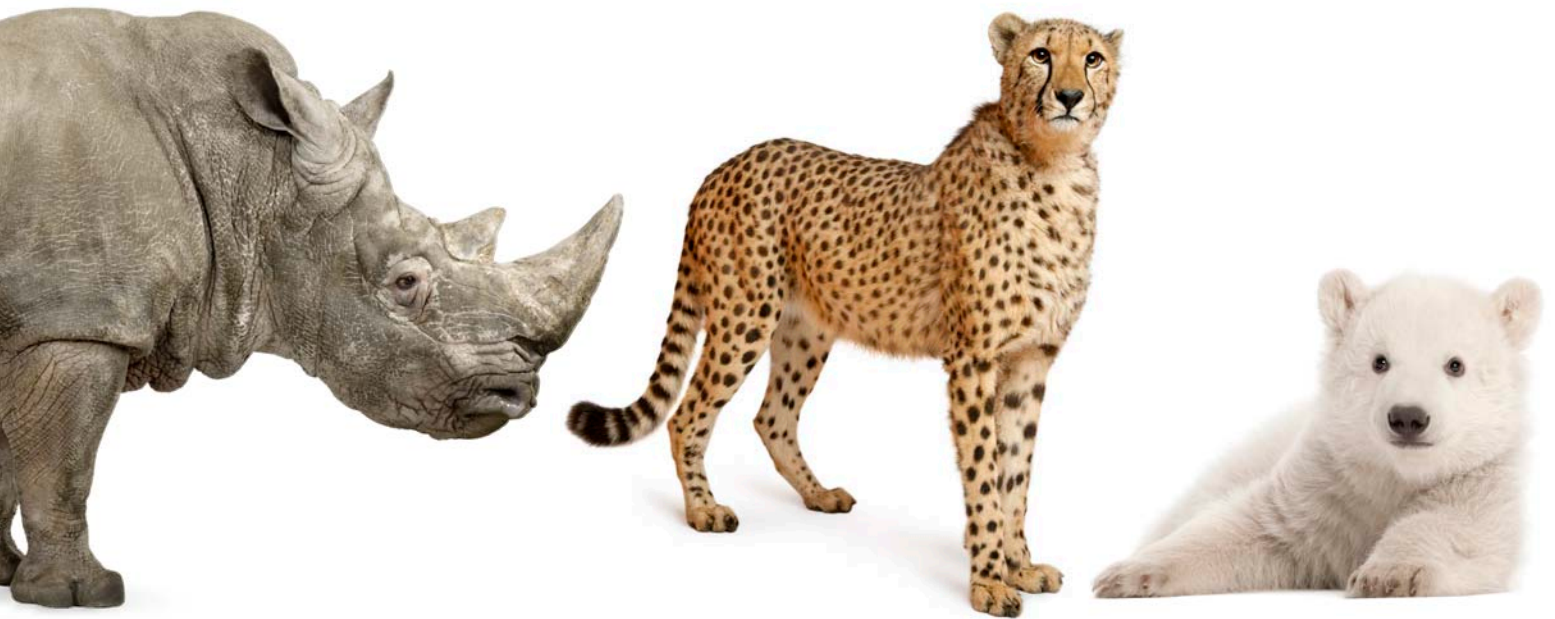




CELSIUS™  
**SOLID ROOF**

Quick to fit,  
strong and warm  
the right roof for the job



# Developed with partners even I respect

We've partnered with companies known  
as the best in their fields to offer you the  
best solid roof solution available





## Celsius Solid Roof: the right roof for the job

Synseal is proud to introduce Celsius Solid Roof – an innovative tiled roof system for conservatory retrofits, as well as new tiled conservatory style extensions. Celsius Solid Roof is constructed using highly insulated SIPs (Structural Insulated Panels), deliberately avoiding the use of an aluminium framework to create a truly warm solid roof construction - with no possibility of cold bridging.



Celsius Solid Roofs are bespoke manufactured to precisely meet project requirements and come supplied in kit form for convenient and speedy assembly on site.

The system has been designed using proven, high quality components, supplied by the leading companies in their fields: Synseal Envirotiles (available in Black, Dark Brown or Terracotta colours), Kingspan TEK Building System structural insulated panels (SIPs), Rapierstar stainless steel fixings and optional VELUX roof windows.

