

СРЕДНЕЕ
ПРОФЕССИОНАЛЬНОЕ
ОБРАЗОВАНИЕ



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АНГЛИЙСКИЙ ЯЗЫК ДЛЯ ПРОФЕССИИ «СЛЕСАРЬ-САНТЕХНИК»

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«Мастер жилищно-коммунального хозяйства»
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Целью данного учебника является совершенствование языковых, коммуникативных и профессиональных компетенций студентов. Имеет единую структуру уроков и упражнений, построенных на основе аутентичных текстов. Представляет собой прекрасную базу для развития навыков и умений основных видов письменной и речевой деятельности, систематизации грамматического материала, расширения словарного запаса обучаемых в профессиональной области, необходимых для дальнейшей самостоятельной работы студентов над специальной литературой.

Соответствует ФГОС СПО последнего поколения.

Для студентов среднего профессионального образования, обучающихся по направлению 08.01.10 «Мастер жилищно-коммунального хозяйства». Может быть также рекомендован работникам инженерно-технического профиля и специалистам жилищно-коммунального хозяйства.

Ключевые слова: английский язык; профессия; слесарь-сантехник.

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Оглавление

Предисловие	6
Introduction to the Plumbing Profession	8
PART I. SAFETY, TOOLS AND MEASURING INSTRUMENTS	17
Unit 1. Safety	18
Unit 2. Tools	28
Unit 3. Measuring Instruments (Instrumentation)	43
Unit 4. Tolerances, Fittings and Measurements	52
PART II. PLUMBING BASICS. MATERIALS	59
Unit 1. Introduction	60
Unit 2. Metals. Ferrous Metals	68
Unit 3. Treatment Operations of Steel	74
Unit 4. Non-Ferrous Metals	84
Unit 5. Corrosion of Metals	89
Unit 6. Non-Metallic Materials. Ceramics	96
Unit 7. Plastics	103
Unit 8. Bitumen and Asbestos	109
Unit 9. Paints and Varnishes	114
Unit 10. Insulation, Lubricants, Coolants and Abrasives	121
PART III PLUMBING BASICS. OPERATIONS	129
Unit 1. Material Processing	130
Unit 2. Marking, Punching, Cutting Out, Straightening, Bending, Pipe Flaring	135
Unit 3. Sawing, Filing, Drilling, Reaming, Countersinking, Threading	146
Unit 4. Riveting, Scraping, Grinding, Lapping, Polishing	154
Unit 5. Soldering, Tinning, Metallization, Gluing/Adhesion	163
Unit 6. Dismantling, Repair and Assembly	171
Unit 7. Casting	179
Unit 8. Metal Forming	186

Unit 9. Forging	192
Unit 10. Grinding	198
Unit 11. Powder Metallurgy	203
Unit 12. Nanotechnology	208
PART IV. WELDING	215
Unit 1. Fundamentals of Welding	216
Unit 2. Basic Terms of Welding	223
Unit 3. Basic Welding Principles.....	230
Unit 4. Welding Joints, Types and Positions.....	237
Unit 5. Fundamentals of an Electric Arc.....	246
Unit 6. Arc Welding	254
Unit 7. Cutting.....	259
Unit 8. Safety in Welding.....	270
PART V. PLUMBING SYSTEMS AND FIXTURES	279
Unit 1. Residential Plumbing Systems.....	280
Unit 2. Pipes, Tubes, Fittings, Valves.....	291
Unit 3. Faucets.....	301
Unit 4. Sinks	308
Unit 5. Bathtubs.....	316
Unit 6. Bathroom Sink Drain Parts.....	323
Unit 7. Showers.....	332
Unit 8. Toilets.....	339
Unit 9. Bidets.....	346
Unit 10. Cesspools and Septic Tanks.....	350
Unit 11. Washing Machines	354
Unit 12. Dishwashers.....	362
Unit 13. Food/Garbage Disposers	366
Unit 14. Water Heaters	369
Unit 15. Water Softeners.....	374
Unit 16. Reverse-Osmosis Water Filters.....	376
PART VI. HEATING SYSTEMS IN BUILDINGS	383
Unit 1. Types of Domestic Heating Systems	384
Unit 2. Central Heating Systems.....	389

