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Experimental Study on WINSUM CLIMATISATION

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Abstract - *In today's word the requirement of human comfort is more & it should be efficient. The requirement is in all the season & also it must be affordable to all human beings. So that, each & everyone can have comfort conditions in all seasons. This project is attempt to solve this problem at some extent. We have tried to have minimum consumption of electricity than the normal air conditioners. This system is also useful in places where humidity is more. This system is easy to use, it can be used in all season for air comfort conditions.*

***Key Words*: Evaporating unit, Heat Exchanger, Pump, Heating Element, Fan, Duct**

1. INTRODUCTION

Air conditioning is the process of treating air in an internal environment to establish & maintain required standards of temperature, humidity, cleanliness and motion. For human comfort, the air conditioning is necessary in all the seasons. Since the purpose of most air conditioning systems is to provide a comfortable indoor environment, that's why air conditioners are there. But everyone is not able to afford the air conditioners since they are costly, also they consume more electricity. So there should be a system which does the same work as air conditioners & having less consumption of electricity & cost. WINSUM CLIMATISATION is the system which works on same way as like Air conditioners. It can be used in all seasons.

2. LITERATURE REVIEW

T. Ravi Kiran et.Al [1] Conventional refrigeration based vapour compression air conditioning systems consume a large portion of electrical energy produced mostly by fossil fuel. A novel dew point evaporative cooler (DPEC) can sensibly cool the incoming air close to its dew point temperature. In this paper feasibility of DPEC system is investigated for various Indian cities for office buildings during day time. Firstly the weather data of different cities of India is used to find the suitability of dew point technology for Indian buildings by estimating the cooling capacity of the cooling system for each city. Secondly energy saving potential of the dew point cooling system w. r. t. to the conventional compression based air conditioning system for different cities of India is estimated.

Rin Yun, et.al [2] In His study the seasonal performance of a residential air conditioning system having either a fin-and-tube condenser or a microchannel condenser is experimentally investigated. For this investigation, a commercially available 7 kW capacity residential air conditioning system having a fin-and-tube condenser served as the base system. The test results show that the system with a microchannel heat exchanger has a reduced refrigerant charge amount of 10%, the coefficient of performance increased by 6% to 10%, and the SEER increased by 7% as compared with those of the base system.

Moien Farmahini Farahani, et.Al [3] In His study the results of an investigation on a two-stage cooling system have been studied. This system consists of a nocturnal radiative unit, a cooling coil, and an indirect evaporative cooler.

R.H. Turner [4] , In His study he focuses on potential applications of evaporative cooling (EC) and an associated survey of research requirements of EC as supplied in residential and small commercial buildings. To prepare this work, the literature in the field was reviewed and people active in the field were contacted. There are potential applications for EC systems and related research issues that are not fully understood by most government agencies, utility companies, engineers, industries, decision makers, and the consuming public. However, as energy costs rise there will be increasing demand for operationally inexpensive cooling systems. Thus, information on the potential of EC systems could benefit these parties. This paper focuses on residential and small commercial building applications of EC.

Nishant Dhanore [5], In his study he modified the evaporative cooler so that the moisture contents gets reduced. He supplied evaporator water to heat exchanger & performed forced convection over it. So that cooling effect can be achieved.

3. EXPERIMENTAL WORK

Evaporating unit will be used for evaporation. Evaporated water will be pumped and supplied to heat exchanger. Mostly pipe type heat exchanger will be used. Fans are provided at back of heat exchanger pipes, air will be supplied by fans on the pipes so that forced convection will occur. Cooled & moistureless air will be obtained. Again water is supplied to evaporating unit. This is for cooling effect.

In Winter, there is requirement of warm conditions , this can be achieved by switching ON the heating element. At back of heating element fan is provided so that after switching ON fan, the air will be warm. At a time One effect can be obtained. Either cooling or warm.

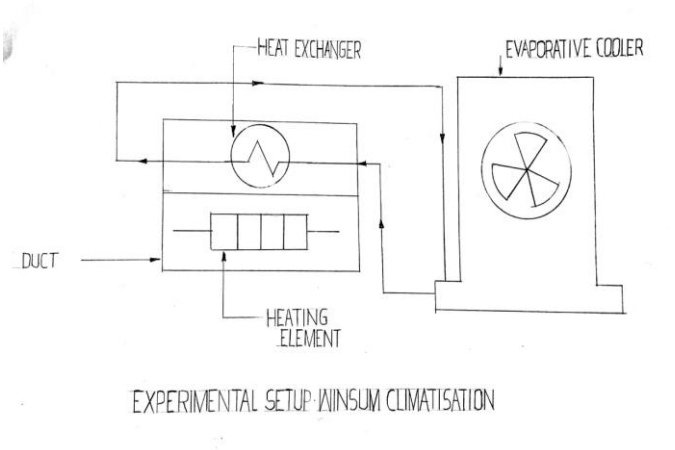

Fig: Experimental Setup WINSUM CLIMATISATION

4. CONCLUSION

This paper deals with solution over drawback of cost of Air conditioners & humidity of evaporative coolers. This setup consumes less power than air conditioners. It gives moisture less air cooled air in summer & warm air winter. From this paper we can conclude that this is the best option to replace air conditioners & it's operating cost is so less that everyone can afford.

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Prof.S.A.Wani is working in Mechanical Engineering from last 7 years and the field of interest and research is Refrigeration and Air-conditioning.

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