Building Legacies

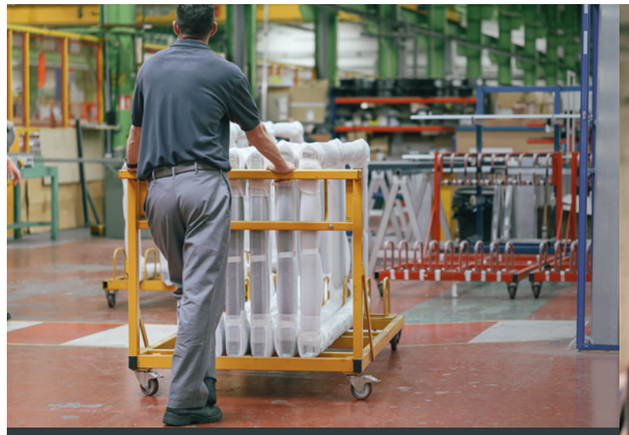
PASSIVE HOUSE FAÇADE SOLUTIONS

The UK's first Passive House Leisure Centre

KAWNEER

OUR LEGACY AND EXPERTISE

- Kawneer has been operating in the UK for over 60 years
- We provide architectural and contractor support throughout the UK and Ireland
- We have a designated London Office to provide a private space for client meetings
- We handle all manufacturing processes at Runcorn including Extrusion, Qualicoat Seaside Class Powder Coat Paintline, Thermal Break Rolling along with a fully fabricated (severe category of duty) AA®190 TB welded door system
- We have a global footprint and a worldwide network of suppliers and distributors
- We have been proactively reducing our carbon footprint across all sectors including offering Low Embodied Carbon Billet options in our product range



£34M

Turnover

160

Full time personnel currently employed

100,000

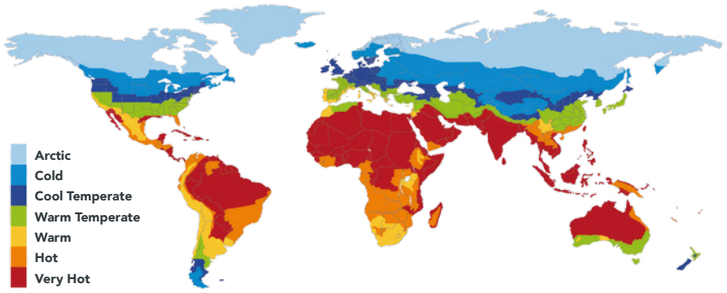
Sq ft of fully integrated manufacturing space. Quality Management systems ISO 9001

£45M

Capacity without significant investment

WHAT IS PASSIVE HOUSE?

Passive House is a highly energy efficient building standard that promotes indoor comfort and insulation, specifically through exceptional airtightness and thermal performance to deliver minimal energy usage and clean air strategies. Passive House is a world leading energy efficiency standard and a construction concept made to build healthy, comfortable and sustainable buildings.

