

**МИНИСТЕРСТВО СЕЛЬСКОГО ХОЗЯЙСТВА И
ПРОДОВОЛЬСТВИЯ РОССИЙСКОЙ ФЕДЕРАЦИИ**



**МОСКОВСКИЙ ГОСУДАРСТВЕННЫЙ УНИВЕРСИТЕТ
ПРИРОДООБУСТРОЙСТВА**

**Методические указания
по английскому языку для студентов
строительного факультета МГУП
(Гражданское строительство)**

Москва 2003

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УНИВЕРСИТЕТ ПРИРОДООБУСТРОЙСТВА

Кафедра иностранных языков

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*Рекомендовано
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строительного факультета*

ИЗДАНИЕ ВТОРОЕ, СТЕРЕОТИПНОЕ

Москва 2003

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Цель работы - предоставить материалы, необходимые для изучения основной строительной терминологии и развития навыков чтения текстов по строительной тематике.

Предлагаемые методические указания предназначены для студентов и аспирантов МГУП, изучающих английский язык.

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РАЗДЕЛ I

TOWN PLANNING AND TOWN DEVELOPMENT

ПРЕДТЕКСТОВЫЕ УПРАЖНЕНИЯ К ТЕКСТУ А

1. Вспомните, какие русские слова имеют те же корни, что и следующие английские слова.

activity, master, individual, to absorb, distance, functional, central, part, traditional, social, industrial, topography, position, cultural, active, circulation, public, diagram, structure, communications, interest, to reconstruct, to adapt, control, natural, zone, to fix, organic, to modify.

2. Вспомните значения следующих английских слов и выберите к ним соответствующий перевод из правого столбца.

1. description	1. полный, законченный
2. purpose	2. основной
3. freedom	3. свобода
4. development	4. изменять
5. to exist	5. движение
6. society	6. развитие, разработка
7. recent	7. окружать
8. needs	8. нужды, потребности
9. to accept	9. описание
10. to define	10. цель
11. to connect	11. определять
12. complete	12. создание
13. movement	13. существовать
14. to change	14. приспособлять(ся)
15. main	15. общество
16. to adapt	16. соединять
17. creation	17. принимать, допускать
18. to surround	18. недавний, современный

Словарь-минимум к тексту А

accept - принимать, допускать

admit - признавать, допускать

fix - устанавливать, закреплять

fixed - неизменный, установлен-

avoid - избегать

break down - разрушаться

built-up - *зд.* застроенный

certain - определенный,
уверенный

community - общество

complete - завершать

congestion - перенаселенность,
скопление

core - ядро

definition - определение

degree - *зд.* степень, уровень

design - проектировать

development - застройка

dwelling - жилой дом

environment - окружающая
среда, окрестность;

зд. окружающая местность

extend - расширять

flexible - гибкий

forecast - прогноз

ный

housing - жилищное строитель-
ство

inevitably - неизбежно

lay down - прокладывать

master plan - генеральный план
застройки

pattern - образец

pollution - загрязнение

population - население

precede - предшествовать

preference - выбор, преимущест-
во, предпочтение

to be preoccupied - заниматься

preparation - подготовка, приго-
товление

recreation - отдых

renew - обновлять, возобновлять

research - исследование, изыска-
ние

suburbs - пригород, окрестности;
зд. районы

survey - обследование

trend - направление, тенденция

ultimate - предельный

Text A. Town Planning

(1) That cities should have a plan is now admitted in our time of large-scale construction and plan-making has become an everyday activity. The purpose of a town plan is to give the greatest possible freedom to the individual. It does this by controlling development in such a way that it will take place in the interests of the whole population.

(2) The new development absorbs or modifies an existing environment, and so before it can be designed it is necessary to find out about that environment. It is also necessary to do research of the trends of population growth, the distance from work to home, the preferences for different types of dwelling, the amount of sunshine in rooms, the degree of atmospheric pollution and so on. After the survey is complete a forecast of future development is made in the form of a map, or series of maps: the master plan or development plan. As no one can be certain when the development is to take place and since a society is an organic thing, with life and movement, the plan of a city must be flexible so that it may extend and renew its dwellings, reconstruct its working places, complete its communications and avoid congestion in every part.

(3) The plan is never a complete and fixed thing, but rather one that is continually being adapted to the changing needs of the community for whom it is designed. Until quite recent years town plans were always made as inflexible patterns, but history has shown that a plan of this description inevitably breaks down in time.

(4) The flexible plan, preceded by a survey, is one of the most revolutionary ideas that man has ever had about the control of his environment.

(5) Most towns today have a characteristic functional pattern as follows: a central core containing the principal shopping centre, business zones, surrounded by suburbs of houses. Most town planners accept the traditional town pattern. In the preparation of a master plan they are preoccupied with the definition of the town centre, industrial areas, and the areas of housing; the creation of open space for recreation, the laying down of a pattern of main roads which run between the built-up areas (thus leaving them free of through traffic) and connect them to each other.

(6) The master plan thus has to define the ultimate growth of the town, but though the master plan is a diagram, and even a flexible one, it is the structure upon which all future development is to take place.

ПОСЛЕТЕКСТОВЫЕ УПРАЖНЕНИЯ

1. Укажите, какие из данных предложений выражают главную мысль текста.

1. In the preparation of the master plan it is necessary to define the town zones. 2. All cities should have a plan. 3. Before a flexible plan is made it is

necessary to find out about the existing environment. 4. The master plan also defines places for active and passive recreation.

2. Укажите, к каким абзацам текста могут служить заголовками данные предложения. Расположите их согласно последовательности изложения.

1. Features of the traditional town pattern.
2. The purpose of a master plan.
3. The purpose of a town plan.
4. What main points should be included in a survey?

3. В соответствии с содержанием текста дополните незаконченные предложения одним из данных вариантов (а, б, с).

1. The purpose of a town plan is...
 - a) to do research of the trends of population growth; b) to give the greatest possible freedom to the individual; c) to find out about the existing environment.
2. Before a town plan is designed, it is necessary...
 - a) to renew and extend the dwellings, reconstruct the working places; b) to make a forecast of future development in the form of a map or a series of maps; c) to find out about the existing environment.
3. History has shown that a town plan should be flexible, because...
 - a) it should continually be adapted to the changing needs of the community for whom it is designed; b) it defines the position of schools, shopping centres and business centres; c) it suggests the routes of public transport.
4. The master plan has to define the ultimate growth of the town and...
 - a) no one can be certain when the development is to take place; b) a society is an organic thing with life and movement. c) therefore it is the structure upon which all future development is to take place.
5. In the preparation of a master plan the planners are preoccupied with...
 - a) the idea that in our time plan-making has become an everyday activity; b) the definition of the town pattern and the laying down of a pattern of main roads; c) the necessity to determine the distance from work to home.

4. Составьте план к тексту из пяти пунктов.

5. Сверяясь с текстом, подберите нужное значение для выделенных слов в данных сочетаниях и переведите их.

1. large-scale construction (1) — шкала; масштаб; размер;

2. **everyday** activity (1) — ежедневный; повседневный; обычный;
3. **in such a way** (1) — дорога; средство; способ; путь;
4. **development plan** (2) — развитие; усовершенствование, разработка, застройка;
5. **master plan** (2) — главный; ведущий; руководящий; генеральный;
6. **most towns** (5) — больше всего; самый; наибольший; большинство;
7. **through traffic** (5) — через; из-за; сквозной; беспрепятственный;
8. **town pattern** (5) — образец; характер; тип; структура;
9. **to lay down the pattern** (5) — уложить; составить; установить

6. Вспомните, какие русские слова имеют те же корни, что и английские слова, подберите к ним эквиваленты из правого столбца.

Образец: activity (активность) — деятельность

- | | |
|----------------|--------------------------|
| 1. to absorb | 1. схема |
| 2. diagram | 2. общественный |
| 3. social | 3. закреплять |
| 4. to modify | 4. расположение |
| 5. industrial | 5. промышленный |
| 6. central | 6. главный (центральный) |
| 7. position | 7. общественный |
| 8. traditional | 8. естественный |
| 9. natural | 9. поглощать |
| 10. public | 10. видоизменять |
| 11. to fix | 11. обычный |

7. Переведите следующие словосочетания:

business zone, town pattern, population growth, development plan, road system, plan-making, town planner, housing area, shopping centre, business centre, public transport, recreation area.

8. Переведите предложения, обращая внимание на выделенные слова.

