



STRUCTURAL GLASS FOR CONSERVATION PROJECTS

Peter Hazeldean, MD of Ion Glass is passionate about the use of structural glass to meet many different requirements, especially with regard to a variety of conservation projects. He shares why glass is such a versatile building material for modernising churches and heritage buildings:

“There are so many possibilities with structural glass. It not only looks stylish but it’s amazingly robust and functional. In a heritage environment glass has a significant advantage over other materials in that it can be installed with minimal impact to the structure of the building, both physically and visually.

Ion Glass has developed techniques for fixing glass to stonework without the need for bulky or intrusive

bracketry, using structural glass fins for additional support where required. We’ve also enhanced standard measuring and templating techniques to ensure the glass itself sits tight to walls and floors, even if there are intricate stone corbels or irregularities in the surface.

Installing glass screens or glass doors can greatly improve heat retention as well as creating a more visually welcoming entrance. We have undertaken a number of projects where a glass entrance lobby with glass doors has created a secure but welcoming entrance that will keep the heat in and the wind out – often allowing the original wooden doors to be fixed open to let more light into the building and to provide visual access to the interior.

Main picture: St Leonard's Church, Hythe; structural glass entrance

Insert: St Nicolas Church, Great Bookham; structural glass screen and glass doors

If the requirement is to create more space, structural glass is often the only solution for linking a heritage building to a modern extension. We can install a glass link with minimal footings and the resulting structure will have enough flexibility to cope with the disparity between old and new building methods. English Heritage often prefer to have a distinct visual break between the original building and the new addition – and glass is the optimum choice.”

We asked Peter for any other advice he could offer regarding installing glass in heritage buildings:

“In my view it’s really important that the installation team are sensitive to the buildings they are working in. Ion Glass only uses our own fully employed technicians and with many years of experience they appreciate the particular nuances of working in heritage buildings. It’s also important to have an understanding of conservation and heritage requirements. We are used to ensuring our glass installations not only look fantastic and work flawlessly – but also meet the needs of English Heritage, the Church Conservation Trust and other conservation bodies!”

Interested? Ion Glass share some recent case studies
St Leonard’s Church in Hythe commissioned Ion Glass to install a glass screen and glass doors to create a draught-proof porch.

For over 900 years St Leonard’s Church has stood high above the market town of Hythe on the South Coast

of England. The church is renowned not just as a place of worship and pilgrimage but, more uniquely, for the bones and skulls housed in its crypt, an ossuary estimated to represent the remains of around 4000 people and the largest and best preserved collection of its kind in Britain.

The crypt attracts a lot of outside visitors to the church but nevertheless St Leonard’s is very much at the heart of the Hythe community, with well attended services and regular music concerts.

The prominent position affords visitors glorious views of the English Channel with the French coast visible on a clear day. However it’s susceptible to on shore winds sweeping directly off the English Channel and into the church entrance.

St Leonard’s is accessed by a set of ancient stone steps leading up to the porch with a second set of steps inside the porch leading up to the entrance door. For years the porch was a significant wind trap, with the cold draughts funnelled directly into the church whenever the door was opened.

Discussions around building a new lobby had failed to reach an agreement over a design that would meet the requirements not just of St Leonard’s and the Diocesan Advisory Committee but also the Church Conservation Trust and English Heritage. The most practical solution was a glass porch but English Heritage were

Below: St Peter’s Church, Dunchurch; glass balustrade and structural glass screen



concerned that installing glass in the entrance would act like a mirror when the sun shone, creating a significant impact on the way the church looked.

After much deliberation, the solution was found with a glass lobby created with the use of anti-reflective glass which would keep out the wind without reflecting the sun.

Ion Glass were commissioned to carry out the installation and at their recommendation the more expensive anti-reflective glass was specified only on the most obvious panels, keeping the additional cost to a minimum.

A full height glass screen was installed to sit just inside the outer entrance, with a series of five fixed glass panels and a pair of double doors. A handrail on the outer side of the glass screen is a benefit for parishioners pausing to catch their breath after climbing the hill and the steep steps to the church.

Inside, at the top of the next set of steps a pair of frameless glass doors with an arched over panel provides a secure and welcoming entrance to the church, with the glass set over the arch to minimise the impact on the original stone structure. The original inner door to the church now sits permanently open, affording a welcoming view of the interior at all times.

The wind pressure on the structure added to the challenge of the installation; technicians at Ion designed an angled head frame with baffles and vents to deflect the wind ensuring the doors don't blow open.

Each section of glass was individually templated to ensure a perfect fit against the uneven surface of the stone, especially on the floor, where centuries of use had worn the original surface into irregular dips and troughs.

Peter Hazeldean of Ion Glass comments: 'The beauty of this glass installation is that it is both functional and secure, keeping out the wind without in any way detracting from the appearance of the church. The use of minimal fittings to hold the screen in place also means that it has no impact on the way the church looks as you walk up the hill, which is really important when it's such a major part of the heritage of Hythe.'

But it's not just about keeping the wind out, structural glass is just as effective at keeping the heat in!

The Church of St Nicolas at Great Bookham dates back to the eleventh century and heat loss up the ancient West Tower, combined with the draughts around the wooden door meant that heating the church was both difficult and expensive.

A glass screen across the full width and height of the nave was designed to completely separate both the



Above: St Leonard's Church, Hythe Glass Entranceway

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tower and the entrance from the main body of the church. Ion Glass were commissioned to ensure the design and installation of the screen would have minimal visual and physical impact on the structure and appearance of the church.

A series of clamps were used to fix the panels of glass to the hand-hewn stonework of the arch and glass fins were used to stabilise the screen. Whilst this construction was technically more complex, the result had little impact on the fabric of the church itself and meant that there were no cumbersome fittings around the screen to detract from the view of the altar when visitors first entered the church. Detailed laser measurements of the arches, combined with the accurate use of a templating comb, ensured that the glass was precisely manufactured to fit around the stone corbels.

‘In order to meet the heat retention specification we wanted to achieve a gap between the stone and the glass of no more than 6mm’ said Peter Hazeldean, ‘it was a difficult brief and we were really proud of the result.’

The new screen was combined with a pair of outer glass doors, sitting just inside the existing wooden entrance door to the church, creating a more welcoming entrance with a view of the interior, as well as eliminating the draughts that had plagued the parishioners for centuries.

Structural glass offers a contemporary solution to excluding draughts and improving heat retention in church and heritage buildings. To achieve the best results with respect to aesthetics and the impact of modern construction methods on ancient buildings it’s well worth engaging a specialist company, not just for their design input but also to benefit from having skilled and experienced technicians installing the glass – heritage buildings deserve a sensitive approach on so many different levels! ■

For more information about structural glass installations in churches and heritage buildings contact www.ionglass.co.uk or call Ion Glass on 0845 658 9988.

Opposite top: St Nicolas, Great Bookham; glass screen with structural glass fins

Opposite middle: St Leonard's Church, Hythe; glass structure with double glass doors

Opposite bottom: St Thomas of Canterbury, Basingstoke; glass linkway connecting the church to the new parish hall