


МИНИСТЕРСТВО ОБРАЗОВАНИЯ СТАВРОПОЛЬСКОГО КРАЯ
Государственное бюджетное профессиональное образовательное
учреждение
«Ставропольский строительный техникум»

Комиссия общих гуманитарных и социальных дисциплин

Учебно-методическое пособие
по дисциплине «Иностранный язык в профессиональной деятельности»
для студентов 3 курса, очной формы обучения
специальности
08.02.07 Монтаж и эксплуатация внутренних сантехнических
устройств, кондиционирования воздуха и вентиляции

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РАССМОТРЕНО

на цикловой комиссии общих
гуманитарных и социальных дисциплин
Протокол № 1
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 / Л.В. Печалова/

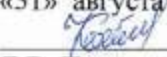
РЕКОМЕНДОВАНО


Методическим советом
ГБПОУ ССТ
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СОГЛАСОВАНО


Л.В. Белоусова,
заместитель директора по УМР
«31» августа 2021г.


Рецензент:

Т.В. Коньшева, преподаватель иностранного языка
«31» августа 2021 г.


Л.В. Печалова, к.и.н., методист
Цента менеджмента качества и методической работы техникума
«31»августа 2021 г.


Разработчик:

А. А. Нестеренко, преподаватель иностранного языка
«31» августа 2021 г.


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Цель пособия – формировать лексические навыки профессиональной тематики, обучить чтению и умению практически использовать приобретённые знания в устной и письменной речи.

Представлены адаптированные тексты и разработанные на их основе лексические, лексико-грамматические и коммуникативные упражнения, которые позволяют усовершенствовать навыки устной и письменной речи.

Предназначено для студентов очной формы обучения по направлению «Строительство».

ПОЯСНИТЕЛЬНАЯ ЗАПИСКА

На современном этапе развития образования одной из наиболее актуальных проблем является необходимость улучшения знания иностранного языка. Успешное овладение иностранным языком – необходимое условие получения интересной работы в стране и за её пределами, для профессионального роста, для укрепления дружбы с представителями различных стран.

Настоящее учебно-методическое пособие предназначено для студентов 3 курса специальности 08.02.07 Монтаж и эксплуатация внутренних сантехнических устройств, кондиционирования воздуха и вентиляции;

Цель пособия – развить умения и навыки чтения текстов профессиональной тематики, способствовать развитию умения воспринимать информацию и умения выразить в письменной и устной форме собственные суждения о прочитанном, развить стремление к изучению иностранного языка.

Тематика пособия ориентирована на будущую профессию и продолжение образования. К концу работы над пособием студенты должны овладеть устной и письменной речью на английском языке в пределах пройденной лексики и грамматики. В пособие включены лексико-грамматические упражнения, позволяющие закрепить ранее изученный материал. Упражнения для этого пособия взяты из различных источников и адаптированы для студентов данной специальности.

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РАЗДЕЛ 2. Основные части здания

Тема 2.1. Внешние части здания

Практическая работа № 1. Стены

Ex. 1. Read and learn new words:

enclosure — отгораживание

exit - выход

like - как, подобно

ownership - владение

compartment - квартира, купе

partition - перегородка, внутренняя стена

gross — полный, взятый целиком

stud — косяк, стойка

masonry - каменный

exit opening — запасной выход

exit pipe — выпускная труба

multiform choice — многообразный выбор

shaft partition - шахтная перегородка

Ex. 2. Choose and put down the English combinations corresponding to the Russian ones

a) water engineer, water-tight tower, masonry bridge, water cooling, water supply, water piping, water content, water level, water heater

a) *Model:* water cooling - охлаждение водой

_____ - уровень воды

_____ - инженер-гидравлик

_____ - содержание воды

_____ - водонагреватель

_____ - водопровод

_____ - водонепроницаемая башня

_____ - водоснабжение

_____ - каменный мост

Ex. 3. Write down all types of questions.

1. The exterior skin may be made of metal, masonry.

2. Limestone, marble, granite and precast concrete panels are also used for facades.

3. Plasterboard and wallboard are increasingly used

4. Masonry walls 10 to 15 cm thick made of concrete.

Ex. 4. Have a look at Figure 1. Identify the types of the walls with the letters they are marked by.

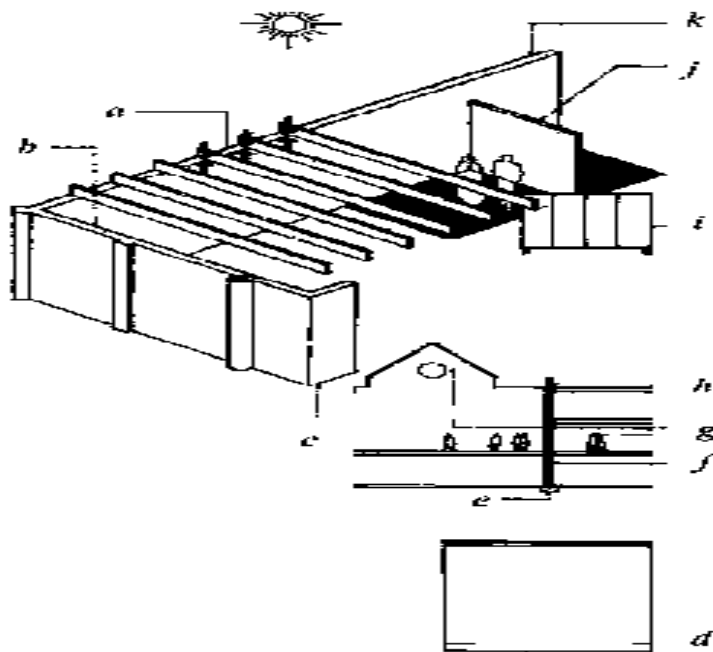


Figure 1. Wall

Bearing wall - a
 Exterior wall - ?
 Interior wall - ?
 Gable wall - ?
 Parapet - ?
 Movable partition - ?

Basement Party wall - ?
 Wall - ?
 Return wall - ?
 Nonbearing wall - ?
 Blind wall - ?

Ex. 5. Suggest the English equivalents to the Russian ones: несущая стена; ненесущая стена; наружная стена; перегородка; внутренняя стена; несущая перегородка; ненесущая перегородка; передвижная перегородка; парапетное ограждение; стена, перпендикулярная другой; межевая стена; фронтовая стена; подвальная стена.

Ex. 6. Read the text.

WALLS AND ROOFS

The curtain wall, the most common type of nonload-bearing wall, may be assembled either on or off the site. It consists of an exterior skin backed with insulation; a vapor barrier, sound-deadening materials; and an interior skin that may be part of the curtain wall or may be attached separately. The exterior skin may be made of metal (stainless steel, aluminum, bronze), masonry (concrete, brick, tile) or glass. Limestone, marble, granite and precast concrete panels are also used for facades.

Traditional methods of partitioning a building interior include the use of

masonry walls 10 to 15 cm thick made of concrete, gypsum or pumice block, painted or plastered; or wood or metal frames covered with lath over which plaster is spread. Plasterboard and wallboard are increasingly used.

To provide for greater flexibility within buildings, movable or easily disassembled partitioning systems are used, the only restriction to their placement being the spacing of the interior columns. Such partitions may be metal, prefabricated plasterboard components, accordion like rolling curtains or, if sound transmission is a problem, leaded curtains that move either horizontally or vertically. Lightweight materials usually mean an increase in transmitted sound and a loss of privacy. Nevertheless, the trend is toward lighter partitions and increased use of sound-absorbing materials. In many buildings, the only walls still made of masonry are fire walls, which enclose elevator shafts, stairs and main corridors.

The traditional method of constructing a roof is to lay down, over a steel or concrete deck spanning the framing members, rolls of roofing felt laminated with tar and topped with gravel. Synthetic materials are also being used increasingly in place of felt and tar. New grasslike and ruglike materials made of plastic enable recreation areas to be built on top of roofs at little expense.

Ex. 7. Suggest the English equivalents to the Russian ones: внешняя оболочка здания, строительная площадка, внутренняя поверхность, звукопоглощающие материалы, присоединять, нержавеющая сталь, кладка, известняк, панели из бетона, разделять, толщина, гипс, пемза, красить, штукатурить, покрывать, штукатурка, гипсокартонный облицовочный лист, гибкость, переносной, перегородка, разделяющие конструкции, ограничение, расположение, сборный, наматывать, звукопроницаемость, оцинкованный, легкий, увеличение, передавать, потеря, уединенность, окружать, шахта лифта, лестничный марш, включать, листовой материал для обшивки стен, распространяться, покрывать верхним слоем, гравий, смолистое вещество, рулонный кровельный материал типа рубероида, прокатывать в тонкие листы, перекрывать.

Ex. 8. Complete the sentences using the information from the text.

1. The curtain wall may be assembled...
2. The curtain wall consists of...
3. Traditional methods of partitioning a building interior include...
4. Lightweight materials usually mean...
5. The traditional method of constructing a roof...
6. Synthetic materials are also being used increasingly in place of...

Ex. 9. Are these statements true or false?

1. The curtain wall may be assembled only on the site.
2. The curtain wall consists only of an exterior skin backed with insulation.
3. Limestone, marble, granite and precast concrete panels can be used only for facades.

4. Movable or easily disassembled partitioning systems are used to provide for greater flexibility within buildings.

5. Partitioning systems may be metal, prefabricated plasterboard components.

6. New materials made of plastic enable recreation areas to be built on top of roofs at much expense.

Ex. 10. Answer the questions.

1. What do traditional methods of partitioning a building interior include?

3. What are partitioning systems used for?

4. Why are lightweight materials used in building of interior partitions?

5. Why are disassembled partitioning systems used?

6. What walls are made in modern buildings?

7. What is the traditional method of constructing a roof?

Практическая работа № 2. Крыша

Ex. 1. Read and learn new words:

flat - плоский **shingles (of wood)** - дранка, деревянная черепица

near - близко, около **therefore** - поэтому, следовательно

nearly - почти **slate** - шифер

pitch - скат, наклон **thatch** - солома, тростник

slope - уклон **unit** - элемент, сборная часть

sloping - пологий, покатый

Ex. 2. Which of the given words are adjectives? adverbs?

broad, useful, considerable, economically, the only, the very, considerably, quickly, beautiful, attractive, nearly, proper, sloping, hardly, hard, slowly

Ex. 3. Write down all types of questions to the following sentences.

1. Circular walls carry conical or domical roofs.

2. The space between two parallel walls is sometimes covered by a sort of continuous arch.

3. A building is a shelter from rain, sun and wind.

4. This implies roofs and walls to support it.

5. Architects and builders are giving a building good proportions and fine details

6. There are doorways for access and windows for light.

Ex. 4. Identify the types of the roof with the letters they are marked by using Figure 2.

Flat roof - *a*

Penthouse - ?

Pavilion roof - ?

Butterfly roof - ?

Gambrel roof - ?

Shed roof - ?

Barrel roof - ?

Hip roof - ?

Sawtooth roof - ?

Pitched roof - ?

Hipped gambrel - ?

Mansard - ?

Lean-to - ?
Rainbow roof - ?

Gable roof - ?

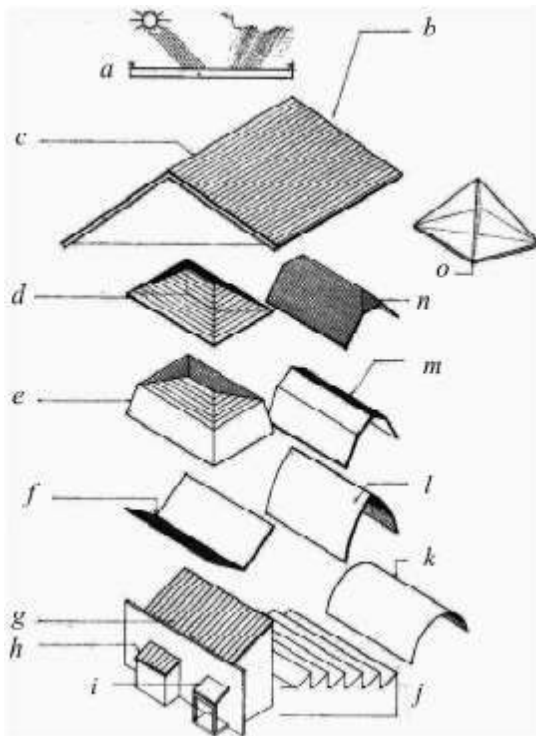


Figure 2. Roof

Ex. 5. Find the definitions of the roofs. Match A and B.

A

B

- | | |
|-------------------|--|
| 1. Flat roof | a) A roof having one or more slopes |
| 2. Pitched roof | b) A pyramidal hip roof |
| 3. Gable roof | c) A ridged roof divided on each side into a shallower slope above a steeper one |
| 4. Hip roof | d) A roof divided on each side of the ridge into two or more slopes, as a gambrel or mansard |
| 5. Curb roof | e) A gable roof in the form of a broad gothic arch, with gently sloping convex surfaces |
| 6. Mansard roof | f) A roof or ceiling having a semicylindrical form |
| 7. Butterfly roof | g) A roof composed of a series of a small parallel roofs of triangular cross section, usually asymmetrical with the shorter slope glazed |
| 8. Shed roof | h) A shed roof projecting from a wall or the side of a building, as to shelter a door |
| 9. Lean-to | i) A roof having a single slope |
| 10. Penthouse | j) A roof having two slopes, each descending inward from the eaves |
| 11. Sawtooth roof | k) A roof on each side a steeper lower part and a shallower upper part |
| 12. Barrel roof | l) A roof having sloping ends and sides meeting at an inclined projecting angle |
| 13. Rainbow roof | m) A roof sloping downward in two parts from a central ridge, so as to form a gable at each end |

14. Gambrel roof n) A roof having no slope, or one with only a slight pitch so as to drain rainwater
15. Hipped roof o) A shed roof with the higher end abutting a wall or larger building
16. Pavilion roof p) A roof having a hipped end truncating a gable

Ex. 6. Suggest the English equivalents to the Russian ones: плоская крыша, двускатная, вальмовая, скатная, мансардная, двускатная крыша с обратными скатами, пентхауз, односкатная крыша, пирамидальная крыша, двускатная крыша со слегка выпуклыми скатами, цилиндрическое покрытие, небольшая пристройка с односкатной крышей, шедовое покрытие.

Ex. 7. Read the text.

BUILDING

A building is a shelter from rain, sun and wind. This implies roofs and walls to support it. If the walls entirely enclose the space within, there are doorways for access and windows for light. Roofs and walls, doors and windows are the essential of buildings.

Roofs may be flat, sloping or curved. A roof with one slope is called a lean-to. When two sloping roofs are parallel walls and lean against one another, they meet in a horizontal ridge at the top and form a gable at each end. If two walls make a projecting angle, their roof intersect in an inclined called a hip. If the walls meet in a reentering angle, the inclined line of intersection is called a valley.

If there is more than one story, the flat roof, of the lower story becomes the floor of the story above. If the roof extends beyond the wall that supports it, the projection is called the eaves. If the wall also projects to support the extension of the roof, the projection is called a cornice.

The principal member of a cornice, which projects like a shelf and crowns the wall, is called a corona.

Walls are generally made wider just at the bottom so as to get a better bearing on the ground. This projection is the base. A similar projection at the top is called a cap. If it projects much, a cornice, as has been said. A low wall is called a parapet. A short piece of wall about as long as it is thick is called a post, and if it supports something, a pedestal: the part between its cap and base. A tall post is called a pier, if it is square and a column if it is round. Caps of piers and columns are called capitals, and the part between the cap and the base, the shaft. The flat upper member of a capital is called the abacus.

The space between two parallel walls is sometimes covered by a sort of continuous arch called a vault, instead of by a floor or roof.

The wall, the pier and the column, with or without the pedestal, constitute the chief supporting members: the frieze and cornice, with the roof that rests upon them, constitute the chief part of the load they carry.

Ex. 8. Look at Figure 3 and define what elements of the building are marked by letters:

Roof — *a*
 Building site — ?
 Wall — ?
 Structure — ?
 Foundation — ?
 Floor — ?

Ceiling — ?
 Window — ?
 Mechanical system — ?
 Door — ?
 Room — ?

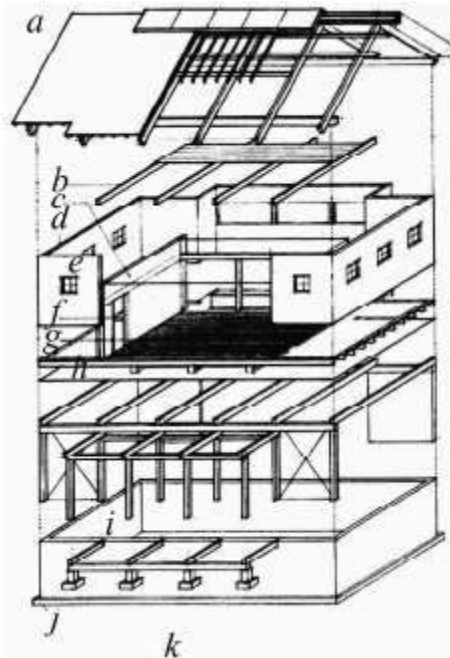


Figure 3. Building

Ex. 9. Answer the questions to the text.

1. The building is a shelter for people from rain, sun and wind, isn't it?
2. What main parts of the building do you know?
3. What types of roofs do you know?
4. How is the roof with one slope called?
5. What is gable (hip, valley)?
6. When does the roof become the floor of the story above?
7. What is cornice? Why is it considered to be a chief element?
8. How is projection to get a better bearing on the ground called?
9. How is the low wall called?
10. How is a short piece of wall if it supports something called?
11. What parts does the entablature consist of?
12. Arcade is a series of arches, isn't it?
13. What is vault?
14. What can the architects do to construct a noble and delightful building?
15. What is the main function of a building?

Ex. 10. Use the articles «a, an, the» where necessary.

1. My friends live in ... small town. It is ... new town. ... streets in ... town are broad and straight. There are ... beautiful buildings in them. ... town is very green, and so ... air is fresh.
2. This is ... classroom. ... classroom is large and light.
3. There is ... picture on ... wall.
4. What is ... date today? It is ... seventh of ... December.
5. ...

third lesson today is ... lesson of English. 6. Pete, go to ... blackboard. 7. After school I usually go ... home. 8. My father always comes from ... work late: at eight o'clock or at ... half past eight. But on ... Friday he comes ... home early: at half past four or at ... quarter to five. On ... Saturday and on ... Sunday he does not go to ... work.

Практическая работа № 3. Окна

Ex. 1. Read and learn new words:

double — двойной	single — единый, один
cased — заключенный в...	skylight — потолочное окно
regulations — правила, устав, инструкция	spring — пружина
sash - оконный переплет	to slide — скользить
shop — мастерская, магазин	according to - согласно
sash bolt - оконная задвижка	shop window - витрина
sliding sash - раздвижное окно	skylight window -окно верхнего света
single-sashed window - одностворчатое окно	

Ex. 2. Add *single* or *double*. Translate the examples into Russian.

Model: double-deck bridge - двухъярусный мост

_____	track — однопутный
_____	foundation - отдельный фундамент
_____	house — многоквартирный дом
_____	window — одностворчатое окно
_____	level bridge — двухъярусный мост
_____	way — двухколейная дорога
_____	screw bolt — болт с двойной нарезкой

Ex. 3. Choose and put down the proper attributes to the nouns given below.

Attributes: spring, single, airtight, sliding, impenetrable

Nouns:

_____	wire — пружинная проволока
_____	support — пружинная опора
_____	surface — воздухонепроницаемая поверхность
_____	window - непроницаемое окно
_____	house — многоквартирный дом
_____	contact — скользящий контакт

Ex. 4. Translate the examples into Russian.

a) Mind suffix *-able*.

unmovable slabs	penetrable surface
buildable structure	openable window
workable material	usable design

b) Mind suffix *-ability*.

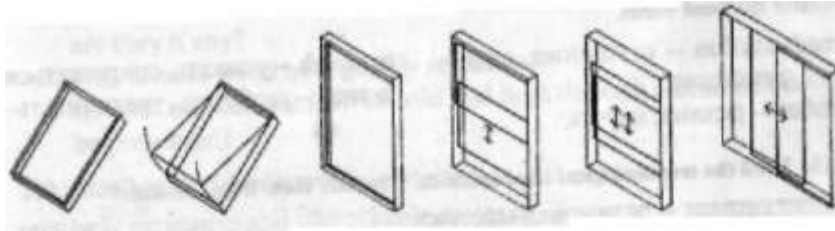
durability, serviceability, workability, buildability

Ex. 5. Translate the following sentences in writing.

1. Serviceability data will be used for modeling purposes.
2. The ability to produce quality finished ceilings is being considered.
3. The strength and durability of concrete is being constantly increased,
4. The build ability of the structure did not present any high-risk activities other than the normal ones.

Ex. 6. Read and translate the article.

The main functions of windows are light and ventilation. Windows also serve for ornamentation of a building since ancient times. In those faraway days windows were frequently produced in shops. While nowadays windows are mostly produced in factories. What are the necessary components of a window? To these belong glass, frames, and sashes. The area of glass in windows of different types is determined according to the regulations. For example, in a modern housing construction the area of



Skyligh Roofvindo Fixed Single-hung Double-hung Sliding

Fig. 4

a glass should be equal at least to one length of the floor space. Window frame may be solid or cased frame carrying the sashes. As to sash it is a separate light frame that serves for carrying the window glass.

There exist single-hung and double-hung windows (fig 4). Both of these types possess one or two moving sashes, securely held in tracks in the frame. Sashes can be fixed or sliding that slide up and down in tracks in the frame. In order to counterbalance the weight of the sashes, double-hung windows are supplied with a system of special springs. Fixed windows are practically impenetrable: they do not leak air or water; they are wind-proof. But they have their disadvantages: they can be opened only to not more than their size.

Windows may also be placed in roofs. Roof windows may be fixed or openable. Fixed windows are skylights while openable are roof windows.

Ex. 7. Pair work. Put these questions to your groupmate.

1. What are the three functions of windows?
2. Where were windows produced in faraway times?
3. Where are windows mostly produced nowadays?
4. What factor determines the area of glass in windows of different types?
5. What should the area of a window glass be equal to?
6. Which part of a window carries the sashes?
7. Which part of a window carries the window glass?

8. How are windows classified nowadays?
9. Do fixed and sliding sashes differ? In what way do they differ?
10. What systems are double-hung windows supplied with?
11. What type of windows is impenetrable?
12. Where are skylights placed?

Ex. 8. Write down degrees of comparison of the following adjectives.

a) large, tall, long, easy, hot, big, cold, nice, bad, strong, short, wide, good, happy, high, low, busy, well, little, many, far, wonderful, necessary, quickly, interesting, comfortable, popular, active, famous, pleasant, beautiful, slowly, clearly.

b) 1. Winter is (cold) season of the year. 2. Moscow is (large) than St. Petersburg. 3. Which is (long) day of the year? 4. The Alps are (high) mountains in Europe. 5. Even (long) day has an end. 6. It is one of (important) questions of our conference. 7. Your English is (good) now. 8. Who knows him (well) than you? 9. We have (little) interest in this work than you. 10. Health is (good) than wealth. 11. Your son worked (well) of all. 12. Today you worked (slowly) than usually.

Ex. 9. Read this text. Say about pros and cons of windows.

There are quite a few different styles of windows that you can install in your home and each style serves a different purpose. Aside from adding curb side appeal to your home, windows can provide benefits such as increasing ventilation, bringing in light, creating a sense of spaciousness, and giving you a panoramic view of the great outdoors.

There are plenty of styles available and each one has its pros and its cons. We'll take a look at some of the most popular options.

Double Hung Windows

Double-hung windows have two sliding sashes providing efficient ventilation. Raise the lower sash to allow in a cool breeze. Lower the upper sash to pull hot air from the ceiling outside.



The Pros:

People choose double hung windows for their superior ventilation capability, ease of access, as well as for their unique style. Because you can keep the bottom of these windows closed while opening the top these windows are great choices for children's rooms. And because of their look, they are a perfect choice for bedrooms, offices, and kitchens as well.

The Cons:

Double hung windows may not be as energy efficient as some other choices because they have a tendency to leak more air into homes than other windows. Also, because only half of a double hung window can open up at one time, if your goal is to get the maximum amount of ventilation then other types of windows.

Single-Hung

Single-hung windows offer the same timeless style as double-hung windows but only the bottom sash is movable.



Sliding

A sliding window allows for easy operation – an ideal choice for difficult-to-reach areas.



Casement Windows

Casement windows feature one hinged sash that swings out, welcoming the breeze in. These windows are coveted for their clean, uncluttered views and effortless operation.



The Pros:

Casement windows offer the maximum amount of ventilation. They open outward and can catch side breezes, fresh air, and light more easily than other windows. These windows are good choices for hard to reach places. That's why

you will find casement windows over kitchen sinks. Because you use a crank to open them (instead of sliding them up and down) they are easier to open and close.

The Cons:

If you are buying an older house you should check the casement hardware and hinges. Although casement windows are usually hard to break into, if their hardware is rusty or faulty they could be a good target for burglars. If they need repair you should consult with a contractor to find the right replacement parts or to have a new casement installed.

Awning Windows

Awning windows are hinged at the top and open out like a casement. They're often placed above or below other windows – and over doors – for extra ventilation and light.



The Pros:

Awning windows are designed to catch the breeze and provide a lot of light. Awning windows can be arranged in columns, placed next to other windows, or put above your patio doors. They can be designed to give you a wall of fresh air and bright light.

