small proportion of cement.

Обороты *there is / there are* (See Grammar Reference)

✍ Ask the general and special questions. Use the pronoun *any* if necessary.

1. There is a tea-pot on the table.
2. There are some flowers in the vase.
3. There are some English books on the shelf.
4. There is somebody in the garden.
5. There is a lot of milk in the jug.
6. There are some mistakes in your test.
7. There is some ink in your pen.
8. There are some pictures on the wall of the room.
9. There is some coffee in the cup.
10. There are six continents in the world.
11. There are a lot of flowers in the garden.

12.   There is something in the box.
13.   There are some new words in the text.
14.   There is a lot of snow in the forest.

✍ **Translate into English. Use the constructions** *there is / there are*, **the pronouns** *any, some, no.*

1. В вашей семье есть дети?
2. На улице много народу.
3. В кувшине нет молока.
4. За вашим домом есть сад?
5. За вашим садом есть площадь, не так ли?
6. В вашем городе есть парки?
7. У вас есть вопросы?
8. На столе около окна стоят часы.
9. Мои книги и тетради на полке.
10.   В моем столе ничего нет.
11.   В этом журнале есть что-нибудь интересное?
12.   Что там на столе? Там стоит чашка и три стакана.
13.   Есть кто-нибудь в соседней комнате?
14.   На столе есть соль, но мало.
15.   Времени нет.

✍ **Put in** *-a, -an* **or** *-the* **where it is necessary.**

1. ... ox is ... strong beast of ... burden.
2. He asked for ... glass of ... fresh water.
3. He will give ... course of ... lectures on ... history.
4. ... snow covered... ground.
5. I thought I had shut ... door, but it is still open.
6. ... London of our ... days differs greatly from ... London of ... days of ... Shakespeare.
7. Pass me ... salt, please.
8. ... teacher took much ... interest in … little Charles.
9. ... unfortunate Tilly cried bitterly.
10.   ... girl was carrying ... spray of lilacs.
11.   ... Volga is ... very important waterway.
12.   I like ... coffee for ... breakfast.
13.   She married ... Smith we met ... last year.
14.   ... heat is destructive to these ... plants.
15.   ... oaks are ... very strong trees.
16.   He was ... editor of "... Monthly".
17.   We shall talk it over at ... dinner.
18.   This is ... different tea from ... one we usually buy.
19.   All ... passengers gathered on ... deck.
20.   ... boy will be sent to ... school ... next year.
21.   Open ... drawer on the left.
22.   ... moon was shining brightly.
23.   ... Elbrus is ... highest mountain in ... Caucasus.
24.   ... Johnsons settled here two years ago.
25.   ... Zoo was just opposite ... house where he lived and he often went there as he liked ... animals very much.
26.   Not only we, ... people of... Russia, but... whole world was watching... battle we were waging.
27.   ... next day there was ... delightful weather, and ... sun shone warmly.
28.   Towards ... evening we reached ... little village.
29.   ... apple trees in ... garden stood in ... full bloom.
30.   ... day was so lovely, so full of ... freshness of ... spring.

UNIT 2
BUSINESS DESIGN

Lesson 1
Industrial Building Typology

Pre-reading Discussion

1. How do you understand the phrase "industrial construction"?
2. Are the efforts of engineers and constructors directed towards the same goal?
3. Construction is not the ultimate objective of design, is it?
4. What is the duty of an engineer?

Industrial building *embraces* a much wider range of functional processes than other forms of construction, so that it is not easy *to define* it typologically. Basically, industrial construction *involves* production buildings that directly or indirectly serve the mechanical manufacture of goods. This also includes plants for the generation of energy and heat, stores for materials and finished products, and administration and transport buildings.

Historically, one can identify three main phases of constructional development. At the beginning of the Industrial Revolution in the middle of the 18th century, when machine manufacture came to replace traditional *craft* production, power was supplied by direct mechanical transmission. This led to the *erection* of compact, often multi-storey structures of great depth, based on a central source of energy such as a steam engine or a water wheel. In the middle of the 19th century, industrial building was influenced by reformist ideas. Production works were located downwind of cities - and downstream, too, if possible - *to ensure* better hygienic conditions in respect of emissions. Improved means of conveying energy - as electricity or by hydraulic systems - and decentralized power generation allowed the various functions to be accommodated in different buildings. The increasing size and weight of products like locomotives and turbines required broad, single-storey halls. The American system of Conveyor-belt production also dictated large, top-lighted halls, so that multi-storey structures gradually declined in importance.

From the middle of the 20th century, heavy industry was complemented and later replaced by production processes that required less space and caused less pollution. Flexibility and extendibility became increasingly important, and it was possible to integrate industry in an *urban* context once more, with work and habitation

located close to each other. The great changes that have taken place in industry call for new built solutions, which require the application of intelligent systems and sustainable planning strategies. Industrial building culture also means taking the design of the structure just as seriously as that of the products. An example of this can be seen in the high-bay storage complex in Ludenscheid built for the Erco Company by Schneider/Schumacher.

In seeking to draw up a typology of industrial buildings, one can perhaps best analyze those areas where the greatest differences exist, namely in the functional layout and form.

Structures may be additive or integrative:
– *additive* (linear) – *spine*, *comb*, or with head structure;
– additive (two–dimensional) – *grid*, ring or agglomerate;
– integrative – within a box-like enclosure.

In additive systems, the various functional components will be more or less independent, in which case, the *access* system is likely to provide the structuring element. The advantages of this type lie in its flexibility and extendibility.

The semiconductor factory by Richard Rogers in Newport, South Wales, is an example of a linear, spine structure with a symmetrical *layout* on both sides of the circulation and supply axis. The structure can be extended on both sides.

Gunter Behnisch's branch works for the Ley-boldt concern has a classical comb-like form. The teeth of the comb accommodate the production spaces, which are linked via the central access route with three-storey semi-circular office *tracts*. Extensions can be made to both the spine and the teeth.

The laser factory in Ditzingen by Barkow Leibinger has a double-comb structure with three independent production halls laid out on both sides of an access zone.

As an example of an additive development with a head structure, one might cite the administration and manufacturing building for Mors System Ceilings in Opmeer by Benthem Crouwel. The multi-storey head tract (administration and presentation) and the single-storey production hall are united within a common load-bearing structure. In Richard Horden's furniture factory near London, the head of the building is incorporated in the overall volume. With its continuous load-bearing structure, this compact development *reveals* a clear linear articulation of functions and is an example of industrial architecture at its best.

Norman Foster's central store for Renault in Swindon is a two-dimensionally additive structure based on a repetitive modular grid. The factory near Warsaw by Kurylowicz architects comprises a series of repetitive grid bays, but in this case, the internal articulation and side lighting restrict the *scope* for extension.

An additive ring form was adopted for the Volvo assembly plant in Kalmar in 1974, a much-discussed scheme because of the change from conveyor-belt to team-oriented production. The manufacturing sequence is organized around an infrastructure core zone, thereby achieving greatly improved working conditions. The hexagonal geometry also offers broad scope for extension.

The Enso Gutzeit coal-fired power station by Gullichsen Kairamo Vormala is an example of an *agglomerate* structure developed irregularly over a period of many years.

In a comparable way, the various functional realms of the Louis Vuitton factory for leather goods by Jean-Marc Sandrolini are distinguished by different building elements with their own individual forms and independent load-bearing structures.

With integrative systems, the many functions of an industrial undertaking are incorporated in a single building. One advantage of this is the proximity of the various zones to each other and the minimization of circulation areas. In the car industry, for example, there is a trend towards integrating the administrative functions in the manufacturing areas as a means of improving communication. A neutral, unifying building skin allows an independent layout of the working processes, although often at the expense of flexibility. Extensions can be made by inserting structures, by taking space away from other uses, or by adding further modules externally. The filling plant for the Greene King *brewery* is a good example of the way various functions can be accommodated within a single box-like building, with secondary spaces - offices, social areas, *workshops*, etc. - inserted in the form of a structure within a structure.

The research and development centre in Meiningen by Kaufmann Theilig und Partner is a much more complex box enclosure. It is laid out on two storeys, with the offices and staff rooms accommodated on galleries above the ground floor production area. Various mixed types also exist, of course. In the logistics centre for a CD works in Robel by Carsten Roth, an external through-route forms a kind of spine, with high-bay storage facilities on one side and a hall for packing and distribution on the other. Similarly, the production building in Amerang by Bottler and Lutz cannot be assigned to any single category. Consisting of two linked parallel halls, it is formally a box, but has a continuous linear load-bearing structure, while the production process follows a circular route.

An interesting new development is the division of buildings according to static functions (social areas, administration, core fabrication) and dynamic functions (prefabrication, suppliers). The static functions are laid out in the form of a spine, while the zones subject to greater change are *attached* to it like limbs. In the modular Skoda plant in Mlada Boleslav in the Czech Republic by Henn Architects, the production line follows a ring-like spine route, to which the prefabrication areas are attached on the outside. This type offers a maximum degree of flexibility.

What these examples show is that, with the increasing complexity of planning processes, it is important for the architect to act as a structuring, controlling figure while still fulfilling his role as a designer in a team of specialists. Only then can industrial building become industrial culture again.

Vocabulary List

- *to embrace* – содержать, охватывать
- *to define* – характеризовать, определять
- *to involve* – включать в себя, содержать
- *craft* – ремесло, профессия, мастерство
- *erection* – возведение, сооружение
- *to ensure* – гарантировать, обеспечивать, страховать
- *urban* – городской
- *additive* – добавочный
- *spine* – главный
- *comb* – гребенчатый
- *grid* – в виде сетки, решетки
- *an access* – доступ, подход
- *a layout* – комплект, группа, схема, формат
- *a tract* – полоса, участок, пространство
- *to reveal* – показывать, открывать
- *scope* – просторы, границы, масштаб
- *an agglomerate* – агломерат, скопление
- *a brewery* – пивоваренный завод
- *a workshop* – мастерская, цех
- *to attach* – прикреплять

📖 **Answer the following questions.**

1. What are the main three phases of constructional development?
2. When did the Industrial Revolution take place?
3. The great changes in industry called for new solutions in building, didn't they?
4. What types of structures do you know?
5. Should the architect act as a structuring, controlling figure while fulfilling his role as a designer?

📖 **Find the English equivalents in the text.**

Широкий круг, производство товаров, выработка энергии, многоэтажные здания, мебельная фабрика, включать в себя, в этом случае, достигать совершенных условий труда, в сравнении, хотя, располагаться на двух этажах, максимальная степень гибкости.

📖 **Give synonyms.**

To embrace, a construction, to identify, a multi-storey structure, to convey energy, to complement, to replace, an application, a ring, a store.

📖 **True or false?**

1. It is not difficult to define industrial buildings typologically.
2. In the middle of the 18th century machine manufacture came to replace traditional craft production.
3. The 20th century brought the production processes, which caused more pollution.
4. Industrial building culture means only the design of the structure.

5. The advantage of the integrative systems is the proximity of the various zones to each other and the minimization of circulation areas.

Степени сравнения прилагательных и наречий
(See Grammar Reference)

✍ Make up the Comparative and Superlative degrees of the adjectives.

1) cold	9) weak	17) great	25) hot
2) young	10) little	18) quick	26) long
3) old	11) easy	19) important	27) simple
4) difficult	12) near	20) warm	28) thin
5) good	13) strong	21) happy	29) much
6) far	14) late	22) early	30) wide
7) bad	15) interest-	23) deep	31) small
8) beautiful	ing	24) large	32) many
	16) pretty		

✍ Change the form of the adjectives.

1. Kate is (young) than Mary.
2. John is the (clever) boy in the class.
3. The weather is (dull) today than it was yesterday.
4. London is one of the (big) cities in the world.
5. This sentence is (difficult) than the first one.
6. My dog is as (good) as yours.
7. His dog is (good) than yours.
8. Her dog is the (good) of the three.
9. The cat is much (happy) in her new home.
10. My cold is (bad) today than it was yesterday.
11. This mountain is the (high) in Europe.
12. This piece of homework is as (bad) as your last one.
13. This piece of homework is (bad) than your last one.
14. This piece of homework is the (bad) you have ever done.
15. Richard is not as (tall) as Tom.
16. Tom is (tall) than Richard.
17. Tom is the (tall) boy in the class.
18. Athens is (far) From London than Rome is.
19. Jack is (rich) than Richard, but I don't think he is (happy) than Richard.
20. This is the (wonderful) and (beautiful) film I have ever seen.
21. He doesn't look a day (old) than forty.
22. What (nice) present is there than a box of chocolates?
23. What (good) present is there than a box of cigarettes?
24. Jack and Peter are exactly as (old) as each other and exactly as (tall) as each other.
25. Susan is (old) than Mark; she is the (old) of the family.
26. Summer is (warm) than winter.
27. Robert and Paul are the (noisy) boys that I know.
28. Boys are always (noisy) than girls.
29. Summer is the (warm) of the four seasons.
30. Winter in London is (foggy) than in Paris.
31. These are the (bad) cigarettes I have ever smoked.
32. I think I am the (bad) dancer in the world! - You are not (bad) than I am.
33. Your work is much (good) than I thought.
34. London is (big) than Manchester. Manchester is (small) than London.

35.   A train goes faster than a ship but not as (fast) as an airplane. Which is the (fast)? Which is the (slow)?

36.   It is (hot) in Athens than it is in London; it is not as (hot) in Oslo as it is in London. Which of the three cities is the (hot)? Which is the (cold)?

✍ **Put the nouns into the plural form and change the sentences if necessary.**

1. We have built a gigantic factory.
2. The ox has hurt its hoof and cannot draw the cart.
3. The sheep is grazing in the meadow.
4. The valley is green, and a deer is grazing in it.
5. There was a potato in the basket.
6. There was a fish in the net.
7. The hoof of an ox is cloven, that of a horse is not.
8. The key to the box is lost.
9. The roof of that house leaks, it needs repairing.
10.   He brought a pailful of water from the river.
11.   As soon as the train has arrived, the postman will deliver the letter.
12.   A passer-by saw the accident.
13.   This shelf contains several books on different subjects.
14.   The hero was received with joy.
15.   The leaf turned first yellow and then brown, and dropped off and was blown into the corner of the garden.
16.   A fox often prowled about the farm yard, seeking a fat goose to carry off.

✍ Ask alternative and disjunctive questions.

1. I like my tea with cream.
2. He decided to go to the theatre.
3. John had to walk to the village.
4. Although the weather was fine they decided to stay at home.
5. Last winter our class visited Rome.
6. I'm used to drinking a glass of milk before going to bed.
7. We were invited to stay at the castle for a fortnight.
8. I'm fond of opera.
9. We are going to Moscow with my brother today.
10.   If I don't pass the exams I'll try to do it again next time.

Lesson 2
Industrial Building

Pre-reading Discussion

1. What is the difference between the buildings of the 19th and of the 21st century?
2. How can you describe the architecture of Tambov?
3. What are the main functions of industrial buildings?
4. Do you agree that architecture reflects the processes of the world?
5. What great architects do you know? What are they famous for?

In the 19th century, the image of industrial building was dominated by huge factory structures in which the process of mass production was combined with a concentration of mechanical power. Innovative *concerns* expect architects to provide holistic strategies rather than design details, and organizational structures based on communication and cultural needs rather than constructional *refinements*. More and more virtual concerns are *dispensing* with the actual production process to concentrate on product planning and marketing. The classical unity of time and place in which industrial activities were carried out in the past, and the kind of construction in

which form reflected function are disappearing; but the transition to structures dominated by communications and intelligence is not reflected in the architecture.

It is not easy to formulate a *precise* and *acceptable* definition of industrial building. One set of guidelines for industrial construction lists "buildings or parts of buildings that serve the production, processing or storage of products and goods". Under the same heading, the Brockhaus encyclopedia includes buildings for industrial production and research, together with administration and social structures.

In his "History of Building Types", Nikolaus Pevsner *confines* his treatment of industrial structures largely to factories of a certain size in which products are manufactured in great numbers, as well as to *warehouses*, market halls and exhibition structures.

Pevsner soon *stretched* his own definition, however, to include the steam-turbine house erected for the fountains of Sanssouci. Built in 1842 by Ludwig Persius, a pupil of Schinkel, the building is in the form of a mosque in Moorish style. Erich Mendelsohn's Einstein Tower is a similar case. Adolf Behne *cited* this structure in his analysis of the Modern Movement, which appeared in 1926, as a workshop structure with the qualities of a historical monument.

In the catalogue to the exhibition "The Useful Arts" staged in Berlin in 1981, Roland Gunter argued that "architecture and art studies have to learn to understand the processes of this world in all their complexity instead of reducing them to a string of beads"; i.e. the presentation of facades like a *sequence* of pictures.

In 1996, Helmut C. Schulitz *warned* that architects were *enamored* of form and were neglecting the technical aspects of building, especially new concepts related to content and space. As a result, architects were losing ground in the race against industry, which was *demoting* them to the role of packaging decorators. Most industrial buildings take place without any relation to the surrounding city and the population at large. A factory can be more than just a provider of workplaces for production, though. It can also make a contribution to the cityscape and the urban image. It can help to create urban spaces. It can reduce the noise from a traffic artery far more effectively than acoustic screening walls. With the proper layout and landscaping, it can have a positive effect on urban climate. Solar energy can be generated and stored on its large roof areas, or additional parking spaces can be made available at weekends for leisure activities. For generations, in the face of urban concentration, environmental damage, traffic chaos and mass consumption, a solution was seen in the separation of functions. As a result, the concepts of connectivity and plurality have been lost, even though they offer the chance of *mutual* enrichment between habitation and workplace. Partial needs may be satisfied, but at the expense of the whole. By linking industrial buildings with other areas of urban life, more problems could be solved than would be caused by mutual disturbance. With the development of cleaner, more compact technology, industry has created the conditions in which a rethinking process is necessary. Even cities with a great architectural awareness, have an antiquated approach in this respect, as is shown by the recently extended building of the lamp designer Tobias Grau. In spite of efforts by the company over many years to secure a city location, the architects Bothe Richter Teherani were finally obliged *to conceal* their spectacularly spare spacecraft-like design for the works - the operation of which causes no environmental disturbance - behind an embankment in a commercial zone in Relingen. Such acts of exclusion challenge the very nature of the city as a collective phenomenon in which human history is reflected.

Companies like Volkswagen and Siemens *avail* themselves of urban metaphors to keep the loyalty of their clientele or as a reference joint for innovative processes (e.g. "the revi-ralization of the polls"). In this way, urban qualities are exploited to create a synthetic surface that rouses emotions and sparks innovation. Helmut Volkmann's miniaturized "city of the future" - Xenia made by Siemens -is a "studio for innovators" set in Neuperlach, a suburb of Munich, but it would have been better located in real urban surroundings.