Unit 3. Boilers.....	392
Unit 4. Radiators.....	397
PART VII. COOLING SYSTEMS IN BUILDINGS	403
Unit 1. Types of Home Cooling Systems.....	404
Unit 2. Air-Conditioning.....	409
Unit 3. HVAC Air Conditioner.....	411
Unit 4. Heat Pump Systems.....	413
Unit 5. Ductwork.....	416
Unit 6. Common Air Conditioning Problems.....	419
PART VIII. GAS SUPPLY SYSTEMS IN BUILDINGS	423
Unit 1. Introduction.....	424
Unit 2. Municipal Gas Distribution Systems.....	427
Unit 3. Gas Supply Lines (Building Lines).....	430
Unit 4. LP (Liquefied Petroleum) or Natural Gas Problems.....	433
PART IX. PLUMBING REPAIRS	439
Unit 1. Pipe Problems.....	440
Unit 2. Faucet Repairs.....	443
Unit 3. Common Toilet Problems.....	452
Unit 4. Drains.....	465
Англо-русский терминологический словарь	475
Названия некоторых слесарных инструментов	504
Словарь контекстуальных значений активной лексики	507
Таблица неправильных глаголов	508
Меры измерений (Units of Measurement)	521
Список рекомендованной литературы	523

Предисловие

Данный учебник подготовлен в соответствии с Государственным образовательным стандартом и отвечает требованиям программы по дисциплине «Английский язык» для средних специальных учебных заведений. Учебник может быть использован при обучении студентов колледжей и неязыковых вузов, а также всеми, изучающими английский язык самостоятельно.

Учебник составлен по целевому и тематическому принципу. Каждый раздел (Unit) включает аутентичный текст с комплексом упражнений на активизацию лексики в парной, групповой и индивидуальной работе; и грамматическую часть (Grammar Revision), нацеленную на закрепление знаний английской грамматики и профессиональной лексики.

Текстовый материал и система упражнений, составленные на высоком научно-методическом уровне, представляют собой прекрасную базу для развития навыков и умений основных видов речевой деятельности, систематизации грамматического материала, расширения словарного запаса обучаемых.

Основными целями данного учебника являются:

- формирование иноязычной профессиональной коммуникативной компетентности необходимой для общения в профессиональной сфере;
- подготовка будущих специалистов к практическому использованию иностранного языка в профессиональной деятельности;
- ознакомление учащихся с текстами по специальности и развитие навыков работы с текстами;
- помощь в овладении необходимым лексическим минимумом, с целью активизации навыков монологической и диалогической беседы по данным темам;
- расширение знаний учащихся о своей будущей профессии;
- стимулирование мотивации учащихся к самостоятельному чтению и пониманию оригинальной научно-технической литературы на английском языке.

Основу комплекса упражнений составляют коммуникативные упражнения, направленные на формирование речевых умений студен-

тов и обеспечивающие высокий уровень практического владения иностранным языком.

Учебник состоит из 9 основных частей и приложений.

Основные части: *Part I. Safety, Tools and Measuring Instruments; Part II. Plumbing Basics. Materials; Part III. Plumbing Basics. Operations; Part IV. Welding; Part V. Plumbing Systems and Fixtures; Part VI. Heating Systems in Buildings; Part VII. Cooling Systems in Buildings; Part VIII. Gas Supply Systems in Buildings; Part IX. Plumbing Repairs*, последовательно рассматривают такие важные области работы слесаря-сантехника как правила техники-безопасности, основные технологические процессы, материалы, инструменты и оборудование, возможные поломки сантехнического оборудования и способы их устранения.

Приложения содержат: Англо-русский терминологический словарь, названия некоторых слесарных инструментов, таблицу неправильных глаголов и меры измерений.

