



# МИНИСТЕРСТВО ОБРАЗОВАНИЯ И НАУКИ РОССИЙСКОЙ ФЕДЕРАЦИИ

Рубцовский индустриальный институт (филиал)  
ФГБОУ ВПО «Алтайский государственный технический университет  
им. И.И. Ползунова»

Кафедра иностранного языка и филологии

И.Н. Языкова

## ENGLISH FOR CONSTRUCTION

### АНГЛИЙСКИЙ ЯЗЫК

Учебное пособие для студентов II курса по направлению подготовки  
«Строительство»

Рубцовск 2013

УДК 802

Языкова И.Н. English for Construction. Английский язык: Учебное пособие для студентов II курса по направлению подготовки «Строительство»/ Рубцовский индустриальный институт. – Рубцовск, 2013. – 136 с.

Цель учебного пособия – обучение студентов II курса технического вуза по направлению подготовки «Строительство» чтению и переводу оригинальной литературы по специальности, а также устному профессиональному общению на иностранном языке.

При отборе текстовых материалов использовались образцы научно-технической литературы по строительству. Тематика текстов ориентирована на возможность осуществлять межпредметные связи в процессе обучения. Набор упражнений к каждому разделу содержит основные лексические и грамматические стереотипы по данному направлению подготовки.

Для активизации профессионального общения каждый раздел пособия содержит соответствующий словарь профессиональных терминов, а также краткий грамматический справочник.

Рассмотрено и одобрено на заседании НМС Рубцовского индустриального института.

Протокол №9 от 19.12.13.

Рецензенты:

к.п.н., доцент кафедры ГД РИИ  
ст. преподаватель кафедры ИЯиФ РИИ

Г.Г. Ханцева  
А.В. Орлов

© Рубцовский индустриальный институт, 2013

## CONTENTS

Preface	5
Unit 1. Proportioning Cement Raw Materials (Part I)	7
Unit 2. Proportioning Cement Raw Materials (Part II)	10
Unit 3. Fineness of Portland Cement	13
Unit 4. Nature of Hardening Processes	16
Unit 5. Types of Concrete Aggregates (Part I)	20
Unit 6. Types of Concrete Aggregates (Part II)	24
Unit 7. Design of Concrete Mixes (Part I)	27
Unit 8. Design of Concrete Mixes (Part II)	31
Unit 9. Formwork	34
Unit 10. Concrete Design (Part I)	39
Unit 11. Concrete Design (Part II)	42
Unit 12. Precast Concrete Products	45
Unit 13. Lightweight Concrete	49
Unit 14. Earthwork Operations	53
Unit 15. The Design of Concrete Pavements (Part I)	57
Unit 16. The Design of Concrete Pavements (Part II)	62
Unit 17. Drainage of City Streets	65
Unit 18. Pavement Crowns, Curbs, and Gutters	70
Unit 19. Small Bridges (Part I)	76
Unit 20. Small Bridges (Part II)	80
Grammar Review	86
§1. Инфинитив в английском языке / The Infinitive	86
§2. Формы инфинитива в английском языке / The Forms of the Infinitive	88
§3. Употребление инфинитива с частицей to и без частицы to / Infinitive with to and without to	90
§4. Конструкция Сложное дополнение / Complex Object	92
§5. Конструкция Сложное подлежащее / Complex Subject	94
§6. Конструкция <i>for-to</i> -инфинитив / For-to-Infinitive	96
§7. Самостоятельный инфинитивный оборот / Absolute Infinitive Construction	97
§8. Причастие в английском языке / The Participle	98
§9. Причастие I / Participle I	98

§10. Причастие II / Participle II	99
§11. Причастие I перфектное / Participle I Perfect	101
§12. Объектная причастная конструкция / The Objective Participial Construction	102
§13. Субъектная причастная конструкция / The Subjective Participial Construction	103
§14. Независимый причастный оборот / The Nominative Absolute Construction	103
§15. Герундий / The Gerund	104
§16. Функции герундия в предложении / Functions of the Gerund	105
§17. Герундий в форме действительного и страдательного залога / Active Gerund / Passive Gerund	106
§18. Герундий в форме Indefinite и Perfect / Indefinite Gerund / Perfect Gerund	108
§19. Использование герундия в различных функциях / The Usage of Gerund in Different Functions	109
§20. Сослагательное наклонение / The Subjunctive Mood	112
§21. Сослагательное наклонение (I тип) / The Subjunctive Mood (I)	114
§22. Сослагательное наклонение (II тип) / The Subjunctive Mood (II)	116
§23. Сложное предложение / The Compound Sentence and the Complex Sentence	118
§24. Типы придаточных предложений / Types of Clauses	119
§25. Английские фразовые глаголы, их значения, примеры использования / Phrasal Verbs	121
Literature	134

## PREFACE

Настоящее учебное пособие «English for Construction» предназначено для студентов 2 курса УГСН 270000 «Архитектура и строительство». Пособие рассчитано на студентов, продолжающих изучать иностранный язык в техническом вузе.

Целью пособия является обучение студентов чтению и переводу оригинальной литературы по специальности (в том числе с использованием словаря), а также устному профессиональному общению на иностранном языке. Для достижения этих целей в пособии предусмотрена регулярная учебная деятельность по изучению словаря активной лексики, включающего терминологию данного направления, а также общетехнического значения.

Каждый раздел пособия содержит тексты разнообразной тематики: Proportioning Cement Raw Materials, Fineness of Portland Cement, Nature of Hardening Processes, Types of Concrete Aggregates, Design of Concrete Mixes, Formwork, Concrete Design, Precast Concrete Products, Lightweight Concrete, Earthwork Operations, The Design of Concrete Pavements, Drainage of City Streets, Pavement Crowns, Curbs, and Gutters, Small Bridges; and others.

Кроме того, каждый раздел пособия имеет многочисленные лексические упражнения. Грамматические упражнения направлены как на повторение грамматического материала, изучающегося студентами на I курсе, так и на изучение более сложного грамматического материала: The Infinitive; The Participle; The Gerund, и др. Основное внимание в разделах пособия уделено формированию и освоению активного словарного минимума, который позволяет извлекать полезные для практики сведения из информативных источников. Разделы предусматривают и задания, направленные на формирование умений устного общения на определенную тему.

Задания на запоминание новых слов и выражений в их английском и русском вариантах способствуют увеличению словарного запаса, а также и тому, чтобы студент мог узнавать их при чтении оригинальной литературы и свободно, в хорошем темпе использовать эти слова и выражения в профессиональном общении в дальнейшем. Задания, построенные в форме вопросов и ответов, служат для контроля и самоконтроля степени усвоения лексики и структур данного раздела, а также могут помочь для составления и воспроизведения диалогов, для проведения ролевых игр и т.д.

Кроме чтения и перевода текстовых материалов разной понятийной и языковой сложности, в число задач каждого раздела входит развитие и углубление навыков устной речи по конкретным темам, выполнение ролевых игр, выступление или сообщение по теме. Специальные задания направлены на активизацию мыслительной деятельности.

Раздел пособия Grammar Review содержит основные грамматические темы, необходимые для изучения на 2 курсе, помогает при выполнении грамматических упражнений, тестов, при формировании правильного высказывания.

Процесс изучения иностранного языка требует постоянной и напряженной работы, он требует преодоления трудностей, большой самостоятельной подготовки. Но процесс этот очень интересный и захватывающий.

Желаем успеха!

## UNIT 1

### **Text: Proportioning Cement Raw Materials**

#### Part I

Every cement plant of necessity consumes raw materials in producing portland cement clinker that differ in some way from those at practically every other plant.

In addition, the manufacturing process, wet or dry, dictates occasional changes in the methods of and computations for maintaining control of the raw mix. As a rule, two or more raw materials are necessary to produce a portland cement clinker.

In a 2-component mix, the amount of computation necessary to establish a properly designed raw mix is minimum. In recent years and due to the many types of cements being produced, 3 and 4 components have become standard practice.

In the dry process, a number of schemes of proportioning the raw materials are applied, e.g., the continuous proportioning method and the two-stage blending operation.

In the first, the crushed raw materials move in separate streams towards a common point, where they are combined into a single stream. This, when reduced to the proper degree of fineness, constitutes the kiln feed.

In the two-stage operation, the material flow is the same as in the first method, except that the silos are emptied or tapped selectively on the basis of chemical composition, and the resulting mixture is conveyed to a second group of proportioning silos where a further degree of blending takes place. This type of operation is generally found in wet process plants.

#### Notes the Text:

to consume	потреблять, расходовать
proportioning	дозировка
clinker	клинкер
computation	расчет, подсчет
to apply	применять
blending	перемешивание
to crush	дробить

to move towards	двигаться по направлению
stream	поток
fineness	тонкость
to constitute	составлять
kiln	обжигательная печь
feed	подача (сырья)
silo	бункер, силос (для хранения цемента)
to empty	выгружать
to tap	выпускать
to convey	передавать, доставлять

### EXERCISES:

#### I. Answer the following questions:

1. How many raw materials are necessary to produce a Portland cement clinker?
2. What schemes of proportioning the raw materials are applied in the dry process?
3. What is the continuous proportioning method?
4. What is the two- stage blending operation?
5. Which type of operation is generally found in wet process plant?

#### II. Complete the sentences:

- |   |   |
|---|---|
| 1. Every cement plant ...   | a. towards a common point.                                      |
| 2. Two or more raw materials are necessary ...                              | b. three and four components have become standard practice.     |
| 3. The crushed raw materials move in separate streams ...                   | c. chemical composition.  |
| 4. The silos are emptied or tapped selectively on the basis of ...          | d. consumes raw materials in producing portland cement clinker. |
| 5. In recent years and due to the many types of cements being produced, ... | e. to produce a portland cement clinker.                        |



### III. Find the equivalents in Russian:

- |                  |                       |
|------------------|-----------------------|
| 1. to convey     | a) составлять         |
| 2. blending      | b) подача             |
| 3. to tap        | c) применять          |
| 4. feed          | d) тонкость           |
| 5. to constitute | e) дробить            |
| 6. stream        | f) обжигательная печь |
| 7. to apply      | g) доставлять         |
| 8. kiln          | h) поток              |
| 9. fineness      | i) перемешивание      |
| 10. to crush     | j) выпускать          |

### IV. Translate the following sentences into Russian:

1. The chemistry of portland cement is very complicated.
2. Besides the chemical composition, the other dominant factor affecting cement properties is fineness of grinding (помол)
3. We need two or more raw materials to produce a portland cement clinker.
4. In recent years and due to the many types of cements three and four components are used.
5. In the dry process a number of schemes of proportioning the raw materials are applied.

### V. Make the nouns by adding -ing. Translate into Russian:

- to produce – producing
- to blend
- to feed
- to blast
- to determine
- to enter
- to drill
- to harden

## UNIT 2

### Text: Proportioning Cement Raw Materials

#### Part II

In the wet process the most important single factor in determining the type of proportioning scheme is the nature of the basic raw materials as received.

In a 4-component mix, the limestone, shale or clay, iron, and sand may be proportioned, by weight, through a series of hoppers and ground with water to the desired fineness. Clay, being more or less colloidal, is mixed with water, and is then proportioned to the limestone, iron, and sand before entering the preliminary or secondary mills.

The ground mixture is then pumped to slurry tanks where it may be held for further proportioning by the two-stage process, or corrections and additions may be made at this point and the material pumped to the kilns.

Slurries of limestone and shale contain from 32 to 40% water and those of limestone and clay as high as 55%. The blending of materials of this nature is more easily accomplished than if they were in the dry state and usually as in the dry process, a series of blending slurry tanks are used to provide a properly proportioned raw mix.

#### Notes to the Text:

to receive	получать, принимать
limestone	известняк
shale	сланец
hopper	воронка, ковш, бункер (загрузочный)
mill	мельница, дробилка
ground	молотый
to pump	качать, накачивать
slurry tank	шлам-бассейн (шламовый отстойник)
to accomplish	выполнять, достигать
to provide	обеспечивать

## EXERCISES:

### I. Answer the following questions:

1. What is the most important factor in determining the type of proportioning scheme in the wet process?
2. What materials are used in a 4-component mix?
3. How may this 4-component mix be proportioned?
4. How many per cent of water do slurries of limestone contain?
5. How many per cent of water do slurries of limestone and clay contain?

### II. Arrange the following words in alphabetical order. Translate them into Russian:

cement, clinker, changes, computations, control, components, chemical, convey, clay, corrections, contain, colloidal, crush.

### III. Translate into English:

1. Каждый цементный завод потребляет сырьевые материалы для производства цементного клинкера.
2. Для производства цементного клинкера необходимо два и более сырьевых материалов.
3. В последнее время для производства клинкера используется три или четыре компонента.
4. Раздробленные сырьевые материалы движутся отдельными потоками к общей точке, где они соединяются в единый поток.
5. Для 4-составной смеси мы используем известняк, сланец или глину, железо и песок.
6. Молотая смесь поступает в шламовые отстойники.

### IV. Read and change the sentences according to the model:

*Model:*     A.: We use four components for this mix.  
              B.: Four components are used for this mix.

1. The workers build a new house in our street.
2. The cement plant consumes raw materials in producing portland cement clinker.
3. We find this type of operation in wet process plants.
4. We use a series of blending slurry tanks to provide a properly proportioned raw mix.

V. Translate the following sentences into Russian and state the form of the Infinitive. Use Grammar Review:

1. I like **to read** books.
2. **To skate** is pleasant.
3. I want **to see** your design.
4. You must **pay** for it.
5. The children like **to be read**.
6. It can **be done**.
7. The mistake must **be found**.
8. I want **to be invited** to the party.
9. I didn't expect **to be invited**.
10. She was glad **to be helped**.
11. We thought him **to be sleeping**.
12. It's nice **to be sitting** here now with you.
13. He seemed **to be thinking**.
14. We knew him **to be working** in his room.
15. He must **be sleeping** now.
16. I was happy **to have received** your letter.
17. You must **have read** this story.
18. He seems **to have come** at home.
19. He should **have helped** her.
20. He was to **have done** it.
21. I hoped **to have found** him at home.
22. I meant **to have phoned** you.
23. She seems **to have been asked** about it.
24. She expected **to have been called**.
25. I hoped **to have been helped**.
26. I know him **to have been learning** French for many years.
27. For the last few days she seemed **to have been talking** to nobody.
28. He seems **to have been writing** this book for two years.

## UNIT 3

### **Text: Fineness of Portland Cement**

For many years, it has been realized that fineness of specific surface is a major factor in the rate of reaction between cement and water, and that this in turn has a definite bearing on many of the qualities of the cement paste, mortar, and concrete. For example, increased fineness increases strength, particularly early strength, decreases bleeding and other types of segregation, decreases autoclave expansion, and increases the workability and cohesiveness of concrete, increases impermeability and resistance to freezing and thawing.

The primary reason for the great interest in the measurement of the fineness of surface area was to predict, during the grinding operation, the strength-producing properties of cement in order to have this information available long before the results of the 28-day strength tests became available. It was realized, of course, that cement composition was also a factor, but since compositions for a given type of cement at any one plant were kept within reasonable limits a true measure of surface area was believed to be the key to accurate strength predictions for a standard cement composition. Hence, accuracy of strength prediction became the criterion for evaluating methods of fineness measurement.

#### Notes to the Text:

rate	степень, скорость
bearing	влияние
mortar	цементный раствор
bleeding	водоотделение
autoclave expansion	автоклавное расширение
workability	удобообрабатываемость
cohesiveness	связность, сцепляемость
impermeability	проницаемость
freezing	замораживание
thawing	оттаивание
evaluating	оценка

## EXERCISES:

### I. Answer the following questions:

1. Is fineness a major factor in the rate reaction between cement and water?
2. Has fineness of portland cement a definite bearing on the qualities of the cement paste, mortar, and concrete?
3. Can you give some examples of bearing fineness on the qualities of the cement paste?
4. What was the reason for the great interest in the measurement of the criterion for evaluating methods of fineness measurement?

### II. Translate the sentences into Russian paying attention to the following prepositions: according to – согласно чему-либо; as far as – до; because of – из-за; by means of – посредством, с помощью; due to – из-за, благодаря; in addition to – в дополнение:

1. According to the information received by us fineness has a definite bearing on many of the qualities of the mortar.
2. The crushed raw materials move in separate streams as far as a common point.
3. The engine didn't operate well because of bad fuel.
4. By means of this method we can now carry out more operations in shorter time.
5. We achieved these results due to increased fineness of specific surface.
6. In addition to the limestone, shale or clay there are iron and sand in this mix.
7. All the computations were made by means of this method.
8. The work is going on according to schedule.
9. In addition to the usual methods of computation they made use of computers.

### III. Translate the following word combinations into Russian:

to contain some per cent water; to consume materials; to differ in some way; to dictate changes; to produce a portland cement clinker; to move towards a common point; to combine into a single stream; to

determine the type of proportioning scheme; to pump to slurry tanks; to increase fineness (strength); to decrease bleeding (autoclave expansion).

IV. Find the equivalents in Russian:

- |                   |                          |
|-------------------|--------------------------|
| 1. freezing       | a) оттаивание            |
| 2. bleeding       | b) сцепляемость          |
| 3. thawing        | c) расширение            |
| 4. workability    | d) проницаемость         |
| 5. cohesiveness   | e) водоотделение         |
| 6. expansion      | f) оценка                |
| 7. impermeability | g) замораживание         |
| 8. evaluating     | h) удобообрабатываемость |

V. Give the derivatives from the following words. Translate them into Russian:

to compute, to apply, to blend, to pump, to react, to freeze, to differ, to dictate, to produce, to combine, to determine, to evaluate, to measure.

VI. Translate the following sentences into Russian and state the function of the Infinitive. Use Grammar Review:

1. **To see** it was interesting.
2. **To have found** our mistake was useful.
3. **To translate** this text is easy.
4. **To have met** him was event in my life.
5. You can **do** it.
6. He must **have gone** away.
7. You needn't **have spoken**.
8. The design can **be completed** next week.
9. The ship was to **be launched** as soon as possible.
10. I cannot **believe** you.
11. You might **have been** wrong.
12. I want **to come**.
13. I like **to dance**.
14. Peter wants **to meet** you.
15. I begin **to find** these tests quite important.

16. This is a good place **to work** in.
17. There are not many people **to believe** this.
18. This is an article **to be translated** into French.
19. This is the problem **to be considered**.
20. This is not the time **to stop** work.
21. There are a few more words **to remember**.
22. I found nothing more **to do**.
23. These are the things **to move** into the next room.
24. The seed **to be weighted** was brought to the station.
25. The teacher gave me a book **to read**.
26. He went home **to rest**.
27. We have been sent here **to study** English.
28. They did this **to save** their friend's life.
29. She opened the door **to look** into the room.
30. I came here **to show** you our design.
31. They went down to the river **to help** us.
32. We remained here **to meet** you.

## UNIT 4

### **Text: Nature of Hardening Processes**

It is common knowledge that water, when added to the Portland cement powder, reacts with the various compounds to form a cementitious paste, which after a period of time sets and hardens to bind the aggregates together as a heterogeneous mass. The precise nature of these reactions and the compounds formed is not so well known and is indeed open to question in some instances.

For many years, two theories for the setting and hardening of portland cement were advocated. The first one, advanced by Le Chatelier in 1882 was called the crystalline theory and ascribes the development of strength of hardened cement paste to the growth of interlocking crystals, as occurs in the setting of plaster of Paris.

The second and more popular theory was first propounded by Michaelis in 1893 and was called the gel theory, or more recently the colloidal theory. In this theory, cement paste was considered to be a supersaturated solution of hydrated compounds, which eventually coagulated to form an amorphous mass called gel. This gel, upon drying,



was believed to harden and shrink, somewhat as glue does, thus binding together the aggregates to make concrete.

Although the actual composition of the hydrated compounds of portland cement is still in doubt, there is ample evidence to show that both the crystalline theory and the gel theory apply, the latter to a greater extent perhaps than the former, and that the degree of application of each depends upon the compound composition of the cement and the temperature of curing of the concrete, particularly during the first 24 hours.

#### Notes to the Text:

cementitious	вяжущий
to set (set, set)	схватываться (о цементе)
to bind (bound, bound)	связывать
aggregate	заполнитель
heterogeneous	разнородный
crystalline	кристаллический
to ascribe to	приписывать (кому-либо, чему-либо)
interlocking	взаимное сцепление
plaster of Paris	гипс
supersaturated solution	перенасыщенный раствор
to coagulate	сгущаться, свертываться
to shrink (shrank, shrunk)	давать усадку, усыхать
to cure	выдерживать (бетон)

#### EXERCISES:

##### I. Answer the following questions:

1. How does water react when added to the Portland cement powder?
2. How many theories for the setting and hardening of portland cement were advocated?
3. Who advanced the crystalline theory?
4. Whom was the gel theory first propounded by?
5. What are the main aspects of this theory?
6. What does the degree of application of each theory depend upon?

II. Translate the sentences into Russian paying attention to the following prepositions: in front of – перед, впереди, напротив; in order to – чтобы, для того чтобы; in spite of – несмотря на; instead of – вместо; on account of – вследствие, из-за; owing to – благодаря, из-за; thanks to – благодаря:

1. The new equipment was used in order to test the vibration of the engine.
2. The bus stop is just in front of my house.
3. I went to the laboratory in order to complete my work.
4. They went on an excursion in spite of bad weather.
5. May I do it instead of you?
6. He was not sent to work in the North on account of his poor health.
7. We could not get there in time owing to a severe storm.
8. The work was finished in time thanks to the energy of builders.
9. Owing to his works not only the problem was solved at last but a new approach to it was introduced.
10. Who is sitting in front of you?
11. He left in spite of all my protests.
12. In order to protect the surface from heat and cold it was covered with special substance.
13. The monument was restored in spite of many difficulties.

III. Translate the following word combinations into Russian. Make up sentences with some of them:

to react with the various compounds; to form a cementitious paste; to bind the aggregates together; to form an amorphous mass; to harden and shrink as glue does; to make concrete; to depend upon the compound composition of the cement.

IV. Fill in the blanks with the words:

1. Water, when added to the portland cement powder, reacts with the various ... to form a cementitious paste.
2. Cementitious paste sets and hardens to bind the ... together as a heterogeneous mass.
3. Both the crystalline theory and the ... theory are applied.

4. Cement paste has considered to be a supersaturated ... of hydrated compounds in the colloidal theory.
5. The crystalline theory ascribes the development of ... of hardened cement paste to the ... of interlocking crystals.

---

strength, gel, compounds, solution, growth, aggregates

V. Give three forms of the following verbs and translate them:

to shrink, to bind, to set, to freeze, to feed, to thaw, to consume, to crush, to tap.

VI. Choose the correct answer:

1. I am ready ... to you now. (talk; to talk)
2. The train is ... in time. (to arrive; arrive; have arrived)
3. He expects ... a special gift on his birthday. (to be presented; present; to present)
4. He must ... for such an outrageous behavior. (apologize; to apologize; to have apologized)
5. I have ... home by 10 every night. (to be; be)
6. His uncle seems ... the walls at the moment. (to be painted; to be painting; to paint)
7. We should ... about it one more time. (to have thought; to think; think)
8. She returned to his office ... for some extra money. (to ask; to be asking; to have asked)
9. You ought ... things which you borrowed. (return; to return)
10. You'd better ... a sleep. (have; have had; to have)
11. He used ... tennis. (play; to play)
12. He made me ... the message. (to repeat; repeat; have repeated)
13. I'd rather ... home than ... any other minute here. (go / stay; go / to stay; to go / to stay)
14. I wish I could ... to London. (to move; to have moved; move)
15. Why not ... people about it? (to tell; to have told; tell)
16. I would like ... to London. (to have moved; move; to move)
17. They expect the doctor ... in the evening. (to come; come; to have come)

18. I would prefer ... a bike rather than ... on foot. (ride / to go; to ride / go; to ride / to go)
19. I suggest you ... the homework. (do; to have done; to do)
20. Let them ... .(go; to go)
21. She made me ... the room. (to clean; clean)
22. I saw her ... the road. (cross; to cross)
23. He was seen ... the house. (leave; to leave)

## UNIT 5

### Concrete

#### **Text: Types of Concrete Aggregates**

##### Part I

Natural Sands and Gravels. Natural sands and gravels constitute the most commonly used class of materials for concrete aggregates because of their wide distribution and availability throughout most regions and because usually they can be exploited economically. Sand and gravel deposits occur in a variety of forms depending upon the original process of deposition.