Rather like the Palais Royal in Paris 200 years ago, the Xenia project was conceived as a means of exploring the pressing problems of our age through an exchange between technology and the arts, between the working city and the city as a place of human intelligence. A century ago, the composer Maurice Ravel marveled at the ironworks in Duisburg, speaking of palaces of flowing metal, glowing cathedrals, a wonderful symphony of whistles and terrible hammer blows. A glimpse behind the scenes of our modern epoch-making "cathedrals of labor" and "corporate identity" is less satisfying than enthusing over the highlights of building history. Nevertheless, it is strange that the term "industrial culture" is used mainly in a historical context and not to describe the future potential of modern architecture. The main sites of industrial tourism are memories of the past, to be found in the new "industrial museums" and in the conservation of important industrial buildings from the "good old days". For example, the former textile-producing town of Lowell, Massachusetts, with a population of 70,000 has been designated a national park.

The German equivalent of this would be the UNESCO World *Heritage* Sites where the industrial culture of the Saarland and the Ruhr area can be seen. Our passion for the past and our pessimistic view of civilization is unbroken.

A waterworks with its romantic background may be transformed into a parliamentary assembly; a car factory with a test track on the roof may be converted into an art gallery, trade fair centre, hotel, university and shopping palace; but no company aware of its corporate identity is willing to attire itself in second-hand clothing. "History is more or less bunk. It is tradition. We don't want tradition," the car manufacturer Henry Ford said in 1916. With his modern concepts of financing and friendly service, Ford was far ahead of his time, and he demonstrated this architecturally, too - with the aid of his company architect, Albert Kahn. A similar developmental leap would be conceivable for modern industry if it were *to abandon* its strongholds and integrate itself in a dynamic European city environment stripped of retrospective tendencies and open to experiment. "More quality of life through the revitalization of the polis," as Siemens says. And the architects?

Vocabulary List

– *a concern* – значение, важность, участие, интерес
– *a refinement* – усовершенствование, повышение качества
– *to dispense* – раздавать, обходиться без чего–либо
– *precise* – точный, четкий
– *acceptable* – приемлемый
– *to confine* – ограничивать
– *a warehouse* – товарный склад, магазин
– *to stretch* – увеличивать, усиливать, растягивать
– *to cite* – цитировать, упоминать
– *a sequence* – последовательность
– *to warn* – предупреждать, предостерегать
– *to enamour* – очаровывать
– *to demote* – понижать в должности, звании
– *mutual* – взаимный
– *to conceal* – скрывать, маскировать
– *to avail* – пользоваться, воспользоваться, быть полезным, выгодным
– *a heritage* – наследие, наследство
– *to abandon* – покидать, оставлять

 📖 **Answer the following questions.**

1. What were the innovative concerns in the 19th century?
2. What is the definition of "an industrial building"?
3. In 1996, Helmut C. Schulitz warned that architects were enamored of technical aspects of building and neglected the form, didn't he?
4. How do industrial museums reflect the memories of the past?
5. The term "industrial culture" is used mainly in a historical context, isn't it?

 📖 **Find the English equivalents in the text.**

Конструктивные усовершенствования; единство времени и места; указание; производить продукцию; спорить; пренебрегать; солнечная энергия; соединять; решать проблемы; не смотря на; городской климат; загрязнение окружающей среды; водопроводные сооружения.

 📖 **Give synonyms.**

Huge, to carry out, a set of guidelines, to manufacture, to generate, urban surroundings, to abandon.

 📖 **True or false?**

1. The image of industrial buildings in the 19th century was dominated by huge factory structures.

2. Architecture and art studies have to learn to understand the development of the world.
3. Most industrial buildings take place with the relation to the surrounding city and the population at large.
4. Solar energy can be generated and stored on large roof areas.
5. The sites of industrial tourism are memories of the past to be found in the new "industrial museums".

Неопределенные местоимения *some, any,*
отрицательное местоимение *no* и их производные
(See Grammar Reference)

✎ **Fill in the words** *any, somebody, anything, somehow* **and their derivatives.**

1. There's ... milk in that jug.
2. I'm afraid there isn't ... coffee left.
3. Is there ... one here who speaks Italian?
4. I'd like to buy... new clothes but I haven't... money.
5. Are there ... letters for me?
6. I can't see my glasses …where.
7. She put her handbag down ...where and now she can't find it.
8. ...one can tell you how to get there (i.e. everyone knows the way).
9. Is there ...one moving about downstairs? I heard ...thing falling.
10.   ...thing tells me you've got ... bad news for me.

✎ **Fill in the words** *few, a few, little, a little.*

1. My sister likes ... sugar in her tea, but I like a lot in mine.
2. There was still ... time before the lesson began.
3. He has ... knowledge of the subject. I would better ask somebody else.
4. We got ... pleasure from the trip, the weather was bad all the time.
5. Are there many vacant rooms in the hotel? – No, there are only... .
6. There is ... sunshine in this rainy place.
7. She said she wanted to buy ... rice and ... oranges.
8. Do many people know about this new shop? – No, only... .

✎ Choose the right form of the adjective.

1. Jane is (the tallest, taller) of the two girls.
2. Father was (the eldest, elder) of seven sons.
3. This pencil is (the sharpest, sharper) of the two.
4. I think your plan is (the best, better) of the two.
5. This is (the heaviest, heavier) of the five books.
6. (A worse, the worst) habit could not be found.
7. This was the (most large, largest) power station I ever saw.
8. That is of the (less, least) importance of all.
9. I like your plan the (better, best) of the two.

✎ Choose the right form of the adjective.

1. Albert is (elder, older) than James.
2. This bus will not carry (much more, many more) than forty people.
3. There are three routes leading to Court Square, but this one has the (least, fewest) turns.
4. Henry is the (oldest, eldest) of the three brothers.
5. I can walk (farther, further) than you without becoming tired.
6. Have you nothing (farther, further) to say?
7. When he died, his (oldest, eldest) son was only eight years old.
8. The icebreaker is equipped with all the (last, latest) navigation instruments.
9. He bought the toys at the (next, nearest) store.
10.   The (next, nearest) house was a new building.

Lesson 3
The Optimization of the Load-Bearing Structure

Pre-reading Discussion

1. How can you interpret the phrase "load-bearing structure"?
2. Are there any load-bearing structures in Tambov?
3. Why do architects need to design load-bearing constructions?
4. Is it up to builders to decide where such structure should be used?
5. Load-bearing elements are mostly used in roof constructions, aren't they?

The load-bearing structure was initially conceived as a non-directional *beam* system laid out to a 24.50-metre square *grid*, which could be extended in any direction and would provide adequate column-free space for the production. The roof structure *comprised* a system of primary and secondary beams, with polygonal secondary beams *trussed* on the underside and laid on the top of primary trussed *girders*. Each of the roof modules was to be borne by four hinged columns.

In the course of the planning, however, the media lines for services and production technology developed into dense *clusters*, so that the loading was concentrated along certain *routes* and was no longer evenly distributed over the area of the structure. A weight of up to 350 kg/m *accrued*. The load-bearing behaviour of non-directional structural systems is no longer necessarily biaxial when subject to linear loading. In other words, the structure would have been overdimensioned in one direction and no longer strictly economical. The non-directional bearing principle was abandoned, therefore, although the 24.50-metre square column grid was retained.

To optimize the load-bearing structure, the layouts for the mechanical services and the production technology were superimposed on the structural plans. The loads on individual areas were calculated, and the spacings of the secondary beams adjusted accordingly. Elements subject solely to *tension* stresses were *fabricated* from steel plates; for those subject to tension and compression, narrow channel sections were used; while compression members liable to *buckling* were formed from rolled steel sections symmetrical about two axes. This resulted in material savings and also made the function of the various elements legible. The depth and spacing of the girders were determined *in conjunction* with the service runs. By creating a V-shaped load path with tie members over the round steel column, an obstacle-free triangle is formed with adequate space for the distribution of services.

The roof plane was designed as a plate structure with prestressed steel rod bracing. It serves to stabilize the upper *chords* of the *lattice* girders and to transmit wind loads to the concrete cores and vertical bracing. In the longitudinal direction, the bracing elements are located in the façade plane in the middle of the 171.50-metre-long hall. These elements allow the load-bearing structure *to expand* outwards in both directions from the centre, thereby effectively halving the extension length. As a result, it was possible to construct the hall without expansion joints and additional diagonal bracing in the production areas. A continuous girder system, with a maximum span of 98 m, acts as bracing in the longitudinal direction. The administration tract is separated from the production hall by a construction joint and is independently braced by stiffening elements and by fixing the roof plate to the concrete cores. The steel table structure with a stacked-plank floor in the offices is braced by the farming effect on both sides and flexibly connected to the columns that support the roof structure.

Vocabulary List

– *a beam* – балансир
– *a grid* – решетка, сетка
– *to comprise* – включать, заключать в себе, охватывать
– *to truss* – связывать, укреплять
– *a girder* – балка, брус, перекладина
– *a cluster* – группа, блок
– *a route* – линия, курс, направление, маршрут
– *to accrue* – нарастать, накапливаться, увеличиваться
– *tension* – напряжение, натянутость
– *to fabricate* – изготавливать, производить
– *to buckle* – сгибать, гнуть

– *in conjunction* – вместе, сообща
– *a chord* – пояс фермы
– *a lattice* – решетка, решетчатая конструкция
– *to expand* – расширять, развивать

📖 **Answer the following questions**.

1. What is the main function of load-bearing structures?
2. How did the production technology development affect building structures?
3. The process of optimization of load-bearing structures resulted in material savings, didn't it?
4. Does the roof structure depend on the load-bearing structure?
5. Was it possible to construct the hall without expansion joints and additional diagonal bracing in the production areas?

📖 **Find the English equivalents in the text.**

Задумывать; основные и второстепенные балки; многоугольный; в течение; вес; другими словами; вычислять; экономия материала; четкий; продольное направление; поддерживать; нагрузка.

📖 **Give antonyms.**

Initially, a top, to abandon, individual, narrow, vertical, additional, a floor.

📖 **True or false?**

1. Each of the roof modules was to be borne by two hinged columns.
2. The roof structure comprised a system of primary and secondary beams.
3. To optimize the load-bearing structure, the layouts for the mechanical services and the production technology were superimposed on the structural plans.
4. Elements subject solely to tension stresses were fabricated from cuprum plates.

Отличие временных групп *Indefinite, Continuous* и *Perfect*
(See Grammar Reference)

✎ Use the verbs in the right tense.

1. I just (tell) you the answer.
2. I (tell) you the answer yesterday.
3. John and Richard just (go) away.
4. She already (answer) the letter.
5. She (answer) it on Tuesday.
6. John and David (go) away five minutes ago.
7. I (read) that book in the summer holidays.
8. The baker (sell) now all his cakes.
9. He (sell) the last one half an hour ago.
10. I (not see) him for three years. I wonder where he is.
11. I (fly) over Loch Ness last week. – You (see) the Loch Ness monster?
12. You (wear) your hair long when you were at school? – Yes, my mother (insist) on it.
13. He (not smoke) for two weeks. He is trying to give it up.
14. When he (arrive)? – He (arrive) at 2.00.
15. You (lock) the door before you left the house?
16. I (read) his books when I was at school. I (like) them very much.
17. I can't go out because I (not finish) my work.
18. I (write) the letter but I can't find a stamp.
19. The clock is slow. – It isn't slow, it (stop).
20. Here are your shoes. I just (clean) them.

21. I (leave) home at 8.00 and (get) here at twelve.
22. You (have) breakfast yet? – Yes, I (have) it at 8.00.
23. I (meet) him last June.
24. You (see) the moon last night?
25. The play just (begin). You are a little late.
26. The newspaper (come)? – Yes. Ann is reading it.
27. The actors (arrive) yesterday and (start) rehearsals early this morning.
28. We (miss) the bus. Now we'll have to walk.
29. He (break) his leg in a skiing accident last year.
30. You (be) here before? – Yes, I (spend) my holidays here last year. – You (have) a good time? – No, it never (stop) raining.

✎ Use the verbs in the right tense.

1. Where's the old man living now? – He (live) with his married daughter. He usually (live) with her for six months every year.
2. He's a night watchman. He works at night and (sleep) in the daytime. It's now noon, and he still (sleep).
3. I first (meet) George a month ago, and I (meet) him several times since then.
4. I usually (go) to bed before midnight.
5. We are in September now, and we (do) a lot of work this year; we (do) a lot last year also.
6. What's your brother doing? – He (do) the crossword in the newspaper. He (do) it every day.
7. He wants to buy a car, but first he must learn how to drive, so he (take) driving lessons.
8. I (write) to my parents a fortnight ago, but I've not had a reply, so I just (write) again.
9. He's a very hard worker. He often (work) until midnight. It's 11 p.m. now and he still (work).
10. It's 3 p.m. and he (not eat) anything today, but he (eat) a good dinner last night.
11. Is Mary ready to come out? – No, she still (dress).
12. I (read) this book several times. I first (read) it in 1980.
13. He often (read) detective stories; he (read) a very good one now.
14. She (not have) a holiday since 1986, but she (have) a very long holiday in 1985.
15. What are they talking about? – They (talk) about literature. They always (talk) about literature when they see each other.

✎ Translate from Russian into English.

1. В понедельник на прошлой неделе шел сильный дождь.
2. Мой отец обычно завтракает в половине восьмого.
3. Петр обычно делает домашнее задание перед ужином. Он уже сделал домашнее задание? Нет, он все еще его делает.
4. Почему вы идете так быстро? Я иду быстро, потому что я замерз. Я никогда не хожу быстро летом.
5. Мой брат никогда не носит шляпу летом.
6. В тот вечер я смотрел телевизор.
7. Почтальон обычно приходит в восемь часов вечера. Сейчас уже половина девятого, а он все еще не пришел.
8. Каждый вечер я смотрю телевизор.
9. Служащие заканчивают работу в шесть часов вечера.
10. Моему соседу около семидесяти лет, но он все еще работает. Когда он был молодым, он иногда работал даже ночами.
11. Боюсь, я проиграл эту партию в шахматы (this game of chess). Я играл очень плохо. Обычно я играю намного лучше.
12. Она еще не брала своего маленького сына в театр, но уже водила его в кино в первый раз несколько дней назад.
13. В школе он играл в футбол.
14. Я не играл в футбол с 1983 года.
15. Маленькая девочка часто помогает своей матери.

16.   Автор - еще молодой человек. Он написал свою первую книгу в 1985 году.

17.   Сейчас 7 часов утра; ребенок уже проснулся. Вчера утром он проснулся гораздо раньше.

18.   Мария обычно очень внимательно слушает учителя, но сейчас она не слушает, у нее болит голова.

✐ Translate from Russian into English. Use the words *a lot of, much, little, a little, few, a few, some, any.*

1. У тебя много кофе? – Нет, очень мало.
2. Разве у тебя совсем нет чая? – Да нет, есть немного.
3. В бутылке есть немного молока.
4. Немногие из англичан говорят по-русски.
5. У них здесь мало друзей.
6. У него мало времени для чтения.
7. У Петра много русских книг и мало английских книг.
8. Некоторые из мальчиков отправились на автомобиле, но большинство из них поехали на автобусе.

UNIT 3
SCHOOL DESIGN

Lesson 1
Diversity and Democracy - 50 years of School Design

Pre-reading Discussion

1. What kind of buildings do architects design now?
2. How does modern school building look like?
3. Do you agree that architectural competition helps to find the best variant for building?
4. What are the differences between Khrushchev's, Stalin's, Brezhnev's and modern buildings?
5. When was your school built?

The design of schools and other public buildings in Germany is usually the *outcome* of an architectural competition. Our practice *gained* a number of *commissions* in this way in the early years. The first school we designed was in Schwabisch Gmund in 1952, followed by the Vogelsang School in Stuttgart (1959), the Hohenstaufen Gymnasium in Goppingen (1959) and various other schemes.

In the 1950s and 60s, school design was not *encumbered* very much by ideology. The aim was to build liberal, open places of learning, in which one *responded* to local and social conditions. In the late 1960s, ideologi-

cal aspects came *to assume* a greater role. Schools for all-day instruction were required to provide a place of education separate from the parental home. Imparting knowledge became part of the production process, and in the end, teachers and children were cut off from the outside world in *artificially* lighted and ventilated "production spaces".

During this period, we were commissioned to design the school "In den Berglen" in Oppelsbohm as a central facility serving a *rural catchment area* with four smaller communities. The brief required that the partitions between classrooms could be easily moved to allow the creation of larger or smaller spaces. In other words, one wanted a building that would meet all possible *contingencies*, even hitherto unknown ones. We met these requirements minimally, while *attempting* to implement our own ideas of democratic architecture.

Our approach was based on a concept of mutual respect and individuality in a society with common values, yet free of compulsion. One expression of this was, that the teaching spaces should not be standardised. They *derive* their quality from their situation and the special functions they have to fulfil. The areas commonly taken up by long, boring corridors were combined to create a hall space around which the classrooms are laid out. Externally, the building has an introspective appearance; internally, it is open and multivalent in nature, accommodating many school activities as well as providing space for local societies and groups.

In the late 1950s, we planned an elementary school in Lorch; and at the beginning of the 70s, the same municipality commissioned us to design a secondary school "Auf dem Schafersfeld", an elevated area of land overlooking the town. Again, the classrooms are laid out around a two-storey hall space, and the rooms are not *rectilinear*. In other respects, though, the details differ from the "In den Berglen" structure. On the ground floor, the ring of spaces opens out to the north, where the main entrance, special classrooms, teachers' areas and other zones are situated. Although the geometry of the load-bearing structure lends the development a strict underlying order, the *subordinate* systems do not have to follow this.

At the beginning of the 1980s, we realised a further secondary school on the Schafersfeld. The distinguishing qualities of this building are a sensible use of materials, a logical form, and diversity in unity. Underlying this concept, there was also the aim to make all the elements of the building individually legible. Instead of choosing a circular form, which had caused certain problems in the earlier school In den Berglen, we based the layout on an equilateral triangle, a geometric shape that, in its own way, is as "self-centred" as the circle and that imposes similar demands. The triangular hall again forms the centre of the complex. Here, however, the classrooms are laid out on only two sides - those that offer beautiful views over the Rems valley, the town of Lorch, and Hohenstaufen. Along the third, north-facing side of the triangle, there is a broad glazed wall, through which the hall space opens on to the Schafersfeld and the nearby Swafeferx Forest.