Каждый раздел построен по единой структуре:

- ввод в тему (обсудите в парах);
- список лексических единиц, подлежащих усвоению и упражнения на их первичное употребление в речи; задания на активизацию лексики (переведите следующие словосочетания на русский/английский язык);
- текст с заданиями, имеющими различные цели: просмотрное (ответить на вопросы), поисковое (закончите предложения, выбрав соответствующее окончание в правой колонке), изучающее (найдите соответствия). Все тексты взяты из аутентичных английских и американских источников, адаптированы, и носят исключительно профессионально-ориентированный, функциональный характер;
- упражнения, нацеленные на формирование терминологического профессионального минимума;
- упражнения, направленные на более глубокую работу с текстом, на поиск англоязычных соответствий;
- упражнения, ставящие своей целью снятия грамматических трудностей;
- упражнения, направленные на совершенствование навыков говорения, как диалогической, так и монологической речи;
- упражнения, нацеленные на формирование навыков письменной речи (заполнить таблицу, написать пересказ текста, перевести предложения).

Introduction to the Plumbing Profession

Обсудите в парах.

1. What is the first association you have when you hear the word «Plumbing»?
2. Do you think plumbing students should learn the English language? Why?
3. Why did you decide to study in college?
4. Are you going to continue your study at the university?

Прочтите слова и выражения и запомните их русские эквиваленты.

plumbing(n) — сантехника	screws(n) — винты
pipe(n) — труба	solvent(n) — растворитель
fixture(n) — арматура	soldering(n) — пайка
install(v) — устанавливать	welding(n) — сварка
removal (n) — удаление	equipment(n)- оборудование
wastes(n) — отходы	observe(v) — соблюдать
influence(v) — влиять	pressure gauge(n) — манометр
lead(n) — свинец	leak(v) — протекать
treatment (n) — обработка	blueprint(n) — чертеж
surface (n) — поверхность	assess(v) — оценить
maintaining(n) — обслуживание	establish(v) — установить
faucet(n) — кран, смеситель	calculations(n) — расчеты
sink(n) — раковина	threading(n) — нарезание резьбы
stove(n) — кухонная плита	bending(n) — гибка
sewage system(n) — канализация	objective(n) — цель
blow(v) — взорвать(ся)	employee(n) — работник

Plumbing is a system of pipes and fixtures installed in a building for the distribution and use of potable (drinkable) water and the removal of waterborne wastes

The concept of plumbing came from the influence of Rome and was derived from a Latin word **plumbum**, which means **lead**. In those ancient years, lead was used mainly for water supply systems because of its adaptability to any shape.



Although ancient Greek, Persian and Indian cities had used primitive forms of plumbing, the Romans were the first to pioneer expansive systems of plumbing, such as aqueducts, the removal of wastewater, and other sanitary features.

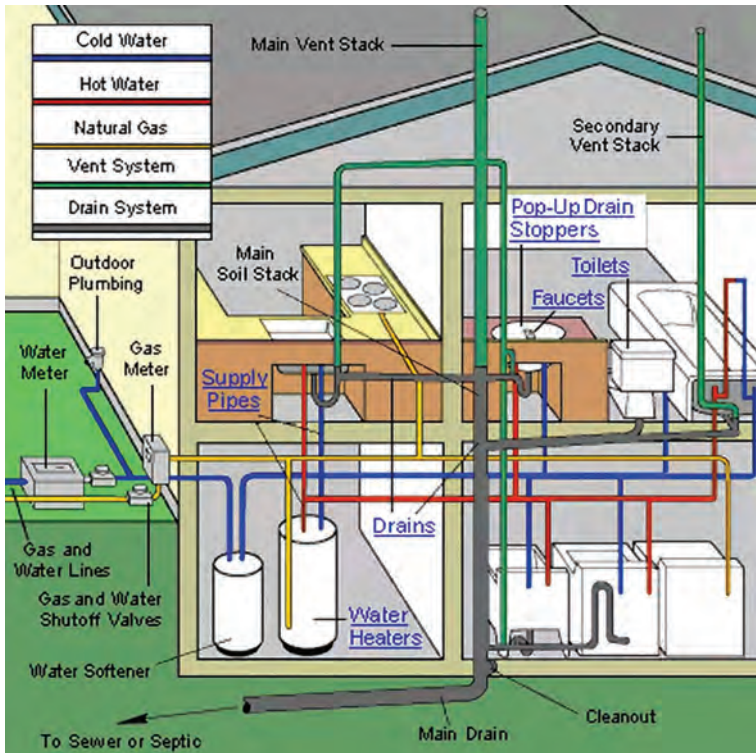
However, at present, materials such as metal, steel and plastic are often used in production. *In the developed world, plumbing infrastructure is critical to public health and sanitation.*

Different Types of Plumbing Services. Today, plumbing systems might be used for: *Heating and cooling, Waste removal, Potable cold and hot water supply, Water recovery and treatment systems, Rainwater, surface and subsurface water drainage, Fuel gas piping.*

A plumber is a person that fits and repairs plumbing and associated fixtures and they also are involved in the design, management, consultancy, teaching, and so on.