They are good options for rooms where you want privacy and also want to allow light and fresh air.

The Cons:

Because awning windows screens are set inside the windows all of the dust and dirt that would normally fall into the sashes ends up on the floor of your home instead.

Hopper Windows

The Pros:

Hopper windows are like casement windows that have been flipped sideways. They're installed primarily in basements. The entire pane of a hopper window can be tilted inward to open. This will allow for the maximum amount of ventilation.

The Cons:

Because these windows tilt into your room shades and blinds are not an option. Your privacy will be compromised. Also, if they are open when it rains water will drip into your room.

And because they're usually used in basements they can add a security risk if they are installed at ground level.

Jalousie Windows

The Pros:

Jalousie windows, sometimes called louvered windows, are made of glass slats that are set into metal clips. The slats can be closed and opened in unison. They're best suited for areas where the climate is comfortable year round because if you have these windows air is prone to leak into and out of your home.

You can control the amount of light and air that passes through the windows by manually rotating the overlapping panels.

The Cons:

These windows are impossible to seal so, although they can help to cool your home they make it virtually impossible to keep air conditioned air in your house during the summer. And hot air will leak out of your home relentlessly in the winter. They are really designed for tropical climates. And even in these regions, if the weather gets nasty then jalousie windows can become more of a hassle than they're worth.

Picture Windows

The Pros:

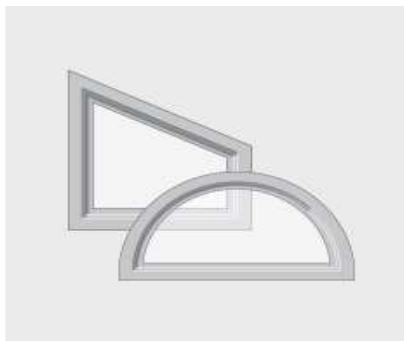
Picture windows will give you an unobstructed view of the outdoors. When you combine them with windows that you can open and lose, or with patio doors, they offer a terrific balance of ventilation and light.

The Cons:

If a picture window is the only window in the room you will not get any outdoor air in. They are for looks only, not ventilation. And because they are so large the size of the glass makes them vulnerable to breakage.

Bay Windows

Bay and bow windows are combinations of windows that reach out into the world. Even with limited wall space, they allow you to have more windows to capture the view.



The Pros:

Bay windows offer the best of both worlds as far as views and ventilation are concerned. They can create a peaceful, open feeling inside your home. Because they have multiple views they also allow the maximum of light to enter your home.

In addition, the sides of a bay window can be opened to permit air to circulate. And if you replace a flat window with a bay window you will find that their unique look will dress up your home.

Although bay windows are used primarily in kitchens they can also add character to your master bedroom and family room.

Практическая работа № 4.

Монологические и диалогические высказывания по теме «Внешние части здания»

Ex. 1. Learn the following words

to bed – закреплять

a course – ряд

metal ties – металлические анкера

cavity walls – облегченные стены

curves – свод

to fit – укладывать

soft bricks – легкие кирпичи

rubbers – кирпичи изготовленные из кремнеземистой глины

rub – придать форму

gauged brickwork - клиновидная кладка

Ex. 2. Read and translate the article.

When a wall is built of bricks, the bricks are set in mortar. Mortar consists of a mixture of sand and lime or Portland cement, but more often, it consists of a mixture of all these components. In the process of mixing the mortar to produce a paste, in which the bricks can be firmly bedded, the proper amount of water is used. The bricks must be carefully arranged, in the wall in order to produce a structure of good strength and appearance. The pointing or finishing of mortar joints is also given careful attention since it affects the appearance and the weather resistance of the wall.

Each layer of bricks is called a course and the bricklayer has to be very skillful to keep the courses exactly level and thickness of mortar between each course of bricks must be the same throughout the length and depth of the wall. The corners of the walls must be absolutely upright.

Nowadays the outer walls of buildings often consist of an outer and inner wall with a space of about 5 centimeters between them. The two walls are held together at intervals by small metal ties. These cavity walls, as they are called, help moisture evaporate better than solid walls. A layer of insulating material is often put in the space between the walls to prevent heat escaping from the building. This is known as cavity wall insulation.

Ex. 3. Answer the following questions.

1. Why do people build?

2. Why do we need shelter?

3. What construction materials do you know?

4. What does mortar consist of?

5. What kind of walls do you know?
6. What is known as cavity wall insulation?

Ex. 4. Retell the text given before.

Ex. 5. Spell the following numerals: 5, 100, 73, 14, 2, 31, 46, 88, 97, 123, 4, 678, 1777, 1050, 384, 2134, 2001, $3\frac{1}{2}$, $\frac{2}{4}$, $\frac{1}{4}$, $4\frac{1}{2}$, $\frac{22}{6}$ 1941, $\frac{1}{9}$ 1999, $\frac{9}{5}$ 1945, $\frac{5}{10}$ 1147, $\frac{7}{1}$ 1812, $\frac{20}{4}$ 1980, $\frac{10}{2}$ 2007, $\frac{13}{3}$ 2014.

Ex. 6. Translate the sentences into English paying attention to the degrees of comparison of adjectives.

1. Лев Толстой - один из самых популярных писателей в мире.
2. Этот роман интереснее, чем тот.
3. Ваш дом выше нашего? Нет, он такой же высокий, как и ваш.
4. Это - самая прекрасная картина во всей коллекции.
5. Население Российской Федерации больше населения Великобритании.
6. Он выполнил работу быстрее, чем вы.
7. Австралия - одна из наименее населенных стран.
8. Его работа лучше вашей, но работа Анны - самая лучшая.
9. Россия - самая большая страна в мире.
10. Я живу не так далеко от института, как мой друг.
11. В июле столько же дней, сколько и в августе.
12. Самолет быстрее, чем поезд.

Ex. 7. Match the English sentences with their Russian equivalents.

1. There are few computers in the office.
2. We have a fridge in our office.
3. Are there any English books in your library?
4. There is a telephone on my desk.
5. Is there a fax machine in your office?
6. I have a computer on my desk.
7. There is no scanner in your office, isn't it?
- a) На моём столе стоит телефон.
- b) У нас в офисе есть холодильник.
- c) В офисе мало компьютеров.
- d) В вашей библиотеке есть английские книги?
- e) У меня на столе есть компьютер.
- f) В вашем офисе есть факс?
- g) В твоём офисе нет сканера, не так ли?

Ex. 8. Translate the following text from Russian into English.

На сегодняшний день стены зданий часто состоят из наружной и внутренней стенки с отступом около 5

сантиметров между ними. Обе стенки скрепляются анкерами. Эти стены облегченные, как их еще называют. Они имеют гораздо более низкие показатели поглощения воды по сравнению со сплошными стенами. Слой теплоизоляционного материала укладывают в пространство между стенками для предотвращения потерь тепла из здания. Это называется утеплением стен.

Когда кирпичи кладутся сводом, в виде арки или изогнутой стены, то каменщик должен подбирать кирпичи так, чтобы они подходили. Иногда используют пустотелые кирпичи, которые называются легкими кирпичами. Их изготавливают из кремнеземистой глины. Их можно потереть твердым камнем для того, чтобы придать форму настолько точно, что они могут быть использованы для кладки с узкими швами. Работа этого вида известна как клиновидная кладка, требующая высокой квалификации.

Grammar material. The Construction “Complex Object” after the verbs “to want”, “to expect” and the expression “would like”.

Конструкция «Сложное дополнение» характерна для английского языка. Она состоит из **имени существительного в именительном падеже** (the child, the boy, the students) или **местоимения в объектном падеже** (me, him, her, it, you, them) и либо **глагола в неопределённой форме** (с частицей **to** или без неё), либо **Participle I** (причастия настоящего времени).

Вся конструкция выполняет в предложении функцию дополнения и часто переводится на русский язык придаточным дополнительным предложением.

I want **the boy (him) to understand** me.

Я хочу, **чтобы мальчик (он) понял** меня.

We saw **you crossing** the street.

Мы видели, **как вы переходили** улицу.

Complex Object употребляется после трёх групп глаголов:

Первая включает глаголы **to want** (хотеть), **to expect** (ожидать) и структуру **would like**:

I would like **you to help** me.

Я бы хотел, **чтобы вы мне помогли**.

Ex.9. Read and translate the following sentences into Russian. Find the construction "Complex Object" in each sentence.

1. Do you want me to help you?
2. They didn't expect us to come back so soon.
3. I want you to understand me.
4. I would like you to read this book.
5. I expect you to write to me.
6. I want him to go home.
7. What do you want him to do for you?

Ex. 10. Use much, many, little или few.

1. Robert wrote so ... letters that he's never going to write a letter again. 2. She ate so ... ice cream that she's going to have a sore throat. 3. There is ... mayonnaise in Vera's kitchen. She has to go to the supermarket and buy some. 4. There are ... cookies in the box. I should have bought them last Monday. 5. Does your sister read ... ? - Yes, she does. And your brother? - Oh, he doesn't. He has so ... books, but he reads very 6. Have you ... work to do today? - No, not very 7. Walk quicker, please. We have very ... time. 8. I am sorry to say, I have read very ... books by Walter Scott. 9. My brother is a young teacher. Every day he spends ... time preparing for his lessons. 10. The pupils of our class ask ... questions at the lesson. They want to know everything. 11. You do not make ... mistakes in your spelling. Do you work hard at it? - Oh, yes, I do, I work very

Тема 2.2. Внутренние части здания

Практическая работа № 5. Потолок

Ex. 1. Read and learn new words:

ceiling - потолок	luminous - светящийся; блестящий
feature - особенность, характерная черта	rafter - стропило; балка
impression - впечатление; представление	pattern - образец; форма, модель
joist - брус, балка	visual - видимый; наружный
level - уровень; нивелир	spread - рассеивание; разброс
pattern maker - модельщик	tight - плотный; непроницаемый
	luminous effect - световой эффект
	level surface - поверхность уровня

Ex. 2. Which of the given words are nouns? verbs? adjectives? Translate the words.

impress, impressive, impression, visual, vision, tight, luminous, rafter, slope, light, sound

Ex. 3. Put down the corresponding nouns.

Model: to impress - impression - впечатление

to attach - _____ - _____

to construct - _____ - _____

to resist - _____ - _____

Ex. 4. Translate the combinations into Russian.

sloping plane wood joists important feature

visual impression steel joists spread of light and sound

Ex. 5. Read and translate the article.

Ceilings are considered to be extremely important parts of any room. A well-designed ceiling is one of the most pleasing features of a room. In modern constructions the variants of ceilings are limitless.

Ceilings can be produced of many various materials both natural and artificial. Their colours, texture, pattern, and shape are of great importance for the visual impression of the room. Ceilings of any materials may be attached to wood joists. Usually they are attached very carefully and tightly. They may be attached to wood joists, wood rafters, or steel joints.

A ceiling can be a simple, level plane. Or it can be two or more sloping planes. It should be noted that these planes correspond to the form of the roof construction above.

The ceiling surface is an important functional component in any room. It can have a luminous surface or a richly ornamented and decorated surface. It is of importance to note that it should be constructed in such a way as to help control the spread of light and sound about the room. One more important feature of the ceiling surface is its resistance to the spread of fire.

Ex. 6. Read and translate the questions. Find answers to the questions in the article.

1. What members are ceilings attached to?
2. What do the planes of ceilings correspond to?
3. In what way should the surface of a ceiling be constructed?
4. What important features does a ceiling possess?

Ex. 7. Retell the text given before.

Ex. 8. Use the articles «a, an, the» where necessary.

1. My sister is ... doctor. She works at ... hospital. She is at ... work now. 2. My son is ... pupil. 3. He is not at ... school now. He is at ... home. 4. I have got ... small ... black ... dog. It likes ... meat very much. 5. Please, buy ... ink and ... paper. 6. Do you like ... milk? 7. Buy ... sugar, please. 8. It is ... April now. 9. We have English lesson on ... Mondays. 10. It is cold in ... winter. 11. ... German is ... difficult language. 12. I prefer the forest in ... autumn. 13. We like to go for

long walks in ... summer. 14. My ... brother is ... economist. He is at ... home now. 15. I am not ... teacher. I am ... student.

Grammar material. Спряжение глагола to write (писать) в *Present Perfect Tense* (действие, совершившееся в прошлом, связано с настоящим)

Спряжение глагола to write (писать) в <i>Present Perfect Tense</i> (действие, совершившееся в прошлом, связано с настоящим)		
I have written		I have not written
He has written		He has not written
She has written		She has not written
It has written		It has not written
We have written		We have not written
You have written		You have not written
They have written		They have not written
Have I written?	Yes, I have	No, I haven't
Has he written?	Yes, he has	No, he hasn't
Has she written?	Yes, she has	No, she hasn't
Has it written?	Yes, it has	No, it hasn't
Have we written?	Yes, we have	No, we haven't
Have you written?	Yes, you have	No, you haven't
Have they written?	Yes, they have	No, they haven't

Запомните типичные для *Present Perfect* обстоятельства: *already, not yet, just, ever, never.*

Сравните также:

I have bought a book today (this week, this month) не истекший отрезок времени —

Present Perfect I bought a book yesterday (last week, last month) истекший отрезок времени — Past Simple

Запомните также следующие предложения*

I have never been to France.

Have you ever been to London?

I haven't seen you for ages.

I haven't met him for a long time.

I haven't been in Moscow since last year.

Ex. 9. Раскройте скобки, употребляя глаголы в *Present Perfect* или *Past Simple*.

1. We (to travel) around Europe last year.
2. My father knows so much because he (to travel) a lot.
- 3.1 (to see) Pete today,
4. She (to see) this film last Sunday.
5. Alex (to meet) his friend two hours ago.
- 6.1 just (to meet) our teacher.
7. The children already (to decide) what to do with the books.
8. Yesterday they (to decide) to help their grandmother.
9. Helen speaks French so well because she (to

live) in France. 10. She (to live) there last year. 11. The rain (to stop) and the sun is shining in the sky again. 12. The rain (to stop) half an hour ago. 13. Mary (to buy) a new hat. 14. I (to buy) a pair of gloves yesterday. 15. The wind (to blow) off the man's hat, and he cannot catch it. 16. The weather (to change), and we can go for a walk. 17. The wind (to change) in the morning.

Ex. 10. Раскройте скобки, употребляя глаголы в *Present Perfect* или *Past Simple*

1. I already (to do) my homework. Now I can go for a walk. 2. I (to do) my homework yesterday. 3. He just (to come) home. 4. He (to come) home a minute ago. 5. Nick (to play) football yesterday. 6. She already (to come) from school. Now she is doing her homework. 7. I (to read) this book last year. 8. I (to read) this book this year. 9. I never (to be) to Washington. 10. You ever (to be) to New York? 11. You ever (to see) the eruption of a volcano? 12. I (not yet to eat) today. 13. He (not to eat) yesterday. 14. You (to play) the piano yesterday? 15. You (to play) the piano today? 16. What you (to prepare) for today? 17. Look at this bird-house. Mike (to make) it himself. He (to make) it last Sunday. 18. Where you (to put) my pen? I cannot find it. 19. You (to see) Mary today? 20. When you (to see) Mary? — I (to see) her last week. 21. Your mother (to promise) to take you to the theatre? 22. Look at my new dress! I (to make) it myself. 23. He is not at school today, he (to fall) ill. — When he (to fall) ill? — He (to fall) ill yesterday.

Ex. 11. Выберите правильное сочетание.

1. this /these shoes
2. this / these trousers
3. this / these socks
4. this / these shorts
5. this / these trainers
6. this / these hat
7. this / these dress
8. this / these blouse
9. this / these skirt
10. this / these scarf
11. this / these boots
12. this / these tights

Практическая работа № 6. Пол

Ex. 1. Read and learn new words:

floor - настил, пол, этаж, ярус
flooring - деревянный настил
combustion - горение, воспламенение

to follow - следовать за, следить
to influence - влиять на
to measure - измерять, мерить

nozzle - сопло, наконечник, патрубок	reflection - отражение
homogeneous -однородный, гомогенный	to deal with... - иметь дело с...
measuring device - измерительный прибор	like poles - одноименные полюса
poured-in-place floor - наливной пол	hard waste - твердые отходы

Ex. 2. Distribute the words into three columns: nouns, adjectives, verbs.
 follower, homogeneous, deal with, reflection, arrange, arrangement, nozzle, combustible

Ex. 3. a) Form the corresponding adjectives, translate the words.

Model: space - spacious - просторный
 danger — _____ — _____
 homogeneity — _____ — _____
 pore — _____ — _____ , _____

b) Form the verbs. Translate the words.

Model: like - подобный to like - уподобиться
 hard — _____ to _____ — _____
 light — _____ to _____ — _____
 strength — _____ to _____ — _____
 straight — _____ to _____ — _____

Ex. 4. Give the three forms of the following verbs:
 To spend, to build, to construct, to look, to find, to begin, to take, to lose, to learn, to grow, to do, to dry, to choose, to know, to run, to sell.

Ex. 5 Choose the proper preposition and fill it in. on, to, with, among, from, in, of

1. Ceilings and floors belong ...the most important components ... any building.
2. Acoustics ... the room depends ...the flooring material used.
3. Dark flooring materials influence ... the intensity ... light in the room.
4. Floors are subject ...moisture and dirt.
5. Floors are designed to deal ...structural loads.
6. One should strictly follow ...instructions and regulations dealing ...the constructional design.
7. When making a poured-in-place floor it is necessary to protect the walls ...the room ... splashes.

Ex. 6. a) Name the terminological combinations with the opposite meaning.

Model: hard woods - soft woods
 light weight concrete -
 light industry -
 live load -
 cheap techniques -
 low cost -
 light coloring -
 hard water -

b) Give the English for:

тяжелая промышленность -

высокая стоимость -

жесткая вода -

мягкие породы дерева -

пережженный кирпич -

Ex. 7. Read the text and try to retell it.

FLOOR

The floor is known as the level base surface of a room or hall. The floor is made from several layers. The wearing surface of the floor is called finished floor and is usually laid over a subfloor. It consists of boards, plywood or other structural sheathing laid over and fixed to the floor joists. The subfloor is often used as a working platform during construction and may also act as a structural diaphragm to transfer lateral loads to walls.

The manner of constructing the structural frame of a floor is called floor framing. It consists of several elements: a joist, header, trimmer, rim joist, bridging, tailpiece. The header crosses and supports the ends of joists, studs or rafters. The joist is a small, parallel beam for supporting floors, ceiling or flat roofs. There are different kinds of joists.

A joist set on top of the sill and forming the perimeter of a wood-framed floor is called a rim joist. The tailpiece is a relatively short beam supported by a wall at one end and by header at the other. All these types of joists or beams form floor framing. So an arrangement of braces or blocking between joists or rafters to prevent their rotation or lateral displacement, especially when their depth-to-width ratio exceeds is called bridging. It may not be required when the ends of the members are fixed against rotation. Their edges are held in line by subflooring or sheathing.

Ex. 8. Find in the text: несущая поверхность пола; чистый пол; фанера; обшивка; черный пол; доска; переносить нагрузку; ригель; сдвигать; ригель у проема в перекрытии; наружная балка; поперечная балка между прогонами; поперечный ригель у проема в балочном перекрытии; балка, опирающаяся одним концом на ригель; стойка деревянного каркаса; стропило; потолок; нижний брус оконной или деревянной коробки; фиксировать; кромка; размещение; связь (жесткости); поворот; перемещение; предотвратить.

Ex. 9. What elements of floor framing are marked by the letters a - f?
Use the information from the text and Figure 6.

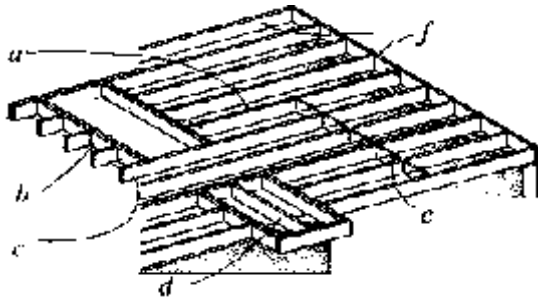


Figure 6. Floor framing

Ex. 10. Answer the questions.

1. How is manner of constructing the structural frame of a floor called?
2. What elements does floor consist of?
3. How is the wearing surface of a floor called?
4. What elements does a finish floor consist of?
5. What is subfloor often used as?
6. Floor framing consists of joists, doesn't it?
7. What is bridging?
8. What is the difference between header, trimmer, rim joist, tailpiece?

Практическая работа № 7. Лестница

Ex. 1. Read and learn new words:

Stairways - лестница

access - доступ, подход

available - имеющийся в наличии, годный

means - средства, ресурсы

rise - подъем, повышение

horizontal - горизонтальный

available data - данные, имеющиеся в распоряжении

means of reproduction - средства воспроизведения

rising moisture - возрастающая сырость

Ex. 2. Which of the words are nouns? adjectives?

availability, accessible, equal, equality, horizontal, moisture

Ex. 3. Give the Russian for:

domestic stairways

means of access

pitch length

steadily rising costs

Ex. 4. Read and translate the article.

Practically every modern building is supplied with stairways of some kind. A stairway is designed to provide a means of access between different floor levels of a building. Nowadays stairways are produced of various construction materials but the most popular among them are timber and reinforced concrete. Of them timber may be

used for domestic stairs of all kinds because of its economical availability. As to reinforced concrete it is popular because of its durable qualities, great resistivity to decay and great resistance to fire. It should be taken into account that domestic timber stairs must be designed for safe and comfortable use by people of different ages.

What is required of stair construction? The main requirements are the following. Firstly, there should be guaranteed equal rise for every step and landing. Secondly, the maximum pitch length to the horizontal must be 42° . Thirdly, stair length must include not less than two rises and not greater than sixteen.

Ex. 5. Pair work. Have a talk with your groupmate. Use the following questions.

1. What house do you live in? Is it a modern or an old one?
2. Is it a multistorey building?
3. What materials is it constructed of?
4. What storey (floor) do you live on?
5. What materials are the stairways made of?
6. Is there an elevator (a lift) in your house?
7. Do you have to use it?
8. How many rooms are there in your apartment (flat)?
9. What colours are the walls in the rooms?
10. Do you like your flat or would you like to change it for another (bigger or smaller) one?
11. For how long have you been living in your house?
12. Are there trees and bushes around it?

Ex. 6. Read and translate the article.

Types of ladders for home

Ladder along with the functional value is one of the most important elements of the interior. In its design and appearance can be combined in various materials and design principles in order to give the stairs the required quality and originality. The very same range of ladders is largely determined by their design features. All stairs can be divided into three basic types: marching, screw, stairs to the Bolza.

Straight staircases

The most common and popular design is the stairway. It optimally takes into account the biomechanics of human movement up and down. . Straight staircas is good, where there is no need to save space.

Stairway because so called, that consists of marches. In every March of the stairs shall not be less than three and not more than fifteen steps, otherwise install the staircase does not make sense, or climbing on it takes a lot of effort. Often designers restrict the marches of stairs ten to eleven steps. If the design of the stairs is too long, correct to establish interim site.

These stairs bought less harmonious because they are (in wood), except that in interior style of the country.

Depending on the number of storeys of the building, planning its facilities and destination, the stairs can be one-, two - or multimid-flight. They can be

divided into direct and rotary. The first - very simple. They are easy to manufacture, durable and easy to operate.

If the number of stages more than a decade, marsh is divided into two parts, the intermediate area. This ladder is called the rotary. The advantage of rotating stairs in front of the lines is that at the same height of the steps they take up less space. Such steps are typically installed along two walls.

These stairs bought less, because they are (in wood), except that in interior style of the country.

Depending on the number of storeys of the building, planning its facilities and destination, the stairs can be one-, two - or multimid-flight. They can be divided into direct and rotary. The first - very simple. They are easy to manufacture, durable and easy to operate.

Rotary stairs can be of different types. In addition, the rotary stairs are divided into quarter, half-curved and circular. The angle of rotation of quarter turn stairs is 90° (they are usually installed along two adjacent walls), half-curved - 180° , and circular - 360° .

Spiral staircases

Helical, or spiral stairs are used in cases when there is not enough space for straight stairs. Spiral staircases are less convenient for travel than the direct, but they save floor space. Often used as an aid to ascent or descent into the basement. The principal feature is the screw-fastening steps around the pole, or rack. Steps of spiral stairs are wedge-shaped and are arranged around this Central pillar. Most often it is performed in the form of a metal pipe.

The shape of a spiral staircase in spite of her traditional performance can be not only round but also square, octagonal, in a word, any.

Spiral stairs are often made of metal or wood. It is due to this often manages to create an original interior. And spiral stairs can be placed not only on the bearing wall, but in the center of the room.

Although the spiral stairs take up little space, they are used rarely straight. The fact that they are not very comfortable. In addition, spiral staircases helping out when an opening for installation of the stairs is too small. Although there are spiral staircases large - up to 3 meters diameter. However, experts believe that the opening of such a size it makes more sense to put all the same stairway. This option is real even in the opening 2 x 2 m. Stairs can be designed for any specific house. The optimality of its parameters and creates a comfortable ascents and descents. The height of the step lifting can be from 15 to 19 cm, and the handrail height is 90-95 cm.

