

МИНИСТЕРСТВО ОБРАЗОВАНИЯ И МОЛОДЕЖНОЙ ПОЛИТИКИ  
СВЕРДЛОВСКОЙ ОБЛАСТИ  
ГАПОУ СО «ЕКАТЕРИНБУРГСКИЙ МОНТАЖНЫЙ КОЛЛЕДЖ»

**МЕТОДИЧЕСКИЕ РЕКОМЕНДАЦИИ ПО ВЫПОЛНЕНИЮ ПРАКТИЧЕСКИХ  
РАБОТ**

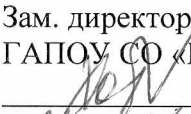
**ПО УЧЕБНОЙ ДИСЦИПЛИНЕ  
«ИНОСТРАННЫЙ ЯЗЫК В ПРОФЕССИОНАЛЬНОЙ ДЕЯТЕЛЬНОСТИ»**

**ДЛЯ СПЕЦИАЛЬНОСТИ  
08.02.11 «Управление, эксплуатация и обслуживание многоквартирного дома»**

Екатеринбург, 2020

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« 14 » августа 2010 г.

ОДОБРЕНО

Методическим объединением гуманитарных и социальных дисциплин:

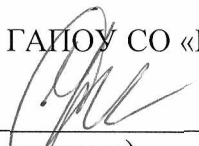
  
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« 14 » августа 2010 г.

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## **1. Пояснительная записка**

**Специальность 08.02.11 «Управление, эксплуатация и обслуживание многоквартирного дома»**

**Учебная дисциплина «Иностранный язык в профессиональной деятельности»**  
Форма промежуточного контроля – дифференцированный зачёт.  
Форма обучения – очная.

**Место учебной дисциплины в структуре основной профессиональной образовательной программы:** дисциплина входит в общий гуманитарный и социально-экономический цикл.

**Цели и задачи учебной дисциплины – требования к результатам освоения дисциплины:**

В результате изучения обязательной части цикла обучающийся

**должен уметь:**

– общаться (устно и письменно) на английском языке на профессиональные и повседневные темы;

– переводить (со словарём) английские тексты различных стилей: публицистических, научно-популярных, художественных и информационных (в том числе профессионально ориентированных);

– самостоятельно совершенствовать устную и письменную речь, пополнять словарный запас;

**знать:**

– лексический (1200-1400 лексических единиц) и грамматический минимум, необходимый для чтения и перевода (со словарём) английских текстов различных стилей: публицистических, научно-популярных, художественных и информационных (в том числе профессионально ориентированных);

## **2. Перечень общих компетенций**

ОК 1. Понимать сущность и социальную значимость своей будущей профессии, проявлять к ней устойчивый интерес.

ОК 2. Организовывать собственную деятельность, выбирать типовые методы и способы выполнения профессиональных задач, оценивать их эффективность и качество.

ОК 3. Принимать решения в стандартных и нестандартных ситуациях и нести за них ответственность.

ОК 4. Осуществлять поиск и использование информации, необходимой для эффективного выполнения профессиональных задач, профессионального и личностного развития.

ОК 5. Использовать информационно-коммуникационные технологии в профессиональной деятельности.

ОК 6. Работать в коллективе и команде, эффективно общаться с коллегами, руководством, потребителями.

ОК 7. Брать на себя ответственность за работу членов команды (подчиненных), за результат выполнения заданий.

ОК 8. Самостоятельно определять задачи профессионального и личностного развития, заниматься самообразованием, осознанно планировать повышение квалификации.

ОК 9. Ориентироваться в условиях частой смены технологий в профессиональной деятельности.

ОК 10. Обеспечивать безопасные условия труда в профессиональной деятельности.

**Рекомендуемое количество часов на освоение рабочей программы учебной дисциплины:**

максимальной учебной нагрузки обучающегося 217 часов, в том числе:  
обязательной аудиторной учебной нагрузки обучающегося 168 часов;  
самостоятельной работы обучающегося 49 часов.

