МІНІСТЕРСТВО ОСВІТИ І НАУКИ УКРАЇНИ

ЦЕНТРАЛЬНОУКРАЇНСЬКИЙ НАЦІОНАЛЬНИЙ ТЕХНІЧНИЙ УНІВЕРСИТЕТ

КАФЕДРА ІНОЗЕМНИХ МОВ

*Методичні рекомендації для студентів ЗВО всіх форм навчання*

# Англійська мова для студентів спеціальності «Будівництво та цивільна інженерія»

Частина 3

Затверджено на засіданні кафедри:

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*Методичні рекомендації призначені для вивчення англійської мови як мови професійного спрямування для студенів спеціальності будівництва та цивільної інженерії. Для ознайомлення та обговорення пропонуються тексти та завдання різного рівня складності. Структурно методичні рекомендації складаються з трьох частин.*

*До кожного тексту пропонуються запитання та завдання, які сприяють кращому розумінню обговорюваного матеріалу; вправи на переклад з української мови на англійську, що в комплексі з читанням, перекладом та обговоренням текстів сприяє розвитку комунікативної мовленнєвої компетенції студентів та забезпечує діяльнісно-орієнтований підхід до вивчення іноземної мови.*

*Рекомендовані для студентів денної, очної, заочної та дистанційної форм навчання.*

# TEXT № 25

# FERROUS METALS

## Before-Reading

**1.** ***Discuss the following:***

- What is a metal?
- Can you describe a metal? Try to do it.

**2.** ***Try to guess the meaning of the following words. Use the dictionary if you need***:

- steel industry
- different industries
- the main component
- machine tools
- machinery
- automobile
- aeroplane
- other element

***3. Match the following words with their Ukrainian equivalents:***

- non-ferrous
- an alloy
- a railway
- a network
- a tool
- a bridge
- copper

- мідь
- інструмент
- міст
- залізо
- сплав
- залізниця
- мережа

## While-Reading

**1.** ***Read the text and find all the sentences containing the following words:***

- steel industry
- copper
- an alloy
- a railway
- an automobile
- an airplane

***Copy them in your exercise-books.***

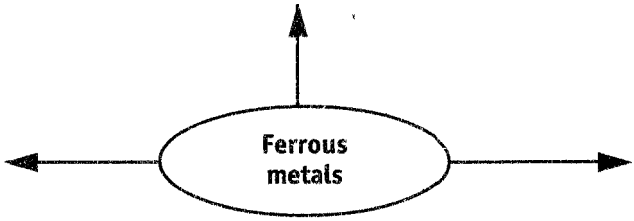
***2. Reading for specific information. Read the text and answer the following questions to the text:***

- What are ferrous metals?
- What are non-ferrous metals?
- What are the characteristics of non-ferrous metals?

In general metals are used in various constructions and different industries. For example, thousands of miles of railway track. All metals are divided into ferrous and non-ferrous metals. Ferrous metals are metals or alloy the main component of which is iron. The ferrous metals are iron, steel and their alloys. Especially ferrous metals are of great importance. Machine tools and machinery, steamships and locomotives, automobiles and aeroplanes, rails and bridges, razor blades are turned out by the steel industry.

Non-ferrous are metals and alloys the main component of which is not iron but another element. It may be copper, aluminium, zinc. That's why copper and aluminium are belonged to as non-ferrous metals. Non-ferrous metals are extracted from minerals such as magnesium, carbonate and tin oxides, chloride. Non-ferrous metals have some characteristics. They are: high electric and heat conductivity, high corrosion resistance, non-magnetic qualifies, light weight and easiness to fabrication.

***3. Mead the text again and complete the spidergram:***




***4. Read the text once more and complete the following sentences:***

- Ferrous metals ..
- ... , steamships and locomotives, automobiles and aeroplanes,
- ... are referred to as non-ferrous metals.
- ... are divided into ...
- In general, .. .
- have some characteristics.

**5.** ***Read the following statements and say whether they are true or false. Correct the false statements:***

- Thousands of miles of railway track form an intricate network of steel over the
- world, helping to carry daily billions of freight for different industries.
- Copper, aluminium and some other metals are not referred to non-ferrous metals.
- All metals are divided into ferrous and non-ferrous metals.
- Metals in general and especially ferrous metals are of great importance in various constructions.
- Ferrous are metals and alloys the main component of which is not iron.
- Non-ferrous metals are extracted from minerals such as magnesium, carbonate and tin oxides, chloride.
- The ferrous metals are iron, steel and their alloys.

# After-Reading

## Grammar focus

**1.** ***Complete the following words from the text:***

a rn_tal, an all_y, a c_mp_ent, a f_rm, a c_nstr_c_on, a m_le, a n_two_k, a w_rld, anind_stry, a m_ch_ne, a t l, a st__mship, a l_co_ot_ e, an a_ro_pl_ne, a br_dge, a p_od__ct.

**2.** ***Write down all the nouns from the text in plural.***

**3.** ***Make the following sentences negative and put into the interrogative:***

- All metals are divided into ferrous and non-ferrous metals.
- Ferrous metals are metals and alloy the main component of which is iron.
- Ferrous metals are of great importance in various constructions.
- Non-ferrous are metals and alloys the main component of which is iron.
- Copper, aluminium and some other metals are referred to as non-ferrous metals.

**4.** ***Write down all irregular verbs and their three forms.***

## Get talking

***1. Imagine you are a future skilled engineer. Say some words about "Methods for constructing walls for buildings". Your talk should last a minute. You should use the spidergram.***

# TEXT № 26

# NON-FERROUS METALS

## Before-Reading

**1.** ***Discuss the following:***

- What have you learnt about metals?
- What are ferrous metals?

**2.** ***Match the following words with their Ukrainian equivalents:***

| | |
|---|---|
| • conductivity | • акумулятор |
| • corrosion | • цинк |
| • resistance | • жовта мідь |
| • fabrication | • чиста мідь |
| • zinc | • сріблястий |
| • silvery | • корозія |
| • suitable | • провідність |
| • pure copper | • нікель |
| • brass | • опір |
| • bronze | • відповідний |
| • nickel | • олово |
| • tin | • бронза |
| • accumulator | • виготовлення |

**3.** ***Make up your own sentences with the following words:***

***conductivity*** *(провідність),* ***corrosion*** *(корозія, іржа),* ***resistance*** *(опір),* ***a fabrication*** *(виробництво, виготовлення),*

***zinc*** *(цинк, цинковий),* ***oxid*** *(окисел),* ***magnesium*** *(магній),* ***silvery*** *(срібло, сріблястий),* ***pure copper*** *(чиста мідь),* ***weak acids*** *(кислота),* ***an industry*** *(промисловість, індустрія),* ***a piston*** *(поршень),* ***casting*** *(форма для литва),* ***a cylinder*** *(циліндр),* ***a magnalium*** *(моноліт),* ***duralumin*** *(дюралюміній),* ***electricity*** *(електрика),* ***a cable*** *(кабель),* ***brass*** *(латунь, залізняк),* ***bronze*** *(бронза),* ***nickel*** *(никель),* ***a tin plate*** *(пластина олова),* ***to cut*** *(різати, зрізає).*

# While-Reading

**1.** ***Read the text and find new words from the text.***

***2. Read the text and find all the sentences, containing the following words:***

- conductivity
- copper
- fabrication
- bronze
- pure copper
- resistance

***Copy them in your exercise-books.***

**3.** ***Read and translate the text.***

***Aluminium***. One of the oldest and best known metal is aluminium. It has some characteristics. First of all, it is a white silvery metal. Thanks to low weight and resistance to corrosion aluminium is very suitable for the bodies of vehicles and also for castings-gear-boxes, pistons, cylinder heads. Also it is one of the metals widely used in the industry. It is used for making cooking utensils, ladders, refrigerators, wrapping material. Aluminium foil is used for the heat insulation of houses. One of aluminum's characteristics is that

it does not rust in the air. It is used in painting. Aluminium paint protects ironwork from rust, obliterates dark paint and reflects light. Any engineer must remember that aluminium is soft. That is why it is only used with other metals to make alloys light but very strong. Some important aluminum alloys are magnolium and duralumin (95% aluminium + 4% copper + 1/2% manganese + 1/2% magnesium). It can be tempered by heat treatment. This alloy is used to make aircraft, houses, furniture and motor pistons.

***Copper***. This metal is found in nature in the form of ores but sometimes it is found in pure state. So we know pure copper. Pure copper has some specific characteristics. They differ it from other metals. First of all it is reddish colour. Also it has corrosion resistant qualities. Copper is the best conductor of electricity. It is surpassed only by silver for conductivity of electricity. Thanks to copper's conductivity it is widely used for electrical wiring and cables, such as telephone and telegraph cables, making of electrical apparatus, parts of dynamos and electric motors. Copper with other metals is used in alloys. There are three important ***copper alloys***.

The first is brass. **Brass**, including 20% zinc and 80% copper. It is important to know about zinc, its colour is yellow when hot and white when cold. ***Zinc*** is a hard grey metal which acquires a protective coating of zinc oxide on its surface. It burns in oxygen and in chlorine with a bluish flame. Zink oxide is used in paints because it is non-poisonous and is not discolored by hydrogen sylphlike. It has a soothing effect upon the skin and is used in ointments and lotions. It is added to rubber for making racing motor treys. Zink is used in the making of dry batteries and in the process of galvanizing, in this way, iron is dipped into molten zinc, which forms a protective layer on its surface, and so prevents rusting. Galvanized iron is used in sheets for roofing and also for buckets and dustbins. This alloy of zinc and copper is header and cheaper than copper itself. It can be pressed into a shape. It resists corrosion. So brass hinges are used in preference to steel if they are exposed to weather.

The second is ***bronze***. Bronze is an alloy of copper and tin. ***Tin*** is a silvery metal which is not corroded by air. Tin plate is suitable for cans in which acid fruit and other food-stuffs are packed because tin is not attacked by weak acids. For good containers, iron is coated with tin instead of zinc because tin is not subject to attack by acids in food. Bronze, including 20% tin and 8o%copper is very tough. Bronze is used for making ship propellers, parts of machinery subject to hard wear and for doors and windows.

And the third one is ***copra-nickel*** (75% copper + 25%nickel). Last one is used for the present "silver" coins.

