Senior Hybrid Systems is a division of Senior Architectural Systems, a major UK supplier of glazing systems, specialising in providing aluminium and timber systems to the highest standards.

Operating from three strategically situated service centres at Doncaster, Newport and Livingston the company maintains its original emphasis on customer service, local availability and forming long term, mutually beneficial relationships with specifiers and fabricators.

Hybrid systems
a new concept in composite facade and window systems

Printed on recycled material
Senior Architectural Systems supplies aluminium facades, windows and doors to the commercial and residential construction markets. Operating from three strategically situated service centres at Doncaster, Newport and Livingston the company maintains its original emphasis on customer service, local availability and forming long term, mutually beneficial relationships with specifiers and fabricators.

Senior’s mission is to offer high performance products which meet the requirements of each project so the fabricator can be competitive and the client confident.

Product Portfolio
Aluminium shopfronts, ground floor treatments, doors, curtain wall, commercial windows, residential windows, residential doors, patio doors... and introducing the:

Timber/Aluminium Facade & Window Systems

The Hybrid Range from Senior Architectural Systems

Hybrid is a new concept in facade supply. In addition to the existing range of high performance aluminium products Senior now offer a range of composite windows, doors and curtain wall combining the long life and low maintenance of aluminium externally with all the benefits of engineered timber internally. These are available from stock through a national network of fabricators so that clients and contractors can have either product from the same source, or combine the products on an individual project without having to change supplier or installer.

The benefits of this new approach are:

Availability
Timber for the internal frames is available from stock within the UK with aluminium outer frames available in any polyester powder colour from Senior’s in house paint facilities.

Quality
All Senior Architectural service centres are fully ISO9000 accredited. The machinery necessary to fabricate Hybrid is only available from Senior ensuring consistency of quality from any fabricator.

Thermal Efficiency
Hybrid windows have the thermal efficiency of timber combined with the latest glass technology to produce U Values well below the current and anticipated future Building Regulation requirements.

Low Maintenance
Hybrid windows provide the advantages of fully pre treated engineered timber internally, so any possibility of warping or twisting is eliminated. This combined with the benefits of powder coated aluminium windows externally means maintenance is minimal.

Choice of Appearance
Hybrid windows have either natural or painted timber internally. Because the internal is fabricated from engineered timber there is no requirement to paint as there are no knots to obscure. Externally Hybrid offers a choice of finishes in polyester powder paint - virtually all RAL colours in either gloss, satin or matt. Anodised external finish is also available.

Sustainability
All timber used in Hybrid is from sustainable forests. Aluminium components are from hydro electric smelters. Any waste is fully recycled.

Environmental Responsibility
At the end of their service life Hybrid windows - timber, glass, aluminium and fittings - are all fully recyclable.
Thermal Properties

With the thermal efficiency of timber, the thermal images show the heat transfer through the Hybrid Systems. With the internal temperature of the frame maintaining the 20°C room temperature, heat loss and condensation risk is minimised. Further improvements are possible with warm edge spacer technology on the double glazed units, reducing the cold bridging at the edge of the glass. Senior’s are committed to improving thermal efficiency and helping to improve the environment.

U Value Glass

(centre pane)

<table>
<thead>
<tr>
<th>U Value Glass</th>
<th>1.9</th>
<th>1.7</th>
<th>1.5</th>
<th>1.2</th>
<th>1.1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fixed Lights</td>
<td>2.2</td>
<td>2.2</td>
<td>2.1</td>
<td>2.0</td>
<td>2.0</td>
</tr>
<tr>
<td>Casement</td>
<td>2.2</td>
<td>2.2</td>
<td>2.1</td>
<td>2.0</td>
<td>2.0</td>
</tr>
<tr>
<td>Tilt &amp; Turn</td>
<td>2.1</td>
<td>2.1</td>
<td>2.1</td>
<td>1.9</td>
<td>1.9</td>
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<tr>
<td>RFC</td>
<td>2.4</td>
<td>2.3</td>
<td>2.2</td>
<td>2.1</td>
<td>1.8</td>
</tr>
</tbody>
</table>

Please Note:

U-values are for guidance using standard double glazed units with aluminium spacer bars. Further improvements are possible using other glazing configurations.

