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СТРОИТЕЛЬСТВО

**Методические материалы
по английскому языку для обучающихся
направления подготовки 08.03.01 Строительство**

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Предисловие

Данные методические указания составлены в соответствии с рабочей программой дисциплины «Иностранный язык» направления подготовки 08.03.01 Строительство и предназначены для практических занятий и самостоятельной работы студентов.

Содержание данных методических указаний представлено пятью тематическими разделами и приложением, которые включают материал по: гражданскому строительству, архитектуре, строительным материалам, строительным нормативам при строительстве дома, а также, о выдающихся людях в области гражданского строительства.

Каждая тема сопровождается системой коммуникативных и лексико-грамматических заданий, которые направлены на приобретение студентами компетенций, предусмотренных образовательным стандартом направления подготовки 08.03.01 Строительство.

ОК-7: способность к коммуникации в устной и письменной формах на русском и иностранном языках для решения задач межличностного и межкультурного взаимодействия, в том числе в сфере профессиональной деятельности;

ОК-8: способность к самоорганизации и самообразованию.

В методические указания включены задания и упражнения на основе профессионально-ориентированных текстов, содержащие лексику, характерную для данной области знаний и проверяющие сформированность навыков коммуникативной компетенции чтения.

UNIT I

CIVIL ENGINEERING

1.1: Read, study and try to memorize words and word combinations.

| | |
|------------------------------------|--------------------------------|
| 1. apply, <i>syn.</i> use, utilize | применять, использовать |
| 2. civil engineering | гражданское строительство |
| 3. contribute | содействовать, делать вклад |
| 4. ensure | обеспечивать, гарантировать |
| 5. experience | опыт |
| 6. explore | исследовать, изучать |
| 7. influence | влиять, влияние |
| 8. involve | вовлекать, включать |
| 9. large-scale | крупномасштабный |
| 10. purpose, <i>syn.</i> goal, aim | цель |
| 11. receive | получать |
| 12. scope | кругозор, сфера деятельности |
| 13. sewerage | канализационная |
| 14. supervise | сеть наблюдать, контролировать |
| 15. supply | снабжать, обеспечивать |
| 16. surround | окружать |
| 17. work out | разрабатывать |

1.2: Translate the international words.

Profession, practice, civil, project, construction, military, topographical, location, design, forts, docks, discipline, canals, dams, drainage, irrigation, system, nation, standard, term, activity, municipal, specifications, general, office blocks, hydro-electrical, architecture, region, protection, structure, plan, classification, to classify, role, technique, airport, urban, steel, cement, factors, basic, principle, to reflect, social, communication, infrastructure.

1.3: Read the text given below and answer the following questions.

- 1) What is engineering?
- 2) How did the term *civil engineer* appear?

- 3) What field of construction activity does civil engineering comprise?
- 4) What are the duties of a civil engineer?

Engineering is a term applied to the profession in which knowledge of the mathematical and natural sciences, gained by study, experience, and practice, is applied to the efficient use of the materials and forces of nature. Engineers are those who have received professional training in pure and applied science.

Before the middle of the 18th century, large-scale construction work was usually placed in the hands of military engineers. Military engineering involved such work as the preparation of topographical maps, the location, design, and construction of roads and bridges; and the building of forts and docks. In the 18th century, however, the term civil engineering came into use to describe engineering work that was performed by civilians for non-military purposes.

Civil engineering is the broadest of the engineering fields. It contributes in more ways than any other engineering discipline to our modern society. Nearly everything that surrounds us has been planned and designed by civil engineers. Today the scope of civil engineering is subdivided into:

- structural engineering (all kinds of buildings),
- highway and railway engineering,
- hydraulics engineering (canals, dams, drainage and irrigation systems),
- municipal engineering (city planning, traffic regulation, water supply and sewerage).

As for the duties of a civil engineer, they are:

- to work out plans and specifications,
- to supervise the construction projects,
- to ensure quality, efficiency, speed and low cost of construction,
- to consider the method, equipment and materials to be used to construct a project.

Now you understand that civil engineers build the world's infrastructure. In doing so, they quietly shape the history of nations around the world. Most people can not imagine life without the many contributions of civil engineers to the public's health, safety and standard of living. Only

by exploring civil engineering's influence in shaping the world we know today, we can creatively envision the progress of our tomorrows.

1.4: Find the equivalents. Match A with B.

| A | B |
|---|---|
| 1. forces of nature | 1. диапазон инженера-строителя |
| 2. pure and applied science | 2. подразделяться на... |
| 3. to be subdivided into | 3. силы природы |
| 4. the scope of civil engineering | 4. чистая и прикладная наука |
| 5. to work out plans and specifications | 5. гарантировать качество, эффективность, скорость и низкую стоимость строительства |
| 6. to ensure quality, efficiency, speed and low cost of construction | 6. рассматривать метод, оборудование и материалы |
| 7. to consider the method, equipment and materials | 7. разрабатывать планы и спецификации |
| 8. professional training | 8. вносить вклад в здравоохранение, безопасность и уровень жизни |
| 9. efficient use of the materials | 9. проектирование зданий и сооружений |
| 10. to be planned and designed by civil engineers | 10. наблюдать за строительством объектов |
| 11. to supervise the construction projects | 11. градостроительство |
| 12. to build the world's infrastructure | 12. профессиональная подготовка |
| 13. to contribute to the public's health, safety and standard of living | 13. быть спланированным и спроектированным инженером-строителем |
| 14. structural engineering | 14. эффективное использование материалов |
| 15. municipal engineering | 15. строить мировую инфраструктуру |

1.5: Mind the difference between the terms. Match A with B.

| A | B |
|-------------------|---|
| building | is connected mainly with domestic dwellings such as houses, schools, hospitals and offices |
| construction | is concerned with erection and repair of all types of buildings, roads, bridges and other structures |
| civil engineering | deals with surrounding features like bridges, roads, harbors, water supply and hydro-electric schemes |

1.6: Act out dialogues.

My faculty and my subject

- Would you introduce yourself?
- Of course. I’m a second-year student. My subject is construction.
- Oh? Are you from the KSTU?
- Yes, I’m. I study at the Faculty of Building and Underground Construction.
- Will you speak about your faculty?
- Our faculty was founded in 1978. Nowadays about 800 students study there. The staff comprises about 100 lecturers and researchers.
- I see. Thank you.

Choice of a specialty

- You study to be a civil engineer, don’t you?
- That’s right.
- Why have you chosen this profession?
- Because I take after my parents. My father and mother graduated from the Kuzbass Polytechnic many years ago. They like their job. I think civil engineering is important and interesting. And what about you?
- As for me, I enjoy solving problems and putting my ideas into action. More over I am curious about how things work and how to make them better.
- Then, I think civil engineering may be the perfect career for you!

Civil Engineering

- What is civil engineering?
- Civil engineering is a very broad professional field.
- What are the areas of civil engineering interests?
- Civil engineering deals with the construction of different kinds of buildings, renewal and development projects, transport systems, water supply and waste disposal systems, dams and other coastal protection structures, off-shore facilities, flood and pollution-control systems.
- I see. Nearly everything around us is planned, designed and constructed by a civil engineer.
- Yes, you are right.

The duties of a civil engineer

- What are you?
- I am a student.
- What is your subject?
- My subject is Civil engineering.
- Do you know what the duties of a civil engineer are?
- A civil engineer is to work out plans and specifications, to supervise the construction projects, to ensure quality, efficiency, speed and low cost of construction. And, of course, he considers the methods, equipment and materials to be used to construct a project.
- I see. To my mind the duties of a civil engineer are very important.