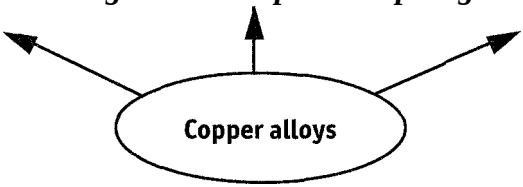
For a very long time such a combination as supplies including metals lead, zinc with supplier is known. It was mentioned about zinc. It is high time to tell some words about lead. Lead is a grey malleable metal which melts at 327°C, which is low for a metal. Earlier it was used for roofing and for water piping because of its softness and resistance to corrosion. Today copper and iron have taken its place. Now lead is a very expensive metal. But lead is still used for roofing and for making waste pipes and sink traps because it is easily bent into shape, storage battery (accumulator) plates, cable sheaths, storage tanks for sulphuric acid, lead shot, solder, screens to stop harmful radiation from radioactive substances. Other lead alloy is a type of metal such as lead, tin, bismuth, cadmium. Lead monoxide is used for making glass that it is brilliant and sparking.

- 4. Reading for specific information. Read the seventh and the eight paragraphs from the text and answer the questions to the text:

- For what lead is used?
- For what zinc is used?
- What colour is zinc?
- Why is the lead a very expensive metal?
- What metal can you see mostly in our life?
- What copper alloys do you know?
- What are specific characteristics of copper?

- What is the oldest and best known metal?
- What are aluminium's characteristics?
- What aluminium alloys do you know?

**5.** ***Read the text again and complete the spidergram:***




***6. Read the text again and complete the following sentences:***

- Aluminum is the ... and best ... metal.
- Copies found in nature in the form of ... but it is sometimes found in ...

«... is the best conductor of electricity.

- ... is a silvery metal.
- Tin is not attacked by ...
- ... is soft...
- ... is used for making cooking utensils, refrigerations.
- Aluminum protects .. from rust, reflects light.
- ... is used for making aircraft, houses, furniture and motor pistons.
- Tin plate is suitable for ...
- And the third one...
- ...have taken its place.
- It is added...

**7.** ***Read the following statements and say whether they are true of false. Correct the false statements:***

- Tin is a golden metal.
- Aluminum is the latest light metal.

- Tin plate is suitable for can.
- Bronze is very tough.
- Pure copper is of white colour.
- Tin is not corroded by air.
- Copper is founded in nature.
- Cupro-nickel is consist of 75% copper and 25% nickel.
- Tin is not subject to attack by acids in food.
- Copper is the worst conductor of electricity.

***8. Match the parts of the following sentences:***

| | |
|---|---|
| • Aluminum | • is a silvery metal which is not corroded by air |
| • Copper | • is used for making ship propellers, parts of machinery subject to hard wear and for doors and windows |
| • Tin | • is found in nature in the form of ores but it is sometimes found in pure state |
| • Zink | • are also metals which occur in combination with sapphire as sapheads |
| • Lead and Zink | • is the oldest and best known light metal |
| • Bronze | • Is a moderately hard grey metal which acquires a protective coating of zinc oxide on its surface |

# After-Reading

## Grammar focus

***1. Write all the following nouns in plural:***

Zinc, copper, flame, iron, corrosion, radiation, ladder, brass, refrigerator, aircraft, furniture, piston, tin, conductor, vehicle, aluminium, magnesium, carbonate, chloride, water, glass.

**3. *Complete the table*** *(pay attention to degrees of comparison):*

| | | |
|---|---|---|
| | | the best |
| high | | |
| | header | |
| | cheaper | |
| | | the commonest |
| | | the oldest |
| great | | |
| dark | | |
| soft | | |
| strong | | |

**4. *Write the numerals from the text in letters.***

**5. *Make the following sentences negative and put into the interrogative:***

- Aluminum is the oldest and best known light metal alloyed with other metals.
- It is one of the commonest metals in industry.
- Copper is found in nature in the form of ores but it is sometimes found in pure.
- Pure copper is of reddish colour, and it has corrosion resistant qualities.
- Copper is the best conductor of electricity.
- Tin is a silvery metal which is not corroded by air.
- Bronze is very tough.
- Brass is header and cheaper than copper.
- Lead and Zink are also metals which occur in combination with sulfur as sulphides.
- Lead is now a very expensive metal.

**6. *Find all the sentences from the text in the Passive Voice. Copy them in your exercise-books.***

**7.** ***Find all the sentences from the text with Present Perfect. Copy them in your exercise-books.***

**8.** ***Write all the complex sentences from the text and translate them.***

## Get talking

**1.** ***Make up a plan to the text.***

***2. Work in pairs. A future engineer should know about non-ferrous metals. Discuss:***

***a)aluminum;***
***b) copper;***
***c) tin;***
***d) zinc;***
***e) bronze.***

***Your talks should include between 30—50 words.***

# TEXT № 27

# TOOLS FROM METAL

## Before-Reading

***1. Discuss the following:***

- Do you know any product of metal?

***2. Match the following words with their Ukrainian equivalents:***

| | |
|---|---|
| • tools | • споруджувати |
| • saw | • храм |
| • axe | • дерево |
| • chisel | • гравій |
| • tree | • мармур |
| • dwelling | • інструменти |
| • erect | • міцний матеріал |
| • temple | • розчин |
| • manufacturing bricks | • штукатурка |
| • durable material | • удома |
| • wooden forms | • пісок |
| • solution | • стамеска |
| • fastening | • сокира |
| • plaster | • вулканічна зола |
| • oksid calcium | • пила |
| • sand | • прикріплювати |
| • volcanic ashes | • дерев'яна форма |
| • gravel | • промислова цегла |
| • stone | • оксид кальцію |
| • marble | • камінь |

## While-Reading

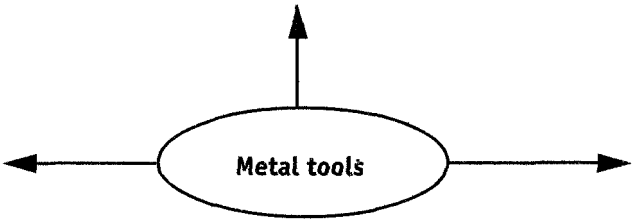
**1.** ***Read the text and find new words from the text.***

**2.** ***Read the text again and translate it.***

Various materials are used as a solution for fastening. It was so a long ago. Sometimes in Mesopotamia (modern Iraq) masters applied resin substance — bitumen. Egyptians used plaster (sulfate of calcium). Greeks and Romans originally worked with oxide calcium. But the limy solution was easily washed away by a rain. Subsequently Greeks and Romans took more durable cement mortal on arms — a mix to exhaust, sand and volcanic ashes. Later Romans began to add to it gravel for reception of concrete. Greeks continued building of integral blocks of a stone or marble. One more major landmark became manufacturing bricks in the furnace for roasting at high temperatures. So it was received stronger and more durable material in comparison with samanom. But Romans used only thin layers of these materials for facing concrete designs. Besides dwellings, builders could erect majestic palaces, temples and monuments. They also decorated with their decorative stone lying.

Many things are made by metal tools. Metal tools allow cutting, squaring and polishing a stone. Metal tools such as an axe, a saw, builders used many years ago. Also they had an opportunity to use available materials more widely. Now they could cut the big trees and split them and bars.

**3.** ***Read the text again and complete the spidergram:***




**4.** ***Read the text again and complete the following sentences:***

- Now they could cut the big trees and...
- Various materials were used...
- ...took more durable cement mortal on arms — a mix to exhaust, sand and volcanic ashes.
- Many things...
- Greeks and Romans...
- ...in comparison with samanom.

# After-Reading

## Grammar focus

**1.** ***Write down all the nouns from the text in plural.***

**2.** ***Write down metal tools in your nottebooks.***

**3.** ***Write down all irregular verbs and their three forms.***

**4.** ***Write the words in the correct order to make sentences and translate them into Ukrainian:***

- they, the, big, bars, and, now, could, trees, cut, split, them, and.

- besides, builders, erect, palaces, and, and, to, with, decorative, laying, dwellings, could, majestic, temples, monuments, decorative, also, stone, their.
- formation, allowed, full, convenient, work, size, in, wooden, to, lots, of, bricks, work, one, forms, do, of.
- as, the Greeks, buildings, Romans, only, designs, facing, materials, of, thin, used, against, continuing, build, to, integral, a stone, or, a marble, blocks, layers, these, for, concrete, of.
- metal, civilizations, of, on, huge, that, polish, square, to, tools, ancient, development, influence, rendered, a stone, and, cut, allowed.

## Get talking

**1.** ***Give a summary of the text in 150 words.***

***2. Prepare reports metal about tools in different countries. A report should include 2000—3000 words.***

# TEXT № 28

# EXTRUDED PRODUCTS

## Before-Reading

**1.** ***Discuss the following:***

- What do you know about high-quality products?
- What are their advantages and disadvantages?

**2.** ***Try to guess the meaning of the following words. Use the dictionary if you need:***

- parameters
- finished products
- customers demands
- high-quality products
- printing industries
- manufacturing of aluminum

**3.** ***Make up your own sentences with the words from Ex 2.***

## While-Reading

**1.** ***Read the text and find new words from the text.***

***2. Reading for general understanding. Skim read the text. Think of a good title for it. Compare it with other students' titles.***

**3. *Reading for specific information. Read the text, choose a right word.***

Using aluminum extrusions is growing rapidly (*worldwide, nowhere).* They are increasingly used in a variety of (*new, old)* applications. As a construction *(material, book),* aluminum extrusions free the imagination and expand the *(parameters, borders)* of possibilities. We offer extruded aluminum profiles, semi-manufactured *(components, goods),* systems and finished products — meeting our customers' *(demands, methods)* for performance, quality, precision and economy. Hydro Aluminum has already implemented more than 200.000 customer profiles worldwide. Customer satisfaction and product excellence are our key *(goals, words).* Hydro *(Aluminum, concrete)* also offers a wide selection of standard extrusions with more than 1.500 different profiles. Hydro Aluminum will assist you in finding the *(standard, defective)* aluminum extrusion that fits your needs.

