2.1 AIR – CONDITIONING SYSTEMS

Air-conditioning is an essential field in refrigerating engineering, it is spread in many economy fields such as: accuracy mechanics, best comfort distinguished and space navigation electronic engineering, information technology and creating the best things for human being.

Air-conditioning is a science researching about methods and devices in order to create and maintain suitable air environment to manufacturing technologies and maintain machinery and tools or make people feel comfortable, air-conditioning is creating and maintaining:

+ Temperature.
+ Humidity.
+ Circulation.
+ Dust processing System and strange components of air.

Divided in many different purposes:

+ Air-conditioning for processing and business.
+ Air-conditioning serves our lives.
+ Air-conditioning with narrower contents, main purpose is to create the appropriate temperature required.

Besides the task of maintaining the temperature in the space at required level, the air conditioning system has to keep humidity in the space at stable levels. Besides, it is necessary to pay attention to security issues in clean air, noise control and the logical flow of the air stream.

2.2 PLUMPING SYSTEM AND FIRE SYSTEM.

Water supply system in the mission brings water from the water supply network in addition to all equipments, cleaning tools or machinery manufactured.

Factors affecting to the selection diagram:
- Functions of the house.
- Value of pressure to ensure water supply pipe outside.
- The necessary pressure brings water to sanitation tools,
- The comfort level of your home.
- Distribution of water tools and equipment that concentrates or stratificate.
  Basically indoor water supply system can be divided into the following categories:
  - The function
    - The water pressure of the pipe in the street.
    - Use external water supply pipe pressure outside.
    - Economy and easy and convenient management.
    - Limited using the pump.
    - Convenient for using .
  An important aspect of fire prevention and fighting is the timely detection of a fire outbreak, and warned residents in the building and fire organizations.
  This is an important role of fire detection and alarm system. Depending on the scenario to prevent the fire, building structures and purposes; numbers and objects reside; limits of content and tasks, these systems can provide a number of functions .
    + First, it provides a means to detect fire is raging methods manually or automatically.
    + Second, it warned residents in the building know there is a fire and they need to evacuate.
    + Another common function is to transmit alarm signals to the fire or other emergent response organizations.
    + They may also interrupt the power, control the air and handle equipments, or other special activities (elevators, fire doors, etc.). And it can be used to start the fire-fighting system.
  Fire alarm system is a system consisting of a set of devices to detect and alarm when a fire occurs. The fire emitted signals may be performed automatically by the detector (smoke, heat, fire, etc.) or by man (through the emergency button). The system must operate continuously 24/24 hours of power failure.

2.3 ELECTRICAL SYSTEM .

The system power supply
+ Power
  High Voltage Power Supply 24kV for works taken from the region's power grid. Power supply point shall be borne by the city power company identified.
+ Electric Capacity
Electrical equipments used in the project include: lighting, sockets, lifts, water pumps and fire fighting, air-conditioning system ...

High-voltage power supply for the project is taken from the grid of the area, high-voltage power supply connection points, transformers, low-voltage cabinets and standby generators are not under the scope of this design.

+ Power supply network and distribution.

To supply electricity from the power of the electrical cabinet to regulate payment systems use (BUS BAR), take the box technique.

Office blocks, 0.4 kV power supply from voltage electric cabinet of the transformer station to the cabinet floor using sound systems (BUS BAR), take the box technique. To supply electricity from the electric power to the cabinet office block floor room use single core PVC insulated copper wire, take the cable tray above the false ceiling.

To supply electricity from the power of power to the cabinet floor banks use core power cable XLPE insulated copper cable in the box scale techniques.

Indoor electric wire rope copper core, PVC insulated 0.6 / 1 kV and an underground hard plastic tube is inserted in the wall, ceiling or false ceiling.

❖ Lighting system in the works

Indoor lighting system designed by artificial lighting standards in civil (16:1986 TCXD), works principally lighting fluorescent lamps; stairway lighting using compact the ceiling ball lighting, lobby, corridor lights downlight compact ball, tube banks vault fire ... Minimum illuminance in the following areas:

- Office: 400 ~ 600 lux
- technical room, pump room: 100 lux
- Corridors, stairs the WC, warehouses, garages: 100 lux

Lighting control sector banks, corridor, lobby, stairs, garage using a switch mounted near the door or convenient. The office (region tenants) not equipped with switches (tenants will equip themselves according to their own design).

The incident lights and exit lights will be located at all entrances: the main lobby, hallways, stairs and other public areas. Stair use area lights problem with the battery reserve 3pm. Lounge area, corridor lights downlight, garage area, fluorescent lamps, the lamps are powered from UPS (located in basement) with fireproof maintain cable for light source working within 3 hours after electricity supply to the area (floor) is interrupted. Vault area banks use lights fire incidents reserve battery 3 hours.

❖ Lighting system outside instruction

Use of outdoor lighting lamps garden lighting, to ensure the traffic light for and external protection works. The lamps are used as street lights, high pressure mercury ball, mounted on octagonal steel columns, tree, lights, mushroom ... depending on the landscape of the place of installation. Outdoor lighting system is operated automatically
or manually. External control cabinet lighting systems are located in the standing room, so the security guards operate.

2.4 AUTOMATIC SYSTEM

Cold automation system is equipped for refrigeration systems and instruments for the instruments that they can operate the entire refrigeration system or part of an automatic device, sure, reliable safety high without the direct involvement of the operator.

Increasingly the automation devices growing and finishing, the hand-operated refrigeration system has been replaced by automated systems partially or completely. Refrigeration systems in small and medium-usually fully automated, automatic operation for months or even years without operators, large cooling systems are the control center, adjust and report performance and protection.

When designing a refrigeration system are always designed in the largest cold load in the most unfavorable operating modes such as the entry level is the highest level of the cold chamber is the largest opening, the outside temperature is the highest ...

In short: in the course of operating cooling system, cooling the temperature of the object to be fluctuating due to the impact of the different heat flow from outside or from inside the cold chamber. Keep the temperature does not change or changes in the scope allows a task to adjust the air conditioning. Sometimes the cold process control technology differently to changes in temperature, humidity and other physical quantities in a certain program.

The system automatically controls the entire work of the air conditioning, to maintain optimum operating mode and reduce product loss in the cold room.

Besides maintaining automatically the parameters (temperature, pressure, humidity, flow, etc.) within given limits, it is important to protect systems and equipment from the dangerous spots work. This is required to protect the system automatically.

Automate the work of cooling systems have advantages over manual adjustment mode is stable paralysis continue to work properly. This advantage leads to a variety of advantages to increase shelf life, improve product quality, reduce power consumption, extend the life and reliability of machines and devices, reduce the cost of cooling water, reducing operating costs and unit costs for cold production contributed to lower production costs ... The automatic protection is also done fast, sensitive, secure and reliable operation of the human