Stairs to the Bolza

Alternative to traditional design solutions are the stairs to the Bolza. Bolz German word, which translates as the bolt pin, the pin is indicated with the fastening element, allowing you to hang a ladder in the living space. Steps and railing for stairs are attached with pins to the wall, or lying on the steel rod supports. This engineering solution is proposed in cases where it is necessary to give the stairs the ease, to make it more compact. The style of the stairs to the Bolza for the most part modern. However, they look quite appropriate and in the

interior, far from the avant-garde. Stairs to the Bolza today are widespread. Outwardly, they seem light and fragile. Actually the "rails" durable and reliable in operation. Manufacturers claim that the home ladder medium size can accommodate a hundred of your guests at the same time, and one step is able to withstand a load of 1800 kg.

This resistance ladder is provided with mounting bolts with rubber gaskets. In addition, the stairs to the Bolza comfortable and safe when walking. Thanks to the rubber pads reduces vibration during the movement of the stairs. Of all the wooden ladders only boltsevye do not creak because they do not have connections with wood. The advantages of this design is aesthetics of these structures.

Ex. 7. Are these statements true or false?

1. Ladder along with the functional value is one of the most important elements of the interior.
2. In every March of the stairs shall be more than three and less than fifteen steps.
3. They are easy to manufacture, durable and easy to operate.
4. If the number of stages more than a decade, marsh is divided into two parts, the intermediate area.
5. These stairs bought more, because they are (in wood), except that in interior style of the country.
6. Spiral staircases are less convenient for travel than the direct, but they save floor space.
7. Spiral stairs are often made of plaster or wood.
8. The height of the step lifting can be from 20 to 25 cm, and the handrail height is 100 - 115 cm.
9. Bolz Latin word, which translates as the bolt pin.
10. Stairs to the Bolza today are not widespread.
11. This resistance ladder is provided with mounting bolts with rubber gaskets.
12. The advantages of this design is aesthetics of these structures.
13. The lack of opened strings and open strings, ertobashia railings give the staircase the elegance and lightness.

Ex. 8. Translate this article from Russian into English.

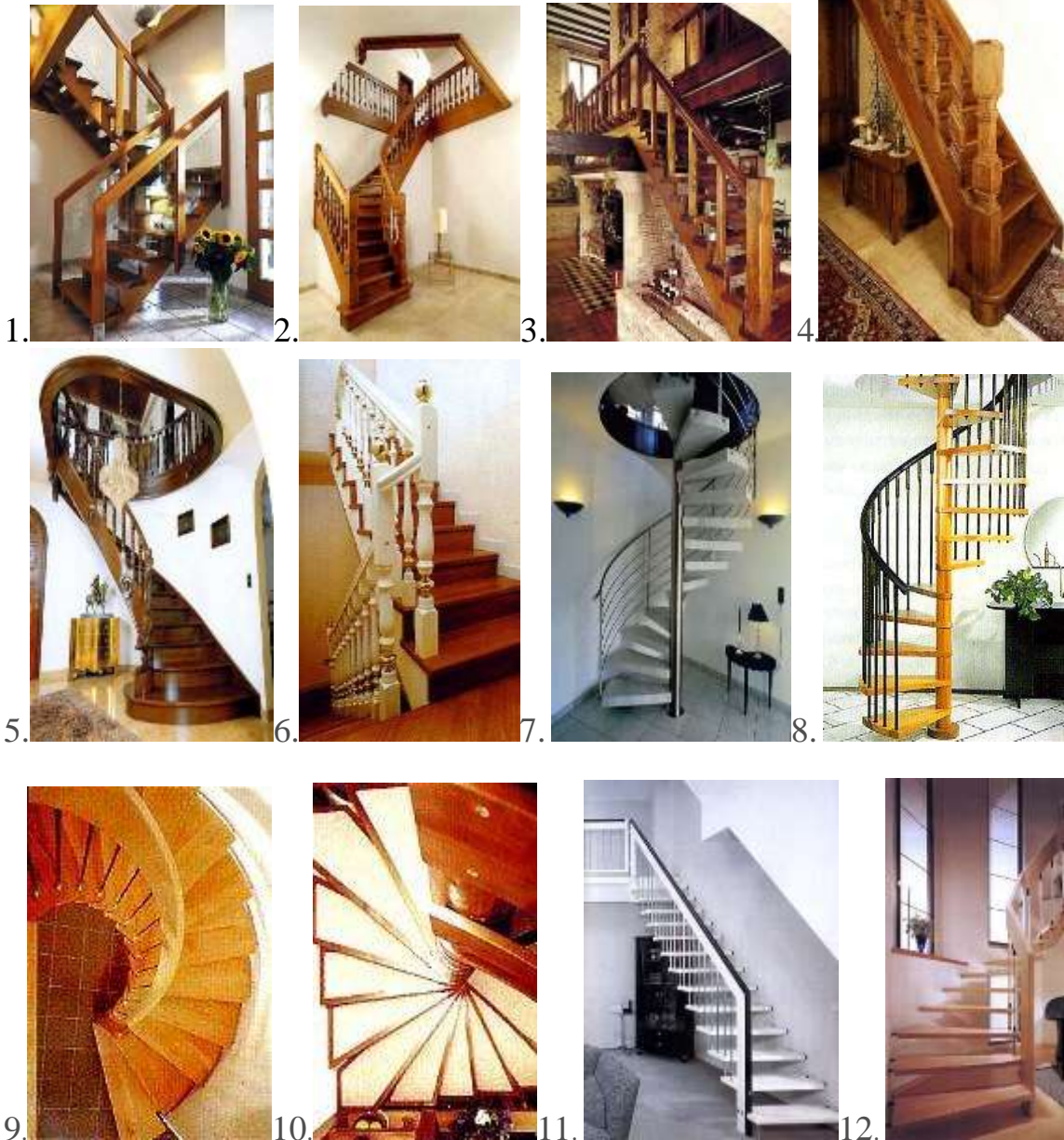
Для изготовления лестниц используется дерево. Кроме того применяют металл, мрамор, гранит, бетон, стекло и их всевозможные комбинации. Лестницы на косоурах обычно делают из дерева - дуба, бука, ясеня, сосны. И это не удивительно: дерево прекрасно подходит для дома. Это материал экологически чистый, теплый, но для этих целей подойдет не всякое дерево, а только идеально высушенное, так как могут ступени прогнуться, появятся щели. Лестницы на больцах и винтовые лестницы дают большие возможности дизайнерам. Их можно сделать из дерева и стали, стали и стекла, стали и камня. Лестницы из мрамора используют во внутренних помещениях. Это объясняется тем, что мрамор, имея богатую цветовую гамму, недостаточно устойчив к перепадам влажности и температуры. А вот граниту нипочем капризы погоды, поэтому гранит - универсальный материал. Но помните

это довольно скользкие материалы. Так что если в доме живут дети или пожилые люди, лучше укрепить на ступенях специальные противоскользящие профили.

Что касается аксессуаров, то деревянные лестницы традиционно украшают резными балясинами и перилами. Еще делают овальные входные площадки, начальные стойки в виде деревянных скульптур ручной работы.

Металлические конструкции часто красят в самые разнообразные цвета - современные полимерные и лакокрасочные материалы позволяют сделать лестницу очень нарядной.

Ex. 9. There are three types of stairs (marching, screw, stairs to the Bolza). Look at the pictures and say about types of stairs.



Ex. 10. Read and translate the article.

Exterior stairs

During the construction of the modern house is almost impossible to do without building an outside staircase. This outdoor stair with associated elements (area in front of the entrance to a building, canopy or canopy over her, handrails, etc.) is also referred to as entrance stairs or porch.

Outdoor stairs can also be connected together and the different levels (floors) of the house, for example, in accordance with the architectural plan.

The outside stairs is a construction design (fig. 7, fig. 8). They should not only meet aesthetic requirements, but also certain technical standards to be convenient and reliable, ensure the safety of movement on them. The modern market of construction services to satisfy the most exacting demands of high-performance and economical to implement even the most bold building design from small country cottage to the impressive size of the mansion.

The separation of the external stairs into groups may be based on differences in the shape of a platform surrounded by steps (in contrast to the interior stairs, the form of which often determine a vertical plane, forming the stair space). Distinguish the following forms of exchanges: square, rectangular, oval, semicircular or semi-oval, curved.

Marches in its shape are rectilinear and curvilinear. Staircase with curved flights (winder treads) are divided into single and double. There are also outdoor staircase with a combination of marches rectilinear and curvilinear contours.

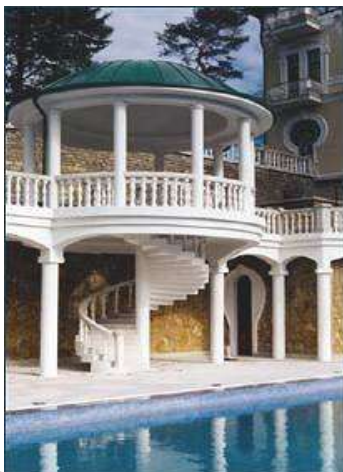


fig.7.



fig.8.

The external ladder is one of the most important elements of the exterior of the building, and in addition to its primary functional purpose as a link of communication, serves as a decorative element partially forming the external appearance of the building.

In the best architectural samples of country houses, villas and mansions and in the past, and today is the value of the main entrance was emphasized and emphasizes the outer main staircase, the size, shape and location which give smooth visual transition from the building to the surrounding area.

The exterior stair on the façade, facing the depth of the infield (in the garden), are less Grand and solemn; after all, their primary function is to serve as a bridge route between the residential part of the house and the surrounding scenery, to unite the house and garden into a harmonious and coherent architectural and decorative uniformity, forming in many cases a functional and stylistic unity with outdoor stairways, ramps, terraces, retaining walls, railings, approaches to water

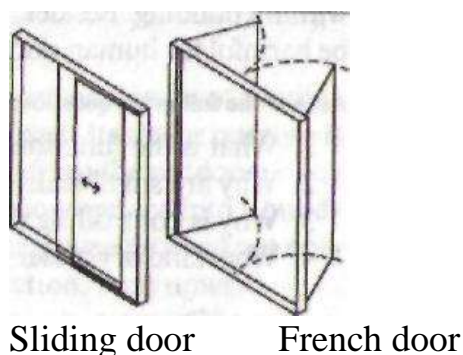
bodies and garden paths. All of these architectural forms relate to the elements of architectural relief processing; the flat landscape lacks human scale, so this scale can be created artificially.

The choice of material for their construction and design can be quite varied and depends on many factors from the willingness and financial possibilities of customers (owners) of the house and to the degree the imagination of the designer. Stairs can be manufactured from any material, including concrete, natural and artificial stone, brick, metal, or combinations of two or more materials. Wood is used less often to prevent rotting of the wood used in the manufacture of exterior stairways must be treated with antiseptics; in addition to this, exterior wood stairs are recommended to be painted with waterproof paints, and considering the fire hazard - and to be impregnated flame retardants (flame retardants).

Практическая работа № 8. Двери

Ex. 1. Read and translate the article.

The fundamental purpose of a door is to provide



access into or out of a building. Doors also serve for providing access into or out of various compartments of a building.

Doors also have the following functions. They provide:

1. Security;
2. Weather resistance;
3. Fire-resistance;
4. Thermal insulation;
5. Sound insulation.

Fig.9

As to exterior doors, they must be well designed and properly constructed. They must not leak air, wind, heat and water.

The types of the door mechanism are available of the following types: hinged, sliding, swing, folding, and rotating.

- Hinged doors are the most common, known to all doors that are in every home and in any room. Swing doors may have one or two paintings, depending on the size of the facility and the desires of the owner.
- Sliding doors are very cozy and comfortable. Especially they fit very narrow areas where there is little space. Swing doors are ideal for kitchens to save space. These doors when opening moving parallel to the wall. The disadvantage of sliding doors is the fact that they do not have the properties of sound insulation and heat

insulation, using the distance between the door and the wall flow into the room is drafty and sounds.

- Swing doors are those doors that open and inside, and out. Canvas swing doors usually connect to the wall and to the floor. These doors were installed only in metro stations, airports, shopping malls, but over time the pendulum doors are made for residential homes and be used anywhere. However, these doors also can provide insulation and soundproofing, as we have clearance on two sides of the opening for at least 8-10 mm.
- Folding doors these are products that open and close like an accordion. They are very beautiful and exotic look, however they can be used in each room or area. These doors will look great in the dressing rooms, beauty salons and massage salons, bars and other entertainment spots. Folding interior doors are made of MDF, plastics and aluminium.
- The revolving door, usually installed as the main entrance doors in such buildings, such as shopping malls, hotels, large offices, hospitals and so on. The design of revolving doors is quite complicated as actually installing them.

However, as the previous kinds of doors, the revolving door also managed to penetrate into the interior of the home and began to enjoy great popularity among lovers of exotic and unusual home design as interior doors.

Each method has its advantages and disadvantages and nuances of attachment. At the same time they openings should be trimmed with any type of interior system in future. For example, if the door is sliding method of opening, finish opening can be accomplished after mounting a roller system above the opening. If this design moves along 2 rails, he opening should be completed The method of opening affect other characteristics of the entire room. That is, the door of the sliding type can not provide noise, sound insulation needs than, for example, a tight-fitting hinged interior door.

Ex. 2. Answer the following questions. Try to consult the article as little as possible.

1. What are the fundamental purposes of a door?
2. What are their functions?
3. What kinds of resistance do they provide?
4. What kinds of insulation do they provide?
5. What mustn't the exterior doors leak?
6. What are the types of the door mechanism available?
7. What are advantages or disadvantage of sliding doors?
8. Where can we usually install revolving doors?

Ex. 3. Described the doors. Use the text.



Ex. 4. Read and translate the article.

Choice of doors should be carried out depending on their purpose, placement, and mainly from the financial capabilities of the buyer. For residential houses and apartments, the ideal choice is the choice of a conventional swing doors made of wood. But buyers are different and their tastes can also differ from each other. For example, lovers of diversity can give the house an unusual and original appearance by installing in the living room-swing doors and even sliding and folding doors with matchless designs and engravings.

It is important to note that to ensure the beauty and attractiveness of your interior. All doors in the room were of the same species, colors and finishes. The style of the doors should be combined with the basic decor of your interior. Door natural colors will look great in any environment with any style. Products can be the same color as the furniture, though it is optional, but such a design would be very attractive. For greater effect, you want the furniture the same color were located directly near the door.

Interior doors, their design and type of finishing and material, they always talk about the financial status of the owners, about their position in society, their taste and even their character.

In this article you will learn the following: what are the types of doors, types of designs, variety of materials, the pros and cons of certain types of interior doors, styles and designs in the decoration of these products.

So, let's to start with types of interior doors that are classified according to the material. The most common variant of interior doors, remains a wooden door. Wood is the most ecological and useful material. It is known that wood has a powerful energy, which contributes to the strengthening and development of bioenergy of a person, protects from negativity and developing only positive vibes.



fig.10.Wooden fig. 11.Veneered fig. 12 Laminated door fig. 13 Plastic door

Interior doors from the array look very beautiful and always inspire warmth and comfort. Wooden natural door (fig. 10) even its smell gives the owners a kind of warm feeling, confidence and comfort. This door will delight owners a long time and will last a long time under the condition of careful handling. The disadvantage of massive wooden doors can only be its high price. Mainly in residential areas shall be installed only doors are mainly made of natural wood as it has natural ventilation properties. Wooden doors can "breathe" and thus provide natural ventilation.

Veneered interior doors (fig. 11.) spread on the market in the twentieth century and became very popular among the population thanks to their relatively low price, natural material, ease and good quality. From the outside the canvas door closed with a sheet of MDF, and then a special technology of hot pressing consolidates the sheets of MDF with solid veneer plate.

Popular today as well and laminated doors (fig. 12) and PVC doors. PVC doors (doors, PVC) are much cheaper and available to almost all segments of the population. They are covered with a special film, which is resistant to damage caused by mechanical, moisture resistant and do not deteriorate with sudden changes in temperature. Another advantage of these doors is that PVC is very light material. These doors do not obstruct the door hinges with his weight that allows you to operate the product much longer.

Today, however, there are many people who prefer home as interior doors to install the plastic door (fig. 13). Of course, the doors sound insulation and thermal insulation function is much stronger and more efficient, but these doors can contribute to moisture in the room due to the fact that unlike wooden doors, they have no ventilating properties. Basically, plastic doors are installed in the living room under a color tree.

Ex. 5. Are these statements true or false?

1. Choice of doors should be carried out depending on their purpose, placement, and mainly from the financial capabilities of the buyer.
2. For residential houses and apartments, the ideal choice is the choice of a conventional swing doors made of steel.
3. It isn't important to note that to ensure the beauty and attractiveness of your interior you want all doors in the room were of the same species, colors and finishes.

4. The style of the doors should not be combined with the basic decor of your interior.
5. The most common variant of interior doors, remains a wooden door.
6. Metal is the most ecological and useful material.
7. The advantage of massive wooden doors can only be its high price.
8. Wooden doors can "breathe" and thus provide natural ventilation.
9. Veneered interior doors spread on the market in the twentieth century and became very popular among the population thanks to their relatively high price, natural material, ease and good quality.
10. Popular today as well and laminated doors and PVC doors.
11. PVC doors (doors, PVC) are not much cheaper and available to almost all segments of the population.
12. Another disadvantage of these doors is that PVC is very light material.

Ex. 6. Translate this article from Russian into English

Межкомнатные двери из дерева и деревоподобных материалов являются самыми распространенными. Двери из других материалов — металла и пластика, не нашли достойного применения в жилье, хотя такие модели есть в продаже. Высокие эксплуатационные качества, долговечность, возможность создания необычного дизайна и цветового решения дают подобным дверям право на занятие своей ниши в группе дверей для жилых помещений.

ДСП, МДФ, ДВП – эти производные дерева на сегодняшний день и довольно часто применяются при изготовлении дверей. МДФ - материал современных технологий. Он не подвержен растрескиванию, не разбухает, на него отлично приклеиваются шпон и древесина.

Натуральный массив – цельнодеревянные двери считаются лучшими. И это действительно так, если это высококачественные изделия, из хорошо высушенной древесины.

Шпон – наружные поверхности полотен и коробок дверей обычно облицовываются шпоном ценных пород дерева. На качество облицовки шпоном очень сильно влияет совместимость материалов - хорошо шпон приклеивается либо на "родную" древесину (например, дубовый шпон к дубу), либо, в случае разных сортов древесины, на подложку из другого материала (МДФ, фанера). Особенно важно приклепление шпона по краям дверного полотна.

Ламинат – искусственный материал (пленка), используемый в качестве внешнего покрытия. Ламинат может по рисунку совпадать с рисунком среза древесины различных пород. Технологии производства ламинированных дверей позволяют получить изделия практически любых оттенков.

Ламинированные межкомнатные двери имеют целый ряд преимуществ. Они дешевле дверей, покрытых натуральным шпоном. Кроме того, в ряде случаев ламинат бывает более устойчив к внешним механическим повреждениям.

Ex. 7. What material is spoken about? What else can you say about it?

1. Thin wood coating, which is coated with lacquer. Often use rare woods, so cut off a thin layer for the manufacture of doors.
2. It is a modern material which is non-toxic.
3. Can be transparent, opaque, colored. In addition, ... of various degrees of transparency and color, you can perform the mosaic door. But this door needs to match the interior.
4. Can be made of different wood species and may be a solid or adhesive.
5. It should be borne in mind that metal can be used lightweight alloys to create a door with a large number of metal elements.
6. But the combination of certain materials gives a stunning effect. Forged parts, inserts of coloured glass – it allows you to get unique interior doors. In addition, even after buying the most usual veneer doors you can make it unique yourself. You can use the glass decorative items that can easily be attached with glue.

The most common materials for manufacturing are:

1. *Veneer.* 2. *MDF* 3. *Glass.* 4. *The solid wood.* 5. *Metal.* 6. *Plastic.*

Ex. 8 Find the definitions to the following English terms.

Veneered interior doors

This door will delight owners a long time and will last a long time under the condition of careful handling. Its smell gives the owners a kind of warm feeling, confidence and comfort.

Wooden natural door

Such doors spread on the market in the twentieth century and became very popular among the population thanks to their relatively low price, natural material, ease and good quality.

The plastic door

They are much cheaper and available to almost all segments of the population. They are covered with a special film, which is resistant to damage caused by mechanical, moisture resistant and do not deteriorate with sudden changes in temperature

PVC doors

Of course, the doors sound insulation and thermal insulation function is much stronger and more efficient, but these doors can contribute to moisture in the room due to the fact that unlike wooden doors, they have no ventilating properties.

Ex. 9 Complete the following sentences

1. Choice of doors should be carried out depending on ...
2. Door natural colors will look great in any environment with any style. Products can be ...
3. Interior doors, their design and type ...
4. The most common variant of interior doors, remains a wooden door. Wood ..
5. It is known that wood has a ...
6. Interior doors from the array look ...
7. Mainly in residential areas shall be installed only doors are mainly made of ...
8. Veneered interior doors spread on the market in ...
9. PVC doors (doors, PVC) are much cheaper and available to ...

Ex. 10 Make up a dialogue

Практическая работа № 9. Монологические и диалогические высказывания по теме «Внутренние части здания»

Ex. 1. Draw the main elements of the building to express their meanings: beam, column, frame, truss, bearing wall, plate, vault, shell, dome, arch.

Ex. 2. Study the words and word combinations and say what we can call:

a) element of building; b) compound unit; c) unit; d) material.

Put them into the table given below: roof, roof structure, joist, timber, wall, cladding, corrugated sheet, steel, floor, wearing surface, tile, vinyl, foundation, column bases, concrete, waterproof covering, wood-wool, asphalt, wall structure, beam, stanchion, floor structure, panel, precast concrete, foundation.

Element	Compound	Unit	Material
---------	----------	------	----------

Ex. 3. What do the words describing the parts of the building? Translate them into Russian: roof, framework, wall, shell, ceiling, room, door, floor, mechanical system, structure, foundation, building site, story, edifice, crawl space, attic, half story, cellar, cyclone cellar, bulkhead, floor, mezzanine, basement, subbasement.

Ex. 4. Study table and answer the questions given below.

Components of building

Element	Compound Unit	Unit	Material
Roof	Roof structure	Joists and slabs	Timber
	Waterproof covering	-----	Wood-wool asphalt
Walls	Cladding	Corrugated sheets	Steel
	Wall structure	Beams and stanchions	Steel
Floors	Wearing surface	Tiles	Vinyl

	Floor structure	Panels	Precast concrete
Foundation	—	Column bases	Concrete

1. What does the roof (wall, floor) consist of?
2. How many elements is the building constructed from?
3. How many compound units is the wall (roof) constructed from?
4. What is roof structure (wall structure, floor structure) made up of?
5. What are the joists (corrugated sheets, precast panels) made of?

Ex. 5. Read groups of verbs associated with the structure of building and translate them into Russian.

Parts and the whole: to consist of, contain, include, assemble, erect, be composed of, be made up of (from), be constructed from, be built of.

The connection between parts: to carry, rest on, bear on, transmit, grout, encase, span, distribute, spread, cantilever, hold in place, link, hang, adhere, glue, resist, act on, exert, bind together, fasten together, be joined to, be attached to, be connected to, be supported by, be fixed, be secured, acted upon, be resisted by, be fitted into, installed, be built into, be located in, be placed, be welded to, be riveted to, be bolted to, be embedded in.

Composition: be made of, built from, divided into, covered with, encased with, laid over, enclosed, set within, surrounded by, spaced at, machined formed in.

Ex. 6. Read the text and pick up the architectural terms.

STRUCTURE

The major elements of a building include the following: the foundation, which supports the building and provides stability; the structure, which supports all the imposed loads and transmits them to the foundation; the exterior walls, which may or may not be part of the primary supporting structure; the interior partitions, which also may or may not be part of the primary structure; the environmental-control systems, including the heating, ventilating, air-conditioning, lighting and acoustical systems; the vertical transportation systems, including elevators, escalators and stairways; communications, which may include such subsystems as intercommunications, public address and closed-circuit television, as well as the more usual telephone-wiring systems; and the power, water supply and waste disposal systems.

The basic elements of any ordinary structure are the floors and roof (including horizontal supporting members), columns and walls (vertical members) and bracing (diagonal members) or rigid connections used to give the structure stability.

With low buildings the variety of possible shapes is much greater than with taller buildings. In addition to the familiar box shape, which is also used in very tall buildings, low buildings may use cathedral-like forms, vaults or domes. A simple single-story structure might consist of a reinforced-concrete slab laid directly on the ground, exterior masonry walls supported by the slab (or by a spread footing cast continuously around the perimeter of the building) and a roof. For low buildings, the use of interior columns between masonry load-bearing

walls is still the most common construction method. Spaced columns supported by the slab or by individual spread footings may be used, however; in that case the exterior walls can be supported by or hung between the columns. If the roof span is short, abutting planking made of wood, steel, concrete or other material can be used to form the roof structure.

Each structural material has a particular weight-to-strength ratio, cost and durability. As a general rule, the greater the roof span, the more complicated the structure supporting the roof becomes and the narrower the range of suitable materials. Depending on the length of the span, the roof may have one-way framing beams or two-way framing (beams supported on larger girders spanning the longest dimension). Trusses can be substituted for either method. Trusses, which can be less than 30 cm (12 in) or more than 9 m (30 ft) deep, are formed by assembling tension and compression members in various triangular patterns. They are usually made of timber or steel, but reinforced concrete may be used.

The structure of a simple one-story building may also consist of the wall and roof framing combined by being either fastened together or shaped in one piece. The possible structural shapes are almost infinite and include the three sides of a rectangle fastened together into a unit called a bent, the familiar church form of vertical sides and sloping roof, the parabola and the semicircle or dome.