Extrusion is a *(process, idea)* that provides virtually unlimited opportunities for adapting product shapes. *(Costs, processes)* are cut by using fewer components, which reduces the finishing process and simplifies assembly. Aluminum extrusions inspire creative *(designs,works)* and technical solutions that improve, simplify and reduce costs. At the initial stage, we work together with our *(customers, produces)* on product development. Optimal design and correct alloy selection can simplify later stages of the creation *(process, method)* and generate cost savings. Besides this, we use cutting-edge *(technology, words)* for quality fabrication with high precision.

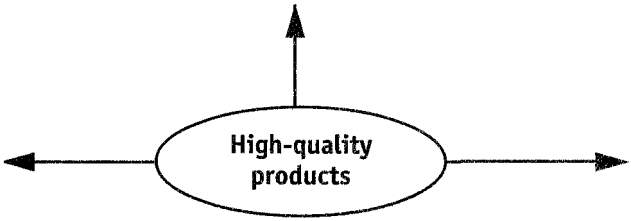
Hydro Aluminum is a global supplier of a *(wide, narrow)* range of high-quality products such as cast, rolled and extruded products for the automotive, construction, packaging end printing *(industries, hospitals).* We are a strong and versatile *(partner, teacher)* with more than 85 years of experience in the *(production, saling)* and manufacturing of aluminum, and are active throughout the entire value chain. *(Aluminum, concrete)* from our smelters and participating interests in smelters at home and abroad forms the basis of these operations. We supply the *(market, house)* with over 3 million

tones of *(metal, glass)* products annually from our global metal supply network. In addition, aluminum recycling represents a valuable resource for our *(company, school).*

**4.** ***Reading for specific information. Mead the first paragraph and translate, answer the following questions;***

- What is extrusion?
- Is the use of aluminum extrusions growing rapidly worldwide?
- Are they increasingly used in a variety of new applications?
- For what are aluminum extrusions used?
- Why is Hydro Aluminum a global supplier of a wide range of high-quality products such as cast, rolled and extruded products for the automotive, construction, packaging end printing industries?

***5. Read the text again and complete the spidergram:***




**6.** ***Read the text once more and complete the following sentences:***

- ...is a process that provides virtually unlimited opportunities for...
- Aluminum extrusions inspire creative designs and...
- Hydro Aluminum has already implemented more than...
- We... of metal products annually from our global metal supply network.
- In addition... represents a valuable resource for our company.
- ...we work to enhance people's quality of life — every day.

- ...is a process...
- ...we use...
- ...are our key goals.
- We after...

**7.** ***Read the following statements and say whether they are true of false. Correct the false statements:***

- The use of aluminum extrusions is not growing rapidly worldwide.
- Hydro Aluminum has already implemented more than 100.000 customer profiles worldwide.
- Customer satisfaction and product excellence are not our key goals.
- Hydro Aluminum also offers a wide selection of standard extrusions with more than 1.000 different profiles.
- We supply the market with over 2 million tones of metal products annually from our global metal supply network.
- We offer cost-effective solutions by implementing best practices.
- Aluminum extrusions inspire creative designs and technical solutions that improve, simplify and reduce costs.
- Extrusion is a process that provides virtually limited opportunities for adapting product shapes.
- Our focus isn't on product quality and capabilities.
- Optimal design and correct alloy selection can not simplify later stages of the creation process and generate cost savings.

# After-Reading

## Grammar focus

**1.** ***Complete the following words from the text:***

an ap_lication, a d_v_lopm_nt, a po_sib_lit_, a m_rke_, an op_rati_n, a co_str__tion, a c_mpon__t, an e_trus__n,

a p__du_t, a sm_lt__, an _mag_nat_on, a d_m_nd, an _nd__try,
a p__ram__te_, a pr_ces_, an op_prt__nit_, a g_al, a te_hnol_g__,
a s_lect __n, a r_ng_, a sh_p_, a p_rtn_r, a l_fe, a s_luti_n,
a s_ste__, a s_tisf_ct _ n, a pr_duc__, a c_st, a st_ge, a c_sto_e_,
a s_le_tio_, a r_ng_, c__st, a fo_m, a n_tw__rk, a f_c_s,
a pa_tn_rsh_p, a d_y.

**2.** ***Write down all the nouns from the text in plural.***

**3.** ***Make the following sentences negative and put into the interrogative:***

- The use of aluminum extrusions is growing rapidly worldwide.
- Customer satisfaction and product excellence are our key goals.
- Extrusion is a process that provides virtually unlimited opportunities for adapting product shapes.
- Aluminum extrusions inspire creative designs and technical solutions that improve, simplify and reduce costs.
- We use cutting-edge technology for quality fabrication with high precision.
- Hydro Aluminum is a global supplier of a wide range of high-quality products such as cast, rolled and extruded products for the automotive, construction, packaging end printing industries.
- We supply the market with over 3 million tones of metal products annually from our global metal supply network.
- Aluminum recycling represents a valuable resource for our company.
- We offer cost-effective solutions by implementing best practices.
- We work to enhance people's quality of life.

**4.** ***Find all the sentences describing:***

- Aluminum extrusions
- Extruded aluminum
- Hydro Aluminum

***Copy these sentences in your exercise books.***

**5.** ***Write down all the numerals from the text in letters.***

## Get talking

**1.** ***Make up a plan to the text.***

***2. Imagine: You are a member of the conference. Sound table: make a report about:***

***a) Advantages of the extrusion process;***

***b) Advantages of Hydro-aluminum.***

***Your reports should include between 50—100 words.***

# TEXT № 29

# ALUMINIUM

## Before-Reading

**1.** ***Discuss the following:***

- What products are used in building and construction?
- Can you describe any of these materials?

**2.** ***Try to guess the meaning of the following words. Use the dictionary if you need:***

- quality labels
- training for employees
- calculations
- documentations
- leading role
- competence
- certificate
- engine blocks
- structural components for the automobile industry

**3.** ***There are 10 words in this word square. Can you find them?***

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| a | l | u | m | i | n | i | u | m |
| e | x | t | r | u | s | i | o | n |
| s | d | e | s | i | g | n | x | o |
| i | n | d | u | s | t | r | y | i |
| s | m | a | c | h | i | n | e | t |
| t | m | a | r | k | e | t | n | a |
| a | c | h | i | e | v | e | g | i |
| n | o | b | l | o | c | k | i | i |
| c | d | e | n | s | i | t | y | r |
| e | l | a | t | e | m | e | | b |
| z | u | t | i | v | i | t | c | a |
| e | m | p | l | o | y | e | e | f |

# While-Reading

**1.** ***Read the text and find new words from the text.***

***2. Reading for general understanding. Skim read the text and think of a good title for it. Compare it with other students' titles.***

**3.** ***Find and translate all the sentences containing the following words:***

- a worldwide network
- packaging and printing industries
- to create innovative and sustainable solutions
- an aluminium's strength
- an industrial machinery
- an aluminium extrusion

***4. Reading for specific information. Read the text, choose a right word.***

**5.** ***Read and translate the first paragraph from the text.***

*As one of the worlds top integrated aluminum companies Hydro Aluminum offers customers a wide range of high-quality products.*

Our focus on innovation, quality and cost-efficient solutions has led us to achieve market leadership in many of the most important industry's *(market, school)* segments in the automobile, construction, packaging and printing industries. 27.000 employees of Hydro Aluminum form a worldwide network that builds on 85 years of experience in the *(production, sailing)* and fabrication of aluminum. Hydro Aluminum has achieved a leading *(role, place)* in the following market segments: foil, lithographic strip, a building system, heat transfer systems and structural components for the automobile industry, high purity aluminum and magnesium. With 27.000 *(employees, teachers)* from 28 countries of the world our aluminum business holds a leading position in a number of areas. Our own *(production, manufacture)* was nearly 1.5 million tones of primary aluminum in 2003, in addition to a considerable trading activity.

Aluminum's strength, low density, corrosion, resistance and design flexibility make it an ideal *(material, role)* for building applications. More than 50 percent of all extruded products are used in *(building, field)* and construction. We are a major global supplier of building systems based on aluminum extrusions. We have a wide product range and are active in all parts of the *(industry, school).* We offer everything from single home residential solutions to large international tender projects. Working with Building Systems teams you can save *(time, position)* — starting with the design process all the way to logistics. Proprietary software for project calculations hands are on project support *(documentation, idea)* in a wide range of languages extrusion accessories and fittings. We have the competence for efficient tooling and can supply *(machine, water)* solutions. We can assist you in testing your finished products and assembly line productivity, as well as providing fireproof *(certificates, boxes)* and other quality labels. We can provide training for your employees to ensure efficiency. We can deliver directly to the project site.

Industrial machinery and accessories, tools, equipment, precision engineering, medical gear and instruments include *(aluminum, iron)* extrusions due to the metal's inimitable combination of properties. Aluminum extrusions are used in practically as businesses,

products and environments. We have all the *(resources, members)* required to deliver extrusions of exactly the right design, shape and size for our customers *(finishedproduct, resources).* Using of aluminum extrusions reduces the number of *(components, customers)* and simplifies assembly and individual component connections. An attractive finish and good thermal conductivity are just some of the strong *(arguments, facts)* for using aluminum in these products. At the design stage it is possible to construct an *(extrusion, components)* that minimizes the need for further work and makes fitting and assembly more efficient. Because of its ductility, *(aluminum, water)* is highly suitable for all types of fabrication. The bulk of the extrusions we deliver go through some form of fabrication and some kind of surface treatment.

***6. Reading for specific information. Read the second paragraph and answer the following questions:***

- How much percent of all extruded products are used in building and construction?
- What can you tell about working Building Systems teams of Hydro Aluminum?
- What are advantages of aluminum?
- What can this company provide?

***7. Read the text again and complete the following sentences:***

- Our focus on innovation, quality and cost-efficient solutions has led us to achieve market leadership in many of the industry's most important market segments in the...
- We have... all the... shape and size for our customers finished product.
- We have for efficient tooling and...
- Aluminum's strength, low density... for building applications.
- The... employees of Hydro Aluminum form a... on 85 years of experience in the production and fabrication of aluminum as well as a strong... for today's challenges and tomorrow's opportunities.

- We can provide training for...
- ...we deliver go through...
- ...aluminum is highly suitable...
- We have... international tender projects.
- Working with our...