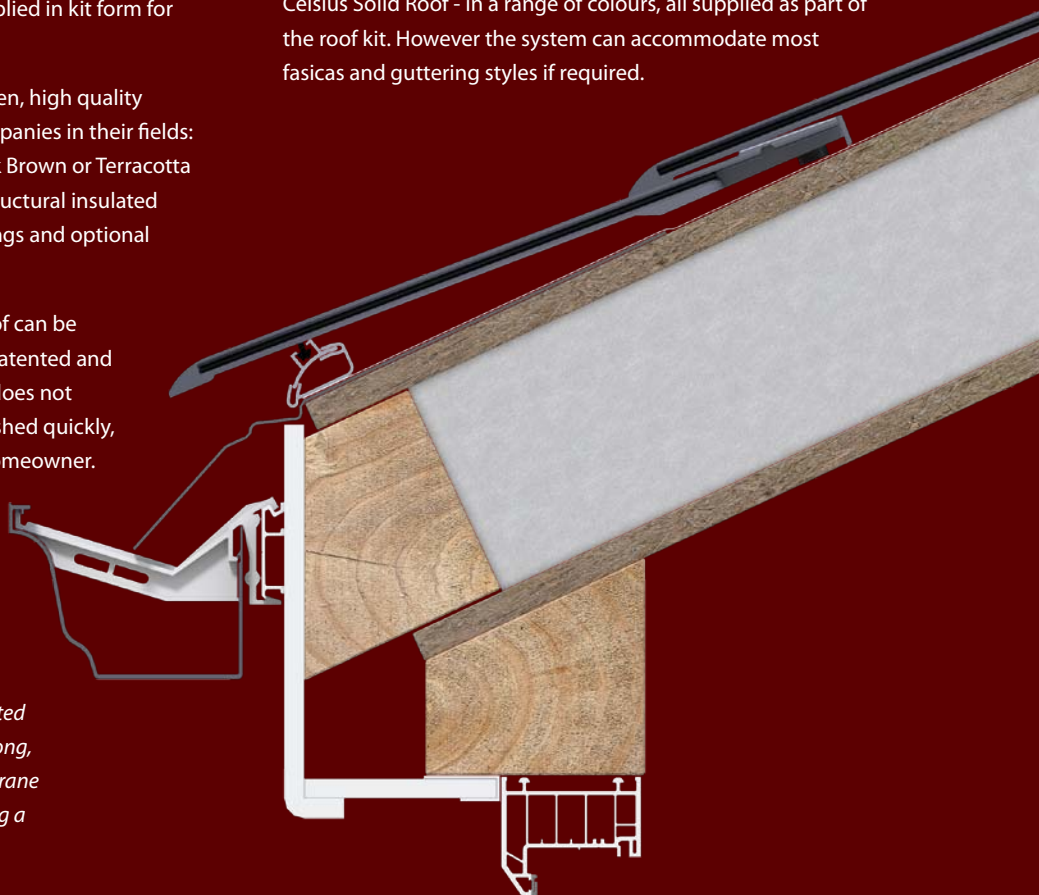
Designed to be fast to fit, Celsius Solid Roof can be weathertight in a few hours, and using a patented and environmentally-friendly tile system that does not require battening, installations can be finished quickly, with the minimum of disruption for the homeowner.

*The Celsius Solid Roof is constructed using Kingspan TEK panels. These Structural Insulated Panels (SIPs) interlock together to form a strong, highly insulated structure. A breather membrane sits underneath Synseal Envirotiles producing a perfect weathertight finish.*



An exclusive range of ridge and hip covers complement Synseal's Envirotiles range. Precisely colour-matched, they are custom-made to exacting Synseal specifications from 100% recycled polypropylene. This uniquely complete roof tiling system means that there is the ideal component for every part of the roof - leading to finished roofs that look better and are complete in less time.

Standard PVC-U fascia and guttering can be used to finish the Celsius Solid Roof - in a range of colours, all supplied as part of the roof kit. However the system can accommodate most fascias and guttering styles if required.



# Benefits

## Warmth and comfort

The superior thermal performance of Celsius Solid Roof creates a high quality living space that ensures warmth and comfort, helping to insulate the home, and saving on heating bills.

## 24/7, 365 days a year use

Celsius Solid Roof, new or replacement building extensions are usable 24/7, 365 days a year, whatever the season, thanks to the high levels of thermal insulation achieved. Warm in the winter and cool in the summer, Celsius Solid Roof gives homeowners a true 'year round room'.



*Celsius Solid Roof is available with perimeter pelmets, or ridge apex frames that perfectly accommodate lighting or speakers without compromising the structural integrity or insulation of the roof.*

## Speed of installation

Custom-made to exact project requirements and delivered in kit form for on-site assembly, Celsius Solid Roof has been carefully designed to be quick and straightforward to install, meaning less homeowner disruption during the building phase and smaller labour costs for the installer.

## Inside and outside living

A well-built tiled extension is the design solution that can unlock the potential for both inside and outside living, seamlessly linking homes to gardens to make the most of outdoor spaces.

## Value for money

Using proven quality assured roofing components to create a true warm roof construction, Celsius Solid Roof is a solid home improvement investment, delivering excellent value for money.

## Modern aesthetics

A contemporary look is guaranteed by fitting a Celsius Solid Roof, transforming the visual impact of an existing traditional-styled glazed roof conservatory.

# Cool enough for me

0.15 W/m<sup>2</sup>K U-value achievable  
with insulated plasterboard





# Strong enough for me

Withstood an imposed load of 3.34 tonnes

5.4 x 4.7m Georgian roof, subjected to a test load of 1.1kN/m<sup>2</sup> for 7 days

## Environmentally friendly roof tiles

Celsius Solid Roofs are finished with 100% recycled Synseal Envirotiles which feature an attractive riven finish and are available in a choice of appealing colours: Black, Dark Brown or Terracotta.