The supporting structure and exterior walls, floor and roof may also be made as a unified whole, much like a rectangular pipe with closed or open ends. These forms may be cast in reinforced plastic. By far the most common form of building structure is the skeleton frame, which consists essentially of the vertical members and combined with a horizontal framing pattern. For tall buildings, the use of loadbearing walls with horizontal framing members has declined steadily; nonload-bearing curtain walls are used most frequently.

The skeleton frame most often consists of multiples of the construction. For structures up to 40 stories high, reinforced concrete, steel or composite-reinforced concrete and steel can be used in a variety of ways. The basic elements of the steel skeleton frame are vertical columns, horizontal girders spanning the longer distance between columns and beams spanning shorter distances. The frame is reinforced to prevent distortion and possible collapse because of uneven or vibratory loads. Lateral stability is provided by connecting the beams, columns and girders; by the support given the structure by the floors and interior walls and by diagonal bracing or rigid connections between columns, girders and beams. Reinforced concrete can be used in a similar way, except that concrete shear walls would be used instead of diagonal bracing to provide lateral stability.

Newer techniques of constructing moderately high buildings include inserting prefabricated units within the skeleton frame; cable hanging and stacking. For the insertion technique, a stable skeleton frame may be constructed with a utility core that includes fire stairs, elevators, plumbing, piping and wiring. Prefabricated box-like units then can be inserted in the openings between the horizontal and vertical framing. Major changes in the future use of the building could then be made by removing and replacing the box-like units.

In hanging a vertical utility core is built and strong horizontal roof framing is anchored to the top of the core. All floors below, except at ground level, are supported by attaching them to the core and to tension members hung from the roof framing. After the core is completed, the floors are built from the top down. Stacking is a construction technique in which prefabricated, box-like units are raised by cranes and placed on top of and alongside each other and then are fastened together. For buildings over 40 stories, typically steel had been considered the most appropriate material. However, recent advances in the development of high-strength concretes have made concrete competitive with steel.

Tall buildings often require more sophisticated structural solutions to resist lateral loads, such as wind and earthquake forces. One of the more popular structural systems is the exterior structural tube, which was used in the construction of the World Trade Center (411 m/1350 ft) in New York City. Here, closely spaced columns connected rigidly to the horizontal spandrel beams on the perimeter of the building provide sufficient strength to resist loads and the stiffness to minimize lateral deflections.

For very tall buildings, the mixing of steel and concrete is becoming more popular. The high strength-to-weight ratio of steel is excellent for the horizontal spanning members. High-strength concretes can economically provide the compression resistance needed for vertical members. In addition, the mass and internal damping properties of the concrete assist in minimizing vibration effects, which are potential problems in very tall buildings.

Ex. 7. Suggest English equivalents to the Russian ones.

Транспортные система, лестничный марш, общение, прилагаемая нагрузка, перекрывать арку, пролет, набор звукоусилительной аппаратуры для выступлений, кабельное телевидение, дощатый настил, удаление отходов или сточных вод, примыкать, подходящий материал, длина, односторонний каркас, двусторонний каркас, балка, главная балка, размер, элементы на сжатие, собирать, элементы на растяжение, поддерживать, сложная конструкция, создавать, система связи, бесконечный, крыша со скатом, полукруглый, купол, труба, железобетонный, рамный элемент конструкции, заменять, навесная стена, колонна, опускаться вниз, этаж, композиционный материал, предотвращать, искажение, падение, неровный, колеблющаяся нагрузка, связывать балки, внутренние колонны, обвязка, жесткий, соединение, стена жесткости, боковая устойчивость, вставлять, сборные элементы, канат, вставка, устойчивый, практичность, сердечник, лифт, сеть трубопроводов, электропроводка, слесарные работы, удалять, крепление стеновой облицовки, прикреплять, противостоять нагрузке, связывать, фундаментная балка, прочность, густота, прогиб, заключать в оболочку, увлажнение, связывать, скреплять.

Ex. 8. Complete the sentences using the information from the text.

1. The structure supports all the imposed loads and...
2. Communications may include such subsystems as intercommunications, public address and closed-circuit television as well as...

3. In addition to the familiar box shape low buildings may use...
4. A simple single-story structure might consist of a reinforced concrete slab laid...
5. If the roof span is short, abutting planking made of wood, steel, concrete or other material can be used to...
6. The greater the roof span, the more complicated... and the narrower...
7. Trusses are formed by assembling tension and compression members in...
8. The structure of a simple one-story building may also consist of the wall and roof framing combined by... or...
9. By far the most common form of building structure is the skeleton frame, which consists essentially of ...
10. The basic elements of the steel skeleton frame are...
11. The frame is reinforced to prevent distortion and possible collapse because of...
12. Lateral stability is provided by...
13. Newer techniques of constructing moderately high buildings include...
14. For the insertion technique, a stable skeleton frame may be constructed with a utility core that includes...
15. In hanging a vertical utility core is built, and strong horizontal roof framing...
16. Stacking is a construction technique in which prefabricated, box like units are raised by...
17. Tall buildings often require more sophisticated structural solutions to resist...
18. The high strength-to-weight ratio of steel is excellent for...
19. High-strength concretes can economically provide...
20. The mass and internal damping properties of the concrete assist in...

Ex. 9. Are these statements true or false?

1. The exterior walls must be part of the primary structure.
2. The environmental-control systems include only the heating.
3. The basic elements of any ordinary structure are only the floors and the roof.
4. The variety of possible shapes for low buildings is the same as for taller buildings.
5. Cathedral-like forms are also used in very tall buildings.
6. The use of interior columns between masonry load-bearing walls is still the most common construction method.
7. If the roof span is short, abutting planking can be used to form the roof structure.
8. The greater the roof span, the simpler the structure supporting the roof becomes.
9. The roof may have only one-way framing beams.
10. Trusses are formed by assembling only tension members.
11. The structure of a simple one-story building may also consist of the wall and roof framing combined by being either fastened together or shaped in one piece.
12. The skeleton frame is the most common form of building structure.
13. Load-bearing walls are used in tall buildings.
14. The basic elements of the steel skeleton frame are vertical columns, horizontal girders spanning the longer distance between columns and beams spanning shorter distances.

15. The frame isn't reinforced in multistory buildings.
16. Lateral stability is provided by connecting only in the beams.
17. For the insertion technique, a stable skeleton frame may be constructed with a utility core.
18. Newer techniques of constructing moderately high buildings include inserting prefabricated units within the skeleton frame and cable hanging.
19. In hanging a vertical utility core is built and strong horizontal roof framing is anchored to the top of the core.
20. For buildings over 40 stories, typically concrete had been considered the most appropriate material.
21. Concrete isn't competitive with steel.
22. One of the most popular structural systems is the interior structural tube.
23. Closely spaced columns provide stiffness to maximize lateral deflections.
24. The structural tube has now been used with concrete and with composite construction consisting of structural steel members encased in concrete.
25. The strength-to-weight ratio of steel isn't enough for the horizontal spanning members.
26. High-strength concretes can provide the tension resistance needed for vertical members.
27. The mass and internal damping properties of the concrete don't assist minimizing vibration effects, which are potential problems in very tall buildings.

Ex. 10. Answer the questions.

1. What are the major elements of a building?
2. What two kinds of wall are there?
3. What do the environmental control systems include?
4. What do the vertical transportation systems include?
5. What do the communications include?
6. What do the telephone-wiring systems include?
7. Where may cathedral-like forms, vaults or domes be used?
8. What might a simple single-story consist of?
9. What is the most common construction method?
10. What are columns supported by?
11. What materials can the roof be made of?
12. When can trusses be used?
13. What are the possible structural shapes?
14. What are the basic elements of the steel skeleton frame?
15. Why is the frame reinforced?
16. What is the lateral stability provided by?
17. What do newer techniques of constructing high buildings include?
18. What does the utility core include?
19. How are the floors supported by in hanging?
20. What is stacking?
21. What material has been considered the most appropriate one?
22. What does the construction of tall buildings require?

23. Why is the mixing of steel and concrete becoming more popular?

Тема 2.3. Крепежи

Практическая работа №10. Типы гвоздей

Ex. 1. Read and learn new words:

device - прибор, устройство

series - серия, группа

to intend - намереваться

fastening device - прибор для закрепления

bolt fastening screw - закрепляющий винт

sheet iron - тонкое листовое железо

gun - ружье, орудие

hammer - молоток, молот

to sharpen - заострить

to finish - отделывать

to bear - поддерживать,

finish nails - отделочные гвозди

finished material - готовый материал

bearing wall - несущая стена

bearing area - несущая площадь

sheet - лист, полоса, пластина

to fasten - скреплять,

screw - винт

fastening bolt - соединительный

sheet copper - листовая медь

anchor - анкер

bearing - опора

nail - гвоздь

pin - стержень, шип, булавка

screw - винт, болт

screw driver - отвертка

screw joint - винтовое соедин

finishing - отделка

nail work - забивание гвоздей

nail iron - гвоздильное железо

Ex. 2. Read and translate the article.

Many connections in wood structures depend on direct bearing of one member of the structure on another for their strength. Various simple fasteners are used for constructing purposes. Of them wood fasteners include nails, screws, bolts, anchors and some others.

Nails are generally made of plain steel. It is of interest to note that steel used for nails is uncoated steel. Practically, nails are sharpened metal pins driven into wood with a hammer or a mechanical nail gun. There exist different types of nails. Among them common nails and finish nails are the two types most frequently used for fastening. Common nails have flat heads and are used for most structural connections in light framing constructions. The main property of finish nails is that they are headless. Finish nails are used to fasten finish wood work.

One can see that finish nails are the same length as common nails. Nails are usually named according to the purpose for which they are used as flooring, roofing, etc. Besides common and finish nails, there exists a great variety of other shapes. Face nail is a nail driven through a side of one wood member into the side of another one.

As to the screw nail, it has the form of a spiral. It turns like a screw when it is driven with a hammer.

Nails that are exposed to rain, snow, and fog should be of a corrosion-resistant type.

Why are nails so popular in the process of construction? They are extremely popular for fastening wood since they require no predrilling of holes. Another property that makes them so popular is that they are very simple to insert with a hammer or a mechanical nail gun.

Ex. 3. Match the English word combination with their Russian equivalents.

- | | |
|---|---|
| 1. Гвозди строительные | a. Method secret nailed connection |
| 2. Гвозди винтовые | b. Arsenie nails with flat head for pallets |
| 3. Гвозди ершковые с плоской головкой для европоддонов | c. Nail for bituminous coatings |
| 4. Гвозди шиферные | d. Tempered steel nail |
| 5. Гвозди финишные | e. A nail with a double hat |
| 6. Гвозди квадратные с г-образной головкой | f. Comb nail. |
| 7. Гребенчатый гвоздь для кирпича | g. Staples. |
| 8. Гвоздь с двойной шляпкой | h. Nails square with l-shaped head |
| 9. Гвоздь для битумных покрытий | i. Dukert-nail |
| 10. Закалённый стальной гвоздь | j. Nails slate with an enlarged flat head |
| 11. Гвоздь для гипсокартона | k. Pulling out nails |
| 12. Скобы. | l. Nail for drywall |
| 13. Анкеры | m. Finishing nails |
| 14. Гребенчатый гвоздь | n. A device for driving nails and tightening screws |
| 15. Дюкерт-гвоздь | o. Comb nail for brick |
| 16. Приспособление для забивки гвоздей и закручивания шурупов | p. Screw nails |
| 17. Способ потайного гвоздевого соединения | q. the construction Nails |
| 18. Выдергивание гвоздей | r. Anchors. |

Ex. 4. Translate this article from Russian into English

Современное строительство трудно представить без такого очень необходимого крепежного элемента, как гвозди. Несмотря на то, что время от времени появляются более новые и надежные крепежные материалы, актуальность и популярность гвоздей остается на высоком уровне и сегодня.

Это объясняется тем, что они отличаются простотой конструкции, невысокой стоимостью и легкостью использования в строительных работах. Кроме того, для забивания гвоздей не нужно искать специализированный инструмент, так как для этого достаточно молотка, который есть в каждом доме.

Промышленность выпускает сегодня большое количество различных гвоздей, как обычных для повседневного использования, так и специализированных для какого-нибудь специфического материала или для применения в определенной области работ. Они различаются между собой в первую очередь профилем стержня, размером, формой шляпки и

используемым материалом при их изготовлении. Чтобы правильно скреплять между собой несколько материалов, нужно знать как можно больше существующих видов гвоздей и особенности их применения.

Обычные гвозди делают из необработанной стали или из стальной проволоки. Гвозди маркируют двумя числами: первое указывает диаметр стержня, второе — длину в миллиметрах. Они имеют плоскую, гладкую или рифленую шляпку. Проволочные гвозди с потайной головкой применяют когда нужно спрятать шляпку. Забивают гвоздь с помощью зенкера (jackhammer), можно подготовить поверхность доски к дальнейшей шпатлевке.

Рифленые, винтовые гвозди и ерши для навески картин имеют стержень с продольными, поперечными, винтообразными бороздками. Они обладают большей сопротивляемостью при выдергивании.

Гвозди из обработанной стали можно забивать в стены из кирпича и даже легкого бетона. Но эти гвозди хрупкие, это необходимо учитывать при работе с ними.

Штукатурные, обойные гвозди применяют для крепления малопрочных материалов к жесткому основанию. Они имеют более короткий стержень и широкую плоскую шляпку.

Ex. 5. What do you know about nailing. How to use it?



Рис. 1. Приспособление для забивки гвоздей и закручивания шурупов

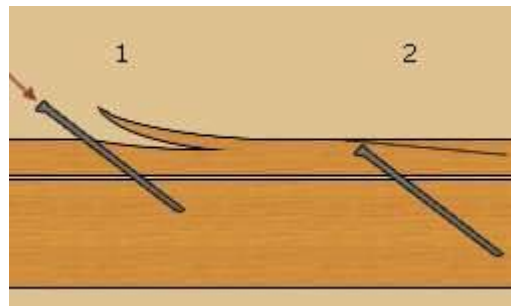


Рис. 2. Способ потайного гвоздевого соединения

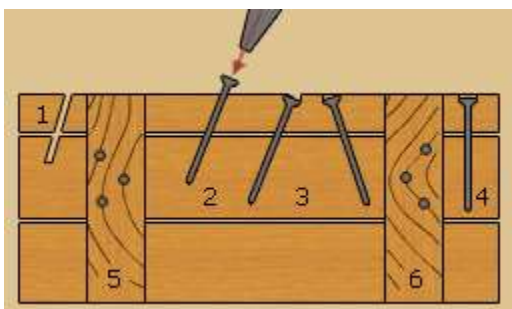


Рис. 3. Забивание гвоздей:
1. предварительное высверливание отверстий под гвозди
2. забивка гвоздя с помощью зенкера под углом к поверхности
3. зашпатлевывание лунки над

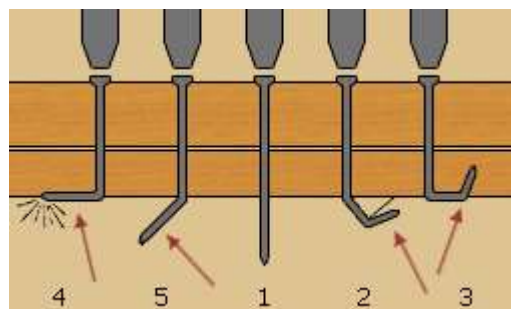


Рис. 4. Загибание гвоздей:
1. гвоздь, прошедший через пакет досок
2,3. правильный способ загибания гвоздей с помощью старого трехгранного напильника

шляпкой гвоздя
 4. гвоздь, забитый под прямым углом (обеспечивается менее прочный стык деталей)
 5. правильное расположение гвоздей при забивке - в каждое волокно забивается не более одного гвоздя
 6. неправильное расположение гвоздей - они могут расколоть доску

4,5. простейший способ загибания (При нем существует опасность пораниться об острие гвоздя и обеспечивается меньшая несущая способность соединения).

Ex. 6. Read and translate the article.

Professionals use in the construction of many varieties of nails, of different sizes and with different hats. For boards, logs, concrete, drywall, etc. need their nails: stainless steel, galvanized, copper, brass and even plastic nails. With wide and narrow cap or no hats.

The most common type of nails used by both professionals and fans. The nail is a long and straight rods with small bumps near the head, which improves the quality of the connection. The head is small compared to the length of the nail. There is hot-dip galvanized, zinc plated, acid-resistant and copper. The length of 12-250

Dukert-nail. Nails with very small cap, which are suitable for mounting plates, lining, casing windows and doors, baseboards in cases where it is desirable that the nail was less noticeable. A hat dukert there are recesses, which facilitate the rebound of the nail with a nail set (которые облегчают добивание гвоздя добойником), preventing it to slip. To the surface of the cap well stick putty.

Screw nail are designed for flexible or bendable because of moisture and loads of designs. These include exterior covering of buildings, structures of the floor.

Anchors. The nail is designed for connections using the mounting plates. The conical head provides a solid and non-playing connection. The working part has a notch, which increases the strength of fasteners. The length of the nail affect the required strength of the joint and material thickness.

Staples. Nails for mesh, wire and barbed wire.

Nail for drywall. Nail specially designed for fastening plasterboard, cardboard, hardboard with a big hat, which does not destroy the fragile material.

Tempered steel nail. These nails used for fastening wood to brick and concrete.

Nail for bituminous coatings. For wind slabs, bituminous materials, cardboard and similar materials. The large head holds in the place of porous material without breaking their surface. The notch on the working part provides good anchorage.

A nail with a double hat. For collapsible structures and film greenhouses and greenhouses. The bottom cap which holds in place the material. Subsequently, the nail is easy to pull out, without breaking the design.

Comb nail for brick. A long nail through its length draws the bricks to the wooden frame. Made of stainless (кислотоупорной) steel which provides good corrosion resistance.

Ex. 7. Заполните пробелы глаголом *do* в отрицательной форме:

1. Tom _ like chocolate ice cream. 2. You _ understand, do you? 3. Dr Watson _ smoke, does he? 4. We _ like classical music very much. 5. Sally said she _ want it anymore. 6. Mr Hill _ live in New York. He lives in Boston. 7. Rice _ grow in cold climates. 8. They like coffee, they _ like tea. 9. We are new here. We _ know him. 10. Harry has bad breath because he _ brush his teeth very often. 11. We are rich so we _ have to work. 12. Dave speaks English, French, and German, but he _ speak Italian. 13. They _ sell that brand anymore. 14. It is really a cheap restaurant, it _ cost much to eat there. 15. I have a television, but I _ watch it often. 16. That kind of earthquake _ happen often. 17. We live close to the sea, but we _ go there often.

Ex. 8. Заполните пробелы соответствующей формой глагола *do* или глагола *be*:

1. _ you speak Italian? 2. I _ waiting for a taxi. 3. No thank you. I _ smoke. 4. Where _ you come from? 5. John _ coming in a few minutes. 6. How much _ this cost? 7. _ Sarah eat meat? 8. _ Jack coming to the meeting? 9. I _ agree. 10. I _ like to drive in town. 11. How long _ I have to do this job? 12. He lives in London but he _ like it very much. 13. I _ not going. I'm too tired. 14. What _ you do for a living? 15. How _ you do? 16. What on earth _ he doing? 17. Hurry up. The train _ coming. 18. I _ understand. Could you say that again? 19. This exercise _ driving me crazy. 20. The teacher _ looking very happy.

Ex. 9. Поставьте общие вопросы к предложениям.

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

Ex. 10. На основе данных предложений постройте общие вопросы.

Модель:

She likes classical music.

Does she like classical music?

1. The weather is fine. 2. Her new dress is green. 3. He won't come because he's ill. 4. The church is 200 yards away. 5. She prefers red. 6. He comes every week. 7. The tall one is my boss. 8. She'll come at 5 p.m. 9. He'll wait for 10 minutes. 10. Ray took the thick book.

Практическая работа № 11. Screws

Ex. 1. Read and learn new words:

brass - бронза, латунь

drywall - стенка на сухой кладке (без раствора)

screwdriver - отвертка
 to drill - сверлить
 to insert - вставить, воткнуть
 lag screw - рельсовый шуруп
 wrought nail - кованный гвоздь
 drill steel - буровая сталь
 rod - стержень
 hemisphere - полусфера
 thread - резьба
 structural element that transmits torque - конструктивный элемент, осуществляющий передачу крутящего момента
 head slotted - головка со шлицем
 head knurled - головка с накаткой
 slot in end of screw (no head) - шлиц в торце винта (при отсутствии головки).
 прямой несквозной - direct non-through
 сквозной прорези - through-slot
 cross shape - крестообразной формы
 six-pointed slot - шестиконечный шлиц
 hexagonal head – шестигранная головка
 semicircular - полукруглой
 lenticular - линзообразной
 countersunk – потайной
 oval - полупотайной
 cylindrical - цилиндрический
 cylindrical-rounded - цилиндрический скругленный

Ex. 2. Use the English attributes a) and translate the Russian ones b).

a) sharp, common, bearing, flat, nailable, plain, main, sheet, anchor, fastening, gun

Model: оружейное масло — gun oil

b)закрепляющий	-	screw
листовая	-	copper
обычная	-	steel
гвоздимое	-	iron
главная	-	series
анкерная	-	plate
опорная	-	surface
острый	-	screw

Ex. 3. Read and translate the article.

Screws are cylindrical fastenings. They are driven through the side of a member by a screwdriver. Their heads may have different forms: flat, round, or raised. Screws are produced from iron, copper, brass, or gun-metal.

Screws are inserted into drilled holes and turned with a screwdriver. They are little used in light framing since they take much more time to install than nails. But

they are often used in furniture. They make stronger connections than nails. They can be reinserted if a component must be remounted. Very large screws for heavy structures are called lag screws. As to drywall screws they are weak and cannot be used for structural connections.

Ex. 4. *Pair work*. Put these questions to your groupmate.

1. What type of fasteners do wood fasteners include?
2. What type of steel serves for producing nails?
3. What devices are used for driving nails into wood members?
4. Why should some nails be of a corrosion-resistant type?
5. For what reasons are nails highly popular in construction work?
6. What form do screws have?

Ex. 5. MIND SIGNALS AND WARNINGS USED ON CONSTRUCTION SITES!

Fasten the load! - Укрепите груз! Nail up this box. — Заделайте этот ящик. This area should be used for storage. — Эту площадь следует использовать для складирования.

TABLE VII Types of Nails

roofing nail	кровельный гвоздь
concrete n.	гвоздь для бетона
flooring n.	г. для деревянных полов
raft n.	брусковый г.
flat-headed n.	г. с плоской шляпкой
conus-headed n.	г. с конусовой головкой
to nail	прибивать гвоздями

Ex. 6. Read and translate the article.

Что такое винт и шуруп?

Шуруп - это крепежное изделие, имеющее вид стержня с головкой (обычно в виде полусферы) и специальной наружной резьбой, которая образует внутреннюю резьбу в отверстии присоединяемого предмета. Шуруп - наиболее часто используемый в отделочных и строительных работах. Он незаменим при монтаже гипсокартона на металлический или деревянный каркас. Шурупы применяются при фасадных и кровельных работах, для соединения металлических листов. Шурупы имеют много разновидностей. Строение головок и шлицев в шурупах аналогично строению этих элементов в винтах.

Винт - это крепежное изделие, выполненное в виде стержня, оснащенного с одного конца наружной резьбой, а с другого - конструктивным элементом, осуществляющим передачу крутящего момента. Таким элементом может быть головка со шлицем, головка с накаткой, шлиц в торце винта (при отсутствии головки).

Обычно шлиц выполняется в форме прямой несквозной или сквозной прорези. Также довольно распространен шлиц крестообразной формы и

шестиконечный шлиц. Кроме того, винт может иметь шестигранную головку. Головка изделия по форме бывает полукруглой, линзообразной, потайной, полупотайной, цилиндрической или цилиндрической скругленной.

Ex. 7. Определите, правильно ли построен вопрос. Отметьте галочкой номер неправильных вопросов:

1. Who wrote the book "Of Mice and Men"? 2. When they get married? 3. How much it costs? 4. What size do you wear? 5. Who he sent a card to? 6. How long will it take you to get there? 7. Where he born? 8. Whose painting the art critic talking about? 9. Who are offering us help? 10. What caused the boy's death?

Ex. 8. Заполните пробелы соответствующей tag-формой:

1. You're Australian, _? 2. You aren't English, _? 3. Marlene smokes, _? 4. Sharks don't like chicken, _? 5. Moles can't see, _? 6. You'll be there, _? 7. David won't come, __? 8. Bob's got two cats, __? 9. You and I are going to the party, __? 10. Let's go out, __? 11. Shut up, __? 12. Maggie failed, __? 13. Clive missed his flight, __? 14. We've already seen that movie, __? 15. Annie wouldn't say no, __? 16. You're new here, __? 17. You don't remember me, _? 18. We've spoken about that, _? 19. The layout here has changed, __? 20. I don't need to say any more, __? 21. He won't object, _? 22. You're not accepting that job offer, _? 23. You don't think he could be right, _? 24. John's completely unaware how much damage he did the company, _? 25. You wouldn't work for Michael again, _?

Ex. 9. Complete the sentences (b). Add the words given below (a).

... mounting hardware ... drywall screws ... lag screws ... brass, copper, gun metal ... a screwdriver ... reinserted ...the drilled holes

1. Screws are produced from ...
2. Screws are inserted into ...
3. Screws are turned with ...
4. Screws are often used for...
5. Screws can be easily...
6. ... are used for heavy structural connections.
7. Brittle (хрупкие) and weak screws are called.

