

Destratification Fans



Thermal stratification causes warm air to rise to the ceiling or roof space, and displaces cooler air, pushing it downwards into the occupied space.

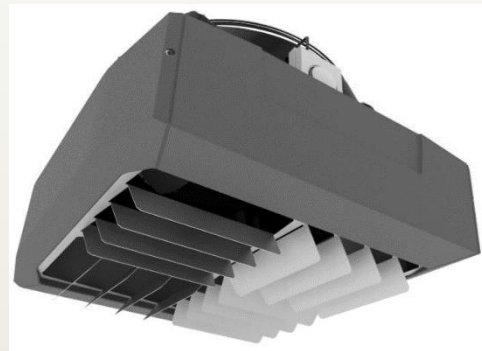
In most workspaces, irrespective of the height of the ceiling, the occupied space where people need to be kept warm is up to around 2m from the floor. Any energy used to heat the air above this point is therefore generally wasteful. For example, in a typical pitched roof building with an average height of 5-7m, the temperature difference between the working zone and the roof space will be around 5°C.

Advantages

- The Carbon Trust estimate that fans in industrial buildings with high ceilings, operating a warm air heating system, can reduce energy consumption by 20%.
- The ability of the destratification system to reduce the temperature of the air in the roof space also reduces the rate of heat loss through the roof.
- In industrial buildings, the destratification fans will also recirculate the heat from machinery, so that less energy is consumed by the heating system.
- Improved air distribution helps to eliminate hot and cold spots in the working zone to improve comfort levels.
- Destratification fans can also be used to provide cooling draughts of air during the summer.

Suitability

Destratification fans are most effective in buildings with high ceilings e.g. workshops, warehouses, supermarkets, and leisure centres.



Types of destratification fans

There are two types of destratification fans:

- Low velocity blade or propeller fan— These work by churning the air and are most appropriate for ceiling heights between 5m and 10m.
- High velocity axial fan – These send a significant amount of air at high speed towards the floor and are best for heights of 10m to 20m.

To consider:

- The type of destratification fan (see above).
- The number of fans required.
- The fans positioning to allow optimum air distribution.
- Is there access for maintenance?
- Noise levels.