## Natural daylight

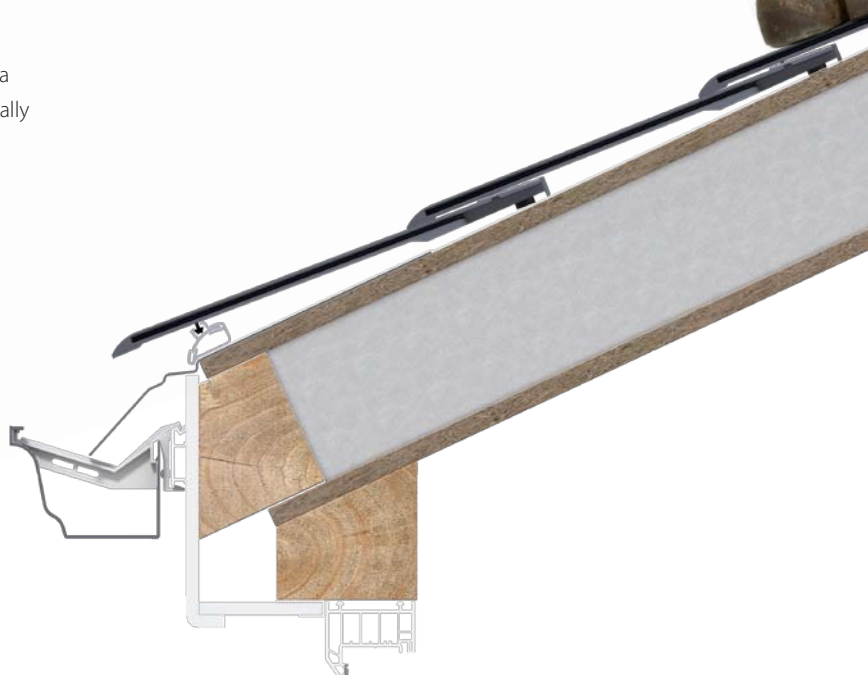
To complement the thermally-efficient and weather-proof Celsius Solid Roof, designs can incorporate insulated VELUX glazed roof vents to provide natural daylight, as well as ventilation in the summer months.

## Beautiful interior designs

Stunning interiors can be created using Celsius Solid Roof, which is plaster-boarded to give a beautiful internal finish with a choice of ridge apex or orangery-style perimeter pelmets, typically incorporating downlights for a modern look.

## Fit and forget

Strong yet relatively lightweight to minimise dead weight on foundations, Celsius Solid Roof delivers a well-built and thermally-efficient building extension that ensures effective weather performance and rainwater drainage and comfortably meets Building Regulations approvals for added peace of mind.





# Warm roof construction

The Celsius Solid Roof is constructed using Kingspan TEK Building System SIPS panels. This proven method of warm roof construction eliminates many of the issues that face aluminium skeleton based solutions, as cold bridging has been designed out from inception.

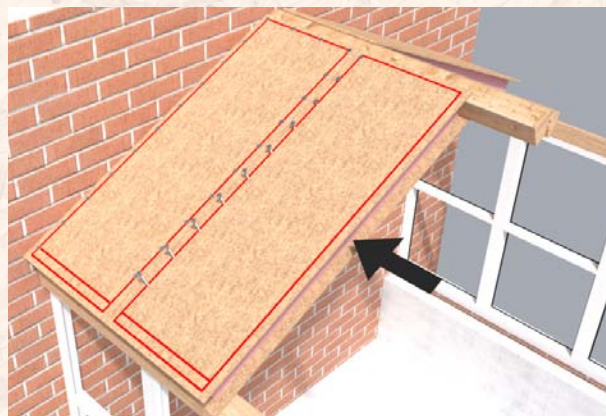
Utilising Synseal's installation experience, Celsius Solid Roof has been designed to go together easily on-site and help installers deliver a first class, thermally efficient roof in the minimum of time.

Unlike rival systems which employ aluminium rafters, aluminium ridge beams, aluminium eaves ring beams, aluminium valleys and aluminium box gutters similar in design to glazed conservatory roofs, Celsius Solid Roof is a truly warm roof, featuring all timber construction without any metallic 'cold spots'.

## CELSIUS<sup>™</sup> SOLID ROOF

- ✓ All timber construction
- ✓ No aluminium skeleton
- ✓ No chance of condensation build-up
- ✓ Proven technology
- ✓ Quick & easy to install
- ✓ High quality materials guaranteed

**Timber thermal conductivity = 0.16W/m<sup>2</sup>K**



## Leading competitors

- ✗ Aluminium skeleton
- ✗ Risk of cold bridging
- ✗ Risk of condensation build-up
- ✗ Performance overly reliant on the skill of installer and the quality of materials used

**Aluminium thermal conductivity = 160W/m<sup>2</sup>K**

Established in 1965, Kingspan is a global leader in high performance insulation, building fabric and solar integrated building envelopes

  
**Kingspan**  
**TEK**  
**Building System**



# Warm enough for me

0.15 W/m<sup>2</sup>K U-value achievable  
with insulated plasterboard

Kingspan TEK Building System panels consist of a high performance rigid urethane insulation core, manufactured with a blowing agent that has zero Ozone Depletion Potential (ODP) and low Global Warming Potential (GWP), sandwiched between two layers of Oriented Strand Board type 3 (OSB/3). During manufacture, the insulation core is bonded by autohesion to the OSB/3 facings. This process provides more reliable and superior adhesion than the secondary bonding process used in the manufacture of most others SIPs.

Kingspan Insulation Ltd has secured BBA and NSAI Agrément certification for the Kingspan TEK Building System.