The more recent school buildings we have created are, of course, based on experience gained in those early years. The school for the educationally disabled in Bad Rappenau (1991) lies in a long, green *meadow* close to the town centre. We inserted the structure into the gently sloping site in such a way that each of the two storeys would be directly accessible from ground level. The strongly articulated layout is an expression of the internal situation. The various rooms are divided into small tracts that are oriented to the outside world, to the sunshine and the meadows. Internally, these spaces enclose a small hall, which forms the focus of the school.

The commercial training college in Ohringen (1993) is also located in meadow-like surroundings. Here, however, the situation on the outskirts of town is dominated by quite different elements: the Heilbronn-Nuremberg autobahn, a shopping centre and a number of trade *undertakings*. In this heterogeneous environment, we planned an autonomous complex that is itself meant to lend a new character to the location. The tall, two-floor circular structure on a plinth storey turns its back on the autobahn and addresses the town. The classrooms are oriented to the outside. Within the circular structure are stairs, ancillary Maces and a large, three-storey hall. The egocentric nature of circular forms tends to impose its own laws on subsidiary elements, and a large part of the design work was a product of the dialectic with these constraints. Since the glazed facade to the internal courtyard had a closed appearance, the painter Erich Wiesner was commissioned *to dissolve* this skin visually with a bold colour design to the dividing walls between the classrooms and the corridor.

The new St. Benno Gymnasium in Dresden, *erected* in 1996, occupies a site subject to heavy traffic disturbance. The classrooms, screened by a long wall, turn their back on the noisy road and are open to the west. On the upper levels of this four-storey building, the rows of classrooms are articulated into three groups. To the west, the teaching spaces are faced by tall blocks of flats. To ameliorate this situation, the classroom tracts were turned slightly away from the housing development, thereby avoiding a direct confrontation. The main entrance is set back somewhat from the major road junction, creating an open space that mediates between the traffic and the school. The animated plan form and the colour design by Erich Wiesner were also generated by the specific circumstances of the location. In the St. Benno School, art achieves a high degree of autonomy. It is no longer a mere accessory to the architecture, but may be seen as a work in its own right. The form of the new Montessori

school in Ingolstadt (1998) was not an expression of tight site boundaries. The city provided an attractive site close to an area of open *landscape*. The design foresaw a series of buildings with linking corridors, halls, open workplaces, and gardens outside the classrooms.

For the European Professional Training Institute in Bitburg (2002), we also found an open site at the transition between the town and the countryside. Here, we designed a lively scheme that is embedded in the urban environment and dissected by landscape elements. The various functional zones are scattered about the site, providing a quality of openness towards the activities they house, towards the landscape and other buildings. The diversity required of school structures emerges in the design process when one addresses the many special needs involved, when one avoids constraints imposed from above, and when one ensures that a new development does not, in turn, impose its own restrictions on others. Our articulacy as individuals and our integration in society are united in a single whole if the architectural elements can be seen as individual and articulate in themselves. Architecture mirrors the diversity of our world and also reflects our concern that it may be lost.

Vocabulary List

– *an outcome* – результат, последствие, исход
– *to gain* – получать, достигать, выигрывать
– *a commission* – поручение, заказ
– *to encumber* – препятствовать, мешать, затруднять
– *to respond* – отвечать, реагировать, нести ответственность
– *to assume* – принимать (характер, форму)
– *artificially* – искусственно
– *rural* – сельский, деревенский
– *a catchment area* – район охвата обслуживанием
– *a contingency* – возможность
– *to attempt* – пытаться, пробовать
– *to derive* – заимствовать, наследовать
– *rectilinear* – прямолинейный
– *subordinate* – второстепенный, подчиненный
– *a meadow* – луг
– *an undertaking* – предприятие
– *to dissolve* – аннулировать, распускать, расторгать
– *to erect* – устанавливать, сооружать, воздвигать
– *a landscape* – ландшафт, пейзаж

📖 **Answer the following questions.**

1. What was the aim of school builders in the 1950s and 1960s?
2. During this period one wanted a building that would meet all possible contingencies, didn't he?
3. What were the distinguishing qualities of the secondary school on the Schafersfeld?
4. Why is it important to build educational institutions in "meadow-like surroundings"?

📖 **Find the English equivalents in the text.**

Родительский дом; быть отрезанным от; поручать; перегородка; до сих пор; подход; располагаться; строгая последовательность; вместо; быть причиной; получать опыт; второстепенные элементы; объединять.

📖 **Explain the meaning.**

An architectural competition; schools of all-day instruction; democratic architecture; heterogeneous environment; heavy traffic disturbance; to ameliorate the situation.

📖 **True or false?**

1. The design of schools in Germany is usually the outcome of the society demand.
2. Up to the 1980s school design was encumbered very much by ideology.

3. One expression of the concept of mutual respect and individuality is that the teaching spaces should not be standardized.

4. In the 1980s much attention was paid to a sensible use of materials, a logical form and diversity in unity.

5. The majority of schools in Germany are located in green places close to the town center.

Согласование времен в главном и придаточном предложениях.
Преобразование прямой речи в косвенную (See Grammar Reference)

✎ Use the verbs in the right tense. Mind the Sequence of Tenses.

1. They promised that they (to bring) us all the necessary books.
2. He did it better than I (to expect) he would.
3. He said that the tractors (to be) there soon.
4. I think it all happened soon after the meeting (to end).
5. He said that he (can) not do it without my help.
6. The astronomer told us that the Moon (to be) 240,000 miles from the Earth.
7. We asked the delegates whether they ever (to see) such a demonstration.
8. It was decided that we (to start) our work at four o'clock.
9. I told you that I (to leave) town on the following day.
10. I did not know that you already (to receive) the letter.
11. The boy did not know that water (to boil) at 100 degrees.
12. He wanted to know what (to become) of the books.
13. I was told that the secretary just (to go out) and (to come back) in half an hour.
14. We were afraid that she not (to be able) to finish her work in time and therefore (to offer) to help her.
15. He said we (may) keep the book as long as we (to like).
16. When I called at his house, they (to tell) me that he (to leave) an hour before.
17. It (to be) soon clear to the teacher that the new pupil (to cause) much trouble.
18. I was thinking what a pleasure it (to be) to see my old friend again; I not (to see) him since my school days.
19. I have not yet told them that I (to get) them those books in the nearest future.

✎ Change the Direct Speech into the Indirect Speech.

1. Jack told his father, "I have lost my notebook."
2. Henry said to me, "I didn't throw stones at your dog."
3. Bob said to Tom, "Henry doesn't sit next to me in class."
4. I told the policeman, "I saw the thief in the garden."
5. He said, "I have eaten nothing for two days."
6. Jack's father said to him, "You haven't cleaned your shoes."
7. Mary said, "I don't want to wear my old dress."
8. My mother said to me, "I feel very tired, and I have a headache."
9. My friend told me, "We have plenty of time to do our work."
10. I said to my sister, "George has written me a long letter."

✎ **Translate from Russian into English. Mind the differences between the *Indefinite, Continuous* and *Perfect Tenses.***

1. Он писал письмо, когда я увидел его.
2. Гарри делал свою работу, пока его братья играли в игры.
3. Человек упал в тот момент, когда бежал за автобусом.
4. Мы пели песню, когда Джордж вошел в комнату.
5. Когда учитель давал урок, маленькая собачка вошла в комнату.
6. Когда зазвонил телефон, я работал в саду.
7. Моя шляпа улетела, когда я шел по мосту.
8. Начался дождь, когда мы наблюдали за игрой.

9. Как только я начал интересоваться своей работой, мне нужно было идти домой.
10.　　　　Он потерял свою записную книжку, когда осматривал достопримечательности Рима.

✎ Use the verbs in brackets in *Past Indefinite* or *Past Continuous.*

1. Jack (do) his homework when his father (come) home from work.
2. Mary (wear) her new dress when I (meet) her yesterday.
3. The pupils still (write) their compositions when the bell (ring).
4. She (walk) along the street when she (see) an old friend.
5. The woman was very tired, and she (lie) on her bed when her children (come) home from school.
6. The sun (rise) when I (wake) up this morning.
7. The sick child (sleep) when the doctor (come).
8. I (read) the newspaper when I (hear) a strange noise.
9. It (rain) hard when I (go) out this morning.
10.　　　　We (listen) to the wireless when the telephone bell (ring).
11.　　　　The little boy (fish) when he (fall) into the river.
12.　　　　Jack's mother (cook) the dinner when he (come) home from school.
13.　　　　A lot of people (see) this accident while they (wait) for we bus.
14.　　　　He often (go) to the British Museum when he (study) at London University.
15.　　　　He (fall) down and (break) his leg while he (play) football.
16.　　　　The travellers (reach) the town just as the sun (set).
17.　　　　The boy (jump) off the bus while it (go).
18.　　　　The hunter (shoot) and (kill) the lion just as it (jump) on him.
19.　　　　Mary's mother often (sing) while she (cook) in the kitchen.
20.　　　　The old man never (go) out when it (rain).
21.　　　　The travellers (see) some camels as they (cross) the desert.
22.　　　　The gardener (find) a box full of money when he (dig) in the garden.
23.　　　　When (go) out this morning, the sun (shine) and the birds (sing). It was a beautiful morning. I (walk) to the nearest park and sat down on the grass. But while I (sit) there, black clouds gathered and (hide) the sun. It (begin) to rain heavily, so I (run) home. My hat (fall) off as I (run).
24.　　　　Jack's father (read) a book last night when he (hear) a noise in the garden. He (open) the window and looked out. It (be) a dark night and at first he could see nothing. But just as he (close) his window, he (see) a man. The man (try) to climb over the garden wall. He was a thief. When he saw Jack's father at the window, he (jump) off the wall and ran away. Jack's father (run) after him. There was a car at the end of the street. The thief reached the car but just as he (get) into it, Jack's father (catch) him.

Lesson 2
Schools are a Hobbyhorse of Mine - an Interview with
Hurman Herzberger

Pre-reading Discussion

1. What are the main aspects to pay attention to while designing a school?
2. What do you think about the advantages and disadvantages of a large school?
3. Is it necessary to involve teachers and pupils in the design process?
4. Should architects pay attention to the pupils' age while designing the classrooms for young children and teenagers?
5. Do you think your school was a perfect type of school architecture?

– You have been building schools in the Netherlands since the 1960s. What educational developments have you seen in that time?
– In the field of education, one of the main political goals in the Netherlands today is to bring the various private and state schools in line with each other, to unify the complex educational system and reduce the large number of schools. It is not a bad idea, but it does not always make sense. Small schools are more *comprehensible*, for example, while larger schools can offer more facilities, such as media libraries.
– How do you assess the conditions for school building in the Netherlands?

– We have witnessed a change since the 1990s. In the past, the Ministry of Education was the central authority responsible for schools and teaching. Seven or eight years ago, this responsibility was transferred to local authorities. The state now grants only basic funding. The rest has to be provided by the municipalities. Unfortunately, very few of them are interested in qualitative school building. Politically, the situation is problematic, but schools are a hobbyhorse of mine.

– Is the lack of interest in building high-quality schools a socio-political problem?

– Yes. We have *to invest* much more in education in the Netherlands. We have to specialise and export knowledge. Schools should not be just a series of classrooms and corridors; they should provide a kind of "home base". It is not enough just to learn mathematics and languages. In a multicultural society, it is important for children to learn to live together rather than attacking each other.

– How do you implement your school concepts architecturally?

– I believe a school should be a kind of polls, a microcosm. In my spatial concepts, therefore, I am particularly concerned with the zones outside the classrooms. Through greater openness spatially, I ensure that corridors are not just circulation routes. In the Apollo School in Amsterdam, for example, just as many activities take place outside the classrooms as within them.

– Maria Montessori was also concerned with space in her educational theory. Is your architectural approach related to this in any way?

– No, not really. But I'm *convinced* that liberty can exist only within a certain framework. According to Montessori, pupils should be allowed as much *latitude* as possible within certain limits. I see my school architecture in that light: I provide the framework within which the pupils can develop freely.

– To what extent does the age of the children affect the architecture?

– Too much emphasis is placed on that aspect sometimes. People speak of finding the right scale for children, but they climb stairs just like adults. I am not *aware* that children need smaller steps. Of course, things like tables and chairs will be lower for younger children, but other aspects like natural lighting, visual links and spaces for withdrawal are more important. In traditional school types, there are usually long corridors that serve solely as access routes. From the very *outset*, we wanted to develop a different type. In the Atlas College in Hoorn (2002-04), there will be study areas outside the actual classrooms - divided off by folding doors. In the Be Elanden School in Amsterdam (1996-2002), we used sliding doors for this purpose.

– Do you involve teachers and pupils in the design process?

– I always attempt to develop a school design in collaboration with the teachers and pupils. This helps to achieve a stronger sense of identity with the school. In the case of the Montessori College Oost in Amsterdam, we sat down with 30 or 40 teachers every month. But that did not prove to be very productive. For the most part, they fought for the interests of their own classes. They were concerned with having as many socket outlets as possible, hot water, light and so on.

– Do the different nationalities of the pupils play a role in your design?

– No. I am interested in fundamental forms: that is what Structuralism means to me today. I attempt to develop a common *spatial* programme for all pupils. There are two main aspects to this: enclosure or protection, and openness. In many cultures, "space" implies something enclosed, but to us as a seafaring nation, it can also mean something that extends over the horizon.

– Can one trace your personal architectural development in your buildings?

– As a rule, I design from the inside out. From the very beginning, I have provided a vertical link in all buildings that are more than two storeys high. In the Ministry of Social Affairs in The Hague (1979-90), I realised the concept of a large central hall, a space that links all parts of the building; but regrettably, I did not take the idea to its logical conclusion. That building marks the end of a certain line in my design development. Since then, there has been a bolder gesture and a larger urban-planning element in my architecture.

– Are there any differences between building in Germany and the Netherlands?

– I have built schools only in the Netherlands, so I cannot make direct comparisons in that respect. German schools, which I admire very much, usually draw on a much bigger budget. We are building a large project in Germany at the moment, the Media Park Office Building in Cologne. Maybe I should not say this, but I find the Dutch are more pernickety and stingier. People are more open in Germany. On the other hand, we do not have the notion that a building can *bestow dignity* and power.

– What is your favourite school project?

– The newest project I am working on always means most to me and that is the De Elan-den School. It was a difficult project, because the dwellings above the school were not planned by us. Crazy conditions, but one invests a great deal of time in difficult projects and *is* always *delighted* at unexpected successes. It is the same as with one's children.

Vocabulary List

– *comprehensible* – понятный, постижимый
– *to invest* – вкладывать капитал, инвестировать
– *convinced* – убежденный
– *latitude* – свобода, терпимость
– *aware* – сознающий, знающий, осведомленный
– *an outset*– начало
– *spatial* – пространственный
– *to bestow* – присуждать, награждать
– *dignity* – звание, сан, титул
– *to be delighted* – наслаждаться

📖 **Answer the following questions.**

1. What are the main political goals in the field of education in the Netherlands today?
2. Who is responsible for schools and teaching in the Netherlands?
3. Is it necessary for all countries to invest more in education? Why?
4. What do you know about Maria Montessori's school theory?
5. How does the author describe the differences between building in Germany and the Netherlands?

📖 **Find the English equivalents in the text.**

С другой стороны; много времени; оказывать влияние; дневной свет; раздвижная дверь; работать в сотрудничестве; восхищаться; придирчивый; сфера образования; передавать; пространственный.

📖 **Give synonyms.**

A goal, to offer, to learn, a pupil, latitude, to involve, to achieve, building, a project.

📖 **True or false?**

1. Small schools are more comprehensible while larger schools can offer more facilities.
2. Corridors at schools are circulation routs.
3. The author of the text always attempts to develop a school design in collaboration with teachers and pupils.
4. German schools usually draw on a much bigger budget.
5. The central authority responsible for schools and teaching in the Netherlands is the Ministry of Education.

Придаточные предложения условия и времени, действие которых отнесено к будущему (See Grammar Reference)

✎ Open the brackets.

1. The old gentleman doesn't go out in winter. He (go) out when the weather (get) warmer.
2. I (wait) for the doctor until he (come) back from the hospital.
3. I'm afraid the old woman (die) before she (see) her son.
4. The teacher said, "I (begin) the lesson as soon as Jack (stop) talking."
5. He (not pass) the examination next summer if he not (work) much harder.
6. He (have) a bad accident if he (not drive) more carefully.
7. She's flying to Rome tomorrow. She (send) her family a telegram as soon as she (arrive).
8. She told her guests, "We (have) lunch when my son (come) home from school."
9. You (be) late if you (not take) a taxi.
10.   I (not speak) to him again if he (not apologize).
11.   We (have) a picnic tomorrow if it (be) a fine day.

12.   I (finish) reading this book before I (go) to bed.
13.   I'm sure he (write) to me as soon as he (know) my new address.
14.   Peter has borrowed my dictionary. He (give) it back when he (see) me tomorrow.
15.   The postman (start) work tomorrow before the sun (rise).
16.   The little boy (not be) happy until his father (buy) him a bicycle.
17.   She (wash) my shirts tomorrow if she (have) time.
18.   We (go) out when it (stop) raining.
19.   If he (not run) he (not catch) the train.
20.   If you (think) it over you (see) that I am right.

✍ Use the verbs in brackets in *Past Indefinite* or *Past Perfect*.

1. The new bus-driver (have) an accident after he (drive) a few yards.
2. When I (get) to the cinema, the film (start).
3. The students (enter) the classroom five minutes after the bell (ring).
4. After she (lock) and (bolt) all the doors, she (go) to bed.
5. The students (do) the exercise very well after the teacher (show) them how to.
6. The little boy (tell) a lie five minutes after be (promise) to tell the truth.
7. When the plane (land), the sun already (set).
8. She (feel) sick after she (eat) a whole box of chocolates.
9. After the doctor (examine) the child he (have) a talk with the mother.
10.   When I (call) on my friend, he (go) out.
11.   Mary (finish) her homework when her father (come) home from his office.
12.   I (throw) away the newspaper after I (read) it.
13.   After she (spend) all her money she (ask) her father to help her.
14.   The teacher (give) back the exercise-books after he (correct) them.
15.   The sun (rise) when the farmer (start) work.

✍ Change the Direct Speech into the Indirect Speech.

1. I said to Jack, "Please give me your dictionary."
2. The bus-conductor said to the passengers, "Don't get off the bus while it is going."
3. Mary said to her brother, "Take the letter to the Post Office, please."
4. The teacher said to Tom, "Collect the exercise-books and put them on my table."
5. The old man said to the little girl, "Don't run across the street."
6. The teacher said to the pupils, "Learn the poem by heart."
7. I said to my friend, "Meet me outside the cinema at six o'clock."
8. Mary's mother said to her, "Don't go out without your coat."
9. The teacher said to the students, "Open your books at page 60."
10.   The doctor said to the sick man, "Don't go back to work for a fortnight."
11.   Jack said to the policeman, "Tell me the time, please."
12.   The teacher said to the student, "Clean the blackboard, please."