1.7: Civil Engineers have to do more than one task for the successful completion of the project and this video deals with many important aspects. Click here, watch video and comment on it!

<http://www.engineeringcivil.com/video-describing-job-of-a-civil-engineer.html>

1.8: Click here, watch the presentation and say what is needed to be a successful engineer.

<http://www.youtube.com/watch?v=nz9vMQwzdZI>

1.9: Speak about your future specialty answering the following questions.

1. What are you? 2. What is your faculty? 3. When was your faculty founded? 4. How many students are there at your faculty? 5. What can you say about the staff? 6. What is your subject? 7. Why have you chosen this profession? 8. Civil engineering is important, isn't it? 9. Is civil engineering a broad professional field? Why do you think so? 10. What are the duties of a civil engineer? 11. How long does the course of study last? 12. What subjects do you study? 13. What do the students do at the end of the 5th course? 14. Where do you plan to work after graduation from the University?

1.10: Act out the situations.

Discuss with your group-mate why you have chosen the profession of a civil engineer. What are its advantages? Where do you think you will work after you graduation from the university?

Useful phrases: to be interesting for; to be fond of architecture; town planning and design; to be important for the Kuzbass (our country); the scope of civil engineering, to be broad, to be easy (difficult) to find a good job in the future.

**UNIT II
ARCHITECTURE**

2.1: Read, study and try to memorize words and word combinations.

| | |
|------------------------------------|-------------------------|
| 1. according to | согласно чему-либо |
| 2. adaptability | приспособляемость |
| 3. approach | подход |
| 4. building, <i>syn.</i> structure | здание, сооружение |
| 5. commodity | удобство |
| 6. communication | передача |
| 7. delight | восхищение, наслаждение |

| | |
|---------------------------|--|
| 8. depend upon | зависеть от |
| 9. design | проектировать, конструировать, различать |
| 10. drawing | черчение |
| 11. employ | применять, использовать |
| 12. engineering | инженерное искусство |
| 13. ensemble | ансамбль |
| 14. experience | знать по опыту |
| 15. firmness | устойчивость |
| 16. generic | характерный для определенной группы |
| 17. in accordance with | в соответствии с |
| 18. man-made | созданный руками человека |
| 19. permanence | прочность, устойчивость |
| 20. possess | обладать |
| 21. requirement | требование |
| 22. social formation | общественно-экономическая формация |
| 23. suitability | пригодность |
| 24. technique of building | методика строительства |
| 25. vary | меняться |

2.2: Try to recognize the international words. Give Russian equivalents to the following words.

Architecture, theorist, civilized, produce, aesthetic, human, social, hospital, function, type, formation, group, religious, commercial, industrial.

2.3: Read the text and find answers in it to the questions given bellow.

What is Architecture?

Architecture is the art and the technique of building, employed to fulfil the practical and expressive requirements of civilized people. Almost every settled society that possesses the techniques for building produces architecture.

Architecture is the science of designing and building structures, or ensembles according to aesthetic and functional criteria. Structures built in accordance with such principles are also architecture.

The Roman architect and theorist Vitruvius (46-30 BC) wrote that architecture needed to possess three qualities, usually rendered in English as commodity, firmness, and delight.

Vitruvius required all three elements to be present for a building to be *architecture*. So the characteristics that distinguish a work of architecture from other man-made structures are:

1) the suitability of the work to use by human beings in general and the adaptability of it to particular human activities;

2) the stability and the permanence of the work's construction;

3) the communication of experience and ideas through its form. All these conditions must be met in architecture. The second is constant, while the first and the third vary in relative importance according to the social functions of buildings.

A historical approach exposes key relationships between architecture and other disciplines – sculpture, drawing, engineering, and town planning, to name a few. Most of us, however, experience architecture in relation to certain generic building types.

We live in a house, worship in a religious building, go to work in skyscrapers, spend our money in shopping centres, feed our cars at gasoline stations, stay overnight in a hotel, go to hospitals when we are sick.

The types of architecture are established not by architects but by society, according to the needs of its different institutions. So the types of architecture depend upon social formations and may be classified according to the role of the patron of the community. The simplest classification of architectural types represents the following groups: domestic, religious, governmental, recreational, welfare and educational, commercial and industrial.

1. How can you define architecture?

2. What have you learnt about Vitruvius?

3. What distinguishes a work of architecture from other man-made structures?

4. Which of the conditions that must be met in architecture is constant?

5. Is architecture an autonomous discipline? Speak on its relationships.

6. What are the basic types of architecture?

2.4: Match words and word combinations.

- | | |
|--------------------------------|--|
| 1. technique of building | a) основные взаимоотношения |
| 2. expressive requirement | b) методика строительства |
| 3. man-made structure | c) передача опыта |
| 4. quality | d) оседлое общество |
| 5. key relationships | e) градостроительство |
| 6. communication of experience | f) например |
| 7. relative importance | g) сооружение, созданное руками человека |
| 8. settled society | h) качество |
| 9. characteristic | i) относительная важность |
| 10. town planning | j) потребность в выразительности |
| 11. to name a few | k) особенность |

2.5: Answer the question: How do you define architecture?

The word architecture can have many meanings. Depending on the context, architecture can refer to:

- a) any man-made building or structure;
- b) a man-made building or structure that is important, large, or highly creative;
- c) a carefully designed object, such as a chair, a spoon, or a tea kettle;
- d) a design for a city, town, park, or landscape;
- e) the art or science of designing and building buildings, structures, objects, and outdoor spaces;
- f) a building style or method.

2.6: Act out a dialogue.

Architecture

- What is architecture?
- Architecture is the art and the science of building.
- Can you say what the basic principles in architecture are?

– Oh, they are convenience, strength and beauty. You see, about 2000 years ago the Roman architect Vitruvius called these principles. They are always present in the best structures.

– So, an architect is to achieve an integration of these principles in his work, isn't he?

– You are quite right.

– There are different architectural styles: Gothic, Baroque, Classicism, Neoclassicism, Modern. Do they reflect a man's desire for something new?

– First of all they reflect different social functions. Each generation write its history in buildings. For example, medieval towns were designed and built for protection. The Baroque city is organized for show. American metropolis says: «Finance must dominate».

– I see. As to modern architecture, it is characterized by simplicity of line and design.

2.7: Try to speak about architecture, its function and styles.

2.8: Do you know where these buildings are? Read these newspaper cuttings making use of the vocabulary. Match the descriptions with the buildings.