**Kingspan TEK panel specification:**

142mm thick structural insulated panels (SIPs)

**Facings:**

15mm oriented strand board (OSB)

**Insulation core:**

High performance CFC/HCFC free  
rigid thermoset urethane foam

**Thermal conductivity:**

Insulation core - 0.023 W/m·K  
OSB/3 facings - 0.13 W/m·K



# Speedy installation



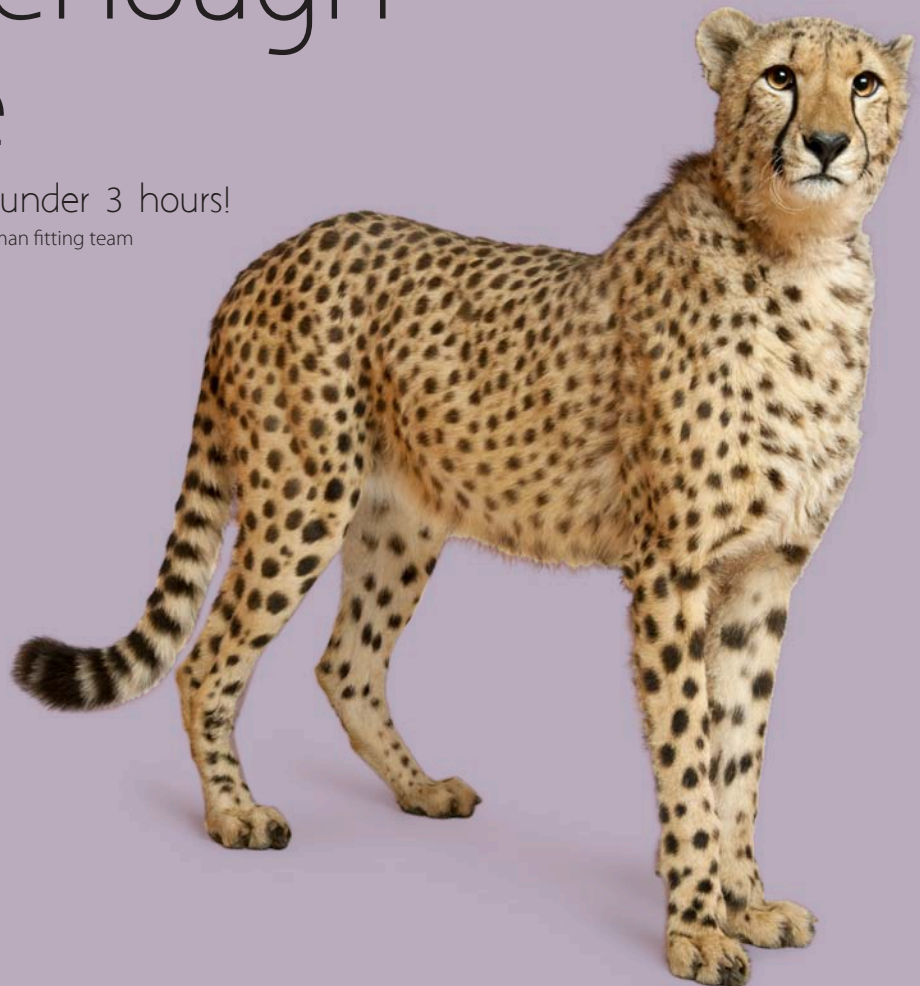
Synseal understands that time on-site is money. That is why Celsius Solid Roof is designed to go up fast, with the minimum of fuss. Celsius Solid Roof is weathertight in hours, constructed using SIPs panels that interlock to form both the structure and insulation of the roof as one complete component.



A unique full tile system incorporating 'Synseal only' hip and radius end components that don't require battening or counter-battening, coupled with an internal surface ready for plasterboarding, means that installations are finished quickly, and with as little disruption as possible for homeowners.

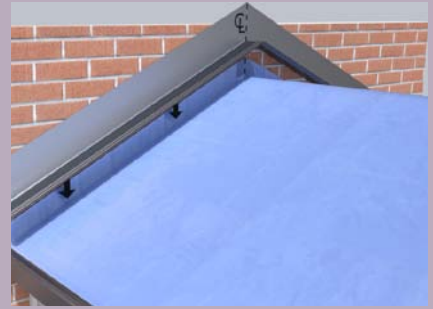
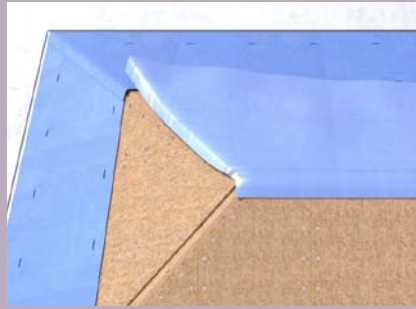
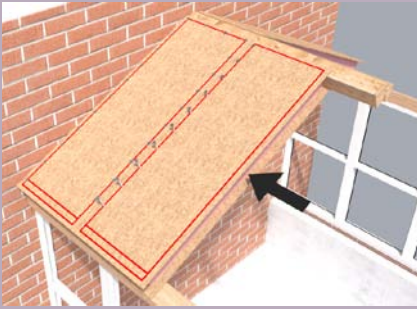
## Quick enough for me

0 to weathertight in under 3 hours!  
3.5 x 3.5m Georgian roof installed by a 2 man fitting team





