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CLAY MECHANISM BASED AIR COOLER

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Abstract

An air cooler is developed with clay material. The performance of cooler was evaluated in terms of temperature drop. The cooling capacity of cooler was higher during the day between the period of 9-10 hours. Reduce the daily maximum ambient temperature from 32 – 40C to 24–29C. Cooling of water in a small porous clay vessel was studied under controlled humidity conditions. The clay pipe in the water filled inside the tube and due to the property of porosity, the water comes outer surface of the tube and contact with the air passing over the tube and air get cooled.

Keywords: - *Better cooling, Cost minimize, Development*

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1. INTRODUCTION

In India and other countries of the world the cool air is very necessary during the summer season. Air cooler serves to cool down the hot air in a room or vehicle. Air cooler cools the atmospheric air in a room or vehicle by adding water to the air. The water is fill into the clay pipes. The air cooler has a fan installed in it that pulls the warm air drawn by fan.

An air cooler is not the same as an air conditioner. The air cooler does not use compressor and refrigerant gas. Air cooler is not harmful for the environment and is cost effective.

Environmentally clean, fresh supply air and natural fragrance of air. This cooling technique should be especially relevant at present when depleting fossil fuel reserves and environmental problems caused by the rapid use of such fuels are of mounting global concern.

2. RESEARCH METHODOLOGY

2.1 Selection of Area of Research

Researchers are encouraged to develop alternative cooling technology due to ozone depleting substances and greenhouse effect by the CO2 emission and other economic factors. The cooling technology will affect directly the energy cost and impact on the environment. It is estimated that average of about 60% of energy is consumed only for air conditioning and it has reached maximum 80% during at peak time. This technique eliminates environmental damage and offers energy savings in running costs. The ambient air cooled and humidified by clay pipe cooling technology.

3. LITERATURE REVIEW

An air cooler is a specialized machine which is used to provide cool air to surrounding.

- A clay pipe like a grass by which air cool.
- The grass shifts to the clay pipe like the cooling porous material.

Air cooler decreases electricity(energy)usage and cost etc.

4. CONSTRUCTION AND WORKING

4.1 Aluminium Body

It is used as a base of the cooler. Aluminium sheet is used to make whole body of the cooler. It is connected one side with exhaust fan and other three sides with clay pipes.

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4.2 Exhaust Fan

The main function of exhaust fan is to provide cool air which passes through the clay pipes to the surrounding.

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4.3 Clay Pipes

Clay pipes are made by clay material. The main function of clay pipes is to reduce the water temperature. All the clay pipes are connected with each other by rubber pipes.

4.4 Rubber Tubes

Rubber tubes are connected with clay pipes for filling water into the clay pipes. It also connect with the inlet and outlet port.

4.5 Working

- First of all water need to be filled in water tank.
- This water will fall downwards via rubber tubes and fill in clay pipes.
- Clay pipes after filled with water will reduce their temperature.
- There will be slight air gap between two clay pipes.
- When air will flow from this air gap then air will become cool.

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5. CONCLUSION AND RECOMMENDATIONS

It reduces the cost of air cooling compare to normal air cooler. It is eco-friendly. It is efficient for cooling in small area. Long run it proves eco-friendly. Clay pipe arrangement enhances the heat transfer between air and the clay pipe surface. An air cooler works satisfactorily. But, there were some improvement should be done. Solar panel should be used in this air cooler in future for save electricity.

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