

Hanging glass at Trinity College

New hanging glass meeting rooms, one of the the central features of recent refurbishment work on The Wolfson Building at Trinity College, Cambridge, have been successfully installed following carefully designed access methods and procedures on this confined site.

Malishev Wilson Engineers, together with architects 5th Studio and glass suppliers F.A.Firman, provided innovative solutions to help minimise the amount of fixings for the glass panels enclosing the rooms.

The large DGUs (Double-Glazed Units), weighing up to 660kg each, are suspended from the ceiling. Special fixing details had to be adopted to transfer loads to the existing building. Standard point fixing details were therefore reconsidered and modified to accommodate the bigger loadings. MWE and F.A. Firman of Harold Wood in Essex jointly carried out a series of special load tests to verify the fixing design.

The Wolfson Building, approximately 60m long, had two large open space volumes on each side of it – north and south.

In order to create more space, without losing light, it was decided to enclose each of them with glass. As a result, two meeting rooms were created. Due to the building's geometry, the glass panels had to be suspended from above. Some of the larger glazing units, measure 2.5m by 3.7m.

The big engineering design challenge on this project were the logistics of getting the glass units to the site for installation.



Looking through the hanging glass - in one of two new meeting rooms in The Wolfson Building at Trinity College, Cambridge.

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The existing building, built in the 1960s, is surrounded on four sides by other buildings from earlier periods. Some of these were as close as 2-3 m to the The Wolfson.

To make things even more complicated, The Wolfson Building is built on a type of podium 3-4 m high, with only one access road quite a distance away. So all materials and equipment had to be first lifted to the podium level, then trolleyed to the installation point.

A special URW-A295CR crawler crane was used to lift panels into position.

The loads from the large double glazed units and other equipment had to be distributed over a certain area to minimise ground pressure and protect pavement slabs.

The crane used is the first crawler crane available in the UK that can pass through a standard door opening but has a lifting capacity of up to 3 tonnes.

MWE licensed for structural engineering consultancy in Russia

Malishev Wilson Engineers have been granted a licence to practise as consulting engineers and supervise structural engineering by others in the Russian Federation.

The licence, one of a handful held by Western consulting engineers working in that country, has been granted by Gosstroy - the licensing division of the Russian Ministry for Construction.

By law, foreign consulting engineers and architects working without a licence have to be supervised and their design drawings checked by a Russian licence holder.

As well as allowing us to work on our own projects, the new licence will enable MWE to help other Western-based consultants and architects working in Russia.



Our first Russian project is nearly complete

The construction of a prestigious private house at Pozdniakovo, near Moscow - Malishev Wilson Engineers' first major construction project in Russia - is nearing completion.

A main engineering design feature of the project, in the fashionable Rublevskoeshosse district, has been the installation of a Bituthene waterproofing system at foundation level, due to the swampy ground conditions.

The quality of concrete produced by the contractor for this project has been remarkably high, compared to normal Russian standards. Supervision on site has therefore not posed any problem.



Designers for glass staircase and walkway features of Moscow office tower

Malishev Wilson Engineers have been appointed specialist structural consultants for two separate glass staircase and walkway features of the prestigious Plot Nine office building, now under construction for the Russian property developer Capital Group in the new Moscow City business quarter being developed in the capital.

The building comprises two high-rise tower blocks, 73 and 62 storeys high, with a total floor area of 288,000sq m. The project is due for completion in 2008.

Under a commission from the Seattle-based architects NBBJ, MWE have been responsible for design development work for an

internal staircase and a walkway - the first structure of its type in Moscow where structural glass beams are being used.

The 31-step staircase feature, measuring 1.5m wide, leads from the central entrance of the office tower to an upper floor. Its walls, with supporting treads, each 52mm thick, will be up to 6.5m tall and made of laminated glass.

They will be illuminated by a special LED feature incorporated into the design.

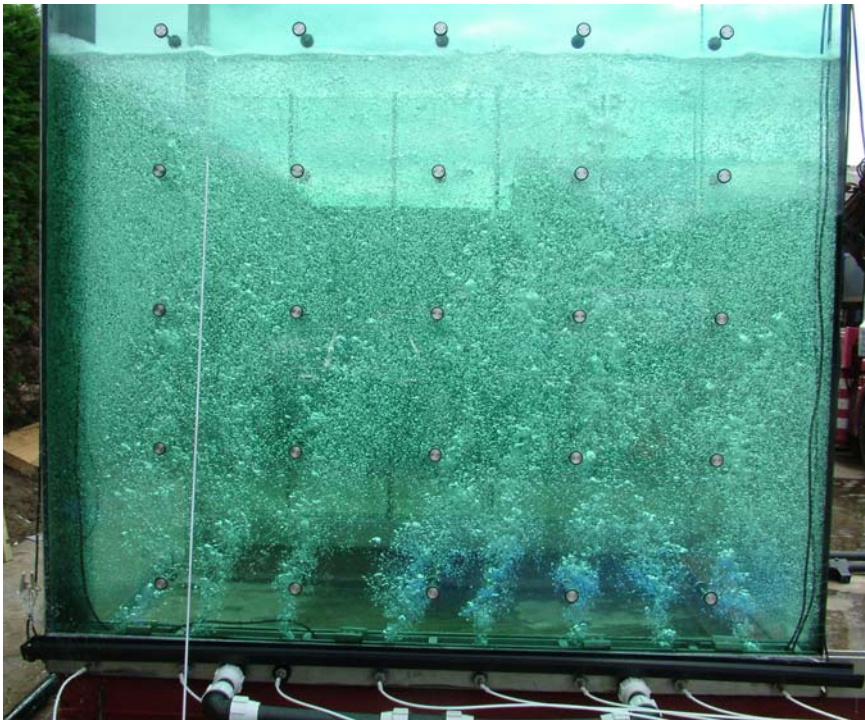
The internal walkway, at second storey level, will have a span of 12m and will be 3m wide.

