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Fabrication of Ecofriendly Cooling System

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ABSTRACT:*Nowadays, the temperature is increasing day by day. Many of them were using air-conditioners in order to decrease the temperature in their houses. But, the usage of the air-conditioners may increase their electricity bill and affect the nature. So, the cooling systems that user friendly and cheaper must be created. In this project, the Ground Source Heat.*
This report describes in detail includes a brief description of the Ground Source Heat Pump as cooling system, concentrating on hole depth and coils length. Besides, the descriptive drawings make this report very easy to understand. The main objective of this report is to determine the suitable hole depth and coils length during Ground Source Heat Pump installation. The hole depth and coils length are determined according to the different type of soil moisture. Every type of soil moisture will give different hole depth and coils length.

I. INTRODUCTION

Nowadays, the temperature is increasing day by day. Many of them were using air-conditioners in order to decrease the temperature in their houses. But, the usage of the air-conditioners may increase their electricity bill and affect the nature. So, the cooling systems that user friendly and cheaper must be created.

Components Of Ecofriendly Cooling System
The major components of double acting hacksaw are,

- Copper coils
- Radiator
- Coolant
- Pump

Copper coil

It is nothing but a copper tubes which is looped on the earth for cooling purpose the tube which is used to loop under the earth will not get corroded due to the soil and the moisture content on earth .It will absorb the cooling from the earth so the water inside the tube will get cooled during summer and winter season the temperature under the earth will be remains constant it will not get changed .During the summer season chillness from the earth will be absorb and during the winter season heatness from the ground will be absorb by the tube.

- Radiator

It is otherwise called as indoor unit because it is fixed inside the room . The radiator is designed to dissipate the heat that the coolant has absorbed from the system. Radiators are filled with tubes that the coolant passes through. The fan carries heat off of the radiator. The coolant enters the receiving tank at the top of the radiator, passes through the tubes inside, losing the heat it has collected, and then collects in the dispensing tank at the bottom for the water pump to circulate it back through the cooling system

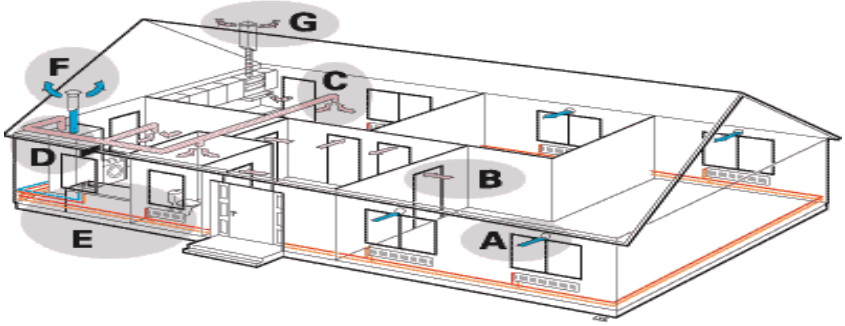
Pump

These are single phase capacitor start and run, 2 pole design pump used for clear water free from mud, grit etc. for domestic application and as a booster pump to fill the overhead tank for multi storaged buildings. Pump is fitted with a non return valve, which does not allow water to return in the suction line, thereby delivering the water instantaneorsly when the pump is switched on Ball Bearing sealed on both sides take the entire load with ample factor of safety and additional lubrication in not required. Copper alloy die-cast forged impeller has high strength to with stand wear and tear. turn The pump is available in three different bodies namely: Aluminium die-cast body, Cast iron body and Steel body

Fabrication Of Ecofriendly Cooling System

- It consist of copper coils which is looped into the earth surface
- The inlet of the tube is connected with the pot which is also looped in the earth
- Then the outlet of the tube is connected with ac indoor unit
- The AC indoor unit is fixed or hanged on the wall
- The outlet of the AC is connected with the ½ copper tube which lives the water back to the pot
- There is a submerged pump which is dipped into the pot
- The submerged pump is to circulate the water into the tube

Working Of Ecofriendly Cooling System



A. Fresh outside air is supplied to the house through cleanable outside vent holes.
B.The air overflow occurs under the door or through the overflow vent holes.
C.The warm inside air (exhaust air) is drawn into the ventilation system.
D.Warm exhaust air is supplied to the heat pump for heat recovery.
E.The heat pump provides the house with domestic hot water and/or hot water for the radiators.
F.When the exhaust air has passed through the heat pump the discharge air is released into the open air.
G.Before this, the heat pump has extracted so much energy from the exhaust air that the temperature of the discharge air is only about 0°C (depending on the system).

H. Extractor hood.

II. RESULTS AND DISCUSSION

The GSHPs can provide an energy-efficient, cost-effective way to heat and cool building facilities. Through the use of a ground-coupling system, a conventional water source heat pump design is transformed to a unique means of utilizing thermodynamic properties of earth and groundwater for efficient operation throughout the year in most climates. In essence, the ground (or groundwater) serves as a heat source during winter operation and a heat sink for summer cooling. Many varieties in design are available, so the technology can be adapted to almost any site.

The GSHP systems can be used widely in many applications and, with proper installation, offer great potential for the building sector, where increased efficiency and reduced heating and cooling costs are important. The GSHP systems require fewer refrigerants than conventional air-source heat pumps or air conditioning systems, with the exception of direct expansion type GSHP systems. Installation costs are relatively high but are made up through low maintenance and operating expenses and efficient energy use. The greatest barrier to effective use is improper design and installation; employment of well-trained, experienced, and responsible designers and installers is of critical importance.

The new technology demonstration programme (NTDP) selection process and general benefits to the building sector are outlined. The GSHP operation, system types, design variations, energy savings, and other benefits are explained. Appropriate application and installation are presented to give the reader a sense of the actual costs and energy savings. During the normal life span of a building the surplus of heat would lead to higher ground ,temperatures. This leads to less efficient heat pump operation and may result in insufficient capacity during cooling and peak demands.

As a solution a hybrid system, incorporating a dry-cooler, was developed. The principle idea was to use the dry-cooler to store cold in the wellfield during early spring, when the required summer peak load cool can be generated very efficient and cheaply. A geothermal energy system uses theground as a heat-source or heat sink, depending on whether the systems used in heating or cooling mode. The ground is principally suited for low

temperature energy exchange. The usual operating temperature bandwidth is between -5oC and 40oC (not taking into account high temperature energy stores)..

III. CONCLUSION

Nowadays, the temperature is increasing day by day. Many of them were using air-conditioners in order to decrease the temperature in their houses. But, the usage of the air-conditioners may increase their electricity bill and affect the nature. So, the cooling systems that user friendly and cheaper must be created.

In this project, the Ground Source Heat Pump systems that can replace the conventional systems will be discovering. Since Ground Source Heat Pump are the one of the fastest growing applications of renewable energy in USA and Europe, so it's would possible to apply these systems in Malaysia and see whether it is suitable for use in hot country like Malaysia and Asia region. The usage of Ground Source Heat Pump systems as cooling systems will help people to decrease their monthly electric's bill and to avoid global warming become more serious.

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