## 2. Методические рекомендации по выполнению практических работ

Методические рекомендации по выполнению практических работ по дисциплине «Иностранный язык в профессиональной деятельности» предназначены для оказания методической помощи студентам в выполнении заданий. Практические задания нацелены на формирование умения переводить (со словарём) английские тексты различных стилей: публицистических, научно-популярных, художественных и информационных (в том числе профессионально ориентированных); на повышение лексического и грамматического минимума студента по специальности «УПРАВЛЕНИЕ, ЭКСПЛУАТАЦИЯ И ОБСЛУЖИВАНИЕ МНОГОКВАРТИРНОГО ДОМА». Практические задания содержат тексты профессиональной направленности по каждой теме профессионального модуля рабочей программы дисциплины «Иностранный язык в профессиональной деятельности».

### 1. Работа с лексикой:

#### Цель работы:

– содействовать пополнению активного словарного запаса посредством заучивания лексических единиц;

#### Задачи:

- способствовать знанию английского алфавита в порядке расположения его букв;
- способствовать развитию умения находить исходную форму слова;
- способствовать развитию памяти, чувства языка;
- способствовать развитию умения определить часть речи, к которой относится слово;
- способствовать развитию познавательных способностей и активности студентов: творческой инициативы, самостоятельности, ответственности и организованности;
- содействовать формированию самостоятельности мышления, способностей к саморазвитию, самосовершенствованию и самореализации.

#### Последовательность выполнения задания:

1. Просмотрите список лексических единиц.
2. Перепишите их в тетрадь в столбик, напишите перевод уже знакомых вам слов.
3. Используйте словарь для перевода незнакомых лексических единиц. Обращайте внимания на следующее:
  - при поиске слова в словаре необходимо следить за точным совпадением графического оформления искомого и найденного слова, в противном случае перевод будет неправильным;
  - многие слова являются многозначными, т.е. имеют несколько значений, поэтому при поиске значения слова в словаре необходимо читать всю словарную статью и выбирать для перевода то значение, которое подходит в контекст предложения;
  - при поиске в словаре значения слова в ряде случаев следует принимать во внимание грамматическую функцию слова в предложении, так как некоторые слова выполняют различные грамматические функции и в зависимости от этого переводятся по-разному;
  - при поиске значения глагола в словаре следует иметь в виду, что глаголы указаны в словаре в неопределенной форме (Infinitive).
4. Помимо перевода слова, зафиксируйте транскрипцию, во избежание трудностей в произношении слов (также можно воспользоваться электронным воспроизведением слов).

#### Примеры сайтов:

- <https://woordhunt.ru/word/word>
  - <https://dictionary.cambridge.org/ru/>
5. Отчитайте слова.

6. Переходите к заучиванию слов. Рекомендуется использовать один из следующих приемов для эффективного запоминания:

- составляйте ассоциативные сети;
- используйте карточки со словами (на одной стороне иностранное слово на другой его перевод);
- создайте виртуальные стикеры на рабочем столе или экране смартфона.

7. Повторите выученные лексические единицы. Главное – распределение повторений во времени. Повторять рекомендуется:

- сразу в течение 15-20 минут,
- через 8-9 часов и
- через 24 часа.
- Полезно повторять материал за 15-20 минут до сна и утром, на свежую голову.
- Чтобы перевести информацию в долговременную память, нужно делать повторения спустя сутки, двое и так далее, постепенно увеличивая временные интервалы между повторениями. При каждом повторении нужно осмысливать ошибки и обращать внимание на более трудные места.

**Требования к отчетности:**

- устный опрос лексических единиц;
- проверка заданий в тетрадях;
- перевод предложений, абзацев, текстов с использованием методик поиска слов и их значений в словаре.

**Критерии оценки результатов:**

- уровень освоения учебного материала;
- уровень умения использовать словарь при выполнении практических упражнений.
- уровень умения активно использовать образовательные ресурсы, находить требующуюся информацию, изучать ее и применять на практике;
- умение работать со словарем.