Ex. 10. Read and translate the article.

Винт-шуруп – как не путать с саморезом?

Винт-шуруп считается удобным и доступным помощником в крепежных работах. Удобство обусловлено отсутствием необходимости предварительно создавать отверстие для фиксации, потому что в большинстве случаев крепеж делает его самостоятельно.

У шурупа есть несколько "братьев", с которыми его часто отождествляют, но это не совсем грамотно, поэтому постараемся разобраться. Это винт и саморез. Начнем с винта. Он состоит из стержня и головки, а точнее, приспособления, через которое можно передать вращательное усилие на резьбу, а оно уже может быть выполнено в виде

головки. Самостоятельно винт проделать себе путь в материале не может, потому что конец резьбового стержня обрезан и не имеет заострения.

Практическое занятие № 12
Монологические и диалогические высказывания по теме
«Виды крепежа»

Ex. 1. Read these words:

Головка со шлицем -
головка с накаткой -
шлиц в торце винта (при отсутствии головки) -
прямой несквозной –
сквозной прорези -
крестообразной формы -
шестиконечный шлиц -
шестигранная головка -
полукруглой -
линзообразной -
потайной -
полупотайной -
цилиндрический -
цилиндрический скругленный -

Ex. 2. *Pair work*. Put these questions to your groupmate.

1. By what device are screws driven through the side of a member?
2. What metals are screws produced from?
3. For what reason are screws little used in light framing?
4. What is the name of very large screws used for heavy structures?
5. What do you know about drywall screws?
6. What is the difference between nails and screws?

Ex. 3. Read and translate the article.

Винт-шуруп – как не путать с саморезом?

Шуруп занимает промежуточное место по функциональности среди трех этих крепежей. Потому что выглядит примерно так же, как и винт. Однако отличие его в том, что кончик заострен, а значит, он способен сам себе создать резьбу при вкручивании. Шуруп способен пробурить себе "путь" только в мягких материалах, например, дереве или пластике. А вот для металла или прочного пластика понадобится саморез. Кончик стержня у самореза намного острее, поэтому даже в прочных материалах предварительное сверление не потребуется.

Grammar material. The Imperative Mood. Повелительное наклонение

Глагол в повелительном наклонении выражает побуждение к действию в виде приказа, предложения, совета, предостережения, просьбы и т.п. Такое побуждение может быть выражено двумя способами.

1. Просьба, приказание, совет и т.д. обычно бывают обращены ко **2-му лицу** единственного и множественного числа.

Утвердительная форма повелительного наклонения совпадает по форме с инфинитивом без частицы **to** (словарная форма):

to read читать	Read! Читай(те)!
to translate переводить	Translate! Переводи(те)!
to speak говорить	Speak! Говори(те)!

Подлежащие в таких предложениях отсутствует.

Tell me about it. *Расскажи(те)* мне об этом.

Отрицательная форма выражающая запрещение совершить действие, образуется при помощи вспомогательного глагола **do** и отрицательной частицы **not**. Вместо **do not** обычно употребляется сокращение **don't** [dɒnt]:

<i>Don't talk!</i>	Не разговаривай(те)!
<i>Don't open the door.</i>	Не открывай дверь.

Усиленная форма. Вспомогательный глагол **do** может употребляться и в утвердительной форме повелительного наклонения для эмоционального усиления просьбы:

<i>Do sit down.</i>	Да <i>садись</i> же.
<i>Do come to see us tonight.</i>	Неприменно <i>приходи</i> к нам вечером.

Вежливая форма. Если в конце или начале повелительного предложения стоит слово **please** *пожалуйста*, то приказание смягчается и превращается в вежливую просьбу:

<i>Come here, please!</i>	<i>Подойди(те)</i> сюда, пожалуйста!
<i>Close the door, please.</i>	<i>Закройте</i> дверь, пожалуйста.

Употребление you. Предложение адресовано 2-му лицу. Хотя местоимение **you**, указывает на это лицо, обычно в побудительном предложении не упоминается; его наличие придает побудительному предложению оттенок эмоционального раздражения:

<i>You stop talking!</i>	А ну-ка, <i>прекрати(те)</i> болтовню!
<i>You leave me alone!</i>	Да <i>оставьте</i> же вы меня в покое!

Если употребляются два глагола, то между ними ставится **and**:

<i>Go <u>and</u> buy some milk.</i>	<i>Иди купи</i> молока.
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Наречия **always** *всегда* и **never** *никогда* ставятся перед смысловым глаголом.

<i>Always remember your mistakes.</i>	<i>Всегда помни</i> свои ошибки.
<i>Never say that again!</i>	<i>Никогда</i> больше этого <i>не говори(те)</i> .

2. При обращении к **3-му лицу** и **1-му лицу** используется глагол **let**. Между **let** и инфинитивом глагола ставится существительное в общем падеже или личное местоимение в объектном падеже (him, her, them, и т.д.), указывающее на лицо, которое должно совершить действие.

<i>Let <u>him</u> do it himself.</i>	Пусть <i>он</i> сам это <i>сделает</i> .
<i>Let <u>her</u> stay here.</i>	Пусть <i>она</i> <i>останется</i> здесь.
<i>Let <u>them</u> speak.</i>	Пусть <i>они</i> <i>скажут</i> . Дайте им

Ex. 8. *Выразите просьбу:*

- 1) Ask Nick not to speak so loudly.
- 2) Ask your mother not to get up early tomorrow.
- 3) Tell Ann not to read at lunch.
- 4) Tell not to send him a telegram.
- 5) Tell Susie not to e so late.
- 6) Ask Janet not to waste money on sweets.

Ex. 9. *Переведите предложения на английский язык:*

- 1) Вели ей подать кофе.
- 2) Попроси ее перевести письмо.
- 3) Спроси полицейского, где почта.
- 4) Подумайте, прежде чем отвечать.
- 5) Не ешьте много на ночь.
- 6) Не откладывай на завтра то, что можно сделать сегодня.

Ex. 10. *Переведите предложения на английский язык:*

- 1) Давайте откроем окно в комнате.
- 2) Пусть он расскажет своим английским друзьям о России.
- 3) Разрешите мне помочь вам с переводом телеграммы.
- 4) Пусть они прочитают и обсудят эту книгу.
- 5) Пусть дети тоже проведут следующую субботу и воскресенье за городом.
- 6) Давайте возьмем такси (taxi), хорошо?
- 7) Пусть он встретит делегацию (delegation).
- 8) Давайте не пойдем на лекцию по немецкой литературе сегодня вечером.
- 9) Разрешите мне взять свои книги.

Тема 2.4 Трубы

Практическое занятие № 13. Трубы

Ex. 1. Read and learn new words:

density - плотность

to shed - проливать, лить, пропускать

pavement - мостовая

to shut down - закрывать

basin wrench - ключ для бассейна

chain pipe wrench - цепной трубный ключ

hacksaw - ножовка

monkey wrench - разводной гаечный ключ

pipe wrench - трубный ключ

plunger - вантуз

torch - фонарик

trap and drain auger - прочистка отстойника и канализационных труб

tube cutter - труборез

tube flaring tool - оборудование для развальцовки труб

Ex. 2. State parts of speech. Translate the given words.

dense, store, storage, pave, pavement, unstable, repair, cause, shed

Ex. 3. Read and translate the following questions.

1. Why was it necessary to repair the pipe storage area at the plant?

2. What caused cracks in the stone layer?

3. What substance were polypropylene fibres mixed with?

Ex. 4. Read and translate the article.

The plant where high-density polyethylene pipe is being manufactured needed repairs to its pipe storage area. The repairs became necessary because the stone layer did not shed water and it caused cracks. The cracking of the storage pavement area made it necessary to stabilize the site.

So it became necessary for engineers to look for a way that would be economical and would not require shutting down the operating area of the plant. After testing a number of alternatives, it was decided to use polypropylene fibres for the purpose. It was found out that when being mixed with soil the fibres produce the necessary stability. The way the engineers proposed turned out to be economical and quite successful.

Ex. 5. Read the text and state the main idea of it.

Water Distribution Pipes

A water pipe is any pipe or tube designed to transport drinking water to consumers. If the water is treated before distribution or at the point of use (POU) depends on the context. In well planned and designed water distribution networks, water is generally treated before distribution and sometimes also chlorinated, in order to prevent recontamination on the way to the end user. The varieties of water pipes include large diameter main pipes, which supply entire towns, smaller branch lines that supply a street or group of buildings, or small diameter pipes located within individual buildings. Water pipes can range in size from giant mains of up to 3.65 m in diameter to small 12.7 mm pipes used to feed individual outlets within a building. Materials commonly used to construct water pipes include polyvinyl chloride (PVC), cast iron, copper, steel and in older systems concrete or fired clay. Joining individual water pipe lengths to make up extended runs is possible with flange, nipple, compression or soldered joints .

Ex. 6. Read the text and state the main idea of it.

Types of Pipes

Pipes come in several types and sizes. They can be divided into three main categories: metallic pipes, cement pipes and plastic pipes. Metallic pipes include

steel pipes, galvanised iron pipes and cast iron pipes. Cement pipes include concrete cement pipes and asbestos cement pipes. Plastic pipes include plasticised polyvinyl chloride (PVC) pipes.

Steel Pipes

Steel pipes are comparatively expensive, but they are the strongest and most durable of all water supply pipes. They can withstand high water pressure, come in convenient (longer) lengths than most other pipes and thus incur lower installation/transportation costs. They can also be easily welded.

Galvanised Steel or Iron Pipes

Galvanised steel or iron is the traditional piping material in the plumbing industry for the conveyance of water and wastewater. Although still used throughout the world, its popularity is declining. The use of galvanised steel or iron as a conveyer for drinking water is problematic where water flow is slow or static for periods of time because it causes rust from internal corrosion. Galvanised steel or iron piping may also give an unpalatable taste and smell to the water conveyed under corrosive conditions.

Cast Iron Pipes

Cast iron pipes are quite stable and well suited for high water pressure. However, cast iron pipes are heavy, which makes them unsuitable for inaccessible places due to transportation problems. In addition, due to their weight they generally come in short lengths increasing costs for layout and jointing.

Concrete Cement and Asbestos Cement Pipes

Concrete cement pipes are expensive but non-corrosive by nature. Their advantage is that they are extremely strong and durable. However, being bulky and heavy, they are harder and more costly to handle, install and transport.

Ex. 7. Read the text and try to retell it.

Ex. 8. Complete the sentences from the text:

1. The cracking of the ... pavement area made it necessary
2. After testing a number of alternatives, ... polypropylene fibres for the purpose.
3. A water pipe is any pipe or tube designed to transport
4. Materials commonly used to construct water pipes include
5. Pipes come in several types and sizes. They can be divided into three main categories:

Grammar material. Значение слов it, that/those, one.

а) значение слова one

Слово **one** может быть:

1) числительное один

One of the most important task now is transportation of these goods.

Одной из самых важных задач сейчас является транспортировка этих товаров.

- 2) **заместителем** ранее упомянутого существительного. В этом случае **one не переводится** или «**восстанавливается**» **существительное, которое one заменяет.**

I don't like this method, let's use another one.

Мне не нравится этот метод, давайте используем другой (метод).

- 3) **формальным подлежащим**, если оно стоит перед глаголом в личной форме в начале предложения. В этом случае слово **one не переводится.**

One economizes by buying large amounts of goods.

Экономят, покупая большие количества товара.

Как формальное подлежащее слово **one** широко употребляется с модальными глаголами, где переводится или каждый, все или переводится следующим способом:

One must (has to, is to) – нужно, необходимо

One should (ought to) - нужно, следует

One can (may) можно

One should know the difference between these systems of marketing. Следует знать (Всем следует знать) разницу между этими системами сбыта.

- 4) словосочетание **one thing** переводится словом **одно.**

Ex. 9. Переведите предложения, обращая внимание на разные значения слова **one**

1. One can hardly (едва ли) find a sphere where power is not required. 2. One of the most useful applications (полезные применения) of Ohm's law is measuring (измерение) of resistance. 3. Scientists develop new processes and improve (улучшают) old ones to produce better kinds of steel.

б) значение слова it.

Местоимение **it** может иметь разные значения и выполнять различные функции в предложении. Оно может быть:

- 1) **личным местоимением** (подлежащее, дополнение). В этом случае на русский язык оно переводится **он, она, оно** (подлежащее) или поставить в **нужный падеж** (дополнение)

Repeat the experiment. It is very important.

Повторите опыт. Он очень важен.

Your solution is correct. Explain it, please.

Ваше решение правильно. Объясните его, пожалуйста.

- 2) **указательным местоимением** со значением **это**

It is the best auto fuel.

Это лучшее автомобильное топливо.

- 3) **формальным подлежащим** в безличных предложениях; на русский язык **не переводится.**

It is cold.

Холодно.

It is necessary to research this market.

Необходимо исследовать этот рынок.

It is said that he is an experienced

Говорят, что он опытный инженер.

engineer.

- 5) частью усилительной конструкции **it ... that (who, which)**, перевод которой начинается словом **именно**.

It is this method of analysis **that** yields best results. Именно этот метод дает наилучшие результаты.

Ex. 9. Переведите предложения, обращая внимание на разные значения функции слова **it**.

1. It is easy to discuss this question. It is very simple. 2. It is said that the lecture on physics was very interested today. The professor illustrated it with many experiments. 3. It is heat that causes (вызывает) chemical changes. 4. It is very interesting to watch this device (прибор) in action. It is quite a new device. It is used for measuring of high pressure. 5. It was Alexander Popov who invented the radio. Now it is a widely used means of mass media (средство массовой информации).

в) значение слов **that/those**

Слова **that/those** могут употребляться:

- 1) Как указательное местоимение в значении **тот, те**.

That method is more reliable than the old one. Тот метод надежнее, чем старый.

- 2) Как заместители ранее упомянутых существительных. В этом случае они часто употребляются с **предлогом of** и на русский язык переводятся теми **существительными**, которые **that/those** заменяют.

The goods sold in the market are of lower quality than those of our company. Товары, продаваемые на рынке, имеют более низкое качество, чем товары нашей компании.

- 3) **That** употребляется для присоединения придаточных предложений и переводится союзными словами **что и который**.

- 4) **That** употребляется в предложениях типа **It is necessary... that** и переводится союзом **чтобы**

It is necessary that all data be prepared in time. Необходимо, чтобы все данные были подготовлены вовремя.

Ex.10. Переведите предложения, обращая внимание на разные функции слов **that/those**.

1. The number of discoveries and inventions of the last 25 years equals those made through the history of civilization. 2. The speed of light molecules is greater than that of heavier ones. 3. If we take some water that was used in the first experiment and pour it into the flask with the experimental solid, we shall find that the water becomes quite white. 4. Atomic energy can serve people but one should never forget that that energy can also destroy the world.

Практическое занятие № 14.

Монологические и диалогические высказывания по теме «Трубы»

Ex. 1. Read and translate the article into English.

Трубы служат для транспортирования жидкостей, газов или пара и в отдельных случаях для передачи давления в качестве импульса. Часто трубы используют как элементы конструкций.

Трубы в зависимости от материала делятся на металлические (стальные, чугунные, медные, алюминиевые) и неметаллические (керамические, асбестоцементные, бетонные, железобетонные, пластмассовые, стеклопластиковые и другие).

Для всех сетей внутреннего водопровода *допускается* применять медные, бронзовые и латунные трубы и фасонные изделия, а также стальные трубы и элементы с внутренним и наружным защитным покрытием от коррозии.

Таковы нормы, а на практике строительные организации продолжают возводить здания, ориентируясь в основном на стальные трубы. Зачастую нарушается технология монтажа: вместо резьбовых соединений используют сварку, что ведет к нарушению защитного слоя и провоцирует коррозионные разрушения труб.

Ex. 2. Read and translate the article. Make up questions and answer them.

Металлические трубы были одним из первых видов труб, применяемых человеком, и сохраняют ведущие позиции и поныне. Трубы делали из тонких медных, свинцовых и стальных листов путем их сгибания, т.е. технология была близка к современной. Сталь и медь широко используются и в наше время.

Чаще других в строительстве применяют стальные трубы не только для транспортировки воды и газа, но и как элементы строительных конструкций. Одним из существенных недостатков стальных труб является их большая масса.

Стальные трубы могут быть обычными (чёрными), но более эффективны оцинкованные. Монтаж сетей из стальных труб осуществляется на резьбе и с помощью сварки. Сварка понижает коррозионную стойкость, в особенности оцинкованных труб. При подаче горячей воды трубы изнутри быстро обрастают продуктами коррозии и другими отложениями, что резко снижает их пропускную способность и способствует размножению микрофлоры.

Чугунные трубы за счёт толщины стенки обладают высокой долговечностью и надёжностью, но их масса существенно выше, чем у стальных. Соединяются чугунные трубы с помощью раструбов и уплотняющих прокладок. Трубы выпускаются в комплекте с фасонными деталями.

Медные трубы применялись уже несколько тысяч лет назад. Но широкое использование медных труб началось в 20-30 годы XX века, а пик популярности пришёлся на 70-е. к этому же времени относится появление в

строительстве полимерных труб. В результате конкурентной борьбы медными и полимерными трубами выявились их сильные и слабые стороны, что позволило каждому материалу занять свою нишу на строительном рынке

Особенности свойств медных труб:

- теплопроводность меди в 4 раза выше, чем у стали;
- медь устойчива к действию УФ-излучения;
- медные трубы абсолютно непроницаемы для газов;
- медь обладает бактерицидным действием;
- диапазон рабочих температур медных труб очень широк – от минус 200 до плюс 200°С;
- медные трубы не боятся замораживания в заполненном водой состоянии как стальные, благодаря пластичности меди;
- медь не подвержена коррозии в обычной пресной воде.

Медь подвергается повторной переработке. Подсчитано, что около 80% всей меди, когда-либо выплавленной на Земле, до сих пор находятся в эксплуатации.

Трубы из меди очень технологичны: их легко резать и гнуть. Соединяют их с помощью пайки.

Ex. 3. Read and translate the article. Make up questions and answer them.

Первые полимерные трубы появились в середине XX века. Сегодня промышленность предлагает уже широкий выбор полимерных труб. При правильном монтаже их долговечность в несколько раз выше, чем у стальных. Доказательством этого может служить успешная эксплуатация и по сей день трубопроводов из полимерных труб, смонтированных в 50-е годы. Высокая долговечность компенсирует повышенную стоимость.

Полимерные трубы заслужено завоевали популярность у строителей благодаря следующим положительным свойствам:

- они не подвержены коррозии;
- санитарно-гигиенические показатели полимерных труб выше, чем у стальных;
- полимерные трубы характеризуются небольшой массой;
- пропускная способность полимерных труб за счёт гладкости труб и отсутствия обрастания значительно выше, чем у стальных и чугунных при равном диаметре;
- полимерные трубы бесшумны при любой скорости потока.

Полимерные трубы поступают на стройку в виде бухт и легко нарезаются на требуемые размеры. Соединение труб осуществляется низкотемпературной сваркой, клейкой и при помощи специальных муфт. Масса полимерных труб в 5...10 раз ниже, чем у стальных при равном внутреннем диаметре.

К недостаткам полимерных труб относятся:

- зависимость их прочности (предельного рабочего давления) и долговечности от температуры;

- невысокие предельные рабочие температуры (как правило, не выше 95°C);
- высокий температурный коэффициент линейного расширения (ТКЛР) (примерно в 10 раз выше, чем у металлов);
- горючесть труб (к трудносгораемым относится только поливинилхлорид).

Для изготовления полимерных труб в настоящее время в основном используют сшитый полиэтилен (PE-X), полипропилен (PP), поливинилхлорид (PVC), хлорированный поливинилхлорид (CPVC) и полибутен (PB).

Ex. 4. Read and translate the article. Make up questions and answer them.

Наше время – время увлечения композиционными материалами, к числу которых относятся: металлополимер, стеклопластик, углепластик и т.п. *Металлополимерные трубы* представляют собой многослойную конструкцию, состоящую из тонкой алюминиевой трубы (толщина стенки 0,5...2,0 мм). Полиэтилен зафиксирован на алюминиевой подложке клеем.

Схема строения конструкции металлополимерной трубы приведена на Fig. 14



1,5 – слой полиэтилена PE-X; 2,4 - клеевой слой; 3 – металлическая (алюминиевая, стальная или латунная) трубка

Асбестоцементные трубы – один из перспективных труб самого широкого назначения, обладающих комплексом ценных свойств. В мире проложено более 2,5 млн. км АЦ-труб. Они не подвержены коррозии, в том числе легче металлических и не склонны к обрастанию. За счёт низкой теплопроводности (0,8 Вт/(м К)) у АЦ-труб меньше проблемы с промерзанием.

Соединяют асбестоцементные трубы при помощи муфт. Полимерные трубы проигрывают АЦ-трубам по теплостойкости, долговечности и экологической чистоте.

Ex.5. Try to compare types of tubes. Complete the table.

	Основные свойства
--	-------------------

Виды труб	материал	предпочтения строительных организаций	Санитарно- гигиенические	Способы соединения	долговечность
стальные					
пластмассовые					
бетонные					
чугунные					
медные					
керамические					
алюминиевые					
асбестоцементные					

Ex. 6. Вставьте *few, a few, little, a little*:

1. My sister likes ____ sugar in her tea, and I like a lot in mine. 2. There is ____ time before the classes. We can talk. 3. He has got ____ money. He can't buy this house. 4. Are there many vacant rooms in the hotel? — No, there are ____ . 5. There is ____ sun in this rainy country. 6. She says she wants to buy ____ milk and ____ oranges. 7. Do many people know about this new shop? — No, very ____ . 8. There is ____ coffee in my cup. Give me ____ more. 9. ____ of my friends live in Canada. 10. I've got ____ money to pay for this lemonade. Drink it.

Ex. 7. Заполните пробелы соответствующей формой глаголов *can, could, may* или *might*:

1. They (can/might) __ be away for the weekend but I'm not sure. 2. You (may/might) __ leave now if you wish. 3. (Could/May) __ you open the window a bit, please? 4. He (can/could) __ be French, judging by his accent. 5. (May/Can) __ you play the piano? 6. Listen, please. You (may not/might not) __ speak during this exam. 7. They (can't/may not) __ still be out! 8. You (couldn't/might not) __ smoke on the bus. 9. With luck, tomorrow (can/could) __ a sunny day. 10. You (can/might) __ be right but I'm going back to check anyway.

Ex. 8. Заполните пробелы глаголами *do, be* или *have* в соответствующей форме:

1. Last year Mrs Jones __ over eighty. 2. She __ driving her old car when I saw her. 3. She __ never been punished for a driving offence. 4. She __ lose her record. 5. She __ followed by a police car. 6. The policemen __ see her. 7. The judge __ looking at her severely. 8. __ she too old to drive a car? 9. She __ stop at the red light because she did not see it. 10. Her eyes __ become weak with old age. 11. After the judge __ finished what he __ saying,

the police took her to prison. 12. She __ carrying a big handbag with her sewing. 13. __ she find it difficult to thread a needle with a very small eye? 14. The needle __ threaded at first attempt. 15. When she __done this, she handed the needle to the judge.

Ex. 9. Заполните пробелы возвратными местоимениями:

1. He built a boat all by __. 2. I hurt __quite badly falling down the stairs. 3. The children did everything __ without any help. 4. Maria and Alison, you really should look after __ better. 5. Forget it! I'll do it __. 6. I burnt __ on the oven yesterday. 7. She blames __ for what happened. 8. Bob taught __ to type last summer. 9. I talk to __all the time. It doesn't mean I'm crazy. 10. We all enjoyed __ very much on the picnic. 11. I was so stupid I could have kicked __. 12. The protesters locked __ into the church and refused to come out.

Ex. 10. Write down three forms of the following irregular verbs:

to be, to become, to break, to build, to buy, to choose, to cut, to get, to make.

Тема 3. 1. Монтаж коммуникационных систем в здании

Практическое занятие № 15.

Подведение коммуникационных систем.

Ex. 1. Read these international words and try to guess their meaning:

Construction, fixture, function, ventilation, interval, cellulose, plastics, mineral, form, climate, central, system, radiator, conditioner, professional, decorator.

Ex. 2. Read the following words and memorize them:

a plumber	сантехник (водопроводчик)
a pipe	труба
a fixture	приспособление, зажим
a sink	сточная труба,
a trap	затвор-ревизия (санитарных приборов)
sewage	сточные воды, нечистоты
a washbasin	умывальник, раковина
a drain	водосток, спускное отверстие
a tip	штекер
to leak	просачиваться, течь
a cast-iron	чугун
to dissolve	растворять, разжижать
a sludge	отстой, осадок сточной жидкости
an insulation	изолирующий материал
a perlite	перлит (вулканическое стекло)

a fiberglass	стекловолокно
flaky	пластинчатый, чешуйчатый,
vermiculite	вермикулит
a crumb	крошка
loose	сыпучий, рыхлый
a fan	вентилятор
to hire	нанимать
to preserve	сохранять, оберегать

Ex. 3. Make up your own sentence with the words given above. Use as many words as you can in this sentence.