<table>
<thead>
<tr>
<th>Size of Window</th>
<th>S1</th>
<th>S2</th>
<th>S3</th>
<th>S4</th>
</tr>
</thead>
<tbody>
<tr>
<td>S1</td>
<td>0.80m x 0.80m</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>S2</td>
<td>1.00m x 1.00m</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>S3</td>
<td>1.20m x 1.20m</td>
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<td></td>
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<tr>
<td>S4</td>
<td>1.23m x 1.48m</td>
<td></td>
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<td></td>
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Colour Legend

<table>
<thead>
<tr>
<th>Colour</th>
<th>Temperature (°C)</th>
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</thead>
<tbody>
<tr>
<td>Red</td>
<td>500</td>
</tr>
<tr>
<td>Orange</td>
<td>400</td>
</tr>
<tr>
<td>Yellow</td>
<td>300</td>
</tr>
<tr>
<td>Green</td>
<td>200</td>
</tr>
<tr>
<td>Blue</td>
<td>100</td>
</tr>
<tr>
<td>Purple</td>
<td>0</td>
</tr>
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</table>
Overview
The Hybrid Series 1 casement is an 83mm high performance window system that achieves very high thermal insulation values providing low U values well below the current and anticipated future building regulation requirements.

Comprising the insulating benefits of timber on the inside and the durability of aluminium on the outside, the system includes top hung, side hung and fixed light combination windows.

Construction
Hybrid Series 1 casement windows are constructed using mitred joints on both the aluminium and the timber frames. Using a mechanical corner joint on the aluminium and patented dovetail keys on the timber enables the frames to be constructed without the need for complicated production processes. Integral transoms and mullions are inserted by scribing the ends and screw fix to the frame.

Opening lights are designed to be inserted directly into the outerframe using friction stays.

Performance
The Hybrid Series 1 casement window has been tested in accordance with BS6375 part 1: 2004 (performance of windows and doors – classification of weathertightness and guidance on selection and specification). This window has also been tested to the BS7950 security test. Test reports are available from all service centres.

Glazing
Double glazing is standard and should be carried out to the recommendations of BS6262. A variety of glass options are available to maximise thermal and acoustic performance. The glazing is inserted between the aluminium and timber frames for maximum security.

Finishes
The external aluminium is available in anodised or powder coat. The internal timber is available in clear lacquered or water based paint.

Overview
Synergy ENVIRONMENT SYSTEMS
25+ YEAR DURABILITY

Series 1: Casement

Synergy ENVIRONMENT SYSTEMS
Facade & Window Systems

Section through Casement
opening out

Please Note
Sizes are for guidance using typical hardware. Other sizes maybe accommodated. Contact Senior Architectural Systems for advice.
Overview
The Hybrid Series 1 inward opening is an 83mm high performance inward opening window system that achieves very high thermal insulation values providing low U values well below the current and anticipated future building regulation requirements.

Comprising the insulating benefits of timber on the inside and the durability of aluminium on the outside, the system includes bottom hung or turn only, french windows and fixed light combination windows.

Construction
Hybrid Series 1 inward opening windows are constructed using mitred joints on both the aluminium and the timber frames. Using a mechanical corner joint on the aluminium and patented dovetail keys on the timber enables the frames to be constructed without the need for complicated production processes. Integral transoms and mullions are inserted by scribing the ends and screw fix to the frame.

Opening lights are designed to be inserted directly into the outer frame using proprietary hardware.

Performance
The Hybrid Series 1 inward opening window has been tested in accordance with BS6375 part 1: 2004 (performance of windows and doors – classification of weathertightness and guidance on selection and specification).

This window has also been tested to the BS7950 security test. Test reports are available from all service centres.

Glazing
Double glazing is standard and should be carried out to the recommendations of BS6262. A variety of glass options are available to maximise thermal and acoustic performance. The glazing is inserted between the aluminium and timber frames for maximum security.

Finishes
The external aluminium is available in anodised or powder coat. The internal timber is available in clear lacquered or water based paint.

Please Note
Sizes are for guidance using typical hardware. Other sizes may be accommodated. Contact Senior Architectural Systems for advice.
**Overview**
The Hybrid Series 1 reversible casement is an 83mm high performance window system that achieves very high thermal insulation values providing low U values well below the current and anticipated future building regulation requirements.

**Comprising**

The insulating benefits of timber on the inside and the durability of aluminium on the outside, the system includes top hung, top swing, side hung, side swing and fixed light combination windows.

**Construction**
The Hybrid Series 1 reversible casement windows are constructed using mitred joints on both the aluminium and the timber frames. Using a mechanical corner joint on the aluminium and patented dovetail keys on the timber enables the frames to be constructed without the need for complicated production processes. Integral transoms and mullions are inserted by scribing the ends and screw fix to the frame.

Opening lights are designed to be inserted directly into the outer-frame using proprietary hardware.

**Performance**
The Hybrid Series 1 reversible casement window has been tested in accordance with BS6375 part 1:2004 (Performance of windows and doors – classification of weather tightness and guidance on selection and specification). The flush casement window has also been tested to the BS7950 security test. Test reports are available from all service centres.

**Glazing**
Double glazing is standard and should be carried out to the recommendations of BS6262. A variety of glass options are available to maximise thermal and acoustic performance. The glazing is inserted between the aluminium and timber frames for maximum security.