1. look like

2. tripod

3. hull

4. deck

5. be shaped

6. bottom

7. be connected

8. skewer

9. triangular

10. rectangular

11. a huge chisel

12. empty space

13. dome

14. square link in a chain

БЫТЬ ПОХОЖИМ

треножник

корпус судна

палуба

БЫТЬ В ФОРМЕ

низ

БЫТЬ СВЯЗАННЫМ

шпилька

треугольный

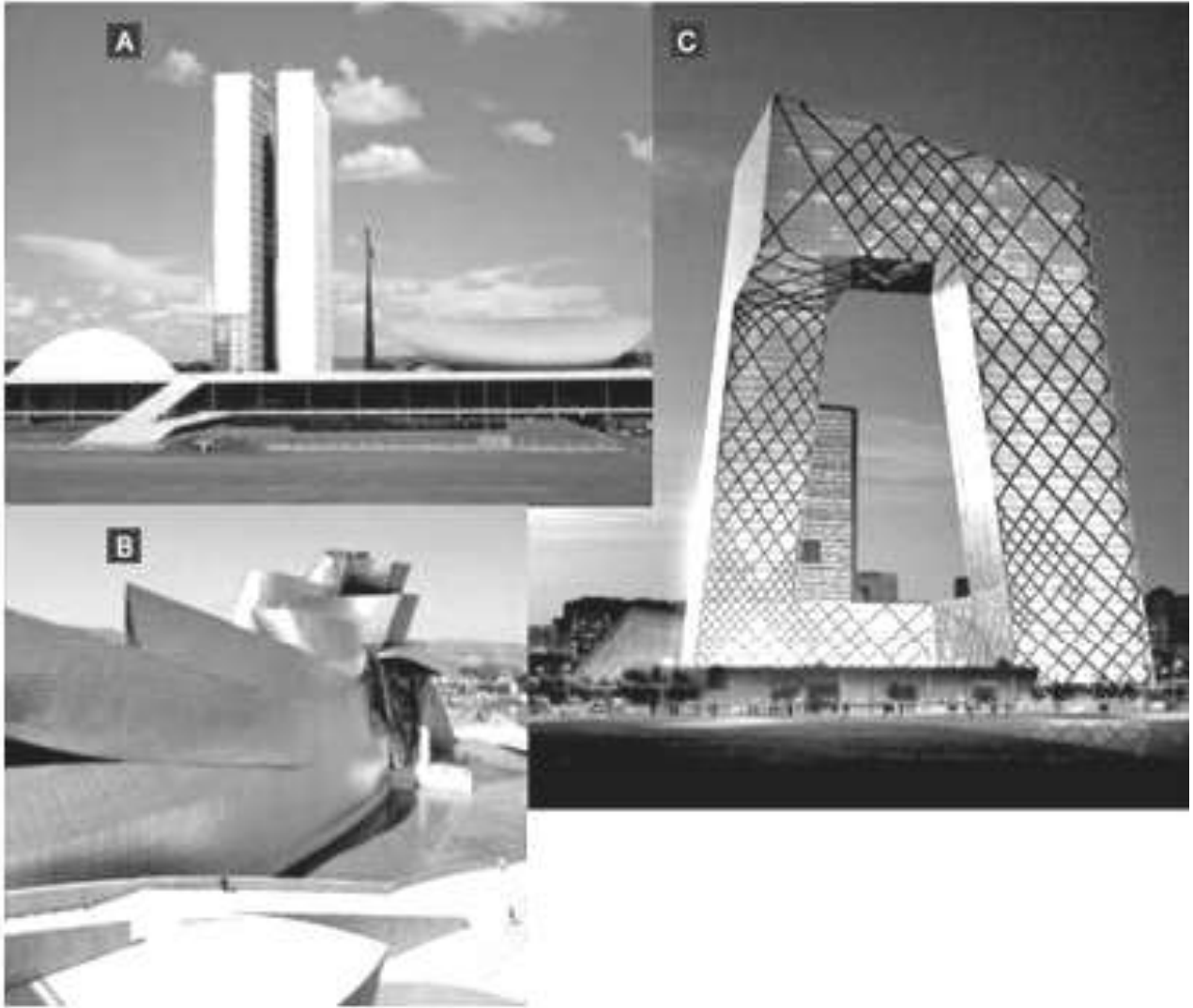
прямоугольный

огромное долото

пустое пространство

купол, свод

квадратное звено в цепи



1. This building looks like a huge ship, an ocean liner, sailing up the river. One part of the building is shaped like three hulls. The other part looks like the decks and the bridge.

2. The building looks like a TV transmitter. It has three spherical structures. The bottom two is connected by a structure which is shaped like a ladder. It looks like three onions on a skewer! The foot of the building has legs, like a tripod.

3. It is a triangular at the base, but thin and rectangular at the top. It looks like a huge chisel, with an empty space in the middle of the blade.

4. The skyscraper is shaped like a giant sail. The sail is standing on a short surfboat in the sea.



5. This building is in three parts. In the centre there is a tall H-shaped building. On the left there's the top part of a dome. It looks like an upside-down plate. On the right there is the bottom part of a dome, like a soup bowl.

6. It consists of three L-shaped structures, attached to each other. It looks like a square link in a chain.

Useful language: You can describe the shape or appearance of something in these ways:

- The building looks like a TV transmitter.
- The building is shaped like a dome. It's a dome-shaped building.
- The plan is in the shape of an L. It's an L-shaped plan.
- The screen is in the shape of a circle. It's a circular screen.

2.9: Cover up the texts in the previous exercise. Choose and describe one building in the photos, so that other students could guess the letter of the building under description.

2.10: Translate the following texts about different architectural styles in written form. Use a dictionary if it is necessary.

Gothic architecture, architectural style in Europe that lasted from the mid 12th century to the 16th century, particularly a style of masonry building. In the 12th–13th centuries, feats of engineering permitted increasingly gigantic buildings. The rib vault, flying buttress, and pointed (Gothic) arch were used as



solutions to the problem of building a very tall structure while preserving as much natural light as possible. Stained-glass window panels rendered startling sun-dappled interior effects. One of the earliest buildings to combine these elements into a coherent style was the abbey of Saint-Debis, Paris (1135–44). The High Gothic years (1250–1300) were dominated by France, especially with the development of the Rayonnant style. Britain, Germany, and Spain produced variations of this style. Late Gothic (15th century) architecture reached its height in Germany's vaulted hall churches. Other late Gothic styles include the British Perpendicular style and the French and Spanish Flamboyant style.

Baroque architecture, architectural style originating in late 16th-century Italy and lasting in some regions, notably Germany and colonial South America, until the 18th century. Complex architectural plan shapes, often based on the oval, and the dynamic opposition and interpenetration of spaces were favoured to heighten the feeling of motion and sensuality. Other characteristic qualities include grandeur, drama and contrast (especially in lighting), set of rich surface treatments, twisting elements, and gilded statuary. Architects applied bright colours and illusory, vividly painted ceilings. Outstanding practitioners in Italy included

Gian Lorenzo Bernini, Carlo Maderno, and Guarino Guarini. Classical elements subdued Baroque architecture in France. In central Europe, the Baroque arrived late but flourished in the works of such architects as the Austrian Johann Bernhard Fischer von Erlach. The late Baroque style is often referred to as Rococo.



Art Nouveau (Modern) although known as *Modernista* in Spain, and *Stile Liberty* in Italy, Art Nouveau has become the general term applied to a highly varied movement at the end of the century. The extensive use of iron and glass in Art Nouveau buildings was also rooted in 19th-century practice. In France bizarre forms appeared in iron, masonry, and concrete, such as the structures of Hector Guimard for the Paris M.tro (1900), the Montmartre church of Saint-Jean L'» vang. liste (1894–1904) by Anatole de Baudot, and the Samaritaine Department Store (1905) in Paris, by Frantz Jourdain (1847–1935).



The Classicism that (1750–1830) is often known as *Neoclassicism*, in order to distinguish it from the Classical architecture of ancient Rome or of the Renaissance. Stylistically this began with an onslaught against Baroque architecture. Neoclassical architecture is based on the principles of simplicity and symmetry, which were seen as



virtues of the arts of Rome and Ancient Greece, and were drawn from the 16th century.