Ex. 4. Read out these phrases several times till you remember their meaning:

to carry away waste – избавляться от отходов;

to keep out – выводить, выбрасывать;

a disposal pipe – очистная труба;

the city sewerage system – городская канализационная система;

a septic tank – отстойник;

a dead-air space – застойная зона;

to save fuel costs – экономить тепловые затраты;

a rock wool – шлаковата;

in radiant heating – при радиантной подаче тепла

Ex. 5. Match the English words with their Russian equivalents:

- | | |
|-----------------|-----------------------------|
| 1. to hire | a. растворять |
| 2. a drain | b. крошка |
| 3. sewage | c. нанимать |
| 4. a fixture | d. остаток сточной жидкости |
| 5. to dissolve | e. сточные воды |
| 6. a fiberglass | f. сантехник |
| 7. flaky | g. водосток |
| 8. a crumb | h. зажим |
| 9. a tip | i. стекловолокно |
| 10. to leak | j. сыпучий |
| 11. loose | k. вентилятор |
| 12. a sink | l. штекер |
| 13. a fan | m. чешуйчатый |
| 14. a sludge | n. сточная труба |
| 15. a plumber | o. просачиваться |

Ex. 6. Read the text and get ready to speak about the last steps in finishing a house:

THE LAST STEPS IN FINISHING A HOUSE

Plumbing. During construction, plumbers install the pipes that will supply gas and water, and carry away waste. They install bathroom fixtures and sinks just before other workers add the finishing touches to the house.

Plumbers also install traps to keep out sewages. The trap used for bathroom washbasins, for example a P-shaped pipe, locates directly below the drain.

Water settles in the lower part of the pipe and prevents sewages from backing tip and leaking into the room. To function properly, traps must have outside ventilation of the air.

A cast-iron waste disposal pipe runs from inside the house to about 5 feet (1,5 meters) outside, where it connects with a pipe of another material, usually clay. This pipe connects home-disposal pipe with the sewerage system of the city. In areas without a city sewerage system, a septic tank near the house holds sewage until it dissolves. Water from the sewage flows through pipes into the ground. The sludge, remaining in the tank, must be removed at intervals.

Insulation reduces the amount of heat or cold that passes through walls, floors, and ceilings of a house. When the air around the house is warmer or colder than the air inside, heat passes from the warm air to the cold air. This means that in winter the heat will pass to the outside, and the house will become cold. In summer the heat outside passes into the house.

Insulation fills the air spaces in walls, floors and ceilings and creates dead-air space. This helps to prevent heat from passing through. Insulation can save fuel costs in heating a house.

Insulation is made from many materials, including cellulose, rock wool, a glassy lava called perlite, gypsum, certain plastics, fiberglass, and a flaky mineral called vermiculite. Insulation comes as blankets, boards, paper and sheathing. It is also available in a loose, crumb like form. The type of insulation used depends on the climate and on whether it insulates floors, ceilings or walls.

Heating and air conditioning. Most houses have central heating systems. One furnace or heating unit, supplies heat for the entire house. Such houses are heated by warm air, steam, or hot water. In hot-air heating a fan, connected to the furnace, blows warm air through pipes into the rooms.

In steam or hot-water heating the steam or hot water passes through radiators that stand throughout the house. In radiant heating, hot-water pipes run under the floors or in the ceilings or walls. Air-conditioning units may be used to cool and heat houses. An air conditioner takes warm air from the house, cools it, removes moisture, and recirculates cool air. It also may warm cold air, add moisture and recirculate warm air.

Ex. 7. Answer the following questions:

1. What do plumbers do during construction?
2. What is necessary to install to keep out sewages?
3. What is the trap used for?
4. When do the traps function properly?
5. Where does a cast-iron waste disposal pipe run from?
6. What is necessary to install in areas without a city sewerage system to hold sewage until it dissolves?
7. Where does water from the sewage flow?
8. What is the function of insulation?
9. When does heat pass from the warm air to the cold air?
10. What creates dead-air space?
11. What saves fuel costs in heating a house?
12. What is insulation made from?
13. What does the type of insulation used depend on?
14. Do most houses have central heating systems?
15. What supplies heat for the entire

house? 16. What passes through radiators that stand throughout the house? 17. When may air-conditioning units be used? 18. Who paints the rooms and finishes the floors? 19. Why does the owner hire a professional interior decorator to do some jobs? 20. What is the last step in building a house? 21. Why is it important to keep the natural outline of the land?

Ex. 8. Agree or disagree with the following statements:

1. During construction, plumbers install the pipes that will supply heat and ventilation. 2. These pipes carry away cold water. 3. Plumbers also install special cranes to keep out sewages. 4. The trap used for bathroom washbasins is a V-shaped pipe which locates directly above the drain. 5. To function properly, traps must have inside ventilation of the air. 6. A cast-iron waste disposal pipe connects with another pipe made of metal. 7. This pipe connects home-disposal pipe with the sewerage system of the city. 8. In areas without a city sewerage system, a sink near the house holds sewage until it comes into ground. 9. Insulation increases the amount of heat or cold that passes through walls, floors, and ceilings of a house. 10. In winter the cold outside passes into the house. 11. Insulation fills the air spaces in walls, floors, and ceilings and creates dead-air space. 12. Insulation is made from many materials, including cotton, wool, wadding etc. 13. The type of insulation used depends on size of a house. 14. Only some houses have central heating systems. 15. One furnace or heating unit, supplies heat for all houses in a certain region. 16. Such houses are heated by hot air or warm water. 17. In radiant heating, cold-water pipes run between the walls.

Ex. 9. Complete the sentences according to the text:

1. During construction, plumbers install the pipes which carry 2. ... is a P-shaped pipe directly below the drain. 3. To function properly, ... 4. A cast-iron waste disposal pipe ... to about 5 feet (1,5 meters) outside. 5. In areas without a city sewerage system, a septic tank 6. When the air around the house is ... , heat passes from the warm air to the cold air. 7. This means that ... , and the house will become cold. 8. Insulation is made from many materials, including ... , fiberglass. 9. The type of insulation used depends on 10. In hot-air heating a fan, connected to the furnace, 11. ... through radiators that stand throughout the house. 12. An air conditioner ... , cools it, removes moisture and 13. The owner generally 14. Most builders try to keep the natural outline of the land and

Ex. 10. Choose a word to put into each gap:

The drain, a loose, dissolves, insulation, waste disposal pipe, fixtures and sinks, sewerage, sheathing, traps, the sludge, an air conditioner, dead-air space, moisture, perlite, hires, radiant heating, washbasins, a septic tank, interior decorator, fuel costs, a flaky mineral, landscaping, furnace.

1. Plumbers install bathroom ... just before other workers add the finishing touches to the house. 2. Plumbers also install ... to keep out sewages. 3. The trap used for

bathroom ... , for example a P-shaped pipe, locates directly below 4. A cast-iron ... connects with a pipe of another material, usually clay. 5. In areas without a city ... system, ... near the house holds sewage until it 6. ... remaining in the tank must be removed at intervals. 7. ... fills the air spaces in walls, floors, and ceilings and creates 8. Insulation can save ... in heating a house. 9. A glassy lava is called 10. ... is called vermiculite. 11. Insulation comes as blankets, boards, paper and 12. Insulation is also available in ..., crumb like form. 13. One ... or heating unit, supplies heat for the entire house. 14. In ... , hot-water pipes run under the floors or in the ceilings or walls. 15. ... takes warm air from the house, cools it, removes ... , and recirculates cool air. 16. Sometimes the owner ... a professional ... to do this job. 17. ... is the last step in building a house.

Практическое занятие № 16.

Монологические и диалогические высказывания по теме «Монтаж коммуникационных систем»

Ex. 1. Combine the words with the help of the preposition of. Translate these word combinations:

- | | |
|---------------------------------|---------------------|
| 1. the lower part | a. the land |
| 2. a pipe | b. trees |
| 3. the amount | c. insulation |
| 4. the type | d. the contract |
| 5. part | e. another material |
| 6. the natural outline | f. the city |
| 7. different sorts | g. heat or cold |
| 8. outside ventilation | h. a house |
| 9. the sewerage system | i. the air |
| 10. walls, floors, and ceilings | j. the pipe |

Ex. 2. Give the three forms of the following verbs:

To use, to make, to call, to heat, to remove, to shape, to connect.

Ex. 3. These words can be used both as verbs and nouns. Make up your own sentences to show the difference in their usage:

Waste, sink, leak, crumb, fan, function, form, paint, step, heat.

Ex. 4. Find out from your partner:

- if he thinks a plumber's work to be very important;
- what he knows about heating and air conditioning.

Ex. 5. Prove that:

- insulation can save fuel costs in heating a house;
- it is necessary to keep the natural outline of the land near a new house.

Ex. 6. Comment on:

- the materials which are used for insulation;
- interior decoration of a house.

Ex. 7. Role-play a dialogue with your partner. Imagine that:

- You want to hire a professional interior decorator to do all works in your new flat. You ask your neighbour to help you because all works in his flat have been finished already. Role-play a dialogue with your partner.
- There is something wrong with plumbing system in your new flat. Water leaks on the floor from time to time. You invited a plumber to clear up the situation..

Ex. 8. Group work:

Express your opinion on the contents of the German proverb given above. Discuss all your pros and cons with your group-mates.

Ex. 9. Read the article without dictionary.

COMMUNICATION SYSTEMS

Circuits that convey information or control other circuits are classified as communication systems. They are usually low voltage (commonly 12 to 24 V), in contrast to power systems, which start at 120 V. Communication systems include all types of signal systems - telephone, telegraph, and alarm. They also include remote control for power systems.

Alarm Systems. These systems cover security, fire detection and fire alarm. Fire-protective signaling systems are divided into non-power-limited and power-limited. Of these two, power-limited circuits are limited to currents less than 5 A. As to non-power-limited circuits, they may carry up to 600 V.

Telephone Systems. The utility company pulls all the wire for telephone service in a building, provides the equipment, and makes all final connections. In new constructions the required empty conduits with a pull wire inside must be provided.

Television Systems. Large apartment buildings usually generally provide a master antenna and amplifier systems. For buildings which are up to 20 stories high, the amplifiers may be located at the roof. In very tall buildings, taller than 20 stories, the amplifying equipment may be located at midheight. It may serve both upfeed and downfeed risers.

Ex. 10. Write down three forms of the following irregular verbs:

to be, to become, to break, to build, to buy, to choose, to cut, to get, to make.

Comprehensive check тема 3.1.

Choose the best alternative according to the text:

1. Plumbers install the pipes that will supply ...
 - a) heat and water, and carry away bad smell;
 - b) gas and water, and carry away waste;
 - c) gas and heat, and carry out cold air.

2. The trap used for bathroom washbasins, locates
 - a) directly above the sink;
 - b) directly below the drain;
 - c) directly below the sewage system.
3. ... and prevents sewages from backing tip and leaking into the room.
 - a) Water settles in the higher part of the pipe;
 - b) Water settles in the middle part of the pipe;
 - c) Water settles in the lower part of the pipe.
4. A cast-iron waste disposal pipe runs from
 - a) inside of the house to about 5 feet outside;
 - b) the lower ground of the house to about 5 feet to the roof;
 - c) the basement of the house to about 5 feet outside.
5. From outside a cast-iron waste disposal pipe connects with
 - a) a pipe of another material, usually clay;
 - b) another pipe made from concrete;
 - c) a pipe of strong material, usually steel.
6. ... , a septic tank near the house holds sewage until it dissolves.
 - a) In areas which are rather far from a city sewerage system;
 - b) In village areas which have no sewerage system near their houses;
 - c) In areas without a city sewerage system.
7. Water from the sewage flows
 - a) through pipes into a special septic tank;
 - b) directly into the ground;
 - c) through pipes into the ground.
8. When the air around the house is warmer or colder, than the air inside,
 - a) heat passes from the cold air to the warm air;
 - b) heat passes from the warm air to the cold air;
 - c) water passes from one pipe to the other.
9. This means that ... , and the house will become cold.
 - a) in summer the heat will pass to the outside;
 - b) in autumn the heat will pass to the outside;
 - c) in winter the heat will pass to the outside.
10. Insulation fills ... and creates dead-air space.
 - a) the air spaces in walls, floors and ceilings;
 - b) all spear places in walls, floors and ceilings;
 - c) the air spaces in floors and ceilings.
11. Insulation is made from many materials, including
 - a) cellulose, rock wool, a glassy lava called perlite;
 - b) cellulose, cotton, wool, a glassy lava called perlite;
 - c) cellulose, rock wool, a glassy lava called vermiculite.
12. The type of insulation used depends on
 - a) the weather and the building materials;
 - b) the climate and on whether it insulates floors, ceilings or walls;
 - c) the climate and on whether it insulates doors, windows or walls.
13. One furnace or heating unit,

- a) uses for heating a house;
 - b) supplies heat for only one room;
 - c) supplies heat for the entire house.
14. In hot-air heating a fan, connected to the furnace,
- a) blows cold air through pipes into the kitchen;
 - b) blows warm air through pipes into the rooms;
 - c) blows hot air through pipes into the bathroom.
15. An air conditioner ... , and recirculates cool air.
- a) takes warm air from the house, cools it, removes moisture;
 - b) takes hot air from the lower floor, cools it, removes moisture;
 - c) takes warm air from radiators, cools it, removes moisture.
16. An air conditioner may
- a) cold hot air, add moisture and recirculate cold air;
 - b) moisture warm air, add cold air and recirculate warm and cold air;
 - c) warm cold air, add moisture and recirculate warm air.
17. In a new house, builders usually
- a) paint the rooms and finish the floors;
 - b) paper the rooms and paint the floors;
 - c) buy everything necessary to finish flats.
18. Sometimes the owner hires a professional interior decorator
- a) to help him to buy necessary tools for making a repair of a flat;
 - b) to select, to buy and to arrange the furnishings;
 - c) to select and to buy new wall papers for his flat.
19. ... and to preserve different sorts of trees which grow in this place.
- a) Professional decorators advise to keep the natural outline of the land;
 - b) Most builders try to keep the natural outline of the land;
 - c) Most builders try to clean the territory round the new house.

Тема 3. 2. Газ – природное и национальное богатство

Практическое занятие № 17. Из истории газоснабжения

Ex. 1. Read this article without dictionary

From the History of Gas Supply

People first discovered gas more than 2 thousand years ago. The gas, leaking out of the ground, often caught fire during lightings in different parts of the world. A human could not find any explanation why the earth and air were blazing with fire and attributed this phenomenon to the divine intervention.

Fire procured light and warmth and protected humans from wild animals. This was how the cult of fire was born. The cult of fire evolved in India, China, Persia, Caucasus and other parts of the world.

Natural Gas

Natural gas was obtained as a byproduct of oil. Unwanted natural gas was a disposal problem in the oil fields. Such unwanted gas was burned off in the oil fields.

Natural gas is mixture consisting primarily of methane and some other gases. Natural gas is created by two mechanisms: biogenic and thermogenic. Biogenic gas is created by methanogen organisms in marshes very deep in the earth at great temperature and pressure. Thermogenic gas is created from buried organic material.

Before natural gas can be used as a fuel, it must undergo processing to remove almost all materials other than methane.

Ex. 2. Make up questions and answer them.

Ex.3. Read the text and try to retell it.

Ex. 4. Read this article without dictionary.

Early Development of Gasification

Gasification was discovered independently in both France and England in 1798, and by 1850 the technology had been developed to the point that it was possible to light much of London with manufactured gas or "town gas" from coal (Singer 1958; Kaupp 1984a). Manufactured gas soon crossed the Atlantic to the United States and, by 1920, most American towns and cities supplied gas to the residents for cooking and lighting through the local "gasworks."

In 1930, the first natural gas pipeline was built to transport natural gas to Denver from the oil fields of Texas. As pipelines crisscrossed the country, very low cost natural gas displaced manufactured gas, and the once-widespread industry soon was forgotten. "Town gas" continued to be used in England until the 1970s, but the plants were dismantled following the discovery of North Sea oil. Today, a few plants are still operating in the third world.

Ex. 5. Make up a dialogue

Ex. 6. Complete the sentences according to the texts:

1. People first discovered gas more than 2. A human could not find any explanation ... and attributed this phenomenon to the divine intervention. 3. ... in India, China, Persia, Caucasus and other parts of the world. 4. Natural gas was obtained5. Natural gas is a natural gas mixture 6. Before natural gas can be used as7. Manufactured gas soon crossed the ... , by 1920, most American towns and cities supplied gas to the residents for ... the local "gasworks." 8. In 1930, the first natural gas pipeline ... to Denver from the oil fields of Texas. 9. As pipelines crisscrossed the country, ... , and the once-widespread industry soon was forgotten.10. "Town gas" continued to be used in England until the 1970s, but the plants ... the discovery of North Sea oil. Today, a few plants are still operating

Ex. 7. Вставьте подходящие по смыслу личные местоимения.

1. Ben is a little boy. ... is six. 2. Jane is a house-wife (домохозяйка). ... is lazy (ленивая). 3. Max is a soldier. ... is brave. 4. Lily is a young woman. ... is very beautiful. 5. Alice is late. ... is in a traffic jam (в дорожной пробке). 6. Nick and Ann are far from Moscow. ... are on a farm. 7. This is Ben's room. ... is nice. 8. These are new books. ... are interesting. 9. This is Elsa. ... is a student. 10. Nick and Max are students. ... are students of a Moscow university. 11. The rooms are small but ... are light and warm. 12. The new flat is comfortable but ... is far from the university. 13. Jack has many French books. ... likes to read French very much. 14. Hans is a new student. ... is German. 15. Alice and Jane are new secretaries. ... are not lazy.

Ex. 8. Выберите подходящее притяжательное местоимение.

1. Mark is (their, theirs) cousin. 2. This is our car. It is (our, ours). 3. These are Mary's books. They are (her, hers). 4. White is (my, mine) favourite colour. 5. You can't have this book. It is not (your, yours). 6. (Her, Hers) house is big. 7. Is this (your, yours) coat? - No, it is not (my, mine). 8. Are these your friends' books? - Yes, they are (their, theirs). 9. That is (our, ours) house. It is (our, ours).

Ex. 9. Вставьте подходящие по смыслу личные местоимения в объектном падеже.

1. Where is Nick? I want to play tennis with 2. Bess is here. Do you want to speak to ... ? 3. My sister speaks French. She learns ... at school. 4. Look at that man. Do you know ... ? 5. Do you want to read this newspaper? I can give ... to 6. If you see Ben and Bess, please, don't tell ... anything. 7. We want to phone Helen and invite ... to the party.

Ex.10. Translate into English.

1. У меня есть его номер телефона и его адрес. 2. Ник часто берет мою ручку, потому что он часто оставляет свою ручку дома. 3. У ее сына только хорошие оценки по его любимым предметам. 4. Анна любит свою кошку, а Макс любит свою собаку. 5. Положи свои тетради в мою сумку. 6. Эта книга твоя или моя? 7. Чей это словарь? Он ее или его?

Практическое занятие № 18. Газификация.

Ex. 1. Read and translate the article

Gasification

The gasification process was originally developed at the beginning of the 19th century to produce town gas for lighting and cooking. Town gas is a synthetically mixture of methane and other gases.

In much of the developed world gas is supplied to homes via pipes where it is used for many purposes. Home or other building heating may include boilers, furnaces, and water heaters.

Our main gas company, Gazprom, deals with development of gas supplies and gasification of all regions of Russia. It is one of the most extensive and socially significant activities of the company in the domestic market. The company finances the construction of gas pipelines delivering gas to population centres.

Gas Pipeline

Not so long ago gas pipeline to South Ossetia directly from Russia was pulled into operation. Previously gas came via Georgia.

The new pipeline delivered natural gas to industrial, agricultural objects and ordinary consumers in various regions of the republic. It created conditions for industry development, positively influenced the region's ecology and allowed to supply with gas a number of remote localities of the republic

Ex. 2. Make up questions and answer them.

Ex. 3. Read the text and try to retell it.

Ex. 4. Complete the sentences according to the texts:

The gasification process ... at the beginning of the 19th century to produce ... and cooking. In much of the developed world ... where it is used for many purposes. Home or other building heating may include Our main gas company, ... , deals with development of gas supplies and gasification of all It is one of the most ... significant activities of the company in the domestic market. The company finances the construction ... delivering gas to population centres. The new pipeline delivered natural gas to ... in various regions of the republic. It created conditions ... , positively influenced the region's ecology and allowed to supply with gas

Ex. 5. Read this article without dictionary.

Another indispensable part of modern amenities is gas supply. At the present time natural gas is put to large-scale economic use. The principal utilization of natural gas is as clean, convenient, economical source of heat. In homes it is used for cooking, water heating, and refrigeration for food as well (а также) for space heating. Nowadays most of the homes are heated by natural gas and the number of gas-supplied homes was increasing at a rate limited chiefly by the ability of steel industry to produce the pipe through which the gas is transported. Natural gas supply is used also as a heat source in commercial establishments such as restaurants and bakeries for cooking and in stores, offices and other commercial buildings for heating and comfort cooling.

Ex. 6. Вставьте артикль, где необходимо.

1. We have ... large ... family. 2. My granny often tells us ... long ... interesting .. stories. 3. My ... father is ... engineer. He works at ... factory. ... factory is large. 4. My ... mother is ... doctor. She works at ... large ... hospital. She is at ... work now. 5. My ... aunt is ... teacher. She works at ... school. ... school is good. My ... aunt is not at ... school now. She is at ... home. She is drinking ... tea and eating ... jam. ... jam is sweet. I am at ... home, too. I am drinking ... tea and eating ... sandwich. ... sandwich is tasty. 6. My sister is at ... school. She is ... pupil. 7. My cousin has ... big ... black ... cat. My cousin's ... cat has two ... kittens. ... milk, too.

Ex. 7. Переведите следующие предложения на русский язык.

1. There is a new cafe in our street. The cafe is near our house. 2. There is a park near their school. The park is beautiful. 3. There will be only English books on this shelf. They will be by different authors. 4. There will be a lot of cars at the exhibition. The cars will be modern. 5. There were a lot of flowers in their garden. The flowers were beautiful. 6. There are three months in spring. The spring months are March, April and May. 7. There are ten foreign students in our group. The students are from India.

Ex. 8. Переведите предложения на английский язык.

1. Нил – самая длинная река в мире. 2. Москва – один из старейших городов нашей страны. 3. Байкал – самое глубокое озеро в мире. 4. Февраль - самый короткий месяц в году. 5. Эверест - самая высокая гора в мире. 6. Рыбинское водохранилище - одно из самых больших искусственных морей в мире. 7. Моя комната не такая большая, как комната моего друга, но она светлее и теплее. 8. "Башня Дубай" - самое высокое здание в мире. Его высота – 818 метров. 9. Зимой у нас больше экзаменов, чем в конце учебного года. 10. Шанхай - город с самым большим населением в мире. 11. Самый большой город в мире – Лос-Анджелес.

Ex. 9. Write down all types of questions.

1. Town gas is a synthetically mixture of methane and other gases.
2. The company finances the construction of gas pipelines delivering gas to population centres.
3. Previously gas came via Georgia.

Ex. 10. Make up a dialogue

Тема 3.3 Водоснабжение

Практическое занятие № 19. Из истории водоснабжения.

Ex. 1. Read the following words and memorize them

water supply - водоснабжение, запас воды,

existence - существование

development - развитие

to devise - разрабатывать

plumbing - водопровод и канализация

pump - насос

available - имеющийся в наличии, доступный

surround- окружать

soil- почва

dessert- пустыня

marsh- болото

deep- глубокий

drilled well - пробуренная скважина (колодец)

preliminary treatment- предварительная обработка

elaborate - тщательно разработанный

earliest settlers- первые поселенцы

realize - понимать

take advantage – эксплуатировать.

Ex. 2. Read and translate the text

Water is power not only in the hydraulic sense, but in relation to progress and culture; campaigns as well as fortresses have been lost, projects rendered impracticable and communities have decayed for want of water.

Nature has provided prototypes for most of man's devices and, just as the streams and rivers anticipated water distribution systems, so tanks, cisterns and reservoirs have their natural counterparts in water-holes and natural pools. Long after man had found ways and means to organize water supplies, find them where

they were hidden and lead them to where he wanted them, streams and pools in their natural state have served as communal water supplies, even in more or less civilized Europe.

Many of the so-called “wells” of medieval Britain, for example, were untouched pools or gushing springs. The same applies of course to a great many “wells of the East” and in old writings the term “well” may not mean a dug well at all but a surface pool adopted as a communal or regular water supply.

The history of conduits or public fountains as communal water supplies starts at least as far back as the 13th century. In the “conduit age” – the centuries immediately following the Middle Ages a water carrier was a common sight.

The 17th century marks the beginning of the new order in communal organization and in relation to water supply, the beginning of large-scale schemes.

All through London’s history until modern times, the question of water supply continued to be a problem. In the 18th century even with the appearance of larger water companies the water supply was far from being satisfactory. It was a usual practice at the time to lay on water for two hours every second day.

At York, before the formation of the present water company in 1846 one half of the city was supplied for 2 hours on Mondays, Wednesdays and Fridays and the other half on Tuesdays, Thursdays and Saturdays, no supply being given on Sundays.

Water drawn from the river Thames was in a state that was offensive to the sight as the intake was found to be only three yards from the outlet of a great sewer. As a matter of fact it took 2 outbreaks of cholera to pass a Bill for an improved water supply in the middle of the 19th century.

In spite of the progress made in the field of water supply in many countries, there is much to be done yet. In Asia, Africa, Central and South America outside the great cities, methods are primitive as ever they were; village ponds are still used in Africa and Asia for drinking, washing and bathing and as watering places for cattle, in Madagascar in recent years people have had to carry their water bottles several miles and, as some of them can only do the journey twice a week, they have trained themselves to do with the minimum of water, drinking only on alternate days and never washing during a drought.

