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COOLING THE ROOM WITHOUT AIR-CONDITIONER

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Abstract. Generally we cool the room or the space to be cooled by using air conditioner .but we all know that it releases CFC which is harmful to environment. So, in order to protect environment from CFC there is technique which cools the room without generating CFC.
Keywords – CFC, Duel glass, Misting.

I. INTRODUCTION

We introduce a new idea that can help in cooling with low cost, low energy consumption and pollution free.
Here by we make it out with 3 process..

1. DUAL GLASSING
2. CROSS FLOW PIPING
3. MISTING

II. DESIGN PROCESS

A. DUAL GLASSING:

Figure1. DUAL GLASS PANEL

Dual glassing system has a two layer of glasses with different refractive index. (It is expressed as a ratio of the speed of light in vacuum relative to that in the considered medium, here energy can be transferred.) Here the first layer of glass reflects and transmits the light rays where as second glass layer stops the heat waves is left out.

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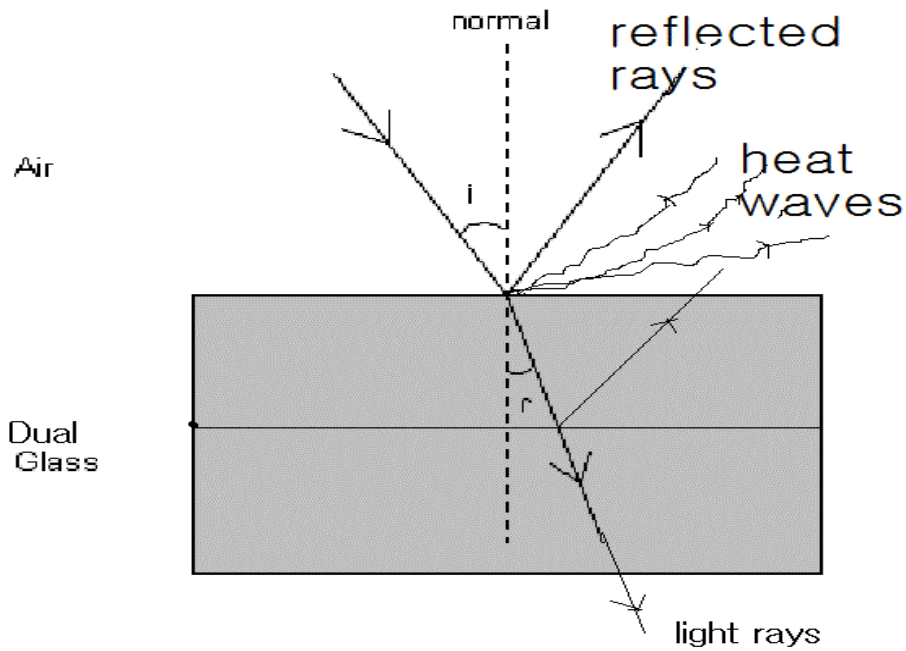

Figure2. Dual Glassing system

B. CROSS-FLOW PIPING:

Parts of cross-flow piping system

1. Cross flow tube.
2. Inlet and Exhaust series fans.
3. Inlet and Exhaust ports.
4. Brine solution.
5. Refrigerant.

C. Working of cross-flow piping:

1. Here in a cross flow arrangement of tube is done.
2. Heat transfer is the principle behind this.
3. Hot air passes over the inner tube having brine solution.
4. The brine solution cools up the hot air entering through the exhaust port and send cool conditioned air to inlet.
5. This cool air is spread in room by inlet fans.

Figure3. Cross flow tubes

D. MISTING:

1. Mist is a phenomenon of small droplets suspended in air.

2. It's naturally made but here we make it artificially with the help of misting equipment.
3. Here an ultra fine mist is introduced into the environment which interacts with the air to cool, clean, humidify and to repel flying insects.

Misting equipments:

Figure 4. Water –pressure pump

Figure 5 Portable Fans…

Figure 6. Line Nozzles

1. How Does Mist Cooling Work: Mist cooling works by forcing water through specially designed misting nozzles to create a fog of ultra fine water droplets.
2. A common misconception is that misting is meant to get you all wet to cool you off. Rather, the tiny droplets or fog, quickly evaporate, cooling the surrounding air.
3. Our high pressure pumps, misting fans, and fixed line misting systems are designed to efficiently introduce super fine mist into the area to be cooled.
4. Our systems incorporate the principles of Flash Evaporative Cooling and Convective Cooling, to deliver maximum results

E. Product list for misting:

a) (1) High Pressure Pump (800-1000 psi)
b) (10) Misting Nozzles
c) (75ft) 3/8" High Pressure Flexible Tubing
d) (1) Brass End Plug
e) (1) 5 Micron Filter w/ Garden Hose Attachment
f) (20) Hose Clamps and Screws
g) Maximum number of nozzles that can be used at different water pressures

1.	25 psi	6
2.	40 psi	18
3.	50 psi	30
4.	100 psi	62

**Normal house pressures range between 25 psi and 40 psi.*
The technical atmosphere (symbol: at) is 1 kgf /cm^2 which, in US Customary units, is 14.223 psi.

