

Kalwall and Diffused Daylighting



Kalwall® and Diffused Daylighting

Kalwall is a high performance and highly insulating translucent system with several benefits. It is widely specified by architects and designers to comply with Part L and other energy efficient requirements. Key features include its ability to enhance daylight and distribute it without shadows, glare and hotspots. Importantly, it eliminates the need for blinds and curtains or external solar control while diffusing Museum-Quality Daylighting™ internally to create a calming and attractive ambience.

Kalwall's unique composition diffuses light so efficiently that direct sunlight is converted into evenly-distributed daylighting, even on cloudy days. Furthermore, it has the ability to transmit large amounts of usable light with a relatively low level of light transmission. Less radiant energy transmitted, coupled with diffusion, does away with the hot spots which are so common to other light transmitting sources.

Panels can be selected to transmit various percentages of light according to individual project requirements. Using Kalwall's free daylight modelling service, the desired lux levels can be calculated for any space.

The broad diffusion of light over a large area reduces the need for sunblinds, shades and louvres. The resulting illumination gives a soft light in work areas as well as leisure environments. This lighting environment prevents eyestrain, increases efficiency and saves energy. At night, Kalwall will glow softly presenting a striking external appearance.

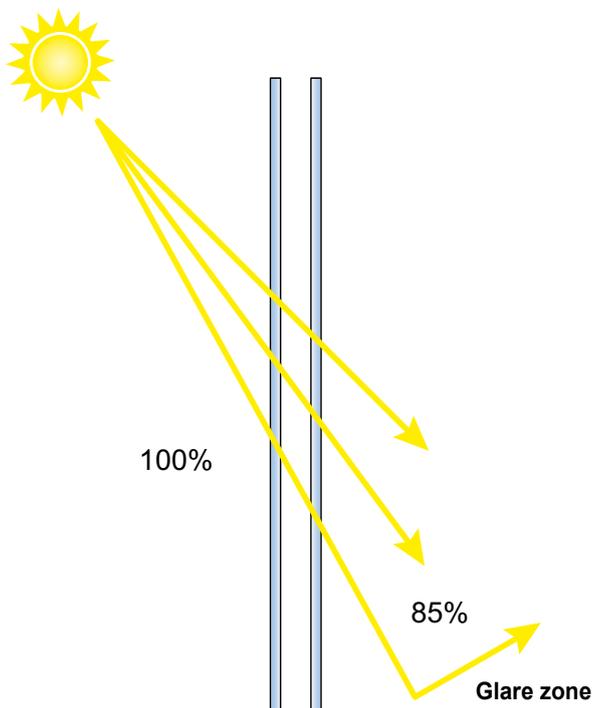
In areas where glare can be an issue, Kalwall is often specified to eradicate problems associated with other

sources. It is also highly resistant to impact and graffiti making it excellent for use in schools, pools, gymnasia, offices and other public buildings providing privacy while harvesting natural light.

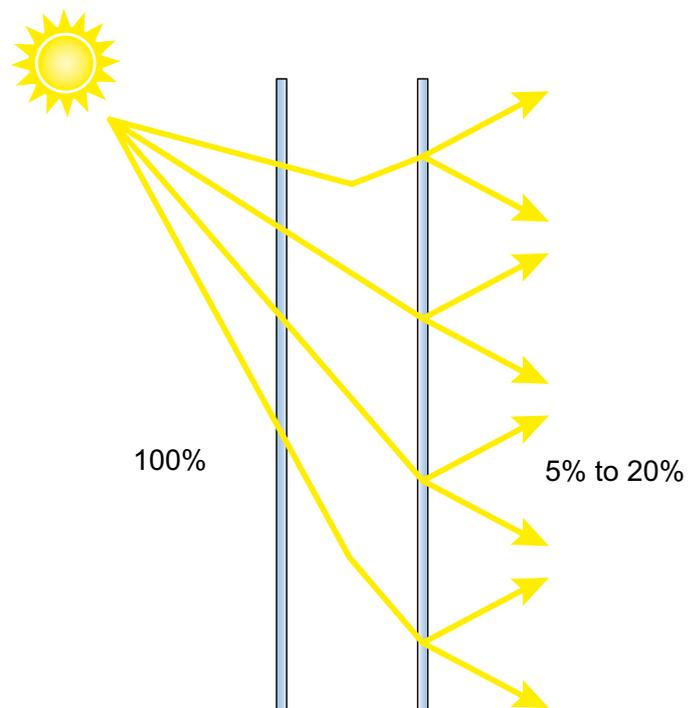
Kalwall is a good choice for specifiers for a wide range of applications. For example, it is widely used in schools because of its proven benefits in increased learning and improved wellbeing for children. It is used for lighting the interior of museums and negating the risk of direct sunlight onto paintings and valuable objects. It is frequently specified in office environments to create restful light in work areas, to keep glare off computer screens and rooms free from sharp shadows and irritating contrasts. Kalwall removes the needs for blinds or curtains which in turn means users are not closing out natural daylight in favour of artificial lighting.