Here are a few areas of plumbing services:

- **Water supply:** A very common plumbing task that deals with water taps, pipes and irrigation. Plumbers deal with water system installations (hot and cold water), constructing, repairing, replacing and maintaining faucets, sinks and garden irrigation and the overall system.



- **Drainage:** Involves laying and securing stormwater, installation of sewage pipes and treatment systems for drainage systems.
- **Irrigation:** Deals with valve devices that help control the flow of fluid from its source down to its end zone.
- **Gas fitting:** Refers to anything that involves the use of pipes, flues and a control system to supply gas, for hot water units and cook-tops and stoves.
- **Sanitary:** One of the most essential objectives of plumbing is sanitation. This plumbing type involves installing sinks in the kitchen, bathroom and laundry area. Toilet installation is also a common plumbing work that falls under this service. Plumbers also deal with sanitary fixture installation, repairs and connecting waste pipes to the corresponding fixtures.

A building's system for waste disposal has two parts: *the drainage system and the venting system*. *The drainage portion* comprises pipes leading from various fixture drains to the central main, which is connected to the municipal or private sewage system. *The venting system* consists of pipes leading from an air inlet (usually on the building's roof) to various points within the drainage

system; it protects the sanitary traps from siphoning or blowing by equalizing the pressure inside and outside the drainage system.

Job Duties and Tasks for a Plumber.

- Assemble pipe sections, tubing and fittings, using couplings, clamps, screws, bolts, cement, plastic solvent, caulking, or soldering, brazing and welding equipment.
- Fill pipes or plumbing fixtures with water or air and observe pressure gauges to detect and locate leaks.
- Review blueprints and building codes and specifications to determine work details and procedures.
- Study building plans and inspect structures to assess material and equipment needs, to establish the sequence of pipe installations, and to plan installation around obstructions such as electrical wiring.
- Keep records of assignments and produce detailed work reports.
- Perform complex calculations and planning for special or very large jobs.
- Locate and mark the position of pipe installations, connections, passage holes, and fixtures in structures, using measuring instruments such as rulers and levels.
- Measure, cut, thread, and bend pipe to required angle, using hand and power tools or machines such as pipe cutters, pipe-threading machines, and pipe-bending machines.
- Install pipe assemblies, fittings, valves, appliances such as dishwashers and water heaters, and fixtures such as sinks and toilets, using hand and power tools.
- Cut openings in structures to accommodate pipes and pipe fittings, using hand and power tools.
- Repair and maintain plumbing, replacing defective washers, replacing or mending broken pipes, and opening clogged drains.
- Direct workers engaged in pipe cutting and preassembly and installation of plumbing systems and components.
- Install underground storm, sanitary and water piping systems and extend piping to connect fixtures and plumbing to these systems.
- Install oxygen and medical gas in hospitals.

Ex. 1. Ответьте на следующие вопросы:

1. What is the plumbing?
2. What does the Latin word plumbum mean?
3. Why is plumbing infrastructure critical to public health and sanitation?
4. Where are plumbing systems used?
5. Who is a plumber?

6. What is the water supply?
7. What is drainage?
8. What is gas fitting?
9. What is sanitary?
10. What are the two parts of a waste disposal system?
11. What is the drainage system?
12. What is the venting system?
13. What are the job duties and tasks for a plumber?

Ex.2. Соедините левую и правую части предложения.

