

BENEFITS OF NATURAL DAYLIGHT

Daylight is an essential natural asset. For those of us living in temperate Northern climates, the beneficial effect of sunlight is easy to recognise; a couple of sunny days seem to lift everyone's spirits. Research also shows that suicide rates are considerably higher in parts of the world where daylight is very limited for significant parts of the year. On a slightly less dramatic but equally significant level, there is also a growing body of evidence to suggest that buildings enjoying high levels of natural light are literally more successful than those more reliant on artificial light. In all environments the eye and brain functions respond better to natural light, so people perform better, while passive solar gain can reduce energy costs.

Daylighting and health

In the UK we are used to hearing of SAD, Seasonal Affective Disorder, a clinically diagnosed condition in which the lack of sunlight in winter makes people feel ill. Natural light helps people to feel better but it can also aid the healing process. In hospitals, studies have proven that the recovery rate of patients is accelerated where levels of natural light are increased.

Daylighting in domestic applications

Design guidelines such as the Code for Sustainable Homes list specific recommended daylight levels for different types of rooms in domestic properties. A large amount of data is available on this subject. Further information is available on the The Rooflight Association website.

Daylighting in education

Research demonstrates a clear correlation between classrooms with good natural light and improved student performance and even attendance. This is because in natural light children concentrate better so are more focused and less easily distracted. Some studies suggest that health is also enhanced helping to explain the improved attendance.

Daylighting in commercial environments

Daylight improves concentration so that working environments, be they factories or offices with natural light, tend to achieve increased productivity. Research into retail environments suggests that in many situations sales tend to be better in naturally lit locations; colours are more vivid and true, making goods appear attractive and encouraging customers to spend more time in these areas. A number of the UK's leading retail organisations include large areas of rooflights in specifications for all new build projects to ensure a high percentage of evenly distributed natural light within the interior.

Daylighting in leisure environments

People like bright naturally lit environments, evidenced by the huge popularity of domestic conservatories and sunrooms. It is therefore logical that in their leisure time people prefer facilities enjoying high levels of daylight. Most leisure, sporting and recreational facilities today try to maximise natural daylight in recognition of this.

Energy saving & emissions reductions

Independent research proves conclusively that rooflights can save energy in many applications, and the greater the rooflight area the greater the potential savings.

The amount of energy needed to light a building artificially is often much greater than the amount of energy used to heat it, and is often the greatest single energy use in operating the building.

When used in conjunction with automatic lighting controls to turn the electric lights down, or off, then rooflights can have a major impact on the overall energy consumption of a building, cutting energy costs by reducing need for use of the electric lights.

Rooflights are usually less well insulated than the surrounding opaque areas of the roof, but have very little effect on the total energy required for heating, as the beneficial effects of passive solar gain compensates for the poorer insulation.

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Electricity used for lighting is much more expensive in terms of CO₂ than gas used for heating, so that including large areas of rooflights is one of the single most effective ways of improving the environment.

Using rooflights to provide a bright, naturally lit interior will save money, provide a more pleasant environment people want to spend time in and contribute to the government's target to reduce emissions of CO₂.

Daylight and the Building Regulations

The revised Building Regulations Approved Document L, acknowledges the well proven benefits of natural light, and the effectiveness of rooflights in providing daylight into a structure. In industrial and commercial buildings revised Document L of the Building Regulations recommends a minimum rooflight area of 10%, and a notional Standard based on 20% rooflight area.