## Straightforward construction

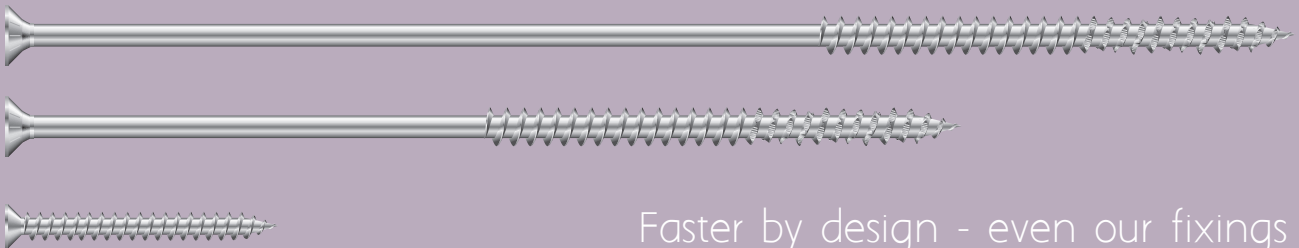


Celsius Solid Roofs are supplied in purpose-made kits for speed and convenience of installation. Celsius roof framework including the window walling eaves beam is constructed from timber, specially engineered to receive the interlocking SIPs panels. Breather membrane then covers the SIPs panels before the starter soaker and flashing is fitted into place. Interlocking Envirotiles are then quickly fitted into position with a mechanical fixing at each tile head for added security. Envirotiles can also be conveniently mitre cut on site, before covers are fixed.



## Built to last

- ✓ Synseal's Celsius Solid Roof system is comprised of 9 standard timber sections
- ✓ Sections are machined from C24 construction grade structural timber (German white wood)
- ✓ Standard timber sections are used to form both ridge and hip components
- ✓ These are bonded with timber adhesive and mechanically fixed in the factory, then cut to length to suit each individual project



Faster by design - even our fixings help you complete the job quicker

The mechanical fixings at the heart of Celsius solid roof's timber construction are Rapierstar low torque universal woodscrews which are specially engineered to reduce wood splitting. These high quality components feature a unique Starform<sup>TM</sup> thread for quicker screw penetration with no drilling of pilot holes required.







# Lean-to

The lean-to is an ever-popular British conservatory style, with a pleasing simplicity to its design providing a spacious and practical building extension solution. Commonly fitted to bungalows, lean-to conservatories can be installed with a range of roof pitches from as low as 12.5° right up to 35°.





## Urban living

The addition of a lean-to extension measuring 5m x 3m to this terraced townhouse is the perfect solution for urban living.

With a choice of full height window frames to ensure the homeowner fully benefits from external light, this installation offers many of the benefits of a conservatory (light weight, fast installation) whilst avoiding some of the inconveniences of a full extension project (higher cost, lengthy building work disruptions).

Used as a kitchen, this room has become the hub of the home, an ideal place to bring the family together as the sun starts to set in the early evening. The use of large double doors / bi-folds will transform the room on those days where – weather allowing – they can be fully opened, blending the outside and inside into one beautiful entertainment area.





# Gable

Gable conservatory designs provide a satisfyingly high internal ceiling height to give an added sense of grandeur and space. Installations can span up to 6 metres in width to deliver a truly spacious extension. Consisting of pitched sides and distinguishable by its elevated flat-faced frontage, Gable style conservatories look sensational when fitted with a Celsius Solid Roof.



## Contemporary and airy

With its Black tiled roof, this 4m x 5m gabled style extension is both airy and cosy. The high ceiling, glazing right to the ridge on the front face coupled with the dwarf wall, help to maximise the use of space within the extension.

This modern open living space is welcoming to guests and ensures a grand setting for dining, while still being an integral part of the house. The convenient adjacent kitchen area ensures that the hosts can carry on entertaining their guests, even when not seated at the dinner table. Two VELUX roof windows, situated either side of the ridge, are both an attractive feature and a practical design addition, providing some flexible ventilation during warm summer months. Feature lighting has been suspended from the ridge apex - an optional design feature available with Celsius Solid Roof, and provides a focal point to this grand living space.





# Georgian

A Georgian or Edwardian conservatory offers plenty of living space with its practical square or rectangular footprint, which explains why it remains the most popular conservatory style. Older Georgian-style conservatories are ideal for upgrading with a stylish Celsius Solid Roof, giving a much-loved yet tired part of the home a new lease of life.