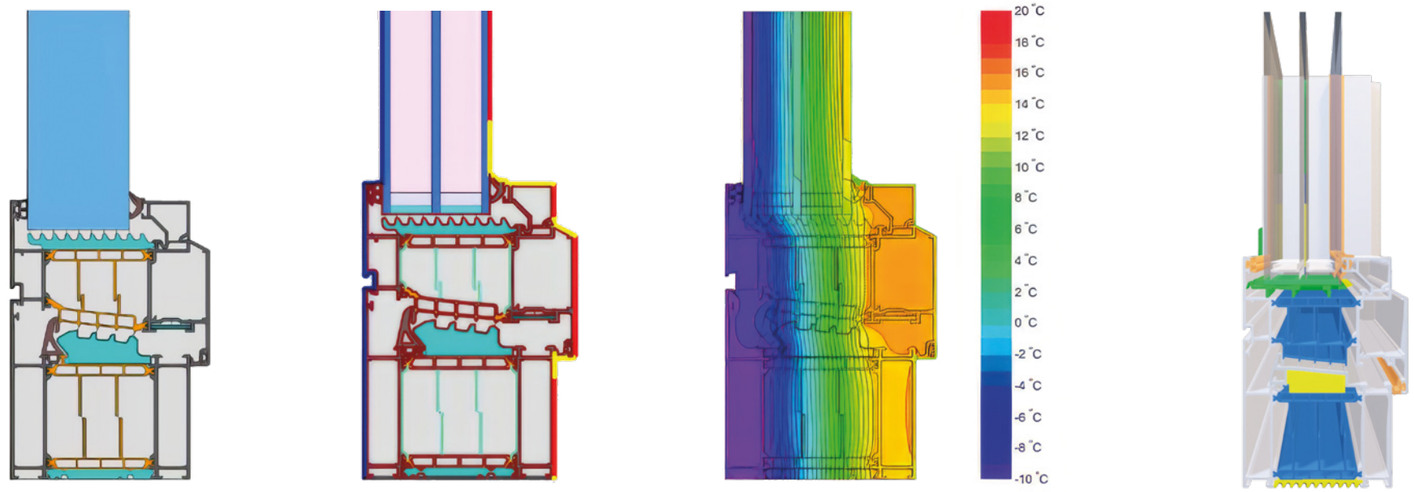


Overall heat loss through the building or component is determined by area, material thickness and properties, but also crucially, the temperature difference. Passive House components are generally designed and optimised for use in one or more of the designated climates within the standard, because it is the climate that determines this temperature difference. Most homeowners want to keep their building at a comfortable 20-25°C. Depending on the climate, extreme temperature variations can occur between the internal and external envelope. It is worth noting therefore, that not every Passive House component is suitable for every climate.

The UK is split into three zones, Cold, Cool Temperate and Warm Temperate:

- The majority of the UK falls within a Cool Temperate climate
- Cold climates can be found in Scotland and NE England
- Warm Temperate climates can be found in the far South of England e.g. Cornwall
- London is also included in the Warm Temperate climate due to the urban heat island effect
- Kawneer's KWD92 UT+ and AA®100 HI products are certified for Cool Temperate climates, applicable to Northern Europe, UK and areas of North America. They also have the ability to comply with other climate zones when correctly specified.

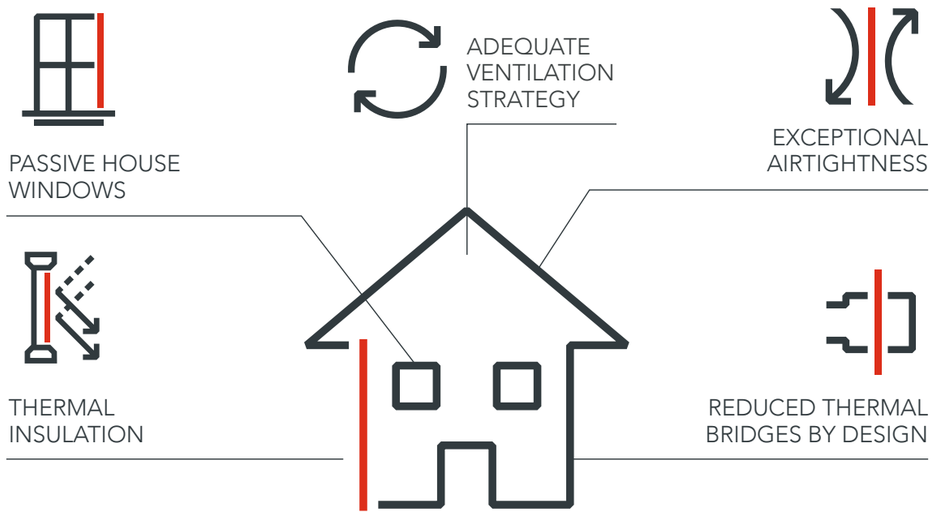
Passive House Institute



Example: Section Details of KWD92 UT+ Certified to Passive House Cool Temperate Climates

KEY REQUIREMENTS TO ACHIEVE PASSIVE HOUSE?

The Five Principles of Passive House



Passive House Windows:
Uw of 0.80 W/m²K or less (0.85 W/m²K installed) Triple glazing with Ug of 0.70 W/m²K including warm edge spacers.