1. Cities should have a **flexible plan**. 2. **Plan-making** has become a much exercised activity. 3. People should **plan** the future development of the town. 4. Most town **planners** accept the traditional town pattern. 5. A town **designer** should not ignore the past. 6. **Designing** does not mean imitation of

the past. 7. When making the **design** of a town we should bear in mind future development. 8. Before a town is **designed** it is necessary to find out about the environment.

9. Переведите предложения, обращая внимание на значение слова *since*.

1. Since a society is an organic thing, the plan of a city must be flexible. 2. The plan is continually being adapted since it is never a complete thing. 3. The town has changed greatly since I saw it last, that is since 1970. 4. Before a plan is designed it is necessary to find out about the existing environment since a plan absorbs or modifies it. 5. Since the master plan takes into consideration the existing topography, it indicates the areas for rest. 6. The master plan is very much like a diagram since it is never a complete and fixed thing.

10. Переведите предложения, обращая внимание на значение слова *one*.

1. The plan of a city must be flexible, as no one can be certain when the development will take place. 2. A plan is never a complete and fixed thing, but rather one that is continually being adapted to the changing needs of the society. 3. One should know that a good plan is the one that forecasts the future development. 4. One should use a new plan based on a survey, and not an old one. 5. A flexible plan, based on a survey, is one of the most revolutionary ideas. 6. The practice of making flexible plans is essentially a progressive one.

11. Переведите предложения, обращая внимание на значение глагола *to be*.

1. The purpose of a town plan is to give the greatest possible freedom to the individual. 2. The master plan is the structure upon which all future development is to take place. 3. Another purpose of a town plan is to show the principal road system connecting the various zones together. 4. We are to take into consideration all the advantages and disadvantages to decide what plan is the best. 5. This master plan is to be completed in the short period of two years. 6. Many new blocks of houses are to be built according to the new development plan. 7. The task of an architect is to make plans, whereas the task of an engineer is to build according to those plans.

12. Переведите 2-й абзац текста.

13. Укажите, какие из 3-х предложений (а, б, с) являются ответами на данные вопросы.

1. Why is it necessary to make a survey of the existing environment?

a) It is because no one is certain when the development is to take place. b) It is because the new development absorbs or modifies the environment. c) It is because growth is a law of life.

2. What does a survey consist in?

a) It consists in completing the town's communications. b) It consists in finding out about the environment, in research into the trends of population growth and the types of dwellings; and into atmospheric pollution as well.

c) It consists in defining a place for recreation.

14. Опровергните следующие неправильные утверждения с точки зрения содержания текста.

Образец: Most town planners suggest quite new town patterns.

No, they don't. Most town planners do not suggest quite new town patterns. As the text says, most town planners accept the traditional town pattern.

1. The purpose of a plan is to limit the active life of its population. 2. The plan is a complete and fixed thing, since the needs of the community do not change. 3. Growth is a law of life and town growth should not be controlled by any plan.

ПРЕДТЕКСТОВЫЕ УПРАЖНЕНИЯ К ТЕКСТУ В

1. а) Вспомните, какие русские слова имеют те же корни, что и следующие английские слова:

standards, economy, to examine, scheme, details, scene, form, aesthetically, architect, historical, effect, tradition, visual, vandalism, texture, atmosphere, primitive, mechanical, expansion, to ignore, concentration, balance, natural, amorphous, imitation, problem, urban, date, adequate, position

б) К каким из вышеприведенных слов русскими эквивалентами являются слова:

изучать, план (проект), сосредоточенность, равновесие, естественный, воздействие (влияние), расширение, подробности, зрительный (наглядный), нормы, экономичность.

2. Вспомните значения следующих английских слов и подберите к ним соответствующий перевод из правого столбца.

- | | |
|-----------------|------------------------------|
| 1. to design | 1. предлагать |
| 2. dwelling | 2. расширение, застройка |
| 3. building | 3. проектировать |
| 4. through | 4. сквозь |
| 5. to suggest | 5. рассмотреть |
| 6. development | 6. жилой дом |
| 7. to construct | 7. возможный |
| 8. growth | 8. здание |
| 9. environment | 9. удовлетворяющий, приятный |
| 10. to remember | 10. окружающая среда |
| 11. to consider | 11. изучать |
| 12. to examine | 12. строить |
| 13. possible | 13. существовать |
| 14. satisfying | 14. помнить |
| 15. population | 15. рост |
| 16. to exist | 16. разрушать |
| 17. to demolish | 17. население |
| 18. to site | 18. соответствующий, должный |
| 19. to provide | 19. располагать |
| 20. proper | 20. обеспечивать |

Словарь-минимум к тексту В

arouse - вызывать, будить

arrange - располагать,
устраивать

attempt - попытка

certain - определенный,
уверенный

convenient - удобный

danger - опасность

harm - наносить ущерб

immediate - немедленный,
безотлагательный

proper - должный, правильный

properly - должным образом,
правильно

raw material - сырье, исходный
материал

respect - соблюдать, уважать

restore - восстанавливать,
возвращать

scene - пейзаж, вид

scheme - схема, проект, план

sense - смысл, значение

imply - значить,
подразумевать
loss - потеря
object - цель, предмет,
элемент
out-of-date - устаревший
overcrowding -
перенаселенность

in any sense - в любом смысле
space - пространство
in terms of - с точки зрения, в
условиях
until - до, до тех пор пока
urban - городской

Text B. Design of the Complete Town

(1) In considering the design of a town or city we must always remember that the town must be sited in a healthy position, free from dust, fogs, its layout must not encourage winds through urban spaces, and it must not pollute its own atmosphere. It must provide proper standards of space and sunlight to its buildings and open spaces, and it must be possible to move about the town easily and without danger to life. Its parts must be so arranged that it is a convenient place for dwelling, working and playing.

(2) Connected with these and many other technical problems is the problem of economy. The problem must be thoroughly examined which does not suggest that the cheapest scheme may be the best.

(3) The town must work properly but it should also give pleasure to those who look at it. When we say that a town should be beautiful, we do not mean that it should have some fine parks and noble buildings, we mean that the whole of the environment, down to the most insignificant detail, should be beautiful.

(4) If we examine a typical urban scene we see all kinds of objects like buildings, lamp posts, paving, posters, and trees. It is all of them, together with all the other kinds of objects that are found in the town, that are called the raw materials of a town design. Each of them down to the least important should be aesthetically satisfying.

(5) Designing in terms of past time does not imply the imitation of the existing environment but respect of the form, colour, texture, and general qualities of the existing development. That which is being constructed is for immediate use which is not to suggest that there must be an attempt to ignore the past and be "modern".

(6) Future time must also be thought of in terms of the estimated life of the objects. Objects like buildings and lamp posts grow old and become out-of-date, and the designer must select those materials that are adequate for

their life, no more and no less.

(7) Until comparatively recent times the growth of cities has been without purpose in any sense. Cities must grow, for growth is a law of life. But this natural overgrowth should have aroused action to restore balance. Mere size, as such, is no index of greatness.

(8) All overgrowth means overcrowding, which is loss of space, one of the vital needs of cities. The lesson that has to be learned is that natural growth, and all the other forms of growth have to be made subject to will and intelligence, or the city must be harmed. This is a certain lesson of history.

ПОСЛЕТЕКСТОВЫЕ УПРАЖНЕНИЯ

1. Укажите, какие из данных предложений не соответствуют содержанию текста.

1. When building a town we should be very careful not to spoil what exists already. 2. The streets and buildings of existing towns will serve many future generations. 3. When designing a town we should not forget that its citizens should be able to move about it without any danger to their life. 4. The economics of a town plan and the technical problems are closely connected. 5. Scientific forecast also includes progressive methods of planning. 6. The designer should select the best building materials for the objects of his planned town. 7. Cities will grow but their growth must be controlled.

2. Расположите следующие пункты плана в последовательности, соответствующей содержанию текста.

1. The whole town, and even its details, should be beautiful.
2. A town should be a nice place to live, to work and to rest in.
3. The town designer should remember that his raw materials will exist in the future.
4. All the objects in the town are called the raw materials of town design.
5. City growth should be controlled.

3. Закончите данные предложения с учетом содержания текста.

1. Before a development plan is made, it is necessary... . 2. The plan of a city has to be flexible because... . 3. The traditional town pattern is as follows:...

