

RECENT DEVELOPMENTS IN STEEL FENESTRATION BOOST CONSERVATION OF HERITAGE SITES

The versatility of steel as a framing material for windows is well known. Slim, elegant windows and doors can be fashioned from steel into a multitude of different shapes and dimensions to meet the needs of a variety of commercial and residential schemes.

Recent innovations in steel fenestration have led to the development of an even broader range of products extending the application of steel frames further. This is good news for conservation sites as new steel windows and doors manufactured and installed at heritage properties not only have a similar appearance to the originals, they now outperform products which were used only a matter of years ago.

Where an old single glazed steel window would not have achieved a "G" rating, modern steel windows can deliver up to an "A" rating. These windows come as expertly engineered, high performance, double glazed units which are well insulated, draught proof and resilient to fire. Enhanced security is offered via the option of multi point locking which is available to PAS 24.

Thermally broken steel windows and doors manufactured of pre-galvanised cold formed steel sheet are of a different construction to traditional hot rolled steel windows and it is cold formed profiles which offer improved thermal and acoustic performance and better fire resistance to meet the increasing demands of current Building Regulations. Today there is very little difference between cold formed and hot rolled steel profiles when it comes to the thinness of the steel frames.

Jansen is one of the leading producers of cold formed, thermally broken steel profile systems for windows and doors and Clement is able to manufacture slender Jansen profile fenestration products which meet the highest requirements of thermal insulation, security and fire protection, while still offering mechanical strength and longevity. These windows and doors are suitable for

Below, new Clement steel doors from the Jansen range were used for the shop fronts at Berwick Street



restoration work as well as new builds and can be fitted into all opening types.

Berwick Street is a lively and diverse community in the heart of London's Soho district, built between 1687 and 1703. It runs between Oxford Street to the north and Peter Street to the south and is well known for its thriving market which was established in the eighteenth century, making it one of the oldest markets in London.

90-104 Berwick Street has recently been transformed from an unattractive 1950s block into a stylish, contemporary, mixed use development. Although unlisted, the building is situated in the Core Central Activities Zone and the Soho Conservation Area, so it was vital any changes made were in keeping with the surroundings.

Clement was requested to supply and install the custom-made steel windows and door screens used for the shop fronts on the ground level. A combination of products was specified from both hot rolled and cold formed steel profiles, all with polyester powder paint surface coatings. These included Clement W40 steel windows which sit beside and above the doors, the Jansen Economy 50 range of single and double doors and the Jansen Economy 60 range of bi fold doors.

The Project Manager, Ben Styles, commented: "The Clement W40 steel windows and the Jansen Economy doors provided us with the slender, elegant frames we wanted for this Central London development, giving the shop fronts a contemporary look while remaining true to the urban origins of the site."

Innovations in glazing are also playing a part in what steel products are now available to the market. For example, Jansen profile frames can be double or triple glazed, enhancing thermal performance further. Clement offers a variety of glass types and is a partner to the AGC/Panasonic joint venture on FINEO which is a high specification single glazing which can outperform double glazing when it comes to U values. Steel windows with FINEO glass help to keep older properties warmer and quieter while still maintaining the original look of the building.

The strength of steel as a framing material is unsurpassed and slim steel frames can support large expanses of glass. MW40 steel windows offer a similar profile to the traditional W40 steel window ranges but allow for a larger glass unit to be included making these windows ideal for big commercial schemes such as office blocks and public buildings. MW40 insulated glass units are possible up to a maximum thickness of 30mm.

The India Buildings is located on Water Street in the centre of Liverpool's financial and business district. It was designed by architects Arnold Thornely and Herbert J Rowse, in response to a competition to design an office block. The competition was judged by the great Sir Giles Gilbert Scott, the pair won and the building was built between 1924 and 1932 for the Blue Funnel shipping line owned by Alfred Holt.

The building's design is influenced by the Italian Renaissance style and it has several features of the American Beaux-Arts style, including the sculptures of cherubs which can be seen above the windows.



Above, Clement W40 and Jansen steel doors and screens at Berwick Street in London

Having sustained damage during World War II, the building was restored to its original state after the war under the supervision of Rowse, the original architect.

In 2017, the Grade II* Listed Building was purchased by Legal & General and it was announced that HMRC would base a regional centre there. Renovation works commenced with the focus on creating modern, comfortable office space while retaining the heritage features of the building.

The new steel windows at the India Buildings provide a close match to the originals while offering improved thermal performance

Clement was selected to manufacture and install the new double glazed steel windows which match the original single glazed metal windows and improve thermal performance and energy use within the historic building. Almost 1,000 windows from the Clement MW40 range were specified, polyester powder painted in RAL 9016 (White).

Not all the new products on the market have been driven from within the steel fenestration industry. One new product of the last ten years which has really gained traction is the internal steel door screen or partition. Originally a fashionable interior design choice in London homes selected to give an industrial edge to a design or to divide a house into different zones, these have become increasingly popular in commercial spaces and are now finding their way into heritage projects too.



Above, new Clement MW40 steel windows were specified for the India Buildings in Liverpool

Internal steel and glass screens allow more daylight into a space, brightening up previously dark areas and making otherwise unseen corners visible. These steel screens can be fitted with acoustic glass to improve privacy and can be fire rated without compromising their slender frames.

The doors in Anthracite Grey at St Paul's Church make a bold style statement while also increasing the light within the space

St Paul's Church in Leeds has been transformed with the addition of a large, bespoke steel door screen and feature steel window. The screen incorporates a pair of double doors, providing light and airiness. Both the new steel window and door set are made from Clement EB24 steel sections which include double glazed, argon filled glass units.



Below, the new steel windows at the India Buildings provide a close match to the originals while offering improved thermal performance



Above, the EB24 doors at St Paul's Church make a bold style statement while also increasing the light within the space

Mark Harlow, the Vicar, said: "St Paul's Church embarked on a major refurbishment of their 60 year old building to make a warm and welcoming, adaptable space while keeping to the original architect's ideas. A key part of the brief was to widen the entrance corridor and allow light into one end. This has all been more than achieved using Clement's metal frame windows and doors. These have helped create an additional space for people to meet and mix. The narrow profile of the frames has allowed maximum light and visual access between the spaces, while the rhythm of the glazing bars both modernize and blend with the architecture of the main worship space."

It is exciting to see how steel fenestration has evolved to meet modern demands and that the developments in no way compromise the role steel windows play in the refurbishment of Listed Buildings and other heritage sites. Add to this the fact that steel is infinitely recyclable and all Clement frames are made from 98% recycled steel source material and the future for steel windows and doors looks very bright indeed!

Clement Windows Group manufactures an innovative range of steel windows, steel doors and steel screens for both private residences and commercial projects. Based just outside London, in Surrey, Clement also supplies conservation rooflights, available from stock or made bespoke to individual requirements, in either a tile or a slate profile.

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