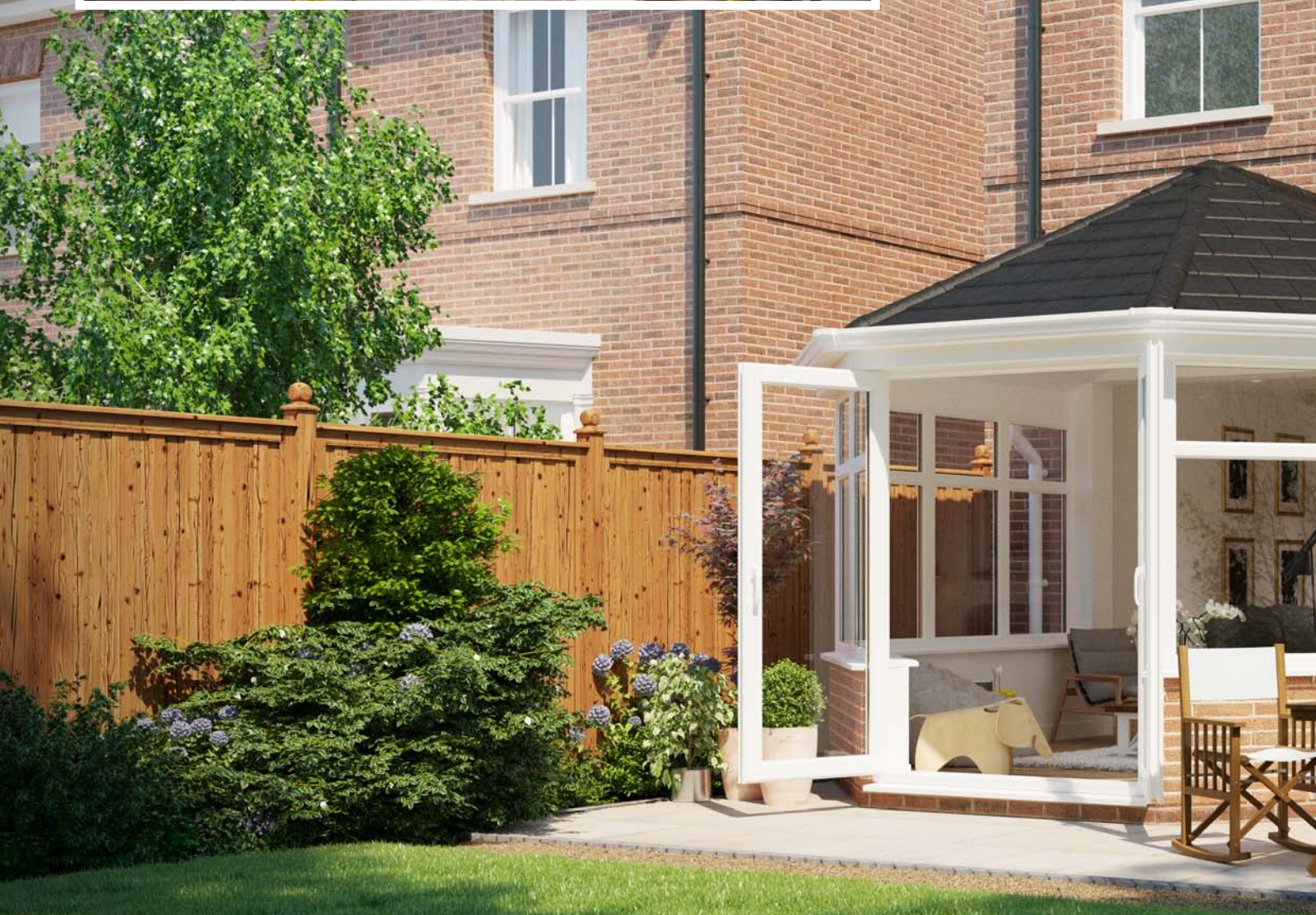
## Clean lines

Some impressive homes feature sizeable conservatories that don't quite make the grade. However practical, these extensions are now let down by their age and generally downgrade the overall look and value of the property.

This finished conversion of an ageing 5m x 5m Georgian-style conservatory shows what can be achieved with Celsius Solid Roof, without having to start the building from scratch.

Gone is the tired and noisy polycarbonate roof, replaced with attractive tiles that give the impression that this room was part of the house all along. A plastered pelmet running around the perimeter of the room allows for mood lighting and enhances the pleasing size and shape of the installation.





# Victorian

Victorian conservatories, typically featuring three or five shaped facets to front of the roof and are able to span up to 6 metres in width, present an appealing design that for many of us is the quintessential English-style conservatory. Although the Victorian shape adds complexity, this design can be easily upgraded with a Celsius Solid Roof.





## Restoring Victorian splendour

This 4m x 3.5m Victorian-style conservatory might have been a useful addition to the home some years ago, but the passing of time has made it tired. The homeowners found themselves using the room less and less, and generally only when the weather was 'just about right', which can prove seldom or not at all, depending on the season. However, with the addition of a retro-fit Celsius Solid Roof this installation has now created the perfect living room extension, where adults and children alike can come and relax in total comfort, providing the homeowners with the true 'year-round' extra room that they dreamt of.

This installation uses Black tiles to match the property's original tiled roof, ensuring it blends in perfectly from the outside, and a VELUX roof vent has been added to provide added natural light as well as ventilation during the summer months.





For more than 70 years VELUX has led the world in  
the development of energy-efficient roof windows  
of the highest quality and durability





# VELUX roof windows

High quality is assured with VELUX, the familiar brand name that is synonymous with roof windows. Our Celsius Solid Roof system is designed to incorporate standard-sized VELUX roof windows finished externally in discreet Anthracite Grey, with an internal finish choice of standard White Polyurethane (perfect for modern interiors and white ceilings) or optional Natural Pine (ideal for traditional interiors) which is protected with triple-coat clear lacquer to preserve the timber of the window.