РАЗДЕЛ II

BUILDINGS AND THEIR FUNCTIONS

ПРЕДТЕКСТОВЫЕ УПРАЖНЕНИЯ К ТЕКСТУ А

1. Вспомните, какие русские слова имеют те же корни, что и следующие английские слова. Используйте их для понимания текста.

factor, to classify, functions, modern, technology, political, architect, proportion, concrete, techniques

Словарь-минимум к тексту А

acquire - приобретать	off-site prefabrication - фабричное изготовление
advantage - преимущество	precast - сборный, изготовленный на заводе
advocate - узаконить	prefabricated structures - сборные конструкции
amenity - удобство жилища	present-day design - современное проектирование
building industry - строительная промышленность	prominent - выдающийся
carry out - выполнять, осуществлять	reinforced concrete - железобетон
comprise - включать в себя, охватывать, составлять	residential building - жилое здание
constitute - составлять	significant - значительный, важный
demand - спрос, потребность	site planning - планирование работ на строительной площадке
emphasis - особое значение	skill - квалификация, мастерство
equip - оборудовать	skilled - квалифицированный
food-processing plant - пищевкомбинат	storage facilities - складские помещения
gradually - постепенно	substitute - заменять, замещать

housing - жилищное строительство
industrial construction - промышленное строительство
kitchen and sanitary fittings - санитарное оборудование
managerial staff - управленческий аппарат
office buildings - служебные здания

supply - снабжать

technological advance - технический прогресс
trade - з/д. профессия

utilize - использовать, применять

2. Прочтите текст. Укажите, какие абзацы текста раскрывают содержание заголовка "Residential and Industrial Buildings"

Text A. Residential and Industrial Buildings

(1) In technically developed countries the building industry, comprising skilled and unskilled workers in many trades, building engineers and architects, managerial staff and designers, employs a considerable proportion of the available labour force.

(2) Building industry including residential, public and industrial construction holds a considerable place in the National Economy and is being carried on a large scale. It is the largest single industry in the country. The problems of construction have grown into major, political issues in most countries.

(3) Housing is prominent among the factors affecting the level of living. The improvement of the housing represents a concrete and visible rise in the general level of living. In many countries residential construction has constituted at least 12 per cent and frequently more than 25 per cent of all capital formation. Since in Russia home building industry is the concern of the state the research and development in housing technology is carried out on a national scale and is being paid much attention to.

(4) The ever growing housing demands have brought to life new methods of construction with great emphasis upon standardization, new levels of technological advance utilizing such techniques as off-site prefabrication, precasting, use of reinforced concrete panels and large-scale site planning. At present, prefabricated structures and precast elements may be classified into two principal groups - for residential houses and industrial buildings.

(5) Present-day designs for residential construction envisage all modern amenities for a dwelling, they advocate larger, better built and better equipped flats and houses. There is a marked improvement in the heating and ventilating systems as well as in hot-water supply, kitchen and sanitary fittings. Many tenants now can afford better furnishings, refrigerators, washing machines, etc. A house which is a physical environment where a family develops is acquiring a new and modern look.

(6) Industrial buildings comprise another significant type of construction. This type of construction involves factories, laboratories, food-processing plants, mines, office buildings, stores, garages, hangars and other storage facilities, exhibition halls, etc.

(7) Each of these functions demands its own structural solution and techniques. But in general they may be divided into two classes according to whether the plan must give greater attention to the size and movement of machinery or of persons. The building techniques (by techniques we mean building materials and methods) depend upon the types of buildings.

(8) Modern industrial buildings have demonstrated the advantages of reinforced concrete arches, metal frames, glass walls and prefabricated standardized mass produced parts. Steel was gradually substituted for iron and permitted wider rooms and larger windows. Windows can be enlarged to the extent that they constitute a large fraction of the wall area.

ПОСЛЕТЕКСТОВЫЕ УПРАЖНЕНИЯ

1. Укажите, какое из данных предложений выражает главную мысль текста.

1. In Russia home building industry is the concern of the state. 2. The building industry comprises skilled and unskilled workers in many trades. 3. Building industry which includes residential, public and industrial construction is being carried out on a large scale and it has brought into being new methods and techniques. 4. There is a marked improvement in the heating and ventilating systems as well as in hot-water supply.

2. Укажите, в каких абзацах раскрывается содержание следующих заголовков. Расположите их согласно последовательности изложения.

1. The functions of industrial buildings.
2. New methods of housing.
3. Present-day design for residential construction.

4. The advantages of reinforced concrete for modern industrial buildings.
5. Building industry and national economy.

3. Укажите, какие из данных предложений относятся к описанию жилых зданий и какие — к промышленным. Сгруппируйте предложения по этим темам.

1. In many countries residential construction has constituted at least 12 per cent of all capital formation. 2. The problem of housing has grown into a major, political issue in most countries. 3. Industrial buildings comprise another significant type of construction. 4. Modern buildings have demonstrated the advantages of reinforced concrete arches, metal frames, glass walls. 5. The differing functions of industrial buildings require their own structural solutions and techniques. 6. Present-day designs for housing envisage all modern conveniences and sanitary fittings. 7. Buildings may be divided into two classes according to whether the plan must give greater attention to the size and movement of machinery or of persons. 8. Windows can be enlarged to the extent that they constitute a large fraction of the wall area. 9. A house which is a physical environment where a family develops is acquiring a new and modern look.

4. В соответствии с содержанием текста дополните незаконченные предложения одним из данных вариантов (а, б, в).

1. Modern industrial buildings have demonstrated the advantages of...

a) hot-water supply and panel heating; b) reinforced concrete arches, metal frames, glass walls and prefabricated parts; c) all modern conveniences for a dwelling.

2. Industrial type of construction involves...

a) better built and better equipped flats and houses; b) theatres, cinemas, museums, libraries, etc.; c) factories, food-processing plants, mines, office buildings, stores, etc.

3. Present-day designs for residential construction envisage...

a) movement of machinery and persons; b) application of metal frames and glass walls; c) all modern conveniences including hot-water supply and panel heating.

5. Дополните незаконченные предложения необходимыми по смыслу аргументами.

1. Housing construction has grown into a political issue because...

2. In Russia the research and development in housing technology is

carried out on a national scale since...

3. A house is acquiring a new and modern look for...

4. The building techniques depend upon the types of buildings because...

6. Определите по формальным признакам границы групп подлежащего и сказуемого; переведите предложения.

1. In Russia much attention is being paid to research and development in housing technology. 2. Housing is prominent among the factors affecting the level of living. 3. The advantages of reinforced concrete arches have been demonstrated by modern industrial buildings. 4. Each of those functions demands its own structural solution. 5. At present prefabricated structures and precast elements may be classified into two principal groups.

7. Переведите предложения на русский язык, обращая внимание на сказуемое.

1. House-building is being carried out on a large scale in Russia. 2. The level of living is very much affected by housing. 3. New methods of construction have been brought into being by the ever growing housing demands. 4. The size and shape of building is greatly affected by the general plan for the framing of an industrial structure. 5. Some hundreds of systems of prefabrication have been devised and many of them have been tried, with greater or lesser success. 6. Medium life houses could be best produced by prefabrication methods. 7. In prefabricated construction the units should be based on a common dimension. 8. Mass production is encouraged by standard sizes and qualities of building units.

8. Выберите из данного внизу списка нужное сказуемое для каждого предложения.

1. Building materials ... by the type and the function of a building. 2. The techniques of construction ... not only by the availability of materials but also by the total technological development of society. A number of factories ... to manufacture standardized factory-made elements. 4. The built-in space of an apartment ... as well. 5. Windows ... for the best possible lighting and ventilation. 6. Research and development in housing ... on a national scale. 7. Modern industrial buildings ... the advantages of prefabricated reinforced parts. 8. Reinforced-concrete elements ... in residential house construction.

1. have been designed; 2. are governed; 3. are influenced; 4. are made use of; 5. are provided; 6. are carried out; 7. can be said to have demonstrated; 8. should be carefully thought of.

9. Вставьте данные слова в соответствии с их функцией в предложении.

place, holds, demands, functions, comprise, buildings

1. Building industry ... a considerable ... in the national economy. 2. Each of these ... its own structural solution. 3. Industrial ... another significant type of construction.

10. Сгруппируйте слова с одним и тем же корнем; определите, какой частью речи является каждое из них. Переведите их.

manager, consideration, availability, residence, industry, managerial, residential, available, considerable, political, physics, vision, technological, structure, politics, physical, visible, technology, structural, industrial

11. К каждой данной паре слов подберите русское слово с тем же корнем, что и английское. Сравните объем их значений.