✍ Change the Direct Speech into the Indirect Speech.

1. I asked my friend, "How do you feel after your holiday?"
2. Margaret asked Richard, "Where are you going for your holidays?"
3. Ann asked Mary, "What do you usually have for breakfast?"
4. Jack's father asked him, "Who are you writing a letter to?"
5. The teacher asked Bob, "When did you learn to swim?"
6. I saw a cloud of smoke and asked, "What is burning?"
7. Mary's mother asked her, "Where have you put your shoes?"
8. I asked her, "Who gave you that watch?"
9. Peter asked me, "When are you going to have dinner?"
10.   Mr. Smith asked his wife, "How much do you spend on food every week?"
11.   The policeman asked me, "Where did you lose your wallet?"

12.   The teacher came into the classroom and asked the pupils, "What are you doing?"
13.   Henry asked Tom, "Who did you visit in the hospital?"
14.   I asked Bob, "Why didn't you answer my letter?"
15.   The teacher wrote the answers on the blackboard and then asked, "Who has got all the answers right?"
16.   The little boy asked his father, "Why does a policeman wear a uniform?"
17.   I asked him, "Who are you looking at?"
18.   Tom asked the teacher, "What does the word mean?"

Lesson 3
Education and Construction - a Typology of School-Building

Pre-reading Discussion

1. What types of Russian schools do you know?
2. Are there any differences between school building and university building?
3. How many buildings does TSTU comprise? Are they all of the same design?
4. Why do architects make different designs for town schools and village schools?
5. Is it necessary to use new building technologies while designing educational institutions?

Modern school building covers a broad spectrum, from free and open forms to strict, rational *layouts*. In part, these reflect different architectural *approaches*; but other factors also play a role, such as the type of school, requirements for the development of social competence, the need for individual instruction, ecological *constraints*, and the use of new technology.

In Germany, the educational system is divided into a number of *tiers*: primary level, secondary level 1, and a secondary level 2 (roughly equivalent to the sixth-form college). In some states of Germany, the comprehensive school is the basic type. Although the federal states have their own guidelines for schools, school building is the responsibility of the municipal or district authorities, with the superior school authority and the various ministries for cultural affairs granting final *consent*.

In Austria, the Federal Property Corporation (BIG) has been responsible since 1992 for property development on behalf of the republic - including school building. The BIG also decides on the award of contracts, few of which are granted to younger architects or smaller practices, however. On the other hand, the high architectural quality of public building in Austria shows that the BIG is not solely concerned with cost efficiency. In France, many aspects of the country's administration have been decentralised since 1982. The central government has delegated responsibility for certain schools to the various regions and departments. This reform led to the creation of many new schools in the 1980s, with opportunities for younger architects to gain commissions.

The public education system in the US is also largely decentralised, with considerable differences existing between the various states in the financing and construction of schools. Architects are selected mainly by interview. Competitions are the exception. The Pisa Study, which provided an international comparison of educational standards, has caused something of a stir in Germany with its disappointing assessment of that country's teaching system. Up to now, the traditional classroom has remained the normal place of instruction. A great deal of thought has been given to its design and fitting out. In most cases, classrooms receive daylight only from one side. A floor area of 1.8-2.2 m^2 per pupil is the required standard, and the recommended number of pupils per class is between 8 and 14 in schools that provide special educational support and between 30 and 35 in mainstream schools leading to higher educational levels. Since the tight constraints of the normal school brief allow architects little latitude, spatial quality usually manifests itself in the concept and design of the intermediate zones, which play a major role in terms of communication. Acoustics is also an important aspect. Reverberation times of 0.3-0.5 seconds are recommended with background noise levels of 30 dB (A).

A further design criterion in schools is the location of the various functions. Areas with noisy activities should be separated from the classrooms. At the same time, direct links are desirable between all areas. School buildings can, therefore, be divided into various categories, according to their layout and access systems: central, linear, combined linear, linear with a central focus, and additive.

The school in Markt Indersdorf by Allmann Sattier Wappner is an example of a layout with central access, necessitated in part by the extensive spatial programme and the large number of pupils. The linear access routes, laid out in the form of a rectangle around a central space, allow a clear articulation of the individual ar-

eas. At the centre are *recreation* zones and the sports hall. The integration of large volumes into the existing surroundings, which is normally difficult with this form of layout, has been skilfully resolved here.

Both the Strawberry Vale School in Canada by Patkau Architects and the school in Vienna by Helmut Wimmer are variations on a linear type of organisation. In the former case, the modest spatial brief and the relatively small number of pupils (448) allowed a freer layout. Teaching takes place mainly in classrooms, so that there is no great volume of traffic within the school. This is of advantage with linear forms of access. The area with stepped seating functions as a communal zone, compensating for the lack of a recreation hall and providing direct access to the classrooms. The architectural design of the single-storey school in Vienna by Helmut Wimmer is more *restrained*. The creation of courtyard spaces *enables* the building to be divided into a three-bay layout with natural lighting in all rooms. Here, too, open corridor zones compensate for the lack of communal spaces. Special uses are housed in separate volumes along the corridors, with glazed facade areas between these units providing visual links with the outside world. The classrooms are lined up in pairs between the main access routes and are day lighted via the courtyard spaces. Combined linear forms of access are found in schools with a comb-like layout or where two or more tracts meet at an *angle*. In such cases, it is possible to locate central functions at the points of intersection of the tracts, and distinct teaching areas can be organized independently of each other. The school by Benedito and Orteu is an example of this. The main entrance and administration are located at the junction of the two wings, which contain different uses and function as separate units. As a result, the canteen and the sports hall do not disturb lessons in the classrooms. Circulation in the three-bay classroom tract is via an "internal street" with enclosed courtyards that allow the *ingress* of daylight.

In the comb-like layout of the school by Diezinger and Kramer in Eichstatt, the various tracts are united by a spine structure. The classrooms, all of which have a south or west aspect, are linked in three-room units, with group spaces between them. The comb-like layout also facilitated the integration of fire-escape staircases at the *requisite* spacing.

The complex by Stephan Eberding is laid out with three linear tracts radiating from a central point - a hybrid form, in which the node serves as a common assembly hall for the separate schools housed in each of the wings. The access routes are in the form of internal corridors with rooms laid out on both sides. By separating the various school functions in this way, mutual disturbance *is avoided*. The classrooms receive daylight from one side. Each of the three *tracts* has its own coloration, which serves as a means of orientation and also helps pupils to identify with "their house". Schools with additive layouts are usually *extensive*, low-rise developments, in which the structure, access system and spatial distribution are closely integrated, and all *realms* are linked with each other. Day lighting the internal zones is often a problem in multi-storey developments, and repetitive spatial sequences may make orientation difficult. In the school for mentally and physically disabled children by Gruntuch and Ernst, the layout is divided into five similar "classroom houses" linked by a linear access route or play strip. The uniform organisation is interrupted by the great hall, which, like the colour concept, provides a means of orientation. The classroom units, in which between six and eight pupils receive tuition, consist of a 50 m^2 main space and a 20 m^2 group room.

The more compact volume of the five-storey, inner-city school in Basle by Miller & Maranta is vertically articulated, with the entrance hall functioning as a distribution space for the various classroom levels. These, in turn, are divided into four strip-like sections with an offset layout and a circulation route that *meanders* through the middle. Light *wells* allow the classrooms to receive daylight from two sides. The many visual links and views out of the building are also an aid to orientation. The problem of integrating the large volume of the sports hall was resolved by burying it in the ground at the base of the building. The projects presented here not only illustrate various layout types; they also cover a broad architectural spectrum. One thing they have in common, though, is that they all contain exciting spatial sequences that in various ways form a stimulating environment for learning.

Vocabulary List

– *a layout* – схема
– *an approach* – метод, подход
– *constraint* – напряженность, скованность, принуждение
– *a tier* – ряд, ярус
– *consent* – согласие, разрешение
– *recreation* – развлечение, отдых
– *restrained* – ограниченный, умеренный
– *to enable* – давать возможность, уполномочивать

– *an angle* – угол
– *ingress* – проникновение
– *requisite* – нужный, необходимый, требуемый
– *to avoid* – отменять, прекращать, избегать
– *a tract* – полоса, участок, пространство
– *extensive* – большой, обширный, экстенсивный
– *a realm* – область, сфера
– *to meander* – извиваться
– *a well* – лестничная клетка

📖 Answer the following questions.

1. What are the main architectural approaches to modern school building?
2. German educational system is divided into 3 tiers, isn't it?
3. Who is responsible for school building in Austria and France?
4. How can you explain the phrase "linear type of organization"?

📖 Find the English equivalents in the text.

Получать комиссионное вознаграждение; место обучения; расположение; одноэтажная школа; внутренний двор; располагаться; способствовать; зал заседаний; крыло (здания); разрешать проблему.

📖 Make the written translation of the first and the second paragraphs of the text.
📖 True or false?

1. In Germany school building is the responsibility of municipal or district authorities.
2. In France the reform of 1980s led to the creation of many new schools with the opportunities for younger architects to gain commissions.
3. Areas with noisy activities should be separated from classrooms.
4. The central access routes, laid out in the form of a rectangle around a central space, allow a clear articulation of the individual areas.
5. In the comb-like layout of the school by Diezinger and Kramer in Eichstatt, the various tracts are united by a spine structure.

Формы сложного дополнения (See Grammar Reference)

✎ Open the brackets.

1. He made me (do) it all over again.
2. He made her (repeat) the message.
3. If you want us (get) there before dark you should let us (start) at once.
4. Would you like me (go) now?
5. They won't let us (leave) the Customs till our luggage has been examined.
6. He wouldn't let my baby (play) with his gold watch.
7. Please let me (know) your decision as soon as possible.
8. He made us (wait) for hours.
9. I let him (go) early as he wanted to meet his wife.
10. I'd like him (go) to a university but I can't make him (go).
11. I want her (learn) English; I think everybody must know it.
12. I heard the door (open) and saw a shadow (move) across the floor.
13. He tried to make me (believe) that he was my stepbrother.
14. I felt the house (shake) with the explosion.
15. Before he let us (go) he made us (promise) not to tell anybody what we had seen.
16. I advised him (ask) the bus-conductor to tell him where to get off.
17. She expects her husband (pay) all the household expenses although she has a good job, too.
18. What do you want me (tell) him?

19.   I saw the driver (open) his window and (throw) a box into the bushes.
20.   That is too heavy for one person to carry, let me (help) you.
21.   I saw the plane (crash) into the hill and (burst) into flames.
22.   The teacher advised us (use) dictionaries.
23.   Her father doesn't allow her (go) to the cinema alone.

✎ **Use the verbs in the right past tense.**

1. Tom (sit) in a corner with a book. I told him that he (read) in very bad light.
2. When I (arrive) the lecture already (start).
3. I (make) a cake when the light (go) out. I had to finish it in the dark.
4. Unfortunately when I arrived Ann (leave), so we only had time for a few words.
5. He (have) a bath when the phone rang. Very unwillingly he (get) out of the bath and (go) to answer it.
6. When we (reach) the field, the game already (start).
7. He suddenly (realize) that he (travel) in the wrong direction.
8. When I (look) for my passport I (find) this old photograph.
9. You looked very busy when I saw you last night. What you (do)?
10.   The boys (play) cards when they (hear) their father's step. They immediately (hide) the cards and (take) out their lesson books.
11.   He (not allow) us to go out in the boat yesterday as a strong wind (blow).
12. I (call) Paul at 7.00 but it wasn't necessary because he already (get) up.
13.   When I (hear) his knock I (go) to the door and (open) it, but I (not recognize) him at first because I (not wear) my glasses.
14.   When I came in they (sit) round the fire. Mr. Smith (do) a crossword puzzle, the others (read). Mrs. Smith (smile) at me and I (say), "Come and sit down."
15.   I (see) you yesterday from the bus. Why you (use) a stick? – I (use) a stick because I (hurt) my leg that morning.
16.   The children (come) to the party at 4 o'clock yesterday; but before that Mr. and Mrs. Green (decorate) the room, Mrs. Green (bake) cakes, and Mr. Green (buy) a small present for every little guest.
17.   As they (walk) along the road they (hear) a car coming from behind them. Tom (turn) round and (hold) up his hand. The car (stop).
18.   When I (arrive) at the station Mary (wait) for me. She (wear) a blue dress and (look) very pretty.
19.   When I (see) him he (paint) a portrait of his wife.
20.   While he (water) the flowers it (begin) to rain.
21.   When I last (see) her she (hurry) along the road to the station. I (ask) her where she (go) and she (say), "London", but I don't think she (tell) the truth because there (not be) any train for London at that time.
22.   The men (say) that they (work) on the road outside my house and that they (want) some water to make tea.
23.   Richard (get) a new exercise-book yesterday because he (fill) his old one.
24.   Ann said that she (be) on holiday. I (say) that I (hope) that she (enjoy) herself.
25.   When I (look) through your books I (notice) that you (have) a copy of "Night work".
26.   She said that she (not like) her present flat and (try) to find another.
27.   When Margaret (finish) her homework she (turn) on the radio.

✎ **Translate from Russian into English. Mind the difference between *the Indefinite, Continuous* and *Perfect Tenses.***

1. Вчера в 9 часов вечера я смотрел телевизор.
2. Она сказала, что еще не выполнила домашнее задание.
3. Когда пришел мой друг, я еще не закончил завтракать.
4. Когда я ее встретил впервые, она работала в школе.
5. Все студенты выполнили задание правильно после того, как преподаватель рассказал им, как его делать.
6. Когда мы вышли на улицу, ярко светило солнце.
7. Мой друг сказал, что его брат уже приехал.
8. Я читал книгу, когда услышал телефонный звонок.
9. После того, как врач осмотрел больного, он поговорил с его родственниками.

10.   Когда мы пришли на остановку, автобус уже ушел.
11.   Он спросил меня, видел ли я, что произошло.
12.   Когда я пришел, она накрывала на стол.
13.   Я часто ходил в этот кинотеатр, когда работал в этом районе.
14. С кем вы разговаривали по телефону, когда я вошла в комнату?
15.   Вчера мы весь день работали в саду.
16.   Он пошел погулять после того, как пообедал.
17.   Я спросил у него, почему он не ответил на мое письмо.

✎ Change the Direct Speech into the Indirect Speech.

1. I asked the old gentleman, "Are you feeling tired?"
2. The hotel manager asked the visitors, "Did you sleep well?"
3. He asked his wife, "Is the baby asleep or awake?"
4. The teacher asked Tom, "Do you come to school by bus or on foot?"
5. A man stopped me in the street and asked, "Have you got a match?"
6. The teacher asked us, "Do you understand the question or not?"
7. Henry's father asked his son, "Do |you want to be an engineer or a doctor?"
8. I asked Peter, "Are you going to play football on Friday or on Saturday?"
9. The teacher asked me, "Do you spell "swimming" with one "m" or a double "m"?"
10.   He asked his secretary, "Has the postman been yet?"

UNIT 4
COLOUR AND ARCHITECTURE

Lesson 1
Rendered Facades, but with What Finish? Coloured, Painted or Coated?

Pre-reading Discussion

1. What is the main function of colour in architecture?
2. Do you agree that colour is used in building only for its tonal quality?
3. How can colour affect the general view of a building?
4. What colour tones do you prefer?
5. What does paint consist of?

The encyclopaedist Isidor of Seville (560-636) described colour as "captive sunlight", while Sir Isaac Newton attempted to fit the colours of the rainbow into a linear, measurable spectrum, and Johann Wolfgang von Goethe developed a non-scientific colour circle as part of his theory of colour. According to a definition in modern German standards, "Colour is the facial sensation of part of the field of vision that appears unstructured to the eye, by means of which that part - observed with a single, unmoving eye – can be solely differentiated from a similarly unstructured *adjoining* area seen at the same time."

Colour is used in buildings not only for its tonal quality, but also as part of the actual construction - in the form of finishings that provide protection against the weather. In this context, it is perhaps more useful to speak of "*coatings*", a term that covers a wide range of protective products from fluid, paste-like or even powdered materials to *conventional* paints. Painted finishes are usually built up in a number of layers, which together form a system of priming coats, undercoats and finishing coats. Sometimes *the surface* to be painted may also be otherwise treated to improve *adhesion*. As with plasterwork, the finishing coats should be softer than the undercoats to avoid cracking caused by tension between the layers. Generally speaking, the application of a few thick coats of paint is less elaborate than a greater number of thin coats, but the latter technique ensures a better drying-out process and produces a smoother, more even finish. The choice of material will depend on the vapour-diffusing properties and *permeability* of the individual layers or coats, which should be matched to the base and *take account of* weather conditions.

Painted coatings can be classified according to various criteria: their special protective qualities (against fire or corrosion, for example); the construction elements on which they are used (windows, facades, etc.); or

the material to which they are applied (wood, steel, mineral backings, etc.). The most logical and universal classification, however, is according to the *binding* agent used; e.g. *alkyd resin*; or silicate paints based on the use of potassium silicate. The painting system and the background material have a reciprocal influence on each other and determine the properties of the finished construction in terms of impermeability, vapour diffusion and strength.

Paint, as a liquid surface coating, consists of binders, *solvents*, fillers, pigments and additives, which together determine the properties of a product and its coloration. Up to the middle of the 20th century, paints were mixed by the trade people who used them. Today, most paints come as finished products ready mixed by the manufacturers. This ensures constant, controllable quality standards, but the subtle variations in tone and the liveliness of traditionally mixed paints have disappeared. Binders belong to the *non-volatile* components of paint and are important for the adhesion of the material on various backgrounds. Solvents serve to dissolve the binders and make them workable. Pigments determine the colour and may be of inorganic, mineral or organic origin. Additives can also be incorporated to improve the storage life, workability, visual quality, etc.

The first paints used by man were made of earth. The cave dwellers of Lascaux used red ochre or black *manganese* earth, with added *charcoal* and red chalk, more than 15,000 years before Christ. Later, lime milk was employed for whitewashing plaster or stone. Over the millennia, paints underwent a constant process of improvement in respect of their adhesion and brushability through the addition of natural substances like *curd* and linseed oil. For lime-based paints, slaked white lime diluted with water $Ca(OH)^2$ is used as a binder. Since lime-based paints require constant maintenance, however, their use externally is restricted mainly to historical buildings where it is necessary to match new with existing materials. In external situations, there is also a danger that the *lime* content will be converted into gypsum as a result of acid rain. Internally, on the other hand, lime-based paints are used today for their good vapour-diffusing and absorbent properties and their ability to regulate moisture levels. In addition, they are greatly appreciated for the tonal radiance they help to achieve. Distempers and casein paints, which are mainly suitable for internal use, no longer play an important role nowadays, except in biologically correct forms of construction.

