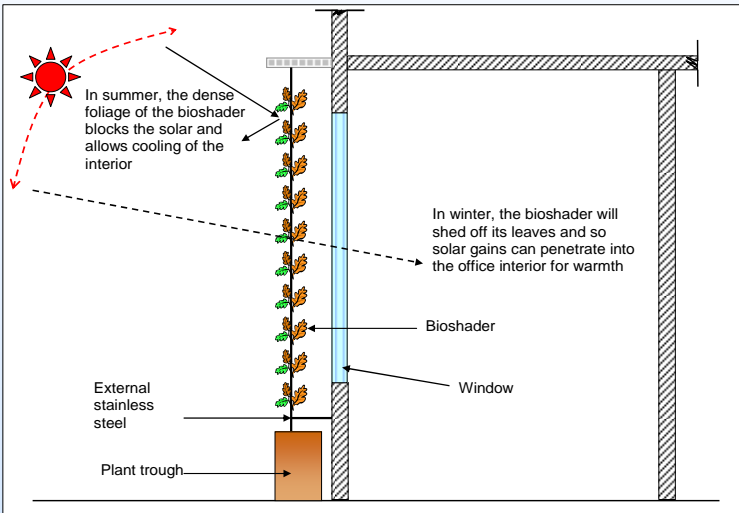




Bioshaders for office buildings in the United Kingdom

Aim: To evaluate the performance of bioshaders in terms of heat transfer, thermal comfort and energy consumption.



Cross section of the bioshader

Parthenocissus Quinquefolia, a deciduous climbing plant, commonly known as Virginia Creeper, was selected. Its characteristics include:

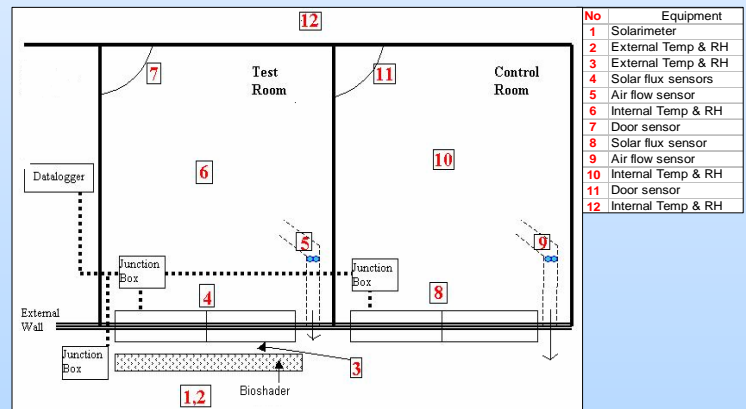
- Twining stems
- Hardy
- Low maintenance
- Low water demand
- Growth rate is very fast, tall and spreading
- Able to climb up to 6m to 12m
- The leaves change to a bright crimson colour before falling off in autumn



Bioshader in July



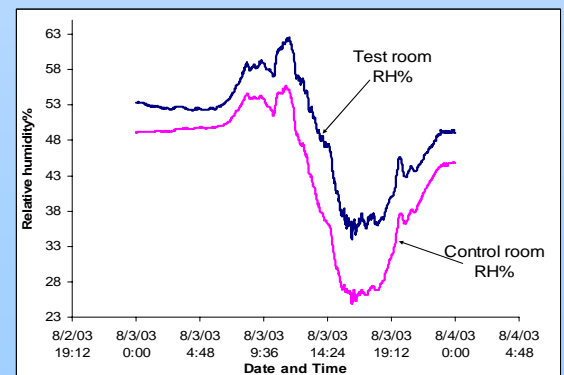
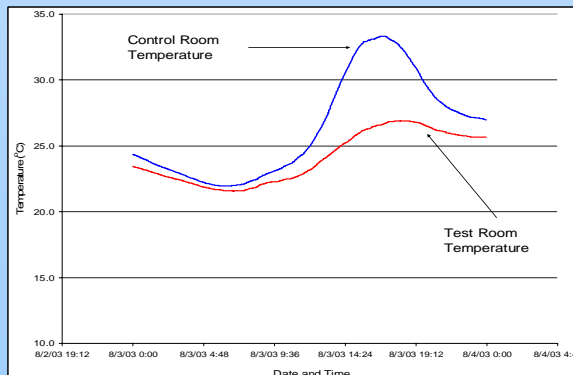
Bioshader in October



Location of monitoring equipment in test room and control room

Preliminary results:

- A reduction of 4 to 6 degree Celsius on peak summer temperature
- Constant higher relative humidity in the test room than that of the control room.



Future work: This on-going research will establish the dynamic shading coefficients for the bioshaders, which are necessary for the calculation and computer simulation of their thermal and energy performances when applied to different buildings and climates.