**8.** ***Read the following statements and say whether they are true of false. Correct the false statements:***

- The 25.000 employees of Hydro Aluminum form a worldwide network that builds on 85 years of experience in the production and fabrication of aluminum as well as a strong commitment to research and design, to create innovative and sustainable solutions for today's challenges and tomorrow's opportunities
- With 20.000 employees in 23 countries throughout the world, our aluminium business holds a leading position in a number of areas.
- Our own production was nearly 1.7 million tones of primary aluminium in 2003, in addition to a considerable trading activity.
- More than 45 percent of all extruded products are used in building and construction.
- The bulk of the extrusions we don't deliver go through some form of fabrication and some kind of surface treatment.

# After-Reading

## Grammar Focus

**1.** ***Write all the following nouns in plural:***

innovation, extrusion, machinery, assembly, ductility, fabrication, strength, range, process, documentation, solution, quality, opportunity, industry, component, tone.

***2. Complete the table*** *(pay attention to degrees of comparison):*

| | |
|---|---|
| worldwide | |
| good | |
| | more efficient |
| low | |
| innovative | |
| considerable | |
| global | |
| structural | |
| inimitable | |
| industrial | |

***3. Write the numerals from the text in letters.***

***4. Write down all irregular verbs and their three forms.***

***5. Make the following sentences negative and put into the interrogative:***

- Hydro Aluminum has achieved a leading role in market segments.
- Our own production was nearly 1.5 million tones of primary aluminum in 2003.
- More than 50 percent of all extruded products are used in building and construction.
- We are a major global supplier of building systems based on aluminum extrusions.
- We have a wide product range and are active in all parts of the industry
- Aluminum extrusions are used in practically an businesses, products and environments.
- We have all the resources required to deliver extrusions of exactly the right design.
- The use of aluminum extrusions reduces the number of components and simplifies assembly and individual component connections.

- The bulk of the extrusions we deliver go through some form of fabrication and some kind of surface treatment.
- Aluminum's strength, low density, corrosion resistance and design flexibility make it the ideal material for building applications.

***6. End all the sentences with the modal verb — "can".***

## Get talking

**1.** ***Make up a plan to the text.***

***2. Imagine: You are a leading engineer of one of the worlds top integrated aluminum companies. Give your talk about u wide range of high-quality products of Hydro-aluminum. Your talk should last a minute.***

**3.** ***Prepare reports about one of the world's top integrated aluminum companies. A report should include 2000—3000 words.***

# TEXT № 30

# PLASTIC MATERIALS

## Before-Reading

**1.** ***Discuss the following:***

- Many new materials we live with have become familiar to us over centuries, have not they?
- What are these materials?

**2.** ***Match the following words with their Ukrainian equivalents:***

- wood
- glass
- brittle
- rust
- chemical plant
- synthetic rubbers
- modern paints
- varnish
- tough
- nylon
- polystyrene
- heat

- міцний
- лісоматеріали
- теплота
- синтетичні гуми
- сучасні фарби
- крихкий
- лак
- стекло
- нейлон
- пластичні матеріали
- хімічний завод
- іржа

**3.** ***There are seven words in this word square. Can you find them?***

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| p | l | a | s | t | i | c | s |
| x | w | o | r | a | n | g | e |
| z | a | e | x | p | e | r | t |
| t | f | a | r | c | r | i | a |
| y | g | l | a | s | s | z | n |
| f | r | a | g | i | 1 | e | i |
| l | a | i | r | e | t | a | m |
| b | o | t | t | l | e | w | a |
| c | o | m | p | l | e | t | e |

# While-Reading

**1.** ***Read the text and find new words from the text.***

**2.** ***Reading for general understanding. Skim read the text. Think of a good title for it. Compare it with other students' titles.***

Many new materials are familiar to us over centuries. We are pretty well acquainted with the advantages and disadvantages of wood. We know that glass is transparent, but in some ways it is rather brittle. Glass has the advantages of cheapness, rigidity and chemical inertness. We are aware that most metals can stand severe handling, but some of them rust.

But such materials as plastic materials are not found in nature. Some years ago plastics were little more than laboratory curiosities. Today plastics are conceived in the laboratory of the chemical plant. But plastic is formed by extrusion or injection molding under very high pressure. It can be molded into any desired shape. Organic plastics are divided into two general groups: thermosetting and thermoplastic. The thermosetting group becomes rigid through a chemical change that occurs when heat is applied. These plastics cannot be remolded. The thermoplastic group remains soft at high temperatures and must be cooled before becoming rigid. This group is not used generally as a structural material.

Plastics are rapidly becoming important construction materials because of their great variety, strength, durability and lightness. The high strength to weight ratio of some plastics offers big field in the coming age of space travels and rockets. Plastics are light. The same benefits of light weight coupled with good strength and absence of corrosion offer tremendous potential as alternatives to traditional building materials. A given volume of polythene weights less than one-eighth of an equal volume of iron and less then half of the same volume of aluminum. The following characteristics of plastics are usually shared by all plastics: lightweight, corrosion resistance, electrical and thermal insulation, ease of fabrication, transparency in some materially ease of coloring and economy of production.

These characteristics of plastics explain their increasing acceptance by industries. The development of plastic has been so rapid. Since World War 11 there have been rapid developments in the manufacture of blown thermoplastic bottles made of polyethylene, polypropylene, polyvinyl chloride, or some other plastics. Plastic bottles are much lighter and less fragile than glass bottles. We can hardly name a branch of industry where plastics are not applied. Plastics have been already used in the industry: from rockets and electronics to toys and house ware. Plastic products offer many advantages over the materials they replace, such as ease of handling, lower maintenance costs and rapidity of assembly. The insulation and dielectric properties of plastics led to their early use in the electrical engineering industry, which was followed by special application in mechanical engineering. Automobile, aircraft and shipbuilding industries have also made use of advantages offered by plastics.

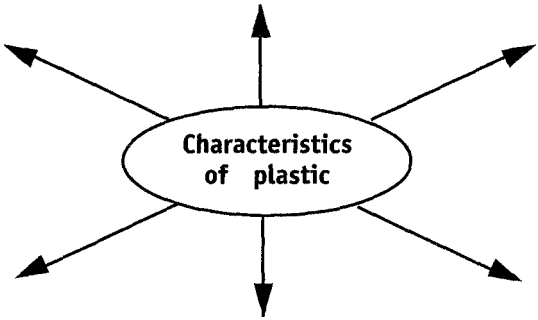
Using of plastics as materials for a construction in the form of sheets, rods or tubes is substituting the conventional metals. Plastics offer a lot of properties for the designs. Plastics have now been developed to such an extent that they can be applied to almost every branch of building, from the laying of foundations to the final coat of paint.

**3.** ***Read the text again and translate the second paragraph.***

**4.** ***Reading for specific information. Read the text and answer the following questions to the text:***

- What plastic products do you know?
- Have plastics been conceived in the laboratory or are born in a chemical plant?
- Were several years ago plastics little more than laboratory curiosities?
- What rapid developments have been in the manufacture of blown thermoplastic bottles made since World War II?
- What are the main characteristics of glass?

**5.** ***Read the text again and complete the spider gram:***




**6.** ***Read the text once more and complete the following sentences:***

- ...their increasing acceptance by industries.
- ...glass is transparent...
- ...are conceived in the laboratory...
- We are aware...
- The development of plastic...
- Since World War II...
- ...the same basic sequences.

- The following characteristics of plastics are usually shared by all plastics...
- ...are light.
- ...are rapidly becoming important construction materials because of their great variety, strength, durability and lightness.
- ...products offer many advantages over the materials they replace, such as ease of maintenance costs and rapidity of... assembly.
- A plastic is a... any desired shape and which uses an organic substance as a binder.
- ...plastics are divided into two general groups:
- ...becomes rigid through a chemical change that occurs when heat is applied.

**7.** ***Read the following statements and say whether they are true of fake. Correct the false statements:***

- We are not pietty well acquainted with the advantages and aura of wood.
- Two years ago plastics were little more than laboratory curiosities.
- Since World War 1 there have been rapid developments in the manufacture of blown thermoplastic bottles made of Polyethylene, polypropylene, polyvinyl chloride, or some other plastics.
- Plastic bottles are much lighter and less fragile than glass bottles.
- Plastics have been conceived in the laboratory and are born in a chemical plant.
- Plastics are not light.
- Plastics offer a lot of properties for these designs.
- Glass has the advantages of cheapness, rigidity and chemical inertness.

- We are pretty well acquainted with the advantages and wood.
- Few new materials are familiar to us over centuries.

## After-Reading

### Grammar focus

**1.** ***Write all the following nouns in plural:***

Wood, glass, air, water, sand, salt, coal, petroleum, a toy, bottle, pressure, cheapness.

**2.** ***Complete the table (pay attention to degrees of comparison):***

| | | |
|---|---|---|
| | | the fastest |
| little | | |
| rapid | | |
| high | | |
| | lighter | |
| | less fragile | |
| brittle | | |
| important | | |
| thermoplastic | | |
| strong | | |

**3.** ***Write down all irregular verbs and*** *their* ***three forms.***

**4.** ***Find all the sentences from the text in the Present Perfect. Copy them in your exercise-books.***

**5.** ***Make the following sentences negative and put into the interrogative:***

- Many new materials we live with have become familiar to us over century.

- Glass is transparent and while strong in some ways.
- Plastic materials are found as such in nature.
- Plastics have other things in common.
- Plastics have found wide application both in everyday life and in the industry.

**6.** ***Make notes about advantages of plastics.***

## Get talking

**1.** ***Work in pairs. Discuss:***
***a) history of new materials;***
***b) history of plastic bottles;***
***Your talks should include between 10—20 phrases.***

**2.** ***Imagine: You are an engineer of a chemical plant. Give your talk about «Main characteristics of plastics». Your talk should last a minute.***

# TEXT №31

# PLASTICS

## Before-Reading

**1.** ***Discuss the following:***

- What do you know about plastics?
- What plastic products are you familiar with?