Thermal Insulation:
All opaque building components of the exterior envelope of the building to achieve a maximum U-value of 0.15 W/m²K.

Ventilation Heat Recovery:
At least 75% heat recovery from ventilation exhaust air transferred back to fresh air via heat exchanger.

Airtightness of the Building:
Less than 0.6 of the total house volume per hour (air changes) during a pressure test at 50 Pa (both pressurised and de-pressurised).

Reduced Thermal Bridges by Design:
All connections, penetrations and interfaces between different elements must be designed and executed with great care to avoid or minimise thermal bridges as far as possible.

Applying the five principles of Passive House will help to achieve the following criteria:

Space Heating Energy Demand:
Not to exceed 15kWh annually or 10W per square metre of usable living space. This equates to approximately one tenth of the usage of a typical home. For climates where space cooling demand is dominant the figures are similar but include for dehumidification.

Renewable Primary Energy Demand (PER, according to PHI method):
The total energy to be used for all domestic applications (heating, hot water and domestic electricity) must not exceed 60 kWh/m²/year (treated floor area - Passive House Classic).

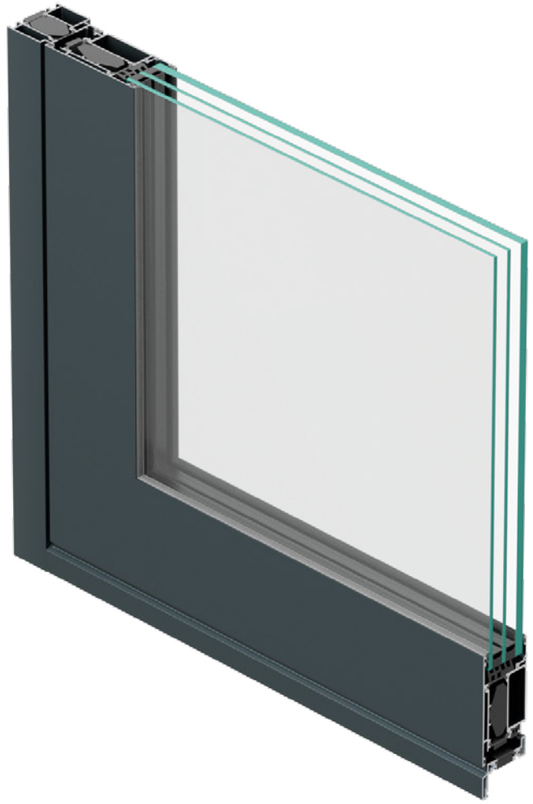
Thermal Comfort:
This must be met for all living areas during winter as well as in summer, with not more than 10 % of the hours in a given year over 25 °C. For a complete overview of general quality requirements (soft criteria) refer to **Passipedia**.

Passive House buildings are planned, optimised and verified with the **Passive House Planning Package** (PHPP).

(Source – Passive House Institute (Passivhaus Institut (passivehouse.com)