Today, the wide range of paint products on the market has made it necessary to establish certain criteria for the selection of the appropriate type for a specific situation. A new system of classification for facade paints is at present being drawn up and is *scheduled* to be completed next year. This is based on the so-called S-value (the depth of an air-layer with the equivalent rate of diffusion) and the W-value (the degree of water repellence), which form the measure of comparison. This new code of classification will allow the selection of paints that are precisely matched to a particular backing.

In order to determine the moisture balance of a component, a distinction must be made between paints that form a film on drying and those that do not. In conjunction with the binding agent used, additives can be incorporated in dispersion substances to control the formation of a surface film and thus to regulate the permeability or moisture resistance of the coating, if no film is formed, water glass can penetrate mineral paints and cause a reaction in the bearing layer (silification). These processes have a great influence on the industrial manufacture of paints today and result in a division of products into dispersion paints on the one hand, and silicate or mineral-based paints on the other.

Potassium silicate is a *syrupy* fluid created through the fusion of quartz with potash or soda. It is used as a fixative or binder for silicate paints. Their development dates back to the late 19th century. Pure silicate paints are two-component products consisting of a fixative and coloured powder (mineral pigments with fillers). The materials have to be *soaked* or mixed a day before use. When the paint dries, the water glass does not form a sealed film; instead, a process of petrification or silification occurs in the mineral base. The open-pore structure ensures a high degree of permeability to vapour and allows a rapid drying process. The surface finish is also highly resistant to pollutants and aggressive substances. That is why silicate paints are frequently used in place of historical lime-based paints in conservation. In such situations, the strength of the rendering should be coordinated with the surface finish. Because the mineral binding agent has the same coefficient of expansion as the mineral base, stresses caused by changes of temperature - and the resulting cracking - can be avoided. Since their development at the beginning of the 20th century, water-based (dispersion) paints have come to play a major role in view of their simple preparation and broad range of application. The binding agent consists of polymerisation resins dispersed in water, to which softeners, fillers and pigments are added as required. In chemical terms, mixes in which the substances are not dissolved but merely finely distributed in the solvent are known as "dispersions". Where the finely distributed matter is a solid, one speaks of a "suspension"; where it is a fluid, it is referred to as an "emulsion". These paints are suited to both internal and external use. The way they set depends on the nature of the suspension or emulsion substance they *contain* as well as on the drying-out process. At all events, a continuous film is formed. As an organic system, the paint does not bond with the min-

eral background; it simply adheres to the surface. *Additives* can be used to modify the properties of the film to ensure adequate vapour diffusion without affecting the great weather resistance it possesses. Since the water-absorbing and vapour-diffusing properties of paints can be determined in the manufacturing process, planners are confronted with something of a dilemma. Dispersions are easy to work and strongly resistant to moisture. In addition, as described above, they form a surface-sealing film. Silicate-based paints, on the other hand, form an open-pore, mineral-based finish and absorb more moisture. Industry has, therefore, modified the manufacturing processes to combine some of the positive properties of both products.

Single-component silicate dispersion paints may contain a maximum of 5 per cent organic material. They adhere to all mineral backgrounds and combine the advantage of silicate paints (high permeability to moisture) with the low water-absorption property of dispersions. Additives can also be used with these products to improve durability and adhesion, and to ensure uniform coloration during the drying process. The low dispersion content means that no surface film is formed, but the amount of water absorption is reduced without negatively affecting the vapour-diffusing quality.

Silicone-resin paints consist of synthetic (mostly acrylate) dispersions, pigments, fillers and silicone-resin emulsions. These products are increasingly taking the place of dispersions, since they eliminate the disadvantages of purely silicate-based systems. As with dispersion systems, when the synthetic dispersion content is low (about 5 per cent), the water repellence of the paint will be high (low W-value), yet it will possess good vapour diffusing properties (low S-value). The dispersion content is nevertheless necessary to reduce the degree of chalking and to ensure surface resistance to *abrasion*.

Regardless of the different compositions of paints, all coatings can be compared in their *perceptible* colour tones, and various colour systems have been developed for this purpose. In the absence of recognised international standards, many countries have their own coding systems. In Germany, the most commonly used is the PAL colour tone register. Paints for rendering and facades are sometimes classified according to the Scandinavian "natural colour system" (NCS), which is based on six basic colours: black, white, blue, red, yellow and green. More spatial definition is provided by colour codes based on the C/E system. In this case, the classification is derived from sensory physiological measurements translated into mathematical models.

Despite all these attempts at classification, however, the effect of coating systems is strongly dependent on the perception of the observer, the materials used and the lighting conditions, so that even today it is still possible to observe "captive sunlight" on facades.

Vocabulary List

– *adjoining* – граничащий, примыкающий, прилегающий, соседний
– *a coating* – слой (краски), покрытие, грунт
– *conventional* – обычный, общепринятый, традиционный
– *a surface* – поверхность
– *adhesion* – прилипание, слипание, присоединение
– *permeability* – проницаемость
– *to take account of* – придавать значение
– *binding* – обязательный, связующий, вяжущий
– *alkyd resin* – алкидный полимер
– *solvent* – растворитель
– *non–volatile* – долговременный, не разрушающийся
– *manganese* – марганец
– *charcoal* – древесный уголь
– *curd* – творог
– *lime* – известь
– *to schedule* – намечать, планировать
– *syrupy* – похожий на сироп
– *to soak* – вымачивать, отмачивать, пропитывать(ся)
– *to contain* – вмещать, содержать в себе
– *an additive* – присадка, добавка
– *abrasion* – стирание, смыв, снашивание
– *perceptible* – различимый, заметный
– *despite* – вопреки, несмотря на

📖 **Answer the following questions.**

1. What is a coating?
2. How can coatings be classified?
3. When was the first paint used?
4. What is the component structure of any paint?
5. May all paints be used to both internal and external works?

📖 Give definitions to the following words and phrases.

Cracking; corrosion; a mixture; an inorganic agent; an organic agent; a mineral agent; workability; acid rain; water-based paints; internal and external use.

📖 Give antonyms.

Wide; organic; internal; an ability; a high degree; rapid; a broad range; a suspension; positive; an advantage; to reduce.

📖 True or false?

1. Paints provide protection against weather.
2. The first paints were made of chalk.
3. Pigments may be of organic and mineral origin.
4. At the beginning of the 20th century dispersion paints have come to play a major role in view of their simple preparation.
5. Dispersions are easy to work and strongly resistant to moisture.

Глагольные формы страдательного залога и их функция.
Основные модальные глаголы и их заменители в
английском языке (See Grammar Reference)

✎ Open the brackets and change the sentences if necessary.

1. I'm not wearing my black shoes today. They (mend).
2. This copy (not read). The pages (not cut).
3. Why the car (not lock) or (put) into the garage?
4. The damaged ship (tow) into harbour when the towline broke.
5. This room (use) only on special occasions.
6. Bicycles must not (leave) in the hall.
7. He was taken to hospital this afternoon, and (operate on) tomorrow morning.
8. It was a lonely road, and the girl was afraid; she thought she (follow).
9. The paintings (exhibit) till the end of the month.

✎ Translate from Russian into English.

1. Все картины, которые вы здесь видите, написаны одним художником.
2. Эта история давно забыта всеми.
3. Моего брата посылают в командировку. Сейчас он готовится к отъезду.
4. Работа будет закончена в срок.
5. За доктором послали? Сделайте это как можно скорее. У ребенка высокая температура.
6. Эта книга была написана до того, как автор стал знаменитым.
7. Сотни новых домов будут построены к концу этого года.
8. Он сказал мне, что его костюм шьет первоклассный портной.
9. Мне предложили очень интересную работу.

✎ Fill in the blanks with modal verbs.

1. The doctor said, "The child is very ill. He ... be taken to the hospital at once."

2. A man ... help his parents when they become old.
3. There are no buses or taxis, so we ... walk.
4. Everybody ... learn a foreign language.
5. We ... live without food and water. We ... eat and drink.
6. I ... get up early tomorrow, so I ... go to bed late tonight
7. You ... drive a car at night without lights.
8. Tom's father told him that he ... ask silly questions.
9. Man ... live by bread alone.
10.   The matter ... be discussed in tomorrow's debate.
11.   You ... sit there in your wet clothes; you will catch cold it you do.

✎ Change the Direct Speech into the Indirect Speech.

1. "We have a lift but very often it doesn't work," they said.
2. "We have moved into our new flat. We don't like it nearly as much as our last one," said my aunt.
3. "Nothing grows in my garden. It never gets any sun," she said.
4. "I've been in London for a month but so far I haven't had time to visit the Tower," he said.
5. He said, "My wife has just been made a judge."
6. "Who put salt in my coffee?" he asked.
7. "Why did you travel first class?" I asked him.
8. "What else did you see?" I asked the boy.
9. "What is your new house like?" I asked them
10.   "Did they understand what you said to them?" he inquired.
11.   "Haven't you got a television set?" he asked.
12.   "When you don't like a film do you stay to the end or walk out in the middle?" she asked.
13.   "Don't argue with your father," I said.
14.   "Wait for me at the bridge," said the young man.
15.   "Don't make a sound," he said in a whisper.
16.   "Don't go near the water, children," she said.
17.   "Don't forget your sandwiches," said his mother.
18.   "Please don't say anything to make her angry," said my father.
19.   "Please, don't leave the gate open," the farmer said to visitors.
20.   "Don't climb that tree in your new trousers, Richard," his father said.

Lesson 2
Advertising Agency in Stuttgart School Building in Zurich

Pre-reading Discussion

1. What is your particular area of interest in civil engineering and architecture?
2. Why do you want to become a civil engineer?
3. Is it necessary to be a good painter for making some architectural schemes?
4. Will you need English for your future profession, what do you think?
Advertising Agency in Stuttgart

For its new headquarters, the advertising agency chose a building in a *prominent* location on the *outskirts* of Stuttgart with a view to the city centre. Erected in the 1960s for a dance school, and having housed a number of doctors' practices for many years, the building has now been *gutted* and *converted*. The facade was simply treated to a new coat of paint in a *subdued anthracite* colour. All the more striking, in contrast, is the large *lettering* on the *windowpanes*, as well as an oversized lampshade-like object on the front balcony. On entering the building, one is immediately surprised by the coloration. The walls and *ceiling* are covered with bold stripes, and the same motif is repeated in the form of narrow *slate* strips in the asphalt floor. An illuminated wall, consisting of square lighting elements, directs visitors to the reception counter, where the coloured stripes and dark floor finish recur. A broad staircase leads up to the discussion rooms. These customer service areas are separated by a spacious central zone from the staff offices, which are reached via a second staircase. On the first

floor, a neutral white tone with pale-green highlights creates a friendly, businesslike atmosphere. The flooring changes, too, from asphalt to carpeting - again with *inlaid strips.* The top three storeys, where the graphic artists and copywriters work, are distinguished by their restrained coloration, although this varies from floor to floor, lending each level its own distinct identity. All walls and soffits were clad with plasterboard, which was given at least two undercoats of white acrylic paint to bring out the full colour and create a velvety finish.

School Building in Zurich

The school complex comprised a central tract built in 1865 and two adjoining gymnasiums dating from 1916 and 1973. Compact extension structures were added to the 1970s hall, doubling the teaching space of the main building. The internal organisation is based on urban planning models: the new central space is conceived as a forum and the heart of the complex, about which staircases and corridors are laid out in the form of streets that widen to *forecourts* in front of the classrooms. The *boundaries* between public and private space in this city within a city are *delineated* by colour and light. The calm design of the teaching rooms in white and grey is contrasted with the bright colours of the circulation spaces - in pink, orange, yellow and blue. This concept, which lends the building a special identity, reaches its climax in the central hall. With the aim of creating a unity of colour and architecture, the architects and the artist responsible for the project sought to design a pictorial world for children. To achieve the expressive force of painting, the colours were built up in layers, bringing out not only the material qualities of the concrete and the irregularities of the shuttering, but the brushwork as well. The concrete was not uniformly coloured; traditional Lascaux materials were applied on a white ground. The tonal quality is accentuated by the effect of daylight, which enters via the numerous roof lights.

Vocabulary List

- *prominent* – известный, выдающийся
- *outskirts* – окраина
- *to gut* – опустошать
- *to convert* – перестраивать, переделывать
- *subdued* – смягченный, приглушенный
- *anthracite* – антрацит
- *a lettering* – надпись, теснение
- *a windowpane* – оконное стекло
- *a ceiling* – потолок, перекрытие
- *slate* – кровельная плитка, шифер, синевато–серый цвет
- *an inlaid strip* – вложенная лента, полоса
- *a forecourt* – внешний двор
- *a boundary* – граница, край, предел
- *to delineate* – изображать, описывать, обрисовывать

📖 **Answer the following questions.**

1. Why did the advertising agency choose a building on the outskirts of Stuttgart?
2. What is the most surprising thing in the building of the agency?
3. When was the school complex in Zurich built?
4. What can you say about the contrast between the teaching rooms and circulation spaces?
5. The concrete of school building was uniformly coloured, wasn't it?

📖 **Fill in the gaps with the words given below.**

Visitors, balcony, highlights, forum, pictorial world, circulation.

1. On the first floor, a neutral white tone with pale-green … creates a friendly atmosphere.
2. An illuminated wall, consisting of square lighting elements, directs … to the reception counter.
3. All the more striking is an oversized lampshade-like object on the front … .
4. The new central space is conceived as a … and the heart of the complex.

5. With the aim of creating a unity of colour and architecture, the architects responsible for the project sought to design a … for children.

6. The calm design of the teaching rooms in white and grey is contrasted with the bright colours of the … spaces.

📖 **Find the English equivalents in the text.**

Построенный; размещать; поразительный; направлять; лестница; составитель рекламных объявлений; отличаться; расширяться; достигать; через.

📖 **Give synonyms.**

A location, to house, to be surprised by smth, lighting elements, a discussion room, a customer, an identity, to design, traditional.

Функции Причастия I (*Participle I*) и Причастия II (*Participle II*). Отличие герундия от Причастия I и случаи его употребления (See Grammar Reference)

✎ Open the brackets using the right form of the Participle.

1. A crowd of (excite) people were watching the firemen trying to save the (burn) building.
2. "During my vacation I came across several extremely (interest) books," said he. - "Which ones?" she asked in an (interest) voice.
3. Why do you look so (worry)? - I've had a number of (worry) telephone calls lately.
4. I don't know what was in the (burn) letter. I didn't read it.
5. Nothing can save the (sink) ship now. All we can do is to try and save the passengers.
6. It was an (excite) incident. No wonder she spoke about it in an (excite) voice.
7. After hearing the (frighten) tale, the (frighten) children wouldn't go to sleep.
8. The doctor did his best to convince her that there was nothing seriously wrong with the boy, but the (worry) mother wouldn't calm down.

✎ Open the brackets using the Gerund.

1. The windows are very dirty; they need (clean).
2. It's very hot, so you don't need (bring) a coat.
3. The house is old, and it badly wants (paint).
4. The famous man didn't need (introduce) himself.
5. The floor is covered with dust; it needs (sweep).
6. The grass in the garden is very dry; it wants (water) badly.
7. The planners didn't realize they would need (build) so many houses.
8. This shirt is quite clean; it doesn't want (wash) yet.
9. Her shoes have a hole in them; they want (mend).
10. The room was in a terrible mess: it needed (tidy up).
11. The baby's crying; I think he needs (feed).
12. I know my hair wants (cut) but I never have time to go to the hairdresser's.
13. John needed (cheer up) when he heard that he'd failed his exams.
14. You should tidy the garden. – Yes, it needs (tidy). The roses want (water), the peaches want (pick), the grass wants (cut).

✎ **Use the verbs in the brackets in Passive Voice if necessary.**

1. The little girl is the only child in the family, and she (spoil) by her parents and grandparents.
2. Normally this street (sweep) every day, but it (not sweep) yesterday.
3. It was very cold yesterday afternoon, but we couldn't light a fire in the sitting-room; the chimney (sweep).

4. This purse (to leave) in a classroom yesterday, it (find) by the cleaner.
5. Thousands of new houses (build) every year.
6. When I saw the car, it (drive) at over fifty miles an hour.
7. This room (not use) for ages.
8. The children are very excited this morning. They (take) to the circus this afternoon.
9. My keys (return) to me; they (pick up) in the street
10.   Dogs must (keep) on leads in the gardens.
11.   Dictionaries may not (use) at the examination.

✎ Fill in the blanks with modal verbs.

1. They ... do all the exercises; it will be sufficient if they do four of them.
2. You ... do whatever you like.
3. We ... go away just yet; our train doesn't leave for half an hour yet.
4. I ... read to the end of the story, because I want to see who gets the treasure.
5. Why ... I go there?
6. She ... sing quite well.
7. You ... say anything. Just nod your head and he will understand.
8. ... I use your phone? - You ... ask for permission, you ... use it whenever you like.
9. You ... leave your dog with us if you don't want to take him with you.
10.   You ... take a horse to water but you ... make him drink.
11.   The ice is quite thick. We ... walk on it.
12.   If you don't know the meaning of a word you ... use a dictionary.

Lesson 3
Colour and Architecture

Pre-reading Discussion

1. Do you agree with the following statement: "the question of colouration is an aspect of urban planning"?
2. Why do you think different epochs use different colours?
3. How can colour express an architect's mood?

The debate about the use of colour in building has a long and *motley* history. At the beginning of the 20th century, with the shift of focus from individual buildings to housing as part of an urban context, the question of coloration was increasingly regarded as an aspect of urban planning, it therewith assumed a political dimension as well. In architectural discussions at that time, colour was more than just an aesthetic consideration; it revealed an architect's philosophy of life and *perception* of his role.

Colour has always been used as an aesthetic argument in social discourse, as the present essay seeks to show; and in architecture, colour concepts are usually directly related to social and political ideas. As early as 1901, Fritz Schumacher recognised that it is extremely difficult to add colour to a building if the coloration has not formed part of the overall planning from the outset. The architectural critic Adolf Behne, who cited the example of Bruno Taut's Falkenberg Garden City in Berlin, defined the role played by colour in building in 1913. Behne argued that coloration was used in that scheme to lend expression to different house types, thereby creating a sense of orientation and identification among residents. In other words, it helped to overcome the danger of uniformity. In this "paint-box estate", as it was called, Taut *juxtaposed* brilliant white surfaces with facades in red and olive-green, in blue and yellow-brown.