Образец: proportion — доля (пропорция)

1. techniques — (методы) (...). 2. modern — современный (...). 3. utilize — использовать (...). 4. residential — жилищный (...). 5. technology — техника (...).

12. Переведите 3, 4, 5-й абзацы текста.

13. Опровергните следующие неправильные с точки зрения содержания текста утверждения не менее чем двумя-тремя высказываниями каждое.

Образец: Housing does not affect the level of living. This statement is incorrect. Housing affects the level of living. The improvement of housing shows a concrete and visible rise in the general level of living.

1. Not much attention is paid to the problems of construction. 2. Modern residential houses and industrial buildings are mostly built of bricks and timber. 3. Modern industrial buildings have demonstrated the advantages of plastics and ceramics.

14. Дайте не менее трех вариантов ответа на каждый вопрос.

1. Why is a house acquiring a new and modern look? 2. What have ever growing housing demands brought into being?

ПРЕДТЕКСТОВЫЕ УПРАЖНЕНИЯ К ТЕКСТУ В.

1. Вспомните, какие русские слова имеют те же корни, что и следующие английские слова.

variety, general, residential, techniques, factors, to classify, function, portion, exterior, texture, apartment, interior, thermal, tent, to stimulate, visually, evolution, total

2. Вспомните значения следующих английских слов и подберите к ним соответствующий перевод из правого столбца.

1. building materials	1. технический прогресс
2. techniques	2. современный
3. residential construction	3. обеспечивать
4. technological changes	4. теплоизоляция
5. mechanized operations	5. методы строительства
6. site	6. железобетонные блоки
7. reinforced concrete blocks	7. жилищное строительство
8. construction methods	8. методы
9. thermal insulation	9. строительные материалы
10. to provide	10. механизированные операции
11. contemporary	11. строительная площадка
12. technological advance	12. изменения в технологическом процессе

3. Из правого столбца подберите синонимы к словам, приведенным в левом столбце.

1. domestic	1. dining rooms
2. houses	2. modern
3. to influence	3. considerably
4. technological development	4. dwellings
5. factory-made elements	5. to affect
6. to lead to	6. to result in
7. to carefully think of	7. prefabricated units
8. contemporary	8. technological advance
9. dining areas	9. to consider
10. greatly	10. residential

Text B. Types of Buildings

(1) Types of buildings depend upon social functions and may be classified according to the role in the community. The types of buildings may be domestic, educational, office, industrial, recreational, etc. The common and necessary conditions are: (a) its suitability to use by human beings in general and its adaptability to particular human activities; (b) the stability and permanence of its construction.

(2) Speaking of residential construction we must say that the apartment houses are mostly built to suit urban conditions. Group housing provides home for many families and is at once public and private. The techniques of construction or the methods by which structures are formed from particular materials are influenced not only by the availability and character of materials but also by the total technological development of society.

(3) The evolution of techniques is conditioned by two factors: one is economic—the search for a maximum of stability and durability in building with a minimum of materials, labour and time; the other is expressive—the desire to produce meaningful form.

(4) Large housing programs have tended to stimulate technological change in the building industry. Modular design (i.e. design in which the elements are dimensioned in combinations of a fixed unit) has led to standardization of elements, interchangeability of parts and increased possibilities for mass production, with resultant economies. Entire apartment assemblages are available and are being used to an increasing extent. These techniques aim at a higher output of better structures at lower cost.

(5) The high degree of mechanization and standardization is successfully achieved by reinforced concrete blocks and units. Reinforced concrete homes are produced by a variety of construction methods. Various methods of constructing reinforced concrete houses involve extensive use of large sections manufactured in heavily mechanized factories and erected at the site.

(6) The built-in space of an apartment should be carefully thought of as well. There is a considerable trend toward built-in furniture. Rooms should be both efficient and visually satisfying. The extent of built-in cabinets must be determined. Drawers and shelves can often be concealed behind walls, freeing valuable floor space.

ПОСЛЕТЕКСТОВЫЕ УПРАЖНЕНИЯ

1. Прочтите текст. Определите, заголовком к какой части текста могут служить данные предложения.

1. The total technological development of society influences the techniques of residential construction.

2. The interior of a modern residential building.

3. Technological changes and new techniques in the building industry.

2. Укажите, какие из данных предложений выражают главную мысль текста.

1. Great technological advances in plumbing and ventilating systems. 2. The types of walls of concrete structures. 3. The types of exterior concrete surface. 4. Classification of buildings according to their functions, building techniques and factors affecting the latter.

3. Дополните незаконченные предложения необходимыми по смыслу аргументами.

1. Types of buildings depend upon social factors because...

2. Large housing programs have tended to stimulate technological change in the building industry because...

3. Entire apartment assemblages are used to an increasing extent since...

4. There is a considerable trend toward built-in furniture because...

4. В соответствии с содержанием текста дополните незаконченные предложения одним из данных вариантов (а, b, c).

1. Various methods of constructing reinforced concrete houses involve...

a) craft operations at the building site; b) building materials, labour and time; c) extensive use of large sections manufactured in heavily mechanized factories.

2. Types of buildings depend upon...

a) the availability and character of materials; b) increased possibilities for mass production; c) social functions in the society.

3. The high degree of mechanization and standardization is successfully achieved by...

a) reinforced concrete blocks and units; b) technological change in the building industry; c) craft operations at the building site.

РАЗДЕЛ III

BUILDING MATERIALS, BUILDING TECHNIQUES

AND BUILDER'S PLANT

ПРЕДТЕКСТОВЫЕ УПРАЖНЕНИЯ К ТЕКСТУ А

1. Вспомните, какие русские слова имеют те же корни, что и следующие английские слова.

designer, to select, to adapt, material, construction, effective, result, civil, physical, uniform, microstructure, gypsum, cement, chemical, reaction, to accompany, evolution, to modify, variety, slag, structural, inert, fundamental, object, production, selection, accurate, method, variation

Словарь-минимум к тексту А

accompany - сопровождаться

accurate - точный

aggregate - заполнитель

artificial - искусственный

availability - доступность, пригодность

bind - скреплять, связывать

binding materials - вяжущие вещества

blast-furnace slag - доменный шлак

bulk - масса

capacity - свойство

chief - главный, основной

compressive load - сжимающая нагрузка

inaccuracy - погрешность, неточность

lime - известь

masonry - каменная или кирпичная кладка

measure - мера, измерять

measuring, measurement - измерение, контроль

mix - смесь; смешивать, перемешивать

moisture content - содержание влаги

mortar - строительный раствор

plaster - штукатурка

Portland blast-furnace slag - шлакопортландцемент

Portland cement - портландцемент

pozzolanas - пуццоланы (активные минеральные)

concrete - бетон
constituent - компонент,
составная часть
crushed stone - щебень

device - прибор, аппарат,
устройство, установка
durable - долговечный,
надежный, прочный
durability - долговечность
extent - степень, мера
to some extent - в некоторой
степени

faulty - ошибочный
fill - заполнять, насыпать
filling - заполнение, засыпка
fine aggregate - мелкий
заполнитель
furthermore - кроме того,
более того
gypsum - гипс

hardening - твердение
high rate of hardening -
высокая скорость твердения
high alumina cement -
глиноземистый цемент

добавки к цементам)
property - свойство
proportioning - дозирование

requisite - требуемый,
необходимый
resistance to - стойкость к,
сопротивление
scope - возможность

strength - прочность
suit - подходить, удовлетво-
рять требованиям

timber - древесина
undergo - подвергаться
uniform - однородный
unit - элемент, блок

volume - объем

watertightness - водонепро-
ницаемость

weigh - взвешивать
weight - масса, нагрузка

workability - обрабатывае-
мость, удобоукладываемость

Text A. The Most Important and Widely Used Building Materials (Binding Materials, Concrete and Structural Steel)

(1) The designer must be able to select and adapt such materials of construction that will give the most effective result by the most economical means. In this choice of materials for any work of construction, the civil engineer must consider many factors. These factors include availability, cost, physical properties of materials and others.

(2) Timber, steel and concrete all vary, sometimes over considerable ranges in the properties desired by the engineer. Even steel, uniform as it appears to be, varies considerably in its microstructure. Concrete is even less uniform than many other materials.