**Finishes**
The external aluminium is available in anodised or powder coat. The internal timber is available in clear lacquered or water based paint.
Overview
The Hybrid Series 1 door is an 83mm high performance door system that achieves very high thermal insulation values providing low U values well below the current and anticipated future building regulation requirements.
Comprising the insulating benefits of timber on the inside and the durability of aluminium on the outside, the system includes inward and outward opening doors.

Construction
Hybrid Series 1 doors are constructed using mitred joints on both the aluminium and the timber frames. Using a mechanical corner joint on the aluminium and patented dovetail keys on the timber enables the frames to be constructed without the need for complicated production processes.

Performance
The Hybrid Series 1 inward opening door has been tested in accordance with BS6375 Part 1 : 2004 (performance of windows and doors - classification of weather tightness and guidance on selection and specification).
The Hybrid outward opening door has been independently tested to PAS23/24. Test reports are available from all service centres.

Glazing
Double glazing is standard and should be carried out to the recommendations of BS6262.
A variety of glass options are available to maximise thermal and acoustic performance. The glazing is inserted between the aluminium and timber frames for maximum security.

Finishes
The external aluminium is available in anodised or powder coat. The internal timber is available in clear lacquered or water based paint.

Please Note
Sizes are for guidance using typical hardware. Other sizes maybe accommodated. Contact Senior Architectural Systems for advice.
Overview
The Hybrid Series 2 casement is available as either an 125mm or 150mm high performance window system that achieves very high thermal insulation values providing low U values well below the current and anticipated future building regulation requirements.

Comprising the insulating benefits of timber on the inside and the durability of aluminium on the outside, the system includes top hung, side hung and fixed light combination windows.

The Hybrid Series 2 provides a clean symmetrical look, with aesthetically pleasing appearance, identical regardless of whether the window opens or is a fixed pane.

Construction
Hybrid Series 2 casement windows are constructed using mitred joints on both the aluminium and the timber frames. Using a mechanical corner joint on the aluminium and patented dovetail keys on the timber enables the frames to be constructed without the need for complicated production processes. Integral transoms and mullions are inserted by scribing the ends and screw fix to the frame.

Opening lights are designed to be inserted directly into the outer frame using friction stays.

Performance
The Hybrid Series 2 casement window has been tested in accordance with BS6375 part 1: 2004 (performance of windows and doors - classification of weathertightness and guidance on selection and specification).

This window has also been tested to BS7950 for security. Test reports are available from all service centres.

Glazing
Double glazing is standard and should be carried out to the recommendations of BS6262. A variety of glass options are available to maximise thermal and acoustic performance. The glazing is inserted between the aluminium and timber frames for maximum security.

Finishes
The external aluminium is available in anodised or powder coat. The internal timber is available in clear lacquered or water based paint.

<table>
<thead>
<tr>
<th>Maximum Width</th>
<th>Top Hung</th>
<th>Side Hung</th>
<th>Open in &amp; Tilt Turn</th>
<th>Top Swing</th>
</tr>
</thead>
<tbody>
<tr>
<td>1500</td>
<td>900</td>
<td>1000</td>
<td>1500</td>
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<tr>
<td>1500</td>
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<td>2100</td>
<td>1500</td>
<td>1500</td>
</tr>
</tbody>
</table>

Please Note
Sizes are for guidance using typical hardware. Other sizes may be accommodated. Contact Senior Architectural Systems for advice.
Overview
The Hybrid Series 3 curtain wall is an 50mm high performance, zone drained stick system that achieves very high thermal insulation values providing low U values well below the current and anticipated future building regulation requirements.

Comparing the insulating benefits of timber on the inside and the durability of aluminium on the outside, the curtain wall can incorporate all of the Senior Hybrid and Aluminium windows and doors.

Construction
Hybrid Series 3 curtain walls are constructed using vertical mullions with face fixed horizontal transoms on both the aluminium and the timber profiles. A range of transom and mullion sections are available to maximise performance.

Performance
The Hybrid Series 3 curtain wall has been tested in accordance with the CWCT curtain wall standard and the European EN 13830: 2003.

Glazing
Double glazing is standard and should be carried out to the recommendations of BS6262. A variety of glass options are available to maximise thermal and acoustic performance. The glazing is inserted between the aluminium and timber frames for maximum security.

Finishes
The external aluminium is available in anodised or powder coat. The internal timber is available in clear lacquered or water based paint.

For further information on any of the products, specifications and finishes within this brochure please contact: Senior Architectural Systems or visit the website

www.seniorhybrid.co.uk
Project: Westbourne School
Location: Cardiff
Products: Hybrid Curtain Wall, Hybrid Tilt and Turn, Hybrid Casement and SD Aluminium Commercial Door

Project: Archbishop Holgate School
Location: York
Products: Hybrid Fixed Lights and Hybrid Casements
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