Generally, natural sand and gravels are composed of well-rounded particles and therefore make fairly workable concrete mixes with minimum cement and water requirements. Natural aggregate deposits are frequently quite variable as to grading and contain an excess of some particle sizes and deficiencies of others. For these reasons it is impossible to produce uniform concrete from pit-run sands and gravels, and, in order to obtain uniform aggregate from natural deposits, washing, screening, classification, crushing, and separation into size fractions is required.

Crushed Stone and Manufactured Sand. Crushed aggregates are produced by breaking down the natural bedrocks into satisfactorily graded particles through a series of blasting, crushing, rolling, milling, screening, and classifying operations.

The ease with which bedrock can be converted to concrete aggregates depends upon its mineral composition, its internal structure, the degree of fracturing, character of the bedding, and hardness. Generally, manufactured aggregates result in harsher concrete mixes and require more

cement and water for a given quality of concrete as measured by water-cement ratio than natural aggregates. To offset this, concretes made with manufactured aggregates usually develop higher strength and frequently a higher degree of resistance to freezing and thawing than natural aggregate concretes of the same water-cement ratio.

#### Notes to the Text:

gravel	гравий	
deposit	месторождение, залежь	
grading	нивелирование,	выравнивание,
	сортировка по крупности	
excess	излишек	
deficiency	недостаток, дефицит	
uniform	однородный бетон	
pit-run sand	карьерный песок	
washing	промывка, очистка	
screening	просеивание, фильтрование	
crushing	дробление	
fraction	частица	
to break down	сломать, разрушить	
bedrock	скальное основание	
blasting	взрывные работы	
rolling	укатка	
milling	измельчение	
ease	легкость	
fracturing	образование трещин	
bedding	напластование	
harsh	жесткий, шероховатый	

#### EXERCISES:

##### I. Answer the following questions:

1. Why do natural sands and gravels constitute the most commonly used class of materials for concrete aggregates?
2. Why do natural sand and gravels make fairly workable concrete mixes with minimum cement and water requirements?

3. Is it possible to produce uniform concrete from pit-run sands and gravels?
4. What is required for obtaining uniform aggregate from natural deposits?
5. How are crushed aggregates produced?
6. What does the ease with which bedrock can be converted to concrete aggregates depend upon?

II. Translate the following sentences paying attention to the construction “there + to be”:

1. There were some cracks in the structure.
2. There are no sand and gravel deposits in this place.
3. There is a great number of goods that can be transported by air.
4. There is no fear of damaging the machine if it is properly maintained.
5. There was no possibility to produce uniform concrete from pit-run sands and gravels without washing, screening, classification, crushing.
6. There are very powerful types of equipment for breaking down the natural bedrocks into satisfactorily graded particles.
7. There were a series of blasting, crushing, rolling, milling, screening and classifying operations before producing crushed aggregates.
8. There are some factories to be rebuilt in this region.
9. Is there any demand for the tubes of that size?
10. There are always some problems to be solved.

III. Give English equivalent to the following words and word combinations:

наиболее часто используемые материалы; разнообразие форм; более высокая степень сопротивляемости к замораживанию и оттаиванию; получать однородный бетон; взрывные работы; заполнители бетона; широкое распространение; карьерный песок; скальное основание; очистка; измельчение; просеивание.

IV. Translate the sentences paying attention to the meanings of the verbs depending on postposition:

to pay attention to                      обращать внимание на

to listen to	слушать что-либо
to take care of	заботиться о ком-либо
to send for	посылать за
to refer to	ссылаться на
to wait for	ждать кого-либо
to work at	работать над
to look at	смотреть на
to look for	искать что-либо, кого-либо
to look after	присматривать
to look through	просматривать

1. He looked through the morning newspapers at breakfast.
2. He was listened to with great interest.
3. The documents were sent for a week ago.
4. She looked after her little sister when her parents were absent.
5. This problem is much spoken about.
6. The paper was looked for everywhere.
7. Her children will be taken care of.
8. You are always waited for.
9. The picture was attentively looked at.
10. This method is often referred to.
11. The work of this student was paid attention to.
12. This operation was carefully worked at.

V. Make the following sentences negative:

1. Sand and gravel deposits occur in a variety of forms.
2. Natural sand and gravels are composed of well-rounded particles.
3. Our geologists have found new coal deposits in Siberia.
4. They achieved great success in this branch of technology.

VI. Translate the following sentences into Russian paying attention to Complex Object:

1. We knew **him to have** sent the letter.
2. We found **him to be doing** nothing.
3. We thought **the experiment to have been completed**.
4. Everybody knows **Tsiolkovsky to be** one of the greatest scientists of his time.

5. We know **his discoveries to have produced** great changes in the field of cosmonautics.
6. Our teacher wanted **this work to be done** in time.
7. We want **atomic energy to be used** for peaceful construction.
8. Gravitation makes **water run** down a hill.
9. We saw **the delegation enter** the building of our Institute.
10. We noticed **the temperature fall** very quickly.
11. We heard **him sing**.

VII. Translate the following sentences into Russian paying attention to Complex Subject:

1. **The mistake** is said **to have been found**.
2. **The water** seems **to be boiling**.
3. **They** are known **to have found** a new kind of fuel.
4. **The weather** seems **to become** cooler.
5. **He** was heard **to mention** your name.
6. **He** appears **to be** well, but really he is rather ill.
7. **Glass** is said **to have been invented** 2,000 years ago.
8. **Coal** is known **to play** an important part in the development of all branches of industry.
9. **The students** of our technical higher schools are known **to have** their industrial training in specially equipped laboratories, workshops and enterprises.
10. **Coal** is supposed **to have been used** by Romans.

## UNIT 6

### Text: Types of Concrete Aggregates

#### Part II

Blast-furnace Slag. Originally iron-blast-furnace slag was a waste product, the disposal of which imposed a heavy burden on the iron and steel-producing industry. Slag is now a recognized by-product, commercially produced for various purposes but mainly for concrete aggregates.



Slag has many of the concrete-making characteristics of crushed rock; ordinary slag aggregates are considerably lighter than natural or stone aggregates. By special treatment in the production process, expanded slag is commercially produced for lightweight concrete aggregates.

Lightweight Concrete Aggregates. The economy that can be effected through substantial reduction in the weight of structural concrete and floors has led to the development of lightweight aggregates. Concrete made with such materials also have excellent thermal and acoustical insulating qualities. Lightweight aggregate concretes are particularly advantageous for making masonry blocks and precast concrete units.

Lightweight aggregates are produced from natural sources or are manufactured. Typical natural materials include pumice, volcanic slag (scoria), and volcanic cinders. Expanded shales, clays, slates, and slags are the most common manufactured lightweight aggregates.

Aggregate Grading. The grading of aggregates, from the smallest to the largest particles, is a major factor determining the workability of a concrete mix. Workability in turn controls segregation, bleeding, water and cement requirements, and the handling, placing and finishing characteristics of the mix. All these factors affect the economy, strength, volume change, and durability of the hardened concrete.

#### Notes to the Text:

blast-furnace slag	доменный шлак
iron-blast-furnace slag	металлургический шлак
by-product	побочный продукт
crushed rock	щебень
lightweight concrete aggregates	заполнители для легкого бетона
acoustical insulating qualities	звукоизоляция
masonry	каменная или кирпичная кладка
pumice	пемза
cinder	зола, пепел
handling	погрузка, доставка
structural concrete	строительный бетон
durability	долговечность

## EXERCISES:

### I. Answer the following questions:

1. Is iron-blast-furnace slag a waste product?
2. Are ordinary slag aggregates lighter than natural or stone aggregates?
3. Can the economy be effected through the reduction in the weight of structural concrete?
4. What are lightweight aggregates produced from?
5. What are the most common manufactured lightweight aggregates?
6. What factors affect the economy, strength, volume change, and durability of the hardened concrete?

### II. Use the following sentences in all the forms of the Indefinite tenses:

1. Expanded slag is produced for lightweight concrete aggregates.
2. The new equipment is much spoken about at the plant.
3. Concrete mixes are made with minimum cement and water requirements.

### III. Give English equivalents to the following word combinations:

заполнители для легкого бетона; долговечность и прочность бетона; вулканический шлак; вулканическая зола; отходы производства; побочный продукт; звукоизоляция; применять для различных целей; значительное снижение веса; строительный бетон.

### IV. Translate the following groups of words. Define what parts of speech they are and state the affixation:

industry – industrial – industrialization; science – scientific – scientist; different – to differ – indifferent – differently – indifferently; use – to use – useful – useless – usefulness; application – to apply – applicable; production – to produce – producer – productivity – productive – unproductive; construction – constructor – to construct – constructive.

### V. Translate into English:

1. Песок и гравий – наиболее используемые материалы для заполнителя бетона.
2. Невозможно получить однородный бетон из карьерного песка.
3. Для получения однородного бетона из натуральных материалов необходимо проделать следующие операции: очистку, просеивание, дробление, сортировку по крупности.

## UNIT 7

### **Text: Design of Concrete Mixes**

#### Part I

Concrete mixes are usually designed to meet the following requirements:

1) A minimum compressive strength at 28 days based on the value assumed by the designer of the structure.

2) The provision of adequate workability to obtain full compaction with the compacting equipment available.

3) The mix should be cohesive in order to avoid the possibility of honeycombing, water gain and other troubles associated with segregation.

4) Durability is usually associated with compressive strength: the greater the strength the more durable the concrete. Concrete exposed to frost action should not have a water cement ratio of more than about 0.6.

Methods of proportioning concrete mixes depend, to a large extent, on the quantity of concrete required. On large works all the materials, except the water, may be weighed in large batching plants. Water to be used for making concrete must be reasonably free from deleterious materials such as silt, clay, organic matter and organic acids, alkalies, and other salts.

The mixing of concrete is almost invariably carried out by machine. There are different types of concrete mixers in use, and while their method of operation varies considerably, the following general principles are usually applicable.

1) It is an advantage to feed the cement, sand and coarse aggregate into the mixer simultaneously and in such a manner that the flow of each extends over the same period. The concrete produced is more uniform than

that obtained when the ingredients are introduced one after the other, or in unmatched quantities.

2) The water should enter the mixer at the same time and over the same period as the other materials. With many mixers this is not possible, since the rate of flow is limited. In such cases it is advisable to start the flow of water a little in advance of the other ingredients.

#### Notes to the Text:

to meet requirements	удовлетворять	ТЕХНИЧЕСКИМ
	УСЛОВИЯМ	
compressive strength	прочность на сжатие	
value	значение, величина	
provision	устройство	
compaction	уплотнение	
cohesive	способный к сцеплению, связанный	
honeycombing	образование раковин, пустот	
batching plant	дозатор (бетонной смеси)	
deleterious material	вредный материал	
silt	ил, пыль, шлам	
coarse	грубый, сырой (материал)	

#### EXERCISES:

##### I. Answer the following questions:

1. What requirements should concrete mixes meet?
2. What do the methods of proportioning concrete mixes depend on?
3. Is the mixing of concrete carried out by machine or not?
4. Is there only one type of concrete mixers in use?
5. Why is it important to feed the cement, sand and coarse aggregate into the mixer simultaneously?

##### II. Translate the following word combinations into Russian:

to feed simultaneously; to enter the mixer; to meet requirements; to carry out by machine; to depend on quantity; to obtain full compaction; to avoid the possibility; to be free from deleterious materials; to be based on; to be used for.

III. Fill in the blanks with prepositions: by, from, with, for, of, in order to, on. Translate into Russian:

1. Durability is usually associated ... compressive strength.
2. Methods ... proportioning concrete mixes depend ... the quantity ... concrete required.
3. A minimum compressive strength at 28 days based ... the value assumed ... the designer of the structure.
4. The mix should be cohesive ... avoid the possibility of honeycombing, water gain and other troubles associated ... compressive strength.
5. The mixing ... concrete is almost invariably carried out ... machine.
6. Water to be used ... making concrete must be reasonable free ... deleterious materials.

IV. Choose the correct determiners in following sentences:

1. He doesn't have (many / much) money.
2. We don't need (many / much) time for this operation.
3. I would like (a few / a little) salt on my vegetables.
4. There are (less / fewer) students in this room than in the next room.
5. There is (too much / too many) bad news on television tonight.
6. This is (too many / too much) information to learn.
7. There are (many / much) different types of concrete mixers in use.
8. A (few / little) people left early.
9. Would you like (less / fewer) coffee than this?
10. This method costs (too much / too many).

V. Find the equivalents in Russian:

- |                 |                        |
|-----------------|------------------------|
| 1. provision    | a) технические условия |
| 2. deleterious  | b) уплотнение          |
| 3. honeycombing | c) связанный           |
| 4. requirements | d) сжатие              |
| 5. cohesive     | e) сырой               |
| 6. coarse       | f) образование пустот  |
| 7. compressive  | g) устройство          |
| 8. compaction   | h) вредный             |

VI. Give the derivatives from the following words:

to require; to work; to mix; possible; durable; reason; to differ; to vary; compact; to segregate.

VII. Translate the following sentences into Russian and state the form of the Participle. Use Grammar Review:

1. We saw the **rising** sun.
2. They reached the road **leading** to the city.
3. We saw the sun slowly **rising** in the east.
4. **Rising** slowly, the cloud was covering the sun.
5. **Reading** English books I wrote out new words.
6. **Hearing** his voice she ran to meet him.
7. The woman **waiting** in the car is my neighbour.
8. Can you see the girl **dancing** with your brother?
9. **Being written** in English, the letter was not easy to understand.
10. **Being tired** he went home.
11. The house **being built** in our street is very good.
12. The question **being discussed** now is very important.
13. **Being invited** to the conference he left for London.
14. **Being left** alone, they didn't know what to do.
15. **Having finished** our work, we went home.
16. **Having lost** the key, they couldn't get in.
17. **Having missed** the train he spent the whole night at the station.
18. **Having dressed** he rushed out of the room.
19. **Having finished** school he went to Oxford.
20. **Having been forbidden** to go out, I stayed at home.
21. **Having been shown** the wrong direction he lost his way.
22. **Having been given** the toy the child stopped crying.
23. **Having been invited**, he said he wouldn't come to the party.
24. The **broken** cup was on the floor.
25. The book **taken** from the library was interesting.
26. The room **furnished** rather simply was large enough.
27. The girl **invited** by my friends was charming.
28. The cup **broken** by the boy was on the floor.
29. The telegram **sent** was signed by the director.

## LESSON EIGHT

### **Text: Design of Concrete Mixes**

#### Part II

As we have already read there are different types of concrete mixers in use, and while their method of operation varies considerably, the following general principles are usually applicable. Let's go on discussing them.

3) Mixing should continue until the concrete is of uniform consistency and colour.

4) The mixer should not be loaded beyond its rated capacity. Overloading results in spillage of materials, and less satisfactory mixing, in addition to imposing undue strain on the mechanical parts.

5) The mixer should be set up accurately so that the axis of rotation of the mixer drum, except in the case of the tilting-drum type, is horizontal. Inaccuracy setting may result in poor mixing, or in the case of continuous mixers, too fast or too slow a passage through the mixer drum.

6) For satisfactory performance the mixer should be capable of producing uniform concrete throughout the batch, so that the quantity of the largest size of aggregate at the end of discharge does not differ by more than 20 per cent from that at the beginning of discharge.

7) The speed of the drum should be checked regularly. The lower the "efficiency number", the greater the efficiency of mixing.

8) Some cement mortar from the first batch of concrete mixed is left on the blades and round the drum. In order to avoid difficulties in placing due to shortage of fines an extra 10 per cent each of cement and sand should be added for the first batch.

9) Considerable amount of concrete adhering to the blades or the inner surface of the drum reduce the efficiency of the mixing. Regular cleaning at the end of each spell of mixing is necessary, especially if stiff mixes are in use.

10) Badly worn and bent blades reduce efficiency and should be replaced. Wear of the inlet and discharge chutes eventually results in loss of materials, and should be remedied by suitable repairs.

11) Adherence of cement is reduced by rubbing grease or oil over the mixer after cleaning.

## Notes to the Text:

rated capacity	номинальная или расчетная мощность
overloading	перегрузка
spillage	утечка (материала)
strain	деформация
tilting-drum mixer	бетономешалка с поворотным (или опрокидывающимся) барабаном
discharge	разгрузка
batch	замес, порция
mortar	цементный раствор
blade	лопасть
to adhere	приставать, прилипать
stiff	жесткий
worn	изношенный
bent	изогнутый
chute	желоб
wear	износ
inlet	впускные отверстия
rubbing grease	смазка (против трения)

## EXERCISES:

### I. Answer the following questions:

1. How long should we continue mixing?
2. How does overloading result in materials?
3. What should the speed of the drum be?
4. What should we do in order to avoid difficulties when some cement mortar is left on the blades and round the drum?
5. Is regular cleaning at the end of each spell of mixing necessary?

### II. Choose either the Simple Present or Present Progressive in the following sentences:

1. We usually ... (design) concrete mixes to meet some requirements.
2. We ... (feed) the materials into the mixer now.
3. They ... (study) the methods of proportioning concrete mixes now.



4. Usually they ... (continue) mixing until the concrete is of uniform consistency and colour.
5. Jerry ... (practice) this method every day.
6. The committee members ... (examine) the material now.
7. Jill always ... (help) them to check the speed of the drum.
8. The secretary ... (type) the report now.
9. They ... (drive) to the plant tomorrow.
10. We ... (leave) for the station at nine o'clock.

### III. Complete the sentences:

- |   |   |
|---|---|
| 1. The mixer should not be loaded beyond ...                    | a. spillage of materials, and less satisfactory mixing. |
| 2. The speed of the drum should ...                             | b. efficiency and should be replaced.                   |
| 3. Overloading results in ...                                   | c. its rated capacity.                                  |
| 4. Badly worn and bent blades reduce ...                        | d. is left on the blades and round the drum.            |
| 5. Some cement mortar from the first bath of concrete mixed ... | e. be checked regularly.                                |

### IV. Translate the following word combinations into Russian:

rubbing grease; uniform consistency and colour; rated capacity; spillage of materials; to reduce the efficiency of the mixing; loss of materials; overloading; tilting – drum mixer.

### V. Make up sentences:

1. The mixing, is, machine, of, carried, concrete, out, by.
2. Overloading, spillage, results, of, in, materials.
3. The mixer, set, should, lip, be, accurately.
4. The speed, should, of, be, the, drum, checked, regularly.

### VI. Translate the following sentences into Russian and state the function of the Participle. Use Grammar Review:

1. The street leading to our house is very wide.
2. He is a leading scientist in this field.
3. He is a man liked by everybody.

4. The cars now being produced at our works are very good.
5. The box containing all our things was brought into the room.
6. A boy playing in the garden is my son.
7. I don't know the girl waiting for you.
8. The doctor sent for lived in the next village.
9. The method used proved to be very effective.
10. Knowing these words, you will be able to translate the text.
11. Walking in the park, he met his old friend.
12. Each time telling this story he remembered his old teacher.
13. Having read the article, I do not need it any longer.
14. Having been built two centuries ago, the house has no lift.
15. Being interested in geology, he became a geologist.
16. Having seen this play, we did not go to the theatre yesterday.
17. Having considered this problem, we decided to change the design.
18. They stood talking about the new tools.
19. When taking the decision I made a mistake.
20. While staying in London he met a few useful people.
21. Frightened by the dog, the child began to cry.
22. Pressed for time, I couldn't even have breakfast.
23. The answer of a student was disappointing.
24. He seemed interested.
25. The window remained closed.
26. He was looking at this bird flying in the air.

## UNIT 9

### **Text: Formwork**

The appearance of the concrete surface and the speed with which the construction is done are largely dependent on the use of properly constructed forms arranged in a manner to give the most efficient usage.

General requirements for forms are:

1) That the sheeting should be durable and rigid, and should be braced sufficiently to prevent bulging or twisting.

The sheeting should be thick enough to withstand the pressures of wet concrete, and the edges should be true. Warping can be avoided by using seasoned timber and by careful storage when not in use.

2) The forms and falsework should have sufficient strength to support the loads which they are called upon to carry without undue deflection. The load may, in certain cases, include not only that of the concrete, but also that of men, equipment and materials used in the construction.

3) Forms should be correct to line and adequately braced.

4) The junction between the formwork and any previously laid concrete should be tight in order to avoid any leakage of cement.

5) The joints between the various members should be tight enough to prevent any material leakage of cement mortar, as such leakage causes defects in the appearance of the finished work.

6) Forms and shutters must be of reasonable size and weight for easy handling with the equipment available.

#### Notes to the Text:

sheeting	опалубка
to brace	связывать, придавать жесткость
bulging	выпуклость, вздутие
twisting	перекашивание, коробление
edge	край, кромка
warping	коробление, искривление
seasoned timber	естественно высушенный материал
falsework	опалубка (для укладки бетонной смеси), подмости
forms	рельс-формы (для строительства бетонных дорожных покрытий)
deflection	прогиб
junction	соединение, стык
tight	прочный, плотный
joint	шов
member	строительный элемент
shutter	опалубка

## EXERCISES:

### I. Answer the following questions:

1. What are the appearance of the finished concrete surface and the speed with which the construction is done dependent on?
2. What are general requirements for forms?

### II. Translate the following word combinations in Russian:

to prevent bulging or twisting; to withstand the pressure; to use seasoned timber; careful storage; to support the loads; to avoid any leakage of cement; to prevent any material leakage of cement mortar; to be of reasonable size and weight; general requirements; durable and rigid.

### III. Use either the Simple Past Tense or the Past Progressive in the following sentences:

1. Gene ... (eat) dinner when his friend called.
2. While Maria was cleaning the apartment, her husband ... (go) to the plant.
3. At three o'clock this morning, Eleanor ... (study).
4. When Marie arrived, the Johnsons ... (have) dinner, but they stopped in order to talk to him.
5. When the teacher ... (enter) the room, the students were talking.
6. While Joan was writing the report. Henry ... (look) for more information.
7. At one time, Mr. Roberts ... (own) this building.
8. Jose ... (write) a letter to his family when his pencil ... (break).
9. Mark was driving on Main Street when his car ... (break) down.

### IV. Fill in the blanks with one of the phrases given below:

1. The appearance of the finished concrete surface and the speed with which the construction is done are ... the use of properly constructed forms.
2. The sheeting should be thick enough ... the pressures of wet concrete, and the edges should be true.

3. The forms and falsework should have sufficient strength ... which they are called upon to carry without undue deflection.
4. The junction between the formwork and any previously laid concrete should be tight ... any leakage of cement.

---

in order to avoid, dependent on, to support the loads, to withstand

V. Find the equivalents in Russian:

member	шов
edge	перекашивание
joint	выпуклость
sheeting	соединение
deflection	кромка
bulging	прогиб
junction	строительный элемент
twisting	опалубка

VI. Read and translate the following text without using a dictionary:

### Moving Forms

Moving forms are commonly used for such structures as storage bins and silos, and in certain cases for walls. Either they are made to give lifts of about 2 ft. to 4 ft., or they are constructed to move continuously during concreting, thus avoiding loss of time during stripping and resetting.

Forms for the construction of roads may be either of wood or metal and are used to provide a template by means of which the surface of concrete is screeded to the desired level. If heavy finishing and vibrating machines are used, heavy metal forms are necessary to provide a trade on which the machines can run.

Timber forms should be stout enough to stand up to the pressure of the wet concrete and the lumping or vibration of the tamping beam.

### Notes to the Text:

moving forms	подвижные формы (для бетонных работ)
storage bin	бункер для хранения материалов
stripping	распалубка, открытая разработка

resetting	подрегулировка, перестановка
template (= templet)	опорная каменная плита; подушка в каменной кладке
lumping	образование комьев
tamping beam	трамбующий брус

VII. Answer the following questions:

1. What are moving forms commonly used for?
2. What are forms for the construction of roads made of?

VIII. Translate the following sentences paying attention to:

a) Complex Object with Participle

1. We heard **her saying** these words.
2. I watched **the snow falling**.
3. Let's listen to **John playing** the piano.
4. They watched **the car being pushed** by a group of boys.
5. I saw **you passing** our house.
6. I heard **him coming up** the stairs.
7. I found **the envelopes opened**.
8. I heard my **name pronounced**.
9. I saw **the window broken**.
10. I have **a new house built**.
11. I have **my task done**.
12. I have **my car repaired**.
13. Did you have **your hair cut**?
14. I didn't have **my photo taken**.
15. I want **the letter sent** at once.
16. We want/wish **it done** as fast as possible.

b) Absolute Participle Construction

1. The weather being fine, we went for a walk.
2. My home-task having been done, I went to the cinema.
3. A dark cloud having appeared in the sky, we decided to stay at home.
4. The book being written in English, he read it with the dictionary.
5. The report being written in French, we could not understand a word.