1. Plumbing is a system of pipes and fixtures installed ...	a. ... means lead.
2. A Latin word plumbum ...	b. ... fits and repairs plumbing and associated fixtures.
3. In the developed world, plumbing infrastructure is ...	c. ... laying and securing stormwater, installation of sewage pipes and treatment systems for drainage systems.
4. Plumbing systems might be used for:	d. ... in a building for the distribution and use of potable water and the removal of waterborne wastes.
5. A plumber is a person that ...	e. ... protects the sanitary traps from siphoning or blowing by equalizing the pressure inside and outside the drainage system.
6. Drainage work involves ...	f. ... critical to public health and sanitation.
7. Gas fitting involves ...	g. ... pipes leading from various fixture drains to the central main, which is connected to the municipal or private sewage system.
8. Plumbers deal with ...	h. ... Heating and cooling, Waste removal, Potable cold and hot water supply, water drainage, Fuel gas piping.
9. The drainage system comprises ...	i. ... sanitary fixture installation, repairs and connecting waste pipes to the corresponding fixtures.

10. The venting system ...	j. ... the use of pipes, flues and a control system to supply gas, for hot water units and cook-tops and stoves.
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Ex.3. Переведите следующие словосочетания на русский язык.

For the distribution and use, removal of wastes, water supply systems, sanitary features, public health, treatment systems, surface and subsurface water drainage, fuel gas piping. to fit and repair, replacing and maintaining faucets, sinks, flow of fluid, the most essential objectives of plumbing, deal with, waste disposal, soldering, brazing and welding equipment, to detect and locate leaks, review blueprints and building codes, to produce detailed work reports, to perform complex calculations.

Ex.4. Переведите следующие словосочетания на английский язык.

Чертежи и строительные нормы, раковина, утечка, наиболее важная задача, распределение, утилизация отходов, выполнять сложные расчеты, пайка, использование, удаление отходов, система водоснабжения, обнаруживать и локализовывать, подгонять и ремонтировать, санитарные объекты, сварочное оборудование, здравоохранение, система очистки, поверхностное и подземное водоотведение, трубопровод топливного газа, заменять и обслуживать, смеситель, составлять подробные отчеты о работах.

Ex.5. Найдите определения следующим словам и выражениями.

1. saw	a. to curve out of a straight line or position
2. drilling	b. to strike, to hit
3. reaming	c. to make a hole
4. threading	d. to reduce to powder or small fragments by friction
5. scraping	e. to enlarge, shape, or smooth out (a hole)
6. grinding	f. to make smooth and glossy usually by friction
7. bending	g. to pass something long and thin through a narrow opening or hole
8. polishing	h. to estimate or appraise by a criterion

9. punching	i. a small amount of something produced by scratching a surface (rubbing it with something hard or sharp)
10. measuring	j. a tool or machine with a blade having sharp teeth that is used for cutting hard material (as wood or metal)

Ex.6. Работая в парах, определите, какие из утверждений соответствуют содержанию текста (True), какие не соответствуют (False). Исправьте ложное утверждение.

1. Plumbing is a system of pipes and fixtures installed in a building for the distribution and use of potable water and the removal of waterborne wastes.
2. In the developed world, plumbing infrastructure is not critical to public health and sanitation.
3. Today, plumbing systems might be used for: Heating and cooling, Waste removal, Potable cold and hot water supply.
4. A plumber is a person that repairs plumbing and associated fixtures and they are not involved in the design, management, consultancy, teaching, and so on.
5. Plumbers deal with water system installations, constructing, repairing, replacing and maintaining faucets and sinks.
6. Drainage work involves laying and securing stormwater, installation of sewage pipes and treatment systems for drainage systems.
7. Irrigation deals with valve devices that help control the flow of fluid from its source down to its end zone.
8. Gas fitting involves the use of pipes, flues and a control system to supply electricity for hot water units and cook-tops and stoves.
9. Sanitary involves sanitary fixture installation.
10. A building's system for waste disposal has three parts: the drainage system, the venting system and the wasting system.
11. The drainage portion comprises pipes leading from an air inlet to various points within the drainage system.
12. The venting system consists of pipes leading from various fixture drains to the central main, which is connected to the municipal or private sewage system.

Ex.7. Ролевая игра.

Student A is a trainee. Student B is an engineer. Act out a dialogue discussing characteristic features of plumbing work.

Ex. 8. Составьте сообщение по теме: «Introduction to the Plumbing Profession».

GRAMMAR REVISION

Порядок слов в английском предложении (Word Order).