***2. Try to guess the meaning of the following words. Use the dictionary if you need:***

- plastic
- resin
- organic
- celluloid
- electrical engineering industry
- automobile
- volume of polythene
- revolution in interior and exterior design

## While-Reading

**1.** ***Read the text and find new words from the text.***

**2.** ***Reading for general understanding. Skim read the text. Think of a good title for it. Compare it with other students' titles.***

One of new synthetic materials used widely is plastic. Although the first plastic, celluloid was introduced 100 years ago. Some types of plastics are very tough, e.g., nylon. Others may be relatively brittle, as polystyrene. Plastic is not as strong as iron or steel or concrete when it comes to supporting great weights. Plastics do not rust and therefore require no protective layer, such as paint, which can subsequently peel off. They can be colored and such color is part of the material. Some types will withstand higher temperatures than others and the ceiling temperature is constantly being raised as new varieties appear. Plastics have found wide application both in everyday life and in industry.

It is a decorative plastic - laminate. It consists of paper filler impregnated with thermosetting resins, on top of which is laid similarly impregnated paper. The paper itself is topped with a melamine resin treated skin which gives a tough surface. This sandwich being then pressed and subjected to heat. A laminate has been developed which is suitable for both inside and outside use. It is used by an architect and a builder in interior and exterior design. A Laminate can be worked by all the methods commonly employed by a builder. A Laminate has some weathering properties. There were many disadvantages in the development of decorative laminates before they could be put on the market. Its chief advantage is that it needs no maintenance other than an occasional wipe down with a damp cloth. Another important property is that curved surfaces can be introduced and sharp corners eliminated in areas where hygiene is an essential consideration.

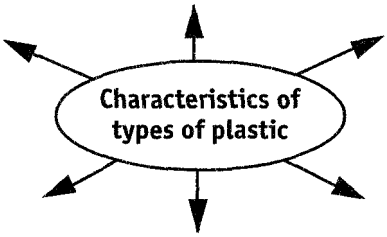
**3.** ***Read the text once more and translate about.***

***a) types of plastics;***

***b) decorative plastic — laminate.***

**4.** ***Read the text again and find the main idea of each paragraph.***

**5.** ***Read the text once more and complete the spidergram:***




**6.** ***Reading for specific information. Read the text, choose a right word.***

**7.** ***Read the paragraphs about Reinforced and Foamed Plastics and answer the following questions:***

- What is added to create a reinforced plastic?
- What are foamed plastics?

**Reinforced Plastics.** In order to improve the *(mechanical, plastic)* properties of resin, glass fibers are often added to create a reinforced *(plastic, water).* Glass fabrics offer great potential for structural use. Since the *(glass, iron)* fibers have tensile strengths up to 600.000 (42.000 kg/sq cm)? their addition to a resin results in a composite *(material,work)* with an ultimate strength up to 250.000 (17.500 kg/sq cm), although lower strength combinations are normally used as structural *(panels, boxes) as* structural shapes such as I-beams and as bodies for ships and trailers. An experimental *(house, work)* built in Disneyland in 1956 has a reinforced plastic shell.

**Foamed Plastics.** Foamed plastics, such as urethane and polystyrene, have very low compressive and tensile *(strength, glass) and* puncture easily. They can be used between two layers of a hard surface material such as a metal to create a laminated *(sandwich, ship)* panel with high stiffness. Such panels are used as floors, partitions and exterior walls in *(buildings, garages).*

**8.** ***Read the following statements and say whether they are true of false. Correct the false statements:***

- Plastic like heat.
- Plastic can not part of the material.
- Plastic is not applied in industry.
- The use of plastic in the form of robs or tubes are substituting the conventional metals.
- There was a drop in power consumption of between 10 and 20 percent.
- It is a decorative plastic — laminate.
- It is not used by an architect and a builder *in* interior and exterior design.
- Some types of plastics are very tensile.
- Color is part of the material.
- There were many advantages in the development of decorative laminates.

# After-Reading

## Grammar focus

***1. Write down all the nouns from the text in plural.***

***2. Complete the table (pay attention to degrees of comparison):***

| | | |
|---|---|---|
| | lower | |
| hard | | |
| | longer | |
| important | | |
| brittle | | |
| | higher | |
| strong | | |
| successful | | |
| light | | |
| large | | |

**3.** ***Make the following sentences negative and put into the interrogative:***

- Many new materials become familiar to us over centuries.
- Glass is transparent and strong in some ways.
- Plastic materials are found as such in nature.
- Plastics have other things in common.
- Plastics rust.
- Plastics have found wide application both in everyday life and in industry.
- Plastics as a material for construction are used in the form of sheets, rods or tubes.
- Today all plastic gears for machinery are made from fabric-base laminates.
- The large range of decorative plastics laminates now available to the architect.
- A builder has brought about a revolution in interior and exterior design.
- Many disadvantages have had to be overcome in the development of decorative laminates.

***4. Write down all irregular verbs and their three forms.***

***5. Find all the sentences from the text in the Passive Voice. Copy them in your exercise-books.***

***6. Find all the sentences from the text in the Present Perfect. Copy them in your exercise-books.***

***7. Make notes about advantages of plastics.***

## Get talking

***1. Work in pairs. Discuss:***

***a) history of a laminate;***

***b) advantages of plastics;***

***c) history of plastics.***

***Your talks should include between 10-20 phrases.***

***2. Give a summary of the paragraph (iFoamed plastics".***

**3.** ***Imagine: You are an engineer of a chemical plant. Give your talk about "Reinforced Plastics". Your talk should last a minute.***

# TEXT №32

# THE PLASTIC HOUSE FOR TOMORROW

## Before-Reading

**1.** ***Discuss the following:***

- What do you think about tomorrow's houses?
- Can you imagine plastic houses?

**2.** ***Try to guess the meaning of the following words. Use the dictionary if you need:***

- magnesium
- architect
- school of design
- research material
- skeleton
- bulldozer

**3.** ***Match the following words with their Ukrainian equivalents:***

- plastic
- an insulation
- a skeleton
- coil
- a frame
- a spring
- to weld

- каркас
- ізоляція
- зварювати
- вугілля
- пружина
- дріт
- пластиковий

# While-Reading

***1. Read the text and find new words from the text.***

***2. Reading for specific information. Read the text and answer the following questions to the text:***

- What makes the house blend with its surroundings?
- What is the skeleton of the house of the second design made of?
- What are the advantages of the spiral framework according to the designer of the house?

New developments of architects are known today. One of them is a design of a new house. Young architects from the architectural department of the Rhode Island School of Design have designed tomorrow's houses. Such a house was designed with the help of research material by a graduate of this school. The system is based on cast plastic bubbles linked together. It permits the creation of almost any size and shape of such a house. The walls are giant curved sandwiches with rigid plastic as outside surfaces and foamed plastic between to act as insulation. This house has features associating more and more with modern living. The huge glass areas admit a lot of light. A the same time it also tends to add outdoor space to the indoors and increases the feeling of speciousness. Another house is a beautiful example of what engineers like to call "blue sky thinking". Its skeleton is a coil of magnesium alloy covered by a vapor barrier and a sprayed coat of concrete. The floor is also concrete. If glass were desired, it could be set between the coils of the frame. The entire structure would rest on pieces of curved recast masonry. It is difficult to imagine such a house. On the contrary, the spiral framework would be compressed, just like a spring for shipment to the site. It is expanded, braced with welded pieces between coils there. A skin is applied. In this way the problem of manufacturing large pieces of house that are still transportable would be solved.

**3.** ***Read the text again and complete the following sentences:***

- One such house was designed with the... of this, school.
- The walls will be giant curved sandwiches, with rigid plastic as outside surfaces and ...
- The entire structure would ...
- Another house is a ... like to call "... ".
- It is difficult ...
- ...would be solved.
- One of them...
- The system is based...

**4.** ***Read the following statements and say whether they are true of false. Correct the false statements:***

- Young architects from the architectural department of the Rhode Island School of Design are not dreaming up tomorrow's houses today.
- The system is not based on cast plastic bubbles linked together, and it permits the creation of almost any size and shape of house.
- The walls will be giant curved sandwiches, with rigid plastic as outside surfaces and foamed plastic between to act as insulation.
- The huge glass areas will admit lots of light, and will also tend to add outdoor space to the indoors and increase the feeling of speciousness.
- Another house is not a beautiful example of what engineers like to call "blue sky thinking".
- Its skeleton is not a coil of magnesium alloy covered by a vapory barrier and a sprayed coat of concrete, and the floor is concrete.
- Once there it is not expanded, braced with welded pieces between coils, and the skin is applied.

# After-Reading

## Grammar focus

**1.** ***Complete the following words from the text:***

an ar__it_c__, a de _ rtm_t, a s __ oo_, a h_u_e, a m__eri_l,

a s_st_m, a c_ea_ion, a s_ze, a sha_e, a w __1, a s_ndw__hes,

a s_rf___e, a f__tu_e, a su_rou_d__g, an _re_, a li_h_,

a s __ ce, a f_el ___ng, an eng_ne_r, a sk_let_n, a f_oor,

a d_sig __r, a fr_mew_rk, a sp__ng, a pr_bl_m, a p__ces,

a d_mens_on_.

***2. Write down all the nouns from the text in plural.***

**3.** ***Write down all irregular verbs and their three forms.***

***4. Write the following words in the correct order to make sentences and translate them into Ukrainian.***

- Be, spiral, compressed, framework.
- To, ideas, mind, other, come.
- The, be, sandwiches, will, giant, walls, curved.
- Will, the, this, features, house, embody.
- Another, is, example, a, house, beautiful.

**5.** ***Make the following sentences negative and put into the interrogative:***

- Young architects are dreaming up tomorrow's houses today.

- One such house was designed with the help of research material by a graduate of this school.
- The walls will be giant curved sandwiches.
- This house will embody the features.
- The huge glass areas will admit lots of light.
- The floor is concrete.
- The entire structure would rest on pieces of curved recast masonry.
- Thus would be solved the problem of manufacturing large pieces of house that are still transportable.
- The system is based on cast plastic bubbles linked together.
- Another house is a beautiful example of what engineers like to call "blue sky thinking".

## Get talking

**1.** ***Imagine your own plastic house for future. Give your talk about this project. Your talk should last a minute.***

# TEXT № 33

# REINFORCED-CONCRETE ELEMENTS PRODUCTION

## Before-Reading

**1.** ***Discuss the following:***

- What do you know about any modern industry to maintain and improve the quality of the products?
- What about the plants producing recast reinforced-concrete elements?
- Could you describe any modern plant producing recast reinforced-concrete elements?