VELUX roof windows help to maximise the quantity and quality of natural light and ventilation:

- Roof windows provide twice as much daylight as vertical windows and up to three times more daylight than dormer windows (source: Daylight study, Danish Building and Urban Research, 2003).
- As they are angled more directly to the sun, VELUX roof windows (minimum roof pitch 15°) provide direct light with less risk of overshadowing from adjacent buildings.
- Additional ventilation and light can be delivered deep into extensions, to keep the interior spaces bright and airy.
- 10 Year Guarantee.

### 3 standard sizes:

- 550mm (w) x 780mm (h)
- 550mm (w) x 980mm (h)
- 550mm (w) x 1180mm (h)



### Design options available include:

- Blinds
- Shutters
- VELUX INTEGRA solar powered, electrically operated roof window with rain sensor (control shown left)



### Finish options

All roof windows: Anthracite Grey external finish with a choice of two internal finishes:

- White Polyurethane (standard)
- Natural Pine (optional)





# Envirotiles

Envirotile roofing components are injection moulded to Synseal's exact specifications from 100% recycled polypropylene by specialist suppliers Green Sustainable Products Company Ltd. A flat, precision manufactured, lightweight roof tile with excellent green credentials, the Synseal Envirotile has a low profile chamfered front-leading edge with a slight riven finish. Each single Envirotile is 12mm in thickness, weighing just 610 grams with measurements of 325mm (w) x 365mm (h) and is extremely simple to fix yet performs exceptionally, securely locking into adjacent tiles to form a quick-fitting and fully integrated roof covering. A double tile is also available, eliminating the need for fiddly small cuts.



Dry Fit Interlocking system



Recycled

The interlocking Synseal Envirotiles are self-draining, and self-ventilating and are branded with the Synseal logo for ease of identification. The system is easy to handle and cut on-site for a precision finish at concealed hip or valley roof intersections.

A single mechanical fixing point at the head in addition to the innovative interlocking design ensures that Synseal Envirotiles are securely fitted and ready to withstand both wind, rain and snow.

Envirotiles are 80% lighter than standard concrete tiles, weighing just 8.4kg per square metre in contrast with cement or natural slate roof tile products that typically weigh 50 kg per square metre.

**Synseal Envirotiles are available in a choice of 3 colours:**



Black



Dark Brown



Terracotta

In addition to single and double roof tiles, the Synseal Envirotile range includes an elevated and interlocking ventilated ridge cap, radius end/apex cover, hip, hip end cap, gable end cap, dry verge, tile starter trim and push-fit screw cap cover to ensure a high quality aesthetic finish for each Celsius Solid Roof.



## Tile components



Single Tile



Double Tile



Ridge Cap (ventilated)



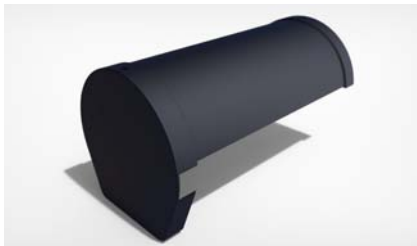
\*Radius End Cap Assembly



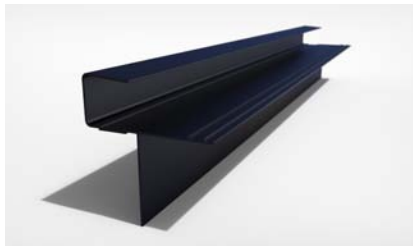
\*Hip and Hip End Cap Assembly



\*Hip Cap



Gable End Cap Assembly



Dry Verge



Tile Starter Trim

*\* Exclusive Synseal component*

## Key features

- ✓ Recycled polypropylene tiles
- ✓ UK manufactured
- ✓ Easy to fit
- ✓ Easy to clean
- ✓ Secure fixing
- ✓ 10 year warranty
- ✓ BRE tested by GSPC Ltd
- ✓ BBA accredited by GSPC Ltd

With exclusive components such as the Radius End Cap, Celsius Solid Roof has the most complete lightweight conservatory tiling solution available





# The Celsius range

Our Celsius range now comprises solid roof and insulated performance glass offerings, to provide a choice of high quality and thermally-efficient solutions for conservatory retro-fits.

Synseal's very latest new product introduction is undoubtedly the best-designed and quickest-to-fit insulated solid roofing product on the market today.

**CELSIUS™**  
PERFORMANCE GLASS



## The Celsius Solid Roof design team



*"At Synseal we have been monitoring competitor solid roofing products for a while and the market is now ready for our Celsius Solid Roof. Sitting neatly alongside our exclusive Celsius performance glass, our new solid roof solution can be summed up in just two words: thermal excellence."*

**Steve Brown**, Products & Customer Services Director

*"Our aim has been to create the best-looking, most thermally-efficient and easiest-to-fit solid roof on the market today, while at the same time delivering full compliance with Building Regulations for new or retro-fit applications. Speed of installation is essential, because on site time = money."*

**Neville Gleed**, Roofing Technical Manager



*"Selecting the right supply partners to complement our Synseal Envirotile was key to the success of Celsius Solid Roof and with SIPs from Kingspan, roof windows from VELUX and fixings from Rapierstar we have sourced the very best products to construct an awesome system of the highest quality."*

**Phil Parry**, Head of R&D

*"As product designer, my brief was to achieve improved installed thermal performance using proven materials with no inherent design weaknesses to eradicate cold bridging. Our Celsius Solid Roof is truly warm to provide building extensions that homeowners will be able to use 365 days a year."*

**Alan Green**, Product Support Engineer





# Compliance

The Celsius Solid Roof system has been submitted for assessment by the LABC (Local Authority Building Control).

