



## Saving Energy on Airconditioning

**I**n any commercial airconditioned building, the airconditioning system generally consumes the maximum power. Taking a little care to minimise energy consumption will result in substantial savings in the long run. Energy savings can be made by:

- adopting an energy-efficient building design
- using energy-efficient airconditioning systems and
- regular maintenance and effective utility management.

### Building design

Orientation of the building plays a key role in the structure's airconditioning requirement. Excessive use of glass especially on the western side adds high airconditioning heat loads. Using materials such as foam concrete, double wall glazing, hollow concrete blocks, or foam insulated roofing will help improve the insulation of the building and save energy.

### Energy Efficient Airconditioning Equipment

It is advisable to go in for equipment with the best **Energy Efficiency Ratio (EER)\***. Though initial capital may be higher the user will save energy continuously thereby saving expenses in the long run. Window ACs using Rotary compressors are more energy-efficient than those with Reciprocating compressors. Packaged airconditioners/Ducted Splits are available with Reciprocating Compressors as well as Scroll Compressors. Scroll Compressors are capable of higher EER and hence save on energy. For higher tonnages Screw and Centrifugal equipment are most preferred because of low op-

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\*EER is the ratio arrived at by dividing the Cooling Capacity of the Airconditioner, expressed in Btu/Hr, by the electrical power input expressed in Watts. The formula is:

$$\frac{\text{Btu/Hr}}{\text{Watts}}$$

EER, for vapour compression systems, is normally in the range of 8 to 16. The higher the EER number, the better the efficiency.



erating costs. Where heat source such as steam or hot water is available as a by product or economically, Absorption type units are a good energy saving choice.

### **Effective maintenance and utility management**

Regular maintenance will ensure efficient performance. Cleaning of filters, de-scaling of the heat exchangers, lubricating friction points, such as fans, motors and shafts, should be done regularly. Prudent utility management will save substantial energy on the airconditioning. Simple measures like isolating areas of the building not in use, setting indoor temperatures at the highest point acceptable to the largest segment of occupants, and shutting off the system when not in use will save energy.

Blue Star has also produced a useful book titled *The Blue Star Guide to Power Savings in Airconditioning*. Do ask for your own free copy, if you do not have one already. That book deals with this subject in more detail.