In Japan, running water is still a luxury, even in the great cities: the average household has to carry water from a central source, while the villages rely on springs and streams. The speedy industrialization of our country has also made the problem of water very acute.

Ex. 3. Подберите соответствующий перевод из правого столбца к данным английским словам:

- | | |
|--------------------------|--------------------------------|
| 1. natural water sources | 1. обработка воды |
| 2. body of water | 2. загрязнение |
| 3. inland lake | 3. при помощи, посредством |
| 4. water supply | 4. материковые озера |
| 5. water treatment | 5. естественные источники воды |
| 6. purity | 6. водный массив |

7. contamination	7. водоснабжение
8. sewage disposal system	8. влага
9. pollution	9. потребление
10. through the medium	10. беспримесность
11. consumption	11. загрязнение (заражение)
12. moisture	12. система удаления сточных вод
13. stratum	13. слой, пласт

Ex. 4. Вспомните, какие русские слова имеют те же корни, что и следующие английские слова:

cycle, atmosphere, vary, proportion, phenomenon, reservoir, depression, classify, gravel, sanitary, domestic, standard, modern, location, protection, mineral, resources, flora, community.

Ex. 5. Translate the sentences into Russian paying attention to Modal verbs and their equivalents:

1. Water may require treatment for a number of reasons.
2. Water must be free from odors.
3. Water should be suitable for cooking.
4. Water may contain disease bacteria.
5. Hydrogen sulphide must be removed.
6. This plant can effectively purify water.
7. Water may contain minerals.
8. Our engineer could help you yesterday.
9. He had to change his method of work.
10. We shall be able to go to the cinema tomorrow.

Ex. 6. Put the correct form of the verb in the following sentences:

1. Pure water (to contain) dissolved minerals.
2. All the water (to evaporate) each year.
3. All the water (to go) back to the ocean next week.
4. Look! Droplets (to form) raindrops.
5. Some water (to soak) up by the ground.
6. The rain (to stop) already.
7. Water always (to tend) to run downhill.
8. Water (to go) continually round and round the circle.
9. Water (to form) clouds soon.
10. The students (to discuss) the problems of water supply for 2 lessons.

Ex. 7. Translate into English:

1. Вода испаряется с земли в атмосферу.
2. Количество воды на Земле уже подсчитано.
3. Основная масса воды находится в океанах.
4. Мы видим капельки воды в виде облака или тумана.
5. Вода всегда стремится спуститься с горы.
6. Растения впитывают много воды.
7. Гидрология изучает воду Земли.
8. 3/4 поверхности Земли покрыто водой.
9. Подсчитано, что воды на Земле миллиарды тонн.

Ex. 8. Form Participle I and II.

Example: to destroy – destroying – destroyed.
to come – coming – come

To treat, to include, to study, to concern, to cover, to make, to write, to read, to fall, to go, to become, to dig.

Ex. 9. Read and translate this text without dictionary

From the History of Water Supply

Water is life and life on earth is linked to water. Our existence is dependent on water, or the lack of it.

Water was an important factor in the location of the earliest settled communities, and the evolution of public water supply systems is tied directly to the growth of cities. In the development of water resources beyond their natural condition in rivers, lakes and springs, the digging of shallow wells was probably the earliest innovation.

Brick-lined wells were built by city dwellers in the Indus river basin as early as 2500 BC, and wells almost 500 metres (more than 1,600 feet) deep are known to have been used in ancient China.

Throughout history people have devised systems to make getting and using water more convenient. Early Rome had indoor plumbing. Water towers appeared around the late 19 century, as electric and diesel-powered water pumps became available.

Ex. 10. Употребите данные в скобках прилагательные в сравнительной или превосходной степени. Переведите предложения на русский язык.

1. Today the weather is (good) than it was yesterday. 2. Our room is (comfortable) than yours. 3. The Nurek Dam is one of the (high) dams in the world. 4. The Himalayas are (high) than the Alps. 5. The Mediterranean Sea waters are (salty) than the Black Sea waters. 6. The fields of our neighbor are (fertile) than our fields. 7. My friend is (busy) than I am. 8. The Volga is (short) than the Ob. 9. This tall girl is (good) student in our group. 10. Groundwater is (clean) than surface water

Практическое занятие № 20. Водоснабжение.

Ex. 1. Read out the following words and memorize them

1. surround - окружать
2. soil - почва
3. dessert - пустыня
4. marsh - болото
5. depression - низина, впадина
6. through the medium - посредством, при помощи
7. surface - поверхность
8. deep - глубокий
9. empty - пустой
10. drilled well - пробуренная скважина (колодец)
11. domestic - домашний, бытовой
12. return - возвращаться

13. wholesome - здоровый
14. palatable - вкусный
15. essential - важный, необходимый
16. maintain - поддерживать, сохранять
17. convenience - удобство
18. quantity - количество
19. convert - превращать
20. elaborate - тщательно разработанный, сложный
21. satisfactory - удовлетворительный
22. sufficient - достаточный
23. decide - решать
24. earliest settlers - первые поселенцы
25. realize - понимать, осознавать
26. take advantage - эксплуатировать

Ex. 2. Read and translate this text.

WATER SUPPLY

Water is an important part of nature which surrounds us and of those natural conditions we are changing constantly and intensively: the flora, the soil, the mountains, mineral resources, the deserts, the marches, the steppes and the taiga.

Vast depressions in the earth are filled with water through the medium of natural water sources such as rivers, lakes, etc. over the earth's surface. These bodies of water are classified as inland lakes and are excellent sources of water. Often a water body deep in the soil consists of a sand or gravel stratum which connects or empties into the basin of an inland lake and provides a splendid source of water supply through the medium of a drilled well.

Man uses water for domestic and sanitary purposes and returns it to the source through sewage disposal system. It is of prime importance that the supply must be protected against pollution, because no one can predict how disastrous may be the results.

An adequate supply of pure, wholesome and palatable water is essential to the maintenance of high standards of health and to provide the convenience and comfort to the community. In some localities water is available in unlimited quantities and converting it to use is not a difficult problem. This is especially true of towns situated on large inland lakes or rivers. But there are cities where geographical location requires elaborate systems of water supply, and to provide a satisfactory supply of water in these localities becomes a large engineering task.

The importance of a sufficient supply of water for domestic and industrial purpose has long been a deciding factor in the location of cities. The earliest settlers realized this need and took advantage of natural water resources by establishing colonies in close proximity to them.

Water may be taken from any source of water for human consumption after it has undergone a preliminary treatment to assure its purity. As man's communities grew in population, the demand for water increased and the need for protection of the source of water supply against the possibility of contamination became evident.

Progress and civilization have called for elaborate and various systems and methods of water treatment.

Ex. 3. К каждой данной паре вспомните русское слово с тем же корнем, что и английское:

Образец: reservoir - водоем (резервуар)

natural естественный

adequate достаточный

unlimited неограниченный

colony население

protection защита

progress развитие

Ex. 4. Подберите соответствующий перевод из правого столбца к данным английским словам:

- | | |
|---------------------------|----------------------------------|
| 1. natural water sources | 1. обработка воды |
| 2. body of water | 2. загрязнение |
| 3. inland lake | 3. при помощи, посредством |
| 4. water supply | 4. материковые озера |
| 5. water treatment | 5. естественные источники воды |
| 6. purity | 6. водный массив |
| 7. contamination | 7. водоснабжение |
| 8. sewage disposal system | 8. влага |
| 9. pollution | 9. потребление |
| 10. through the medium | 10. беспримесность |
| 11. consumption | 11. загрязнение (заражение) |
| 12. moisture | 12. система удаления сточных вод |
| 13. stratum | 13. слой, пласт |

Ex. 5. Вспомните, какие русские слова имеют те же корни, что и следующие английские слова:

cycle, atmosphere, vary, proportion, phenomenon, reservoir, depression, classify, gravel, sanitary, domestic, standard, modern, location, protection, mineral, resources, flora, community.

Ex. 6. Agree or disagree with the following statements:

1. Water is an important part of nature which surrounds us.
2. Vast depressions in the earth are filled with water through the medium of natural water sources such as the flora, the soil, the mountains.
3. Man uses water for domestic and sanitary purposes and returns it to the source through sewage disposal system.
4. An adequate supply of pure, wholesome and converting it to use is not a difficult problem.
5. The importance of a sufficient supply of water for domestic and industrial purpose has long been a deciding factor in the location of cities.

6. The earliest settlers realized this need and took advantage of natural water resources by rivers, lakes, etc. over the earth's surface.

7. Water may be taken from any source of water for human consumption after it has undergone a preliminary treatment to assure its purity.

8. But there are cities where geographical location requires elaborate systems, the demand for water increased and the need for protection of the source of water supply against the possibility of contamination became evident.

9. Progress and civilization have called sewage disposal system and various systems and methods of water treatment.

Ex. 7. Find out from your partner:

- if he thinks water is an important part of nature which surrounds us;
- what he knows about elaborate systems of water supply.

Ex. 8. Choose the necessary word from the two given in brackets:

1. Water may (require, requirement) treatment for a number of reasons. 2. It must be (freedom, free) from odours. 3. It should be suitable for (cook, cooking) and (wash, washing) . 4. (Storage, store) of water in basins is (use, used). 5. Sedimentation will not give (adequate, adequately) (treat, treatment) to water. 6. (Sedimentation, sediment) is obtained by (chemical, chemicals) as coagulants. 7. (Settle, settling) velocities of (part, particles) are small. 8. The (product, production) of (clear, clearance) water requires the (used, use) of a filter. 9. Sand aids in the (removal, remove) of colour and tastes. 10. Disinfection is the (kill, killing) of disease bacteria.

Ex. 9. Group work:

Express your opinion on the text given above. Discuss all your pros and cons with your group-mates.

Ex. 10. Заполните пропуски соответствующей формой глагола to be в настоящем неопределенном или прошедшем неопределенном времени.

1. We ... ready to start now. 2. It ... very cold and windy last week. 3. My brother ... in Egypt last month. 4. It was late. The travelers ... tired after a long journey; they ... hungry and thirsty, too. 5. Kate ... sad yesterday because she ... ill. 6. I ... happy because I ... on holiday now. 7. It ... summer now. It ... hot. 8. My house ... far from the bank. 9. At 9.00 o'clock yesterday Ann and Bess ... at work. They ... busy. 10. Our flat ... very comfortable. I like it.

практическое занятие № 21. Система водоснабжения

Ex. 1. Read out the following words and memorize them

- 1) consumer (consumption) - потребитель, (потребление)
- 2) to supply – снабжать
- 3) to treat – очищать

- 4) to deliver – доставать, подавлять
- 5) impurity – примесь
- 6) to pollute/to contaminate – загрязнять
- 7) to subject – подвергать
- 8) network - сеть
- 9) to install - устанавливать
- 10) facility – сооружение
- 11) water-intake – водозабор
- 12) pipe – труба
- 13) to require – требовать
- 14) artificial – искусственный

Ex. 2. Read out the following words and word combinations:

- 1) natural sources – природные источники
- 2) human consumption – потребление человеком
- 3) artificial reservoir – искусственное водохранилище
- 4) surface water – поверхностная вода
- 5) transmission mains – водопроводная сеть
- 6) distributing pipeline – распределительный трубопровод
- 7) water storage tank – резервуар (бак) для хранения воды
- 8) water raising facilities – водопроводное сооружение
- 9) water treatment – очистка воды
- 10) underground water – подземная вода
- 11) suitability of water - пригодность воды

Ex. 3. Read and translate this text without dictionary

Water supply system

Water supply system is a complex of structures to provide people with water. It serves for taking water from natural sources, its treatment and delivering to the places of consumption. The sources of water supply may be sea, rivers, lakes, artificial reservoirs, as well as underground waters, when choosing the sources of water supply we should consider such factors as: suitability of water for human consumption; the quantity of required water; the distance of the source from the consumer. Surface water must be subjected to water treatment, especially in case they are used for drinking.

For taking water from open reservoirs, the following constructions are installed in water supply system:

- water-intake;
- transmission mains;
- water treatment plant;
- a network of pipelines;
- water tower.

Ex. 4. Find the English words in the text.

Источники водоснабжения, обеспечить водой, служить, очищать воду, доставлять воду к местам потребления, водохранилище, источник воды, в случае, водозабор, подземная вода, потребитель, количество требуемой воды, загрязнять, примеси, подвергать очистке, использовать для питья, водонапорная башня, трубопровод, водоподъемное сооружение, водоочистная станция, водопроводная сеть, следует рассматривать.

Ex. 5. Agree or disagree with the following statements:

1. Surface waters are not contaminated by impurities.
2. Water supply system is a complex of structures to provide people with water.
3. Before using surface and underground waters must be subjected to water treatment.
4. The sources of water supply may be sea, rivers, lakes, artificial reservoirs, as well as underground waters.
5. Underground waters are usually polluted to a greater extent than surface waters.
6. Water treatment should not be conducted with especial care in case water is used for industrial purposes.

Ex. 6. Answer the questions.

- 1) What is water-supply system?
- 2) What does municipal water-supply system serve for?
- 3) What does industrial water-supply system serve for?
- 4) What sources of water-supply do you know?
- 5) What are contaminated by impurities?
- 6) Are surface water polluted to a greater extent than underground water?
- 7) Why must surface water be subjected to treatment?
- 8) What factors should be considered when choosing the sources of water supply?
- 9) What are installed in water-supply system for taking water from open reservoirs?
- 10) Does water-supply system consist of a source of supply?

Ex. 7. Read and translate this text with dictionary

Water-supply

Water is important part of nature which surrounds us and of those natural conditions we are changing constantly and ever more intensively: the flora, the soil, the mountains, mineral resources, the deserts, the marshes, the steppes and the taiga.

Water passes through a very interesting natural cycle. The atmosphere which surrounds the earth's surface contains water which varies in amount in direct proportion to the temperature of its gases. Water is also evaporated into atmosphere. Atmosphere which has become saturated with water precipitates its moisture when the temperature lowers. This phenomenon is termed rainfall. The moisture falls to the earth and finds its way into a number of reservoirs provided by nature.

Vast depressions in the earth are filled with water through the medium of nature water sources such as rivers, lakes over the earth's surface. These bodies of water are classified as inland lakes and are excellent sources of water.

Sometimes the rainfall finds its way into the soil and forms water bodies at various levels because of the impervious nature of the under soil. Often a water body deep in the soil consists of a sand or gravel stratum which connects or empties into the basin of an inland lake and provides a splendid source of water supply through the medium of a drilled well.

Ex. 8. Translate these word combinations:

- 1) water supply –
- 2) through the medium –
- 3) natural water sources –
- 4) body of water –
- 5) inland lake –
- 6) under soil –
- 7) stratum –
- 8) sewage disposal system –
- 9) pollution –
- 10) to foul –
- 11) consumption –
- 12) contamination –
- 13) water treatment -
- 14) purity -

Ex. 9. Try to retell this text.

Men uses water for domestic and sanitary purposes and return it to the source through sewage disposal system. Industry likewise replaces water diverted to its use. Hence the cycle is completed but it is of prime importance that the supply be protected against pollution, for if it fouls no one can predict how disastrous may be the results.

An adequate supply of pure, wholesome and palatable water is essential to the maintenance of high standards of health and to provide the convenience modern society demands. In some localities water is available in unlimited quantities and converting it to use is not a difficult problem. This is especially true of towns situated on large inland lakes or rivers. On the other hand there are cities where geographical location requires elaborate systems of water supply, and to provide a satisfactory supply of water in these localities becomes a large engineering task.

The importance of a sufficient supply of water for domestic and industrial purpose has long been a deciding factor in the location of cities. The earliest settlers realized this need and took advantage of natural water sources by establishing colonies in close proximity to them.

Water may be taken from any sources of water for human consumption after it has undergone a preliminary treatment to assure its purity. As man's

communities grew in population, the demand for water increased and the need for protection of the source of water supply against the possibility of contamination became evident. Progress and civilization have called for elaborate and various system and methods of water treatment.

Ex. 10 Are these statements true or fails.

1. Men uses water for domestic and sanitary purposes
2. Towns situated on small inland lakes or rivers.
3. The importance of a sufficient supply of water for domestic and industrial purpose
4. The earliest settlers realized this need and took advantage of natural water sources by establishing colonies in close proximity to them.
5. The demand for water increased
6. Progress and civilization have not called for elaborate and various system and methods of water treatment.

Практическое занятие № 22. Элементы системы водоснабжения

Ex. 1. Read out the following words and memorize them

daily flow - дневной расход
pipeline, conduit - водопровод
previously listed - предварительно перечисленных
accessories, pl. - принадлежности
engineering - техника
to provide - обеспечивать
installation - установка
daily - ежедневный
storage tank - бак, резервуар
to tap - наливать, добывать
average residential - средний житель
surface - поверхность

Ex. 2. Read and translate this text with dictionary

Elements of water-supply system

A water-supply system consists essentially of the following parts: a source of supply, which may be lake, stream or well, a reservoir for storing water for use during periods when the demand is greater than the daily flow of water; conveying the water from the source of supply to the community is accomplished by means of a pipe line or a conduit; removing impurities from the water to make it suitable for use requires a treatment plant; and a distribution system of pipes is used for delivering the water throughout the various streets of the community. Some systems are simpler and consist only of a source of supply, a main pipe line, and a small amount of distribution piping; others are more complicated and include in

addition to the element previously listed, distribution reservoirs, pumping plants and other accessories.

Ex. 3. Read and translate this text without dictionary.

A Water Supply System

A water supply system is a system of engineering which provides water supply. A typical water supply system consists of a water lifting installations, storage tank and filtration unit. Water supply process by which water is provided for some use is to a home, factory, or business. The average residential daily water supply demand is 380 litres per person, although it can go as high as 1900 litres per person.

The basic source of water is rainfall which is collected in rivers and lakes under the ground and in artificial reservoirs. Water from under the ground is called ground water and is tapped by means of wells. Most often water must be raised from a well by pumping. Water that is collected in rivers, lakes, or reservoirs is called surface water.

Ex. 4. Answer the questions.

- 1) What is water-supply system?
- 2) What does water-supply system consists of?
- 3) What is water-supply system provided for?
- 4) What is daily water supply demand?
- 5) What is the basic source of water?
- 6) How is called water from under the ground?
- 7) How often water must be raised?
- 8) Where is water collected?

Ex. 5. Form Degrees of Comparison of Adjectives.

Example: large – larger – the largest, beautiful – more beautiful – the most beautiful.

Important, pleasant, suitable, small, clear, clean, cheap, great, reliable, bad, safe, hard, light, easy, hot.

Ex. 6. Put all possible questions to the sentences:

1. Water may require treatment.
2. Treatment methods have been developed for purifying water.
3. Sedimentation is obtained by use of coagulants.

Ex. 7. Finish up the sentences.

1. A water-supply system consists essentially of the following parts_____.
2. Some systems are simpler and consist only of a_____.
3. A water supply system is a system of engineering _____.
4. A typical water supply system consists of a _____.
5. Water supply process by which water is provided for some use is _____.

6. The basic source of water is rainfall which is collected _____.
7. Water from under the ground is called _____ and is tapped by means of wells.
8. Water that is collected in rivers, lakes, or reservoirs is called _____.

Ex. 8. Group work:

Express your opinion on the text given above. Discuss all your pros and cons with your group-mates.

Ex. 9. State part of speech. Translate the given words:

Consumer, supply, treat, deliver, impurity, contaminate, subject, network, install, facility, water-intake, pipe, require, artificial.

Ex. 10. Retell the text using the following words:

A water-supply system, parts, some systems are simpler and consist, a typical water supply system consists of, water supply process, the basic source of water, most often water must be raised from a well by pumping.

практическое занятие № 23. Центральное водоснабжение

Ex. 1. Read the following words and memorize them

water supply - водоснабжение, запас воды	existence - существование
development - развитие	to devise - разрабатывать
plumbing - водопровод и канализация	pump - насос
available - имеющийся в наличии, доступный	date back - относится
enjoy - зд. иметь	low - низкий
lay on - прокладывать	pre-war - довоенный
shortage - нехватка, недостаток	stint - ограничение, предел
complete - полный	unexpected - неожиданный
foresee - предвидеть	follow - следовать
human - человеческий	absence - отсутствовать
various - различный	household - семья
consume (consumption) - потреблять (потребление)	spend - тратить
average - средний	exceed - превышать
inhabitant - житель	tap - кран
abundant - имеющийся в изобилии	grow - расти
be indicative - указывать, показывать	stagger - поражать, потрясать
globe - земной шар	deliver - доставлять
immediacy - неотложность	

Ex. 2. Read and translate the text

Centralized water supply dates back to 2500 BC. Ancient Egypt had complex engineering structures for the purpose. Yet to this day the percentage of the population enjoying centralized water supply on the African continent and in Asia, too, is very low.

In our country, at the time of the Revolution of 1917, only one third of the towns had running water laid on, and, then, as a rule, only in the central part of the town. In the pre-war period of industrial development running water reached millions of flats all over the country. Water supply of the systems are practically all in the western and central parts of European Russia, were destroyed during the war and had to be built anew.

Fresh water shortage was first mentioned soon after the end of the Second World War. The first to feel the stint was Europe. The problem came to many as a complete surprise, something in the nature of an unexpected “catastrophe”. This catastrophe, however, should have been foreseen, for it follows logically from the development of human life on our planet and of Man’s industrial activity.

In the absence of centralized water supply, a man can do with about 25 litres of water a day for his various personal needs. But in the modern city water consumption per person is much higher. An average of 300 to 500 litres of water is spent daily on household and sanitary needs per one inhabitant of a modern city. You can see this vastly exceeds the necessary minimum of 25 litres. Why the discrepancy (difference)? Not because people leave their taps open. Because water is so abundant nobody thinks twice about taking a shower, or a bath, using the washing machine, washing the car, etc. The volume of water consumption is indicative not only of the efficiency of the water supply but also of the population’s living standards.

One need in water is growing. Simultaneously, the globe’s population is growing. In the past century the consumption of water by the world’s largest cities, such as Paris, London, Berlin and Moscow, has grown 80 to 100 times. During the famous heat wave of 1972 Moscow “drank” almost 5,000,000 cubic metres of water a day. This staggering figure seems to confirm the immediacy of the water dearth problem. In actual fact, however, the problem consists not so much in where to get pure water but in how to deliver it to where people need it.

Ex. 3. К каждой данной паре слов вспомните русское слово с тем же корнем, что и английское:

1. centralized	центральный	1. logically	Логически
2. complex	сложный	2. industrial	промышленная
3. engineering	технические	activity	деятельность
structures	сооружения	3. personal	личный
4. industrial	промышленный	4. sanitary	гигиенический
5. practically	практически	5. efficiency	эффективность
6. surprise	удивление	6. figure	цифра
7. nature	характер	7. actual fact	в действительности

Ex. 4. Подберите соответствующий перевод из правого столбца к данным английским словам.

1. centralized water supply	1. стиральная машина
2. running water	2. проблема нехватки воды
3. water supply system	3. потребление воды

4. fresh water shortage
5. water consumption
6. washing machine
7. living standard
8. pure water
9. globe's population
10. water dearth problem
11. heat wave

4. централизованное водоснабжение
5. население земного шара
6. водопровод
7. чистая вода
8. зд. сильная жара
9. система водоснабжения
10. уровень жизни
11. нехватка пресной воды

Ex. 5. Complete the sentences according to the texts:

Centralized ... dates back to 2500 BC. In our country, at the time of the Revolution of 1917, ... , and, then, as a rule, only in the central part of the town. In the pre-war period of industrial development ... all over the country. Water supply of the systems ... of European Russia, were destroyed during the war and had to be built anew.

Fresh water shortage was first mentioned soon after the end The problem came to many as a complete surprise, ... of an unexpected "catastrophe". This catastrophe, however, ... , for it follows logically from the development of human life ... activity.

In the absence of centralized water supply, ... of water a day for his various personal needs. But in the modern city ... is much higher. Because ... nobody thinks twice about taking a shower, or a bath, using the washing machine, washing the car, etc. The ... consumption is indicative not only of the efficiency of the ... but also of the population's living standards.

Ex. 6. Make up questions and answer them.

Ex. 7. Read the text and try to retell it.

Ex. 8. Match the English words with their Russian equivalents:

- | | |
|-----------------------------|-----------------------------------|
| 1. centralized water supply | a. стиральная машина |
| 2. running water | b. проблема нехватки воды |
| 3. water supply system | c. потребление воды |
| 4. fresh water shortage | d. централизованное водоснабжение |
| 5. water consumption | e. население земного шара |
| 6. washing machine | f. водопровод |
| 7. living standard | g. чистая вода |
| 8. pure water | h. зд. сильная жара |
| 9. globe's population | i. система водоснабжения |
| 10. water dearth problem | j. уровень жизни |
| 11. heat wave | k. нехватка пресной воды |

Ex. 9. Read and translate this text without dictionary.

Water is industry's life flood. Just as water within a human body sustains life, water in industry maintains the product line – it is at various times a catalyst, chemical, lubricant, conveyor, coolant, binder or cleanser.

It should be said that for industrial purposes many waters are entirely unfitted for use without purification. The softening of hard waters is a method of purification which has long been practised. In many industries the bacterial content of the water is of some importance.

People will learn to use the practically inexhaustible water of the seas and oceans. Right now there are dozens of methods for the desalination of sea water, including one using atomic energy.

In conclusion it should be stressed that with the growth of population many modern treatment systems have been built and much more is still to be done in this field.