**2. Работа с текстом (перевод текста)**

**Цель работы:**

- содействовать формированию умения переводить (со словарём) английские тексты различных стилей: публицистических, научно-популярных, художественных и информационных (в том числе профессионально ориентированных).

**Задачи:**

- способствовать развитию умения ознакомительного чтения;
- способствовать развитию умения изучающего чтения;
- способствовать развитию навыка учебного перевода текстов с иностранного языка на русский язык;
- способствовать развитию памяти, чувства языка;
- способствовать развитию умения определить часть речи, к которой относится слово;
- способствовать развитию познавательных способностей и активности студентов: творческой инициативы, самостоятельности, ответственности и организованности;
- содействовать формированию самостоятельности мышления, способностей к саморазвитию, самосовершенствованию и самореализации.

**Последовательность выполнения задания:**

1. Прочитайте текст, постарайтесь понять его основную мысль.
2. Убедитесь, что все слова, выделенные жирным шрифтом, Вам знакомы, Вы знаете их перевод.
3. Приступайте к переводу текста:

3.1. обращайтесь внимание на грамматическую форму глагола в предложении, от этого будет зависеть выбор грамматического времени и наклонения;

3.2. при переводе лексических единиц необходимо выбирать в языке перевода соответствия различного рода: независимые от контекста однозначные соответствия, контекстуальнозависимые вариантные соответствия, трансформационные соответствия.

3.3. Помните, что главная задача перевода – передать смысл (основную мысль текста);

3.4. прочитайте свой перевод, проверьте наличие лексических, грамматических ошибок; устранили их;

К типичным ошибкам при переводе текста относятся:

– Ошибка в выборе однозначного соответствия. Термины в английском и русском языке могут отличаться. Если в русском языке нет полного соответствия данному термину, необходимо его заменить близким по значению или применить описательный перевод.

– Ошибка в порядке слов. Не старайтесь передать в русском языке порядок слов аналогичный английскому. Это может привести к бессмысленности, некорректности высказывания. Пользуйтесь грамматическими трансформациями. Старайтесь всегда передать смысл, а не просто переводить слова.

– Ошибка в соблюдении стилистической нормы. Необходимо избегать нарушения стилевого регистра. Если текст написан в научно-публицистическом стиле, это стиль необходимо сохранить при переводе.

– Ошибка в использовании машинного перевода. Не следует выбирать машинный перевод для перевода всего текста, т.к. это нарушит его стилистику, приведет к большому количеству лексических и грамматических ошибок, нарушит логику изложения материала.

3.5. после совместного обсуждения типичных ошибок, итоговый вариант перевода необходимо переписать на чистовик.

**Требования к отчетности:**

– проверка заданий в тетрадях;

– устное обсуждение перевода текста, совместное устранение ошибок.

**Критерии оценки результатов:**

– уровень освоения учебного материала;

– уровень умения использовать словарь при выполнении практических упражнений.

– уровень умения перефразировать предложения, осуществлять лексические и грамматические трансформации.



### 3. Практические задания

#### Профессиональный модуль

##### 1. Before you start.

- What is water supply system and what are its functions?
- Who designs water supply system?
- What knowledge is necessary for a proper design of water supply system?

##### 2. Read the text, translate it and compare your ideas in ex.1 with the facts.

###### Water Supply Network

A water supply system or water supply network is a system of engineered hydrologic and hydraulic components which provide water supply.