Kalwall is particularly popular in the sports and leisure sectors and widely used for swimming pools and sports halls. Glare on a pool surface is a common concern because dazzling rippled sunlight bouncing off the surface can cause swimmers discomfort while lifeguards can struggle to see swimmers should they be in need of assistance. In sports halls, it's important that there is an even distribution of light without shadows or so that players sight is not impaired and they can distinguish markings on the floor and flying objects clearly. Kalwall lit spaces often reduce or eliminate the need for overhead lighting - further reducing glare from artificial lights and reducing energy loads.

Path of Daylight through traditional glazing



Diffusion of Daylight through Kalwall



Diffused Daylighting in Practice

INTO University of East Anglia

This stunning space was designed by LSI architects as part of their work for the INTO University of East Anglia.

It is a dramatic example of how the unique Kalwall translucent system diffuses daylight through walls or roofs to create the ideal ambience for study, learning and leisure in colleges and schools.

Even on cloudy days, the interior is bathed with Museum-Quality Daylighting™ creating a calm and attractive ambience. The diffused light also penetrates further into the depths of a building than traditional glazing. The combination of this, along with the fact that the system is highly insulating, means money is saved on both lighting and temperature control which can result in substantial savings.

When used for translucent roofing, Kalwall can be bespoke and is available in self-supporting barrel and low profile vaults or self-supporting ridge roofs. The lightness of the panels mean installation is less costly and far less cumbersome than glass. The panels have inherent rigidity and impact resistance, are largely self-cleaning and because, dirt is less obvious than on glass, frequency of maintenance is reduced. Furthermore, when Kalwall is used as a roof panel system, it is classified as non-fragile and meets the requirements of imposed roof loads as stated in BS EN1991-1.



Healthy Daylight at Thetford

The Thetford Health Centre is one of the best projects to showcase the advantages of the diffused Kalwall cladding system. Designed by LA Architects, this two storey community hospital is arranged with the clinical rooms positioned mostly around the perimeter to maximise use of natural light and views.

For this project, it was an important part of the brief to maximise the quantity of interior daylighting in order to create a positive atmosphere where the light would provide an enhancing and uplifting ambience for patients.

In order to achieve this, Kalwall has been used to full height in the consulting rooms interspersed with clear glass opening windows and glazed doors. These overlook the garden areas, providing a connection with the exterior and a therapeutic view of the landscaping. This subscribes to the 'biophilia' hypothesis which suggests an instinctive bond between human beings and other living systems as well providing an opportunity for the introduction of natural ventilation.

Kalwall is ideal for this type of application, not only because it allows for the flow of light but is perfect for retaining privacy without the need for blinds or curtains which are often a cause of hygiene concern in healthcare environments.



What is Kalwall?

Kalwall, developed and manufactured in the USA for over 60 years, is a highly insulating, diffuse light transmitting building panel system for walls and roofs. The primary component is a translucent structural composite sandwich panel formed by permanently bonding specially formulated fibreglass sheets to a grid core constructed of interlocking thermally broken extruded aluminium 'I-beams'.

Panels are factory prefabricated to the exact size and configuration for each project. Panels can be flat or curved while opening or fixed glazed window units can be incorporated using the integral Clamp-tite installation system.

Kalwall's unique composition combines to reduce solar gain while at the same time maximising thermal insulation. Kalwall diffuses light so efficiently that even direct sunlight is converted into even illumination with reduced glare. Kalwall is able to transmit large amounts of usable daylight into a space with relatively low levels of light transmission. Panels can be selected to transmit various percentages of light according to individual project requirements. Kalwall has been tested according to the procedures of EN13830:2003 – Curtain Walling Product Standard for CE Marking.