6. Her friends gone, she started to clear the table.
7. The window having been closed, there was very little air in the room.

## UNIT 10

### Reinforcement and Principles of Reinforced

#### **Text: Concrete Design**

#### Part I

The design of various parts of a concrete structure must be related to all the requirements necessary for satisfactory service. In some structures the only consideration may be that the members are capable of carrying the loads imposed. In others there may be a necessity to limit the deflection of certain parts.

The necessity for the use of concrete and steel together arises from the nature of the stresses which may result from loading. These are compressive, tensile and shear stresses and they may occur in different members singly or all together.

Concrete has an adequate compressive strength, but its tensile strength is low. Tests have shown that the tensile strength is, in fact, only one-tenth to one-twentieth of the compressive strength, and for the purposes of reinforced concrete design it is therefore ignored. On the other hand, steel has a high tensile strength, as well as a high compressive strength when adequate lateral support is provided. Suitable combinations of these two materials, therefore, provide resistance to both compressive and tensile stresses.

**Bond and Anchorage.** An efficient bond between the concrete and the reinforcement is very important since the efficient use of combinations of steel and concrete is dependent on the transfer of stresses from the concrete to the steel. The bond stress, or the measure of the effectiveness of the grip between the concrete and the steel, is best defined as the stress at which a very small slip occurs. Bond is due initially to adhesion and frictional resistance, but as soon as slipping begins the adhesion fails and the subsequent bond is due to friction and mechanical resistance.

The development of bond strength is most rapid under moist curing conditions.

## Notes to the Text:

reinforcement	арматура
stress	напряжение
compressive stress	сжимающее напряжение
tensile stress	растягивающее напряжение
shear stress	срезающее напряжение
lateral	боковой
bond	сцепление
bond stress	напряжение сцепления (связи)
anchorage	затяжка
grip	сцепление
slip	скольжение
adhesion	прилипание
frictional resistance	сопротивление трению
moist curing condition	выдерживание бетона во влажных условиях

## EXERCISES:

### I. Answer the following questions:

1. What does the necessity for the use of concrete and steel together arise from?
2. What types of stress do you know?
3. How may they occur?
4. What strength has concrete?
5. What strength has steel?
6. What do combinations of steel and concrete provide?
7. Why is an efficient bond between the concrete and the reinforcement very important?

### II. Fill in the blanks with one of the words given below:

1. The necessity for the use of concrete and steel together arises from the nature of the ... which may result from loading.
2. These are compressive ... and shear stresses.
3. They (stresses) may occur in different ... singly or all together.
4. Steel has a high tensile strength, as well as a high ... strength.



5. Suitable combinations of these two materials (steel and concrete) provide ... to both compressive and tensile stresses.
6. An efficient ... between the concrete and the reinforcement is very important since the efficient use of combinations of steel and concrete is dependent on the transfer of stresses from the concrete to the steel.
7. The development of bond strength is most rapid under moist curing....

---

tensile, compressive, conditions, stresses, members, bond

### III. Supply the Past Perfect or Simple Past in the following sentences:

1. The policemen read the suspect (подозреваемый) rights after he ... (arrest) him.
2. After John ... (wash) his clothes, he began to study.
3. George ... (wait) for one hour before the bus came.
4. Maria ... (enter) the university after she had graduated from the community college.
5. Jeanette ... (wash) the pipettes after she had completed the experiment.
6. Jane sent a letter to her university after she ... (receive) her scholarship check.
7. After the committee members ... (consider) the consequences, they voted on the proposal.
8. The doctor ... (examine) the patient thoroughly before he prescribed the medication.

### IV. Translate the following word combinations into Russian:

to carry the load; to limit the deflection; to arise from the nature; to occur in different members singly or all together; to provide resistance to both compressive and tensile stresses; to transfer stresses from concrete to steel.

### V. Find the equivalents in Russian:

compressive stress  
tensile stress

срезающее напряжение  
сопротивление трению

shear stress  
bond stress  
fractional resistance

напряжение сцепления  
сжимающее напряжение  
растягивающее напряжение

## UNIT 11

### **Text: Concrete Design**

#### Part II

**Fixing Reinforcement.** It is very important that reinforcement should be fixed in the correct position and properly supported to ensure that displacement will not occur when the concrete is placed.

Reinforcement is, in some cases, built up on supporting frames and then hoisted into position in the moulds, the erection being completed after it has been placed in position.

Reinforcing rods are usually held together by soft iron wire ties.

**Yield Point.** The most commonly used reinforcing material is plain mild steel in the form of round bars of a diameter between 3/16 in. and 12 1/2 in. Besides mild steel, medium tensile and high tensile steel are sometimes used.

The common feature of all these steels is that they have a so-called yield point, which can be determined by a tensile test. The characteristic of yielding is that at a certain stress the length of the bar is increased without further increase in the load. During yielding a reorientation of the crystals of the metal takes place, after which the load can be further increased until the bar fails.

#### Notes to the Text:

displacement  
to hoist  
moulds  
reinforcing rod  
yield point  
yielding  
  
mild steel

перемещение, смещение  
поднимать  
формы, опалубка  
арматурный стержень  
предел текучести  
пластичная деформация,  
растекание, оседание  
мягкая сталь

medium tensile steel	сталь средней прочности
high medium steel	высокопрочная сталь
reorientation of crystals (of the steel)	переориентация кристаллов (арматуры)
bar	стержень
tensile test	испытание на растяжение (разрыв)

## EXERCISES:

### I. Answer the following questions:

1. Why is it very important that reinforcement should be fixed in the correct position and properly supported?
2. What is the most commonly used reinforcing material?
3. What other materials are used as reinforcing materials?
4. What is the common feature of all these kinds of steel?
5. What is the characteristic of yielding?

### II. Complete the sentences:

- |  |   |
|--|---|
| 1. It is very important that ...                                 | a) plain mild steel in the form of round bars.  |
| 2. Reinforcing rods are usually ...                              | b) between 3/16 in. and 12 1/2 in.  |
| 3. The most commonly used reinforcing material is ...            | c) are sometimes used.  |
| 4. The diameter of round bars is ...                             | d) at a certain stress the length of the bar is increased without further increase in the load. |
| 5. Besides mild steel, medium tensile and high tensile steel ... | e) held together by soft iron wire ties.  |
| 6. The characteristic of yielding is that ...                    | f) reinforcement should be fixed in the correct position and properly supported.                |

### III. Choose the correct form of the verb in parentheses in the following sentences:

1. The picture of the friends (bring / brings) back many memories.
2. John, along with some friends, (is / are) planning a work.

3. The quality of these materials (is / are) not very good.
4. If the duties of these designers (isn't / aren't) reduced, there will not be enough time to finish the project.
5. Several theories on this subject (have been / has been) proposed.
6. The elevator (work / works) very well.
7. The use of fixing reinforcement (have / has) increased rapidly in recent years.
8. Advertisements on television (is / are) becoming more competitive than ever before.

IV. Translate the following word combinations:

correct position; supporting frames; reinforcing rods; soft iron wire; plain mild steel; medium tensile steel; high tensile steel; yield point; tensile test; the length of the bar; increase in the load; reorientation of the crystals.

V. Make up sentences:

1. Concrete, strength, adequate, has, compressive, an.
2. Reinforcement, on, built, is, up, frames, supporting.
3. The, used, material, most, is, mild, commonly, reinforcing, plain, steel.
4. Reinforcing, usually, by, wire, rods, held, iron, are, together, soft, ties.

VI. Find the equivalents in Russian:

tensile test	стержень
medium tensile steel	высокопрочная сталь
yield point	мягкая сталь
mild steel	испытание на разрыв
high medium steel	сталь средней прочности
bar	предел текучести

VII. Translate into Russian paying attention to the Gerund:

- A: I'm really looking forward to going to New York.  
 B: Are you? I'm not. I can't stand visiting noisy cities.

- A: But New York is wonderful. I love seeing the skyscrapers, the museums, the historical monuments, the Statue of Liberty ...
- B: I hate visiting museums. I'm not looking forward to going at all.
- A: Oh, it's so exciting! I like listening to the sounds of New York – the traffic, the different languages...
- B: The noise! I can tell you, I dislike visiting noisy cities!
- A: Oh, come on! It'll be fun. New York's a great big melting pot of people from all over the world. And the world capital is worth seeing. I want to go to the Big Apple. It's so interesting!

VIII. Insert prepositions into the gaps. Cambridge Advanced Learner's Dictionary may help you at home:

1. The girls **insisted** ... going out with Jenny.
2. I am **looking forward** ... getting married soon.
3. She **concentrated** ... creating the designs and her husband ... packing and merchandising.
4. The stranger **apologized** ... calling late in the evening.
5. It was cool out and Mary **felt** ... staying at home.
6. She often **complains** ... having nightmares.
7. On a hot summer day, who doesn't **think** ... spending the afternoon with a fishing pole?
8. He **was afraid** ... being caught by the police.
9. How many years does it take you to **be good** ... playing the guitar?
10. Have you ever **dreamed** ... starting a business?

## UNIT 12

### Text: Precast Concrete Products

The term “precast concrete product” is used to describe the many types and varieties of concrete unit which are cast in moulds either in a factory or on the site, and are not built into the structure until they have fully hardened.

Precast concrete products may be divided roughly into five groups:

1. Architectural cast stone and other types of ornamental concrete.
2. Concrete steps, paving flags, etc., which have to be wear-resisting. Kerbs may be placed in the same class.

3. Load-bearing structural units, and other concrete units such as lintels, beams, posts, railway-sleepers, pipes, water-tanks, and troughs, the appearance being of secondary importance. Many of these units are prestressed.

4. Roofing tiles, which must be impermeable and weather resistant.

5. Concrete blocks, slabs, and bricks. Air bricks. The main advantages of using precast concrete as against casting in site are:

1. Manufacture is carried out under cover- i.e. independently of the weather.

2. The quality of the concrete, accurate placing of the reinforcement, etc., can be controlled more easily.

3. The time of erection is considerably reduced and the waiting for setting and hardening of concrete on the site is eliminated.

#### Notes to the Text:

precast	сборный (о железобетоне)
to cast (cast, cast)	лить, отливать
mould	изложница, литейная форма
architectural cast stone	бетонный блок для архитектурной отделки
ornamental concrete	декоративный бетон, бетон для облицовки
step	ступень, ступенька
paving flags	дорожные плиты
kerb	бордюр, бордюрный камень
lintel	перемычка окна или дверей
post	столб
railway-sleeper	шпала
water tank	водяной бак
trough	лоток
prestressed	предварительно напряженный
roofing tile	черепица
impermeable	проницаемый
slab	плита (дорожная)

#### EXERCISES:

I. Answer the following questions:

1. How can you explain the term “precast concrete product”?
2. How may precast concrete products be divided?
3. What are the main advantages of using precast concrete as against casting in site?

II. Translate the following word combinations:

to be cast in moulds; precast concrete products; ornamental concrete; architectural cast stone; paving flags; wear-resisting; railway-sleepers; to be impermeable; the main advantages; accurate placing of the reinforcement; the time of erection; setting and hardening of concrete.

III. Choose the correct form of the verb in the following sentences:

1. There (was / were) some people at the site last night.
2. Neither steel nor concrete (is / are) used here.
3. Anything (is / are) better than going to this place tonight.
4. Many of this units (is / are) prestressed.
5. A number of reporters (was / were) at the conference yesterday.
6. Your glasses (was / were) on the bureau last night.
7. The committee (has / have) already reached an agreement.
8. Each student (has / have) answered the first three questions.
9. After she had read the material, the secretary decided that everything (was / were) in order
10. There (has / have) been too many interruptions in this class.

IV. Translate the following sentences into English:

1. Изделия, получаемые из сборного бетона, можно разделить на 5 групп.
2. Бетонные ступеньки и дорожные плиты должны быть износостойкими.
3. Существуют некоторые преимущества в использовании изделий из сборного бетона.
4. Например, производство осуществляется под прикрытием, следовательно, не зависит от погодных условий.
5. Качество бетона можно легко проверить.

V. Find the equivalents in Russian:

slab	бордюр
step	столб
roofing tile	изложница
trough	ступенька
mould	шпала
railway-sleeper	черепица
kerb	плита
post	лоток

VI. Identify the subject, verb, complement and modifier in each of the following sentences. Remember that not every sentence has a complement or modifier:

*Example:*

Jill / is buying / a new house / in the country.  
subject      verb phrase      complement      modifier of place

1. Precast concrete products may be divided into some groups.
2. We need ornamental concrete for different kinds of ornamental work.
3. Harry is controlling the quality of concrete right now.
4. She opened a checking account at the bank last week.

VII. Translate into Russian paying attention to the Gerund:

1. She has always dreamt of living in a small house by the sea.
2. She disliked living in her old house.
3. She was thinking of buying a new one.
4. Now, she enjoys living in a beautiful new house.
5. She misses seeing the neighbours of course.
6. Usually she enjoyed talking to them and didn't mind helping them.
7. She likes cooking and is very good at it.
8. But she doesn't like washing and ironing.
9. She hates getting up early, but she has to.
10. She doesn't mind working a lot, you know.
11. She enjoys driving an expensive car.
12. She has always dreamt of traveling round the world.
13. But she hates flying and she's never been overseas.



14. She has risen to be head of the company in spite of being a woman in a man's world.
15. She loves meeting people because she can't bear being alone.
16. She loves talking to the press and appearing on TV shows.
17. She enjoys being photographed because she thinks she's beautiful.
18. She hates being laughed at.
19. She likes being stared at because she thinks she's attractive.
20. But she hates being ignored.

VIII. Translate into Russian paying attention to different forms of Gerund:

1. The place is worth visiting.
2. Watching football matches may be exciting enough, but of course it is more exciting playing football.
3. She stopped coming to see us, and I wondered what had happened to her.
4. Can you remember having seen the man before?
5. She was terrified of having to speak to anybody, and even more, of being spoken to.
6. He was on the point of leaving the club, as the porter stopped him.
7. After being corrected by the teacher, the students' papers were returned to them.
8. I wondered at my mother's having allowed the journey.
9. I understand perfectly your wishing to start the work at once.
10. Everybody will discuss the event, there is no preventing it.
11. At last he broke the silence by inviting everybody to walk into the dining room.
12. On being told the news, she turned pale.

## UNIT 13

### **Text: Lightweight Concrete**

The density of concrete made of ordinary (heavy) aggregate is about 140 lb. 150 lb. per cu. ft. There are many applications of concrete where great strength is not essential and other properties, like thermal insulation and nail holding, are more important. Ordinary concrete is too hard for nails to be driven in and it is good conductor of heat, or, in other words, it

is inefficient from the point of view of thermal insulation. All these deficiencies can be avoided by the use of lightweight concrete.

We distinguish three main types of lightweight concrete:

1. Lightweight concrete made of lightweight aggregates.
2. No-fines concrete.
3. Aerated or cellular concrete.

The first group is suitable for the most universal application; the third group is more restricted, whereas the use of the second is mainly confined to walls of dwelling-houses not exceeding two storeys and to panel walls in framed buildings. The greatest scope for the use of lightweight concrete is in housing, where no high strength is required and the properties of lightweight concrete are most valuable. The great variation of density from 45 to 120 lb./cu. ft. corresponds to a great variation of strength.

There are various methods of producing lightweight concrete but, they all depend on (1) the presence of air voids in the aggregate, (2) the formation of air voids in the concrete by omitting fine aggregate, or (3) the formation of air voids in a cement paste by the addition of some substance which causes a foam. In some types of lightweight concrete methods (1) and (2) may be combined.

#### Notes to the Text:

lightweight concrete	легкий бетон
nail holding	гвоздимосьть
thermal insulation	термоизоляция, теплоизоляция
lightweight concrete aggregates	заполнители для легкого бетона
no-fines concrete	легкий бетон (без минерального заполнителя)
aerated (= cellular)	пористый бетон
void	пустота, вакуум
foam	пена
density	плотность

#### EXERCISES:

I. Answer the following questions:

1. What is the density of concrete made of ordinary (heavy) aggregate?
2. Are there any applications of concrete where great strength is not essential?
3. What are the deficiencies of ordinary concrete?
4. How can all these deficiencies be avoided?
5. How many types of lightweight concrete do we distinguish?
6. What are they (these types of lightweight concrete)?
7. What is each group of concrete suitable for?
8. Are there various methods of producing lightweight concrete?
9. What do all these methods depend on?

II. Translate the following word combinations into Russian:

the density of concrete; thermal insulation; nail holding; a good conductor of heat; lightweight concrete; lightweight aggregates; aerated or cellular concrete; no-fines concrete; the great variation of density; the presence of air voids in the aggregate; the formation of air voids in the concrete (in the cement paste).

III. Complete the sentences:

- |   |   |
|---|---|
| <ol style="list-style-type: none"> <li>1. There are various methods of producing ...</li> <li>2. The density of concrete is ...</li> <li>3. The methods of producing lightweight concrete depend on ...</li> <li>4. There are many applications of concrete where ...</li> <li>5. Ordinary concrete is ...</li> </ol> | <ol style="list-style-type: none"> <li>a) the presence of air voids in the aggregate, etc.</li> <li>b) great strength is not essential.</li> <li>c) lightweight concrete.</li> <li>d) about 140 lb. 150 lb. per cu. ft.</li> <li>e) too hard for nails to be driven in and it is a good conductor of heat.</li> </ol> |
|---|---|

IV. Choose the correct form of the following sentences:

1. Richard is expecting (us / our) to go to class tomorrow.
2. You shouldn't rely on (him / his) calling you in the morning.
3. They don't approve of (us / our) leaving early.
4. We understand (him / his) having to leave early.
5. They are looking forward to (us / our) visiting them.
6. We understand (you / your) not being able to stay longer.

V. Find the equivalents in Russian:

aerated concrete	пустота
void	гвоздимосьть
density	пористый бетон
nail holding	пена
foam	плотность

VI. Ask questions on all the parts of the following sentences:

1. They have already tested this new method.
2. My friend carries out many interesting experiments in our lab.
3. We distinguish three main types of lightweight concrete.

VII. Write down conditional sentences according to the model. Use Grammar Review if necessary;

**Model:** If you (**to be**) free, I (**to come**) to see you.

If you **are** free, I **shall come** to see you.

If you **were** free, I **should** come to see you.

If you **had been** free, I **should have** come to see you.

If I (**to see**) her, I (**to be**) glad.

If I **see** her, I **shall be** glad.

If I **saw** her, I **should be** glad.

If I **had seen** her, I **should have been** glad.

1. If you (**to be**) busy, I (**to leave**) you alone.
2. If my friend (**to come**) to see me, I (**to be**) very glad.
3. If mother (**to buy**) a cake, we (**to have**) a very nice tea party.
4. If he (**to send**) e-mail, we (**not to worry**).
5. If you (**not to work**) systematically, you (**to fail**) the exam.
6. If I (**to live**) in Moscow, I (**to visit**) the Tretyakov Art Gallery every year.
7. If I (**to get**) a ticket, I (**to go**) to the Philharmonic.
8. If I (**to live**) near a wood, I (**to gather**) a lot of mushrooms.

9. If my father (to return) early, we (to watch) TV together.
10. If she (to know) English, she (to try) to enter the university.

VIII. Write down each sentence using Subjunctive Mood (I type) and Subjunctive Mood (II type):

1. If I am not too busy, I shall go to the concert.
2. They will all be surprised if I make such a mistake.
3. If he doesn't come on time, shall we have to wait for him?
4. If nobody comes to help, we shall be obliged to do the work ourselves.
5. If you put on your glasses, you will see better than now.
6. What shall we do if they are late?
7. Will you be very angry if we don't come?
8. Will he be very displeased if I don't ring him up?

## UNIT 14

### Highway Construction

#### **Text: Earthwork Operations**

Nearly all highway construction jobs, especially these in new locations involve a considerable amount of earthwork.

Basic earthwork operations may be classified as follows: clearing and grubbing; roadway, borrow, structural and several special forms of excavation; the formation of embankments; and finishing operations.

By “clearing” is meant the removal of trees, brush, shrubs, etc. from the designed area, while “grubbing” usually refers to the removal of roots, stumps, and similar obstacles to a nominal depth below the existing ground surface. Frequently clearing and grubbing comprise a single contract item and include the removal of topsoil to a shallow depth. The term “excavation” refers to the removal of earth in its various forms from its natural resting place and for various purposes. Excavated material must generally be transported to a different place, and these earth-moving operations are generally included as a part of excavation.

In modern highway practice earthwork operations are largely accomplished by the use of a large number of highly efficient and versatile

machines. The development and application of such machines in the last two decades has been an outstanding phase of highway progress. Machines have been developed which are capable of efficiently and economically performing every form of earthwork. Some machines are tailored to perform a specific operation or series of operations, while others have a wide variety of uses. The proper selection and efficient use of these machines play an important part in the field of construction.

#### Notes to the Text:

highway	автомобильная дорога, магистраль
earthwork	земляные работы
grubbing	корчевание пней
roadway	дорожное полотно
borrow	резерв (при земляных работах), карьер
excavation	выемка грунта, экскавация
embankment	насыпь, вал
shrub	куст, кустарник
stump	пень
topsoil	естественный оптимальный грунт
shallow	неглубокий
versatile	универсальный, многоцелевой
to tailor	приспосабливать
clearing	корчевание и очистка стройплощадки от кустарника
obstacle	препятствие, помеха

#### EXERCISES:

1. Answer the following questions:

1. How can you classify basic earthwork operation?
2. What do we mean by “clearing”?
3. What is “grubbing”?
4. How can you explain the term “excavation”?
5. Do we use a large number of highly efficient machines in modern highway practice?
6. Do the proper selection and efficient use of these machines play an important part in the field of construction?

II. Translate the following word combinations into English:

земляные работы; местоположение; значительное количество; образование насыпей; очистка стройплощадки; корчевание; перемещение естественного грунта; универсальные машины; эффективное и экономичное выполнение различного вида работ; правильный выбор.

III. Change adjectives to adverbs by adding "-ly" to the adjective base. Translate them into Russian:

<i>Model:</i>	adjectives	adverbs
	bright	brightly
	careful	carefully
	quiet	quietly

*Remember:* an adverb answers the question: How ... ?

usual	high	happy
frequent	efficient	calm
general	economical	quick

IV. Choose the correct form in parentheses:

1. Rita plays the violin (good / well).
2. That is an (intense / intensely) novel.
3. The sun is shining (bright / brightly).
4. The girls speak (fluent / fluently) French.
5. The boys speak Spanish (fluent / fluently).
6. The table has a (smooth / smoothly) surface.
7. We must figure our income tax returns (accurate / accurately).
8. We don't like to drink (bitter / bitterly) tea.
9. The plane will arrive (soon / soonly).
10. He had an accident because he was driving too (fast / fastly).

V. Complete the following sentences:

- |  |  |
|--|--|
| <ol style="list-style-type: none"> <li>1. All highway construction jobs involve ...</li> <li>2. Excavated material must generally be transported to ...</li> <li>3. In modern highway practice earthwork operations are largely accomplished by ...</li> <li>4. Machines have been developed which are capable of ...</li> <li>5. The proper selection and efficient use of these machines play ...</li> </ol> | <ol style="list-style-type: none"> <li>a) the use of a large number of highly efficient and versatile machines.</li> <li>b) a considerable amount of earthwork.</li> <li>c) an important part in the field of construction.</li> <li>d) a different place.</li> <li>e) efficiently and economically performing every form of earthwork.</li> </ol> |
|--|--|

VI. Use the verbs in the appropriate form:

1. If he were not such an outstanding actor, he (not to have) so many admirers.
2. If you (to give) me your address, I shall write you a letter.
3. If my sister does not go to the south, we (to spend) the summer in St. Petersburg together.
4. If they (not to go) to Moscow last year, they would not have heard that famous musician.
5. If you (not to get) tickets for the Philharmonic, we shall stay at home.
6. If you were not so careless about your health, you (to consult) the doctor.
7. I should be delighted if I (to have) such a beautiful fur coat.
8. If it (to rain), we shall have to stay at home.
9. If he (to work) hard, he would have achieved great progress.
10. If it is not too cold, I (not to put) on my coat.
11. I (to write) the essay long ago if you had not disturbed me.
12. If he (not to read) so much, he would not be so clever.
13. If my friend (to be) at home, he will tell us what to do.

