

The aim of this project is to design the (HVAC) system for building of (hiwwara hospital) which built in Nablus city.

HVAC system provides environmental health, comfortable, clean and free of germs and diseases. These consideration in the design will provide healthy and comfortable environment within the hospital. Also insulation system and material construction will be taken into account. Insulation system that be located in the walls and windows of the hospital to reduce the amount of heat losses. While materials construction will provide the appropriate temperature through the adjustment and suitable degree of moisture and maintain the purification of the air inside the building is suitable and healthy.

The fire-fighting system will be designed to keep the hospital safe from fire accident. Additionally, the water system and plumbing such as a network of hot and cold water. This service can be achieved through the identification of the correct size for pipes.

## **1- Location**

Country: Palestine / west bank.

City: Nablus/ Hewara .

Elevation: 569.45 m above sea level.

Latitude: 32N.

Longitude:35 E.

***Building face sits at north-east orientation.***

The wind speed in Nablus above 5 m/s.

## **2- Heating system**

Heating system is designed to add the thermal energy to building to maintain selected air temperature at an acceptable level. There are many types of heating systems that range from built-in systems or hot air through air ducts.

## **3- Cooling system**

Cooling systems is designed for space cooling or process cooling. In specified applications, to maintain an acceptable level of cooling at high temperatures, there is many types of cooling systems such as air conditioning and fluid conditioning.

## **4- Ventilation**

In HVAC system , the process of ventilation is changing the air in the space , control temperature , humidity , dust and airborne bacteria. This process includes of air as well as circulation from the outside and inside building. All occupied buildings require a supply of outdoor air. Depending on Outdoor conditions, the air may need to be heated or cooled before it is distributed into the occupied space. As the outside air drag into the building , indoor air allowed to escape , this process will remove the air contaminants.

The ventilation system can be designed only to supply enough air to the room to meet the requirements for acceptability of the air quality.

## **5- Air conditioning:**

Air conditioning is the removal of heat from indoor air for thermal comfort. In summer, high relative humidity, elevated air temperature and bright sunshine can sometimes combine to produce an uncomfortable indoor environment. An air conditioning system can provide comfort for occupants by decreasing the air temperature and humidity level at home. [5]

## **6- Fire alarm system:**

Fire protection is the study and practice of mitigating the unwanted effects of fires. It involves the study of the behavior, compartmentalization, suppression and investigation of fire and its related emergencies, as well as the research and development, production, testing and application of mitigating systems.

In structures, be they land-based, offshore or even ships, the owners and operators are responsible to maintain their facilities in accordance with a design-basis that is rooted in laws, including the local building code and fire code, which are enforced by the Authority Having Jurisdiction. Buildings must be constructed in accordance with the version of the building code that is in effect when an application for a building permit is made.

Building inspectors check on compliance of a building under construction with the building code. Once construction is complete, a building must be maintained in accordance with the current fire code, which is enforced by the fire prevention officers of a local fire department. In the event of fire emergencies, Firefighters, fire investigators, and other fire prevention personnel called to mitigate, investigate and learn from the damage of a fire. Lessons learned from fires are applied to the authoring of both building codes and fire codes.

**7- Plumbing:**

Plumbing is the art of installing in building the pipes, fixtures and other apparatus for bringing in the water supply and removing liquid and water-carried wastes. Plumbing fixtures are receptacles intended to receive and discharge water, liquid or water-carried wastes into a drainage system with which they are connected. Plumbing system of a building includes the water supply distributing pipes, the fixtures and fixtures traps, the soil, waste and vent pipes, the house drain and house sewer, the storm water drainage, and all the devices, appurtenances and connections of the above within or adjacent to the building.