(3) Lime, gypsum and cement are the three materials most widely used in building construction for the purpose of binding together masonry units, such as stone, brick and as constituents of wall plaster. Cement is furthermore the most important component of concrete.

(4) Another important class of cement is high alumina cement. High alumina cement is a material containing alumina. It has an extremely high rate of hardening which is, owing to the violence of the chemical reaction, accompanied by a considerable evolution of heat. It is very resistant to chemical attack.

(5) It therefore follows that Portland cement like other materials can to some extent be modified to suit a particular application. The scope for such purpose-made cements has led to the development of an increasing variety such as high alumina cement, blast-furnace slag and pozzolanas. Portland blast-furnace cement has greater resistance to some forms of chemicals.

(6) The most important building materials may now be considered to be structural steel and concrete. Concrete may be considered an artificial conglomerate of crushed stone, gravel or similar inert material with a mortar. A mixture of sand or similar inert particles with cement and water which has the capacity of hardening into a rocklike mass is called mortar. The fundamental object in proportioning concrete or mortar mixes is the production of a durable material of requisite strength, watertightness and other essential properties at minimum cost. To attain this end careful attention must be given to the selection of cement, aggregates, and water.

(7) The most accurate method of measuring proportions is to weigh the required quantities of each material. It is widely used in large building construction, but in small building construction the less accurate method of measuring proportions by volumes is frequently used. The chief inaccuracies in volumetric measurement arise from the wide variation in the bulk of the fine aggregate due to small changes in its moisture content and faulty methods of filling measuring devices. Workability and strength tests are chief control tests made on concrete. To be able to undergo high compressive loads is a specific characteristic of this material.

ПОСЛЕТЕКСТОВЫЕ УПРАЖНЕНИЯ

1. Укажите, к каким абзацам текста могут служить заголовками данные предложения. Расположите их согласно последовательности изложения.

1. Methods of measuring proportions.
2. Compositions of mortar and concrete.
3. Materials for binding masonry units.
4. The main properties of high alumina cement.
5. The types of Portland cement.

2. Сгруппируйте следующие предложения по трем темам (А, В, С).

A. The choice of materials for any work of construction. **B.** The properties of high alumina cement. **C.** The composition of concrete.

1. Another important class of cement is high alumina cement. 2. Such a material may be considered an artificial conglomerate of crushed stone or gravel with a mortar. 3. The civil engineer must consider many factors when selecting the material for construction. 4. This kind of cement is very resistant to chemical attack. 5. The principal object in proportioning concrete is the production of a durable material of adequate strength and watertightness. 6. The factors that condition the selection of materials for construction include availability, cost and physical properties. 7. This material has an extremely high rate of strength increase. 8. Timber, steel and concrete vary over considerable ranges in the properties desired by the engineer and the latter should take them into consideration in selecting the materials. 9. The most accurate method of measuring proportions for concrete is to weigh the required quantities of each material.

3. Какие из данных предложений относятся к описанию цемента и какие — к описанию бетона?

1. This material is most widely used for the purpose of binding together masonry units such as stone and brick. 2. This material is also known to be the most important component of concrete. 3. This kind of material may be considered an artificial conglomerate of crushed stone, gravel or similar inert material with a mortar. 4. The material which contains alumina has an extremely high rate of strength increase. 5. The fundamental object in proportioning this material is the production of a durable material of requisite strength, watertightness and other essential properties. 6. The most accurate

method of measuring proportions is to weigh the required quantities of each material.

4. Выберите правильные ответы на вопросы.

1. What influences the choice of building materials?

a) The choice of building materials is governed by the type and the function of a building. b) Availability, cost and physical properties are the main considerations for an engineer in selecting materials for construction. c) The techniques and methods of construction are the main factors influencing the choice of building materials.

2. What are lime, gypsum and cement most widely used for?

a) These three materials are widely used for underground construction. b) They are used as components to produce plastics. c) Lime, gypsum and cement are used for the purpose of binding together masonry units.

5. Дополните незаконченные предложения необходимыми по смыслу аргументами.

1. Cement is the most widely used building material because ...

2. High alumina cement is an important class of cement since...

3. Careful attention must be given to the selection of cement, aggregate and water in proportioning concrete because ...

4. Timber, steel and concrete vary greatly for ...

6. Вставьте в предложения соответствующие союзные слова: *than; so ... as; both ... and; not so ... as; as.*

1. High alumina cement ... building material is more resistant to chemical attack ... Portland cement. 2. ... workability ... strength tests are the chief control tests. 3. The designer selects such materials ... to give the most effective result. 4. Gypsum is ... water-resistant ... cement.

7. Заполните пропуски соответствующими формами инфинитива, данными внизу.

1. Under certain conditions, concrete is exposed ... by chemicals. 2. The most important building materials may now be considered ... 3. Walls and piers may ... with stone. 4. Enough water should be used ... a placeable mix. 5. It is very essential for a building engineer ... physical and mechanical properties of the building materials. 6. ... undergo mechanical treatment is a specific characteristic of some materials. 7. No masonry material is known ...

which is permanent when subjected to sea water.

1. to be structural steel and concrete; 2. to be attacked; 3. to produce; 4. to be placed; 5. to know; 6. to have been developed; 7. to be able to

8. Приведите глаголы, соответствующие данным словам.

selection, designer, considerable, addition, elaboration, development, appearance, desirable, mixture, resistant, application, production, suitable, measuring, construction, representative

9. К каждой паре слов подберите русское слово с тем же корнем, что и английское слово

1. adapt—приспосабливать (...); 2. civil—гражданский (...); 3. accurate—точный (...); 4. plaster—штукатурка (...); 5. component—составная часть (...); 6. contain—содержать (...); 7. modify—изменять (...); 8. variety—разнообразие (...); 9. structural - строительный (...); 10. inert—нейтральный (...); 11. essential—существенный (...); 12. test — испытание (...)

10. Проанализируйте состав следующих слов и словосочетаний. Переведите их на русский язык.

rapid-hardening; high-early strength; high-alumina; purpose-made; blast-furnace; rocklike; watertightness; light-weight; large-size elements; semi-rigid

11. Укажите, какие из следующих утверждений являются правильными, какие нет. Дайте свои обоснования не менее чем в двух-трех фразах.

Образец: Steel and concrete are most widely used for binding together masonry units. This statement is incorrect. Lime, gypsum and cement are used in building construction for the purpose of binding masonry units.

1. The most important building materials may now be considered to be structural steel and concrete. 2. Lime, gypsum and cement are the three materials most widely used for making concrete. 3. Cement is the most important component of bricks.

12. Дайте не менее трех вариантов ответа на данные вопросы.

1. Why is concrete one of the most important building material? 2. What is it necessary for the designer to know in order to select the most effective building materials?

Text B. Reinforced-Concrete Elements Production.

(Переведите письменно со словарем.)

With the rapid growth in the employment of precast-concrete products, and particularly of wall panels, slabs, beams, etc., to serve a multitude of building needs, this industry has to maintain and improve the quality of the products. A vast amount of excellent work has already been done to raise the standards of this industry to their present level. Machinery and equipment designers have made important contributions by creating better machines and tools for the industry.

A great number of plants producing precast reinforced-concrete elements is now in operation in our country and abroad. Before the decision is made to establish a precast concrete products plant in a given area, a number of purely economic considerations deserve particular attention. A careful appraisal of the potential requirements provides valuable information for determining the size of the plant which should be built. A well-designed plant must have sufficient capacity for the normal output plus a reasonable margin for a possible increase. The design should specifically and carefully anticipate the future installation of additional equipment for increased production without disrupting the original lay-out.