A water supply system typically includes:

1. A drainage basin.
2. A raw water collection point (above or below ground) where the water accumulates, such as a lake, a river, or groundwater from an underground aquifer. Raw water may be transferred using uncovered groundlevel aqueducts, covered tunnels or underground water pipes to water purification facilities.
3. Water purification facilities. Treated water is transferred using water pipes (usually underground).
4. Water storage facilities such as reservoirs, water tanks, or water towers. Smaller water systems may store the water in cisterns or pressure vessels. Tall buildings may also need to store water locally in pressure vessels in order for the water to reach the upper floors.
5. Additional water pressurizing components such as pumping stations may need to be situated at the outlet of underground or above ground reservoirs or cisterns (if gravity flow is impractical).
6. A pipe network for distribution of water to the consumers (which may be private houses or industrial, commercial or institution establishments) and other usage points (such as fire hydrants).
7. Connections to the sewers (underground pipes, or aboveground ditches in some developing countries) are generally found downstream of the water consumers, but the sewer system is considered to be a separate system, rather than part of the water supply system.

##### 3. Answer the following questions.

1. Define water supply system.
2. What does water supply system include?
3. What is raw water collection point?
4. How may raw water be transferred?
5. How is treated water transferred?
6. What do water storage facilities include?
7. What is the function of pressure vessels?
8. Where are connections to the sewers generally found?

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##### 1. Before you start.

- What qualities should water in the tap have?
- How can you recognize that water in the tap is not safe for drinking?

##### 2. Read the text, translate it and compare your ideas in ex.1 with the facts.

###### Water Distribution Network

The product, delivered to the point of consumption, is called fresh water if it receives little or no treatment, or drinking water if the treatment achieves the water quality standards required for human consumption. The energy that the system needs to deliver the water is called pressure. That energy is transferred to the water, therefore becoming water pressure, in a number of ways: by a pump, by gravity feed from a water source (such as a water tower) at a higher elevation, or by compressed air.

The water is often transferred from a water reserve such as a large communal reservoir before being transported to a more pressurized reserve such as a water tower. In small domestic

systems, the water may be pressurized by a pressure vessel or even by an underground cistern (the latter however does need additional pressurizing). This eliminates the need of a water-tower or any other heightened water reserve to supply the water pressure.

These systems are usually owned and maintained by local governments, such as cities, or other public entities, but are occasionally operated by a commercial enterprise.

Water supply networks are part of the master planning of communities, counties, and municipalities. Their planning and design requires the expertise of city planners and civil engineers, who must consider many factors, such as location, current demand, future growth, leakage, pressure, pipe size, pressure loss, fire fighting flows, etc. – using pipe network analysis and other tools.

As water passes through the distribution system, the water quality can degrade by chemical reactions and biological processes. Corrosion of metal pipe materials in the distribution system can cause the release of metals into the water with undesirable aesthetic and health effects. Release of iron from unlined iron pipes can result in customer reports of "red water" at the tap. Release of copper from copper pipes can result in customer reports of "blue water" and/or a metallic taste. Release of lead can occur from the solder used to join copper pipe together or from brass fixtures. Copper and lead levels at the consumer's tap are regulated to protect consumer health.

Corrosion inhibitors are often added to reduce release of metals into the water. Common corrosion inhibitors added to the water are phosphates and silicates.

Maintenance of a biologically safe drinking water is another goal in water distribution. Typically, a chlorine based disinfectant, such as sodium hypochlorite or monochloramine is added to the water as it leaves the treatment plant. Booster stations can be placed within the distribution system to ensure that all areas of the distribution system have adequate sustained levels of disinfection.

### **3. Say if the sentences concerning Text are true or false.**

1. The product, delivered to the point of consumption, is called raw water.
2. If the treatment achieves the water quality standards required for human consumption the water is called drinking.
3. The energy that the system needs to deliver the water is called force.
4. In small domestic systems, the water may be pressurized by a pressure vessel or by an underground cistern.
5. Water supply systems are usually owned and maintained by private entrepreneurs.
6. Water supply networks are part of the master planning of communities, counties, and municipalities.
7. Pipe material does not influence water quality.
8. Common corrosion inhibitors added to the water are phosphates and silicates.

### **4. Answer the following questions.**

1. What kind of water is called fresh?
2. Define drinking water.
3. What is pressure?
4. How is energy transferred to the water?
5. How may the water be pressurized in small domestic systems?
6. Who owns and maintains water supply systems?
7. What factors are taken into account when planning and designing water supply systems?
8. How does corrosion of metal pipe materials in the distribution system affect water quality?
9. What is often added to reduce release of metals into the water?
10. What common corrosion inhibitors do you know?