Ex.1. Перестройте русские предложения в соответствии с порядком слов в английском языке.

1. С каждым годом, методы обработки материалов, техника и оборудование развиваются. 2. Хорошую подготовку рабочие получают во время образовательных программ и сертификации. 3. Ясную картину состояния нашего производства даст анализ собранных данных. 4. Лично главный инженер новым отделом на заводе руководит. 5. Действием сильного электромагнитного поля в настоящее время специалисты объясняют изменения этих показателей. 6. Многие процессы обработки сопровождаются выделением тепла. 7. Квалифицированные технические работники, которые соединяют куски металла с помощью горелок, это — сварщики.

Ex.2. Составьте предложения, руководствуясь порядком слов в английском предложении. Первое слово дано с большой буквы.

1. are working, Engineers, at this problem, now.
2. of, will continue, new, factories, Construction.
3. major, industry, Mechanical engineering, is, at present, in, a, Russia.
4. are, main, the, materials, Metals, engineers, of.
5. metal processing equipment, produces, a great number, The plant, of.
6. palace, building, expensive, town, is, This, the, our, in, most
7. forming, shaping, cutting, The manufacturing cycle, finished products, includes and other processes, of converting raw materials into.
8. better, I, computer, a, need
9. precision work, Cutting is.
10. Workers, to control equipment, use a computer.

Ex.3. Отметьте английские предложения, эквивалентные данным русским предложениям.

- 1) В нашей стране много технических колледжей.
 - a) This country will have many engineering colleges.
 - b) There were many engineering colleges in this country.

- c) There are many engineering colleges this country.
 - d) Many engineering colleges are in this country.
- 2) На этом заводе есть компьютерный центр?
- a) Is the computer center in this plant?
 - b) Is there a computer center in this plant?
 - c) Was the computer center in this plant?
 - d) Where is the computer center?

Ex.4. Закончите предложение, выбрав соответствующее окончание.

- 1) We have...
- a) in our country many plants at present.
 - b) in our country at present many plants.
 - c) many plants in our country at present.
 - d) at present in our country many plants.
- 2) Students visited ...
- a) at the plant all the laboratories yesterday.
 - b) all the laboratories at the plant yesterday.
 - c) yesterday at the plant all the laboratories.
 - d) all the laboratories yesterday at the plant.

PART I. SAFETY, TOOLS AND MEASURING INSTRUMENTS

Unit 1. Safety

Обсудите в парах.

1. What possible dangerous processes are there in plumbing work?

Прочтите слова и выражения и запомните их русские эквиваленты.

utilize(v) — использовать	immediately(adv) — немедленно
respect(v) — уважать	monitor(v) — контролировать
hazardous(adj) — опасный	mandated(adj) — обязательный
relatively(adv) — относительно	sparks(n) — искры
injury(n) — травма	spatters(n) — брызги
precautions(n) — меры предосторожности	ignition(n) — зажигание
witness(n) — свидетель	combustible(adj) — горючий
suffer(v) — страдать	handle(v) — обрабатывать
touch(v) — трогать	storage(n) — хранение
unconscious(adj) — без сознания	fluorine(n) — фтор
appropriate(adj) — соответствующий	allow(v) — позволять, разрешать
burns(n) — ожоги	flammable(adj) — легковоспламеняющийся
skin(n) — кожа	sealed(adj) — запечатанный
tissue(n) — ткань	locker (n) — шкаф
blister(n) — волдырь, пузырь	improper(adj) — неправильный
fume(n) — дым, чад	accident(n) — несчастный случай
vaporization(n) — парообразование	pedestrian(n) — пешеход
amount(n) — количество	comply with(v) — соблюдать
inhale(v) — вдыхать	requirements(n) — требования

Text A.

Work is safe if it is performed in conditions that do not threaten the life and health of workers. At industrial enterprises, *all responsibility for labour protection and safety measures is borne by the heads of the enterprise, workshop, site (director, head of the workshop, foreman)*. Each enterprise should have a labour protection department that controls compliance with safe work

conditions and implementing measures to improve these conditions. *Employees are obliged to comply with the requirements of labour protection instructions. Before starting work, the employee must be instructed on labour protection.*

Plumbers utilize dangerous forces and materials and must follow all the necessary requirements and respect the equipment, materials, and process because plumbing involves a lot of *potentially hazardous elements*. Let us consider some of them.