VII. Use the verbs in the appropriate form:

1. If you (not to buy) coffee, we shall drink tea.
2. If he is free tomorrow, he certainly (to come) to our party.
3. My brother would not have missed so many lessons if he (not to hurt) his leg.



4. If my friend (to work) in my office, we should meet every day.
5. If you spoke English every day, you (to improve) your language skills.
6. If you get a "five", your mother (to be) happy.
7. If she (to return) earlier, she would have been able to see him before he left.
8. If these shoes were not too big for me, I (to buy) them.
9. If you (to ring) me up, I shall tell you a secret.
10. If you (to be) a poet, you would write beautiful poetry.
11. If he did not read so much, he (not to know) English literature so well.
12. If he (to come) to our house yesterday, he would have met his friend.
13. If he (not to pass) his exam, he will not get a scholarship.
14. If she (not to help) me, I should have been in a very difficult situation.
15. My father would have more free time if he (not to read) so many newspapers.
16. If only you had let me know, I (to go) there immediately.
17. If I were a famous singer, I (to get) a lot of flowers every day.
18. If I (to be) you, I would work hard to pass the exams successfully.

## UNIT 15

### **Text: The Design of Concrete Pavements**

#### Part I

The performance of a concrete pavement for traffic riding purposes not only depends upon the properties and proportioning of materials but also on the underlying subgrade or base course. The design of a concrete pavement, therefore, must involve all physical properties of concrete. Concrete withstands high compression but is low in tension (flexure). Like wood, it expands on wetting and shrinks while drying. With temperature, like other materials it increases or decreases in length. Under some conditions its volume increases with age. A concrete pavement when subject to variations of daily temperature and moisture between the top and the bottom of the slab will have a tendency to warp and curl. Further complications arise when the sub-grade yields partly or wholly or when it

is exposed to the elements. In addition to this, the variation of traffic, impact, static or moving loads, multiple axle load and their frequency and intensity, all these affect the stresses produced in the slab. It, therefore, follows that a rational mathematical analysis of all the above factors in evolving the design of a concrete pavement is not only complicated but also has been impossible till now, as the effect of many of the factors mentioned above has been imperfectly understood. Nevertheless, several theoretical analyses for design have been evolved and have been followed. These formulae consider only some major factors such as load, impact, temperature, friction of subgrade, etc. affecting the stresses in a concrete slab.

The following conclusions have been generally established after a series of theoretical approaches and practical results in concrete pavement design.

1. Cracking due to flexure is almost inevitable in a concrete slab of any great length.

2. For constant loads on slabs of reasonable lengths, load and total stresses decrease as slab thickness increases, that is to say, if the safe working stress were to remain the same, the slab thickness must increase as wheel loads increase.

#### Notes to the Text:

pavement	мостовая, дорожное покрытие, тротуар
traffic riding	дорожное движение
subgrade	грунтовое основание (дороги)
base course	нижний слой дорожного покрытия
flexure	изгиб
tension	растяжение
volume	объем
moisture	влага
to warp	коробиться
to yield	давать осадку
to expose	подвергать действию атмосферных явлений, обнажать
impact	удар, толчок
multiple	многократный
static load	статическая нагрузка
moving load	подвижная нагрузка

axle load	нагрузка на ось
slab	плита (дорожная)
to evolve	развиваться
friction	трение
single loaded slab	дорожная плита с сосредоточенной нагрузкой

## EXERCISES:

### I. Answer the following questions:

1. What does the performance of a concrete pavement depend upon?
2. What must the design of a concrete pavement involve?
3. What are the physical properties of concrete?
4. What conclusion have been established after a series of theoretical approaches and practical results in concrete pavement design?

### II. Translate the following word combinations into Russian:

the performance of a concrete pavement; the properties and proportioning of materials; base course; to withstand high compression; to be low in tension; to increase or decrease in length; to have a tendency to warp; to yield partly or wholly; the variation of loads; the effect of many of the factors; theoretical approaches; single loaded slabs; uniform thickness.

### III. Supply antonyms for the following words:

expand	bottom
increase	dry
partly	static
wet	shrink
top	decrease
moving	wholly

### IV. Fill in the blanks with the pair of words:

1. The performance of a concrete pavement depends upon the ... and ... of materials.

2. Concrete withstands high ... but is low in... .
3. Like wood it expands on ... and shrinks while....
4. With temperature concrete ... or ... in length.
5. A concrete pavement when subject to variations of daily temperature and moisture between the ... and the ... of the slab will have a tendency to ... and... .

warp – curl

top – bottom

increases – decreases

properties – proportioning

wetting – drying

compression – tension

V. Supply “than”, “as” or “from” in each of the sentences. Remember that the opposite of “the same as” is “different from”. Never use “different than”:

1. The Empire State Building is taller ... the Statue of Liberty.
2. California is farther from New York ... Pennsylvania.
3. His assignment is different ... mine.
4. Louie reads more quickly ... his sisters.
5. That report is less impressive ... the government’s.
6. Dave paints much more realistically ... his professor.
7. The twins have less money at the end of the month ... they have at the beginning.
8. Her sport ear is different ... Nancy’s.
9. No animal is so big ... King Kong.

VI. Use the appropriate form of Subjunctive Mood after **I wish**:

1. I wish (to have) a season ticket to the Philharmonic next winter.
2. I wish I (to consult) the teacher when I first felt that mathematics was too difficult for me.
3. I love sunny weather. I wish it (to be) warm and fine all the year round.
4. I wish I (not to lend) Nick my watch: he has broken it.
5. I wish you (to send) word as soon as you arrive.
6. I wish I (not to have) to do my homework every day.
7. I wish you (to go) skiing with me yesterday: I had such a good time!
8. I wish I (to know) Spanish.

9. I wish (not to drink) so much coffee in the evening: I could not sleep half the night.
10. I wish you (to read) more in future.
11. I wish I never (to suggest) this idea.
12. I wish (to be) at yesterday's party: it must have been very merry.
13. I wish we (to meet) again next summer.
14. Don't you wish you (to see) that performance before?
15. They wished they (not to see) this horrible scene again.
16. The unfortunate pupil wished he (not to forget) to learn the rule.

VII. Use the appropriate form of Subjunctive Mood after **I wish**:

1. I wish (can) give up smoking.
2. She wishes she (to see) him at yesterday's party.
3. I wish I (to pass) my driving test last Monday.
4. I wish I (not to forget) my friend's birthday yesterday.
5. The boy is sad. He wishes he (not to break) the window.
6. My aunt wishes she (to stay) at home last weekend.
7. He wishes he (to know) something about cars.
8. I wish it (to be) sunny.
9. I wish it (to be) sunny during our picnic last Saturday.
10. She wishes she (to live) in the Crimea.
11. My friend wishes he (not to do) that last week.
12. I wish (to bring) my camera last summer.
13. I wish I (can) tell the future.
14. Do you wish you (to be) in the Guinness Book of Records?
15. Some people wish they (can) appear on a TV game show and become famous.
16. She often wishes things (to be) different.

VIII. Change the sentences using **I wish** according to the model:

**Model:** It's a pity **you are** ill.  
**I wish you were not** ill.

1. Unfortunately they won't return before Christmas.
2. The student was sorry he had not studied the material better and had shown such poor knowledge at the exam.
3. It's a pity that you did not send for us last night.

4. It's a pity you are not with us these days.
5. What a pity you don't know enough physics.
6. He was sorry not to have had enough time to finish his paper.
7. It's a pity we shan't be able to reach home before tea time.
8. I am sorry I made you upset by telling you this news.
9. My friend regrets not having gone to university.
10. My friend regrets not having entered the university.

## UNIT 16

### **Text: The Design of Concrete Pavements**

#### Part II

For prescribed conditions of single loaded slabs of uniform thickness, the maximum unit stress occurs at the corners or edges of the slabs rather than in the interiors. Stress reduction at free edges can also be gained by having thickened edges but this practice is less common now, because of its constructional difficulty and relative increase in stresses due to temperature at the thickened portion.

**Reinforcement.** The provision of reinforcement in a concrete pavement is designed to hold cracks that develop due to flexural stresses as close as possible so that they may not develop into a major defect and the effects of traffic and other movements. It must be remembered that reinforcement is not used either to increase the load bearing capacity or for complete prevention of cracking. Fine cracks do develop even when the pavement is reinforced but these are not at all detrimental either to the road or traffic in any way. To design the slab as a pure reinforced concrete member where the embedded steel would take entirely all the tensile stresses produced would be highly uneconomical and uncalled for, as the road slab will have a subgrade support throughout. It, therefore, follows that reinforcement in concrete slabs is mainly provided:

1. to prevent fractured surface from widening and to tie all parts of the slab together so that the effect due to load, temperature, etc. is transferred to all parts constituting the slab,

2. where there is a possibility for the subgrade to become weak and nonuniform in bearing, so that the induced cracks may not get widened and exposed to action of dirt and water.

If additional load bearing capacity is required, this can easily be achieved by thickening the pavement.

#### Notes to the Text:

flexural stresses	изгибающие напряжения
load-bearing capacity	несущая способность
detrimental	вредный, пагубный
embedded	заделанный, залитый
fractured surface	поверхность, имеющая трещины
provision	наличие, обеспечение
to provide	снабжать, обеспечивать

#### EXERCISES:

##### I. Answer the following questions:

1. What is the purpose of the provision of reinforcement in concrete pavement?
2. May reinforcement in concrete slabs prevent fractured surface from widening and tie all parts of the slab together?
3. How can additional load bearing capacity be achieved?

##### II. Translate the following word combinations into Russian:

load-bearing capacity; the provision of reinforcement in a concrete pavement; to hold cracks as close as possible; a pure reinforced concrete member; a sub-grade support; to prevent fractured surface from widening; to tie all parts of the slab together.

##### III. Translate the following word combinations into English:

напряжение сцепления (связи); изгибающее напряжение; связывающие напряжения; растягивающие напряжения; статическая нагрузка; подвижная нагрузка; нагрузка на ось; дорожное покрытие; дорожное движение; дорожная плита.

##### IV. Select the correct form in parentheses in the following sentences:

1. Of the four methods, I like the first one (better / best).
2. He is the (happier / happiest) person that we know.
3. Pat's car is (faster / fastest) than Dan's.
4. Jane is the (less / least) athletic of all the women.
5. This summary is (the better / the best) of the pair.
6. This painting is (less impressive / least impressive) than the one in the other gallery.
7. This crack is (thinner / the thinnest) of all.
8. The colder the weather gets, (sicker / the sicker) I feel.
9. Tim has as (little / few) opportunities to make experiment as I.
10. That operation calls for (many / much) more concrete than this one does.
11. The building site is the (farther / farthest) away of the three sites.

V. Make up sentences:

1. The, reinforcement, provision, a, pavement, of, in, designed, to, hold, concrete, is, cracks.
2. Fine, develop, cracks, when, the, do, even, is, pavement, reinforced.
3. Load-bearing, the, be, thickening, capacity, achieved, can, by, pavement.

VI. Remember the meaning of some Phrasal Verbs. Insert the appropriate variant of the Phrasal Verbs:

**Come:**

come across – случайно встретиться, натолкнуться на что-либо

come along – пойти с кем-нибудь

come back – возвращаться

come off – отлететь, оторваться

come on – пойдём

a)

1. Come...or we'll be late.
2. I came...this book in a little store.
3. Come...here. I want to talk to you.
4. Come...with us, or you'll miss the bus.
5. The button has come...my coat.



b)

1. The explorers came...some ancient ruins.
2. "Are you coming...with me later?"
3. I've just come...from Paris.
4. I was driving at 90 km/h when the front left wheel came....
5. Come...out with us and blow off some steam.

**Find:**

find out – узнать, выяснить, понять

find oneself – найти свой талант

find fault with someone or something – придирааться

a)

1. You can't trust him until you find everything....
2. He found...after graduating from the University.
3. She's unpleasant. She always finds...people.

b)

1. I'm going to call the cinema to find ... what time the film starts.
2. My boss finds ... with everything that I do.
3. "When I find ... you'll be the first to know."

## UNIT 17

### City Roads

#### **Text: Drainage of City Streets**

Precipitation which occurs upon streets and adjacent areas must be rapidly and economically removed before it becomes a hazard to traffic. The removal of surface water in municipal areas is accomplished by methods similar to those employed in the drainage of rural highways, except that the surface water is commonly carried to its eventual disposal point by means of underground pipe drain or "storm sewers". The storm sewers may be designed to provide for the flow of ground water as well as surface water, or additional subdrains may be required in certain areas. In municipal areas, facilities must be provided for both the removal of storm or surface water and for the collection and disposal of domestic and

industrial sewage. In modern cities separate sewerage systems are usually provided for these two purposes. Sanitary sewers are provided for sewage collection, and sewers intended to surface water removal are termed “storm sewers” or “storm drains”. In cases in which one sewer system serves both purposes, the system may be called a “combined sewer system”.

The surface water drainage system in an average city may be considered to be composed of the following basic elements: pavement crown; curb and gutter; and the storm sewers themselves, including such commonly used appurtenances as inlets, catch basins, and manholes.

#### Notes to the Text:

drainage	осушение, сток, дренаж
precipitation	осаждение, выпадение осадков
adjacent	смежный, прилегающий, соседний
to remove	удалять, устранять
municipal area	городской район
rural highway	сельская дорога
disposal point	место стока (размещения)
sewer	коллектор, сточная труба
flow	поток
subdrain	подземная дрена
disposal	удаление, устранение
domestic	коммунальный
sewage	сточные воды
sewerage system	канализационная система
pavement crown	выпуклость поперечного профиля дороги, поперечный уклон дороги
curb	бордюр, бордюрный камень
gutter	сточная канава
storm sewer	ливневый сток
inlet	дождеприемник
catch basin	дождеприемник, ливнеспуск
manhole	смотровой колодец, лаз, люк
facilities	устройства, приспособления

## EXERCISES:

### I. Answer the following questions:

1. Why should precipitation which occurs upon streets and adjacent areas be rapidly and economically removed?
2. How may the storm sewers be designed?
3. What sewerage systems are usually used in modern cities?
4. What are sanitary sewers provided for?
5. What are “storm sewers” provided for?
6. What sewer system may be called a “combined sewer system”?
7. What are the basic elements of the surface water drainage system?

### II. Fill in the blanks with the following prepositions: by means of, for, upon, by, of:

1. The storm sewers may be designed to provide ... the flow of ground water as well as surface water.
2. The surface water drainage system in an average city may be composed ... several basic elements.
3. Precipitation which occurs ... streets must be rapidly and economically removed.
4. The removal of surface water in municipal areas is accomplished ... methods similar to those employed in the drainage of rural highways.
5. The surface water is carried to its eventual disposal point ... underground pipe drain or “storm sewers”.

### III. Choose the correct form in parentheses in the following sentences. Remember, when modifying an adjective or an adverb, “enough” follows. When modifying a noun, “enough” precedes the noun:

adjective		
	+	enough
adverb		

enough + noun
---------------

*Examples:* She speaks Spanish well (adverb) enough to be an interpreter. It is cold (adjective) enough to wear a heavy jacket. We have enough sugar (noun) for the cake.

1. There were not (enough cement / cement enough) to make a good mix.
2. He has learned (enough French / French enough) to study in France next year.
3. Do you have (enough knowledge / knowledge enough) to design such a construction?
4. They worked (enough fast / fast enough) to prevent a hazard to traffic.
5. Precipitation which occurs upon streets and adjacent areas must be removed (enough rapidly / rapidly enough).
6. We arrived (enough early / early enough) to have some coffee before class began.
7. It has rained (enough hard / hard enough) to flood the low-lying areas.
8. He does not have (enough money / money enough) to finish this experiment.
9. This method is (enough good / good enough) to be used in the removal of surface water in municipal areas.
10. He is (enough good / good enough) in designing of concrete pavements.

#### IV. Translate the following word combinations into Russian:

the surface water drainage system; a hazard to traffic; the removal of surface water; the drainage of rural highways; disposal point; underground pipe drain; the storm sewers; the flow of ground water; surface water; the collection and disposal of domestic and industrial sewage; separate sewerage systems; a combined sewer system; pavement crown; curb and gutter; catch basins.

#### V. Translate the following sentences into English:

1. Выпадение осадков создает опасность для дорожного движения.
2. Способ (метод) удаления воды с поверхности дороги в городских районах похож на способ осушения сельских дорог.
3. Поверхностные воды стекают в ливневый сток.
4. Система стока может выполнять двойную функцию.
5. В таких случаях она называется “комбинированная система”.

VI. Find the equivalents in Russian:

sewage	сливной сток
flow	смотровой колодец
curb	бордюр
storm sewer	поток
disposal point	ливнепуск
manhole	дождеприемник
gutter	сточные воды
subdrain	бордюр
inlet	подземная дрена
catch basin	место стока

VII. Remember the meaning of some Phrasal Verbs. Insert the appropriate variant of the Phrasal Verbs:

**Give:**

give away – дарить

give out – раздавать

give in – уступать

give up – отказаться

give off – испускать, издавать (запах, дым, свет, тепло)

a)

1. She gave ... all the money to the poor.
2. This lamp gives ... a very bright light.
3. Don't give ... without a fight.
4. He gave ... copies of the report at the end of the meeting.
5. He gave ... smoking.

b)

1. The fire was giving ... a lot of smoke.
2. She gave ... her exam paper.
3. They're giving ... a CD with this magazine.
4. Mary has to give...all her cats except one.
5. Give ...the textbooks.

**Go:**

go in for – увлекаться

go off – гаснуть, портиться (о еде)

go on – продолжать

go without – обходиться без чего-либо

a)

1. Mike doesn't go...sports.
2. The meeting went...for two hours.
3. The lights went...and the film began.
4. You may take this book. I can easily go...it for a month.
5. Are you going to go ... soccer this year at school?

b)

1. Don't drink the milk, it's gone ...
2. How long has Jim gone ... collecting stamps?
3. Do go ..., I am listening.
4. A person can go ... water for three days.
5. Please, go .... Don't let me interrupt you.

## UNIT 18

### **Text: Pavement Crowns, Curbs, and Gutters**

Water falling on the pavement surface itself is, as in the case of rural highways, removed from the surface and concentrated in the gutters by the provision of an adequate crown. The crown of any street should be made as small as possible, consistent with proper drainage, in the interests of appearance and safety.

The surface channel formed by the curb and gutter fulfills about the same drainage function as a side ditch on a rural highway and must be designed to adequately convey the runoff from the pavement and adjacent areas to a suitable collection point. The longitudinal grade of the gutter must also be sufficient to facilitate rapid removal of the water; minimum grades are generally recommended as 0.2 or 0.3 per cent. The grade of the gutter is usually the same as that of the pavement surface although it may be different if so required for proper drainage.

Flow in the gutters generally continues uninterrupted to the intersection unless a low point or “sag” is reached. At such a point an inlet must be provided to carry the water into the storm sewer system. Inlets may also be required between intersections if long blocks are used.

The paved area formed by a street intersection must also be drained, and the adjustment of the grades of city streets at intersections to provide for adequate drainage can be a very complex problem. Several analytical methods have been successfully used for determining the elevations required within the intersection to remove water from the intersection area and to adjust any differences in grades which may be present on the streets that approach and leave the intersection. The solution may also be accomplished in the field during the construction process without previous computation, especially where light street grades are involved.

#### Notes to the Text:

provision	устройство
ditch	канавы, траншея, ров
to convey	передавать, доставлять
runoff	сток
longitudinal grad	продольный уклон
to facilitate	помогать, способствовать
sag	провисание
intersection	пересечение, точка пересечения
paved area	мощеная поверхность
elevation	подъем, возвышение
to adjust	регулировать, выверять

#### EXERCISES:

##### I. Answer the following questions:

1. How should the crown of any street be made?
2. What function does the surface channel formed by the curb and gutter fulfill?
3. How must the surface channel be designed?
4. Must the longitudinal grade of the gutter be sufficient to facilitate rapid removal of the water?
5. What longitudinal grades of the gutter are generally recommended?

6. Must the paved area formed by a street intersection also be drained?

II. Form the nouns from the following verbs. Translate into Russian:

to elevate	to adjust
to employ	to add
to require	to collect
to provide	to concentrate
to appear	to safe
to fulfill	to drain
to determine	to remove
to compute	to equip

III. Supply either “because” or “because of” as appropriate. Remember: “because” must always be followed by a complete sentence. (There must be a verb). “Because of” is followed only by a noun or noun phrase:

because + subject + verb

because of + noun (phrase)

*Examples:* The students arrived late because there was (subject + verb) a traffic jam. The students arrived late because of the traffic jam. (Noun phrase)

1. We have to drive around the day ... the bridge was destroyed in the storm.
2. It was difficult to finish the construction of the bridge ... the bad weather.
3. We have to cut down on our driving ... there is an oil shortage.
4. We use this analytical method ... it helps us to determine the longitudinal grade of the gutter.
5. We plan to spend our vacation in the mountains ... the air is purer there.
6. We decided to leave early ... the coming storm.
7. They visited their friends often ... they enjoyed their company.
8. We have to continue the experiment ... we can not find the solution of the problem.



#### IV. Translate the following word combinations into Russian:

the pavement surface; in the case of rural highway; the provision of the adequate crown; the proper drainage; in the interests of safety; the same drainage function; a side ditch; adjacent areas; suitable collection point; the longitudinal grade; rapid removal of the water; a low point; the paved area; the adjustment of the grades; a very complex problem; determining the elevations; during the construction process; without previous computation.

#### V. Change the main clause to Past and adjust the dependent clause as necessary:

*Example:* We hope that he will be able to attend.  
We hoped that he would be able to attend.

1. He says that he will look for a job next week.
2. Helen says that she will finish the project by September.
3. Marie thinks he is going to win the award.
4. I hear that Kate has accepted a new position at the East Side Clinic.
5. Lou tells his friends that they are good tennis players.
6. I realize that they are older than they look.
7. The student is asking the professor when the class will do the next experiment.
8. We hope that you can correct the mistakes later.
9. We know that you may move to France next year.
10. Steve says that he will make a report for the meeting.

#### VI. Read the text without using a dictionary:

##### Inlets, Catch Basins, Manholes

Inlets are generally provided at intersections to intercept the water flowing in the gutters before it can reach the pedestrian crosswalks. It is essential that enough inlets of sufficient size be provided to rapidly remove collected storm water. Improperly drained intersections are a constant source of annoyance and danger to both vehicular and pedestrian traffic.

Catch basins are similar to inlets both in their function and design. The principal difference between a catch basin and an inlet is that in a

catch basin the outlet pipe (and inlet pipe if present) is placed some distance above the bottom of the chamber. The notion behind the installation of a catch basin is that debris flushed from the street into the drainage system is trapped in the bottom of the catch basin and so does not enter the storm sewer itself.

Storm-sewer systems are subject to partial or complete clogging, and facilities must be provided for cleaning them at regular intervals. In modern sewerage practice manholes are generally placed at points where the sewer changes grade or direction, where junctions are made, and at intermediate points, usually at intervals of from 300 to 500 feet. The opening provided must, of course, be large enough to permit a man to enter the manhole chamber and have room in which to work. They are usually about 4 feet in diameter in their main portions and are carried to a depth sufficient to perform the purpose for which they are intended. The pipes generally enter and leave the manhole at the bottom of the chamber, and various arrangements are made for carrying the flow through the manhole with a minimum loss in head. Manholes are built of concrete masonry, concrete block, or brick, and cities generally employ a standard design of manhole to be used in all installations. Manhole covers (and frames) are generally of cast iron; the covers are circular in shape and about 2 feet in diameter. When the entrance to the manhole occurs in the travelled way, as it usually does, special care must be taken in the design and placing of the cover relative to the finished street surface if traffic is not to be impeded by the presence of the manhole.

#### Notes to the Text:

to intercept	перехватывать (грунтовые воды)
pedestrian	пешеходный
annoyance	неприятность
vehicular traffic	автомобильное движение
outlet pipe	выходная труба
notion	приспособление
debris	мусор, обломки породы
to trap	захватывать
clogging	засорение
junction	соединение, стык
masonry	кладка

VII. Answer the following questions:

1. What are inlets?
2. What is the difference between inlets and catch basins?
3. What are manholes?

VIII. Remember the meaning of some Phrasal Verbs. Insert the appropriate variant of the Phrasal Verbs:

**Turn:**

turn down – отказываться, прикручивать, убавлять, уменьшать

turn into – превращать, переделывать, оборачивать

turn off – выключать

turn on – включать

turn up – усилить, прибывать, появляться в определенном месте

turn to – обращаться к кому-то за помощью

a)

1. I couldn't cope with the problem so I had to turn ...my friend, who was an expert in computer science.
2. Could you turn ... the volume? I can't find the remote control.
3. Why don't you turn the lights ...? It's pitch-dark in the room.
4. If the red indicator flashes turn ... the machine immediately.
5. She turns a pumpkin ... a golden carriage, mice ... horses, a rat ... a coachman, and lizards ... footmen.

b)

1. Could you turn ... the volume? The baby is sleeping.
2. Our neighbors turned their old barn ... the garage.
3. Turn ... the radio. It disturbs me.
4. Can you turn ... the TV set? My favorite TV show begins in a minute.
5. You can turn ... us for help at any time.