The LABC is a not-for-profit membership organisation that represents all local authority building control teams in England and Wales, aiming to ensure that all buildings are habitable, safe, dry and warm. With over 3,000 professional surveyors and building technicians working in local authority building control, the LABC provides a consistent national service that's delivered locally.

## Standards compliance

The definition of a conservatory and whether a retro-fit or new build solid roof solution is exempt from the Building Regulations application and approvals process is seen by many as a "grey area". At Synseal, we are keen to offer clarification and guidance to support the introduction of our Celsius Solid Roof.

## DCLG conservatory guidelines

On July the 29th 2013 the DCLG (Department of Communities and Local Government) released a circular letter, stating that:

### *To benefit from exemption, a conservatory or porch:*

- Must have a significant proportion of the roof and walls glazed
- Must be at ground level
- Must not exceed 30m<sup>2</sup>
- Must comply with relevant sections of Part K
- Must be thermally separated from the dwelling
- The building's heating system must not be extended into the conservatory or porch."

## LABC guidelines

The view of the LABC (Local Authority Building Control) operating in England and Wales is as follows:

'When work is carried out that significantly reduces the proportion of glazing, or level of translucence to the roof, the conservatory or porch can no longer be considered exempt.'

In May 2011 the LABC published a Best Practice note on application of Part L to Conservatories attached to existing dwellings, which stated: "To establish whether the conservatory extension is mainly exempt, we must look to Class 7 of Schedule 2 to the Building Regulations 2010.

### *This tells us that in order to be exempt it must:*

- be at ground level
- not exceed 30m<sup>2</sup> floor area
- be thermally separated from the building it is attached to
- have an independent heating system from the main building
- have glazing meeting Part N in critical zones.

There is no indication as to the amount of glazing that should exist for the structure to be considered as a conservatory. In the interest of national consistency of interpretation, the guidance on levels of glazing contained in the superseded Approved Document L1B 2006 still gives a valid basis for a decision. In other words an "exempt conservatory" should:

- have at least 50% of external wall area formed from translucent materials (not including walls within 1 metre of boundary)
- have at least 75% of roof area formed from translucent materials
- be at ground level
- be effectively thermally separated from the main dwelling."

## Building Regulations application

In summary, construction of a completely new structure or replacement of an existing conservatory roof with a solid roof will involve a statutory obligation to submit a Building Regulations application.

We have sourced a professional partner ASW (Consultants) Ltd (based in Chesterfield, locally Derby City Council) who have assisted Synseal in the development of our Celsius Solid Roof system. ASW (Consultants) Ltd have access to surveyors nationwide and can undertake the Building Regulations application process on your behalf from commencement to completion, to ensure that all functional requirements are met. All legally required documentation will be provided upon satisfactory completion of your project. ASW (Consultants) Ltd can also provide a one-stop-shop for all associated project design needs such as thermal calculations and structural designs.



### **ASW (Consultants) Ltd**

Tel: 01246 555090

Fax: 01246 555191

info@aswconsultants.co.uk

Celsius Solid Roof has been submitted for assessment by the LABC (in association with Derby City Council), which is a certification scheme delivering continuity throughout England and Wales.

When assessing a Building Regulations application for a solid roof retro-fit project, at the site inspection the LABC "would like to find":

- The existing roof will either be glazed or polycarbonate and usually have PVC-U windows and doors
- The existing vertical frames will have been designed to carry the roof load
- Assess the suitability of the supporting frames (it may be necessary to verify the type and extent of reinforcement by either drilling pilot holes or testing with a magnet)
- If there is no reinforcement, new window frames may be necessary or additional support legs abutting to the existing frames
- The existing foundations should have trial holes excavated to ensure they are adequate to support the new loadings



# Synseal

Following a successful management buy-out in 2010 led by Chief Executive David Leng, Synseal has grown dynamically and is today a highly focussed, profitable business with sales in excess of £130 million and over 1200 employees. Proud of its UK ownership and manufacturing traditions with a trading heritage stretching back over 30 years, Synseal now supplies market-leading conservatory roofs, window and door systems, insulated glass units, hardware, portal frames and ancillary products to a network of fabricator partners.



Thousands of professional installers chose to purchase Synseal products on a regular basis and Synseal recognises and values the loyalty of trade customers, always seeking to find new ways of offering practical support to help Synseal business partners win in the competitive marketplace.

The Synseal product range includes Global or K2 conservatory roof systems incorporating a range of designer orangery solutions, a choice of Legend, SynerJy and Shield 70mm PVC-U window and door systems, Global Glass sealed units which feature the company's exclusive Celsius performance glass for premium applications, in addition to an Evolve range of fully manufactured and CE Marked specialist PVC-U products which includes bi-fold doors, patio doors and vertical sliding sash windows.

Thermally-efficient Celsius Solid Roofs and WarmCore 'warm aluminium' folding sliding doors are the latest product designs to be introduced by Synseal and both these innovations signal new chapters in this award-winning company's history, with a continued pledge of delivering high quality products and service excellence to the fenestration industry.



**CELSIUS™**  
**SOLID ROOF**

**Synseal**

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