ПРЕДТЕКСТОВЫЕ УПРАЖНЕНИЯ К ТЕКСТУ С

1. Вспомните, какие русские слова имеют те же корни, что и следующие английские слова.

structural, technological, functions, zones, ordinary, effective, thermal, economical, plastics, synthetic, textile, physical, mechanical, polymer, organic, complex, components

Словарь-минимум к тексту С

advantage - преимущество,
выгода

appearance - внешний вид

prefabricated - заводского
изготовления, сборный

prefabricated element - сборный
элемент

prestress - предварительное
напряжение

brick - кирпич	prestressed - предварительно напряженный
brittle - хрупкий	quality - достоинство, свойство, характеристика
clay - глина	refer to - относиться к
comparatively - сравнительно	reinforced - армированный
density - плотность	reinforced concrete - железобетон
diverse - разнообразный	reinforcement - армирование, арматура
hollow brick - пустотелый кирпич	resin - смола
industry - промышленность	rigid - жесткий
inherent - присущий свойственный	rod - стержень
introduce - вводить, представлять	semi- - полу-
joint - совместный, соединенный	semirigid - полужесткий
lightweight - легкий	shape - форма
load - нагрузка	soft - мягкий, пластичный
mass production - массовое производство	stretch - растягивать
obtain - достигать, получать	stretched zone - растянутая зона
ordinary - обычный	structural - конструкционный, структурный, строительный
particular - особый, отдельный, частный	subjected to - подвергаемый воздействию
prefabricate - изготавливать заводским способом	tensile stress - растягивающее напряжение
	thermal conductivity - теплопроводность
	utilize - использовать
	withstand - противостоять, сопротивляться

Text C. The Choice of Material

(1) Which material can be used to the best advantage for a particular part of the building, depends as well on the kind of load to which it is subjected and on the shape of the part. That the development of the metallurgical and machine-building industry made possible mass production of prefabricated

large-size concrete and reinforced-concrete structural elements is a well-known factor to influence the choice of materials.

(2) Reinforced concrete is a building material in which the joint functions of concrete and steel are advantageously utilized. Being brittle, concrete cannot withstand tensile stresses, and it cannot therefore be used in structures subjected to tensile stresses under load. But if steel is introduced into concrete it changes the property of the monolith.

(3) There are two kinds of reinforced concrete: with ordinary reinforcement and concrete with prestressed reinforcement. To reinforce ordinary concrete structures is to introduce steel rods in stretched zones of concrete elements. Reinforced-concrete structures and elements are widely used both for residential houses and industrial buildings.

(4) In many cases bricks too are very satisfactory for use in the construction. Bricks generally present a pleasing appearance and can be obtained with various qualities, colours, and textures. Being of a high density and high thermal conductivity, ordinary brick is not always satisfactory in building practice. There are other kinds of bricks which are more effective, they are lightweight building bricks, hollow or porous bricks. Lightweight building bricks differ from ordinary clay bricks in a lower density and lower thermal conductivity, and are therefore more economical than ordinary bricks.

(5) One of the most significant facts about both industry and building has been research on synthetics and plastics. Plastics have appeared comparatively recently but, owing to their inherent valuable and diverse properties, have found a wide application in many industrial fields (machine-building, aviation, textile industry, etc.).

(6) In respect to physical and mechanical properties at a normal temperature of 20°C all plastics are divided into rigid, semi-rigid, soft and plastic. In respect to the number of constituents plastics may be classified as simple and complex. Plastics consisting of one polymer are referred to as simple. Thus, organic glass consists of one synthetic resin. But in the building field we usually deal with complex plastics, e.g. plastics consisting of a polymer and other components.

ПОСЛЕТЕКСТОВЫЕ УПРАЖНЕНИЯ

1. Подберите английские эквиваленты к следующим русским словосочетаниям.

1. успешно используются

1. diverse properties

2. растягивающее напряжение

2. semi-rigid

- | | |
|--|---------------------------------|
| 3. растянутые зоны | 3. pleasing appearance |
| 4. прочность на сжатие | 4. density |
| 5. в зависимости от применения | 5. stretched zones |
| 6. приятный внешний вид | 6. prestressed concrete |
| 7. разнообразные свойства | 7. depending on application |
| 8. полужесткий | 8. tensile stress |
| 9. простой кирпич | 9. compressive strength |
| 10. плотность | 10. are advantageously utilized |
| 11. предварительно напряженный железобетон | 11. reinforcement |
| 12. армирование | 12. ordinary brick |

2. Определите, заголовками к каким абзацам текста могут служить данные предложения.

1. The main characteristics of concrete.
2. The chief principles of plastics classification.
3. Factors that influence mass production of prefabricated large-size concrete and reinforced-concrete structural elements.
4. The advantages of bricklaying.
5. Kinds of reinforced concrete.

3. Найдите, какие из данных предложений относятся к описанию бетона, кирпича и пластмасс.

1. There are some kinds of structural materials that have appeared comparatively recently; they may consist of one polymer or of a polymer and other components. 2. These materials can be obtained with various qualities, colours and textures. 3. There are some kinds of materials which are brittle and cannot withstand tensile stress. 4. If steel is introduced into some kind of material it changes its property. 5. Some building materials have a good resistance to compressive loads. 6. In respect of physical and mechanical properties these materials are divided into rigid, semi-rigid and soft. 7. These building materials are produced of clay.

4. В соответствии с содержанием текста дополните незаконченные предложения одним из данных вариантов (а, b, c).

1. Using prefabricated or precast elements...
 - a) depends only on the kind of load to which it is subjected;
 - b) builders perform a considerable amount of building work not in situ but at a factory;
 - c)

made possible mass production of large-size structural elements.

2. Reinforced concrete is a building material in which...

a) such properties as small volume weight and high thermal conductivity are combined;

b) physical and mechanical properties at a normal temperature of 20°C make it semi-rigid and soft; c) the joint functions of concrete and steel are advantageously utilized.

3. Bricks generally present a pleasing appearance and...

a) they are light-weight building materials; b) cannot be used in structures subjected to tensile stresses; c) can be obtained with various qualities, colours and textures.

5. На основании содержания текста ответьте на следующие вопросы.

1. For what types of construction are reinforced concrete structures and elements used? 2. What new materials have come into use both in industry and building? 3. What made possible the mass production of prefabricated large-size concrete elements? 4. In what industrial fields are plastics used? 5. How does steel introduced into concrete change its properties?

ПРЕДТЕКСТОВЫЕ УПРАЖНЕНИЯ К ТЕКСТУ D

1. Вспомните, какие русские слова имеют те же корни, что и следующие английские слова.

Plastics, industry, contribution, corrosion, thermal, acoustical, polyvinyl chloride, structure, type, variety, electrical, polystyrene, sector, polyethylene, traditional

2. Вспомните значения следующих английских слов и подберите к ним соответствующий перевод из правого столбца.

1. flooring

1. прочность

2. purpose

2. наружный

3. washable

3. долговечность

4. to estimate

4. товары

5. external

5. включать

6. internal

6. краска

7. durability

7. легкость

8. goods

8. использование, применение

9. to include

9. обеспечивать

- | | |
|-----------------|---------------------|
| 10. to exclude | 10. увеличивать(ся) |
| 11. strength | 11. моющийся |
| 12. lightness | 12. внутренний |
| 13. to compare | 13. цель |
| 14. to provide | 14. оценивать |
| 15. steel | 15. исключать |
| 16. usage | 16. настилка полов |
| 17. paint | 17. сталь |
| 18. to increase | 18. сравнивать |

Словарь-минимум к тексту D

- | | |
|--|--|
| ageing - старение | paint - краска, красить |
| ancillary fittings - вспомогательное оборудование | pipe - труба, трубопровод |
| bath - ванна | pipe fittings - фасонные трубы |
| bearing - несущий | plastics - пластик, пластмасса |
| non-load bearing - не несущий нагрузки | point(to) - указывать (на) |
| carry out - выполнять, осуществлять | polyvinyl chloride - поливинилхлорид |
| cast iron - чугун | protect - защищать, предохранять |
| cause - вызывать, служить причиной | protecting - защитный |
| cistern - бак, резервуар, цистерна | provision - обеспечение |
| cladding - облицовка | purchase - покупать, приобретать |
| contribution - вклад | rainwater - водосточный |
| cover - покрывать | reinforced - армированный |
| covering - покрытие, облицовка | requirement - требование |
| creep(ing) - ползучесть | resistance - сопротивление, стойкость |
| drainage - дренаж, осушение | rigid - жесткий |
| duct - вентиляционный канал, труба | roll - рулон |
| estimate - оценивать, оценка | rot - гнить |
| expanded polystyrene - вспененный полистирол | share - доля, часть |
| expansion - расширение | sheet - лист |
| thermal expansion - тепловое расширение | site - место производства работ, строительная площадка, участок |
| fallacious - ошибочный | soil - грунт, почва |
| finish(ing) - отделка, отделочные | |

работы

flexible - гибкий

flooring - покрытие пола, настил полов

foam - пена; вспенивать

foaming in-situ - вспенивание в изделии

glass - стекло

gutter - водосток, водосточная труба

improvement - совершенствование, улучшение

lavatory - туалет, туалетная комната, умывальная комната

maintenance - эксплуатация, техническое обслуживание

manufacture - изготовление, обработка, производство, изготавливать, производить

moulded - литой, отформованный

overcome - преодолеть, побороть

structural - конструкционный

supply - снабжать, снабжение

surface - поверхность, покрытие

survey - исследование, обследование

tap - водопроводный кран

tile - плитка, черепица

tube - трубка

value - величина, оценка, стоимость, ценность

urea-formaldehyde - мочевино-формальдегид

weathering - выветривание

weathering resistance - атмосферостойкость

water supply - водопровод, водоснабжение

waste pipe - канализационная труба

Text D. Plastics

(1) It has been estimated that over 700,000 tons of plastics per annum are used in the building industry at the present time. Various estimates have been made as to the contribution plastics make to the total value of building materials used. The latest survey carried out, points to around a 10 per cent share of the market, a far higher proportion than previously thought.

