

## **WHAT IS THE BEST TEMPERATURE SETTING OF ROOM AIR-CONDITIONER?**

**Dr. H.K. Verma**

Distinguished Professor, School of Engineering and Technology

Sharda University, Knowledge Park – III, Greater Noida

Former Professor and Deputy Director, IIT Roorkee

*website: [www.profhkverma.info](http://www.profhkverma.info)*

The best temperature setting of your Room A.C. for your **Health** as well as **Comfort** is:

**24<sup>0</sup>C to 27<sup>0</sup>C !!**

At the same time, you will avoid huge wastage of **Money** and protect the **Environment** too.

### **A – Health** [Reference 1]

1. Prolonged exposure to temperatures below 23 degree celcius (23<sup>0</sup>C) can trigger a *respiratory illness*.
2. If you inhale cool air coming from an AC, it can cause *chest infection or bronchitis*.
3. Too much of air-conditioning can cause *cold, flu, sinus, bloody nose, body aches, sore joints, arthritis* and other problems affected by prolonged cold-air exposure.
4. Prolonged air-conditioning makes the skin dry and prone to *itching*, and it is worse for those suffering from *eczema or psoriasis*.
5. It is no good for the hair and leaves it *dry and lusterless*.
6. It can lead to *dry eyes*.
7. Switching suddenly from a hot and humid outdoor to an extremely cold and dry room, or vice a versa, can cause serious health problems.
8. It is suspected that air conditioning plays a major role even in the soaring *obesity* rates in the modern society.

### **B – Comfort** [Reference 2]

9. The most comfortable temperature is different for men and women because of the difference in the rate of their metabolism. Women burn fewer calories than men. So a man can be comfortable in a room where a woman may feel cold.
10. Our metabolism slows down as we get older. So older people need a warmer room.
11. Compared with a slender individual, a person who is overweight generates more heat in relation to the area of skin by which he/she dissipates it. So a fat person often prefers the room cooler than does a thin one.
12. In spite of the fact that because of the above physiological and other reasons one person's preferred temperature is different from another's, for every person there is a *range of temperature*, above and below his/her ideal preference, in which he/she is *comfortable*. Studies have revealed the following:

*97% of users are comfortable at 25°C*

*85% of users are comfortable between 24°C and 27°C.*

*More than half the users are uncomfortable below 23°C or above 28°C.*

### C – Money [Reference 3]

13. National Building Code puts the optimum temperature condition at 27.5 degree Celsius.

14. Rated efficiency of Room ACs is tested and specified at 27 degree Celsius.

15. Studies suggest that efficiency of AC drops by 3 - 10% with every degree below 27°C.

16. If the temperature is set below 27°C, huge money is wasted as shown below:

(Calculations based on Star Rating = \*\*, Capacity = 2 tons, Usage = 8 hours a day and 30 days in a month, Efficiency fall = 5% per degree below 27°C, Tariff = Rs. 7.50 per unit):

<i>Temperature Setting of Room AC</i>	<i>Money Wasted per month</i>
18°C	Rs. 2270
20°C	Rs. 1765
22°C	Rs. 1260
24°C	Rs. 755
25°C	Rs. 500
26°C	Rs. 250
27°C	Rs. 0

### D – Environment [Reference 4]

17. Unnecessary use of air conditioners means extra load and extra energy generation, which in turn means avoidable extra CO<sub>2</sub> emissions from power plants.

18. Although ozone-depleting chloro-fluoro-carbons (CFCs), formerly used cooling agents, have been replaced by hydro-chloro-fluoro-carbons (HCFCs), which deplete 95 percent less ozone, but their excessive use will push back the ozone recovery by several years.

### References

[1] “Beauty and Personal Grooming: Don’t lower air-conditioner temperature beyond 23 degree Celsius”, at <http://www.beautyandgroomingtips.com/2011/05/dont-lower-air-conditioner-...>

[2] “JB Crawford Repairs & Services: Air Conditioning – For Comfort”, at <http://www.jbcrawford.com/ac/index.php?G0=comfort>

[3] “Too Cool for Comfort”, at <http://www.downtoearth.org.in/content/too-cool-comfort-0>

[4] “Air Conditioner Environmental Impact - National Geographic's Green Guide”, at <http://environment.nationalgeographic.co.uk/environment/green-guide/buyi...>