Fire and Explosion Danger. Some plumbing processes can produce significant sources of heat such as sparks and spatter. Therefore, combustible material or fuel should be kept away from the working area.

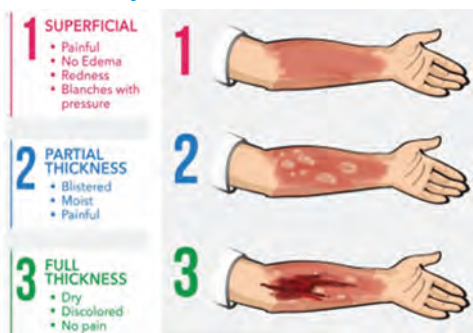
Compressed Gasses. Pressurized gas cylinders used for many processes must be handled properly to avoid explosions or leaks. Safe handling of compressed gasses is also covered by strict requirements and includes labelling, storage, gas withdrawal, valves, and pressure relief devices, prevention of fuel gas fires, and concern for air displacement.

Hazardous Materials. Typical hazardous materials may include *fluorine, zinc, cleaning compounds, chlorinated hydrocarbons, and chromium and nickel in stainless steels*. When work involves hazardous materials, special ventilation techniques are typically required.

In metalwork, several *flammable liquids and gases* including *acetylene, propane, and natural gas* are used. Plumbers need to treat these materials with a great deal of care and respect because they can cause a huge amount of injury and damage. Store all flammable liquids in sealed containers and keep the containers in a flammable liquids locker. These lockers are made of metal and have a door that closes securely.

Burns. A worker may be easily burned by touching hot metal or getting hit by spattering or sparks. *There are three kinds of burns:*

- **First-degree burns** cause the skin to become red and tender but don't break the surface of the skin. If you suffer a first-degree burn, run cold water over the area to cool it off and then cover it with a clean cloth and apply sterile bandages. Don't use ice on a burn because it can damage the tissue.



- **Second-degree burns** occur when the skin is severely damaged; they commonly involve blisters and even breaks in the skin. If you suffer

a second-degree burn, run cold water over it to decrease the pain and then cover the affected area with a sterile bandage. If a blister forms, don't try to break it.

- **Third-degree burns** are the most serious type. If you suffer a third-degree burn, you likely feel very little pain in the affected area because the nerve endings have been destroyed. If you suffer a third-degree burn, seek medical attention immediately. If clothing is embedded in the burn, don't try to remove it yourself.

Smoke and Fumes. Plumbing processes produce a wide variety of potentially hazardous fumes. Sources include molten metal vaporization, oils, paint, coatings such as zinc, and fumes and gases from decomposing fluxes. Proper ventilation must always be used. Both **general and local ventilation** are typically practised. **General ventilation** refers to ventilating the entire space such as opening doors to allow natural ventilation, while **local ventilation** refers to methods to protect personnel at a work station.

If you or someone in your work area inhales dangerous gases, get them into the fresh air and seek medical assistance immediately.

All moving and rotating parts of machines, equipment and tools must have protective screens. Machine tools and equipment must be properly grounded. Electricity sources must comply with the current technical requirements.

Ex. 1. Ответьте на следующие вопросы:

1. Why plumbers must follow all the necessary requirements?
2. What potentially hazardous elements do plumbing work involve?
3. Speak about three kinds of burns.
4. Why smoke and fumes are potentially hazardous?
5. Who is responsible for labour protection and safety measures at the enterprise?
6. What are the requirements for moving and rotating parts of the machines?
7. Why should combustible material or fuel be kept away from the working area?
8. Why must pressurized gas cylinders be handled properly?
9. What hazardous materials do plumbers deal with?
10. What flammable liquids and gases are used?

Ex.2. Переведите следующие словосочетания на русский язык.

To utilize dangerous forces and materials, to follow necessary requirements, potentially hazardous elements, relatively safe, proper maintenance and grounding of equipment, special precautions, to suffer from an electric shock, call the ambulance immediately, to break the surface of the skin, vaporization,