Photo: Atkins

RT®82 HI+ SYSTEM

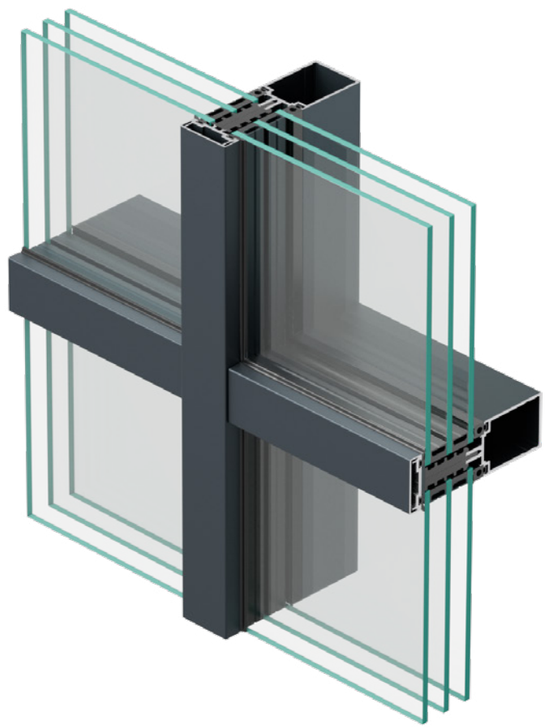


RT®82 HI+ Door

Performance Characteristics	Performance
Enhanced Thermal Performance	1.3 W/m^{2}K
Watertightness to EN 12208	Class 9A
Airtightness Permeability to EN 12207	Class 4
Sound Insulation to EN 717-1 and EN 140-3	Maximum RW 47 (-1, -1) dB
Security Performance to EN 1627	Class 2
Glazing Capacity	65mm
Frame Depth	82mm

Although this door solution is not a Passive House Certified component, it will help the building dramatically raise the energy efficiency levels, and has been used and approved by the Passive House Consultant on previous projects.

AA®100 HI CURTAIN WALL SYSTEM



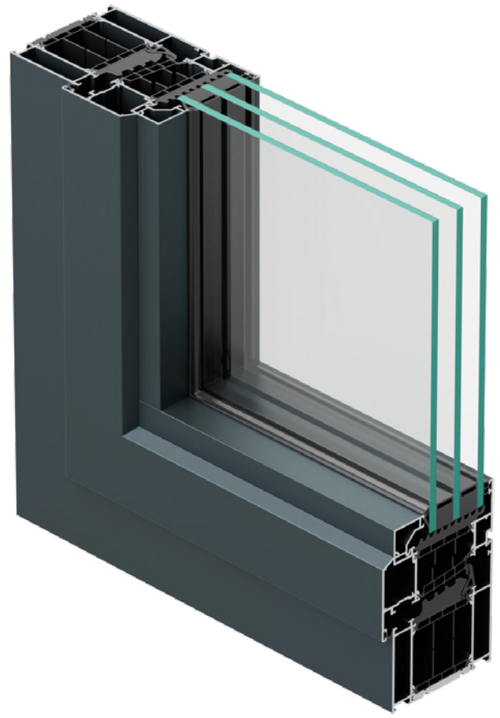
AA®100 HI

Performance Characteristics	Performance
Passive House Certified ID 1024cw03	Uw value 0.80 W/m²K with Ug glass 0.7 W/m²K **For certificate click here**
Uf value in W/m²K to NEWN EN 10077-2	0.81
Watertightness to NEN EN 12154	RE 1200
Airtightness to NEN EN 12152	AE
Acoustic performance in dB to NEN EN 717-1	48
Security Rating with NEN EN 1627	Wk2 & 3
Maximum Glass Thickness in mm	60mm
Profile Width	50mm
Profile Depth	75-275mm

Performance tested and certified to CWCT Sequence B

KWD92 UT+

INWARD OPENING WINDOW AND FRENCH CASEMENT DOOR



KWD92 UT+

Performance Characteristics	Performance
Passive House Certified ID 2151wi03	Uw value 0.80 W/m²K with Ug glass 0.7 W/m²K **For certificate click here**
Exceptional Thermal Performance	Uw value 0.69 W/m²K with Ug glass 0.5 W/m²K
Watertightness to EN 12208	Class 9A
Air Permeability to EN 12207	Class 4
Resistance to Windload to EN 12210	Class C5
Security Performance	PAS 24 / EN 1627 RC2
Glazing Capacity	65mm
Profile Depth	92mm

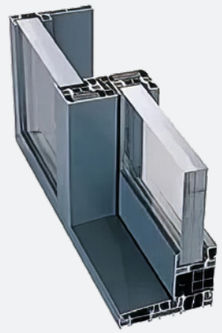

Photo: Quintin Lake

GUIDANCE ON SPECIFYING GLAZING SYSTEMS FOR PASSIVE HOUSE PRINCIPLES

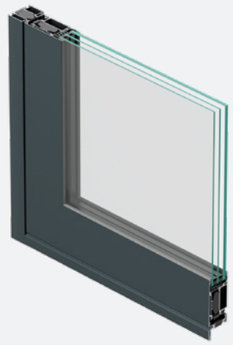
Whilst our Passive House products are certified for application straight on to projects demanding full compliance with strict component rules, it is possible to utilise more of the Kawneer product ranges and still achieve low-energy building compliance. Further calculations are usually required but the benefit is broader system choices and more design freedom.

