# Natural Air Cooling System

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## ABSTRACT

Increase of indoor temperature compared with outdoor temperature is a major concern in modern house design. Occupants suffer from this uncomfortable condition because of overheating indoor temperature. Poor passive design causes heat to be trapped, which Influences the rise in indoor temperature. The upper part, which covers the area of the roof, is the most critical part of the house that is exposed to heat caused by high solar radiation and high emissivity levels. During day time, the roof accumulates heat, which increases the indoor temperature and affects the comfort level of the occupants. Our aim is to provide cooling effect by arrangement of electric fan and Copper pipe with minimum cost. Our second aim is to drop the room temperature by 6-8 Degree Celsius.

**Keywords**: Condenser, Cooler

## 1 Introduction

Natural Air cooling system is a simple and natural device to cool the air in closed room. This system is very useful as well as economical for human comfort. This model has very simple construction as compared to other air conditioning system. The demand of air conditioning system is increasing due to the effect of climate change and global warming. But this system is fully pollution free system.

## 2 Materials and Methods

Condenser materials (particularly those for the sections in contact with the fluid streams) are important to design and selection process. Coolant selection in refrigeration application often coincides with material selection. Common materials include copper, brass, aluminium and stainless steel.

## 3 Theory

As already mentioned, condenser is an important component of any refrigeration system. In a typical refrigerant condenser, the refrigerant enters the condenser in a superheated state. It is first de-superheated and then condensed by rejecting heat to an external medium. The refrigerant may leave the condenser as a saturated or a sub-cooled liquid, depending upon the temperature of the external medium and design of the condenser. That the refrigerant used refrigerant (or an zoetrope condenser pressure remains constant during the condensation process.

## 4 Results

While running our project we check three times of reading of temperature in whole day.



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**We check in morning session at 9.00 am**

**Table 1**

| TIME | ATMOSPHERIC TEMPERATURE (in degree) | DROPPED TEMPERATURE (in degree) |
|---|---|---|
| After 5 min | 32 | 3 |
| After 15 min | 32 | 4 |
| After 25 min | 32 | 6 |

**We check in afternoon session at 12.00 pm**

**Table 2**

| TIME | ATMOSPHERIC TEMPERATURE (in degree) | DROPPED TEMPERATURE (in degree) |
|---|---|---|
| After 5 min | 36 | 2 |
| After 15 min | 36 | 5 |
| After 25 min | 36 | 8 |

**We check in evening session at 4.00 pm**

**Table 3**

| TIME | ATMOSPHERE TEMPERATURE (in degree) | DROPPED TEMPERATURE (in degree) |
|---|---|---|
| After 5 min | 34 | 3 |
| After 15 min | 34 | 4 |
| After 25 min | 34 | 7 |

**Possible Metal combinations found in water cooled condenser.**

**Table 4**

| Shell Metal | Tubing metal |
|---|---|
| Steel | Copper |
| Copper | Copper |
| Steel | Cupronickel |
| Copper | Cupronickel |
| Steel | Stainless steel |
| Stainless steel | Stainless steel |

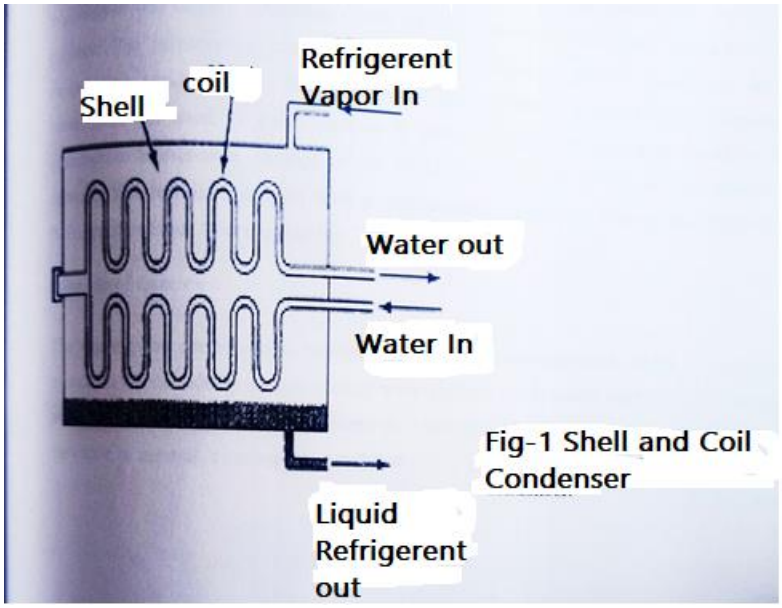


Figure 1: Shell and coil type condenser

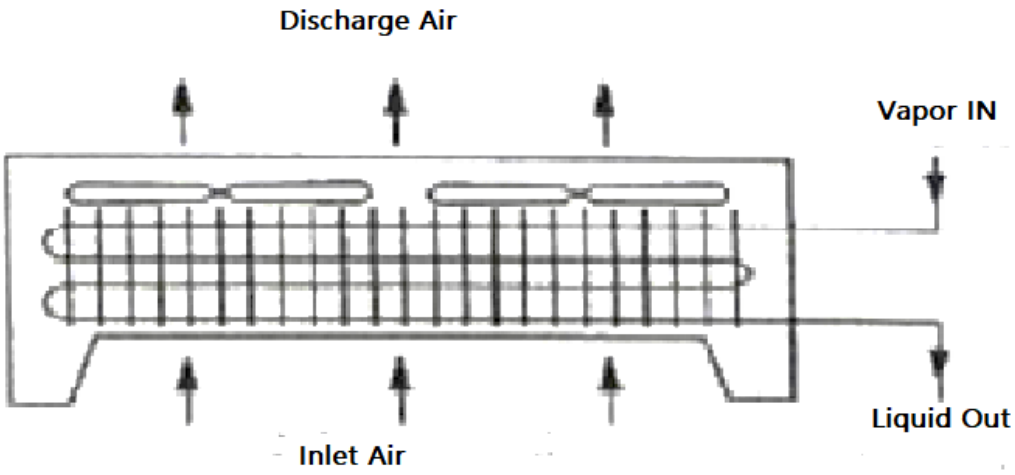


Figure 2 Air cooled condenser

**Figure 3** Electrical *fan*

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**Figure 4** *Copper pipe*

**Figure 5** *Submersible pump*

## 5 Conclusions

This project might be useful in all location. In practical applications this project is play the role of reducing the temperature of the air naturally. This project is suitable for indoors. We are proud that we have completed the work with limit time successfully, "Natural Air Cooling System" work with specified condition. We are able to understand the difficulties in maintaining and reducing the temperature of air naturally. We have done our abilities and skill.

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