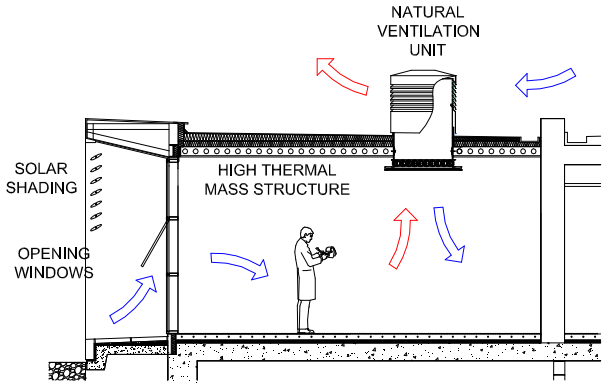
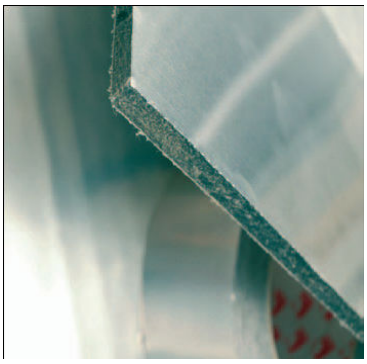
Natural Ventilation – First Choice in Low Carbon Environments

The concern for our environment and long term availability of fossil fuels is driving the search for low energy, low carbon alternatives to traditional air conditioning systems. The Government, in Part L of the Building Regulations, is forcing consideration of sustainable methods of heating and cooling buildings. If the proposals are accepted by Parliament further legislation will be used to force further reductions to meet the long term carbon dioxide emissions targets.



For many conditioned spaces, where comfort is the main factor, natural ventilation has now developed to provide year round ventilation, and comfort cooling during the summer period. Companies such as Monodraught and others provide natural ventilations terminals that operate in stack (hot still day) or wind-catcher mode to provide the air movement required. The terminals are combined with opening windows and solar shading to control the heat build up in the occupied space.

Natural ventilation requires a night cooling strategy to operate at its most effective. Automatic controls are used to admit the cool night time air in summer, cooling the room surfaces ready for the following day. Night cooling can reduce the daytime environment temperature by 2-3ºC. Such strategies, however, depend on high admittance (heavyweight) structures such as exposed plastered or un-plastered concrete/brickwork etc. For lightweight structures such as plasterboard and partitions products such as DuPont Energain can be used to increase the thermal mass of the room structure, allowing effective night cooling in a lightweight room construction.



Successful Natural Ventilation Strategy

- Limit solar gains particularly on south, east and west elevations.
- High thermal mass structure using concrete, brickwork or Energain.
- Natural ventilation units with ventilation and night cooling controls.
- Opening windows to allow stack effect ventilation.