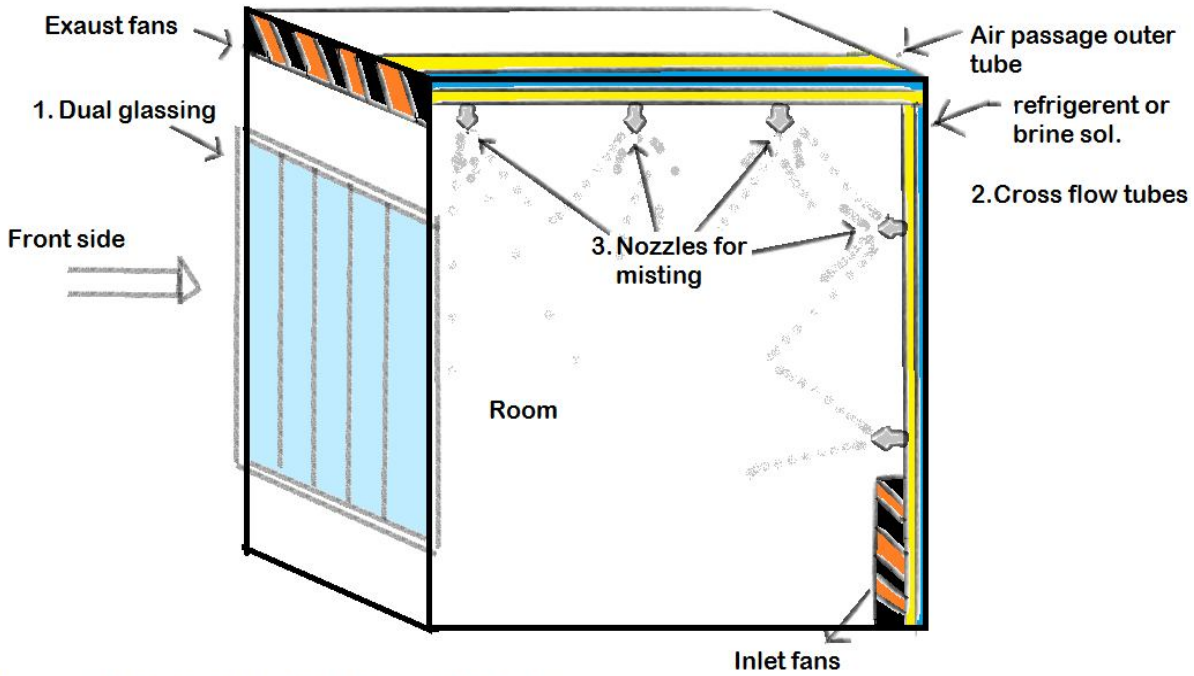

fig. PROPOSED IDEA.. MODEL

F. Advantages of using Trio-cooling method

1. Reducing use of equipment (A/C) & the energy costs by up to 30% (same or even more cooling, with much less energy).
2. Delaying or eliminating the need for additional cooling equipment.
3. Keeping heat generating equipment running a peak performance and optimal output...
4. Increasing the cooling capacity of air cooled equipment.
5. Easier way of inspection.
6. Pollution free and no harmful fumes or gases are released out.
7. High cooling efficiency.
8. Comparatively cheaper in installation and maintenance.

G. Time to complete the prototype:
1. All the three processes can be kept in use in 10 days for checking and installation.
2. (if all the parts get easily)
3. Study time required for the individual processes:
4. 1st process requires min two days.

5. 2nd process – four days.
6. 3rd process – six days. (approx)

H. Budget requirement:

1. Cost of this whole system comes around 15000 to 20000 rupees.
2. It's quite cheaper to AC

III. CONCLUSION

This trio cooling equipment will fulfill the requirements of both domestic and industry purpose. This equipment is easy to install and cost is low when compared to AC. This pollution free device makes human comfort same as AC. This equipment is just an idea which is not an extension to any project.

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