High-tech architecture, also known as Late Modernism or Structural Expressionism, is an architectural style that emerged in the 1970s, incorporating elements of high-tech industry and technology into building design. Structural Expressionist buildings reveal their structure on the outside as well as the inside, but



with visual emphasis placed on the internal steel and / or concrete skeletal structure as opposed to exterior concrete walls. The style's practitioners include the British architects Sir Norman Foster, Sir Richard Rogers, Sir Michael Hopkins, Italian architect Renzo Piano and Spanish architect Santiago Calatrava, known for his organic, skeleton-like designs. Early High Tech buildings were referred to by historian Reyner Banham as «serviced sheds» due to their additional exposure of mechanical services in addition to the structure. Most of these early examples used exposed structural steel as their material of choice.

2.11: Summarize the information from the translated texts in a table.

| Architectural style | Years | Features |
|---------------------|-------|----------|
| 1. | | |
| 2. | | |
| 3. | | |
| 4. | | |
| 5. | | |

2.12: Find the English equivalents to the following words and word combinations in the read texts.

1. опора
2. каменная кладка

3. витражное стекло
4. нервюрный свод
5. мастерство инженерного искусства
6. гармоничный стиль
7. величие
8. освещение
9. позолоченный
10. причудливые формы
11. внутренняя стальная конструкция
12. конструкционная листовая сталь
13. конструкция здания
14. высоко-технологичная промышленность

2.13: Look through the text «Forms and Functions of Architecture» and find two facts which are new to you and two facts which are already known to you.

Forms and Functions of Architecture

The sequence of the three basic aims – *convenience, strength and beauty* – has its own significance. First any building exists for some particular purpose, it is built because of some definite human need, either practical or emotional, or both. The use problem – *convenience* is therefore primary.

Next, the construction of any object or shelter for human use must be a true construction; that is, it must stand up solidly for the duration for which it is designed.

Finally, mankind has always realized that buildings to be complete must have not only *convenience* and *strength* but also *beauty*.

The value of true architecture lies in the direct effect of the structure itself and of the actual elements of which it is constructed.

Outside we observe the physical structure; we see variations of plane, of colour, and of light and shade. There are doors to allow ingress and egress; windows to admit light and air; walls for shelter or support, or both; roofs to keep out the rain, snow, cold, and sometimes sun.

We enter the building, and we pay attention to the same complexity of elements. Partitions separate space from space; there may be stairs, escalators, or elevators to allow progress from level to level and halls or corridors to permit easy circulation from part to part; finally there may be all sorts of interior spaces for definite human activities – rooms both public and private – to take care of the varying functions of human living.

Such elements – walls and openings, supports, floors and ceilings, enclosed areas or rooms – are the letters of the architect's alphabet. No building can exist without some of them, and upon their correct arrangement and design the success of the building, both practically and aesthetically, will almost entirely be founded. The architect must always study each detail from the viewpoints of both use and appearance as well as from that of construction, and he must continuously see it not as an isolated detail but as an individual note in a great composition.

The architect has the task of being an artist as well as an inventive engineer.

The triple nature of architectural design (convenience, strength, beauty) is one of the reasons why architecture is a difficult art; for it takes a special type of imagination as well as long years of training and experience to produce a designer capable of making the requisite in the light of these three factors – use, construction, and aesthetic effect simultaneously. The designer must have a sufficient knowledge of engineering and of building materials to enable him to create economically a strong as well as practical structure and, in addition, must possess the creative imagination which will enable him to integrate the plan and the construction into one harmonious whole. The architect's feeling of satisfaction in achieving such an integration is one of his greatest rewards.

2.14: There are some notes the student made after reading the text «Forms and Functions of Architecture». Did he remember everything right? Read his notes and correct them if necessary.

1. A large number of systems and theories for the construction of the buildings have been developed since earliest times of architecture.

2. The construction of any object or shelter for human use must be a true construction; that is, it must stand up solidly for the duration for which

it is designed and that's why such factor in architecture as strength is primary.

3. Architects must study each detail in their work only from one viewpoint, that is, of use.

4. To create a work of architecture the designer must project an integration of the whole with the help of such elements as walls and openings, supports, floors and ceilings, rooms.

5. The architect must possess the knowledge in different sciences but the creative imagination isn't necessary for him.

2.15: Read the following text and give its short summary using phrases on page 45.

Bioclimatic Architecture

Bioclimatic architecture is a way of designing buildings and manipulating the environment within buildings by working with natural forces around the building rather than against them. Thus it concerns itself with climate as a major contextual generator, and with environments using minimal energy as its target.

The idea of designing and building structures that are environmentally friendly has become widespread throughout the community of architects and builders in developed nations. In many areas there is the necessity of complying with new regulations and standards aimed at protecting the environment. In addition, there are an increasing number of incentives for putting up buildings with more efficient energy consumption and that reduces the negative impacts on natural resources by using recycled or sustainable materials.

There is growing interest in *green* building practices, which offer an opportunity to create environmentally sound and resource-efficient buildings by using an integrated approach to design. *Green* buildings promote resource conservation through energy efficiency, renewable energy, and water conservation features. They take into consideration the environmental impact of the building and minimize waste. Other goals are to create a healthy and comfortable environment, reduce operation and

maintenance costs, and address issues such as historical preservation, access to public transportation and other community infrastructure systems.

The entire life cycle of the building and its components is considered, as well as the economic and environmental impact and performance.

What is integrated bioclimatic architecture? It is the architecture that arises out of the landscape, with the site determining the orientation and construction of a building, not just aesthetically, but also mechanically, determining its heating, cooling, and lighting.

Thus, it is an architecture that respects nature and its resources and provides its occupants with the most comfortable and pleasing environment possible. However, this architectural approach need not be a restrictive one for imaginative practitioners. As integrated bioclimatic architecture encompasses examples of vernacular architecture, like the typical «white stucco Mediterranean fishing village», as well as mimetic architecture, which draws on the materials, textures, even the plants of the surrounding landscape for its inspiration. Indeed, good integrated bioclimatic architecture should exist in harmony with the site.

2.16: Have you heard about «Green Architecture»? Click here, watch the video about this new direction in architecture and give your definition what it is. What names were mentioned?

<http://www.youtube.com/watch?v=fe66GBvMjjU&feature=related>

UNIT III BUILDING MATERIALS

3.1: Read, study and try to memorize words and word combinations.

| | |
|-----------------|--|
| 1. assemble | монтировать, составлять |
| 2. availability | наличие, полезность |
| 3. concrete | бетон |
| 4. decay | гнить, разлагаться, разрушаться, распадаться |
| 5. durable | долговечный, крепкий |
| 6. dwelling | жилище, жилое помещение |
| 7. fabric | материал, ткань, материя |

| | |
|--------------------------|---|
| 8. floor | пол |
| 9. frame | основа |
| 10. hardness | стойкость |
| 11. impact | влияние, воздействие |
| 12. influence | влиять, влияние |
| 13. insulate | изолировать |
| 14. mortar | раствор |
| 15. porosity | пористость |
| 16. possess | располагать, владеть, обладать |
| 17. precast concrete | сборный железобетон; сборный бетон |
| 18. prestressed concrete | предварительно напряженный бетон |
| 19. proof | стойкий, непроницаемый |
| 20 property | свойство |
| 21. protect | защищать |
| 22. range | ряд, область распространения, предел |
| 23. recycle | повторно использовать, перерабатывать |
| 24. reinforced concrete | армированный бетон |
| 25. resist | сопротивляться, противодействовать |
| 26. shape | форма |
| 27. sound | звук; прочный, надежный |
| 28. strength | сила, мощь, прочность, устойчивость |
| 29. structural | строительный |
| 30. substitute | заменять, замещать, подставлять |
| 31. support | поддерживать |
| 32. tightness | напряженность |
| 33. workability | способность подвергаться обработке, технологичность |

3.2: Find Synonyms. Match the words.

| A | B |
|----------|------------|
| hardness | complete |
| realize | differ |
| vary | collapse |
| finish | weakness |
| crush | understand |

3.3: Find antonyms. Match the words.

| A | B |
|-----------|---------------|
| cheap | finish |
| require | destroy |
| start | offer |
| advantage | fast |
| construct | expensive |
| slow | disadvantages |

3.4: Read the text «Materials Used for Structural Purposes» and answer the following questions.