Behne's arguments were often polemical, and he played colour off against white. But there was also a scientific, objective approach to the subject, as the systematic preparation of a colour manual shortly before the First World War shows. After the war, however, the discussion between advocates of pure white architecture and those in favour of coloration became increasingly polarised. Through its identification with images of cleanliness and *purity*, white became the preferred colour of the conservative middle classes. It was associated with marble and classical antiquity, and thus *evoked* qualities like intelligence and education; but it was also identified with an adopted style, the "tyranny of a cultured foreign form". Writing in "Bauwelt" in 1919, Behne argued that the educated bourgeois art lover feared that colour was not noble enough: "White and pearl grey are

noble. Blue is commonplace. Red is *gaudy*. Green is *harsh*. ... Colourlessness, on the other hand, is a token of *refinement*; white is comparable to the colour of European skin."

At the beginning, of the 1920s, Behne, Taut and Gropius advocated colour as an expression of a social, indeed socialist, Utopia, as a manifestation of individuality, *joie de vivre* and internationalism. The notion that colour might be a substitute for ornament - cheap decoration for the masses - *receded* behind these psychological implications.

The Dutch architects and artists of the De Stijl group were less concerned with aspects of social reform associated with colour. They were far more interested in applying it in the service of Utopian goals. Mondrian declared in 1923 that painting detached from architectural construction (i.e. panel painting) had no further justification. The concept of the equality of architectural surfaces that was so important to De Stijl architects led to the abandonment of the formal idea of a main facade. The combination of white with both bold and *subdued* colours, as employed by Taut in his early garden city project, was also a feature of many Bauhaus buildings. In Weimar, at a time when Gropius and Taut were advocating "colour in building", its use was possible only internally. In Dessau, in contrast, it was used both internally and externally. Today, the *refurbished* master houses provide proof of the lively and varied coloration implemented at that time. A comparison with the Weissenhof Estate demonstrates that the shift to a white aesthetic and the dictum of a "white Modern Movement" are more closely linked with Mies van der Rohe than with the Bauhaus in general. Mies wanted an off-white coloration for Weissenhof, but not all the architects followed his wishes. Le Corbusier, for example, gave detailed instructions for the use of colour in his buildings. His subtle coloration may also be found in the interior of the Villa La Roche in Paris. Nevertheless, the overall impression one has of Weissenhof is of a white *estate*. This, combined with the flat-roofed form of construction, led to the name "Little Jerusalem" which was applied to this scheme in *hostile* right-wing and anti-Semitic circles. To what extent brown and beige dominated the scene in Germany in the years of Nazi rule can be seen in Konrad Gatz's large work "Farbe und malerischer Schmuck am Bau", published in Munich in 1940. The book shows that colour design was also of great importance under the National Socialists. Not surprisingly, a reversal took place after the Second World War, when white was again identified with modernity. The exhibition "The International Style", organised in America by Henry-Russell Hitchcock and Philip Johnson in 1932, had an enormous influence on attitudes towards coloration. Although Hitchcock and Johnson drew a distinction between the coloured and white phases of the Modern Movement, they clearly felt no great *attraction* to colour.

In the 1950s, after the years of "brown" politics, the identification of white with purity came *to assume* an important role again. In the early years of the economic recovery and reconstruction of Germany after the war, there was also a new *awareness* of the significance of colour. Heinz Loffelhardt's book "Wie Wohnen", published in 1949, discusses colour in and around the house, making reference to America, which by that time was seen as a model of progress. Loffelhardt's work, which is typical of the spate of literature on this subject in the post-war years, *pleads* for more coloration. The 1950s were, indeed, distinguished by a large number of coloured facades and the use of many different materials in building. On the other hand, the refined quality of white modernism had lost none of its old attraction. Max Bill, a pupil of the Bauhaus in its last phase and the founding rector of the University for Design in Jim, was regarded as a moral authority in questions of style in the young Federal Republic of Germany. He believed that colour had no place in architecture. Just as Henry Ford thought a car could have any colour, as long as it was black, so Bill was in favour of all colours - as long as they were white.

In the 1950s, therefore, the polarity between the refinement of white and the cheapness of coloration that had emerged in the 20s reappeared. From the post-war years down to the present days, advertising and commercial interests have done little to advance the cause of colour. A slogan by facade designer Friedrich Ernst von Garnier may be cited as a case in point: "Friendly colours for a world that is becoming increasingly hard." The use of colour in buildings therewith reduced to a mere finishing coat applied *for the sake of* harmony, as Ulrich Conrads remarked. The return to the coloration in architecture during the period of pop art and postmodernism was loud and clear. People were shocked by the pop colours used in the Markishes Viertel in Berlin in 1968, but it was still possible *to relegate* the scheme to the category of "coloured public housing". The Centre Pompidou, 1977, was a different kettle of fish altogether, a colourful freestanding structure located in the motley grey of Paris. Although it exploited the colours of technical information systems, the Centre Pompidou was set with signal effect in its urban surroundings. After "beton brut" and a *fascination* for graphic structures, it was the new understanding of conservation - and a number of *ebullient* refurbishment schemes - that finally led to the reintroduction of colour in entire streets in Germany.

Although the legendary architectural biennial of 1980 created a feeling that anything was possible, with the increased acceptance of bold coloration and ornament, it took some years before a *heightened* awareness of the

use of colour in building really made it felt. In 1994, Donald Judd argued that colour is in the nature of a material. Today, it is a topic for discussion, but hardly a matter of dispute any more. Buildings by architects like Otto Steidle or Behnish und Partner, who have developed colour designs in collaboration with the artist Erich Wiesner, have long rendered the old dichotomy between material and colour *redundant*: both may coexist in a dialogue with each other.

New technologies and coating methods developed in recent years have allowed the use of new colours in facade and interior design. Examples of this may be found in the work of Matthias Sauerbruch and Louisa Hutton as well as that of Will Alsop. Rendering as an external facade finish is also experiencing something of a renaissance. If one looks at the projects undertaken by the Viennese colour consultant Oskar Putz, who has collaborated with a large number of architects, one sees that a rendered surface can possess a lively texture, which can, in turn, act as a screen for coloured projections - with different daylight conditions creating constantly changing impressions. Nowhere is this more *apparent* than in the Megaplex cinema in Vienna, on which Oskar Putz worked with Rudiger Lainer. The concept of cinema is illustrated through the projection of coloured light from outside - through windowpanes of different tones - on to the internal wall opposite; and conversely through coloured light radiating out at night. As one sees in the spatial installations of artists like Dan Flavin and James Turret, the theoretical discussion of space versus surface has been resolved. As a result, it has been possible to realise an idea formulated by Theo van Doesburg in 1928 and the dream of many artists; namely, to set people within a painting instead of in front of it.

Vocabulary List

– *motley* – разноцветный, пестрый
– *perception* – восприятие, ощущение
– *to juxtapose* – сравнивать, сопоставлять
– *purity* – чистота
– *to evoke* – вызывать (воспоминание, восхищение)
– *gaudy* – яркий, кричащий, безвкусный
– *harsh* – грубый, жесткий
– *refinement* – утонченность, изящество
– *joie de vivre* (франц.) – радость жизни
– *to recede* – отступать, удаляться, отказываться
– *subdued* – приглушенный, смягченный
– *refurbished* – заново отремонтированный
– *an estate* – имение, собственность, имущество
– *hostile* – враждебный, неприятельский
– *attraction* – привлекательность, прелесть
– *to assume* – принимать, брать на себя
– *awareness* – осведомленность, информированность
– *to plead* – обращаться с просьбой, ходатайствовать
– *for the sake of* – ради
– *to relegate* – относить к, классифицировать, передавать
– *fascination* –очарование, обаяние, прелесть
– *ebullient* – кипящий, полный энтузиазма
– *to heighten* – повышать(ся), увеличивать(ся)
– *redundant* – избыточный, излишний, обильный
– *apparent* – видимый, очевидный, явный

📖 **Answer the following questions.**

1. After the First World War white became the preferred colour of the middle classes, didn't it?
2. What is the difference between the use of colour in Weimar and in Dessau?
3. In Germany in the years of Nazi brown and beige dominated, didn't they?
4. Which country was the model of progress in the 1950s?
5. How can you explain Theo van Doesburg's idea "to set people within a painting instead of in front of it"?

📖 **Give synonyms.**

A discourse, a reform, a wish, hard, a scheme, to create, an ornament, recent, a windowpane.

📖 **Make the written translation of the second paragraph of the text.**

📖 **True or false?**

1. At the beginning of the 20th century colour expressed an architect's philosophy of life.
2. In architecture colour concepts are usually directly related to social and political ideas.
3. In Germany the 1950s were distinguished by the domination of white colour.
4. During the period of pop art people were shocked by the great variety of colours in architecture.

Форма и основные функции сослагательного наклонения
(See Grammar Reference)

✎ Use the verbs in the Subjunctive Mood I.

1. You (to speak) better if you (to be) more attentive.
2. If he (to understand) the situation, he (to act) differently.
3. He (to catch) the train if he (to make haste).
4. If I (to be) you, I (to consider) the matter settled.
5. If only he (to be) here, he (can) tell you.
6. If I (to be) in your place, I (to think) as you do.
7. He not (to do) it if you not (to help) him.
8. If he (to be) present, he (may) object.
9. She (to come) to see you if she not (to be tired).
10. If I (to get) the tickets before twelve o'clock, I (to come) straight home.

✎ Use the verbs in the Subjunctive Mood II.

1. I think that if we (to take shelter) under these trees, we not (to get wet).
2. If I (to hesitate) much longer before getting into the water, he not (to let) me swim at all today.
3. If she (to come) earlier, she (to have been able) to see him before he went out.
4. He (to go) for a ride with you, if he (to repair) his bicycle.
5. If a year ago the sailors (to be told) they were to undertake a trip of this sort, they (to be surprised).
6. If he (to be) present, this not (to occur).
7. If the storm not (to rage), the ship (to leave) the harbour last night.
8. If our telephone not (to be) out of order, I (to ring) you up this morning.
9. If you (to come) between two and three yesterday, you (to find) me at home.
10. If I (to have) to carry that heavy box, I (to be) obliged to drop it after five minutes.
11. I (not to go) to sleep over that book if it (not to be) so dull.
12. If I (to know) you (to come), I, of course, (to stay) at home.
13. If anyone (to say) such a thing to me, I (to feel) hurt.
14. We never (to solve) the riddle, if you not (to put) us on the track.

✎ **Translate from Russian into English. Mind the Passive Voice.**

1. Он серьезный человек. На него всегда можно положиться.
2. За старой женщиной ухаживает ее младшая дочь.
3. На вечере нам показали прекрасный фильм.
4. В дом попала молния.
5. С ним необходимо немедленно поговорить по этому вопросу.
6. Вам могут задать вопрос по домашнему чтению на экзамене.
7. Ей было дано задание составить список участников концерта.
8. Речь была заслушана с большим вниманием.
9. Поход пришлось отложить из-за плохой погоды.
10. Об этой пьесе сейчас много говорят.

11.   Делегацию нужно встретить (по предварительной договоренности) завтра в 9 часов утра в аэропорту.

ГРАММАТИЧЕСКИЙ СПРАВОЧНИК
(GRAMMAR REFERENCE)

Неопределенный и определенный артикли

Неопределенный артикль *a* (*an* – перед существительным, которое начинается с гласного звука: *an apple*) оформляет единичный, отдельный предмет, который мы не выделяем из класса ему подобных:

I saw a man yesterday. – Вчера я видел человека (одного из многих, ему подобных, просто человека).

Определенный артикль *the* выделяет предмет или предметы из класса им подобных:

The man I saw yesterday was your brother. – Человек, которого я встретил вчера, был твоим братом (это – конкретный человек, которого говорящий выделяет из класса ему подобных).

Неопределенный артикль происходит от числительного *one* (один), определенный – от указательного местоимения *that* (тот). Данные принципиальные различия уточняются в более частных случаях употребления определенного и неопределенного артиклей.

Неопределенный артикль не употребляется:

а) с неисчисляемыми и "абстрактными" существительными: *I like cheese and milk.*

б) с существительными во множественном числе: *There are people in the street.*

в) с именами собственными: *I spoke with John about it.*

г) с существительными, перед которыми стоят притяжательные или указательные местоимения: *I saw his car near my house.*

д) с существительными, за которым следует количественное числительное, обозначающее номер: *Mary lives in apartment seven.*

Определенный артикль употребляется:

а) когда говорящему и слушающему известно (из контекста, из окружающей обстановки и т.д.) о каком предмете (предметах, явлении) идет речь:

Open the window, please. I am going to the library.

б) когда речь идет об уникальном, единственном в своем роде предмете или явлении: *The sun is shining brightly.*

в) когда существительное имеет ограничивающее определение, чаще всего с предлогом *of*: *I don't know the name of the street.*

С географическими названиями, как и с прочими собственными именами, артикль, как правило, не употребляется, кроме следующих случаев:

а) с названиями океанов, морей, рек, горных хребтов, групп островов используется определенный артикль:

the Black Sea, the Thames, the Alps, the Pacific Ocean.

б) определенный артикль используется с несколькими названиями городов, стран и областей (хотя обычно с этими типами названий артикль не используется):

the Hague, the Netherlands, the West Indies, the Ruhr, the Rivera, the Crimea, the Ukraine, the Caucasus, the Congo.

в) определенный артикль используется с образованиями типа: *the United States of America, the United Kingdom, the Russian Federation.*

Множественное число имени существительного

Множественное число существительных (кроме тех, у которых основа оканчивается на *-ch, -s, -ss, -sh, -x*) образуется путем прибавления к основе окончания *-s: a boy - boys, a trick - tricks, a pen - pens, a girl - girls.*

Множественное число существительных, основа которых оканчивается на *-ch, -s, -ss, -sh, -x,* а также существительных, имеющих, как правило, окончание *-o,* образуется путем прибавления к основе окончания *-es: a bench - benches, a bus - buses, a glass - glasses, a box - boxes, a potato -potatoes.*

Существительные, оканчивающиеся на *-y* (после согласной) во множественном числе имеют окончание *-ies: an army - armies, a fly - flies, a lady - ladies.*

Конечное *-f (-fe),* как правило, меняется на *-ves: a calf- calves, a knife - knives, a shelf - shelves, a wife - wives.*

Ряд существительных образует множественное число не по общим правилам:

а) изменяется корневая гласная:

a man - men
a woman - women
a foot -feet
a tooth - teeth
a goose - geese
a mouse - mice
a louse - lice;
б) добавляется окончание *-en:*
an ox - oxen
a child - children;
в) заимствуются формы единственного и множественного числа из латинского и греческого языков:
a formula -formulae (formulas)
a crisis - crises
a criterion - criteria
an index - indices
a bacterium - bacteria.

Есть в английском языке существительные, которые имеют одну (общую) форму для единственного и множественного числа:
a deer (олень) - *deer* (олени)
a sheep (овца) - *sheep* (овцы)
a fish (рыба) - *fish* (рыбы).

Некоторые существительные имеют только единственное число: *advice, information, news, knowledge, furniture, luggage.* Некоторые - только множественное число: *clothes, damages, goods, looks, riches, manners, thanks.*

Типы вопросов в английском языке

Основные типы вопросов, используемых в английском языке:
– общий,
– специальный,
– альтернативный,
– разделительный.

1. Общий вопрос относится ко всему предложению в целом, и ответом на него будут слова *yes* или *no:*
– *Do you like cheese? – Yes, I do.*
– *Are you a schoolboy? – No, I am not.*
– *Have you seen this film? – Yes, I have.*
– *Can you speak French? – No, I cannot.*
Порядок слов в общем вопросе:
1) вспомогательный (модальный, глагол-связка) глагол,
2) подлежащее (существительное или местоимение),
3) смысловой глагол (или дополнение).

2. Специальный вопрос относится к какому-нибудь члену предложения или их группе и требует конкретного ответа: *What is your name? – My name is Jim. – Where do you live? – I live in London.*
Порядок слов в специальном вопросе:
1) вопросительное слово (*what, where, who, when, how* и т.д.),
2) вспомогательный (модальный, глагол-связка) глагол,
3) подлежащее,
4) смысловой глагол,
5) дополнения, обстоятельства.

Обратите внимание: в специальных вопросах, обращенных к подлежащему в формах *Present* и *Past Indefinite,* не употребляется вспомогательный глагол *to do (did)* и сохраняется прямой порядок слов: *Who wants to live forever?*

3. Альтернативный вопрос предполагает выбор из двух возможностей: *Do you like coffee or tea?* - Вы любите кофе или чай? Альтернативный вопрос начинается как общий вопрос, затем следует разделительный союз *or* и вторая часть вопроса.

4. Разделительный вопрос (*Tail Question*) состоит из двух частей. Первая часть представляет собой повествовательное предложение, вторая, отделенная от первой запятой – краткий вопрос (*tail* – "хвостик"): *You like tea with sugar, don't you?* - Вы любите чай с сахаром, не так ли?

Обратите внимание: глагол во второй части разделительного вопроса должен, как правило, соответствовать глаголу в первой его части:

You area student, aren't you?

You have a brother, haven't you?

You like cheese (play football, drink water и т.д.)*, don't you?*

(В последнем случае глагол *to do* будет использоваться со всеми глаголами, по отношению к которым он будет вспомогательным).

Если в повествовательной части разделительного вопроса содержится утверждение, то во второй – отрицание. Если в повествовательной части - отрицание, то во второй части, как правило, утверждение:

You don't like fish and chips, do you?

Зная основные типы вопросов и способы их построения, Вы без труда сумеете получить большое количество разнотипных вопросов даже на небольшом по объему материале. Главное, что нужно усвоить: вопросы задаются не к конкретным словам и членам предложения, а с учетом значений, которые заключены в этих словах и членах предложения.

Например, если Вы хотите построить вопрос к словам *in a fortnight* в предложении: *The work is so difficult that we can't finish it in a fortnight.* – Работа столь сложна, что мы не сможем ее выполнить за две недели, то лучше использовать хорошо известную Вам конструкцию *How long will it take us...* (чем, во что бы то ни стало, пытаться основать вопрос на указанных выше словах): *How long will it take us to finish the work?*

Если Вам необходимо составить вопрос к слову *difficult,* то и здесь лучше отвлечься от конкретной конструкции, данной в предложении и, поразмышляв, вспомнить формулу *What sort of work...* Адаптировав ее максимально к смыслу ситуации, Вы сможете построить такой вопрос:

What sort of work are we given?

Не страшно при этом, что часть информации *(...we can't finish it in a fortnight)* "выпадет" за рамки вопроса – гораздо ценнее будет то, что вопрос построен на основе хорошей разговорной конструкции, что он демонстрирует Ваше умение свободно распоряжаться материалом.

