

## Kalwall and Durability



# Kalwall® and Durability

Kalwall is a popular choice for architects and specifiers because, in addition to its aesthetic and practical properties, durability and protection are key considerations.

Kalwall is at the leading edge of systems that meet the challenges of a changing world. These include:

## Line-of-Sight Protection

Kalwall offers complete line-of-sight protection, maintaining privacy for building occupants while bathing the interior with diffused daylighting.

## Blast Resistance

Kalwall can be manufactured for blast resistant applications such as in airports and other sensitive environments, or to protect workers in areas at risk of explosions, such as in refineries or industrial complexes.

Standard panels are 70mm thick and up to 1500mm wide. They are factory prefabricated to the exact size and configuration for each project. The structural panels, combined with additional restraining components, demonstrate equivalent or superior performance to the stringent UFC 4-010-01 DoD and GSA Anti-Terrorism Standards for Building Designs.

By following certain design criteria the system will achieve FM (Factory Mutual) approval.

## Explosion Venting

Kalwall can be manufactured for use in environments where explosion-venting walls are required. These are specifically designed to be the weak point in the building envelope in order to relieve pressure created by any explosion, thereby reducing the risk of damage to the primary structure and the occupants.

Standard panels are available 70mm thick and are factory

prefabricated to the exact size and configuration for each project. They can be 1500mm or 1200mm wide and of any length up to 3250mm.

By following certain design criteria the system will achieve FM (Factory Mutual) approval.

## Skylights and Fall Through Protection

The safety of building maintenance crews and the liability of individuals inappropriately interacting with a building's exterior are often unspoken concerns for any building with skylights.

Kalwall skylights can be walked upon. Tested to ASTM E661, every Kalwall Skylight and Skyroof exceeds the safety requirements of OSHA 1910.23 without the additional need for external screens or fixed standard railings.

## Impact Protection

Compared to other glazing systems, Kalwall's inherent strength makes it ideal for secure locations. With heavy duty impact resistance properties, access through wall or rooflights can be denied.

## Vandal Resistance

Kalwall's external sheet is very robust and therefore performs well in rough environments. It also resists burning and most chemicals will not affect the surface.

## Wind-borne Debris Protection

Kalwall is frequently specified on the Florida coastline where there are strict regulations surrounding the use of hurricane-resistant materials. Kalwall meets and exceeds hurricane standards ASTM E1886 and E1996, including the punishing flying debris cannon test. Kalwall has also successfully passed testing to ASTM E331 Water Penetration, ASTM E283 Air Leakage and ASTM E330 Structural Performance.



# Durability in Practice

## SAFE FLYING IN THE LIGHT

Designed by airport terminal architects 3dReid, Skyhub is the major extension to Glasgow international airport. Following the attempted terrorist attack in 2007, the building now features 675sqm of Kalwall which runs 73m across the front facade.

The translucent daylighting system was purposely chosen not only for its aesthetics, natural daylighting and physical performance but also for its unique durability and contribution to security. For this application, Kalwall was combined with an anti-blast steel framework fixed behind the panels to mimic Kalwall's internal grid layout.

Kalwall is ideal for this security sensitive project not only because it is FM (Factory Mutual) approved but also because the unique method of fixing means that any blast is mitigated and, unlike glass, splintering and serious injury to the public are greatly reduced.

In addition, privacy is maintained, shielding vision from outside without inhibiting the well-lit interior ambience and Museum-Quality Daylighting™.



## SCORING HIGH AT THE NATIONAL FOOTBALL CENTRE

One of the world's largest sporting facilities to use Kalwall with aerogel insulation technology is St George's Park, the FA's National Football Centre and training ground in Burton-on-Trent. The ground was designed to inspire world class performance and become the international University of Football and a hub where sport and business can interact.

Architects RedBox Design Group designed this dramatic multi-purpose facility, on its 134 hectare site, to cater for the FA's coaching and education needs, including offering sports science and sports medicine facilities.

Kalwall's robust yet flexible construction is highly resistant to impact making it excellent for use in schools, pools and gymnasias. In addition, there is an even distribution of light so that players can distinguish markings on the floor as well as easily spotting balls and other objects.

Furthermore, it also has the ability to transmit large amounts of usable light with relatively low levels of solar heat gain. Less radiant energy transmitted, coupled with diffusion, does away with the hot spots which are so common to other light transmitting materials.



# 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 (from small units up to 30 metre monumental daylighting). 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.