1. What are the properties of the building materials?
2. What are the most commonly used building materials?
3. Do building materials differ from each other?
4. What is the most ancient building material?
5. Is concrete an artificial or natural building material?
6. When do the architects and engineers turn to plastics?

Materials Used for Structural Purposes

Materials to be used for structural purposes should meet several requirements depending upon their practical uses. In most cases it is important that they should be hard, durable, fire-resistant and easily fastened together. We determine whether a material is good for building purposes judging by its qualities.

At all times it was important to know how the most commonly used materials – steel, stone, wood and brick – differed in hardness, durability and fire resistance.

Wood is the most ancient structural material. It is light, cheap and easy to work. But wood has certain disadvantages: it burns and decays.

Stone. Stone belongs to one of the oldest building materials used by man. Primitive stone structures were the earliest types of human dwellings. Stone has many properties owing to which it is widely used for building purposes. They are mechanical strength, compactness, porosity, sound and

heat insulation and fire-resistance. Stone is widely used for foundations, walls and steps of buildings, for supports of piers and bridges, and for finishing and decorating all sorts of structures.

Brick. Bricks as a structural material were known many thousand years ago and are used as a substitute for other materials found in natural state. Bricks are hard and easily fastened together with the help of mortar which makes them suitable for construction purposes. A brick building is strong, durable and weather resistant.

It has, however, certain disadvantages. First, its foundation requires durability and takes up a much larger space than that of a wooden structure and is consequently more expensive. Second, the process of constructing a brick building is very slow and requires much skilled labour on the site. Such limitations of bricks led to the development of steel frame technique which allows an easy assembly of structural parts and makes possible the use of new materials.

Steel. As structural material steel has come into general use with the development of industry, its manufacture requiring special equipment and skilled labour. Steel has largely displaced wood and bricks as basic materials in construction. Its technique has combined the best principles of the older methods.

Concrete. Concrete is one of the most important materials. Concrete is a mixture of cement, sand and crushed stone, made into a paste with water. It forms a hard durable mass and is largely used for the foundations and walls of houses, and for structures under water.

Plastics combine all the fine characteristics of a building material with good insulating properties. That is why the architects and engineers have turned to them to add beauty to modern homes and offices.

3.5: Translate one of the texts given below in written form within 30 minutes. Use a dictionary if it is necessary.

Concrete

Concrete is a construction material composed of cement (commonly Portland cement) as well as other cementitious materials such as fly ash and slag cement, aggregate (generally a coarse aggregate made of crushed rocks

such as limestone, or granite, plus a fine aggregate such as sand), water, and chemical admixtures.

The word concrete comes from the Latin word *concretus* (meaning compact or condensed), the past participle of *concreasco*, from *com-* (together) and *cresco* (to grow).

Concrete solidifies and hardens after mixing with water and placement due to a chemical process known as hydration. The water reacts with the cement, which bonds the other components together, eventually creating a stone-like material. Concrete is used to make pavements, pipe, architectural structures, foundations, motorways / roads, bridges / overpasses, parking structures, brick / block walls and footings for gates, fences and poles.

Concrete is used more than any other man-made material in the world. About 8 cubic kilometers of concrete are made each year – more than one cubic meter for every person on Earth.

Reinforced concrete, prestressed concrete and precast concrete are the most widely used modern kinds of concrete functional extensions.

Metal

Metal is used as structural framework for larger buildings such as skyscrapers, or as an external surface covering.

There are many types of metals used for building. Steel is a metal alloy whose major component is iron, and is the usual choice for metal structural building materials. It is strong, flexible, and if refined well and / or treated lasts a long time. Corrosion is metal's prime enemy when it comes to longevity.

The lower density and better corrosion resistance of aluminium alloys and tin sometimes overcome their greater cost. Brass was more common in the past, but is usually restricted to specific uses.

Other metals used include titanium, chrome, gold, silver.

Titanium can be used for structural purposes, but it is much more expensive than steel. Chrome, gold, and silver are used as decoration, because these materials are expensive and lack structural qualities such as tensile strength or hardness.

3.6: Read the text «Building materials» and complete the table given below.

Building materials

Building material is any material which is used for a construction purpose. Many naturally occurring substances, such as clay, sand, wood and rocks, even twigs and leaves have been used to construct buildings. Apart from naturally occurring materials, many man-made products are in use, some more and some less synthetic.

Construction materials can be used for aesthetic purposes to make buildings look nice. More importantly, though, construction materials are vital for structural stability. With the right building materials, you can achieve both goals-creating an attractive building that is structurally sound. Options for building supplies include:

1. Wood building materials
2. Stone and brick building materials.
3. Metal building materials.
4. Concrete building materials.
5. Glass building materials.
6. Green building materials.

Use wood building materials for everything from framing to flooring. Wood building materials are perhaps the most common and versatile construction materials in the world. Appropriate for almost any structure in a variety of climates, they're useful inside your building and out.

Turn to bricks and stones as wall-worthy construction materials while they're too heavy, awkward and energy-inefficient for broad applications, stone building materials are popular for exterior construction and landscaping designs. Projects that would benefit from the strength of stone building supplies should consider brick, which is equally sturdy (стойкий) but more practical.

Choose metal commercial building materials for larger construction projects. Metal building supplies are ideal for large buildings, such as warehouses and skyscrapers, which require metal skeletons for framing.

Add a modern touch to your project with concrete building materials. Even better than brick, and stronger than stone, concrete commercial

building materials, including cinder blocks and reinforced concrete, are the predominant choice for modern builders.

Use glass building materials for their aesthetic interest. Unlike other building materials, glass is more decorative than structural. Most commonly used for windows, it can also be used for architectural elements like curtain walls and space frame ceilings.

Help the environment with green building materials.

Increasingly popular are environmentally friendly building materials, including sustainable lumber and recycled building supplies. Choosing the best building materials for your project comes down to both form and function. Answer, which building materials will give you the aesthetic that you desire and the structural integrity that you need.

While traditional building materials like wood and metal will always form the core of commercial building projects, interesting building materials like plastic, ceramics, fabric and even foam are becoming increasingly popular as accents and alternatives.

| Options | Usage | Advantages | Disadvantages |
|-------------------|-------|------------|---------------|
| Wood | | | |
| Bricks and stones | | | |
| Metal | | | |
| Concrete | | | |
| Glass | | | |
| Green BM | | | |

3.7: Look through the text once again and give its short summary using phrases on page 45.

3. 8: Act out a dialogue.