Пользуясь этой свободой, можно построить большое количество разнотипных вопросов даже на основе одного предложения. Например:

She made up the fire with a few logs of wood and lay back in the rocking chair.

Общий вопрос:

Did she make up the fire with a few logs of wood? Did she lie back in the rocking chair?

Альтернативный вопрос:

Did she make up the fire or the bed? (А почему бы и нет? Грамматически вопрос точен.) *Did she make up the fire with wood or with coal? Did she lie back in the chair or on the sofa?*

Разделительный вопрос:

She made up the fire, didn't she?

Итого: основываясь только на трех из четырех типов вопросов, мы уже построили 6 примеров. А впереди - общие вопросы, где возможности еще больше:

1. *Who made up the fire with a few logs of wood?*
2. *Who lies back in the rocking chair?*
3. *What did she make up with a few logs of wood?*
4. *What did she do before lying in the rocking chair?*
5. *How much wood did it take her to make up the fire?*
6. *What did she make up the fire with?*
7. *Where did she lie after making up the fire?*
8. *What sort of a chair did she lie in after making up the fire?*

Общий итог: 14 вопросов на основе одного предложения.

Обороты *there is / there are*

Оборот с вводящей конструкцией *there is / there are* служит для выражения наличия (отсутствия) какого-либо предмета, лица или явления в определенном месте или в определенное время. Иными словами, с помощью этого оборота мы локализуем нечто в определенном, чаще всего замкнутом (хотя и не всегда – физическом) пространстве:

There are some people in the room. – В комнате находится несколько людей (некоторое количество людей в замкнутом пространстве комнаты).

There is an idea in my head. – В моей голове, в моем сознании есть некоторая идея (локализованная в пространстве сознания).

Поскольку предмет, который помещен говорящим в некоторое пространство, называется им впервые, с исчисляемыми существительными в единственном числе используется неопределенный артикль; с неисчисляемыми существительными и с исчисляемыми существительными во множественном числе могут использоваться местоимения *some* (в утвердительных) и *any* (в вопросительных и отрицательных предложениях).

Выбор формы глагола *to be* зависит от числа следующего непосредственно за ним существительного:

There is a chair and two armchairs in the room.
There are two armchairs and a chair in the room.
Вопросительные предложения с оборотом *there is / there are* строятся следующим образом:
1. Общий вопрос:
Is there anything in the box?
2. Специальный вопрос:
What is there in the box?
3. Разделительный вопрос:
There are some people in the room, aren't there?

Степени сравнения прилагательных и наречий

1. Односложные (и некоторые двусложные) прилагательные и наречия образуют сравнительную степень путем прибавления суффикса *-er*; превосходную – путем прибавления суффикса *-est:*
high – higher – (the) highest (высокий – более высокий – самый высокий);
big – bigger – (the) biggest (большой – больше – самый большой),
busy – busier – (the) busiest (занятой – более занятой – самый занятой),
hard – harder – (the) hardest (тяжелый – более тяжелый – самый тяжелый).
2. Многосложные прилагательные и наречия, оканчивающиеся на *-ly*, образуют сравнительную степень путем прибавления слов *more (less)*; превосходную – путем прибавления слов *most (least)*:
interesting – more (less) interesting – (the) most (least) interesting;
easily – more (less) easily – (the) most (least) easily.
3. Ряд прилагательных и наречий образуют степени сравнения от разных основ:
good (хороший) – *better* (лучше) – *(the) best* (самый хороший);
bad (плохой) – *worse* (хуже) – *(the) worst* (самый плохой).
Обратите внимание: существительное, определяемое прилагательным в превосходной степени, всегда имеет определенный артикль (все, что находится в превосходной степени, – единственно, уникально).

Неопределенные местоимения *some, any,*
отрицательное местоимение *no* и их производные

Употребление неопределенных местоимений *some* и *any,* а также их производных определяется типом предложения, в котором они фигурируют.

В утвердительном предложении употребляется, как правило, местоимение *some* и его производные:
Give me something to drink, please.
I saw him somewhere, I think.

В вопросительных конструкциях обычно используются местоимение *any* и его производные:
Is there anything I can do for you?
Have you seen him anywhere?

В отрицательных предложениях используется либо местоимение *any* и его производные: *I cannot see him anywhere*; либо отрицательное местоимение *no*: *There is nobody in that room.* (Ср.: *There isn't anybody in that room*).

Различия между местоимениями *any* и *some* – в степени неопределенности, поэтому иногда местоимение *any* можно встретить и в утвердительных предложениях: *You can find this book anywhere.* – Эту книгу вы можете найти где угодно.

Отличие местоимений *little* и *few* и местоименных выражений *a little* и *a few*

Местоимение *little* и местоименное выражение *a little* употребляются с неисчисляемыми существительными, местоимение *few* и местоименное выражение *a few* – с исчисляемыми:

Give me a little milk, please.
There is little water in the bottle.
I have a few friends in Holland.
I've got only few pencils in the box.
Местоимения *few* и *little* означают "мало", местоименные выражения *a few* и *a little* - "немного".

Отличие временных групп *Indefinite, Continuous* и *Perfect*

Глаголы в различных формах времен групп *Indefinite, Continuous* и *Perfect* описывают разные стороны действия:

1. Глаголы в формах *Indefinite* описывают действие как факт – безотносительно к его длительности или его результату:

I go to school every day. – Я хожу в школу каждый день.

В данном высказывании меня интересует не время, потраченное на дорогу, не сам процесс движения, не результат моих походов, а сам факт: я хожу в школу, а не на работу.

I went to school when I was a boy. – Я ходил в школу, когда был мальчиком.

То же самое относится и к прошедшему времени, то же самое - к будущему:

I shall go to school when I grow up. – Я буду ходить в школу, когда вырасту.

2. Глаголы в формах *Continuous* описывают действие как процесс, как длительность – в действительной или подразумеваемой соотнесенности с определённым моментом в прошлом, настоящем ил и будущем:

I am going to school (now). – Я иду в школу (сейчас, в настоящий момент).

I was reading a book yesterday at 5 o'clock. – Я читал книгу вчера в 5 часов.

I will be watching TV tomorrow at 7 o'clock. – Я буду смотреть телевизор завтра в семь часов.

Помимо этой функции, глаголы в *Present Continuous Tense* выражают действие, отнесенное в ближайшее будущее:

We are leaving for America in July. – В июле мы едем в Америку.

3. Глаголы в формах *Perfect* выражают действие завершенное, приведшее к определенному результату (или к отсутствию результата). Можно сказать, что с помощью форм *Perfect* мы подводим итоги определенному периоду времени, определенных действий. Время подведения итогов – либо настоящий момент (*Present Perfect*), либо момент в прошлом (*Past Perfect*), либо – в будущем (*Future Perfect*):

I have written the letter. – Я (только что) написал письмо (передо мной –письмо как результат).

Несоответствие систем русского и английского языков порождает известные проблемы в переводе на английский язык русских предложений типа: *Я написал письмо. Я был в Петербурге.* и т.д. Переводя такие предложения, необходимо уточнить, что имеется в виду: действие как факт, действие как таковое, или – результат того или иного действия:

Я был в Петербурге. – *I was in Petersburg (last Monday)* (точное указание на время пребывания).

Я был в Петербурге. – *I have been to Petersburg* (в моей предшествующей жизни был "опыт" посещения славного города на Неве, и сейчас я мысленно или вслух подвожу итог, несмотря на то, что опыт этот может относиться и к прошлому понедельнику, как в первом примере).

Поэтому вполне реален такой диалог: – *Have you ever been to London? – Yes, I have been there. I was there last week.*

Согласование времен в главном и придаточном предложениях

В английском сложноподчиненном предложении с придаточным дополнительным соблюдаются правила согласования времен в главном и придаточном предложениях. Эти правила сводятся к следующему.

1. Если глагол-сказуемое главного предложения стоит в настоящем или будущем времени, то глагол-сказуемое придаточного дополнительного предложения может стоять в любой временной форме, требуемой смыслом, например:

I think you are right. – Полагаю, ты прав.

Do you know why he was absent yesterday? - Ты знаешь, почему его не было вчера?

2. Если глагол-сказуемое главного предложения стоит в прошедшем времени (обычно – в *Past Indefinite*), то и глагол дополнительного придаточного предложения должен стоять в одном из прошедших времен, в том числе – в будущем с точки зрения прошедшего (*Future in the Past*).

В русском языке такой зависимости нет, поэтому следует обратить особое внимание на данную особенность английского языка, например:

I didn't know he could speak English. – Я не знал, что он говорит по-английски.

I hoped he would come. – Я надеялся, что он придет.

При этом для обозначения действия, одновременного с действием, выраженным сказуемым главного предложения, употребляется *Past Continuous* (в русском языке – настоящее время) или *Past Indefinite*:

He told me he was preparing for his exam. – Он сказал мне, что готовится к экзамену.

Для обозначения действия, предшествующего действию, выраженному сказуемым главного предложения, обычно употребляется *Past Perfect*. На русский язык глагол-сказуемое придаточного в данном случае переводится глаголом в прошедшем времени:

I didn't know he had gone away. – Я не знал, что он ушел.

При указании определенного времени (*in 1970, yesterday*) предшествующее время выражается при помощи *Past Indefinite*. Например:

I thought you were born in 1970.

Для выражения будущего времени с точки зрения прошедшего времени употребляется форма *Future in the Past,* которая на русский язык переводится будущим временем:

He told me that he would meet us at the station. – Он сказал, что встретит нас на станции.

Преобразование прямой речи в косвенную

При пересказе текста, при его реферировании и при целом ряде других видов работ возникает необходимость преобразования прямой речи в речь косвенную: речь персонажа рассказа, диалога, данную в тексте от первого лица, мы должны преобразовать в нашу собственную речь от третьего лица.

Переход от прямой речи к косвенной связан с целым рядом изменений формы высказывания, например: прямая речь, включенная в предложение: *Peter said: "Mother, I'll come home early"*; косвенная речь: *Peter said that he would come home early.*

Обратите внимание: помимо исчезновения кавычек изменилась временная форма глагола-сказуемого (вместо простого будущего *Future Indefinite* появилось будущее время с точки зрения прошедшего *Future in the Past*), место личного местоимения первого лица единственного числа *I* заняло личное местоимение третьего лица единственного числа *he*.

Преобразование прямой речи в косвенную подчиняется следующим правилам:

1. Если в предложении с прямой речью последняя оформляется высказыванием, которое имеет вполне самостоятельное значение, то при преобразовании прямой речи в косвенную оно становится придаточным и вводится союзом *that* или бессоюзно к глаголам сообщения *to say, to tell, to write, to answer, to reply* и др. При этом глагол *to tell* всегда употребляется с косвенным дополнением (*to tell somebody*), а глагол *to say* – с предложным дополнением (*to say to somebody*) или без него: *Peter said that he would come home late. Peter said to his mother that he would come home early. Peter told his mother to leave the door open.*

Глаголы *to answer, to write* обычно употребляются без косвенного или предложного дополнений, например:

The boys answered that they knew nothing about it.

2. При преобразовании прямой речи в косвенную необходимо соблюдать правила согласования времен.

Время глагола прямой речи не изменяется, если глагол, вводящий косвенную речь, стоит в настоящем времени, например: *Yan says: "I am very sorry".* – *Yan says (that) he is very sorry.* Если глагол сообщения стоит в одном из прошедших времен, (обычно в *Past Indefinite*), то глагол косвенной речи тоже

должен употребляться в прошедшем времени. При этом время глагола косвенной речи изменяется по следующей схеме:

Present Indefinite – Past Indefinite,
Present Continuous – Past Continuous,
Present Perfect – Past Perfect,
Past Indefinite – Past Perfect,
Future Indefinite – Future Indefinite in the Past.

Другие времена изменяются аналогичным образом (сдвигаются в направлении прошедшего). В русском языке такого сдвига времени при преобразовании прямой речи в косвенную нет:

Алексей сказал (прошедшее): "Я поеду (будущее) в Москву завтра". – Алексей сказал (прошедшее), что поедет (будущее) в Москву завтра.

3. При преобразовании прямой речи в косвенную изменяются некоторые местоимения и наречия времени и места: *this – that, these – those, here – there, now – then, today – that day, this week – that week, yesterday – the day before, last week (year, night...) – the week (year, night...) before, tomorrow – the next day, next week – the next week.* Например:

He said: "I'll come tomorrow". – He said (told me) he would come the next day.

4. При преобразовании из прямой речи в косвенную в вопросительных предложений соблюдаются общие для данного вида преобразований правила. Кроме этого:

а) при переводе специального вопроса из прямой речи в косвенную восстанавливается прямой порядок слов:

Mary said: "What do you want to do?" – Mary asked what I wanted to do.

При этом вопросительное слово (*what, where, when, who* и т.д.) становится соединительным союзом.

В главном предложения при этом употребляется глагол *to ask.*

б) Общие вопросы вводятся в косвенную речь с помощью союзов *if* или *whether:*

Peter said: "Can you attend evening classes?" – Peter asked me if I could attend evening classes.

в) Наряду с глаголами *to tell, to say, to ask* для введения косвенной речи употребляются многие другие:

to explain – объяснять, *to point out* – указывать, *to inform* – сообщать, *to think* – думать, *to reply* – отвечать, *to boast* – хвастаться, *to warn* – предупреждать, *to protest* – протестовать, *to thank* – благодарить, *to insist* – настаивать, *to declare* – объявлять, *to promise* – обещать.

The doctor says: "You have been working too much." – The doctor thinks that I have been working too much.

Mary said: "You had better stay at home, Nick." – Mary advised Nick to stay at home

Tom said: "I can fix that radio of yours easily." – Tom offered to fix my radio.

г) Просьбы и приказания вводятся такими глаголами, как: *to beg* – просить, умолять; *to request* – просить, запрашивать; *to urge* – понуждать; *to warn* – предупреждать; *to refuse* – отказывать(ся); *to demand* – требовать.

The salesman said: "I strongly recommend you to buy this camera." – The salesman persuaded the customer to buy this camera.

д) Вопросы вводятся глаголами: *to ask* – спрашивать, *to inquire* – спрашивать, запрашивать, *to wonder* – интересоваться, *to want to know* – хотеть знать, *to try to find out* – пытаться выяснить.

John asked: "Have you done the cross-word puzzle yet, Peter?" - John wanted to know if Peter had done the cross-word puzzle.

Рекомендуем: преобразуя прямую речь в косвенную во время пересказа, постарайтесь сделать последнюю как можно более разнообразной – избегайте монотонности в использовании глаголов, вводящих косвенную речь. Например, если в первом случае, переводя в косвенную речь вопрос, Вы используете глагол *to ask: Peter asked me if I would go to Paris*; то во втором – глагол *to wonder* или конструкцию *he wanted to know: Then he wanted to know if I was going to stay there long.*

Придаточные предложения условия и времени, действие которых отнесено к будущему

В придаточных условия и времени с союзами *if* (если), *when* (когда), *after* (после), *before* (перед тем, как), *as soon as* (как только), *unless* (если не), *until* (до тех пор, пока не) будущее время заменяется формой настоящего времени, но на русский язык переводится будущим, например:

If you help me, I shall do this work on time. – Если ты поможешь мне, я сделаю эту работу вовремя.

As soon as I get free, I shall give you a call. – Как только я освобожусь, я вам позвоню.

We shall not sit to dinner until you come. – Мы не сядем обедать, пока ты не придешь.

Обратите внимание: иногда в сложносочиненном предложении словом *when* вводится придаточное дополнительное, а не придаточное времени. В этом случае использование настоящего времени в придаточном будет ошибкой.

В предложении «Она хочет узнать, когда он придет» придаточное отвечает на вопрос «что?», а не «когда?» («Что она хочет узнать?»); поэтому перевод предложения, где присутствует слово *when,* будет звучать: *She wants to know when he will come.*

Формы сложного дополнения *(Complex Object)*

Сложное дополнение (сочетание существительного или местоимения в объектном падеже с инфинитивом или Причастием I) существует в трех основных вариантах:

1. С инфинитивом без частицы *to* или с Причастием I после глаголов:
– *to see: I saw him enter the house. She saw them playing in the garden.*
– *to feel: I felt somebody touch my hand. He felt someone watching him.*
– *to hear: I heard him arrive early in the morning. I heard him playing the piano.*
– *to watch: We watched the ship leave the port. I sit and watch the children playing.*
– *to notice: Nobody noticed him disappear. I noticed her listening to the concert with great pleasure.*

В первом случае (перечисленные глаголы с инфинитивом) говорящий подчеркивает факт действия, во втором (перечисленные глаголы с Причастием I) - процесс:
I saw him enter the house. - Я видел, как он вошел в дом.
I saw him entering the house. - Я видел, как он входил в дом.
2. С инфинитивом без частицы to после глаголов to let, to make:
Let me tell you something about it.
Don't make me laugh.
3. С инфинитивом с частицей *to* после глаголов *to want, to expect, to believe, to know, to advise, to consider, to order, to think, to like, to find* и т.д.:
I want you to find me a place in the car. I believe her to be a very good cook.

Глагольные формы страдательного залога и их функция

Формы страдательного залога английских глаголов образуются с помощью вспомогательного глаголало *to be* в соответствующем времени, лице и числе и Причастия II (*Participle II*) смыслового глагола.
Present Indefinite: The letter is written.
Past Indefinite: The letter was written.
Future Indefinite: The letter will be written.
Present Perfect: The letter has been written.
Past Perfect: The letter had been written.
Future Perfect: The letter will have been written.
Present Continuous: The letter is being written.
Past Continuous: The letter was being written.
Future Continuous: The letter will be being written.

Глагол-сказуемое в страдательном залоге показывает, что подлежащее предложения является объектом действия со стороны другого лица или предмета.
I wrote the letter. - Я написал письмо.
The letter was written (by me). - Письмо было написано (мной).

Основные модальные глаголы и их заменители в английском языке

К основным модальным глаголам относятся следующие:
1. *can* – мочь, быть в состоянии; прошедшее время – *could* (предполагает наличие физической, интеллектуальной и прочих внутренних возможностей, позволяющих исполнить что-либо):
I can speak two languages. – Я могу (я в состоянии) говорить на двух языках.
I could run faster when I was younger. – Я мог (я был в состоянии) бегать быстрее, когда был моложе.

В будущем времени у глагола *can* есть заменитель – конструкция *to be able to* (быть в состоянии что-либо сделать):

I shall be able to call you when I am free. – Я смогу позвонить тебе, когда освобожусь.

2. *may* – иметь возможность, получить разрешение (делать что-либо); прошедшее время – *might*:

– *May I smoke here?* – Можно закурить?

– *Yes, you may.* – Да, можно.

В будущем времени у модального глагола *may* есть заменитель - конструкция *to be allowed to* (получить разрешение сделать что-либо).