***2. Try to guess the meaning of the following words. Use the dictionary if you need:***

- plant floor level
- well designed plant
- main building
- autoclaves
- adequate
- drainage
- aggregate
- standards
- mixers

**3.** ***Match the following words with their Ukrainian equivalents:***

| | |
|---|---|
| • design | • ухил |
| • pebble | • заповнювач |
| • track | • встановлювати |
| • establish | • насип |
| • fill | • вагонетка |
| • aggregate | • доставляти |
| • runways | • форма |
| • deliver | • проектувати |
| • slope | • транспортні дороги |
| • lay-out | • розбиття, трасування |
| • storage bin | • галька, гравій |
| • mould | • пропарювання |
| • steam curing | • бункер для зберігання матеріалів |

**4.** ***Make up your own sentences with the following words:***

***stress*** (тиск, напруга), ***tensile*** (розтяжний), ***Plexiglas*** (синтетичне скло), ***manpower*** (трудові ресурси), ***autoclaves*** (автоклави), ***a treatment*** (обробка), ***steam*** (пара, парова), ***a capacity*** (потужність, здатність), ***a slab*** (плита, пластина), ***a beam*** (балка, брус), ***hollow*** (порожнистий), ***porous*** (пористий), ***polymer*** (полімер), ***a load*** (навантаження, завантаження).

## While-Reading

**1.** ***Read the text and find new words from the text.***

***2. Read the text once more and translate it about producing recast reinforced-concrete elements.***

**3.** ***Read the text again and find the main idea of each paragraph.***

***4. Reading for specific information. Read the text and answer the following questions to the text:***

- Why is it preferable to elevate all raw materials into overhead stoiage bins?
- Is it axiomatic now that materials can be handled more cheaply with machinery than with manpower?
- Why should be the following general aspects kept in mind when designing a plant?
- Why is a great number of plants producing recast reinforced-concrete elements now in operation in our country and abroad?

With a great number of plants producing recast reinforced-concrete elements in our country and abroad it is a rapid growth of recast-concrete products. Particularly they are wall panels, slabs, beams to serve a multitude of building needs. This industry has a task to maintain and improve the quality of the products. A lot of excellent work -has already been done to raise the standards of this industry to their present level.

First of all, a well-designed plant must be established in a given area. A careful appraisal of the potential requirements provides valuable information for determining the size of the plant which should be built. A number of economic considerations deserve a particular attention. The following general aspects should be kept in mind when designing a plant. The plant floor level should be not 6 inches above the general grade of the yard to assure. In addition, concrete yard runways should be slightly above the level of the surrounding yard so that they will remain free of pebbles and other obstructions that might interfere with the operation of tracks or other equipment. The yard should slope away from the main building in all directions if possible. Adequate space should be allowed at sides and in front of machines and casting beds.

Then, a well-designed plant must have sufficient capacity for the normal output plus reasonable margin for a possible increased.

The design should specifically and carefully antic-creased production without disrupting the original lay-out. Regardless of the general lay-out of the plant, aggregates and cement should be stored as close to the mixers as possible. Machinery and equipment designers have made important contributions by creating better machines and tools for the industry. It is axiomatic now that materials can be handled more cheaply with machinery than with manpower. All raw materials are elevated into overhead storage bins. The materials may move by gravity from the bins to the mixers and molding machinery without re-elevating. With such an arrangement the mixers are located on a separate floor level directly above the molding machinery. In large plants producing precast-concrete elements the moulded units are delivered from the moulding machinery to high-pressure steam curing autoclaves for further treatment.

***5. Read the text again and choose a right word:***

| | |
|---|---|
| contribution | 1. контрибуція; 2. сприяння; 3. вклад |
| consideration | 1. розгляд; 2. міркування; 3. обговорення |
| grade | 1. спад (ухил); 2. сорт; 3. градус |
| lay-out | 1. розбиття; 2. траса; 3. планування |
| arrangement | 1. аранжування; 2. розташування; 3. угода |
| plant | 1. рослина; 2. устаткування; 3. завод |
| to maintain | 1. містити; 2. підтримувати; 3. ремонтувати. |

***6. Read the following statements and say whether they are true of false. Correct the false statements:***

- At present in our country there are but a small number of plants producing precast elements.
- Ordinary brick is an artificial stone made of clay by moulding and burning.

- Hi is recommended to store aggregates and cement as close to the mixer as possible.
- When designing a plant it is necessary to anticipate the future installation of additional equipment.
- It is not economic to elevate all raw materials into storage bins over the mixers.
- The yard should slope to the main building of the plant from all directions.
- Materials can not be handled more cheaply with machinery than with manpower.
- Particularly they are wall panels, slabs, beams to serve a multitude of building needs.
- A well-designed plant must be established in a given area.
- The plant floor level should be not 10 inches above the general grade of the yard to assure.

**7.** ***Read the text again and complete the following sentences:***

- ...have made important contributions...
- ...without disrupting the original lay-out.
- First of all, ...
- ...should be allowed at sides and in front of...
- It is axiomatic...
- A lot of excellent work...
- ...a particular attention.
- ...producing precast-concrete elements....
- Then, a well-designed plant...
- ...the main building in all directions if possible.

# After-Reading

## Grammar focus

**1.** ***Complete the following words from the text:***

p_nel, sl_b, b__m, ma__in_ y , g_n_ral , gr_de, manp__er, inf__ma__n , ad__uate,

high-pre__ure, dr___nag_, e_o_omi_, ag__reg_te, st_nd__d, mi_ers , p_b_le.

***2. Write down alt the nouns from the text in plural.***

**3. *Complete the table*** *(pay attention to degrees of comparison):*

| | | |
|---|---|---|
| young | | |
| gteat | | |
| careful | | |
| | better | |
| noimal | | |
| general | | |
| potential | | |
| economic | | |
| vast | | |
| excellent | | |

***4. End all the sentences from the text in the Passive Voice. Copy them in your exercise-books.***

***5. Find all the sentences from the text with modal verbs. Copy them in your exercise-books.***

## Get talking

**1.** ***Make up a plan to the text.***

***2. Work in pairs. Discuss:***
***a) Producing reinforced concrete elements.***
***b) General aspects in designing.***
***Your talk should last a minute and include between 10—20 phrases.***

**3.** ***Give a summary of the text in 150 words.***

# TEXT № 34

# CONCRETE

## Before-Reading

**1.** ***Discuss the following:***

- It is axiomatic now that materials can be handled more cheaply with machinery than with manpower, is not it? Try to prove your own idea.
- A great number of plants producing recast reinforced-concrete elements is now in operation in our country and abroad, is not it? Try to prove your own idea.
- What reinforced-concrete elements do you know?

**2.** ***Make up your own sentences with the following words:***

***The maximum size*** (максимальний розмір), ***small concrete sections*** (невеликі секції з цементу), ***the minimum thickness of the finished concrete*** (мінімальна товщина залитого бетону), ***cement*** (цемент).

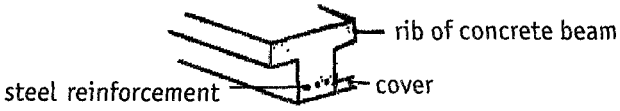
## While-Reading

**1.** ***Read the text and find new words from the text.***

**2.** ***Reading for general understanding. Skim read the text. Think of a good title for it. Compare it with other students' titles.***

**3.** ***Reading for specific information. Read the text, choose a right word.***

Concrete is made from *(cement, nylpn)* coarse aggregate (stones), fine aggregate (sand or crushed stone) and water. Coarse aggregate ranging from 5 mm to 40 mm may be used for *(normal, class)* work. The maximum *(size, piece)* of the aggregate should not be greater than one quarter of the minimum thickness of the finished concrete. The *(normal maximum sizes, large parts)* are 20 mm and 40 mm (20 mm being more common). The maximum size of aggregate which should be used in small *(concrete sections, window frames)* or, where reinforcement is close together, is 10 mm.




Reinforced concrete section

In *(concrete, room)* with widely spaced reinforcement, such as solid slabs, the size of the coarse aggregate should not be greater than the minimum cover to the reinforcement otherwise spilling will occur, i.e. the breaking off concrete's pieces of below the reinforcement. For reinforced *(sections, boxes)* e.g. the ribs of main beams, the maximum size of the coarse aggregate should be either:

(i) 5 mm less than the minimum horizontal distance between the Reinforcing rods, or.

(ii) 5 mm less than the minimum cover to the reinforcement, Which is smaller?

**4.** ***Read the following statements and say whether they are true or false. Correct the false statements:***

- Concrete is made from three different materials.
- Coarse aggregate ranges in size from 20 mm to 40 mm.

- When the minimum thickness of the finished concrete is 100 mm, the maximum size of aggregate should not be greater than 25 mm.
- When the reinforcing rods are close together, the maximum size of aggregate used should be 10 mm.
- The reinforcing rods are placed near the bottom of the rib of a concrete beam.
- Spilling can occur in a solid concrete slab when the cover to the reinforcement is greater than the maximum size of the coarse aggregate.
- When the minimum horizontal distance between reinforcing rods is 15 mm, the maximum size of aggregate should be less than 12 mm.

  Maximum score – 7

**5.** ***Read the text again and complete the following sentences with the name of a building trade:***

- The ... finish just before the plumbers start.
- The ... should finish by the end of week 40.
- The ... work until the end of week 30.
- The ... work up to the end of week 50.
- The ... should finish no later than the end of week 8.

# After-Reading

## Grammar focus

**1.** ***Complete*** *the* ***following words from the text:***

_oncr__te , __em_nt, so _ d, sl_b, ag_reg_te, ma _ mum , s_ct_on, thi __ ne__s, s_ze.

**2.** ***Write the following words in the correct order to make sentences and translate them into Ukrainian:***

- from, concrete, cement, fine aggregate, and, is, coarse, water, aggregate.
- work, for, coarse, from, to, used, may, normal, be, aggregate, 5 mm, ranging, 40 mm.
- 40 mm, are, the normal, sizes, 20 mm, maximum, and.
- aggregate, 10 mm, close, concrete, size, of, which, together, is, where, the maximum, should, used, sections, in, be, small, or, reinforcement.
- such, cover, occur, of, the, reinforcement, in, widely, concrete, with, spaced, as, slabs, the size, not, greater, the, minimum, otherwise, i.e., pieces, below, with, solid, the coarse, aggregate, should, be, than, to, spilling, will, the breaking, off, of.