Additionally, many projects are now requiring solutions that follow the principles of Passive House without the requirement to meet the strict component level performance of a Passive House certified building. For windows, swing doors, sliding door systems and curtain wall, this specifically concerns airtightness and thermal performance (including the requirement to minimise thermal bridges, e.g. at fixing locations).

Our products available to meet these requirements are on page 13.

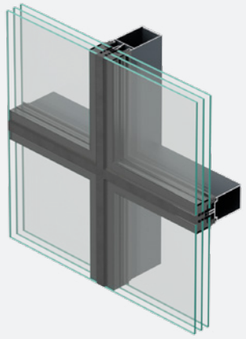


AA®3572 LIFT/SLIDE DOOR
- Thermal Performance - Double Glazed U-value of 1.4 W/m²K and a Triple Glazed U-value of 0.83 W/m²K.
- Air Permeability - Class 4 (600 Pa)
- Resistance to Wind - Class C3 (1200 Pa)
- Watertightness - Class 9A (600 Pa)

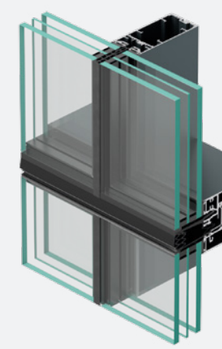


RT®82 HI+ SWING DOOR
- Thermal Performance - 1.3 W/m²K
- Air Permeability - Class 4
- Watertightness - Class 9A

AA®720 HI REFLEX WINDOW AND FRENCH CASEMENT DOOR
- Thermal Performance - U_f from 1.0 W/m²K
- Air Permeability - Class 4 (600 Pa)
- Resistance to Wind - Class E1200 (1200 Pa)
- Watertightness - Class E2400 (2400 Pa)



AA®100 SSG TGU CURTAIN WALL
- Thermal Performance - 1.95 W/m²K
- Tested and certified in accordance with CWCT Sequence B



AA®201 UNITISED CURTAIN WALL
- Project specific solution to Passive House standards
- Tested and certified in accordance with the relevant CWCT Curtain Wall standards

CENTRE FOR WINDOW AND CLADDING TECHNOLOGY

ST SIDWELL'S POINT LEISURE CENTRE

The UK's first Passive House Leisure Centre.

Kawneer's Passive House certified AA®100 HI Capped Curtain Walling System and Thermally Enhanced Windows were used, complemented by Kawneer's AA®190 TB External Doors, AA®720 Standard and AA®720 HI Internal Doors.

The benefits of the Passive House design include a 70% saving on energy costs when compared to a current 'good practice' leisure centre facility, a 50% reduction in water use, outstanding internal water and air quality, excellent daylight levels and lower maintenance costs due to a high-quality building fabric.

St Sidwell's Point Leisure Centre has won numerous prestigious awards, these include:

- Net Zero, Building Project of the Year and Winner of Winners at the South West Constructing Excellence Awards
- Most Sustainable Building and RCI Project of the Year at the Façade Awards UK

Architect: Gale & Snowden
Main Contractor: Kier Construction
Installer: AB Glass

OTHER BROCHURES AVAILABLE ON REQUEST FROM KAWNEER ARE:

- Finishes
- Door Systems
- Framing Systems
- Curtain Wall Systems
- Unitised Curtain Wall Systems
- K-Vantage Systems
- LouvreShield
- Sliding Solutions
- Fire Resistant Systems
- Window Systems
- Suited Handle Range
- Sustainability
- Maintenance and Cleaning
- Education
- Residential
- Perspektives
- The Architects Guide to Aluminium in Building

To download these brochures please visit www.kawneer.co.uk

Front Cover: St Sidwell's Point Leisure Centre
Architect: Gale & Snowden

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Kawneer's continuous development and engineering programmes may bring about product changes. Kawneer reserves the right to introduce without notice such changes which will not detract from the product's performance.

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Building Legacies

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