Building materials

– A lot of building materials are used in construction, among them concrete, steel, brick, timber, cement, lime, gypsum. What are the most important?

– The most important building materials are considered to be structural steel and concrete. But we must keep in mind that all building materials vary in their properties. Even steel varies considerably in its microstructure.

– What factors must a civil engineer consider when he chooses this or that material?

– The main factors are: availability, cost, physical properties of materials such as their workability, strength, water tightness, resistance to erosion, etc.

– What influences the choice of building materials?

– The type and the function of a building.

3.9: Scan the text «Top Seven Alternative Housing Ideas», find international words and translate them.

3.10: Read the following text and give its short summary using phrases on page 45.

Top Seven Alternative Housing Ideas

As housing prices rise and people become more concerned (заинтересованы) about their environmental footprints, green construction has been gaining popularity. Green construction can include mainstream features, like a green roof, or more unique material. In general, what makes a building eco-friendly are the materials that go into the structure and the attention paid to energy usage in its design.

Green builders use recycled or low-impact components to create energy-efficient homes and you can construct green homes in any number of ways. Now, we'll look at some unique, eco-friendly alternative housing ideas.

Hemp Concrete

Traditional concrete is very energy intensive to create, so one Asheville, NC, company is looking to change that. «Hemp Technologies» developed an alternative concrete, called Hemcrete, out of hemp (пенька;

пакля, конопля), water and lime that's more durable than regular concrete. This material insulates better than concrete, you make that up that cost over time in energy savings.

Walls constructed with this material are also resistant to fire, mold (плесень) and insects, and some researchers think that it may even last as long as 700 to 800 years.

Beer Bottles

Tito Ingenieri built his Quilmes, Argentina, home out of 6 million empty glass bottles. He sets the bottles in concrete to create a light, airy space that's a testament to the amount of empty bottles that go to waste. Friends and neighbours have saved their bottles for Ingenieri over a period of more than 19 years, and he says that his home doesn't belong to him but to many people in this town. They say this is an ecological house, as it is made of bottles from the street, and now the streets are clean.

Green Wall

Living walls are as beautiful as they are functional. These vertical gardens are able to support a wide range of plants. A green wall on the south side of your building helps reduce cooling costs in the summer.

Most green walls are constructed using a modular design, which not only makes them easier to build, but also allows you to create interesting patterns and designs by mixing and matching different plants.

Green Roof

A green roof is more than a cool architectural feature. It can help manage storm water runoff by providing a permeable (проницаемый) surface, and it can help offset the urban heat-island effect. Rather than absorbing and storing heat like a regular roof, a green roof reflects heat and can help lower a building's cooling costs. They are also great insulators and can reduce both air and noise pollution.

On a home, the most practical type of green roof is an extensive roof, which can support a variety of small plants. Because these roofs are

designed to support only a few inches of soil, they don't require much maintenance, and you'll have a new kind of eco-friendly garden to enjoy.

Wood-pallet House

Architectural firm *I-Beam Design* came up with the idea of creating homes out of wood pallets (транспортный стеллаж) as an affordable and eco-friendly solution for disaster relief housing. Used wood pallets are readily available and cheap. A small 3-by-6-meter shelter would cost around \$500 and require about 80 pallets. It's easy to imagine combining several of these small shelters and reconfiguring (повторно планировать конфигурацию) them to form a unique, energy-efficient home. And if you do decide to remove the building at any time, the materials are easy to recycle.

Straw-Bale Construction

Bales of straw are also natural and inexpensive, and they provide excellent insulation. This makes straw-bale construction an economical green-building method. Since straw is a by-product of grain farming, it often goes to waste, so using it in construction is a great way to reuse it. Straw-bale (тюки с соломой) construction is versatile (разносторонний), too. Since you are using the straw bales either to construct the frame or as insulation in conjunction (соединение, стык) with a wooden frame, the house itself can look however you want. In most straw-bale construction, recycled steel beams or bamboo rods support the bales.

Cob House

In green construction, cob refers to a mixture of earth and straw similar to the adobe (глинобитный) homes you might see in the American southwest. Cob (обмазка из глины с соломой) is an inexpensive, versatile material that allows builders to shape walls any way they want. While adobe is usually formed into bricks or blocks, cob is unique in that it's applied in large handfuls to form the structure. Typical cob homes have unique, rounded features and almost look like they're made out of clay –

that's probably because they basically are! And cob is sturdier than you might think: Some cob homes built in England in the 19th century are still around today.

By Becky Striepe

UNIT IV

TYPES OF BUILDINGS: FUNCTIONAL REQUIREMENTS WHEN BUILDING A HOUSE

4.1: Read, study and try to memorize words and word combinations.

| | |
|-----------------------------------|---------------------------|
| 1. apartment | квартира; жилой |
| 2. blind | слепой |
| 3. commercial | промышленный, торговый |
| 4. community | община |
| 5. damp | сырой, влажный |
| 6. double-glazed window | стеклопакет |
| 7. environment | окружающая среда |
| 8. external | внешний, наружный |
| 9. floating | плавающий |
| 10. functional | функциональный, деловой |
| 11. insulate | изолировать |
| 12. lodge | открыть кредит |
| 13. meet the needs (requirements) | удовлетворять требованиям |
| 14. one (multy)-storey | одно (много) этажный |
| 15. prevent | предотвращать |
| 16. protection | защита |
| 17. rectangular | прямоугольный |
| 18. residential | жилой |
| 19. roof | крыша |
| 20. scarce | недостаточный, скудный |
| 21. shutter | шторка, ставень |
| 22. sloping | наклонный |
| 23. take into consideration | принимать во внимание |
| 24. threat | угрожать; угроза |
| 25. well-fitted | хорошо подогнанный |

4.2: Act out the dialogue.

Types of Buildings

- What is the classification of types of buildings?
- Types of buildings are classified according to their role and function. They can be residential, educational, office, sport, commercial, industrial, etc.
- How does the type of a building influence its construction?
- The type and function of a building influence its design, building technique or method and building materials.
- Residential construction includes cottages, one-and-multi-storey buildings in which people live, doesn't it?
- That's right. Speaking of residential construction, I must say that apartment houses are designed and built to meet the needs of the population.

4.3: Read the text given below and find the answer to the questions.

- 1) What types of protection are important for houses?
- 2) What are the functional requirements of a house?

Building a House – the Requirements

Some functional requirements should be taken into consideration when building a house. A house needs protection against the elements, the environment and, a number of other risks. Different types of protection are important.

The first factor is solar radiation. In hot climate this type of protection is provided by means of external wooden shutters or internal blinds.

The next factor is rain. This type of protection is provided by solid brick walls and a sloping roof.

The next factor is high winds. A country house may need more protection against high winds than a city house.

The fourth factor is noise from outside. But a normal brick structure with double-glazed windows provides sufficient protection.

Let's move onto the next factor – noise from inside. Here we need to consider how to insulate one room against noise coming from another room. For this purpose, interior brick walls are recommended. There is also damp from underground or rising damp. Houses need protection against this. Good foundation and solid stone floor are ideal for this type of protection.

The next factor is the risk of fire from outside. There is also the danger of fire from inside. In this case, we need to consider the type of heating used, as well as other factors. The next point is heat lost. Here again thick walls and well-fitted doors and windows prevent heat loss.

And finally there is the question of heavy snow. Heavy snow is normal in many parts of the world and a house there needs this type of protection.

4.4: Learn the dialogue by heart.