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### **1. Before you start.**

- What is water sewerage system?
- What is the function of water sewerage system?

### **2. Read the text, translate it and compare your ideas in ex.1 with the facts.**

Wastewater

Wastewater, also written as waste water, is any water that has been adversely affected in quality by anthropogenic influence. Municipal wastewater is usually conveyed in a combined sewer or sanitary sewer, and treated at a wastewater treatment plant. Treated wastewater is discharged into receiving water via an effluent sewer. Wastewaters generated in areas without access to centralized sewer systems rely on on-site wastewater systems. These typically comprise a septic tank, drain field, and optionally an on-site treatment unit. The management of wastewater belongs to the overarching term sanitation, just like the management of human excreta, solid waste and stormwater (drainage).

Sewage is the subset of wastewater that is contaminated with feces or urine, but is often used to mean any wastewater. Sewage includes domestic, municipal, or industrial liquid waste products disposed of, usually via a pipe or sewer (sanitary or combined), sometimes in a cesspool emptier.

Sewerage is the physical infrastructure, including pipes, pumps, screens, channels etc. used to convey sewage from its origin to the point of eventual treatment or disposal. It is found in all types of sewage treatment, with the exception of septic systems, which treat sewage on site.

Sewage disposal. In some urban areas, sewage is carried separately in sanitary sewers and runoff from streets is carried in storm drains. Access to either of these is typically through a manhole. During high precipitation periods a combined sewer overflow can occur, forcing untreated sewage to flow back into the environment. This can pose a serious threat to public health and the surrounding environment.

Sewage may drain directly into major watersheds with minimal or no treatment. When untreated, sewage can have serious impacts on the quality of an environment and on the health of people. Pathogens can cause a variety of illnesses. Some chemicals pose risks even at very low concentrations and can remain a threat for long periods of time because of bioaccumulation in animal or human tissue.

**3. Say if the sentences concerning Text are true or false.**

1. Waste water is any water that has been used in vain.
2. Municipal wastewater is usually conveyed in an effluent sewer.
3. Wastewaters generated in areas without access to centralized sewer systems rely on onsite wastewater systems.
4. Sewerage is the physical infrastructure, including pipes, pumps, screens, channels etc.
5. When untreated, sewage does not have serious impacts on the quality of an environment and on the health of people.

**4. Answer the following questions.**

1. Give the definition of wastewater.
2. Where is wastewater usually conveyed and treated?
3. How is treated wastewater discharged into receiving water?
4. What do on-site wastewater systems typically comprise?
5. Who does management of wastewater belong to?
6. What is sewerage?
7. What can pose a serious threat to public health and the surrounding environment?

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**1. Before you start.**

- Why is it necessary to treat wastewater?
- Do you know any wastewater treatment techniques?

**2. Read the text, translate it and compare your ideas in ex.1 with the facts.**

Sewage Treatment

Sewage treatment is the process of removing contaminants from wastewater, including household sewage and runoff (effluents). It includes physical, chemical, and biological processes to remove physical, chemical and biological contaminants. Its objective is to produce an environmentally safe fluid waste stream (or treated effluent) and a solid waste (or treated sludge) suitable for disposal or reuse (usually as farm fer

tilizer). Sewage is generated by residential, institutional, commercial and industrial establishments. It includes household waste liquid from toilets, baths, showers, kitchens, sinks and so forth that is disposed of via sewers. In many areas, sewage also includes liquid waste from industry and commerce. The separation and draining of household waste into greywater and blackwater is becoming more common in the developed world, with greywater being permitted to be used for watering plants or recycled for flushing toilets.