Two steel box girder span beams will carry a sub assembly of

structural glass cross beams and associated flooring. They will be illuminated by a special LED feature incorporated into the design.

“Because structural glass beams will be used in a walkway for the first time in Moscow, we are likely to carry out a series of destructive load tests, to satisfy the authorities,” says Gennady Vasilchenko-Malishev, partner of Malishev Wilson Engineers.

“A particular challenge on this project will be to ensure a high quality of glass edge work and silicon jointing, something we take for granted in the West. We are confident that this can be achieved.”



Mock up of a glass water feature at the Highbury Stadium redevelopment

Attractive water feature is the goal at Highbury Stadium redevelopment

MWE are designing a series of glass water features for the redevelopment of Highbury, one of England's most famous football stadiums and home until recently to Arsenal Football Club.

Development comprises luxury apartment blocks, surrounding the central water glass features (14 in total). This mock up has recently been assembled and tested with water and lighting, to the delight of architects, Allies and Morrison.

The concept of the water walls was originated by landscape designer for the redevelopment, Christopher Bradley Hole. The perimeter of the old football pitch is preserved but the interior is reformed with terraces, lawns, hedges, planting and glass water walls and screens.

The module of a water wall is 2.8m long, 2.4m wide and 3.2m high. The water channel is 200mm wide and 2.4m high. The inner

and outer walls of the channel comprise 2 x15mm-thick toughened, laminated glass. The hydrostatic pressures are retained by discrete point fixings between the inner and outer walls at varying spacing from 200mm to 400mm

Air, as well as water, is pumped into the water channel to give a dynamic effect that is enhanced at night by lighting effects.

All glass and metal fixings are supplied and installed by F.A. Firman.

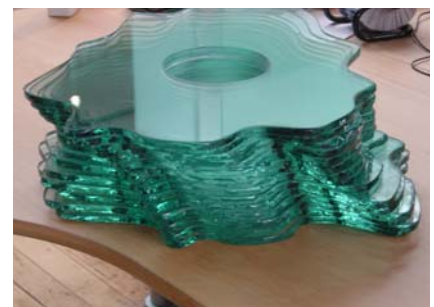
MWE have been working on a special water fountain feature using structural glass, for US-based leisure company Isle of Capri. One of them is a stacked glass column, 7m high. We have done tests to establish the properties of glass under the combined action of pressure and the presence of capillary water.

MWE to deliver design paper on all-glass structures at IASS in China

Malishev Wilson Engineers have been selected to present a paper entitled 'The design and construction of all-glass structures' for the International Association of Shell and Spatial Structures (IASS) symposium 'New Olympics – New Shell and Spatial Structures' - to take place in Beijing from October 16-19, 2006.

The paper will outline the experience gained from the design of a dozen all-glass structures – from glass stairs to glass roofs, with supporting beams spanning up to 12.0m, to external glass frames that are self-stable, each structure marking an important milestone in glass engineering and fabrication.

The IASS, founded in 1959 by Eduardo Torroja, aims to achieve progress through an interchange of ideas among all those interested in lightweight structural systems such as lattice, tension, membrane and shell structures built from modern materials.



MWE chosen for glass façade design work in Woking



Structural steelwork ready for a glass façade on the new Woking Galleries, Woking Museum and Arts & Crafts building.

London glass supplier Fusion Glass Designs have appointed MWE to carry out structural design and detailing - with the production of detailed design AUTOCAD drawings - for the external glazing to the south and east elevations of Woking Galleries, Woking Museum & Arts & Crafts Centre.

This will include the following elements:

- 30m long single storey frameless structurally bonded glass panels and a trapezoid shaped 'keyhole' window with 50% coverage of dichroic film interlayer in vertical stripes on the south elevation
- Vertical slot and first and second floors with frosted glass with clear strips on the east elevation.

Architects are Marks Barfield Architects.

Guernsey customer returns to MWE for design of glass swimming pool enclosure

Malishev Wilson Engineers are carrying out the detailed design for further works at Le Bouillon, a private residential property in Guernsey.

The project, for a glazed enclosure to a swimming pool, follows our work for an all-glass covered access link at the same site completed in 2005.

The new enclosure is 6.7m long, 6m wide and 4.5m high with an elegant steel portal frame structure supporting a glass roof, with secondary glass beams and a glazed façade with tapered glass fins - from 300mm deep, at mid-height,

to 100mm deep at the ends.

The size of the project is relatively small but has combined all the requirements in the design and detailing of steel/glass structures - with tapered glass fins and long-span glass beams braced by an elegant steel framework.

An example is the end connection of the 300mm deep laminated glass beam that is spliced to shallower, 200mm deep metal plates to permit the passage of the gutter.

The contractor, F.A Firman, is due to start assembly work on site at the end of October.

Architect is Juliet Coleman

In Brief

MWE have been appointed for design and consultancy work on the following projects:

Facade to the 24m-long Performance Wall on the Isle of Dogs, part of the Millennium Square Development.

Glass atrium and facades for Grade II listed Carvers Warehouse in central Manchester.

Internal glass screens for Parkwood, a major sports and fitness centre in Salisbury, Wiltshire.

Glazed façade on the Keymed commercial development in Southend on Sea.