**3.** ***Write the numerals from the text in letters.***

***4. Write down all irregular verbs and their three forms.***

## Get talking

**1.** ***Imagine: You are a future skilled engineer. Give your talk about concrete sections. It should last about a minute.***

# TEXT № 35

# THE METHOD OF PRESSURE

## Before-Reading

**1.** ***Discuss the following:***

- What do you know about any building construction?
- What building materials are used during any construction?

**2.** ***Try to guess the meaning of the following words. Use the dictionary if you need:***

- mixture
- cement
- monolith
- resistant
- standardized concrete units

**3.** ***Make up your own sentences with the following words:***

***strong concrete*** (міцний цемент), ***to use a great many forms*** (використовувати якомога більше форм, ***a monolith*** (моноліт), ***a building's framework*** (будівельна рамка).

# While-Reading

***1. Read the text and find new words from the text.***

***2. Reading for general understanding. Skim read the text. Think of a good title for it. Compare it with other students' titles.***

Nowadays a building's framework is made of reinforced concrete and of structural steel. Concrete is made by mixing together small stones, sand, cement and water. The coarse stones used in the mix give the concrete its strength. The sand is needed to fill the gaps between the stones. The cement, mixed with just enough water to make it into a paste, covers the surface of all solids, and binds the entire mixture into single mass. It is used less water to make mixing concrete denser and stronger. It is a difficulty here. Dry mixing concrete is not so easy to stir as one that is fairly wet and sloppy. When it is really strong concrete, it is mixed with the necessary minimum of water and placed in the forms. After this it is vibrated with electrically vibrated bars. The mixture is tipped or piped into forms (wooden molds) of the shape required.

To make concrete resistant to bending, building engineers reinforce it. It is done by putting bars of steel or miniature steel frameworks into the forms. Hence is named «reinforced concrete». With such a material a variety of constructional shapes can be produced. They can be "shells" and roofs. For this reinforced concrete is used in thin sheets. Reinforced concrete can be used more effectively if before the external load comes on. For instance, suppose that a reinforced beam could be bent out of the straight by an inch before it developed serious cracks. By pressing it in reverse, building engineers prepare the concrete in advance to withstand the pressures and pulls that the external load causes.

Concrete can be pressed in two ways. In the first method, the concrete is casted around stretched steel wires. After setting concrete, the wires are released and compress the concrete as they contract. Such a method of pressing produces pretension concrete. The other method is called post-tensioning. In the case of a beam

the concrete is casted around polythene tubes. After setting concrete, steel cables are drawn through polythene tubes. These cables are anchored at one end of the beam, stretched by jacks and then fixed at the end of the beam.

In constructing of a building, it is possible to cast the floors and walls as well as the framework directly on the spot where they are to stand. Building forms a monolith. Last one is a large artificial stone composed entirely of concrete that has been shaped within wooden molds fitted together perfectly. To cast all the parts in place, a builder has to use many forms. They are removed as soon as the concrete has set. Before beginning another work, concrete must be given plenty of time to harden. In order to save time, a builder may prefer to use a number of standardized concrete units. These can be made. Individual members can be pressed. Also different sections of the building can be prefabricated.

**3.** ***Find and translate all the sentences containing the following words:***

- concrete
- sand
- reinforced concrete
- pretension concrete
- dry mix
- window frames
- polythene tubes
- vibrated bars
- steel wires
- gaps
- standardized concrete units

**4.** ***Read the text again and find the main idea of each paragraph.***

***5. Reading for general understanding. Read the text again and answer the following questions to the text;***

- How many methods of concrete do you know?
- Can you tell anything about the first method of a concrete?
- How is the second method called?
- Can you tell anything about the second method of a concrete?
- What can a builder do to save time?
- How is the concrete made?
- Can the concrete consist of stones, sand, cement and water?
- What is concrete?
- What is "reinforced concrete"?
- What method of concrete is used in Russia?
- What method of concrete is better?

***6. Read the following statements and say whether they are true of fake. Correct the false statements;***

- To make the concrete resistant to bending, engineers reinforce it.
- Concrete is not made by mixing together small stones, sand, cement, and water in rotating drams.
- Concrete can not be pressed in two ways.
- With such material an infinite variety of constructional shapes can be produced, including "shells" and roofs.
- The building then forms a monolith
- Last one is a large artificial stone composed entirely of concrete that has been shaped within wooden molds that fit together perfectly.
- In constructing a building, it is possible to cast the floors and walls as well as the framework directly on the spot where they are to stand.
- They are removed as soon as the concrete has set.
- For this reinforced concrete is used in thin sheets.

- Nowadays a building's framework is made of reinforced concrete and of structural steel.

**7.** ***Read the text again and complete the following sentences:***

- ... are as likely to be of reinforced concrete as of structural steel.
- ...is made by mixing together small stones, sand, cement, and water in rotating drums.
- The mixture is tipped or piped...
- The coarse stones used in covers the surface of all solids and binds the entire mixture .
- ...it is mixed with the necessary minimum of...
- Hence is named...
- ...pretension concrete.
- Before beginning another work, ...
- It is used less water...
- By pressing it in reverse, ...

# After-Reading

## Grammar focus

**1.** ***Complete the following words from the text:***

frmew _ к , mono _ th, w _ den, b _ lder, lo_d, st _ 1, st_ne, res_st_nt, pr ten on, cr k, _a_le, b ___lding, m_ter_ 1, mi_tu_e, sh_pe.

**2.** ***Write down all the nouns from the text in plural.***

**3.** ***Complete the table (pay attention to degrees of comparison):***

| | | |
|---|---|---|
| | less | |
| large | | |
| | | The greatest |
| dry | | |
| wet | | |
| strong | | |
| modern | | |
| serious | | |
| external | | |
| single | | |

**4.** ***Write the following words in correct order to make sentences and translate them:***

- Between, the, needed, to, is, gaps, sand, the, fill, required, shape.
- Can, two, in, concrete, pressed, be, ways.
- Method, called, the, is, ot5her, post-tensioning.
- Concrete, by, stones, is, mixing, cement, drums, made, together, small, in sand, rotating, water.
- The, story, given, concrete, be, of, plenty, each, of, to, time, before, on, harden, the, can, work, next, begin.
  Maximum score – 5

**5.** ***Make the following sentences negative and put into the interrogative:***

- Concrete is made by mixing together small stones, sand, cement, and water in rotating drums.
- Concrete can be pressed in two ways.
- The other method is called post-tensioning.
- The sand is needed to fill the gaps between the stones.
- Less water is used in mixing the concrete.
- It is used less water to make mixing concrete denser and stronger.
- It is a difficulty here.

- A builder has to use many forms.
- They can be "shells" and roofs.
- Concrete must be given plenty of time to harden.

***6. Find all the sentences from the text in the Passive Voice. Copy them in your exercise-books.***

***7. Find all the sentences with the modal verbs. Copy them in your exercise-books.***

## Get talking

***1. Make up a plan to the text.***

***2. Work in pairs. Discuss:***

***a) a monolith;***
***b) methods of pressing.***

***Your talk should last a minute. Your talk should include between 10—20 phrases.***

**3.** ***Imagine: You are a future skilled engineer. Give your talk about one of the most important building material — concrete. It should last about 2 minutes.***

**4.** ***Give a summary of the paragraph about making the concrete resistant to bending in 5 sentences.***

# TEXT №36

# What are the fundamental characteristics of nylon?

## Before-Reading

**1.** ***Discuss the following:***

- What natural materials do you know?
- What synthetic materials do you know?
- Is nylon a synthetic or natural material? Try to prove your own point of view.

**2.** ***Try to guess the meaning of the following words. Use the dictionary if you need:***

- characteristic
- application
- plastic materials
- type
- machine
- nylon
- vibrations

# While-Reading

***1. Read the text and find new words from the text***

***2. Find and translate ail the sentences containing the following words;***

- timber
- agricultural machinery
- general industrial application
- food machinery
- new fields

***3. Reading for general understanding. Read the text again and answer the following questions to the text:***

- What is nylon?
- Is nylon a very versatile material?
- Is nylon capable of overcoming a wide range of difficult problems?
- Is nylon a material for the manufacture of bearings and runners of all sizes in many types of machines?
- Where is nylon used?
- Why is nylon a modern material?

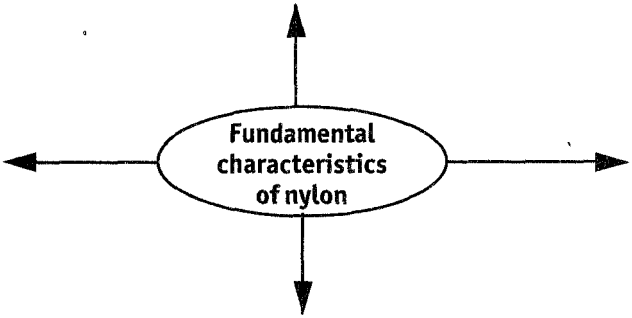
Recently using of plastics in industrial application has grown. This growth has been due to their exceptional in-built qualities. Metal and timber often are more difficult to fabricate than plastics materials. Gears made of plastics produce less noise and vibrations than metal gears. We can say about an improvement of older materials for many purposes. New fields, which were not previously possible, have opened up.

A new material as nylon has been accepted. It is a material for the manufacture of bearings and runners of all sizes in many types of machines, earth-moving equipment and agricultural machinery due to

its fundamental characteristics of low friction and good wear resistance. Nylon is a very versatile material and is capable of overcoming a wide range of difficult problems. It will operate satisfactorily without lubrication in an abrasive atmosphere. One of its features is that nylon functions under water or is immersed in any other liquid. Being non-toxic nylon is frequently used in food machinery. Nylon gears usually do not require lubrication, they are shock-resistant, do not deform permanently and — running in train with metal gears—they outlast them.

**4.** ***Read the text again and find the main idea of each paragraph.***

**5.** ***Read the text once more and complete the following spidergramm:***




***6. Read the text again and complete the following sentences:***

- Recently using of plastics...
- ...a material for the... in many types of machines, earth-moving equipment and agricultural machinery due to its... of low friction and good wear resistance.
- ...is very versatile material and is capable of overcoming a wide range of difficult problems.
- This growth has been...
- One of its features...