## UNIT 19

### Bridges

#### **Text: Small Bridges**

##### Part I

Bridges of less than about 20-foot span carry little or no roadway embankment, frequently have abutments independent of the deck, and the channels often are not paved.

The choice of type will depend considerably on the cost of materials as governed by locality and on the standard of the construction involved. Often smaller bridges are of flat, concrete-slab type, and the slab forms a part of the pavement.

The abutments are designed frequently as cantilever self-supporting-unit retaining walls to resist lateral earth pressure, and with sufficient footing area for the foundation loads. Sufficient base width in abutments also is provided to afford stability against overturning. The (hydraulic) lateral pressure frequently is assumed equivalent to 35 pounds per cubic foot of backfill. A variation of this design method is to consider the breast wall of the abutment as a simple span held at the top by the deck slab and fixed to the footing. The vertical reinforcing in the breast wall extends into the slab and the footing, and a construction key is provided between both the deck and the wall and the footing and the wall, to develop horizontal reactions of the lateral earth pressure, wing walls for abutments may be separated from the breast wall by a construction joint to permit their free cantilever action.

Small reinforced concrete deck bridges also are built sometimes with abutments of mass concrete or cement-rubble masonry. Mass-abutment design is used whenever economical, which is often the case with low abutments. Only the best concrete mixture, with rigid construction inspection, are permitted.

#### Notes to the Text:

span	пролет моста, длина моста
embankment	насыпь, вал, дамба, набережная
abutment	опора, береговой устой моста

deck	настил моста, проезжая часть моста
channel	канал, русло
flat	ровный, плоский
concrete slab	бетонная плита
cantilever	консоль
lateral	боковой
footing	основание, подошва
to afford	предоставлять, давать
backfill	насыпной грунт
breast wall	подпорная стенка для засыпки, торцовая стена
reinforcing	армирование
wing wall	откосное крыло устоя или подпорной стенки
cement-rubble masonry	бутовая кладка на цементе
mass-abutment design	бетонный береговой устой
rigid	жесткий
inspection	осмотр, контроль, проверка
variation	изменение, вариант

## EXERCISES:

### I. Answer the following questions:

1. What can you say about bridges of less than about 20-foot span?
2. What will the choice of type of the bridge depend on?
3. How are the abutments frequently designed?
4. What is sufficient base width in abutments provided to do?
5. How are small reinforced concrete deck bridges built?

### II. Find the equivalents in Russian:

footing	плита
span	проезжая часть моста
backfill	консоль
breast wall	длина моста
embankment	откосное крыло устоя
reinforcing	изменение

masonry	ОСНОВАНИЕ, ПОДОШВА
deck	КЛАДКА
variation	АРМИРОВАНИЕ
slab	НАСЫПЬ, НАБЕРЕЖНАЯ
wing wall	НАСЫПНОЙ ГРУНТ
cantilever	ТОРЦОВАЯ СТЕНА

III. Fill in the blanks with one of the words given below:

1. Bridges of less than about 20-foot span carry little or no roadway....
2. The choice of type of the bridge will depend considerably on the cost of ... and on the standard of the ... involved.
3. Often smaller bridges are of ..., concrete-slab type.
4. The abutments are designed as ... self-supporting-unit.
5. The lateral pressure is assumed equivalent to 35 pounds per cubic foot of....

---

cantilever, backfill, construction, flat, materials, embankment

IV. Change the following sentences from active to passive voice:

1. The storm destroyed thirty houses.
2. The company has ordered some new equipment.
3. The manager should sign these contracts today.
4. The constructors design the abutments as cantilever self-supporting unit.
5. They provide a construction key between both the deck and the wall and the footing and the wall.
6. A construction joint may separate wing walls for abutments from the breast wall.
7. They built small reinforced concrete deck, bridges with abutments of mass concrete or cement-rubble masonry.
8. They permit only the best concrete mixtures, with rigid construction inspection.
9. John will receive the project of the bridge in two weeks.
10. The company was developing a new method of determining the longitudinal grade of the gutter.
11. The fire has caused considerable damage.
12. The delegates had received the information before the recess.

13. Martha was delivering the documents to the department.
14. John is calling the other members.

V. Translate the following word combinations into Russian:

small reinforced concrete deck bridges; cement-rubble masonry; mass-abutment design; low abutments; rigid construction inspection; cantilever self-supporting-unit; sufficient footing area; foundation loads; hydraulic pressure; wing wall; breast wall; to distinguish from; to carry no roadway embankment; to depend on the cost of material; to afford stability against overturning; to separate from; to permit the best concrete mixtures.

VI. Complete the sentences:

- |   |   |
|---|---|
| <ol style="list-style-type: none"> <li>1. The abutments are designed as ...</li> <li>2. Small reinforced concrete deck, bridges are built with ...</li> <li>3. A variation of this design method is ...</li> <li>4. Wing walls for abutments may be separated from ...</li> <li>5. The lateral pressure is assumed equivalent to ...</li> </ol> | <ol style="list-style-type: none"> <li>a. to consider the breast wall of the abutment as a simple span held at the top by the deck slab and fixed to the footing.</li> <li>b. cantilever self-supporting-unit.</li> <li>c. 35 pounds per cubic foot of backfill.</li> <li>d. abutments of mass concrete or cement-rubble masonry.</li> <li>e. the breast wall by a construction joint.</li> </ol> |
|---|---|

VII. Choose the correct variant:

- 1) We can't put it \_\_\_\_\_ any longer. We should do it right now.  
a) out      b) on      c) off      d) by
- 2) Could you turn the TV \_\_\_\_\_? I've got a terrible headache.  
a) into      b) down      c) up      d) over
- 3) Your story isn't true, is it? You made it \_\_\_\_\_, didn't you?  
a) out      b) off      c) on      d) up
- 4) He is so selfish! It's not easy to get \_\_\_\_\_ with him.  
a) on      b) at      c) away      d) over

- 5) He gave \_\_\_\_\_ the idea of convincing her. It was useless.  
a) up      b) off      c) away      d) in
- 6) Why aren't you looking \_\_\_\_\_ your children? They are annoying!  
a) out      b) for      c) after      d) down
- 7) The library allows you to check ... six books at a time.  
a) round      b) up      c) out      d) into
- 8) The fish \_\_\_\_\_ out to be tastier than we thought.  
a) turned      b) looked      c) made      d) got
- 9) He \_\_\_\_\_ on crying and nobody could stop him.  
a) came      b) tried      c) went      d) gave
- 10) Is that a true story, or did you \_\_\_\_\_ it up?  
a) do      b) make      c) take      d) turn
- 11) Will you join us? You've got to \_\_\_\_\_ up your mind.  
a) keep      b) go      c) make      d) work
- 12) I'm \_\_\_\_\_ forward to hearing from you soon. I really miss you.  
a) searching      b) waiting      c) seeing      d) looking
- 13) Where were you? I \_\_\_\_\_ for you everywhere.  
a) went      b) ran      c) looked      d) saw
- 14) Quit acting like a child. You need to \_\_\_\_\_.  
a) grow up      b) work out      c) build up      d) wake up

## UNIT 20

### **Text: Small Bridges**

#### Part II

Foundations for all bridges must be wholly adequate and completely predetermined. In most cases, foundation can be built in the dry by



temporarily diverting the stream, or by using cofferdams, or even by using good pumps to unwater the excavation without cofferdams. Adequate pumping equipment is a prime necessity. Pile foundations for smaller concrete or masonry- abutment bridges are indicated when bedrock, gravel, or hardpan is overlaid with excessive depths of lighter material such as silt, quicksand, or similar soils. Piles are driven either to refusal or to a satisfactory bearing by the usual formulas.

All railings should be sufficiently strong to resist the impact of a “side-swiping” car. The width between curb lines should exceed by at least 4 feet; the width of adjoining pavements and sidewalks should be added as needed.

Another type of small bridge has rubble-masonry abutments and stringers of sawed lumber or logs and laminated plank deck. Wooden decks may be covered with some form of asphaltic material with a blotter or wearing surface of clean pebbles or with a more expensive top of asphalt plank.

In remote timbered country, for first-stage construction, the simplest and often the cheapest type of small bridge is the rock-dilled log abutment with log stringers. The preferred flooring is of laminated plank of either 2-by 4-inch or 2- by 6 - inch lumber set on edge. Important features of such a bridge are good solid foundations for the log abutments, clean-rock fill or quarry debris rather than earth. Log abutments usually are of the wing-wall type.

#### Notes to the Text:

temporarily	временно
to divert	отводить (поток, воду)
cofferdam	перемычка
to unwater	осушать, обезвоживать
pile foundation	свайное основание
hardpan	твердое включение в грунте
silt	ил, речной нанос из ила
quicksand	подвижный песок, пльвун
railing	ограждение моста
impact	удар, толчок
sidewalk	тротуар, пешеходная дорожка
stringer	продольная балка
sawed lumber	пиленный лесоматериал

log	бревно
laminated plank deck	проезжая часть моста из пакета досок
blotter	впитывающий слой (каменной мелочи)
wearing surface	несущая поверхность (дороги, моста)
pebble	галька, булыжник
plank	планка, настил
solid	твердый
fill	насыпь
quarry debris	карьерная каменная мелочь

### EXERCISES:

#### I. Answer the following questions:

1. How can foundation be built?
2. Is pumping equipment a prime necessity for building a foundation?
3. When are pile foundations for smaller concrete or masonry-abutment bridges indicated?
4. Why should all railings be strong?
5. What should the width between curb lines be?
6. What may wooden decks be covered with?
7. What are important features of the simplest and the cheapest type of small bridge?

#### II. Translate the following word combinations:

temporarily diverting the stream; using cofferdams; using good pumps; pumping equipment; satisfactory bearing; adjoining pavements; wearing surface; preferred flooring; a prime necessity; pile foundation; excessive depth of lighter material; railings; sidewalks; saved lumber; laminated plank deck; solid foundation; quarry debris.

#### III. Translate the following sentences into Russian paying attention to the pronouns “some”, “any” and “no”:

1. There was no water left in the radiator, so we had to stop and refill it.
2. Any engineer who has worked long enough in this field can give this information.

3. He makes no attempts to establish new equipment in the laboratory.
4. No explanation was given to him why the experiment had been stopped.
5. The scientists believe that there is practically no atmosphere on the Moon.
6. The station master said that no trains had arrived at the station during the night because of the heavy show storms in the mountains.
7. It was clear that no person could do this work alone.
8. No discovery can be made without wide experimentation.
9. Any moving object will continue to move in a straight line unless it is stopped by some other force.
10. We shall discuss some problems at the conference.
11. There were some people in the room.

IV. Fill in the blanks with the words given below:

1. Foundation can be built in the dry by temporarily diverting the stream, or by using ... , or even by using good ... to unwater the excavation without cofferdams.
2. All ... should be sufficiently strong to, resist the impact of a “side-swiping” car.
3. The width between curb lines should exceed by at least 4 feet the width of adjoining ... and ... should be added as needed.
4. Piles are driven either to refusal or to a satisfactory ... by the usual formulas.

---

sidewalks, pavements, pumps, cofferdams, railings, bearings

V. Choose the right answer:

1. The abutments are designed frequently ... .
  - a) to support the deck
  - b) to develop horizontal reactions of the lateral earth pressure
  - c) to resist lateral earth pressure
2. Sufficient base width in abutments is provided ... .
  - a) to divert the stream
  - b) to afford stability against overturning
  - c) to unwater the excavation

3. Wooden decks may be covered with ...

- a) cement
- b) a blotter or wearing surface
- c) stones

4. The (hydraulic) lateral pressure frequently assumed equivalent to ... .

- a) 35 pound per cubic inch of backfill
- b) 35 pounds per cubic foot of backfill
- c) 35 pounds per cubic meter of backfill

VI. Give three forms of the following verbs and translate them:

to remove	to flow	to become
to carry	to provide	to fall
to reach	to flush	to enter
to permit	to distinguish	to make
to fulfill	to collect	to drain

VII. Choose the correct variant:

1. You should always aim (to, up, at, on) doing your job well.
2. The police examined the cars and then allowed them to go (up, on, off, to).
3. The factory must drive (for, away, at, back) increased production this year.
4. Every year the children look (ahead, away, to, forward) to having the holidays.
5. Our representative in the U.N. must be called (back, at, by, down).
6. Why did he give (up, away, in, to) his college course?
7. Look (at, into, through, up) your examination paper before you hand it in.
8. I agree (to, upon, on, with) your father; it's a foolish risk!
9. The shipwrecked sailors were picked (up, over, away, in) by a passing boat.
10. I don't care (for, about, in, of) what you think.
11. I can't get (through, round, on, about) to London, the lines are all busy.
12. It's time to put (in, out, up, off) foolish ideas and become serious.

13. An adjective must agree (to, with, an, upon) its noun in number.
14. I couldn't remember a fairy story to tell the children so I made it (over, up, of, from) as I went along!
15. Don't answer (back, to, for, in), it's impolite.
16. Major changes will have to be brought (over, about, along, away) in Russian industry.
17. Sometimes I feel like giving (up, in, to, away) the struggle to live on my income.
18. The statement that you have made will have to be thoroughly gone (back, off, into, up).
19. This cream is best applied (with, on, upon, to) the face at night.
20. Henry called (for, up, away, in) the waiter in a loud voice.
21. Let the child get accustomed (to, of, in, into) her new teacher.
22. More men are needed to make (for, up, from, out) the police force to its full strength.
23. Phone him at the office, he should be (away, out of, in, on) now.
24. My parents didn't approve (away, for, to, of) my marriage.
25. Please will you pick (up, over, out, away) my parcel at the post office as you pass.

## GRAMMAR REVIEW

### §1. Инфинитив в английском языке / The Infinitive

**Инфинитив** – это неличная форма глагола. Признаком инфинитива в английском языке является частица **to**, например: **(to) go, (to) be, (to) ask**.

Английский инфинитив сочетает в себе признаки глагола и в некоторой степени существительного. Последнее выражается в том, что инфинитив может выступать в предложении в качестве подлежащего, дополнения, части составного сказуемого, определения, обстоятельства и др.

Именные свойства инфинитива заключаются в его функциях.

#### Функции инфинитива в предложении:

№	Функция инфинитива	Пример
1	2	3
1	<b>Подлежащее</b>	To skate is pleasant. Кататься на коньках приятно. To read is a great pleasure. Читать (чтение) – большое удовольствие. To learn is important. Учение важно.
2	<b>Именная часть составного сказуемого</b> Составное именное сказуемое состоит из глагола-связки (to be) в соответствующей форме и инфинитива.	Your duty was to inform me about it immediately. Вашей обязанностью было сообщить мне об этом немедленно. The duty of every student is to master at least one foreign language. Долг каждого студента – овладеть, по крайней мере, одним иностранным языком. The most important thing is to learn. Самое важное это учиться.
3	<b>Часть составного глагольного сказуемого</b> в сочетании с модальными глаголами и с глаголами, выражающими начало, продолжение или конец действия ( <b>to begin, to continue, to end, to stop</b> ) или <b>отношение</b> к действию, обозначенному инфинитивом ( <b>to want, to decide, to intend</b> )	She began to translate the article. Она начала переводить статью. She must translate this article today. Она должна перевести эту статью сегодня. He intends to read the article. Он намеревается читать статью. He continued to live with his parents even after marriage. Он продолжал жить с родителями и после женитьбы.

1	2	3
4	<b>Дополнение</b>	I asked him to help me. Я попросил его помочь мне. He had promised me to draw this map. Он обещал мне начертить эту карту. He wants to learn. Он хочет учиться.
5	<b>Определение</b> Инфинитив в функции определения стоит после определяемого слова.	He expressed a desire to help me. Он выразил желание помочь мне. The device to be tested has been brought to our library. Прибор, который надо испытать (подлежащий испытанию), принесли в нашу лабораторию.
6	<b>Обстоятельство цели или следствия.</b> В функции обстоятельства инфинитив может стоять как в начале предложения, так и в конце. В функции обстоятельства цели инфинитиву могут предшествовать союзы: <b>in order, so as</b> чтобы, для того чтобы.	I went to the station to see off a friend. Я поехал на вокзал, чтобы проводить друга. You must work much in order to master a foreign language. = In order to master a foreign language you must work much. Вы должны много работать, чтобы овладеть иностранным языком. He went there so as to help you. Он пошел туда, чтобы помочь вам
7	<b>Вводные слова</b> Parenthesis. Вводные слова не являются членами предложения, но такие конструкции с инфинитивом очень часто встречаются.	to begin with, to be frank, to put it mildly, to tell the truth, strange to say и т.д.
8	<b>Простое глагольное сказуемое</b> Инфинитив используется для образования аналитических глагольных форм: вспомогательный глагол с инфинитивом (auxiliary verb + the Infinitive).	The cinema will close in November. (Future Simple) The shop didn't open last week. (Past Simple) Does he often play tennis? (вопросительная форма Present Simple)

Отрицательные формы инфинитива образуются путем добавления отрицательной частицы **not** перед инфинитивом.

*Например:*

I decided to invite them. – I decided not to invite them.

Я решил их пригласить. – Я решил их не приглашать.

## Глагольные свойства инфинитива

№	Свойство	Пример
1	Инфинитив переходного глагола может иметь после себя прямое дополнение	I told him to post the letter. Я велел ему отправить письмо. I was asked to send this letter. Меня попросили послать это письмо.
2	Инфинитив может определяться обстоятельством, выраженным наречием	I asked him to speak slowly. Я попросил его говорить медленно. He hoped to finish his work soon. Он надеялся скоро окончить работу.

### §2. Формы инфинитива в английском языке/ The Forms of the Infinitive

Инфинитив имеет формы времени и залога. В английском языке переходные глаголы имеют четыре формы инфинитива в действительном залоге и две в страдательном:

	<b>Active</b>	<b>Passive</b>
<b>Indefinite (Simple)</b>	to ask	to be asked
<b>Continuous</b>	to be asking	
<b>Perfect</b>	to have asked	to have been asked
<b>Perfect Continuous</b>	to have been asking	

Только для двух форм инфинитива, а именно Indefinite Infinitive Active и Indefinite Infinitive Passive, имеются соответствующие формы в русском языке: **to ask** спрашивать, **to be asked** быть спрошенным (спрашиваемым).

Остальные формы могут переводиться на русский язык изолированно, т.е. вне предложения. Continuous Infinitive – **to be asking** – употребляется со значением «спрашивать в какой-нибудь определенный момент». Perfect Infinitive – **to have asked** – «спрашивать, спросить до какого-нибудь момента». Perfect Continuous Infinitive – **to have been asking** – «спрашивать в течение отрезка времени, предшествующего какому-нибудь моменту», и Perfect Infinitive Passive – **to have been asked** – «быть спрошенным (спрашиваемым) до какого-нибудь момента».

**1. Indefinite Infinitive Active** является единственной простой формой инфинитива. В этой форме глаголы даются в словарях (без



частицы to) – **to ask** . Indefinite Infinitive Active выражает действие, одновременное действию глагола-сказуемого:

I am glad to meet you. Я рад встретить тебя.

He wanted to read this book. Он хотел прочитать эту книгу.

They will be happy to visit their friends. Они будут счастливы навестить своих друзей.

**2. Indefinite Infinitive Passive** образуется при помощи вспомогательного глагола to be и формы Past Participle смыслового глагола: **to be asked**. Passive Infinitive имеет то же значение, что и обычные глаголы в Passive Voice:

I am glad to be met. Я рад, что меня встретили.

Everybody wants to be loved. Все хотят, чтобы их любили.

There is a lot of work to be done. Есть много работы, которую нужно выполнить.

She ought to be told about it. Ей следует об этом сказать.

**3. Continuous Infinitive Active** образуется при помощи вспомогательного глагола to be и формы Present Participle смыслового глагола: **to be asking** и используется, чтобы показать, что действия или события происходят в момент речи:

I happened to be waiting for the bus when the accident happened.

Так случилось, что я ждал автобус, когда произошла авария.

You must be joking. Ты, наверное, шутишь.

He must be reading now. Он, должно быть, читает сейчас.

**4. Perfect Infinitive Active** образуется при помощи вспомогательного глагола to have и формы Past Participle смыслового глагола: **to have asked** и обозначает предшествующее действие действию глагола-сказуемого:

She is happy to have met him. Она рада, что встретила его.

I am happy to have left school. Я рад, что окончил школу.

You seem to have annoyed him. Кажется, ты ему досадил.

It is nice to have finished work. Приятно закончить работу.

**5. Perfect Infinitive Passive** образуется при помощи Perfect Infinitive вспомогательного глагола *to be* – **to have been** – и формы Past Participle смыслового глагола: **to have been asked**, выражает предшествующее действие и имеет то же значение, что и глаголы в страдательном залоге:

They were lucky – they could have been killed. Им повезло – их могли бы и убить.

They supposed the problem to have been solved. Они полагали, что проблема была решена.

They hoped the work to have been done. Они надеялись, что работа была выполнена.

**6. Perfect Continuous Infinitive Active** образуется при помощи Perfect Infinitive вспомогательного глагола *to be* – **to have been** – и формы Present Participle смыслового глагола: **to have been asking**, выражает действие, которое началось в прошлом и до сих пор продолжается:

He seems to have been living there for two years. Кажется, он живет здесь уже два года.

### §3. Использование инфинитива с частицей *to* и без частицы *to* / **Infinitive with *to* and without *to***

С частицей **to** инфинитив употребляется в следующих случаях:

1. С эквивалентами модальных глаголов: в значении долженствования

а) с глаголом **to be** – предварительная договоренность, план:

The train is to arrive at 5 p. m. Поезд должен прийти в 5.

б) с глаголом **to have** – приходится, нужно:

I have to be home by 10 every night – my mother insists.

Я должен (мне приходится) приходиться домой к 10 часам каждый вечер, моя мама настаивает.

в) с глаголом **ought** – следует (моральный долг):

You ought to return things which you borrow.

Следует возвращать вещи, которые берешь в долг.

г) с глаголами **need, dare** – когда они используются как обычные смысловые глаголы:

Does he need to have a visa? (Yes. He does. / No, he doesn't.)

Ему нужна виза? (Да, нужна. / Нет, не нужна.)

Do I dare to tell her the truth? Я осмелюсь сказать ей правду?

## 2. В оборотах и выражениях

Прошлая привычка, бывало – **used to + infinitive**:

He used to play tennis. Он раньше (часто / бывало) играл в теннис.

### Употребление инфинитива без частицы *to*

Без частицы **to** инфинитив употребляется:

После модальных глаголов **can, could, may, might, must, should, need, dare**:

We can manage it. Мы с этим справимся.

We must get someone to paint the roof. Нужно попросить кого-нибудь покрасить нам крышу.

You may go now. Можете идти.

Need I do this task right now? Мне нужно сделать это задание сейчас?

Dare I translate it? Осмелюсь ли я перевести это?

После модальных конструкций (**would rather, had better**):

You had better consult a doctor. Вам бы лучше сходить к врачу.

I would rather go alone. Я бы предпочел пойти один.

После **why** и **why not** в вопросе:

Why pay more at other shops? We have the lowest prices.

Зачем платить больше в других магазинах? У нас самые низкие цены. Why not make it up with him? Почему бы не извиниться перед ним?

Why not go there? Почему бы не пойти туда?

1. После глагола **do**, используемого в качестве усилительного глагола:

I do admit that I was wrong. Да, я признаю, что был не прав.

But you did say that! Но ведь ты сказал это!

2. После союзов **and, or, except, but, than, as** и **like** в случае, когда они используются для соединения двух инфинитивов:

I intend to call on him and discuss this question. Я намерен зайти к нему и обсудить этот вопрос.

I asked him to telephone me on Monday or send an email. Я попросил его позвонить мне в понедельник или отправить электронное письмо.

It is as easy to smile as frown. Улыбаться так же легко, как и хмуриться.