Sewage may include stormwater runoff. Sewerage systems capable of handling storm water are known as combined sewer systems. This design was common when urban sewerage systems were first developed, in the late 19th and early 20th centuries. Combined sewers require much larger and more expensive treatment facilities than sanitary sewers. Heavy volumes of storm runoff may overwhelm the sewage treatment system, causing a spill or overflow. Sanitary sewers are typically much smaller than combined sewers, and they are not designed to transport stormwater. Communities that have urbanized in the mid-20th century or later generally have built separate systems for sewage (sanitary sewers) and stormwater, because precipitation causes widely varying flows, reducing sewage treatment plant efficiency.

As rainfall travels over roofs and the ground, it may pick up various contaminants including soil particles and other sediment, heavy metals, organic compounds, animal waste, and oil and grease. Some jurisdictions require stormwater to receive some level of treatment before being discharged directly into waterways. Examples of treatment processes used for stormwater include retention basins, wetlands, buried vaults with various kinds of media filters, and vortex separators (to remove coarse solids).

Sewage can be treated close to where the sewage is created, a decentralized system (in septic tanks, biofilters or aerobic treatment systems), or be collected and transported by a network of pipes and pump stations to a municipal treatment plant, a centralized system. Sewage collection and treatment is typically subject to local, state and federal regulations and standards. Industrial sources of sewage often require specialized treatment processes.

Sewage treatment generally involves three stages, called primary, secondary and tertiary treatment.

Primary treatment consists of temporarily holding the sewage in a quiescent basin where heavy solids can settle to the bottom while oil, grease and lighter solids float to the surface. The settled and floating materials are removed and the remaining liquid may be discharged or subjected to secondary treatment.

Secondary treatment removes dissolved and suspended biological matter. Secondary treatment is typically performed by indigenous, water-borne micro-organisms in a managed habitat. Secondary treatment may require a separation process to remove the micro-organisms from the treated water prior to discharge or tertiary treatment.

Tertiary treatment is sometimes defined as anything more than primary and secondary treatment in order to allow rejection into a highly sensitive or fragile ecosystem (estuaries, lowflow rivers, coral reefs). Treated water is sometimes disinfected chemically or physically (for example, by lagoons and microfiltration) prior to discharge into a stream, river, bay, lagoon or wetland, or it can be used for the irrigation. If it is sufficiently clean, it can also be used for groundwater recharge or agricultural purposes.

### **3. Say if the sentences concerning Text are true or false.**

1. Sewage treatment is the process of removing contaminants from wastewater.
2. Sewage is generated only by residential establishments.
3. Greywater may be used for watering plants or recycled for flushing toilets.
4. Sanitary sewers require much larger and more expensive treatment facilities than combined sewers.
5. Sanitary sewers are typically much larger than combined sewers, and they are capable of transporting stormwater.

### **4. Answer the following questions.**

Define the process of sewage treatment. 2. What types of contaminants does it remove? 3. What is its main objective? 4. What are combined sewer systems? 5. What is the difference between combined sewers and sanitary sewers? 6. What is a centralized system of sewage treatment? 7. How does decentralized system function? 8. What are the three stages that sewage treatment involve? Describe each of them.

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### **1. Before you start.**

- How can you define a heating system?
- What types of heating systems do you know?

### **2. Read the text, translate it and label the pictures with the expressions in bold.**

#### Types of Heating Systems

All climate-control devices or systems have three basic components: a source of warmed or cooled air, a means of distributing the air to the rooms being heated or cooled, and a control used to regulate the system (e.g. thermostat). A variety of technologies are available for heating your house:

- In a central heating system a furnace or boiler consumes the fuel (e.g. gas, oil, or electricity) that powers it. As fuel is burned, pipes take hot water to radiators. You get hot water at the same time as heating, depending on how you set the controls.
- Electric heat pumps remove heat from outdoor air, ground, surface water or the earth and move heat from one place to another. They can also be used as air conditioners when the weather is warm. The thermostat will also include controls for air conditioning.
- Radiant skirting board heaters are long, metal units with electrical elements inside. They are sometimes the only source of heat in a house, or they can be an extra heating device in cooler rooms.
- Radiant ceiling or floor systems are installed in floors, ceilings or (occasionally) walls. They warm objects in much the same way as the sun does.
- In hydronic heating a boiler warms the circulating water and hot water flows through tubes under the floor or through units that are similar to skirting board heaters. They can also be installed in ceilings. They are sometimes used under concrete in driveways to keep snow and ice from accumulating.
- Portable space heaters are either freestanding or attached to a wall and work with electricity, gas or kerosene. Their area cannot be qualified as heated living space.