Types of protection of a house

– There are different types of protection that a house needs. What protection does a house in Kemerovo require?

– We live in cold climate. Our winters are typically severe. Heavy snow is normal in Siberia and therefore a house needs these types of protection.

– So, some types of protection depend on environment, don't they?

– That's right. A house needs protection against solar radiation, rain, high winds, heat loss. But there are some other types of protection that are important.

– There may be the danger of fire. What about this?

– Protection against fire from both inside and outside is very important. Besides there may be noise from other parts of the house and from outside. All houses may require these types of protection.

4.5: Act out the situation.

Your friend decided to build a cottage for himself and his family. He is discussing his plans with a designer. They are speaking about the kind of

a house he wants, its size, where it will be situated, the building materials used, etc.

Useful phrases: in the center of the town, in the country, in a new district, large, small, one-storey, two-storey building, 4-6 windows, oval, rectangular, circular, white, grey, blue, to be made of bricks, concrete, glass, plastics, wood, double-glazing.

4.6: Click here; watch the video about a new project of a Russian architect.

<http://www.ctv.by/node/52891>

4.7: Render the information below from Russian into English. Make use of the following phrases:

To suggest a unique project; designed as; isolated energy system; alternative energy sources; flooding and reflow; waste processing; to withstand catastrophes of the future; a giant tube; pumps and engineering services; necessary for work and rest; to house up to 10000 people; under any climatic conditions; to be easy in operation and maintenance; to be awarded the III-class diploma at

Русский «Ковчег» для всего мира

Российские архитекторы из мастерской Александра Ремизова вместе с академиком Львом Бритвиным предложили обществу уникальный проект под названием «Ковчег». Это биоклиматическое сооружение спроектировано как автономная энергетическая система, основанная на альтернативных источниках энергии (солнце, ветер, приливы-отливы, переработка отходов). По замыслу архитекторов, сооружение способно противостоять катастрофам будущего.

Основа «Ковчеха» – гигантская труба, внутри которой располагаются электростанция, генераторы, насосы, и инженерные коммуникации. Сверху размещается все остальное, необходимое людям для работы и отдыха. Русский «Ковчег» может вместить до 10000 человек и быть собран в любой точке планеты с любыми

климатическими условиями. Он неприхотлив в эксплуатации и для его сборки не требуются сверхдорогие материалы.



ЭКО-проект российских архитекторов был награжден дипломом третьей степени на Первом международном фестивале инновационных технологий в архитектуре и строительстве «Зеленый проект-2010».

По материалам газеты «Комсомольская правда»

4.8: Read the following text and give its short summary using phrases on page 45.

Dutch float a new idea in housing

The Netherlands is to start building homes, businesses and even roads that float because of living space shortage and danger of flood.

With nearly a third of the country already covered with water and half of its land mass below sea level and constantly under threat from rising waters, the authorities believe floating communities may be the future.

Six prototype wooden and aluminum floating houses are already moored off Amsterdam, and at least a further 100 are planned on the same

estate. The fact is that after Bangladesh Denmark is the most densely populated country in the world. Building space is scarce and government studies show that there is a need to double the space available to meet all housing needs.

Before being placed on the water, the houses are constructed on land atop concrete pontoons, which encase giant lumps of polystyrene reinforced with steel. The pontoons are said to be unsinkable because they are anchored by underwater cables. The floating roads apply the same technology.

The concept is proving popular. The waiting list for such homes, which will cost \$360,000 to \$900,000 to buy, runs to 5000 names. «We expect to build between 50 and 200 floating homes a year. It was estimated that for every 100 homes built in the next few years, 3–4 per cent will be floating ones».

The developers (проектировщики) have lodged an application to build a 40-home floating *mini-village* in Leeuwarden, about 160 kilometers north-west of Amsterdam, while the Government itself is building the country's first floating road.

Construction of the experimental stretch of road is a new concept. The authorities hope such roads can be built on reclaimed (мелиорированный) land. With much of the country given over to market gardening and the intensive cultivation of flowers and vegetables, planners have also come up with ideas for floating greenhouses designed so that the water beneath them irrigates (орошать) the plants and controls the temperature inside.

A pilot project covering 50 hectares of flooded land near Amsterdam's Schiphol Airport has been already planned.

The opportunities for innovative developers look promising. They have 10 projects in the pipeline (на подходе) – floating villages and cities complete with offices, shops and restaurants.

By Andrew Osborn «The Guardian»

4.9: Click here; watch the video about unique and unusual houses. Try to write down as many names of the houses as possible.

http://www.youtube.com/watch?v=tIP4_mE03vY&feature=related

Now, compare your lists. Who has the longest list in your group?

UNIT V OUTSTANDING PEOPLE IN THE FIELD OF CIVIL ENGINEERING

5.1: Translate. Mind the derivatives.

to assist – assistant – assistance;
to found – founder – foundation;
to build – builder – building;
to design – designer – designed;
to create – creator – creation – creative;
to restore – restoration – restorative;
to observe – observation – observant;
to indicate – indication – indicator;
to manage – management – manager;
to present – presentation – presented;
to correct – correction – corrector – corrected.

5.2: Can you name any famous engineers or architects in your field? You probably can ... But the list seems to be not very long. So, read the text about two outstanding architects and speak on their scientific and practical activity.

Useful phrases: was born, studied architecture in, well known for his, designed and built, his works reflected, his buildings are.

Matvei Kazakov
(1738–1812)

Matvei Kazakov is the distinguished founder of Russian Classicism and designer of scores (два десятка) of the buildings in Moscow.

A native born Muscovite, Kazakov studied architecture in this city. Then he worked in Tver before returning to Moscow. Kaiakov assisted Bazhenov in building the famous Grand Palace in the Kremlin (a masterpiece (шедевр) in itself, but hardly in its place within the medieval walls of the Kremlin).

Kazakov was particularly well known for his exquisite (ИЗЫСКАННЫЙ) cupolas, and the one in the Kremlin bears the Imperial Crown with the word Law on it. There is a story that when he had completed construction of the cupola and removed all the scaffolding (строительные леса) all the known architects were assembled and expressed their doubts as to the firmness of the structure. Then Kazakov personally climbed up on the cupola and stood on it for half an hour. When he descended (спустился) he was met with cries «Hurrah»!



Kazakov enjoyed the favor of the Empress Catherine the Great and subsequent (последующий) emperors Paul and Alexander I. He designed subsequent numerous churches as well, taught architecture, and compiled architectural pattern albums. His excellent drawings of houses and daily scenes have come down to us.

Kazakov died in 1812 in Ryasan at the age of 79, forced to flee (бежать) from the French who destroyed a large part of his beloved city.

Vasily Stasov (1769–1848)

Vasily Stasov was a whole age in Russian architecture. He had two excellent teachers – Vasily Bazhenov and Matvei Kazakov. His career started in 1793–1794, when he had a job as assistant architect at the Moscow town building department.

By the end the 1790s, he was working independently. In 1802–1808 he studied architecture in France and Italy.

Upon returning, Stasov moved to St. Petersburg and continued to work as architect. He became a full member of the Academy of the Arts in St. Petersburg in 1811.

In 1816 he became one of the leading members of the Committee for Buildings and Hydraulic Work in St. Petersburg. In 1817 he supervised all

construction for the Imperial court. The 1810s and the 1820s were Stasov's best years in terms of creative work. He drew up more than a hundred standard designs for residential and other buildings.