Ex. 10. Употребите данные в скобках прилагательные в сравнительной или превосходной степени. Переведите предложения на русский язык.

1. Today the weather is (good) than it was yesterday. 2. Our room is (comfortable) than yours. 3. The Nurek Dam is one of the (high) dams in the world. 4. The Himalayas are (high) than the Alps. 5. The Mediterranean Sea waters are (salty) than the Black Sea waters. 6. The fields of our neighbor are (fertile) than our fields. 7. My friend is (busy) than I am. 8. The Volga is (short) than the Ob. 9. This tall girl is (good) student in our group. 10. Groundwater is (clean) than surface water

практическое занятие № 24. Горячее водоснабжение

Ex. 1. Read the following words and memorize them:

- | | |
|-----------------------|---------------------------------------|
| 1. heating | 1. отопление, отопительная установка |
| 2. independent boiler | 2. независимый котел |
| 3. solid fuel | 3. твердое топливо |
| 4. installation | 4. установка |
| 5. circumstance | 5. обстоятельство |
| 6. pump | 6. насос |
| 7. accelerator | 7. акселератор, ускоритель |
| 8. circulation | 8. круговорот, циркуляция |
| 9. maintain | 9. осуществлять тех. обслуживание |
| 10. pipe | 10. труба, змеевик |
| 11. estimate | 11. оценивать, считать |
| 12. sufficient | 12. достаточный |
| 13. expansion tank | 13. расширительный бачок |
| 14. increase | 14. увеличение, возрастание |
| 15. explosion | 15. взрыв |
| 16. available | 16. доступный, годный |
| 17. convenience | 17. удобство, благоприятное положение |

18.rectangular	18.прямоугольный
19.subsequent	19.последующий
20.inlet	20.впуск, входное отверстие
21.outlet	21.выпуск, выходное отверстие
22.condensation	22.конденсация; уменьшение объема
23.the first cost of operation	23.первоначальная стоимость эксплуатации

Ex. 2. Read and translate this text.

HOT-WATER SUPPLY

The term “central heating” applied to the heating of domestic and other buildings indicates that the whole of a building is heated from a central source, usually an independent boiler, fired by solid fuel, gas, electricity or fuel oil. In general, a heating system should be designed so that the water will circulate by gravity. In some installations, circumstances are such that a pump or accelerator must be used to achieve a satisfactory circulation. This should be avoided if possible.

When designing a heating system for a large building, it is usual – in the interests of economy and to ensure efficient heating – to first calculate how much heat will be needed to maintain the building at the desired temperature. Then the size of the boiler and the amount of pipe and radiator heating surface required to give out this heat will be estimated. For small systems, “rules-of-thumb” methods and past experience is generally a sufficient guide.

A steam, or a hot water heating plant consists essentially of the radiators, the boiler and the system of piping connecting the former with the latter. Steam or hot water from the boiler is circulated through the piping and radiators: in these the steam condenses giving up its latent heat and the water given up some of its heat, thus warming the rooms. In the usual hot water installation, the boiler, pipes and radiators are kept full of water at all times, an expansion tank being provided to compensate for the increase in volume of water when heated and to prevent explosions in case of generation of too much steam.

Boilers. The boiler is usually placed at the lowest available point in the building, having regard at the same time to the convenience of stoking and delivery of fuel.

The boiler may be one of a number of types. It may be solid one-piece casting, rectangular in form; it may be sectional; or it may be conical in shape and wrought or cast iron. For smaller systems, the first and last-named types are both cheap and suitable. The sectional boiler has the advantage of the possibility of added sections should more heat be needed subsequent to initial installation.

System of piping. For steam heating the systems of piping usually employed are the ordinary one-pipe system and two-pipe system. In the former, but one connection is made to each radiator, this connection serving both as inlet for the steam and an outlet for the water of condensation. In the latter, there is a supply

pipe and a return pipe for each radiator. The two-pipe system is expensive and not used generally in steam heating except for indirect radiators which must always have two connections in order to function properly.

In hot-water heating, although one-pipe systems may be used, it is considered the best practice to have a supply pipe and a return pipe for each radiator. Rules and tables for computing the size of pipe for both system and hot water heating will be found in handbooks.

In selecting a heating plant for residences there must be considered the size, the type of building, the climate and the first cost of operation.

Ex. 3. Complete the sentences according to the texts:

1. The term "central heating" applied to the heating of domestic and other buildings indicates...

a) pipes and radiators are kept full of water at all times.

b) circumstances are such that a pump or accelerator must be used to achieve a satisfactory circulation.

c) that the whole of a building is heated from a central source, usually an independent boiler, fired by solid fuel.

2. The sectional boiler has the advantage of the possibility of added sections should...

a) more heat be needed subsequent to initial installation.

b) always have two connections in order to function properly.

c) be solid one-piece casting, rectangular in form; it may be sectional; or it may be conical in shape and wrought or cast iron.

3. Then the size of the boiler and the amount of pipe and radiator heating surface required...

a) to prevent explosions in case of generation of too much steam.

b) to give out this heat will be estimated.

c) to have a supply pipe and a return pipe for each radiator.

4. The boiler is usually placed at...

a) the lowest available point in the building, having regard at the same time to the convenience of stoking and delivery of fuel.

b) this connection serving both as inlet for the steam and an outlet for the water of condensation.

c) the size of the boiler and the amount of pipe and radiator heating surface required to give out this heat will be estimated.

5. In hot-water heating, although one-pipe systems may be used, it is considered...

a) a heating system should be designed so that the water will circulate by gravity.

b) accelerator must be used to achieve a satisfactory circulation.

c) the best practice to have a supply pipe and a return pipe for each radiator.

Ex. 4. Put all possible questions to the sentences.

1. The boiler is usually placed at the lowest available point in the building.

2. Steam or hot water from the boiler is circulated through the piping and radiators.
3. The water will circulate by gravity.

Ex. 5. Make up a dialogue

Ex. 6. Translate this text from Russian into English.

Системы горячего водоснабжения - это комплекс инженерных устройств для приготовления и подачи воды к потребителю.

Горячая вода необходимая для нужд населения, получается путем смешивания горячей и холодной воды в смесительной арматуре.

Наибольшее значение температуры воды принято ограничивать по двум причинам:

1. с целью предохранения населения от ожогов;
2. ввиду резкого усиления накипеобразования в оборудовании и трубопроводах при увеличении температуры воды свыше 75°C.

Для получения воды более высокой температуры (например, на предприятиях общественного питания) используются кипятильники, которые доводят температуру воды до 100°C.

В помещениях дошкольных детских учреждений температура горячей воды, подаваемой к водоразборной арматуре душей и умывальников, не должна превышать 37°C.

При нагревании воды выше 40 °C начинается выпадение углекислых солей кальция и магния (временная жесткость воды) на внутренних стенках труб теплообменного оборудования, что уменьшает проходное сечение и снижает теплопередачу.

Ex. 7. Look at Figure 15 and define what elements of the system are marked by numbers:

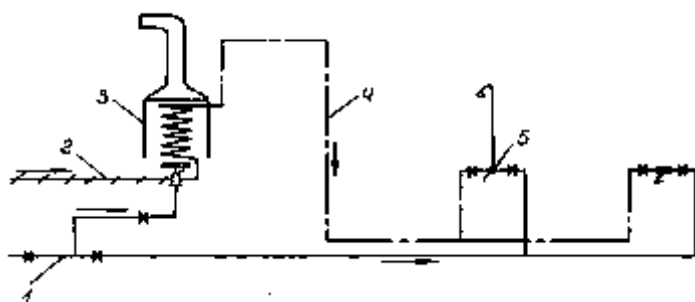


Fig. 15. Local hot water installation with gas water heater

- 1-cold water supply;
- 2-gas pipeline;
- 3-water heater;
- 4-hot water pipeline;
- 5-mixer.

Ex. 8. Translate this text from Russian into English

Система внутреннего водопровода состоит из трубопроводов и устройств, предназначенных для подачи воды от водопроводной сети города, населенного пункта или промышленного предприятия к санитарно-техническим приборам, технологическому оборудованию и пожарным кранам. Для подачи потребителям подогретой воды служит система горячего водоснабжения, которая имеет дополнительно водонагреватели и устройства для регулирования и контроля температуры.

Ex. 9. Make sure you know the words and word combinations from the box and insert them into sentences.

consists, the system of piping, explosions, volume, the boiler, tank, radiators, the water, at all times, hot water installation,

A steam, or a hot water heating plant _____ essentially of the radiators, the boiler and _____ connecting the former with the latter. Steam or hot water from _____ is circulated through the piping and _____: in these the steam condenses giving up its latent heat and _____ given up some of its heat, thus warming the rooms. In the usual _____, the boiler, pipes and radiators are kept full of water _____, an expansion _____ being provided to compensate for the increase in _____ of water when heated and to prevent _____ in case of generation of too much steam.

Ex.10. Вставьте подходящую форму глагола to be, to have

The boiler ... usually placed at the lowest available point in the building, having regard at the same time to the convenience of stoking and delivery of fuel.

The boiler ... one of a number of types. It ... solid one-piece casting, rectangular in form; it ... sectional; or it ... conical in shape and wrought or cast iron. For smaller systems, the first and last-named types ... both cheap and suitable. The sectional boiler ... the advantage of the possibility of added sections should more heat ... needed subsequent to initial installation.

Практическое занятие № 25. Водопроводные краны

Ex. 1. Read out the following words and memorize them

handle – ручка

tap – кран

clockwise – по ходу часовой стрелки

anti-clockwise – против часовой стрелки

water tap – водопроводный кран

uncover – раскрыть

washer - прокладка

bolt - болт

hole - отверстие

valve - клапан

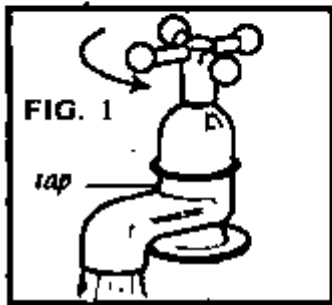
piston - поршень

pump - насос

Ex. 2. Read and translate this text.

HOW IT WORKS

Water tap



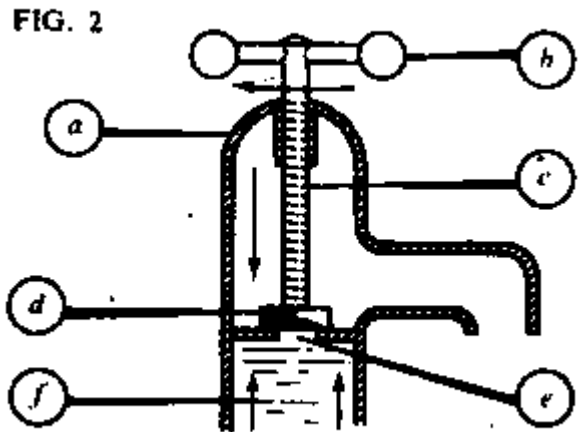
When you turn the *handle* of a water *tap* clockwise, the *water* stops. When you turn it anti-clockwise, the *water* pours out of the tap again. How does this work?



Look at FIG. 2. The tap has a handle on the top, and inside there is a *bolt*, and a *washer*. The washer is over a *hole*.

When you turn the handle clockwise, this makes the bolt move downwards. The washer then covers the hole and stops the water.

When you turn the handle anti-clockwise, the bolt moves upwards and the washer uncovers the hole again. This lets the water flow through the tap again.



1. What are the objects in the diagram called? (Look at the words in italics in the passage.)

Example: (a) This is called a *tap*.

Answer these questions:

- (a) How do you turn off a tap?
- (b) How do you turn it on?

(c) Is the hole above or below the washer?

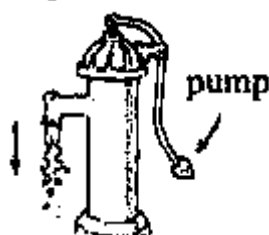
(d) When does the washer close the hole?

(e) Why does the water not flow through the tap?

(f) How do you make the washer move upwards?

Ex. 4. Complete these sentences:

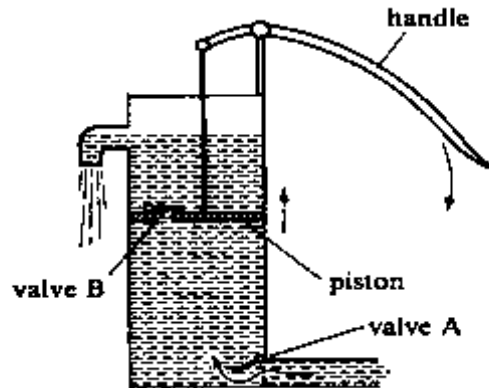
Example: You push the handle of the pump down. This make the water pour out.



- (a) You push the handle of the pump down. This makes _____.
- (b) You turn the handle of the tap anti-clockwise. This lets _____.
- (c) You turn the handle clockwise. _____ stop.

Ex. 5. Complete these. Choose the correct word from the brackets:

Example: (a) You push the handle down. This makes the piston rise.



- (a) You push the handle down. This makes the piston _____ (rise/go) down.
- (b) The piston rises. This makes valve B _____ (open/close) and it makes valve A _____ (open/close).
- (c) You pull the handle up. This makes the piston _____ (rise/go) down.
- (d) The piston goes down. This makes valve B _____ (open/close) and it makes valve A _____ (open/close).
- (e) Valve B opens. This _____ (makes/lets) the water flow through the piston.

Ex. 6. Complete these. Change the words in the brackets:

Example: The water *flows* out of the tap ...

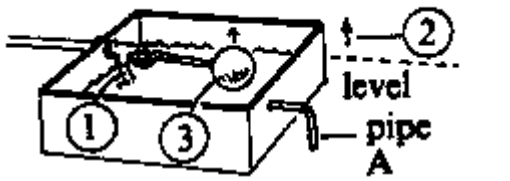
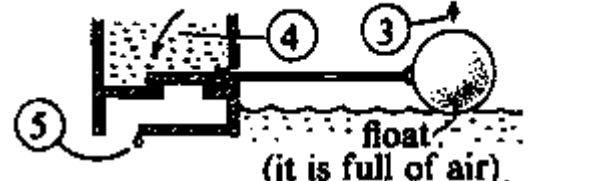


The water *flows* out of the tap and into the pipe. It _____ (go) along the pipe and then _____ (pour) out of the pipe and into the tank. Then the water level in the tank _____ (rise).

Ex. 7. Make a similar description of this diagram:



Ex. 8. Put these sentences into correct order (The numbers on the diagrams show the correct order).

 <p> - The float goes up. - The water flows into the tank. - The water stops. </p>	 <p> - The valve closes. - The water level rises. <i>Begin: 1 The water flows into the tank.</i> </p>
--	---

Ex. 9. What happens when water flows out of pipe A and the water level goes down? Write five sentences:

Begin: 1 Water flows out of the tank through pipe A.

2 ...

Ex. 10. Вставьте артикли, где необходимо:

1. ___ ox is ___ strong beast of ___ burden.
2. He asked for ___ glass of ___ fresh water.
3. He will give ___ course of ___ lectures on ___ history.
4. ___ snow covered ___ ground.
5. I thought I had shut ___ door, but it is still open.
6. ___ London of our ___ days differs greatly from ___ London of ___ days of ___ Shakespeare.
7. Pass me ___ salt, please.
8. ___ teacher took much ___ interest in ___ little Charles.
9. ___ unfortunate Tilly cried bitterly.
10. ___ girl was carrying ___ spray of lilacs.
11. ___ Volga is ___ very important waterway.
12. I like ___ coffee for ___ breakfast.
13. She married ___ Smith we met ___ last year.
14. ___ heat is destructive to these ___ plants.
15. ___ oaks are ___ very strong trees.
16. He was ___ editor of “___ Monthly”.
17. We shall talk it over at ___ dinner.
18. This is ___ different tea from ___ one we usually buy.
19. All ___ passengers gathered on ___ deck.
20. ___ boy will be sent to ___ school ___ next year.
21. Open ___ drawer on ___ left.
22. ___ moon was shining brightly.
23. ___ Elbrus is ___ highest mountain in ___ Caucasus.
24. ___ Johnsons settled here two years ago.
25. ___ Zoo was just opposite ___

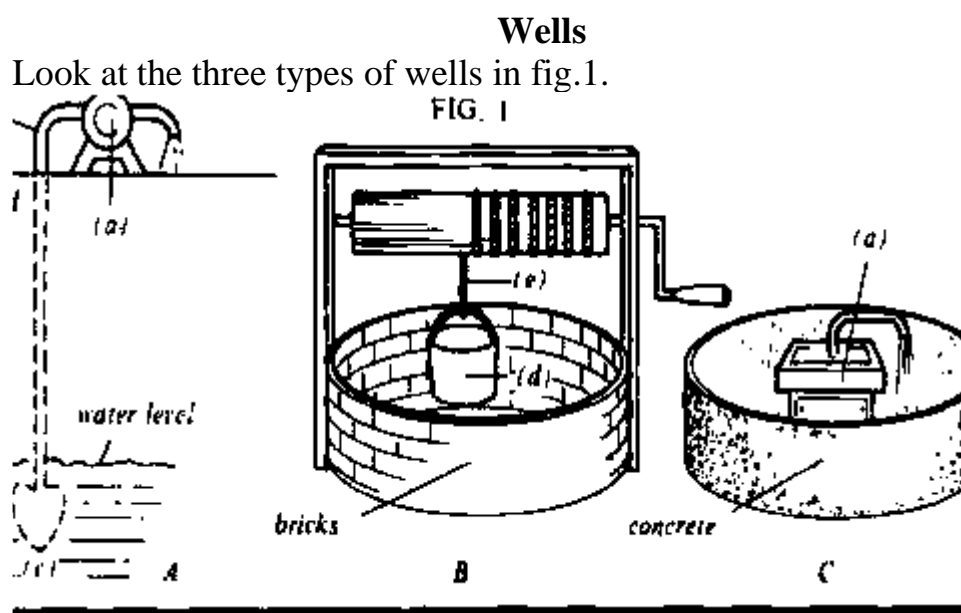
house where he lived and he often went there as he liked ___ animals very much.

26. Not only we, ___ people of ___ Russia,

but ___ whole world was watching ___ battle we were waging. 27. ___ next day there was ___ delightful weather, and ___ sun shone warmly. 28. Towards ___ evening we reached ___ little village. 29. ___ apple trees in ___ garden stood in ___ full bloom. 30. ___ day was so lovely, so full of ___ freshness of ___ spring. 30. Come to ___ blackboard and write ___ Exercise 5. 31. You have ___ mistake in ___ word "correspondence". 32. I heard ___ knock at ___ door and went to open it. 33. John saw ___ small girl enter ___ house where he lived. 34. He is still ___ young man, and we hope he'll become ___ good pianist. 35. I don't like ___ milk with my tea.

Практическое занятие № 26. Колодцы

Ex. 1. Read and translate this text.



Well A is the simplest of the three. It consists of a pipe, a point and a pump. You hammer the pipe into the ground until the point is below water level. The pipe is usually less than 10 mm wide and less than 20 mm long. The width of the hole is the same as that of the pipe.

Well B is the cheapest because it has no pump. It uses a bucket and rope. The hole is usually more than 1 m wide. Well B is usually about the same depth as well A.

The best (and the most expensive) well is C. the hole is usually less than 0.3 m wide, and the pipe has the same width as the one in well A. the depth is usually more than 20 m. Well C uses a pump.

Ex.2. What are the objects in fig. 1?

Ex.3. Answer these questions:

1. How wide is the hole in well A? (answer in millimeters)
2. How deep is it?
3. How deep is well B?

4. How wide is the pipe in well C?
5. Why is well C the most expensive of the three wells?

Ex.4. Are these statements true or false? Correct the false ones.

1. Well B is wider than well A.
2. Well C is cheaper than well B.
3. Well C is < 0.5 m wide.
4. Well C is > 20 m deep.

Ex.5. Read and translate this text without dictionary.

Wells

If you use a lot of water for your plot and don't rely on the expensive water supply, you might consider drilling a well. Wells are inexpensive and the water quality is good. Ground water is a renewable resource: you can use as much water as you need.

It is not a secret, that today Kerch has grand problems with water supply. So wells and springs appear almost the only sources of drinking water when it is absent in taps.

well – колодец	to consider – считать, рассматривать
plot – участок	source - источник
to rely on – полагаться на	to drill - сверлить

Ex.6. Образуйте степени сравнения прилагательных и наречий

Short, strong, weak, narrow, hard, light, thick, large, big, hot, wet, easy, noisy, dirty, rigid, brittle, combustible, expensive, flexible, widely, well, little, badly

Ex.7. Переведите предложения

1. Concrete is heavier than wood.
2. Lead is harder than steel.
3. Paper is more combustible than glass.
4. Steel is more rigid than rubber.
5. Glass is more brittle than wood.
6. Pipes are made of three main materials. Metal is the strongest material, but it is also the heaviest, and the most rigid. It is also the most expensive of the three materials.
7. Rubber is the most flexible of the three materials. But it is the weakest.
8. Plastic is the lightest material. It is also the least expensive of the three.

9. A terraced house or a flat loses less heat through the walls than a detached house.

10. Elevators help the workmen to build houses more quickly.

Ex.7. Прочитайте отрывок (a) и заполните пропуски в предложениях (b), поставив одно из прилагательных в скобках в нужной степени сравнения

a) There are three main materials used in making pipes: metal, rubber and plastic. Metal is stronger than rubber or plastic. It is also heavier and more rigid than rubber or plastic. Rubber is the most flexible of the three materials, but it is the weakest. The lightest of the three materials is plastic. It is also less expensive than either steel or rubber.

b)

1. Rubber is ___ than metal or plastic. (strong/weak)

2. Rubber is also ___ than the other two materials.
(flexible/rigid)

3. The ___ of the three materials is metal. (strong/weak)

4. The ___ of the three materials is plastic. (expensive)

5. Plastic is ___ than metal. (heavy/light)

6. Metal is the ___ of the three materials. (heavy/light)

Ex.8. Переведите предложения, обращая внимание на оборот there + to be

1. There is a wide range of building products and systems in the world.

2. There are two types of American apartments: a rented apartment and a condominium.

3. In addition there are town-houses which are joint houses or apartments in a compact planned group in a town.

4. There are two types of Greek temple: the Ionic and the Doric.

5. In ancient Greece there was no granite for huge monoliths.

6. In contrast to Egypt there were no masses of unskilled workers to move huge stones. There were instead small groups of skilled masons who worked independently.

7. There was some lifting machinery for handling the blocks.

8. There were two sculptors among the leading architects of that period in Italy: Filippo Brunelleschi and Michelangelo.

9. Were there many palaces in Gothic Europe?

10. In a few years there will be a new high-rise building in this street.

11. There will be hundreds of modern apartments in this city soon.

12. There won't be enough light in this room, I am afraid.

13. Will there be a bridge or a tunnel across that river?

Ex.9. Определите, к какой части речи относятся выделенные слова и переведите предложения

1. We can **easily** lift great loads by means of helicopters.
2. Using helicopters means **making** the job easier on inaccessible construction sites.
3. The use of helicopters is an excellent means of **placing** in position building units on inaccessible construction sites.
4. By no means can long-wheel-base **lorries** be used on a building site where access conditions are difficult.
5. The mean speed of **manipulating** building cranes can easily be calculated.
6. Large-scale mechanization should be introduced into **building** practice by all possible means.
7. Concrete must be thoroughly **worked** into the forms to fill them entirely and the reinforcement should be tied together so that it forms a stable framework.
8. A variety of metal forms for concreting are **available**.
9. As clay **forms** the soil in many areas, it has been used for brick making.
10. Structural walls are space enclosing elements which form rooms, or a collection of rooms, in a building; thus their form and dimensions must first be determined by the **requirements** of the plan.

Заключение

Методические принципы построения определялись конкретными задачами, вытекающими из его основной цели - научить читать иностранный текст по специальности с непосредственным пониманием читаемого, т.е. не прибегая к его анализу и переводу. Доминирующая роль в пособии отводится развитию и умений и навыков различных подвидов чтения.

Задача развития навыков устной речи решается в пособии лишь частично, в плане профессиональной направленности речи, что обусловлено тематикой текстов.

В соответствии с поставленными целями упражнения построены и расположены так, чтобы научить студентов самостоятельно работать с иностранным текстом, обеспечить извлечение заключенной в тексте информации с постепенным (от упражнения к упражнению) ее уточнением и детализацией. С этой целью предусматриваются упражнения, развивающие умение выделять основные мысли, положения, факты и группировать их по принципу общности; упражнения на конкретизацию основной информации; упражнения на тематические обобщения, подводящие к умению аннотировать и реферировать текст; лексические и словообразовательные

упражнения, развивающие языковую догадку; упражнения по технике перевода для уточнения понимания читаемого.

По своему характеру и по форме ряд упражнений построен по принципам текста с опорой на контекстуальную догадку и с использованием элемента подсказки (т.е. не столько тренирующие упражнения, сколько обучающие, стимулирующие логическое мышление). Используются различные способы сигнализации понимания читаемого. Применительно к различным видам упражнений широко используются известные формы заданий текстов: выбор правильного - неправильного варианта, сочетаемость, расположение в заданной последовательности и множественный выбор. По наполнению упражнения построены на предложениях, взятых из текстов, и выполнение их является по существу многократным чтением текста с конкретно поставленной в каждом случае новой задачей. К каждому тексту предусматриваются также упражнения, имеющие целью развития умения дать мотивированный ответ.

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