### **3. Answer the following questions.**

1. How many and what components do all climate-control devices or systems have? 2. What variety of technologies available for heating your house can you point out? 3. Describe central heating system. 4. What device can also be used as air conditioner when the weather is warm? 5. How do radiant skirting board heaters look like? 6. Where can hydronic heating be used? 7. What are portable space heaters? 8. What heating system would you personally prefer to install in your house or flat and why?

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### **1. Before you start.**

- What does the choice of heating systems depend on?
  - How can you use heating more efficiently at home?
2. Read the text, translate it and compare your ideas in ex.1 with the facts.

#### Heating Systems

Depending on your geography, special consideration should be given to heating your new home. Important items to consider are energy costs, air quality and safety. Since it's a costly installation to any new home it makes good economic sense to look carefully at energy

efficiency. Heating alone can account for more than 40% of your household energy costs, for larger homes and families, it's as high as 65%.

The first thing you should do is find out how much heat will be required to adequately and efficiently heat your new home. The heating requirements or "heating load" (as industry professionals say) of a house depends on climate, size, and style of house; insulation levels; air tightness; amount of useful solar energy through windows; amount of heat given off by lights and appliances; thermostat setting; and other operational factors. Together, these factors determine how much heat must be put into your home by the heating system over the annual heating season. To make it simple, this number (usually measured as BTU per year), should be determined by a competent heating contractor because it involves measuring the house (windows included), checking insulation levels, maybe even doing a blower door test, and running calculations to determine how much heat will be needed in the specific climate you live in. Once this is determined, it is up to you to decide the preferred heating system for your home and what you want it to run on. Oil, gas, wood and propane are a few options.

**Types of Heat.** Basically there are two ways in which you can have your home heated: radiant or convective heat. Radiant heaters heat the object rather than the air surrounding it, while convection heaters fill a room with warm air by transferring heat from one object to another using moving air or water. The design of your interior home will have a great impact on which form of heat is best for your home. For homes with large open spaces, open stairwells and high ceilings, radiant heaters work best, because they ensure that you and your family are warmed, not the open space surrounding you. If your home has lots of enclosed and well insulated rooms than convective heat, is the heat for you, because it's very easy to control once you've had your home properly zoned.

**Central Heating vs. Space Heating.** Before you decide whether you want central heating or space heating, you need to figure out which areas of your home you want to heat, how large the rooms are and how long you need to heat the rooms for. By creating zones in your home, you give yourself the flexibility to heat each zone individually, which is the key to energy efficiency. Whether you choose to use space heaters or a zone central heating system, both systems are preferred over using a whole house central heating system, because that system will heat every room in your home regardless of whether you using them or not.

### **3. Answer the following questions.**

1. What items should be taken in consideration when choosing a heating system? 2. How much energy costs can heating alone consume? 3. What do the heating requirements or "heating load" depend on? 4. What does the work of a heating contractor involve? 5. What are the two basic types of heat? 6. How do radiant heaters work? 7. How do convection heaters work? 8. What does the choice of types of heaters depend on? 9. What is the peculiarity of a whole house central heating system?

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### **1. Before you start.**

- What is ventilation?
- What types of ventilation do you know?
- What is the purpose of ventilation?

