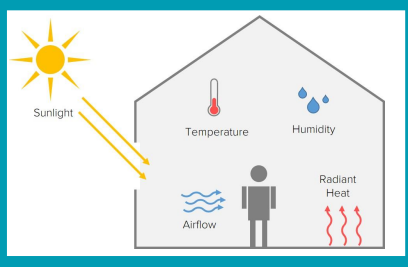
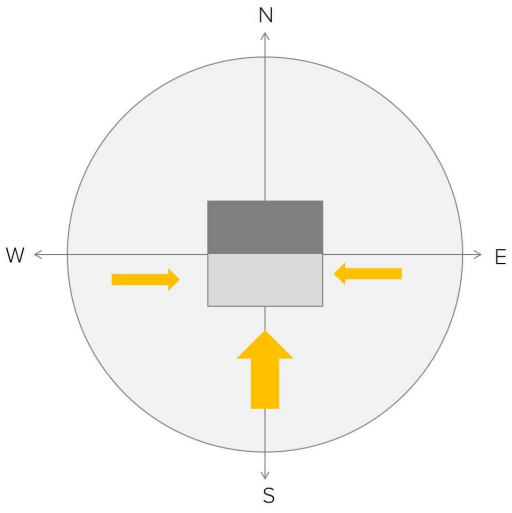
10 ways to stay cool:

Secrets to reducing overheating



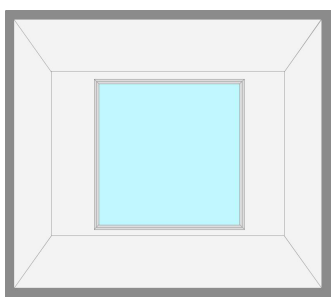
1 Orientation



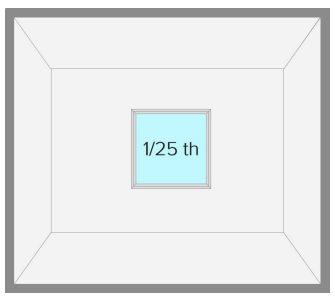
South facing glazing will absorb the most energy from the sun therefore, to minimise overheating, south facing glazing should be reduced. If overheating occurs early morning/late evening this indicates that the east and west glazing areas should also be reduced.

2 Glazing Area

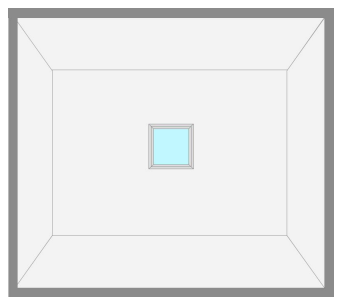
If the glazing area is at least 1/25ths of the total room area the room can have a daylit appearance. Some solar gains are useful however, too much glazing also causes overheating therefore the glazing area needs to be balanced.



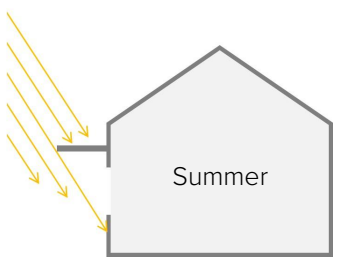
Too much solar gain

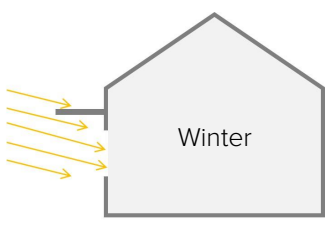


Good balance



Too little light



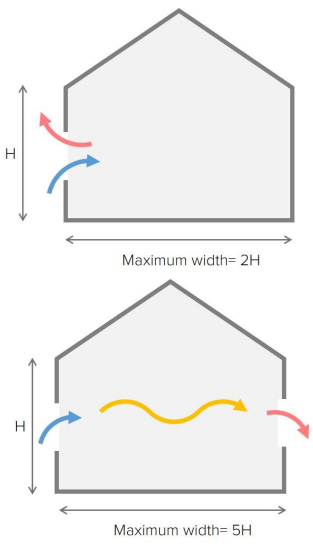


3 Overhangs

On south facing facades, overhangs can block out the intense solar gain during the day whilst allowing all-day winter sun.