3. *must* – должен, обязан.

You must do it now. – Вы должны сделать это сейчас. Заменителями глагола *must* являются глаголы *to have to* и *to be to,* которые, кроме этого, характеризуются некоторыми дополнительными оттенками значения. Глагол *to have to* означает долженствование, вызванное обстоятельствами, в то время как глагол *to be to* – долженствование, связанное расписанием или заранее сделанной договоренностью:

I had to get up early yesterday. – Я вынужден был встать вчера рано.

The train was to arrive at 6 p.m. – Поезд должен был прибыть в 6 пополудни.

Обратите внимание: с глаголами *can, may* и *must* частица *to* не употребляется.

Функции Причастия I (*Participle I*) и Причастия II (*Participle II*)

Причастие I (*Participle I*), образованное при помощи окончания -*ing,* имеет активную и страдательную формы: активная (несовершенный вид) - *asking;* активная (совершенный вид) – *having asked.* Страдательная (несовершенный) – *being asked;* страдательная (совершенный) – *having been asked.* Причастие I употребляется в функции:

1. Определения:

The man standing at the comer is my brother. – Человек, стоящий на углу, – мой брат.

The houses being built in our town are not very high. – Дома, строящиеся в нашем городе, невысоки.

2. Обстоятельства:

Going home I met an old friend. – Идя домой, я встретил старого друга.

Having finished work I went home. – Закончив работу, я пошел домой.

Причастие II всегда пассивно. Образуется оно прибавлением суффикса - *ed* к основе правильного глагола или путем чередования звуков в корне неправильного глагола.

Причастие II употребляется в функции:

1. Определения:

The book translated into English is very long. – Книга, переведенная на английский язык, длинная.

2. Обстоятельства (причины и времени):

Caught red-handed Tom could not deny anything. – Пойманный на месте преступления, Том не мог ничего опровергнуть.

Отличие герундия от причастия I и случаи его употребления

Причастие – неличная форма глагола, промежуточная между глаголом и прилагательным:

The man smoking a pipe is my brother. – Человек, курящий трубку, – мой брат.

Герундий также является неличной формой глагола, но промежуточной между существительным и глаголом:

Smoking is forbidden. – Курение запрещено.

Иными словами, причастие – в большей степени "прилагательное" по своим функциям, герундий – "существительное".

Герундий употребляется:

1) в качестве подлежащего: *Swimming is pleasant;*

2) как часть сказуемого после глаголов *to finish, to start, to continue, to go on, to keep* и др.: *He finished reading the newspaper;*

3) как предложное дополнение: *I am fond of reading;*

4) как прямое дополнение: *Do you mind my smoking here?*

5) как обстоятельство времени: *On coming home I took a bath;*

6) как обстоятельство образа действия: *Instead of going home he went to the movies.*

Случаи употребления активных и пассивных форм герундия

Активная форма герундия: *giving, smoking, beating* и т.д. Пассивная форма герундия: *being given, being beaten* и т.д.

Использование активной формы герундия:

He remembered reading the book spoken about by all. - Он вспомнил, что читал книгу, о которой все говорили.

"Он" (*He*) находится в активной позиции по отношению к книге; "он" (субъект) совершает действие по отношению к объекту (книге), а не наоборот.

Использование пассивной формы герундия:

He didn't remember being knocked down. – Он не помнил, как был сбит с ног.

В пассивной конструкции действие направлено на субъект (подлежащее), и герундий обретает пассивную форму.

Обратите внимание: существует ряд слов, после которых используется активная форма герундия, несмотря на то, что субъект находится в пассивной позиции (не он производит действие, а действие производится по отношению к нему).

Это глаголы: *to want, to need, to deserve, to require,* а также прилагательное *worth.* Например:

This car needs repairing. – Эту машину нужно ремонтировать (действие – ремонт – необходимо совершить по отношению к машине; субъект – машина – находится в пассивной позиции, хотя форма герундия активная).

This film is worth seeing. – Этот фильм стоит того, чтобы его посмотреть (вновь субъект – фильм – находится в пассивной позиции, в то время как форма герундия – активная).

Использование перфектных и неперфектных форм герундия

Неперфектная форма герундия: *giving, sending, forgiving* и т.д. Перфектная форма герундия: *having given, having sent* и т.д.

Перфектная форма герундия в разговорной речи используется достаточно редко – тогда, когда необходимо показать, что действие, им описываемое, предшествует по времени действию в главном предложении, причем это предшествование действительно важно подчеркнуть:

In addition to having sent his partner all necessary documents he telephoned him twice a day.

С рядом глаголов и предлогов в любом случае используется только неперфектная форма герундия – даже в том случае, если крайне важно подчеркнуть предшествование. Это глаголы: *to remember, to excuse, to forgive, to thank,* а также предлоги: *upon, on, after, without.* Например:

He wrote a letter in which he thanked John for giving him a chance to make a photo of that rare bird last Monday. – Он написал письмо, в котором поблагодарил Джона за то, что тот дал ему возможность сделать фотографию этой редкой птицы в прошлый понедельник.

After receiving the telex he started for New York. – После получения телекса он отправился в Нью-Йорк.

Форма и основные функции сослагательного наклонения

Сослагательное наклонение выражает возможность, нереальность, предположительность действия (приводим только наиболее распространенные случаи использования).

1. Чтобы предложение из изъявительного наклонения, относящегося к действию, отнесенному в настоящее или будущее время, преобразовать в сослагательное, необходимо настоящее изъявительное преобразовать в прошедшее, а будущее изъявительное - в будущее с точки зрения прошедшего.

Изъявительное:

If I learn his address I shall write to him. – Если я узнаю его адрес, я ему напишу.

Сослагательное:

If I knew his address I would write to him. – Если бы я знал его адрес (сейчас), я написал бы ему (сейчас или в ближайшем будущем).

2. В случае если действие, описываемое сослагательным наклонением, относится к прошедшему времени, в главном предложении используется форма будущего совершенного с точки зрения прошедшего (*Future Perfect in the Past*), а в придаточном – прошедшее совершенное (*Past Perfect*):

If I had known his address I would have written to him. – Если бы я знал его адрес (в прошлом), я написал бы ему (в прошлом же).

I wish I lived not far from here (настоящее время). – Жаль, что я не живу поблизости.

I wish I had seen this film (прошедшее время). – Жаль, что я не видел этот фильм.

Наиболее употребимые неправильные глаголы

Неопределенная форма	2-я форма	3-я форма
be – быть	*was / were*	*been*
begin – начинать	*began*	*begun*
bring – приносить	*brought*	*brought*
buy – покупать	*bought*	*bought*
come – приходить	*came*	*come*
deal – иметь дело	*dealt*	*dealt*
do –делать	*did*	*done*
drink – пить	*drank*	*drunk*
eat – есть	*ate*	*eaten*
feel – чувствовать	*felt*	*felt*
find –находить	*found*	*found*
get – получать	*got*	*got*
give – давать	*gave*	*given*
go – идти	*went*	*gone*
have – иметь	*had*	*had*
hear –слышать	*heard*	*heard*
know –знать	*knew*	*known*
learn – учить	*learnt*	*learnt*
leave – оставлять	*left*	*left*
lose – терять	*lost*	*lost*
let – позволять	*let*	*let*
lie – лежать	*lay*	*lain*

Продолжение табл.

Неопределенная форма	2-я форма	3-я форма
make – изготовлять	*made*	*made*
meet – встречать	*met*	*met*
pay – платить	*paid*	*paid*
put – класть	*put*	*put*
read – читать	*read*	*read*
run – бежать	*ran*	*run*
see – видеть	*saw*	*seen*
shine – блестеть	*shone*	*shone*
show – показывать	*showed*	*shown*
sit – сидеть	*sat*	*sat*
speak –говорить	*spoke*	*spoken*
swim – плавать	*swam*	*swum*
take – брать	*took*	*taken*
teach – обучать	*taught*	*taught*
tell – сказать	*told*	*told*
think – думать	*thought*	*thought*
understand – понимать	*understood*	*understood*
win – побеждать	*won*	*won*
write – писать	*wrote*	*written*

Значение основных английских предлогов

Предлоги, обозначающие движение:

– *to* – движение по направлению к предмету (лицу), протекающему процессу:

Let's go to Moscow. – Поедем в Москву.

– *from* – движение от предмета (лица), удаление от протекающего процесса:

Take this book from the table. – Убери книгу со стола.

I come from Australia. –Я из Австралии.

– *into* – движение внутрь ограниченного пространства:

Come into the office. – Войдите в офис.

– *out of* – движение из ограниченного пространства:

Take it out of the table. – Достань это из стола.

– *on(to)/ onto* – движение на поверхность:

He stepped onto the platform. – Он сошел на платформу.

– *through* – через, сквозь:

I was passing through the hall. – Я проходил через холл.

Предлоги, обозначающие место:

– *at* – местонахождение у предмета (лица), а также там, где протекает определенный процесс:

I am sitting at the table. – Я сижу у стола.

I work at the factory. – Я работаю на фабрике.

The children are at the lesson. – Дети на уроке.

– *in* – местонахождение внутри ограниченного пространства:

The boss is in the office. – Босс в офисе.

The pencils are in the box. – Карандаши в коробке.

– *on* – местонахождение на поверхности:

The folder is on the desk. – Папка на столе.

– *under* – местонахождение под другим предметом:

The box is under the table. – Ящик под столом.

– *across* – через:

The bank is across the street. – Банк находится через дорогу.

– *above* – местонахождение над другим предметом:

There is a lamp above the table. – Над столом висит лампа.

– *between* – между:

Between you and me. – Между мною и тобой.

– *in front of* – местонахождение предмета (лица) впереди другого предмета (лица):

There is a telephone in front of him. – Перед ним стоит телефон.

– *behind* – местонахождение предмета (лица) позади другого предмета (лица):

My house is behind the post–office. – Мой дом находится позади почты (за почтой).

– *around* – местонахождение одного предмета вокруг другого предмета: *We are sitting around the table.* – Мы сидим вокруг стола.

– *beyond* – по ту сторону:

The city is beyond the mountain. – Город – по ту сторону гор.

– *over* – над, через, сверх:

The book costs over 5 dollars. – Книга стоит больше пяти долларов.

– *near* – вблизи, около, рядом с:

I am sitting near the window. – Я сижу около окна.

– *up* – вверх:

Up the river. – Вверх по реке.

– *down* – вниз:

Down the river. – Вниз по реке.

Предлоги времени:

– *in* – внутри временного отрезка:

in September, in 1997 – в сентябре, в 1997 году.

– *in* – через некоторое время:

in an hour, in two days – через час, через два дня.

– *at* – в (точка во времени):

at 5 o'clock, at midnight – в 6 часов, в полночь.
– *on* – в (с названием дней недели, датами):
on Monday, on the 21st of May – в понедельник, 21 июня.
– *by* – к определенному моменту:
by 5 o'clock tomorrow – к 5–ти часам завтра.
– *from ... till / from ... to* – от … до:
from 5 till 6 o'clock / from 5 to 6 o'clock – с 5–ти до 6–ти.
– *far* – в течение (отрезок времени):
for an hour – в течение часа.
– *during* – во время (чего–либо):
during the meeting – во время встречи.
– *after* – после (чего–либо):
after work – после работы.
– *before* – перед (чем–либо):
before breakfast – перед завтраком.
– *within* – внутри, в рамках:
within a year – в течение года.
Прочие предлоги:
– *by* – при, около, посредством:
by the river, by train – около реки, поездом.
– *with* – с, вместе с:
with a friend – с другом.
– *for* – для:
I do it for you. – Я делаю это для тебя.

Ряд английских предлогов полифункционален, т.е. один и тот же предлог в разных областях применения (движение, место, время) может иметь разные значения:

on Wednesday – в среду
on the table – на столе и т.д.

При выборе предлога нельзя буквально переводить соответствующий русский предлог – это кажущееся соответствие.

Если фразу *"Я работаю на фабрике"* вы переведете, используя перед словом *factory* предлог *on,* то буквально это будет означать: "Я работаю на крыше фабрики".

Правильный вариант: *I work at the factory* (т.е.: "Я принадлежу фабрике как определенной организации, месту, занят в производственном процессе").

FINAL GRAMMAR TEST

✎ Change the Direct Speech into the Indirect Speech

1. She said: "I shall finish my work by the end of this month."
2. He said: "I went to get this book because I have not read it."
3. He said: "I lave spoken to Mr. Brown and he will be here in an hour."
4. She wrote to me: "I am looking forward to your visit."
5. They asked us: "Will you be able to attend our conference this week?"
6. She said to me: "Give me time to think."
7. The teacher asked the new pupil: "What is your name?"
8. The teacher said to the student: "Repeat this story from beginning to end."
9. He said: "The delegation will arrive tomorrow and will be met by our representatives."
10.   He said to me: "Are you familiar with this text? Do you understand every word?"

11.   He asked the girl: "How did you manage to carry that heavy box? Why didn't you ask me to help you?"

12.   She said: "Don't shut the window!"

13.   "What did you say?" asked Oliver.

14.   "Do you know this voice, Oliver?" said Mr. Bumble. "Are you not afraid of it?"

15.   The strange boy asked Oliver: "Are you going to London? Have you any lodgings?"

16.   The teacher said to the students: "Open your exercise-books and write what I am going to dictate to you."

17.   "Return before it gets dark," said his mother.

18.   "I must go home because it is getting late," said she.

19.   "The sailors know the place," said the captain.

20.   "Find the key of the chest, Jim," said my mother.

21.   They asked us: "Will you be able to attend our conference this week and are any of your teachers going to make a report?"

22.   "I haven't yet finished packing," said Mary, "but there is little left to do."

23.   "Two days ago he left Moscow for the South where he is going to spend his vacation," said his sister. "He has not yet written to me but I expect to get a letter from him not later than on Sunday."

24.   "Will you close the window?" she said. "It is too cold today to sit with the window open."

25.   "Can you make your report this week?" asked the teacher. "Have you collected all the necessary material?"

✍ Open the brackets using the Gerund

1. After the accident, the injured man recovered consciousness in hospital. He remembered (cross) the road, but he didn't remember (knock down).

2. I am still thirsty in spite of (drink) four cups of tea.

3. This carpet always looks dirty, in spite of (sweep) every day.

4. He didn't return the book he had borrowed after (promise) to do so.

5. He got into the house by (climb) through a window, without (see) by anyone.

6. I think he was foolish to buy a car before (learn) how to drive it.

7. Peter is a much better chess-player than I am, and he was very surprised when I beat him yesterday for the first time. He isn't used to (beat).

8. He went to bed at 9 p.m. in spite of (sleep) all the afternoon.

9. He complained of (give) a very small room at the back of the hotel.

10.   The little girl isn't afraid of dogs in spite of (bite) twice.

11.   The little girl didn't go near the dog; she was afraid of (bite).

12.   The baby went to sleep a few minutes after (feed).

13.   The little girl never gets tired of (ask) her mother questions, but her mother often gets tired of (ask) so many questions.

14.   They lived in a small town for ten years and then moved without (make) friends with any of their neighbours.

15.   The little boy was punished for (tell) a lie by (send) to bed without his supper.

16.   Mary was chosen a year ago to act in the school play. She was very pleased at (choose).

17.   Jack doesn't like boxing. I don't know if he is afraid of (hurt) his opponent or of (hurt) himself.

18.   He was taken to hospital unconscious after the accident. He died in hospital without (recover) consciousness.

19.   I always treat people politely and I insist on (treat) politely.

20.   The boy was very hungry at eleven o'clock in spite of (eat) a big breakfast two hours earlier.

21.   She didn't get out of bed until ten o'clock in spite of (wake up) at seven.

✍ Use the verbs in the Subjunctive Mood

1. If I had known that you were in hospital I (visit) you.
2. If I (know) that you were coming I'd have baked a cake.
3. If you (arrive) ten minutes earlier you would have got a seat.
4. You would have seen my garden at its best if you (be) here last week.
5. I wouldn't have believed it if I (not see) it with my own eyes.

6. I (offer) to help him if I had realized that he was ill.
7. If I (realize) what a bad driver you were I wouldn't have come with you.
8. If I had realized that the traffic lights were red I (stop).
9. The hens (not get) into the house if you had shut the door.
10. If he had known that the river was dangerous he (not try) to swim across it.
11. If you (speak) more slowly he might have understood you.
12. If he had known the whole story he (not be) so angry.
13. If I (try) again I think that I would have succeeded.
14. You (not get) into trouble if you had obeyed my instructions.
15. If I (be) ready when he called he would have taken me with him.
16. If she had listened to my directions she (not turn) down the wrong street.
17. If you (look) at the engine for a moment you would have seen what was missing.
18. I (take) a taxi if I had realized that it was such a long way.
19. You (save) me a lot of trouble if you had told me where you were going.
20. If you (not sneeze) he wouldn't have known that we were there.
21. If I (see) you in the street yesterday, of course I (say) "Good morning".
22. I'm sorry I threw the newspaper away. I (not throw) it away if I (know) you had wanted it.
23. Why didn't you ask me to help you? Of course I (help) you if you (ask) me to.
24. I'm sorry I couldn't come to the cinema with you last Friday. - I (come) if I (not be) so busy.
25. I (not leave) the office early yesterday if I (not finish) my work.

✎ Use the right tense

1. I (make) cakes for the party all the morning. – How many you (make)? – I (make) 200.
2. That boy (eat) seven ice-creams.
3. What you (do)? – We (pick) apples. – How many you (pick)? – We (pick) ten baskets.
4. What a lovely smell! Mary (make) jam.
5. I (polish) this table all the morning and my mother isn't satisfied with it yet.
6. Why you (be) so long in the garage? – The tyres were flat; I (pump) them up. I (pump) up three tyres. Would you like to do the fourth?
7. You (hear) the news? Tom and Ann are engaged! – That's not new. I (know) it for ages.
8. Peter, you (whisper) to the student on your right for the last five minutes.
9. Why you (make) such a horrible noise? – I (lose) my key and I (try) to wake my wife by throwing stones in her window. – You (throw) stones at the wrong window. You live next door.
10. Why you (not bring) me the letters for signature? You (not type) them yet?
11. I (do) housework all morning and I (not finish) yet. – I (do) mine already. I always start at 6 a.m.
12. She just (sell) two of her own paintings. – She's lucky. I (paint) for five years and I (not sell) a single picture yet.
13. What you (do) with my typewriter? I can't find it anywhere. – Tom just (go) off with it.
14. George (collect) matchboxes ever since he left school. Now he (collect) so many that he doesn't know where to put them.
15. That man (stand) at the bus stop for the last half hour. Shall I tell him that the last bus already (go)?