**2. Read the text, translate it and compare your ideas in ex.1 with the facts. Label the pictures with the words in bold from the text.**

#### Ventilation

Ventilation – the exchange of indoor air with outdoor air – is important to reduce indoor moisture, odours, and other pollutants. Contaminants such as volatile organic compounds, and radon (that may cause health problems) can accumulate in poorly ventilated homes. Excess moisture needs to be removed before high humidity levels lead to physical damage to the home. There are three main types of ventilation:

- Natural ventilation which is uncontrolled air movement through cracks and small holes (infiltration) and through vents such as doors and windows. The disadvantage of this is that it is uncontrollable.

- Spot ventilation which means using localised fans in the rooms where contaminant substances are generated (for example kitchen extractor fans and bath fans).

- Whole-house ventilation is a system that works thanks to fan and duct systems to exhaust stale air and supply fresh air to the house. Whole-house ventilation systems are usually classified as exhaust ventilation when the air is forced out of the house, supply ventilation if it is forced inside and balanced ventilation if the same amount of air is forced inside and outside the house.

### **3. Answer the following questions.**

1. Define ventilation. 2. Why is ventilation important? 3. What contaminants do you know? 4. What happens if too much moisture is not removed from the inside of your home? 5. How many types of ventilation do you know? 6. What is the disadvantage of natural ventilation? 7. What is spot ventilation? 8. How does whole-house ventilation work? 9. How are whole-house ventilation systems usually classified?

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### **1. Before you start.**

- What is air-conditioning?
- What are its purpose

### **2. Read the text, translate it and compare your ideas in ex.1 with the facts.**

#### **Air Conditioning**

Air conditioning is the process of altering the properties of air (primarily temperature and humidity) to more comfortable conditions, typically with the aim of distributing the conditioned air to an occupied space to improve thermal comfort and indoor air quality.

In common use, an air conditioner is a device that lowers the air temperature. The cooling is typically achieved through a refrigeration cycle, but sometimes evaporation or free cooling is used. Air conditioning systems can also be made based on desiccants.

In the most general sense, air conditioning can refer to any form of technology that modifies the condition of air (heating, cooling, humidification, cleaning, ventilation, or air movement). However, in construction, such a complete system of heating, ventilation, and air conditioning is referred to as HVAC.

The basic concept behind air conditioning is said to have been applied in ancient Egypt, where reeds were hung in windows and were moistened with trickling water. The evaporation of water cooled the air blowing through the window. This process also made the air more humid, which can be beneficial in a dry desert climate. In Ancient Rome, water from aqueducts was circulated through the walls of certain houses to cool them. Other techniques in medieval Persia involved the use of cisterns and wind towers to cool buildings during the hot season.[http://en.wikipedia.org/wiki/Air\\_conditioning](http://en.wikipedia.org/wiki/Air_conditioning) - cite\_note-3

Modern air conditioning emerged from advances in chemistry during the 19th century, and the first large-scale electrical air conditioning was invented and used in 1902 by American inventor Willis Carrier. The introduction of residential air conditioning in the 1920s helped enable the great migration to the Sun Belt in the United States.

Air-conditioning is the bringing of air in a building to a desired temperature, purity, and humidity throughout the year to maintain healthy and comfortable atmosphere. Air-conditioning may be divided into two main sections: one for the processing of materials in industry, the other for human comfort.

Air-conditioning provides the following services:

1. Filtration of the air both in winter and summer to remove dust.

2. Circulation of the air at low velocity and with proper diffusion to prevent draughts and maintain a uniform temperature and humidity at all parts of the inhabited space.
3. Introduction of enough fresh air from the outside atmosphere.
4. Heating of the air in winter.
5. Cooling of the air in summer below the outside atmosphere.
6. Humidify the air in winter to a relative humidity of at least 20-25 per cent.
7. Dehumidify the air in summer to a relative humidity not exceeding 55 per cent.

**3. Answer the following questions.**

1. Define the process of air-conditioning.
2. What is the aim of the air-conditioning process?
3. What is an air-conditioner?
4. How did air-conditioning evolve?
5. When did modern air-conditioning emerge?
6. What are the two main sections that air-conditioning may be divided into?
7. What services does air-conditioning provide?