- ...they outlast them.
- ...which were not previously possible...

**7.** ***Read the following statements and say whether they are true or false. Correct the false statements:***

- The use of plastics in general industrial application has not grown considerably in recent years.
- Metal and timber often are not more difficult to fabricate than plastics materials and also may need surface protective which is not necessary with plastics.
- Nylon gears usually do require lubrication, they are shock-resistant, do deform permanently and — running in train with metal gears — they outlast them.
- Nylon is very versatile material and is capable of overcoming a wide range of difficult problems.
- Gears made of plastics produce less noise and vibrations than metal gears.

# After-Reading

## Grammar focus

**1.** ***Complete the following words from the text:***

a g_owt__, a m_teri_l, a p _ pose, a f _ id, a m_ta_, a t __ be__, a n_is_, a v_brat ___ n, a m_nuf_ct__re, a r_unn_r, a s_ze, a ty_e, a mach __ e, a e_ui_me_t, a m_chi_er_, a c_ara_te_ist_c, a res_st_nc_, a r_ng_, a pr_ble_, a l_bric_tion, an a_m_sph_re, a f_n_tio_.

***2. Write down ail the nouns from the text in plural.***

***3. Make the following sentences negative and put into the interrogative;***

- Metal and timber of ten are more difficult to fabricate than plastics materials.
- Nylon has been accepted as a material for the manufacture of bearings and runners of all sizes in many types of machines.
- Nylon is a very versatile material.
- Nylon gears usually do not require lubrication.
- The use of plastics in general industrial application has grown in recent years.

**4.** ***Write down alt irregular verbs and their three forms.***

**5.** ***Write about "The fundamental characteristics of nylon?" Your story should include 10 sentences.***

## Get talking

***1. Give a summary of the text in 150 words.***

***2. Imagine: You are a future skilled engineer. Give your talk about one of the most important building material — nylon. It should last about 2 minutes.***

# Glossary

***1. Read these words. Try to continue the glossary.***

| Слово | Переклад | Речення |
|---|---|---|
| Spadework | Підготовчі роботи | Spadework are made after end of drawing up of the topographical plan for definition of a technique and provisional volume of forthcoming work on inspection and search of underground communication. |
| Topographical plan | Топографічна карта | |
| Technique | Методика (технічна) | |
| Forthcoming work | Майбутня робота | |
| Underground communication | Підземні комунікації | |
| Gathering materials | Збір матеріалів | At a spadework gathering materials about underground communication available in a nature with drawing up of the scheme of an arrangement of networks is made. |
| Arrangement of networks | Розташування мереж | |
| Data of inventory character | Дані інвентаризаційного характеру | Data of inventory character - quantity of wells, length of networks, a material of pipes and mark of a cable, pressure of gas. |
| Wells | Колодязі | |
| Pipes | Труби | |
| Pressure of gas | Тиск газу | |
| Water drain | Каналізація | For this purpose, knowing provisional quantity of wells of each kinds of network, establish, that, for example, wells of water drain will be mark numbers with 1 on 500, a water pipe with 501 on 1000. Scheduled position of pipes, cables and channels in wells often does not coincide with a projection of the center of the hatch adhered on a surface of the ground by |
| Water pipe | Водопровід | |
| Scheduled position | Планове положення | |
| Projection | Проекція | |
| Hatch | Люк | |
| Geodetic methods | Геодезичні методи | |
| Surface | Поверхня | |

| Слово | Переклад | Речення |
|---|---|---|
| Scale | Масштаб | geodetic methods, stated above, therefore by manufacture of shootings and scales 1:500 and 1:1000 the scheduled binding of all entering and leaving linings placed in a well or the chamber is carried out. |
| Scheduled binding | Планова прив'язка | |
| Measure | Вимір | To measure the shortest distance from lines up to points of crossing of a lining with walls of a well, and also up to possible breaks of the pipeline inside of a well. |
| Points of crossing | Точки пересічення | |
| Lining | Прокладка | |
| Breaks of the pipeline | Злами трубопроводу | |
| Plane | Плоскість | Visually to plan and design on the same plane a line from a projection of the center of the hatch in a direction of the adhered pipeline or a cable, using adjacent wells or external attributes of communication. |
| Direction | Напрямок | |
| Adjacent | Суміжний | |
| External attributes | Зовнішні признаки | |
| Surveyed wells | Обстежені колодязі | The surveyed wells incorporate among themselves lines when for this purpose data of inspection enough. |
| Incorporate | Сполучати | |
| Leveling | Нівеляція | Leveling of underground communications includes definition of heights top of a pig-iron ring of the hatch of wells, the grounds and also heights of the pipes located in a well, cables and channels. |
| Definition | Нівеляція | |
| Pig-iron | Чавун | |
| Geometrical leveling | Геометрична нівеляція | At shooting in scales 1:500,1:5000 heights define from results of geometrical leveling on two parties. |

| Слово | Переклад | Речення |
|---|---|---|
| Admissible divergence | Допустима різниця | The admissible divergence between results, received on two parties, should not exceed 20 mm. |
| Dimensions | Габарити | At presence in a well of channels of different dimensions or adjoining at different levels it is necessary to define heights of top and a bottom of each channel. |
| Metal<br>Timber<br>Plastics materials | Метал, Стройовий ліс<br>Матеріали з пластика | Metal and timber often are more difficult to fabricate than plastics materials. |
| Nylon<br>Versatile material | Нейлон<br>Гнучкий матеріал | Nylon is a very versatile material and is capable of overcoming a wide range of difficult problems. |
| Concrete<br>Sand<br>Cement | Бетон<br>Пісок<br>Цемент | Concrete is made by mixing together small stones, sand, cement, and water. |
| Reinforced concrete | Залізобетон | For this reinforced concrete is used in thin sheets. |
| Monolith | Моноліт | Building forms a monolith. |
| Wall panels<br>Slabs Beams | Панелі Плити<br>Балки, бруси | Particularly they are wall panels, slabs, beams to serve a multitude of building needs. |
| Durability<br>Lightness<br>Construction materials | Міцність, довговічність<br>Легкість<br>Будівельні матеріали | Plastics are rapidly becoming important construction materials because of their great variety, strength, durability, and lightness. |
| Architect | Архітектор | A man who designs buildings and makes the plans for them is called an architect. |

| Слово | Переклад | Речення |
|---|---|---|
| Laminate<br>Weathering properties | Ламінат<br>Стійкі (міцні) властивості | A Laminate has home weathering properties. |
| Aluminum's strength<br>Corrosion<br>Resistance<br>Flexibility | Міцність алюмінію<br>Корозія<br>Опір<br>Гнучкість | Aluminum's strength, low density, corrosion, resistance and design flexibility make it an ideal *(material, role)* for building applications. |
| Copper<br>Conductor of electricity | Мідь<br>Провідник електрики | Copper is the best conductor of electricity. |
| Lime<br>Gypsum | Вапно<br>Гіпс | Among them are lime, gypsum and cement. |
| Iron<br>Steel | Залізо<br>Сталь | Plastic is not as strong as iron or steel or concrete when it comes to supporting great weights. |
| Doors<br>Windows<br>Walls Roofs | Двері<br>Вікна<br>Стіни даху | They are doors to allow ingress and egress; windows to admit light and air; walls for shelter or support; roofs to keep out the rain, snow, cold, and sometimes sun. |
| Bronze<br>Alloy<br>Tin | Бронза<br>Сплав<br>Олово | Bronze is an alloy of copper and tin. |
| Density weight | Щільність | Density weight is the amount of mass in a unit volume. |
| Zink<br>Process of galvanizing | Цинк<br>Процес гальваніки | Zink is used in the making of dry batteries and in the process of galvanizing. |
| Ductility | Еластичність | Ductility is the ability of a material to deform without breaking. |

| Слово | Переклад | Речення |
|---|---|---|
| Toughness | Жорсткість, пружність | Toughness is the resistance of a material to breaking when there is a crack ink. |
| Metallurgical and machine-building industries<br>Mass production of prefabricated large-size concrete and reinforced concrete structural elements | Металургійна і машинобудівна індустрії<br>Масове заводське виробництво бетонних і залізобетонних конструкцій великих розмірів | The development of the metallurgical and machine-building industries made possible mass production of prefabricated large-size concrete and reinforced concrete structural elements. |
| Synthetic materials | Синтетичні матеріали | One of new synthetic materials used widely is plastic. |
| Sheets<br>Rods<br>Tubes | Листи<br>Прути, стрижні<br>Тюбики | Using of plastics as materials for a construction in the form of sheets, rods or tubes is substituting the conventional metals. |
| Lead alloy<br>Bismuth<br>Cadmium | Сплав зі свинцю<br>Вісмут<br>Кадмій | Other lead alloy is a type of metal such as lead, tin, bismuth, cadmium. |
| Recrystallization | Рекристалізация | Other treatments include steel heating to promote recrystallization. |

## Література


1. Філіппова Л.В. Методичні вказівки до читання текстів на англійській мові для студентів спеціальності «Промислове та цивільне будівництво». – Кіровоград: КДТУ, 2004 – 39 с.
2. Великий сучасний англо-український українсько-англійський словник / Авт. Загнітко А.П., Данилюк І.Г. – Донецьк: ТОВ ВКФ «БАО», 2008. – 1008с.
3. Michael Duckworth. Oxford Business English. Grammar and Practice. – Oxford University Press, 1995.
4. Building Information Modeling using Revit for Architects and Engineers /Atefe Makhmalbaf, Arlington, Texas, 2022. – 395p.
5. Raymond Murphy *English Grammar in Use* // A self-study reference and practice book for intermediate students with answers // Second Edition. Cambridge University Press, 2001.
6. Yachontova T.V. English Academic Writing. – Львів: Видавничий центр ЛНУ ім. Івана Франка, 2002. – 220 с.
7. Materials for Construction and Civil Engineering. Ed. Conclaves, M.Clara, Margarido. -2015. – 278p. http://springer.com.

## CONTENTS



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**«Будівництво та цивільна інженерія» всіх форм навчання.**
Методичні рекомендації. Частина 3. – ЦНТУ, 2023, – 78 с.
85730 друк. зн. 2,6 ум. друк. арк.