We had nothing to do except look at the cinema posters. Нам нечего было делать, кроме как смотреть на афиши фильмов.

Do you want to go with us or stay at home? Вы хотите пойти с нами или остаться дома?

#### §4. Конструкция Сложное дополнение / Complex Object

Конструкция Complex Object представляет собой сочетание существительного в общем падеже или личного местоимения в объектном падеже с инфинитивом. Эта конструкция строится по следующей схеме:

Подлежащее	Сказуемое (в действительном залоге)	Существительное (в общем падеже) или личное местоимение (в объектном падеже) + инфинитив
We Мы	expect надеемся,	<b>him to do</b> it in time. что он сделает это вовремя.

При переводе конструкции на русский язык почти всегда используется придаточное предложение.

### Случаи употребления конструкции Сложное дополнение / Complex Object

№ п/п	Случай употребления	Пример
1	2	3
1	<p>После глаголов <b>чувственного восприятия</b>: <b>to hear</b> слышать, <b>to see</b> видеть, <b>to watch</b> наблюдать, смотреть, <b>to feel</b> чувствовать, <b>to observe</b> наблюдать, <b>to notice</b> замечать и др. в действительном залоге. После этих глаголов инфинитив употребляется без частицы <b>to</b></p> <p>После глаголов <b>чувственного восприятия</b> используется только Indefinite Infinitive Active. Чтобы выразить действие в страдательном залоге, можно использовать причастие II</p>	<p>I watched her approach. Я смотрел, как она приближается.</p> <p>I saw her light the lamp. Я увидел, как она зажгла лампу.</p> <p>We heard her sing a song. Мы слышали, как она поет песню.</p> <p>We watched them play. Мы наблюдали за тем, как они играют.</p> <p>I saw the fire slowly conquered. Я видел, как пожар постепенно потушили.</p>
2	<p>После глаголов, обозначающих <b>умственную деятельность</b>: <b>to know</b> знать, <b>to think</b> думать, <b>to consider</b>, <b>to believe</b>, <b>to suppose</b> думать, полагать, <b>to expect</b> ожидать, <b>to imagine</b> представлять, <b>to find</b> находить, узнавать, <b>to trust</b> верить, <b>to assume</b> допускать, предполагать и др. в действительном залоге. После этих глаголов в составе конструкции очень часто используется глагол <b>to be</b></p>	<p>He considers this question to be of great importance. Он считает этот вопрос очень важным (= что этот вопрос является очень важным).</p>
3	<p>После глаголов со значением <b>заявления</b>: <b>to pronounce</b> произносить, говорить, <b>to declare</b> заявлять, <b>to report</b> докладывать</p>	<p>The surgeon pronounced the wound to be a slight one. Врач сказал, что рана лёгкая (= рана является лёгкой).</p>

1	2	3
4	После глаголов, обозначающих <b>чувства</b> и <b>эмоции</b> : <b>to like</b> нравится, <b>to dislike</b> не нравится, <b>to love</b> любить, <b>to hate</b> , <b>cannot bear</b> не мочь терпеть, ненавидеть и т. д.	I hate you to talk in this way. Я терпеть не могу, когда вы так говорите (= вы говорите таким образом).
5	После глаголов, обозначающих <b>приказ</b> или <b>разрешение</b> , <b>принуждение</b> : <b>to order</b> приказывать, <b>to allow</b> , <b>to permit</b> позволять, <b>to suffer</b> неохотно позволять, <b>to have</b> распоряжаться, <b>to make</b> , <b>to have</b> , <b>to get</b> , <b>to force</b> , <b>to cause</b> распоряжаться, приказывать, заставлять и др. в <b>действительном</b> залоге	She suffered Mr. Smith to go her back into her room. Она неохотно позволила, чтобы мистер Смит проводил ее в комнату. She caused a telegram to be sent to him. Она распорядилась, чтобы ему послали телеграмму (= чтобы телеграмма была отправлена ему).
6	После глаголов <b>to let</b> в значении "позволять" или побудительных предложениях; <b>to make</b> в значении "заставлять", если он не стоит в страдательном залоге. После этих глаголов инфинитив в обороте используется <b>без частицы "to"</b> ;  После глагола <b>to help</b> (допускается опускать частицу <b>to</b> )	Let him go. Отпусти его. Let me help you with the translation. Позволь помочь тебе с переводом. She let him go in. Она позволила ему войти. They made me wait. Они заставили меня ждать. He made me come. Он заставил меня прийти. She helped the child (to) lift the box. Она помогла ребенку поднять ящик.

## §5. Конструкция Сложное подлежащее / Complex Subject

Конструкция Complex Subject представляет собой сочетание существительного в общем падеже или личного местоимения в именительном падеже, выполняющего в предложении функцию подлежащего, с инфинитивом. Эта конструкция строится по следующей схеме:

Подлежащее (существительное в общем или местоимение в именительном падеже)	Сказуемое (обычно глагол в страдательном залоге)	Инфинитив
<b>He</b>	is known	<b>to go to work to Siberia.</b>
Известно, что он поедет работать в Сибирь.		

### Случаи употребления конструкции Сложное подлежащее / Complex Subject

№ п/п	Случай употребления	Пример
1	2	3
1	С глаголами <b>чувственного восприятия</b> : <b>to hear</b> слышать, <b>to see</b> видеть, <b>to watch</b> наблюдать, смотреть, <b>to feel</b> чувствовать, <b>to observe</b> наблюдать, <b>to notice</b> замечать и др. в страдательном залоге. В данной конструкции после этих глаголов инфинитив употребляется с частицей <b>to</b>	Bob was heard to laugh heartily. Было слышно, как Боб смеялся от всего сердца.
2	С глаголами, обозначающими <b>умственную деятельность</b> : <b>to know</b> знать, <b>to think</b> думать, <b>to consider</b> , <b>to believe</b> , <b>to suppose</b> думать, полагать, <b>to expect</b> ожидать, <b>to imagine</b> представлять, <b>to find</b> находить, узнавать, <b>to trust</b> верить, <b>to assume</b> допускать, предполагать и др. в страдательном залоге. После этих глаголов в составе конструкции часто используется глагол <b>to be</b>	Philip was known to be a young man without money. Знали, что Филипп был молодым человеком без денег.
3	С глаголом <b>to make</b> заставлять (в <b>страдательном</b> залоге).	Little Bob was made to put on some warm clothes. Маленького Боба заставили надеть теплую одежду.
4	С глаголами в значении <b>сообщения</b> : <b>to say</b> говорить, <b>to report</b> сообщать, <b>to state</b> утверждать в страдательном залоге.	He is said to have gone to work to Siberia. Говорят, что он уехал работать в Сибирь.

1	2	3
5	В <b>действительном</b> залоге с глаголами: <b>to seem</b> казаться (по-видимому), <b>to happen</b> случаться (случается, случилось), <b>to prove</b> доказывать (оказывается, оказалось), <b>to be likely</b> вероятно, <b>to be unlikely</b> вряд ли, <b>to be sure, to be certain</b> быть уверенным (наверняка), <b>to turn out</b> оказываться (оказалось) и т. п.	They are unlikely to come in time. Они вряд ли придут вовремя. The work proved to be useful. Работа оказалась полезной (= Работа, как оказалось, была полезной). They seemed to have forgotten him. Они, казалось, забыли его.

### §6. Конструкция *for-to*-инфинитив / **For-to-Infinitive**

Данная конструкция (инфинитивный оборот с предлогом *for*) представляет собой сочетание существительного в общем падеже или личного местоимения в объектном падеже с инфинитивом при помощи предлога *for*:

	Предлог <i>for</i>	Существительное (в общем падеже) или личное местоимение (в объектном падеже)	Инфинитив
Here is the book	<b>for</b>	you	<b>to read.</b>
Вот книга, которую вам надо прочитать.			

При переводе существительное или местоимение такой конструкции становится подлежащим, а инфинитив – сказуемым. Инфинитив при этом может употребляться как в действительном, так и в страдательном залоге. Конструкцию можно переводить: 1) инфинитивом, 2) существительным, 3) придаточным предложением.

#### Функции конструкции «*for-to-infinitive*» в предложении

№ п/п	Функция	Пример
1	2	3
1	<b>Подлежащее</b> (часто с вводным <b>it</b> )	<u>It</u> is shame <b>for me to ask.</b> Для меня просить - стыдно.



1	2	3
2	Сказуемое	The instruction is <b>for the engineers to follow</b> . Инструкция предназначена для того, чтобы инженеры ее выполняли.
3	Дополнение	He waited <b>for her to speak</b> . Он ждал, когда она заговорит.
4	Определение	The best thing <b>for you to do</b> is to obey. Лучшее, что вам следует сделать - подчиниться.
5	Обстоятельство цели	He stepped aside <b>for me to pass</b> . Он отошел в сторону, чтобы я смог пройти.
6	Обстоятельство результата	He spoke loud enough <b>for you to hear</b> . Он говорил достаточно громко, чтобы вы могли слышать.

## §7. Самостоятельный инфинитивный оборот / Absolute Infinitive Construction

В английском языке самостоятельный инфинитивный оборот состоит из существительного в общем падеже и инфинитива. В таком обороте существительное обозначает лицо или предмет, совершающий действие, выраженное инфинитивом, или подвергающийся этому действию. Он стоит в конце предложения и отделен запятой, на русский язык переводится предложением с союзом "причем", в котором глагол выражает долженствование. Самостоятельный инфинитивный оборот чаще встречается в юридических текстах и в коммерческих документах (контрактах и т. д.):

The sellers offered the buyers 5,000 tons of oil, **delivery to be made** in October. Продавцы предложили покупателям 5000 тонн нефти, причем поставка должна была быть произведена в октябре.

The buyers requested the sellers to keep them informed of the position of the vessel, **the communications to be addressed** to their agents. Покупатели просили продавцов держать их в курсе местонахождения судна, причем сообщения должны были направляться их агентам.

## §8. Причастие в английском языке / The Participle

**Причастие** относится к неличным формам глагола и обладает признаками как прилагательного (иногда наречия), так и глагола. Глагольными признаками причастия являются его способность иметь прямое дополнение, определяться наречием и иметь формы времени и залога. Время, выраженное причастием, носит относительный характер, т.е. соотносится с действием глагола-сказуемого предложения и выражает либо одновременность, либо предшествование этому действию.

Причастия в английском языке подразделяются на причастие I (Participle I) и причастие II (Participle II).

### Формы причастия

<b>Participle I</b>	<b>Active</b>	<b>Passive</b>
Indefinite	asking	having asked
Perfect	being asked	having been asked
<b>Participle II</b>		having been asked

## §9. Причастие I / Participle I

Причастие I (причастие настоящего времени / Present Participle Active) образуется путем прибавления суффикса -ing к основе глагола: buy – buying – покупающий, покупая; работающий, работая.

Причастие I в форме Indefiniti обозначает действие, которое происходит одновременно с действием глагола-сказуемого.

### Орфографические изменения при прибавлении -ING

№ п/п	Правило	Пример
1	2	3
1	Конечная нечитаемая буква -e отбрасывается	to take брать - taking
2	Читаемая конечная -e не отбрасывается	to see видеть - seeing to be быть - being
3	Сочетание букв -ie меняется на букву y	to lie лежать - lying
4	Конечная -u при прибавлении -ing всегда сохраняется	to copy копировать - copying

1	2	3
5	Если последний слог краткий и стоит под ударением, а слово оканчивается на одну согласную, то эта согласная перед -ing удваивается	to sit сидеть - <u>sitting</u> to commit совершать - <u>committing</u>
6	Если последний слог не ударный, то удвоения конечной согласной не происходит	to differ различаться - <u>differing</u> to limit ограничивать - <u>limiting</u>

### Функции причастия I в предложении

№ п/п	Функция	Пример
1	<b>Определение</b> Употребляется перед определяемым существительным. На русский язык переводится причастием действительного залога настоящего времени. Употребляется после существительного. В этом случае переводится на русский язык причастным оборотом	Blooming trees are very beautiful. Цветущие деревья очень красивые. Look at the trees blooming in our garden. Посмотри на деревья, цветущие в нашем саду.
2	<b>Обстоятельство</b> Употребляется в начале или в конце предложения. В этом случае причастие I обычно переводится на русский язык деепричастием, оканчивающимся на -(а)я	Reading an English book he wrote out many new words. Читая английскую книгу, он выписал много новых слов.
3	<b>Именная часть сказуемого</b> В этом случае причастие I вместе с глаголом to be является сказуемым предложения в одном из времен группы Continuous. Такие сказуемые переводятся на русский язык глаголом в личной форме в соответствующем времени	They will be working at that time tomorrow. Они будут работать завтра в это время.

### §10. Причастие II / Participle II

**Причастие II** (причастие прошедшего времени / Past Participle) имеет одну неизменяемую форму со страдательным значением: от

стандартных (правильных) глаголов образуется прибавлением к основе глагола суффикса -ed с соответствующими орфографическими изменениями: to solve решать – solved решенный (-ая, -ое).

**Причастие II** нестандартных (неправильных) глаголов соответствует 3-й форме этих глаголов: to speak - spoke - spoken, to make - made - made, to go - went - gone.

### Функции причастия II в предложении

№ п/п	Функция	Пример
1	<b>Определение</b> В этой функции причастие II употребляется либо перед определяемым словом, либо после него. На русский язык причастие II обычно переводится причастием страдательного залога (-мый, -щийся, -нный, -тый, -вшийся)	The described method is very effective. Описанный метод очень эффективен. The method used depends on the material selected. Используемый метод зависит от выбранного материала.
2	<b>Обстоятельство причины</b> Соответствует в русском языке причастиям (-мый, -щийся, -нный, -тый, -вшийся) или придаточным предложениям причины	Well-known all over the world the Russian book on electronics was also translated into English. Так как русская книга по электронике известна во всем мире, она была переведена и на английский язык.
	<b>Обстоятельство времени</b> Соответствует в русском языке придаточным предложениям времени. Такие обстоятельственные причастные обороты могут иногда вводиться союзами when когда, while в то время как, во время	When given the book read the article about environment protection. Когда вам дадут книгу, прочтите статью об охране окружающей среды.
3	<b>Часть сказуемого</b> В этом случае причастие II вместе с глаголом to have является сказуемым предложения в одном из времен группы Perfect	He had translated the text before I came. Он перевел текст, прежде чем я пришел.

## §11. Причастие I перфектное / Participle I Perfect

**Причастие I** в форме **Perfect** обозначает действие, предшествующее действию глагола сказуемого. Образуется от причастия I вспомогательного глагола to have – **having** и причастия II смыслового глагола: **having translated** - переведя, **having done** - сделав. Отрицательная форма образуется добавлением отрицательной частицы not перед перфектным причастием: not having translated - не переведя, not having done - не сделав.

Причастие I перфектное показывает, что выражаемое им действие произошло ранее действия, выраженного сказуемым предложения; в предложении оно может выполнять только функцию обстоятельства, т. е. соответствовать русскому деепричастию совершенного вида.

Participle I Perfect может употребляться в **функции обстоятельства причины и времени**:

1. Having lost the key, the boy couldn't get into the house. Потеряв ключ, мальчик не мог попасть в дом.

2. Having graduated from the University, he decided to go to the Far East. Окончив университет, он решил поехать на Дальний Восток.

Вместо причастия I перфектного в функции обстоятельства времени часто употребляется герундий с предлогами after и on:

After leaving (= having left) school, John Reed went to Harvard University. По окончании средней школы (= окончив среднюю школу) Джон Рид поступил в Гарвардский университет.

**Примечания:** Причастие I в форме Indefinite от глаголов **see, hear, look, seize, turn, leave, arrive, come, enter, pass, open, close** и др. может обозначать действие последовательное или предшествующее действию глагола-сказуемого: Coming home I phoned my parents/ - Придя домой, я позвонил родителям. Hearing the news, I ran to tell it to everybody. – Услышав новости, я побежал всем их рассказывать.

## §12. Объектная причастная конструкция / The Objective Participial Construction

Объектная причастная конструкция представляет собой сочетание существительного в общем падеже или местоимения в объектном падеже и причастия (в этой конструкции может использоваться как причастие I, так и причастие II). В предложении эта конструкция выполняет функцию сложного дополнения; в русском языке ей обычно соответствует дополнительное придаточное предложение, вводимое союзом как или что:

I see **him losing** his temper. Я вижу, что он выходит из себя. I heard **him talking** to the manager. Я слышал, как он разговаривал с менеджером.

### Случаи употребления объектной причастной конструкции

№ п/п	Случай употребления	Пример
1	После глаголов <b>чувственного восприятия</b> : <b>to hear</b> слышать, <b>to see</b> видеть, <b>to watch</b> наблюдать, смотреть, <b>to feel</b> чувствовать, <b>to observe</b> наблюдать, <b>to notice</b> замечать и др.	She could feel her hands trembling. Она чувствовала, как у нее дрожали руки.
2	После глаголов, обозначающих <b>умственную деятельность</b> : <b>to know</b> знать, <b>to think</b> думать, <b>to consider</b> , <b>to believe</b> , <b>to suppose</b> думать, полагать, <b>to expect</b> ожидать, <b>to imagine</b> представлять, <b>to find</b> находить, узнавать, <b>to trust</b> верить, <b>to assume</b> допускать, предполагать и др.	I consider myself engaged to him. Я считаю себя помолвленной с ним.
3	После глаголов, обозначающих <b>желание</b> ; в этом случае используется только <b>причастие II</b>	I want it done quickly. Я хочу, чтобы это было сделано быстро.
4	После глаголов to have и to get (в значении <b>распоряжения</b> ); в этом случае используется только <b>причастие II</b>	I had my piano tuned. Мне настроили пианино.

### §13. Субъектная причастная конструкция / The Subjective Participial Construction

Субъектная причастная конструкция представляет собой сочетание существительного в общем падеже или местоимения в именительном падеже и причастия (в основном причастия I). Существительное (или местоимение) является подлежащим предложения. Особенность этой конструкции – в том, что она не выступает как единый член предложения: один ее компонент – подлежащее, другой – часть составного глагольного сказуемого. Конструкция в основном употребляется после глаголов **чувственного восприятия**: **to hear** слышать, **to see** видеть, **to watch** наблюдать, смотреть, **to feel** чувствовать, **to observe** наблюдать, **to notice** замечать и др. в **страдательном залоге**.

**The horse** was seen **going** down the hill. Видели, как лошадь спускалась вниз по холму. **They** were heard **talking** together. Слышали, как они разговаривали.

### §14. Независимый причастный оборот / The Nominative Absolute Construction

Независимый причастный оборот представляет собой сочетание существительного в общем падеже или местоимения в именительном падеже и причастия (причем существительное или местоимение не является подлежащим в предложении). В конструкции может использоваться как причастие I, так и причастие II:

**The door of the room being open**, we came in. Так как дверь комнаты была открыта, мы вошли. **All the money having been spent**, he started looking for work. После того, как все деньги были потрачены, он начал искать работу.

В предложении независимый причастный оборот выделяется запятой и выполняет функцию обстоятельства.

Если независимый причастный оборот стоит в начале предложения, он переводится на русский язык придаточным предложением времени, причины, условия с союзами когда, так как, если. Независимый причастный оборот в конце предложения обычно переводится самостоятельным предложением (иногда со словами при этом, причем).

## Функции независимого причастного оборота в предложении

№ п/п	Функция	Пример
1	Обстоятельство времени	This duty completed, he had a leave. Когда эта работа была закончена, он получил отпуск.
2	Обстоятельство причины	It being now pretty late, we went home. Так как было довольно поздно, мы пошли домой.
3	Обстоятельство условия	Weather permitting, we'll start tomorrow. Если погода позволит, мы двинемся завтра.
4	Сопутствующие обстоятельства	Any moving object is able to do the work, the quantity of kinetic energy depending on its mass and velocity. Любое движущееся тело способно совершать работу, при этом количество кинетической энергии зависит от массы и скорости.

### §15. Герундий / The Gerund

**Герундий** представляет собой неличную глагольную форму, выражающую название действия и обладающую как свойствами существительного, так и свойствами глагола. В русском языке соответствующая форма отсутствует. Герундий обозначает действия, процессы, состояния и образуется прибавлением суффикса **-ing** к основе глагола: to read – **reading** - чтение. Его функции во многом сходны с функциями инфинитива, также сочетающего свойства существительного со свойствами глагола. Герундий, однако, имеет больше свойств существительного, чем инфинитив.

#### Формы герундия

	<b>Active</b>	<b>Passive</b>
<b>Indefinite</b>	asking	being asked
<b>Perfect</b>	having asked	having been asked



## Сходство герундия с существительным

1	Может иметь определение, выраженное притяжательным местоимением или существительным в притяжательном или общем падеже	I know of your <b>reading</b> . Я знаю, что вы много читаете.
2	Может сочетаться с предлогом	I insist <b>on</b> your <b>going</b> there now. Я настаиваю на том, чтобы вы пошли туда сейчас.
3	В предложении выполняет те же функции	

### §16. Функции герундия в предложении / Functions of the Gerund

№ п/п	Функция	Пример
1	<b>Подлежащее</b>	<b>Running</b> long distances requires much training. Бег на длинные дистанции требует хорошей тренировки.
2	<b>Именная часть составного сказуемого</b>	My favourite form of rest is <b>reading</b> . Мой любимый вид отдыха – чтение.
3	<b>Прямое дополнение</b>	I like <b>reading</b> books. Я люблю читать книги.
4	<b>Предложное дополнение</b>	I heard of his <b>being sent</b> to the South. Я слышал о том, что его посылают на юг.
5	<b>Определение (обычно с предлогами of и for)</b>	I like his method of <b>teaching</b> . Мне нравится его метод преподавания.
6	<b>Обстоятельство</b>	After <b>working</b> at some plant you will know your speciality better. После того как вы поработаете на заводе, вы лучше овладеете своей специальностью.

## Сходство герундия с глаголом

1	Имеет залог (действительный и страдательный)	I like <b>writing</b> letters. Я люблю писать письма. The baby likes <b>being spoken</b> to. Ребенок любит, когда с ним разговаривают.
2	Имеет простую и перфектную формы. Перфектный герундий, так же как и перфектный инфинитив, выражает действие, которое произошло ранее действия, выраженного сказуемым	I know of his <b>coming</b> to Moscow. Я знаю, что он приезжает в Москву. I know of his having come to Moscow. Я знаю, что он приехал в Москву.
3	Может иметь прямое дополнение	I like reading books. Я люблю читать книги.
4	Может определяться обстоятельством, выраженным наречием	I like walking slowly. Я люблю ходить медленно.

В русском языке нет форм, соответствующих формам герундия, ввиду чего изолированно, вне предложения, они не могут быть переведены на русский язык. Indefinite Gerund Active по своему значению приближается к русскому отглагольному существительному: **reading** чтение, **smoking** курение, **waiting** ожидание.

### §17. Герундий в форме действительного и страдательного залога / Active Gerund / Passive Gerund

Герундий может выражать действие, не относящееся к определенному лицу или предмету:

**Swimming** is a good exercise.

Плавание – хорошее физическое упражнение.

В большинстве случаев, однако, действие, выраженное герундием, относится к определенному лицу или предмету:

I think of **going** to the south in the summer. Я думаю поехать на юг летом. (**going** относится к подлежащему I)

Thank **you** for **coming**. Благодарю вас за то, что вы пришли. (**coming** относится к дополнению you)

Когда действие, выраженное герундием, совершается лицом (или предметом), к которому оно относится, то употребляется герундий в форме **Active**:

He likes **inviting** his friends to his house.

Он любит приглашать к себе своих друзей.

I remember **showing** her that letter.

Я помню, что я показывал ей это

He entered the room without

письмо.

**noticing** her.

Он вошел в комнату, не заметив ее.

Когда же действие, выраженное герундием, совершается над лицом (или предметом), к которому оно относится, то употребляется герундий в форме **Passive**:

He likes **being invited** by his friends.

Он любит, когда его приглашают его друзья.

I remember **having been shown** the letter.

Я помню, что мне показывали это письмо.

He entered the room without **being noticed**.

Он вошел в комнату незамеченным.

В некоторых случаях герундий в форме **Active** употребляется со значением герундия в форме **Passive**. Это возможно после глаголов **to need, to want, to require** нуждаться, требоваться и после прилагательного **worth** стоящий:

My shoes need **repairing**.

Мои ботинки нужно починить.

(a не: being repaired)

This dress wants **washing**.

Это платье надо выстирать.

(a не: being washed)

These bags require **drying**.

Эти мешки надо просушить.

(a не: being dried)

The book is worth **reading**.