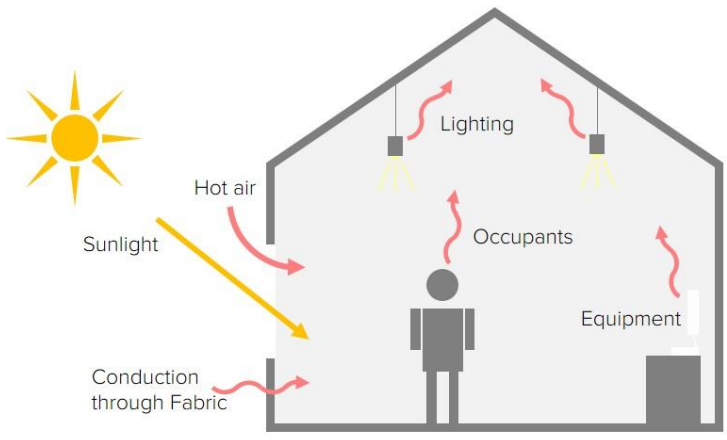
4 Ventilation

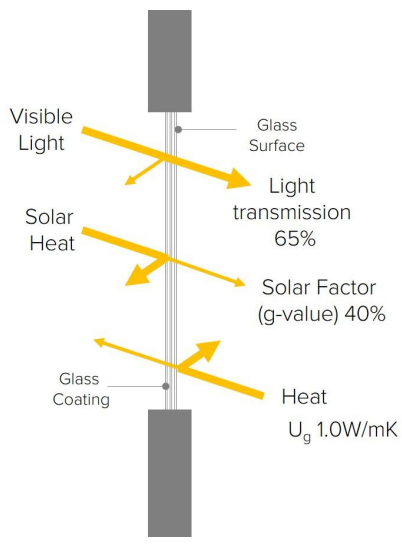
Opening windows, especially using two windows on different side to allow cross flow ventilation will help purge the space of excess heat to reduce overheating. Smaller openings for ventilation are good to keep a space secure whilst allowing for some background ventilation to keep rooms cool.



5 Internal Gains

A space with lots of people, lights or equipment such as computers will heat up faster therefore, these sources of gains need to be accounted for and reduced by using more efficient fixtures and equipment. The patterns of use helps to determine the overheating risk across the day.



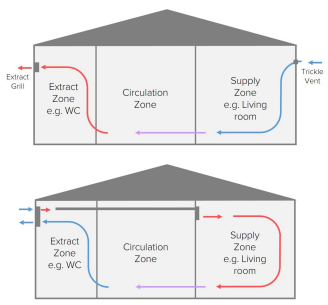


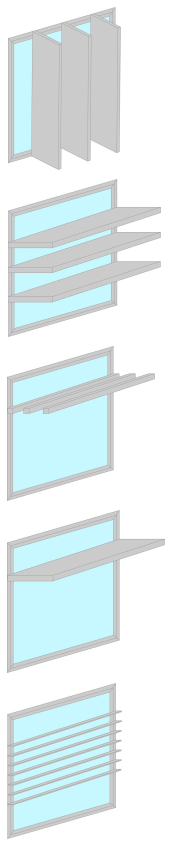
6 Glass Type

Glass coatings can also help reduce the solar heat transmission (g-value) however, this will also reduce the solar gains in winter therefore, this needs to be balanced with the glazing area to ensure an optimum diurnal swing.

7 Air Movement

This will help to maintain good indoor air quality and can have integrated humidity control.





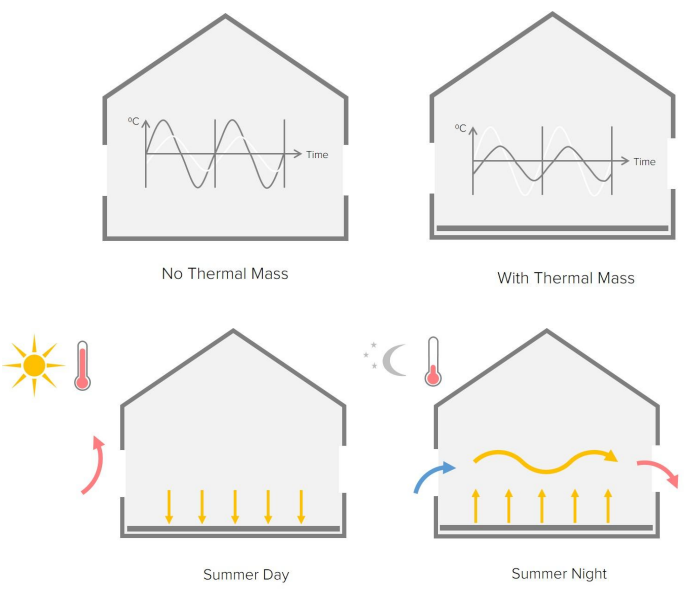
8 Solar Shading

Horizontal shading works well on South facing façades and vertical fins are best on the west/east façades.

There are many different types of devices, all with varying level of effectiveness, restriction of view and effect on daylighting.

External devices are the most effective as they stop the solar energy entering the envelope.

Some devices such as external blinds can be lowered only when required however, is makes them delicate therefore can't be used in windy conditions.



9 Thermal mass and night purge ventilation

In certain types of building, some thermal mass is useful to help reduce the building's temperature swing.

During the day, some materials absorb energy and to help maximise this, cooler night ventilation will help to remove this heat ready to absorb more energy the following day.

10 Louvres

Louvres with operable windows behind allow a safe and secure way of venting the room. The operable window allows occupant control over their thermal comfort levels.