Then there is a huge body of unique monuments in St. Petersburg built by Stasov including the Barracks of the Pavlov Regiment, the chief monument of the Field of Mars complex, the house of the Stables Department, and Yamsky Market.

Simultaneously, he was the architect of several structures in Tsarskoye Selo near the capital. Later, at the turn of the 1830s, he built two outstanding churches, the Cathedral of the Transfiguration (1827–1829) and Trinity Cathedral (1828–1835), both in St. Petersburg.

Several gates (ворота) and triumphal arches also belong to him.

In the 1830s, Stasov completed the ensemble of Smolny Monastery and, following the fire of 1837, restored the Winter Palace in the center of St. Petersburg, Stasov's works reflected Russia's victory over Napoleon in 1812–1814.

His buildings are majestic and monumental and intended to demonstrate the power of the state.

5.3: Translate one of the texts given below in written form within 45 minutes. Use a dictionary if it is necessary.

Ivan Zholtovsky
(1867–1959)

Zholtovsky began working as an architect in pre-Revolutionary Russia. He graduated from the Academy of Arts in St-Petersburg in 1896. Before the revolution he designed factory buildings, estates, and residences. In 1909 Zholtovsky received the title of academician of architecture.



After the revolution Zholtovsky made an incredible career and became a leading official architect in Soviet times. In 1918 he was busy working on the plan for Moscow's reconstruction. In 1923 he designed the entrance to the agricultural and industrial exhibition which bore the obvious traits (черты) of Constructivism. In 1927 the reserve electric power plant was built according to Zholtovsky's design across the Moskva River from the Kremlin. This ugly and out-of-place monument to Soviet industrialization can still be observed from Red Square. Zholtovsky never really espoused all the new trends in architecture and was deep inside a traditionalist. So when Constructivism was rejected in the Soviet Union it was easy for Zholtovsky to return to the classical architecture he really liked. Soviet reference books indicated that Zholtovsky was an opponent of decadent art, modernism, and eclecticism.



Zholtovsky also taught architecture at an architectural workshop and translated into Russian Palladio's famous treatise (трактат) on architecture. The paradox of Zholtovsky's life was that a conservative person managed to survive the Great Terror. Why? May be because of his adherence to tradition.

Zholtovsky's works gallery



Spirodonovka Street, Tarasov House



Moscow racecourse

Dmitry Nickolayevich Chechulin
(1901–1981)

A graduate of the Higher Technology and Art School, he was tutored by Shchusev, whom he later succeeded as the head of the Moscow City Council Administration for the Planning of Urban Building and Structures.

He started out as a Constructivist: his first projects hospitals and higher educational complexes for provincial towns in Russia – featured a simplicity of design and appearance. Then, in the early 1930s, the architect went in for the so-called classical style, which was officially encouraged at that time.



Chechulin combined it with decorative sculpture glorifying the themes of labour and abundance, so dear to the hearts of the Soviet authorities. The architect designed Komsomolskaya and Kievskaya radial metro stations, the Dinamo and Okhotny Raid pavilions, the Pekin Hotel, the Tchaikovsky Concert Hall, and a number of residential buildings on Leninsky Prospekt. Many of the architect's projects, for example, the Rossia Hotel in Zaryadye or the high-rise building on Kotelnicheskaya Embankment – caused considerable controversy among his colleagues, all of them agree: Chechulin to a large extent defined the image of the 1950s Moscow. The *White House* became his last project. Chechulin died in 1981.

5.4: Read the text «J. B. van Loghem» and write its summary using the phases below the text.

J. B. van Loghem

In the 1920s and 30s the Modern Movement was an important international architectural development. The cultural, economic and technical results of this movement are still noticeable today. Characteristic of this movement is among others that buildings were designed with a

relatively short functional as well as technical life expectancy (ожидаемая продолжительность жизни) in mind.

After the Russian Revolution of 1917 many modern architects were attracted by the challenges of building a new society, including mass housing projects and industrialization.

The Urals and Siberia were promising mining areas where coal, chemical and steel industries could be developed together with large cities.

One of the idealistic foreigners who worked in Siberia after the revolution was the Dutch architect J. B. van Loghem (1881–1940).

In 1925 he was invited by Sebald Rutgers, a Dutch civil engineer who along with the American Herbert Calvert took an initiative to found the Autonomous Industrial Colony Kuzbas (AIK).



This project was connected with the exploitation (эксплуатация) of mines in the Kuznets basin.

After building several private dwellings, he built six housing projects in Amsterdam and Harlem between 1919 and 1922. The invitation to come to Kemerovo to head the planning of a new town of 5000 houses arrived at a moment when Van Loghem was frustrated (мешали) with Dutch housing practice.

Van Loghem arrived in Kemerovo in March 1926. A 1000 hectare area was available for housing, factories, workshops, bath houses, schools and recreational facilities. Due to the lack of maps, the planning was done on site, with correction on paper made afterwards (позже). Van Loghem made use of existing building methods for log (бревно) walls of some structures. On flat terrain, however, he designed terraced housing in stone. Here he could introduce several technical innovations connected with lighting, waterworks and sewerage (канализация).

Van Loghem has to overcome the Russian conception that a good building is a heavy building. In order to improve insulation, he proposed a wall constructed of two brickwork shells (оболочка) 10 cm in thickness with a 15 cm space in between to be filled up with slag (шлак).

The Russians, accustomed to build walls at least 70 cm thick, were sceptical at first, but at the end admitted that Van Loghem's plan worked.

In the two years that Van Loghem worked in the Kuznets region, 1000 houses and a number of utilitarian buildings, such as factories, shops, community centers, a school with a water tower, a firehouse and a bathhouse were built under his supervision. In 1927 Van Loghem gave up his plans to continue living and working in Russia and left the country.

J. B. van Loghem's architectural heritage in Kemerovo



- 1) The title of the text is ...
- 2) The text deals with the question of ...
- 3) It should be noted that ...
- 4) The text gives names (figures, facts) illustrating...
- 5) The text says in detail about ...
- 6) The most interesting (important) information in the text is ...
- 7) I found the text informative (useful for me) and hard (easy) to understand.

5.5: Read your summaries to your classmates.

APPENDIX

Phrases to summarize the information of a text or an article

| | |
|---|---|
| 1. The title of the article (text) is ... | 1. Заглавие статьи (текста) ... |
| 2. It was published in ... | 2. Она была опубликована в ... |
| 3. The author of the article is ... | 3. Автор статьи... |
| 4. The article deals with the problem (question) of ... | 4. Статья имеет дело с проблемой (вопросом) ... |
| 5. It also touches upon ... | 5. Она также касается... |
| 6. The article (text) says in detail about ... | 6. Статья (текст) говорит в деталях о ... |
| 7. The article (text) gives facts (figures, names) illustrating ... | 7. Статья (текст) дает факты (цифры, имена), иллюстрирующие ... |
| 8. It should be noted that ... | 8. Следует отметить, что ... |
| 9. In conclusion the author says that ... | 9. В заключение автор говорит, что ... |
| 10. I think the most important (interesting) fact in this article is ... | 10. Я думаю, что самый важный (интересный) факт в этой статье это ... |
| 11. I found the article (text) interesting useful important for me informative hard (easy) to understand | 11. Я нахожу статью (текст) интересной полезной важной для меня информативной трудной (легкой) для понимания |

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СТРОИТЕЛЬСТВО

**Методические материалы
по английскому языку для обучающихся
направления подготовки 08.03.01 Строительство**

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