Wide application of plastics is caused by its properties. The main qualities that building materials produced from plastics can offer are:

- lightness
- minimal finishing requirements on site
- rot and corrosion resistance.

On the other hand, it would be fallacious to state that all the problems raised by the use of plastics in this industry have been overcome. Specifically, further research is needed into establishing improvement in the knowledge of the behaviour of this material under

fire and its performance against weathering and ageing.

A wide range of materials considered to be within the plastics family is used for a variety of building requirements. The different use of these materials have been grouped into six main categories. These are:

- surface protecting and covering of other materials
- the mass production of standardized moulded goods
- services in the form of pipes, tubes and ducts
- insulation purposes - thermal and acoustical
- structural usages
- traditional and other uses

(2) One of the major uses of polyvinyl chloride (pvc) in this industry is for the manufacture of plastic flooring. This material is chiefly used in the form of tiles and rolls. Flexible pvc is also used in the production of washable wall coverings and the coating of various materials to give these the advantages of a plastic finish. Sheets of steel and aluminium are increasingly being coated with pvc sheeting to provide a material of considerable strength together with a decorative finish. Development is under way for the use of pvc coated steel for structural purposes. Other types of plastics are used for the provision of external and internal cladding of a mainly non-load bearing function. One material of note for these purposes is glass reinforced polyester sheet (GRP). This material has the inherent advantage of requiring little or no maintenance even in external situations.

(3) A wide variety of moulded goods are produced by the industry for building purposes. The main finished products are baths, cisterns, lavatory seats, taps and other ancillary fittings, pipe fittings, electrical fittings and door furniture. The advantages that products manufactured from plastics have, hinge basically on their weight, durability and the need for little or no maintenance.

(4) The use of rigid pvc in the manufacture of rainwater goods, was one of the pioneering uses for plastics in this industry. The material is now estimated to account for close to 80 per cent of all newly-installed rainwater goods. Beyond this usage, plastic piping should also be mentioned in the provision of mains water supply in place of steel and cast-iron pipes. Plastics has at this point in time been accepted by about one third of water authorities. Complete systems are also available in plastics for drainage, soil and waste pipes. The future development for the material in this role, lies in the overcoming of certain thermal

expansion problems and the accomplishment of an all-plastic hot water system. Under this heading should also be noted the range of plastics pipe and gutter fittings. As well as offering the similar qualities of the plastics pipework, it also has the advantage of facilitating builders to purchase complete systems direct from the merchant or manufacturer. This sector is estimated to consume over 40 per cent of the total volume of plastics used in the construction industry, excluding paints and electric application.

(5) The use of expanded polystyrene for thermal insulation purposes has enjoyed a rate of growth estimated at 20 per cent per annum over recent years. The light weight of boards and prefabricated blocks together with the high thermal efficiency of expanded polystyrene, gives it specific advantages over traditional materials. The increase in this use of polystyrene has been paralleled with the increase in the technique of foaming in-situ, using urea-formaldehyde. Future development in this field, lies in the increase in the use of composite panels consisting of foam for insulation purposes and other plastics materials for decorative finishes.

(6) Structural use of plastics is the least advanced of those discussed in the text. It is true to say that the problems of 'creeps' under load, dimensional stability and flammability remain, to a certain extent, unconquered. It is not until these problems have been overcome that one can foresee the widespread use of these materials for structural purposes. Nevertheless, research is being actively pursued in this field.

(7) The field in which plastics first gained acceptance was in paint due to its durability and finish characteristics. The major quantity of paint now produced, uses plastics as an important constituent. Electrical application has been another traditional field. The important factor here has been the insulation qualities of plastic, though durability as compared to rubber is an important characteristic. Flooring coverings is an important sector where plastics have been used for some time. Approximately one-third by volume of plastic output, excluding that used for paints and electrical applications, is estimated to be used for this purpose. There are certain other uses of plastics which do not fall readily into the above definitions. The chief one would appear to be the use of polyethylene mainly in the form of a film as a moisture barrier in concrete underlay and for damp courses. Another use of this material is

for providing temporary weather protection in buildings under construction. It is estimated that these uses consume about 10,000 tons of polyethylene per annum.

ПОСЛЕТЕКСТОВЫЕ УПРАЖНЕНИЯ

1. Укажите, к каким абзацам текста могут служить заголовками данные предложения. Расположите их согласно последовательности изложения.

1. Insulation.
2. Usage of plastics in building industry.
3. Structural usages.
4. Services - pipes, tubes and ducts.
5. Surfacing, protecting and covering of other materials.
6. Traditional uses of plastics.
7. Standardized moulded goods.

2. Подберите английские эквиваленты к следующим русским словам и словосочетаниям:

- | | |
|--------------------------|--------------------------------|
| 1. to estimate | 1. теплоизоляция |
| 2. building requirements | 2. дренажные трубы |
| 3. structural materials | 3. горючесть |
| 4. thermal insulation | 4. строительные требования |
| 5. covering materials | 5. сходные (подобные) качества |
| 6. decorate finish | 6. приобрести |
| 7. drainage pipes | 7. оценивать |
| 8. flammability | 8. конструкционные материалы |
| 9. similar qualities | 9. гидроизолирующий слой |
| 10. to purchase | 10. облицовочный материал |
| 11. moisture barrier | 11. движение влаги |
| 12. damp causes | 12. декоративная отделка |

3. Отметьте, какие из данных утверждений неправильны или не соответствуют содержанию текста.

1. Plastics are widely used for structural purposes.
2. Rigid pvc pipes are used in place of steel and cast-iron pipes.
3. All plastics have

high creep resistance and dimensional stability. 4. The light weight and the high thermal efficiency of expanded polystyrene gives it specific advantages over traditional materials. 5. One of the wide usages of pvc plastics is flooring coverings. 6. The main features of plastics are flame proofing and ecological safety. 7. Wide application of plastics is caused by its finishing requirements, rot and corrosion resistance.

4. В соответствии с содержанием текста дополните незаконченные предложения:

1. Rigid pvc is chiefly used ...
 - a) in thermal insulation of buildings;
 - b) as a vapour barrier in roofing structures;
 - c) for the manufacture of plastic flooring;
2. The main deficiencies (недостатки) of plastics are ...
 - a) watertightness and flexibility;
 - b) flammability and creeping under load;
 - c) high resistance to chemically aggressive waters;
3. Plastics can be used in place of ...
 - a) fire bricks;
 - b) foundation concrete blocks;
 - c) ceramic and cast-iron pipes.

5. Ответьте на следующие вопросы:

1. What are the advantages of plastics used in the production of building materials?
2. What are the main applications of pvc materials?
3. Where is expanded polystyrene traditionally used?
4. Why are plastic pipes used in place of steel and cast-iron ones?
5. Why are plastics not widely used for structural purposes?
6. Is it possible to use plastics in finishing fireplaces?