Эту книгу стоит прочесть.

(a не: being read)

## §18. Герундий в форме **Indefinite** и **Perfect** / **Indefinite Gerund** / **Perfect Gerund**

### Употребление герундия в форме **Indefinite**

№ п/п	Случай употребления	Пример
1	Когда действие, которое он выражает, одновременно с действием, выраженным глаголом в личной форме	I am surprised at <b>hearing</b> this. Я удивлен слышать это. I was quite disappointed at not <b>finding</b> him there. Я был очень разочарован, не застав его там.
2	Когда действие, которое он выражает, относится к будущему времени	We intend <b>shipping</b> the goods in May. Мы намерены отгрузить товары в мае. We think of <b>going</b> there in the summer. Мы думаем поехать туда летом.
3	Когда действие, которое он выражает, безотносительно ко времени его совершения	<b>Swimming</b> is a good exercise. Плавание — хорошее физическое упражнение. <b>Loading</b> heavy weights requires great skill. Погрузка тяжелых грузов требует большого искусства.

Герундий в форме **Perfect** употребляется, когда действие, которое он выражает, предшествует действию, выраженному глаголом в личной форме:

I don't remember <b>having seen</b> him before.	Я не помню, чтобы я его раньше видел.
He mentioned <b>having read</b> it in the paper.	Он упомянул о том, что читал это в газете.

После предлогов **on (upon)** и **after** обычно употребляется **Indefinite Gerund**, хотя в этих случаях действие, выраженное герундием, предшествует действию, выраженному глаголом в личной форме:

<b>On receiving</b> the answer of the firm we handed all the documents to our legal adviser.	Получив ответ фирмы, мы передали все документы нашему юрисконсульту.
--	--

**After concluding** the contract he                      **Заклучив**                      **контракт**,  
representative of the firm left                      **представитель** **фирмы** **уехал** **из**  
**Moscow.**                      **Москвы.**

**Indefinite Gerund**, а не **Perfect Gerund** употребляется и в других случаях, когда нет необходимости подчеркнуть, что действие, выраженное герундием, предшествовало действию, выраженному глаголом в личной форме. Так, например, говорят:

I thank you for **coming**.                      **Благодарю** вас, что вы пришли.  
(a не: for having come)  
He apologized for **leaving** the door                      **Он извинился**, что оставил дверь  
open.                      **открытой.**  
(a не: for having left)

## **§19. Употребление герундия в различных функциях / The Usage of Gerund in Different Functions**

Наиболее часто герундий употребляется после предлогов. Поскольку предлоги могут управлять только существительными (или местоимениями), всякий глагол после предлога принимает форму герундия, т. е. форму глагола, наиболее близкую по своим свойствам к существительному. После предлогов герундий выступает в функции предложного косвенного дополнения, определения, обстоятельства именной части сказуемого.

Без предшествующего предлога герундий употребляется как часть составного глагольного сказуемого, а также в функции именной части сказуемого, подлежащего и прямого дополнения.

### **Употребление герундия после предлогов**

В функции **предложного косвенного дополнения** герундий употребляется после многих глаголов, прилагательных и причастий, требующих определенных предлогов:

I am fond **of reading**.                      **Я люблю** читать.  
When do you think **of going** there?                      **Когда** вы думаете поехать туда?

**Список основных глаголов и глагольных сочетаний, причастий и прилагательных, за которыми следует герундий**

<p><b>to be disappointed at</b> <i>быть разочарованным в</i></p> <p><b>to accuse of</b> <i>обвинять в</i></p> <p><b>to approve (disapprove) of</b> <i>одобрять (не одобрять) что-л.</i></p> <p><b>to think of</b> <i>думать о</i></p> <p><b>to prevent from</b> <i>препятствовать, мешать (сделать что-л.)</i></p> <p><b>to consist in</b> <i>заключаться в</i></p> <p><b>to be fond of</b> <i>любить что-л.</i></p> <p><b>to be proud of</b> <i>гордиться чем-л.</i></p> <p><b>to count on (upon) = to depend on (upon)</b> <i>рассчитывать на</i></p> <p><b>to succeed in</b> <i>удаваться</i></p> <p><b>to insist on (upon)</b> <i>настаивать на</i></p> <p><b>to be interested in</b> <i>интересоваться чем-л.</i></p> <p><b>to be tired of</b> <i>уставать от чего-л.</i></p> <p><b>to get used to</b> <i>привыкать к</i></p> <p><b>to be used to</b> <i>привыкнуть к</i></p> <p><b>to go on</b> <i>продолжать(ся)</i></p> <p><b>to suggest</b> <i>предлагать</i></p>	<p><b>to be surprised at</b> <i>удивляться чему-л.</i></p> <p><b>to suspect of</b> <i>подозревать в</i></p> <p><b>to be responsible for</b> <i>быть ответственным за</i></p> <p><b>to hear of</b> <i>слышать о</i></p> <p><b>to be afraid of</b> <i>бояться чего-л.</i></p> <p><b>to be capable (incapable) of</b> <i>быть способным (неспособным) на</i></p> <p><b>to persist in</b> <i>упорно продолжать что-л.</i></p> <p><b>to result in</b> <i>иметь результатом что-л., приводить к чему-л.</i></p> <p><b>to spend in</b> <i>тратить (время) на что-л.</i></p> <p><b>to be engaged in</b> <i>заниматься чем-л.</i></p> <p><b>to object to</b> <i>возражать против</i></p> <p><b>to thank for</b> <i>благодарить за что-либо</i></p> <p><b>can't help</b> <i>не мочь не</i></p> <p><b>to mind</b> <i>возражать</i></p> <p><b>to start</b> <i>начинать</i></p> <p><b>to want</b> <i>хотеть</i></p> <p><b>to need</b> <i>нуждаться</i></p> <p><b>to finish</b> <i>заканчивать</i></p>
--	--

**Примеры:**

I am fond of **skating**. Я люблю кататься на коньках.

Go on **reading**, please. Продолжайте читать, пожалуйста.

Thank you for your **coming** here. Благодарю вас за то, что вы пришли сюда.

Would you mind **opening** the window? Вы не будете возражать, если я открою окно?

He thought of **going** to the theatre. Он думал о том, чтобы пойти в театр.

I couldn't help **laughing**. Я не мог не засмеяться.

После некоторых из перечисленных причастий и прилагательных наряду с герундием употребляется инфинитив:

I am proud **of being** a citizen of Russia. = I am proud **to be** a citizen of Russia. Я горжусь тем, что являюсь гражданином России.

В функции **предложного косвенного дополнения** герундий употребляется с предлогом **in** и ставится после различных существительных (отвечающих на вопрос **in what?** в чем?):

He felt satisfaction **in helping** them. Он чувствовал удовлетворение в том, что помог им.

There is no harm **in doing** that. Нет ничего плохого в том, чтобы сделать это.

Did you find any difficulty **in solving** this problem? Встретили ли вы какие-нибудь затруднения в разрешении этой проблемы?

### Основные глаголы, после которых могут употребляться как герундий, так и инфинитив

<b>to begin</b> <i>начинать</i>	<b>to continue</b> <i>продолжать</i>
<b>to like</b> <i>нравиться, любить</i>	<b>to prefer</b> <i>предпочитать</i>

### Перевод герундия на русский язык

№ п/п	Способ	Пример
1	2	3
1	Отглагольным именем существительным	<b>Reading</b> English newspapers helps in <b>learning</b> English. Чтение английских газет помогает в изучении английского языка.
2	Инфинитивом	He likes <b>playing</b> chess. Он любит играть в шахматы.
3	Деепричастием	You can't learn English well without <b>practicing</b> every day. Вы не сможете овладеть английским хорошо, не практикуясь каждый день.
4	Придаточным предложением	I know of his <b>having written</b> a good article. Я знаю о том, что он написал хорошую статью.

## §20. Сослагательное наклонение / The Subjunctive Mood

### Сослагательное наклонение в условных придаточных предложениях

Наклонение – это грамматическая категория, которая отражает характеристику модальности глагола, как-то: действительность, возможность, вероятность, способность, желание, приказ и т. д. В русском языке различают изъявительное (*говорю*), условное/сослагательное (*говорил бы*) и повелительное (*говори*) наклонения.

В английском языке существуют условные предложения двух типов: реального условия и нереального условия. В условных предложениях реального условия используется изъявительное наклонение. В условных предложениях I и II типа нереального условия – сослагательное.

#### Изъявительное наклонение

**Реальное** условие, где предложение чаще всего относится к будущему времени.

1.	If + Present Simple	... Future Simple
2.	... Future Simple	if + Present Simple

**If I see her, I will give her your love.** Если я увижу ее, я передам ей от тебя привет.

**If you finish on time, you will go to the movies.** Если ты закончишь вовремя, то сходишь в кино.

The match **will be cancelled if it rains.** Матч отменят, если пойдет дождь. You **will be late if you don't hurry up.** Ты опоздаешь, если не поторопишься.

I **will buy** a car **if I get** my rise. Я куплю машину, если мне повысят зарплату.

**If the weather is fine, we shall go** for a walk. Если погода будет хорошая, мы пойдем погулять.

**If they do the task in time, they will join** us in the evening. Если они выполнят задание вовремя, они присоединятся к нам вечером.



**If you bring** some vegetables, **I will make** salad for supper. Если ты принесешь овощи, я приготовлю салат на ужин.

**If he doesn't earn** enough money, **he won't go** to the South in summer. Если он не заработает достаточно денег, он не поедет на юг летом.

**Примечание:** при переводе предложений данного типа на русский язык и условие, и утверждение, как правило, выражаются будущим временем.

### **Использование модальных глаголов в предложении-результате**

В предложении-результате могут использоваться модальные глаголы для описания возможности в будущем, разрешения, совета и т.п.:

**If you finish** your work, **you can go out** and play. Если ты закончишь работу, то можешь пойти на улицу поиграть.

**You should see** a doctor **if you continue** to feel bad. Вам следует сходить к врачу, если вы и дальше будете плохо себя чувствовать.

**If I arrive** early, **I might give** him a call. Если я прибуду рано, я, возможно, позвоню ему.

### **Использование союзов provided (that), as long as**

Вместо союза **if** могут использоваться союзы **provided (that)** и **as long as**, чтобы подчеркнуть, что для того, чтобы произошло то, что описано в предложении-результате, должно быть выполнено определенное условие:

**Provided (that)** he **finishes** his studies, **he will find** an excellent job. (= **If he finishes** his studies, **he will find** an excellent job.) В том случае, если он закончит обучение, он найдет отличную работу.

**As long as** you **pay off** the loan, the house **will be** yours at the end of this year. (= **If you pay off** the loan, the house **will be** yours at the end of this year.) Если вы выплатите заем, дом станет вашим до конца этого года.

## §21. Сослагательное наклонение (I тип) / The Subjunctive Mood (I)

**Маловероятное или нереальное условие.** И условие, и следствие относятся к **настоящему** или **будущему** времени. На русский язык данные предложения переводятся в сослагательном наклонении, т. е. с частицей "бы".

1.	If + Past Simple	... would + Infinitive
2.	...would + Infinitive	if + Past Simple

**If he arrived**, we **would invite** him to dinner. Если бы он пришел, мы бы пригласили его поужинать с нами.

**If he studied**, he **would pass** the exam. Если бы он готовился, он бы сдал экзамен.

**If you asked**, they **would help** you. Если бы ты попросил, они бы помогли тебе.

**If it rained**, you **would get** wet. Если бы пошел дождь, ты бы промок.

**If you loved** her, she **would love** you. Если бы ты любил ее, она бы полюбила тебя.

**If you didn't get** your salary what **would** you **do**? Если бы ты не получил зарплату, что бы ты делал?

I **would buy** a new car **if I had** more money. Я бы купил новую машину, если бы у меня было больше денег.

He **would pass** the exam **if he studied** more. Он бы сдал экзамен, если бы он больше занимался.

I **would lower** the taxes **if I were** the President. Я бы снизил налоги, если бы я был президентом.

**Примечание:** Форма глагола **to be** в Past Simple в сослагательном наклонении и для единственного, и для множественного числа - **were**:

**If I were** younger, I **would ask** you out. — Если бы я был помоложе, я бы пригласил тебя на свидание.

**If it weren't** raining, I'd **go** for a walk. Если бы не было дождя, я пошел бы гулять.

## Модальный глагол **could** в условии

If I **could ride** a bike, I **would join** your bike tour – Если бы я умел ездить на велосипеде, я бы присоединился к вашему велопробегу.

## Использование модальных глаголов в предложении-результате

В предложении-результате вместо **would** может использоваться глагол **could** в значении "суметь". Синонимичная конструкция – **would be able to**:

If you **were** more serious about your work, you **could** (= **would be able to**) **finish** it in time. Если бы ты относился к своей работе серьезно, ты бы смог закончить ее вовремя.

If I **had** more money, I **could** (= **would be able to**) **buy** a new car. Если бы у меня было больше денег, я мог бы купить новую машину.

If you **spoke** a foreign language, you **could** (= **would be able to**) **get** a better job. Если бы ты говорил на каком-нибудь иностранном языке, ты бы смог найти работу лучше.

В предложении-результате вместо **would** может использоваться глагол **might** в значении "может быть", "возможно". Синонимичные конструкции – **would perhaps** и **would probably**:

If you **requested** them more politely, they **might** (= **would perhaps**) **help** you. Если бы ты обратился к ним вежливее, они, возможно, помогли бы тебе.

## Конструкция **were to**

После союза **if** в условном предложении может следовать конструкция "**подлежащее + were to**", чтобы показать, что речь идет о воображаемой ситуации:

If I **were to buy** a new car, what **would** you **say**? Если бы я купил новую машину, что бы ты сказал?

If you **were to lose** your job, what **would** you **do**? Если бы ты потерял работу, что бы ты сделал?

Существуют **устойчивые обороты**, которые нужно запомнить:

**If I were you...** - Я бы на твоём месте...

If I were you, I would study for the exam. Я бы на твоём месте готовился к экзамену.

## §22. Сослагательное наклонение (II тип) / The Subjunctive Mood (II)

**Несостоявшееся условие.** Условие и следствие относятся к прошедшему времени.

1.	If + Past Perfect	...would + Perfect Infinitive
2.	... would + Perfect Infinitive	if + Past Perfect

**If you had listened** to me, we **would have been** home now – Если бы ты меня послушался, мы бы сейчас уже были дома.

**If the weather had been** better yesterday, I **would have gone** fishing. – Если бы погода вчера была лучше, я бы сходил порыбачить.

**If he had met** us, he **would have gone** to the country with us. Если бы он встретил нас, он бы поехал с нами за город.

I **should have read** this book if I **had got** it a week ago. Я бы прочитал эту книгу, если бы я достал ее неделю назад.

He **would have come** if they **had invited** him. Он бы пришел, если бы они пригласили его.

Для того, чтобы выразить **несостоявшееся** условие, часто используется и другая модель:

**Had they invited** him he **would have come**.

### Смешанный тип

**Несостоявшиеся** события. Условие и следствие относятся к разному времени – одно к прошедшему, другое к настоящему или будущему.

1.	If + Past Simple	... would + Perfect Infinitive
2.	If + Past Perfect	... would + Infinitive

**If I didn't know** English, I **would have asked** you to translate it for me yesterday.

Если бы я не знал английский, я бы попросил тебя перевести это вчера.

**If you had had** a rest yesterday, you **wouldn't be** so tired now.

Если бы ты отдохнул вчера, ты бы не был таким усталым сейчас.

### Сослагательное наклонение в дополнительных придаточных предложениях

1. Сослагательное наклонение употребляется в дополнительных придаточных предложениях после глаголов **insist, suggest, demand, order, propose** и др. и выражает **желательное** или **рекомендуемое** действие

The University **insists** that all applicants **should take** an entrance exam. Университет требует, чтобы все абитуриенты сдавали вступительный экзамен.

2. Сослагательное наклонение употребляется в дополнительных придаточных предложениях после глагола **wish** в значении **хотелось бы, чтобы..., жаль, что это невозможно.**

I **wish** he **arrived** next week/ - Жаль, что он не приедет на следующей неделе. (Как бы мне хотелось, чтобы он приехал на следующей неделе.)

Past Simple в придаточном предложении выражает сожаление по поводу настоящего или будущего действия.

I **wish** I **had known** your address. – Жаль, что я не знал Вашего адреса. (Как бы мне хотелось знать ваш адрес.)

Действие, выраженное формой глагола в Past Perfect (**had known**), выражает сожаление по поводу прошедшего действия.

Глагол **to be** в сослагательном наклонении имеет форму **were** для выражения действий, относящихся к настоящему и будущему времени. В разговорной речи допускается форма **was**.

She wishes she **were** taller. – Жаль, что она невысокая. (Ей хотелось бы быть выше ростом.)

## §23. Сложное предложение / The Compound Sentence and the Complex Sentence

Сложное предложение состоит из двух или нескольких простых предложений, выражающих одну сложную мысль.

Сложные предложения бывают двух типов: сложносочиненные (the Compound Sentences) и сложноподчиненные (the Complex Sentences).

### Сложносочиненное предложение / The Compound Sentence

Сложносочиненное предложение состоит из равноправных простых предложений, не зависящих друг от друга. Простые предложения, входящие в состав сложносочиненного, соединяются сочинительными союзами: and и, а, but но, or или и др. Они обычно отделяются запятой.

He speaks English, and his sister speaks German.

Он говорит по-английски, а его сестра говорит по-немецки.

The signal was given, and the steamer moved slowly from the dock.

Сигнал был дан, и пароход медленно отошел от пристани.

Два или несколько простых предложений, как и в русском языке, могут соединяться в сложносочиненное предложение и без союзов. В этом случае между простыми предложениями можно по смыслу вставить союз **and** - и, а. Между предложениями, входящими в состав бессоюзного сложносочиненного предложения, ставится точка с запятой:

The signal was given; the steamer moved slowly from the dock.

Сигнал был дан; пароход медленно отошел от пристани.

### Сложноподчиненное предложение / The Complex Sentence

Сложноподчиненное предложение состоит из неравноправных предложений, одно предложение является зависимым от другого.

Предложение, которое поясняет другое предложение, называется придаточным (the Subordinate Clause). Предложение, которое поясняется придаточным предложением, называется главным (the Principal Clause). Предложения, входящие в состав сложноподчиненного предложения, соединяются союзами или союзными словами:

He thought	that the train arrived at 6.15.
(главное предложение)	(придаточное предложение)
Он думал,	что поезд приходит в 6.15.

Придаточные предложения, по сути, отвечают на те же вопросы, что и члены простого предложения, и являются как бы его развернутыми членами. Вот почему существует столько же видов придаточных предложений, сколько и членов предложения.

## §24. Типы придаточных предложений / Types of Clauses

Тип придаточного	Союзы и союзные слова, вводящие придаточные предложения	Пример
1	2	3
<b>Подлежащее</b>	that что, if, whether ли, who кто, what что, какой, which который	That he understands his mistake is clear. Ясно то, что он понимает свою ошибку.
<b>Сказуемое</b> (выполняет функцию именной части составного сказуемого)	that что, if, whether ли, who кто, what что, какой, which который	The question is whether he knows about this meeting. Вопрос заключается в том, знает ли он об этом собрании.
<b>Дополнительное</b>	that что, if, whether ли, who кто, what что, which который, when когда, where где, how как	We know where she lives. Мы знаем, где она живет.

1	2	3
<p>Если за глаголом следует существительное без предлога (или личное местоимение в именительном падеже), после которого употреблен глагол в личной форме, это существительное является подлежащим дополнительного придаточного предложения, которое присоединено к главному без союза: He said they had returned. Он сказал, (что) они вернулись.</p>		
<p><b>Определительное</b></p>	<p>who который, whose чей, которого, which, that который, where где, why почему</p>	<p>People who can neither hear nor speak talk to each other with the help of their fingers. Люди, которые не слышат и не говорят, объясняются друг с другом с помощью пальцев.</p>
<p>Если в предложении за двумя рядом стоящими существительными с артиклями или притяжательными местоимениями (или существительным и местоимением) употреблен глагол в личной форме, второе существительное (или местоимение) обычно является подлежащим определительного придаточного предложения, которое присоединено к главному без союзного слова: The students studied the machines they had to use on the farm. Студенты изучали машины, которые они должны были использовать в колхозе.</p> <p>Следовательно, на стыке двух существительных или существительного и местоимения союзное слово может опускаться: Give me the book you are speaking about. Дайте мне книгу, о которой вы говорите.</p>		
<p><b>Обстоятельства времени</b></p>	<p>when когда, after после того как, before до того как, прежде чем, till до тех пор пока, while в то время как</p>	<p>When babies laugh, we know that they are happy. Когда дети смеются, мы знаем, что они счастливы.</p>
<p><b>Обстоятельства места</b></p>	<p>where где, wherever где бы ни, куда бы ни</p>	<p>Wherever you go you must remember about it. Куда бы вы ни поехали, вы должны помнить об этом.</p>



1	2	3
<b>Обстоятельства причины</b>	because потому что, as, since так как	He cannot go to the cinema because he is busy. Он не может пойти в кино, потому что он занят.
<b>Обстоятельства образа действия</b>	as как, that что, as if, as though как будто и др.	She speaks so loudly that everybody can hear her. Она говорит так громко, что все могут ее слышать.
<b>Обстоятельства цели</b>	that чтобы, so that, in order that чтобы, для того чтобы, lest чтобы не	She must speak louder so that everybody can hear her well. Она должна говорить громче, чтобы все могли хорошо ее слышать.
<b>Обстоятельства условия</b>	if если, provided that, on condition that при условии что, unless если не	If he is free today, he must be at the conference. Если он сегодня свободен, он должен быть на конференции.

## §25. Английские фразовые глаголы, их значения, примеры употребления / Phrasal Verbs

Фразовый глагол представляет собой сочетание «простого» глагола (состоящего из одного слова) и предлога (реже двух) или наречия, представляющее единую семантическую и синтаксическую единицу.

Представляя собой идиому, фразовый глагол не может быть переведен дословно, хотя в редких случаях дословный перевод может помочь приблизительно понять суть выражения. Некоторые фразовые глаголы имеют несколько значений, одни из которых идиоматичны, другие, напротив, могут быть легко переведены дословным переводом составляющих. Практически всегда у фразового глагола имеется один или несколько синонимов среди обычных глаголов.

Стоит обратить внимание на то, что среди фразовых глаголов есть делимые (separable) и неделимые (inseparable) конструкции. Первые могут разделяться другим словом, обычно дополнением или

обстоятельством (глагол + дополнение + предлог). Неделимые фразовые глаголы делить нельзя, и любые дополнения, определения или другие слова должны идти либо перед, либо после них, как в случае с обычными глаголами.

Как и обычные, фразовые глаголы могут быть переходными (могут иметь прямое дополнение в винительном падеже без предлога) и непереходными (no object, не могут иметь прямое дополнение в винительном падеже без предлога).

	Фразовый глагол	Значение	Пример
1	2	3	4
<b>A</b>	<b>abide by</b>	respect or obey. (the law, a decision, a rule) уважать, подчиняться	If you want to stay at this school, you must <b>abide by</b> the rules.
	<b>account for</b>	explain, give a reason объяснять, отчитаться	I hope you can <b>account for</b> the money you spent!
	<b>add up</b>	make sense, seem reasonable соответствовать, иметь смысл	Her story just doesn't <b>add up</b> .
	<b>agree with</b>	have the same opinion as somebody else соглашаться с	I <b>agree with</b> you. I think she deserves the award too.
	<b>allow for</b>	take into consideration, include in a calculation вводить поправку, учитывать	You'd better leave early to <b>allow for</b> traffic jams.
	<b>answer back</b>	reply rudely дерзить, грубить (в ответ)	Don't <b>answer back</b> your mother!
	<b>apply for</b>	make a formal request for something (job, permit, loan etc.) обращаться (с просьбой)	He <b>applied for</b> the job he saw advertised in the newspaper.
<b>B</b>	<b>back away</b>	move backwards, in fear or dislike отступать, отказываться	When he saw the dog, he <b>backed away</b> .
	<b>back down</b>	withdraw, concede defeat отступать, уступить в споре	Local authorities <b>backed down</b> on their plans to demolish the building.

1	2	3	4
	<b>back up</b>	1) give support or encouragement поддержать 2) make a copy of (file, program, etc.) копировать	1) If I tell the boss we've got too much work, will you <b>back me up</b> ? 2) It is recommended to <b>back up</b> all files in a secure location.
	<b>bank on</b>	base your hopes on someone/something надеяться на	Don't forget the date. I'm <b>banking on</b> your help.
	<b>beef up</b>	improve, make more substantial улучшить, подкрепить	He <b>beefed up</b> his presentation with diagrams and statistics.
	<b>black out</b>	faint, lose consciousness падать в обморок, терять сознание	When he fell off the horse he <b>blacked out</b> .
	<b>block off</b>	Separate using a barrier ограждать	The area was <b>blocked off</b> during the demonstration.
	<b>blow up</b>	1) explode взрывать(ся); 2) be destroyed by an explosion разрушать(ся)	1) The terrorists said the bomb would <b>blow up</b> at 9 o'clock. 2) The car <b>blew up</b> but luckily there was nobody in it.
	<b>boil down to</b>	be summarized as сводить	The problem <b>boils down to</b> a lack of money.
	<b>break away</b>	escape from captivity сбежать, отделиться	A few horses <b>broke away</b> from the paddock.
	<b>break down</b>	1) go out of order, cease to function сломаться 2) lose control of one's emotions потерять контроль	1) John's car <b>broke down</b> so he had to take the bus. 2) The parents <b>broke down</b> when they heard the bad news.
	<b>break into</b>	enter by force вторгаться	Burglars <b>broke into</b> the house around midnight.
	<b>break out</b>	start suddenly начаться, вспыхнуть	Rioting <b>broke out</b> as a result of the strike.
	<b>break out of</b>	escape from a place by force сбежать, вырваться	Three prisoners <b>broke out</b> of jail.
	<b>break up</b>	come to an end (marriage, relationship) распадаться, прекращать	After her marriage <b>broke up</b> , Emma went to live in London.

1	2	3	4
	<b>bring up</b>	raise (a child) воспитывать	She stopped working in order to <b>bring up</b> her children.
	<b>brush up on</b>	improve, refresh one's knowledge of something освежить	Mary had to <b>brush up on</b> her Spanish before going to South America.
	<b>bump into</b>	meet by accident or unexpectedly наткнуться, повстречаться	Pedro <b>bumped into</b> his English teacher at the supermarket.
	<b>butt in (on sthg)</b>	interrupt impolitely вмешиваться, вступать	It's rude to <b>butt in</b> on a conversation like that!
C	<b>call back</b>	return a phone call перезвонить	I'll <b>call</b> you <b>back</b> as soon as possible.
	<b>call for</b>	go and collect someone to take them out заходить за кем-то	He called for her and they went to the cinema
	<b>call off</b>	cancel завершить, закончить	The meeting was <b>called off</b> because of the strike.
	<b>call up</b>	phone, telephone делать звонок (звонить)	Will you call me up in the evening?
	<b>call on/upon sby</b>	formally invite or request призывать	I now <b>call upon</b> the President to address the assembly.
	<b>calm down</b>	become more relaxed, less angry or upset успокоиться	He was angry at first but he eventually <b>calmed down</b> .
	<b>carry on</b>	continue продолжать	He <b>carried on</b> gardening in spite of the rain.
	<b>carry out</b>	1) do something as specified (a plan, an order, a threat) 2) perform or conduct (test, experiment) выполнять	1) The plan was <b>carried out</b> to perfection. 2) Tests are <b>carried out</b> to determine the efficiency of a new drug.
	<b>carry over</b>	postpone until later отложить, перенести	As regards holidays, can you carry over any days from one year to the next?
<b>check in</b>	register at a hotel or airport зарегистрироваться	For security reasons you have to <b>check in</b> two hours before your flight.	

1	2	3	4
	<b>check out</b>	1) pay one's bill and leave (a hotel) <b>выписаться</b> 2) investigate <b>проверить</b>	1) Is Mr. Blair still at the hotel? No, he <b>checked out</b> this morning. 2) I don't know if the address is still valid. I'll <b>check it out</b> .
	<b>clam up</b>	refuse to speak <b>замолчать</b>	When the teacher arrived she <b>clammed up</b> .
	<b>clamp down on</b>	act strictly to prevent something <b>подавлять, запрещать</b>	The government has decided to <b>clamp down on</b> smoking in public places.
	<b>close down</b>	stop operating (company, restaurant, cinema) <b>закрыть, закрывать</b>	When the factory <b>closed down</b> , the employees lost their jobs.
	<b>come across</b>	1) find by chance <b>обнаружить</b> 2) appear, seem, make an impression <b>производить впечатление, казаться</b>	1) Julie <b>came across</b> some photographs of her grandparents in the attic. 2) The candidate <b>came across</b> as a dynamic person during the interview.
	<b>come forward</b>	present oneself <b>представиться</b>	The police have asked any witnesses to <b>come forward</b> .
	<b>come up against</b>	be faced with or opposed by <b>подвергаться</b>	The project <b>came up against</b> a lot of criticism.
	<b>conk out</b>	1) stop working <b>сломаться</b> 2) stop or fall asleep (from exhaustion) <b>уснуть</b>	1) The car <b>conked out</b> on the motorway. 2) He was so exhausted, he <b>conked out</b> in front of the TV.
	<b>count on</b>	rely or depend on (for help) <b>полагаться, зависеть от</b>	I'm <b>counting on</b> the taxi driver to find the theatre.
	<b>cross out</b>	remove by drawing a line through <b>вычеркивать</b>	In some exercises, you are asked to <b>cross out</b> the incorrect word.
	<b>cut down on</b>	reduce in number or size <b>уменьшить</b>	The doctor told him to <b>cut down on</b> cigarettes.
	<b>cut out</b>	1) remove using scissors <b>вырезать</b> 2) stop doing something <b>прекратить</b>	1) She <b>cut out</b> a picture in a magazine. 2) I'm going to <b>cut out</b> eating between meals.

1	2	3	4
<b>D</b>	<b>deal with</b>	handle, take care of (problem, situation) ИМЕТЬ ДЕЛО С	The manager is good at <b>dealing with</b> difficult customers.
	<b>die down</b>	calm down, become less strong СТИХАТЬ	When the applause <b>died down</b> , she started to sing.
	<b>do without</b>	manage without ОБХОДИТЬСЯ БЕЗ	The shops are closed so we'll have to <b>do without</b> sugar.
	<b>drag on</b>	last longer than expected ДЛИТЬСЯ, ЗАТЯНУТЬСЯ	We expected a short speech but it <b>dragged on</b> and on!
	<b>draw up</b>	write (contract, agreement, document) СОСТАВЛЯТЬ	An agreement was <b>drawn up</b> and signed by the two parties.
	<b>dress up</b>	1) wear elegant clothes НАРЯЖАТЬСЯ 2) disguise oneself НАДЕВАТЬ КОСТЮМ	1) Do people <b>dress up</b> to go to the opera in your country? 2) Children love to <b>dress up</b> at Halloween.
	<b>drop in</b>	visit, usually on the way somewhere НАВЕЩАТЬ, ЗАХОДИТЬ	I sometimes <b>drop in</b> to see my grandparents on my way home from school.
	<b>drop off</b>	1) deliver someone or something ВЫСАДИТЬ 2) fall asleep ЗАДРЕМАТЬ	1) I'll <b>drop</b> you <b>off</b> at the bus stop if you like. 2) Granddad often <b>drops off</b> in front of the TV.
<b>drop out</b>	leave school without finishing БРОСИТЬ, ВЫБЫТЬ	She decided to go to art school then <b>dropped out</b> after the first term.	
<b>E</b>	<b>ease off</b>	reduce, become less severe or slow down (pain, traffic, work) СТАТЬ МЕНЕЕ НАПРЯЖЕННЫМ	After Christmas the workload generally <b>eases off</b> .
	<b>end in</b>	finish in a certain way; result in ЗАКОНЧИТЬСЯ ЧЕМ-Л.	Their marriage <b>ended in</b> divorce.
	<b>end up</b>	finally reach a state, place or action ДОКАТИТЬСЯ, КОНЧИТЬ	If he continues his misconduct he'll <b>end up</b> in prison.
	<b>even out</b>	1) eliminate differences of opinion УМЕНЬШИТЬ РАЗНОГЛАСИЯ. 2) become level or regular ВЫРОВНЯТЬ	1) After a long discussion they managed to <b>even out</b> their differences. 2) The road was <b>evened out</b> to make it safer.

1	2	3	4
<b>F</b>	<b>fall through</b>	fail; doesn't happen провалиться, потерпеть неудачу	Our planned boat trip <b>fell through</b> because of the storm.
	<b>figure out</b>	understand, find the answer понять, выяснить	I'm trying to <b>figure out</b> how to assemble the bookshelves.
	<b>fill in</b>	заполнять бланк	Fill in the form and send it.
	<b>fill out</b>	complete (a form/an application) заполнить	Please <b>fill out</b> the enclosed form and return it as soon as possible.
	<b>find out</b>	discover or obtain information узнать, выяснить	I'm going to call the cinema to <b>find out</b> what time the film starts.
	<b>focus on</b>	concentrate on something сфокусироваться, сосредоточиться	The advertising campaign will <b>focus on</b> the quality of the product.
	<b>figure out</b>	understand; find a solution вычислить, просчитать	We'll have to <b>figure out</b> a way to deliver the goods faster.
<b>G</b>	<b>get along (with)</b>	be on good terms; work well with ладить	I <b>get along</b> (well) with my mother-in-law.
	<b>get at</b>	imply добиваться, достигать	What exactly are you trying to <b>get at</b> ?
	<b>get away</b>	escape удирать	The robbers <b>got away</b> in a black car.
	<b>get by</b>	manage to cope or to survive выживать	It's difficult to <b>get by</b> on a low salary.
	<b>get in</b>	enter войти	How did the burglar <b>get in</b> ?
	<b>get into (+noun)</b>	enter войти, проникнуть в	How did the burglar <b>get into</b> the house?
	<b>get off</b>	1) leave (bus, train, plane) выйти из 2) remove удалить, вывести	1) You should <b>get off</b> the bus at Trafalgar Square. 2) She can't <b>get</b> the stain <b>off</b> her sweater.
	<b>get on</b>	board (bus, train, plane) войти, сесть	You can pay when you <b>get on</b> the bus.
	<b>get on with (something)</b>	continue to do; make progress продолжать, поторопиться	Be quiet and <b>get on with</b> your homework.
	<b>get on (well) with (somebody)</b>	have a good relationship with ладить	I <b>get on</b> very well <b>with</b> my colleagues.

1	2	3	4
	<b>get out</b>	leave уходить, сбежать	How did he <b>get out</b> ?
	<b>get out of(+noun)</b>	leave выходить из	How did he <b>get out of</b> the house?
	<b>get out of</b>	avoid doing something избегать	Some husbands manage to <b>get out of</b> doing any housework.
	<b>get over</b>	recover from (illness, disappointment) вылечиться	My grandmother had pneumonia but she <b>got over</b> it.
	<b>get rid of</b>	eliminate избавиться от	It's difficult to <b>get rid of</b> old habits.
	<b>get together</b>	meet each other встретиться	Let's <b>get together</b> for lunch on day.
	<b>get up</b>	rise, leave bed вставать, просыпаться	I usually <b>get up</b> at 7 o'clock.
	<b>give up</b>	stop doing something бросить	Sarah <b>gave up</b> smoking 5 years ago.
	<b>go through</b>	experience пережить	Pete <b>went through</b> a lot of pain after the accident.
	<b>grow up</b>	spend one's childhood провести детство; develop; become an adult повзреть, вырасти	He <b>grew up</b> in a small village in the mountains.
<b>H</b>	<b>hand in</b>	submit (report, homework) подавать, собирать	All application forms must be <b>handed in</b> before the end of the month.
	<b>hand out</b>	distribute выдавать, раздавать	Samples will be <b>handed out</b> at the end of the demonstration.
	<b>hang out</b>	spend time in a particular place, or with a group of friends проводить время где-то, с кем-то	Where does he <b>hang out</b> these days? Who does he <b>hang out</b> with?
	<b>hang up</b>	end a phone conversation повесить трубку, закончить разговор	"Don't <b>hang up</b> . I haven't finished yet."
	<b>hit at</b>	aim a blow at замахнуться на	He <b>hit at</b> the wasp with the newspaper.
	<b>hit back</b>	retaliate; reply to an attack нападать, отражать атаку	When he was attacked by the others, the boy <b>hit back</b> .



1	2	3	4
	<b>hit on/upon</b>	find unexpectedly or by inspiration придумать, озарить	She <b>hit upon</b> an idea for her new collection.
	<b>hold on</b>	wait ожидать, быть на связи grip tightly крепко держаться	- ‘ <b>Hold on</b> please. I’ll put you through to Mr. Brown.’ She <b>held on</b> to the railing as she crossed the bridge.
	<b>hurry up</b>	be quick, act speedily торопиться, спешить	<b>Hurry up!</b> We’ll miss the bus.
<b>I</b>	<b>iron out</b>	resolve by discussion, eliminate differences сгладить, уладить	The meeting tomorrow will be an opportunity to <b>iron out</b> difficulties.
<b>J</b>	<b>join in</b>	participate участвовать, присоединиться	She was too shy to <b>join in</b> the game.
	<b>join up</b>	engage in, become a member of поступать meet and unite with встречаться	John was in the Army and Tom <b>joined up</b> as soon as he left school. The two groups of tourists <b>joined up</b> at the hotel.
	<b>jot down</b>	take quick notes записать	I <b>jotted down</b> the address while watching the programme on TV.
<b>K</b>	<b>keep on</b>	continue doing something продолжать	It told him to be quiet but he <b>kept on</b> making noise.
	<b>keep up with</b>	stay at the same level as someone or something поспевать, угнаться	Bill walks so fast it’s difficult <b>to keep up</b> with him.
	<b>kick off</b>	begin, start начинать(ся)	The football match <b>kicked off</b> at 3 o’clock.
<b>L</b>	<b>leave out</b>	omit, not mention пропускать	The child’s name was <b>left out</b> of the report.
	<b>let down</b>	disappoint разочаровывать	You promised to come to the party, so don’t <b>let me down!</b>
	<b>look after</b>	take care of заботиться о	A babysitter <b>looks after</b> the children when they go out.
	<b>look ahead</b>	think of the future думать о будущем	It’s time to forget the past and <b>look ahead.</b>
	<b>look down on</b>	consider as inferior смотреть свысока	He tends to <b>look down on</b> anyone who is not successful.

1	2	3	4
	<b>look on</b>	be a spectator at an event наблюдать	Billy didn't take part in the fight. He just <b>looked on</b> .
	<b>look for</b>	try to find something искать	Jane went to the shops to <b>look for</b> a pair of shoes.
	<b>look forward to</b>	await or anticipate with pleasure ждать с нетерпением	I <b>look forward to</b> seeing you soon.
	<b>look through</b>	read quickly просматривать (газету)	What paper are you looking through?
	<b>look up to</b>	admire восхищаться	He was a wonderful teacher and many students <b>looked up to</b> him.
<b>M</b>	<b>make fun of</b>	laugh at/ make jokes about смеяться, подшучивать	The old lady dresses so strangely that the kids <b>make fun of</b> her.
	<b>make up</b>	invent (excuse, story) сочинять, придумывать	Some employees <b>make up</b> excuses when they arrive late for work.
	<b>mix up</b>	mistake one thing or person for another путать	I don't know my neighbours' names yet. I keep <b>mixing them up</b> .
	<b>move in</b>	arrive in a new home or office переезжать	You've bought a new house? When are you <b>moving in</b> ?
	<b>move out</b>	leave your home/office for another one уезжать, выезжать	My neighbour is leaving. He's <b>moving out</b> next Saturday.
<b>N</b>	<b>nod off</b>	fall asleep дремать, клевать носом	My grandfather often <b>nods off</b> in front of the television.
	<b>note down</b>	write something сделать заметку, записать	I'll call the station and <b>note down</b> the departure times.
<b>O</b>	<b>opt out</b>	leave a system or decide not to participate не принимать участия	I enjoy tennis but I'm so busy I had to <b>opt out</b> of the tournament.
	<b>own up</b>	admit or confess something признаться, сознаться	The boy <b>owned up</b> . He said he kicked the ball through the window.
<b>P</b>	<b>pass away</b>	die почить, упокоиться	The old lady <b>passed away</b> peacefully.

1	2	3	4
	<b>pass out</b>	faint падать в обморок, терять сознание	She <b>passed out</b> when she heard the bad news.
	<b>pay back</b>	reimburse возвращать	I'll lend you 20€ provided you <b>pay me back</b> before the end of the week.
	<b>put off</b>	postpone, arrange a later date отложить, перенести	The meeting was <b>put off</b> because of the strike.
	<b>put on</b>	turn on, switch on включать	Could you <b>put on</b> the light please?
	<b>put out</b>	extinguish удалять, устранять	It took a long time to <b>put out</b> the fire.
	<b>put up</b>	accommodate, give somebody a bed останавливаться, размещаться	We can <b>put you up</b> if you'd like to come for a week-end.
	<b>pick up</b>	collect somebody забирать, заезжать, подвозить	I'll <b>pick you up</b> at the station when you arrive.
	<b>point out</b>	indicate/direct attention to something указывать на	She <b>pointed out</b> the mistake.
	<b>put away</b>	put something back (in the correct place) отложить, откладывать	She put away all her documents.
<b>R</b>	<b>rely on</b>	count on, depend on, trust рассчитывать, полагаться на	Don't worry. You can <b>rely on</b> me. I can keep a secret.
	<b>rule out</b>	Eliminate вычеркивать, исключать	The police <b>ruled out</b> political motives.
	<b>run away</b>	escape from a place or suddenly leave убежать, уйти	He <b>ran away</b> from home at the age of fourteen.
	<b>run into</b>	meet by accident or unexpectedly (also: bump into) случайно встретиться	Sophie <b>ran into</b> Maria at the shopping centre.
	<b>run out of</b>	have no more of something. не иметь чего-л.	What a nuisance! We've <b>run out of</b> coffee.
<b>S</b>	<b>set off</b>	start a journey отправляться (в путь)	Early Saturday morning we <b>set off</b> for the ski slopes.
	<b>set up</b>	start a business основать	She <b>set up</b> her own company 10 years ago.

1	2	3	4
	<b>shop around</b>	compare prices сравнить цены	It's always wise to <b>shop around</b> before buying anything.
	<b>show off</b>	brag or want to be admired представлять	There's David <b>showing off</b> in his new sports car!
	<b>show up</b>	appear/arrive появляться	We expected David to come but he didn't <b>show up</b> .
	<b>shut up (impolite)</b>	be silent, stop talking заткнуться	Oh, <b>shut up!</b>
	<b>sit down</b>	take a seat сесть, присесть	Please come in and <b>sit down</b> .
	<b>stand up</b>	rise from a sitting position встать, привстать	The pupils <b>stood up</b> when the headmaster arrived.
	<b>stick up for</b>	defend защищать	It's important to <b>stick up for</b> one's principles.
<b>T</b>	<b>take after</b>	resemble, in appearance or character походить, быть похожим	Jamie really <b>takes after</b> his dad.
	<b>take care of</b>	look after заботиться	I'll <b>take care of</b> your plants while you're away.
	<b>take off</b>	leave the ground улетать, взлетает	The plane <b>took off</b> at 6 a.m.
	<b>take on</b>	hire or engage staff принимать на службу, брать на работу	Business is good so the company is <b>taking on</b> extra staff.
	<b>take out</b>	remove; extract вынимать, доставать	She <b>took out</b> a pen to note the address.
	<b>tell off</b>	reprimand/criticize severely ругать, отчитывать, бранить	The teacher <b>told her off</b> for not doing her homework.
	<b>think over</b>	consider продумать, обдумать	I'll have to <b>think over</b> the proposal before I decide.
	<b>throw away/out</b>	выбрасывать	I threw away all the broken cups and plates.
	<b>try on</b>	wear something to see if it suits or fits примерить	I'm not sure about the size. Can I <b>try it on</b> ?
	<b>turn down</b>	refuse отклонить, отказаться	I couldn't <b>turn down</b> an offer like that!

1	2	3	4
	<b>turn off</b>	stop the energy flow, switch off ВЫКЛЮЧАТЬ	Don't forget to turn off the gas when you leave.
	<b>turn on</b>	start the energy, switch on ВКЛЮЧАТЬ	Will you turn on the lights?
	<b>turn out</b>	produce an unexpected result оказываться, получаться	He turned out to be a good friend.
<b>U</b>	<b>use up</b>	finish a product (so that there's none left) израсходовать, истратить	The kids have <b>used up</b> all the toothpaste.
<b>V</b>	<b>vouch for</b>	express confidence in, or guarantee something ручаться	You can give the keys to Andy. I can <b>vouch for</b> him.
<b>W</b>	<b>wake up</b>	stop sleeping просыпаться	When do you usually wake up?
	<b>watch out</b>	be careful БЫТЬ ВНИМАТЕЛЬНЫМ	Watch out! There's a car coming.
	<b>wear out</b>	1) become unusable изнашиваться 2) become very tired сильно устать	1) Julie <b>wore out</b> her shoes visiting the city. 2) At the end of the day Julie was <b>worn out</b> .
	<b>work out</b>	1) do physical exercise заниматься спортом 2) find a solution or calculate something разработать, рассчитать	1) I <b>work out</b> twice a week at the gym club. 2) It's expensive but I haven't <b>worked out</b> the exact cost yet.
	<b>wipe off</b>	clean (board, table) вытирать, протирать	The teacher asked Lee to <b>wipe off</b> the board.
	<b>write down</b>	make down записывать	Write down your phone number for me, please.

## LITERATURE:

1. Луговая А.Л. Английский язык для строительных специальностей средних профессиональных учебных заведений: Учеб. пособие / А.Л. Луговая. – М.: Высшая школа, 2006. – 166 с.
2. Каушанская В.Л. Грамматика английского языка. Пособие для студентов педагогических институтов / В.Л. Каушанская, Р.Л. Ковнер, О.Н. Кожевникова, Е.В. Прокофьева и др. – 5-е изд., испр. и доп. – М.: Айрис-пресс, 2009. – 384 с.: ил.
3. Клементьева Т.Б., Shannon J.A. Счастливый английский. Кн. 3 для 10-11 кл. общеобраз. шк. – Обнинск: Титул, 1999. – 352 с.: ил.
4. Митрошкина Т.В. Грамматика английского языка: готовимся к централизованному тестированию / Т.В. Митрошкина. – 2 изд. – Минск: ТетраСистемс, 2010. – 320 с.
5. Чистик М.Я. Английский язык для политехнических вузов: Учеб. – 3-е изд., испр. и доп. – М.: Высш. шк., 1988. – 351 с.; ил.
6. Языкова И.Н. Организация учебной деятельности студентов. Английский язык: Методические указания для студентов II курса специальности «Промышленное и гражданское строительство» / Рубцовский индустриальный институ. – Рубцовск, 2000. – 71 с.
7. Англо-Русский строительный словарь English-Russian construction dictionary:  
<http://www.diktionary.org/index.php/list/19/,A.xhtml>
8. Cambridge Dictionaries Online:  
<http://www.dictionary.cambridge.org/>
9. English Phrasal Verb Dictionary:  
[www.usingenglish.com/reference/phrasal-verbs/a.html](http://www.usingenglish.com/reference/phrasal-verbs/a.html)
10. English Wikipedia, the free encyclopedia:  
<http://en.wikipedia.org/wiki/>
11. Википедия, свободная энциклопедия: <http://ru.wikipedia.org/wiki/>
12. Грамматика английского языка:  
<http://www.delightenglish.ru/grammar.htm>
13. <http://study-english.info/>
14. [http://window.edu.ru/resource/775/59775/files/Pages/t1\\_1.html](http://window.edu.ru/resource/775/59775/files/Pages/t1_1.html)
15. [http://window.edu.ru/library?p\\_rubr=2.2.73.3](http://window.edu.ru/library?p_rubr=2.2.73.3)
16. [http://www.alleng.ru/mybook/3gram/6verb\\_non-fin\\_part4.htm](http://www.alleng.ru/mybook/3gram/6verb_non-fin_part4.htm)

Языкова Ирина Николаевна

## ENGLISH FOR CONSTRUCTION

### АНГЛИЙСКИЙ ЯЗЫК

Учебное пособие для студентов II курса по направлению  
подготовки «Строительство»

Редактор Е.Ф. Изотова

Подписано к печати 25.12.13. Формат 60×84 1/16.

Усл. печ. л. 8,38. Тираж 100 экз. Заказ 131236. Рег. №88.

Отпечатано в РИО Рубцовского индустриального института  
658207, Рубцовск, ул. Тракторная, 2/6.