ПРЕДТЕКСТОВЫЕ УПРАЖНЕНИЯ К ТЕКСТУ Е

1. Вспомните, какие русские слова имеют те же корни, что и

следующие английские слова.

million, excavator, planning, bulldozer, tractor, scraper, to absorb, canal, anatomically

2. Вспомните значения следующих английских слов, знакомых вам из предыдущих уроков.

important, to start, to carry out, equipment, mechanized, site, advantage, to divide, soil, vehicle, to mount, surface, ground, source

Словарь-минимум к тексту Е

absorb - поглощать	mount - монтировать, устанавливать
accommodate - вмещать	mounted - установленный
blade - диск пилы, лезвие	pick up - поднимать, собирать
bucket - ковш	plane off - состругивать, снимать слой
bulldozer - бульдозер	plant - механическое оборудование, парк (машин)
chain - цепь, цепной механизм	power - приводить в действие
continuous chain - непрерывная цепь	
clumsy - громоздкий	railroad - железная дорога
come up - подойти, сравняться	revolving - поворотный, вращающийся
crawler - гусеничный ход, гусеничный трактор	scraper - скрепер
dig - выкапывать (котлован)	shovel - прямая лопата
drag - подтаскивать, скрести	site - место производства работ, строительная площадка, участок
dragging bucket - ковш драглайна	steam - пар
dragline - драглайн, канатный скребковый экскаватор	swing - поворотный
earth-moving machine - землеройная машина	track - железнодорожный путь, рельсовый путь
edge - борт, бровка, край, кромка	trenching - рытье траншей
excavation - земляные работы	unit - агрегат, устройство, элемент
huge - огромный	vehicle - транспортное средство

levelling - планировка,
планировочные работы

load - грузить, нагружать,
загружать

wheel - колесо, ротор

wonderment - удивление, изумление

Text E. Earth-Moving Machinery

(1) The annual amount of mechanized earth digging operations in Russia comes up to thousands of millions of cubic meters. It requires the employment of a great plant of powerful earth-moving machines, the excavators being the most important of them.

(2) It is not possible to start on a construction job without a good deal of preliminary levelling the site. To carry out this work one must employ the earth-moving equipment.

(3) Site preparation and excavation are the most fully mechanized of all the operations in building construction. Most excavating machinery is heavy and slow-moving and must be carried from site to site on special transporters. It is clear that the use of expensive mechanical plant requires careful planning and efficient site organization if full advantage is to be taken of its high rate of production.

(4) Plant for site preparation and excavation can be divided into four classes. First, machines which plane off a thin layer of soil and push it in front of them. Second, machines which plane off a thin layer of soil, at the same time picking it up and carrying it where required. Third, machines which dig out soil by some form of a bucket, and load it for transportation into separate vehicles. Forth, machines designed specially for trenching by means of a number of buckets mounted either on a continuous chain or on a wheel.

(5) In the first class are bulldozers of different types. A bulldozer represents by itself an earth-moving machine which carries out its work with the aid of a blade mounted on a tractor of either crawler or wheel type.

(6) A scraper, which belongs to the second class of earth-moving machines, is simply a large box with an open mouth, dragged along the surface of the ground until it is full. It has a cutting edge that digs. There is a considerable variety of the scrapers, from small units to huge ones made to accommodate 30 cubic yards of soil and to absorb the power of two tractors while at work.

(7) Revolving shovels, which belong to the third class of earth-moving machines, made their first appearance in 1835 in the form of a part-swing

shovel mounted on railroad tracks. It was powered by steam, it was slow and clumsy, but it did the work. Into Great Britain they were introduced from America in 1887 to work on the Manchester Ship Canal. They were a source of wonderment to the people of that part of the country and trips were organized to provide a view of the "American Devils" as they were popularly called.

ПОСЛЕТЕКСТОВЫЕ УПРАЖНЕНИЯ

1. Отметьте, какие из данных утверждений неправильны или не соответствуют содержанию текста.

1. On large construction sites where a considerable volume of concrete is required a central mixing plant is generally used. 2. A bulldozer is an earth-moving machine which planes off a thin layer of soil, picks it up, and carries it where required. 3. The tower cranes are employed for lifting materials, and structural elements onto the buildings being erected. 4. The first revolving shovels were mounted on railway tracks and powered by steam. 5. Site preparation and excavation are operations which are usually carried out with manpower. 6. A scraper is simply a large box fitted with a cutting edge that digs. 7. Since excavators are heavy and slow-moving machines, they are carried from site to site on special transporters.

2. Найдите в данном отрывке предложение, являющееся ответом на заданный вопрос.

Are excavators fast-moving machines?

Site preparation and excavation are labour-consuming operations. At present they are the most fully mechanized of all the operations carried out in building construction. But earth-moving machines are heavy and slow-moving units, therefore they must be carried from site to site on special trailers. It is clear that such expensive mechanical plant as excavators must be made to carry out various classes of work.

3. Соедините попарно следующие неполные предложения из групп А и В.

A. 1. The best economy is achieved when an all-purpose earth-moving machine is designed... 2. A scraper is simply a box made of sheet steel with an open mouth... 3. Site preparation and levelling are... 4. It is not possible to start on a construction job... 5. The use of expensive mechanical plant

requires...

B. 1. ...without a good deal of preliminary levelling the site. 2. ...the most fully mechanized of all the operations in building construction. 3. ...careful planning and efficient site organization. 4. ...capable of being converted to suit any class of work. 5. ...which is dragged along the surface of the ground until it is full.

4. К какому из неоконченных предложений (а, б, в) относятся данные фразы?

1. one must use earth-moving equipment.

a) As the years went on... b) To carry out this work... c) During the last fifty years...

2. can be divided into four classes.

a) Machines, which plane off a thin layer of soil... b) The annual amount of digging operations... c) Plant for site preparation and excavation...

3. an earth-moving machine, which carries out its work with the aid of a blade mounted on a tractor.

a) A scraper, which belongs to the second class of earth-moving machines, is... b) A bulldozer is... c) A revolving shovel, which belongs to the third class, is...

5. Переведите следующие предложения, обращая внимание на функцию past participle.

1. The mechanical excavating plants dealt with in this chapter are multi-purpose excavators. 2. Properly applied the excavators carry out the work rapidly and at low cost. 3. The plant consists of a base frame mounted on crawler tracks, with a revolving platform positioned on top of the frame. 4. Many of the problems met in the design and discussed here are common in both forms of structures. 5. If fitted with different equipment the excavator can be adapted to carry out various digging operations. 6. Mounted on crawler tracks this excavator can be used under very adverse site conditions.

6. Переведите следующие предложения; определите границы абсолютного причастного оборота.

1. At present a great plant of powerful earth-moving machines is used, the excavators being the most important item. 2. The scrapers plane off a thin layer of soil, the latter being picked up and carried where required. 3. The multi-bucket excavators are designed specially for trenching, this being done

by means of a number of buckets mounted either on a continuous chain, or on a wheel.

7. Образуйте из следующих глаголов существительные, используя суффиксы '-tion (-ion)', '-ment'.

require, construct, excavate, employ, prepare, equip, transport, accommodate, wonder, recognize, introduce, attach, complete

8. Соедините попарно слова из двух данных колонок, образуя термины.

- | | |
|-----------------|----------------|
| 1. earth-moving | 1. tractor |
| 2. excavating | 2. shovel |
| 3. site | 3. equipment |
| 4. continuous | 4. plant |
| 5. crawler | 5. preparation |
| 6. pneumatic | 6. edge |
| 7. cutting | 7. tracks |
| 8. revolving | 8. machinery |
| 9. railroad | 9. chain |
| 10. mechanical | 10. tyre |

9. Подберите слова, близкие по значению, из двух данных групп слов.

- | | |
|------------------|---------------------|
| 1. annual | 1. to reach |
| 2. amount | 2. to fulfil |
| 3. to come up to | 3. work |
| 4. to require | 4. to have room for |
| 5. job | 5. yearly |
| 6. preliminary | 6. to demand |
| 7. to carry out | 7. not small |
| 8. to excavate | 8. quantity |
| 9. continuous | 9. dig |
| 10. considerable | 10. preparatory |
| 11. huge | 11. enormous |
| 12. accommodate | 12. endless |

Text F. Mobile Cranes

(Переведите письменно со словарем)

The function of a crane is to hoist or lower a load suspended from its jib. Various types of cranes are available, the type and size best suited for a specific operation being influenced by the following factors: 1. The nature of the work on which it is to operate. 2. The weight of load it has to handle.

Mobile cranes have a wide range of uses on building and civil engineering works of construction. Cranes of this type usually take the form of a frame carrying a jib, a winch, and other necessary hoisting and controlling equipment, the whole being mounted on a cast-iron bed plate fitted with road wheels of the pneumatic type. One may also have them mounted on caterpillar tracks or on a lorry chassis if desired.

At present rope-operated mobile cranes are being superseded by hydraulically operated ones, in which all working operations, but travelling, are performed with the help of hydraulic rams. The jib of the mobile crane can be of the solid or latticed type, the latter being preferred now because of its lower weight.

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Методические указания
по английскому языку для студентов
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