

SIDERISE® FIP HIGH PERFORMANCE ACOUSTIC PANEL

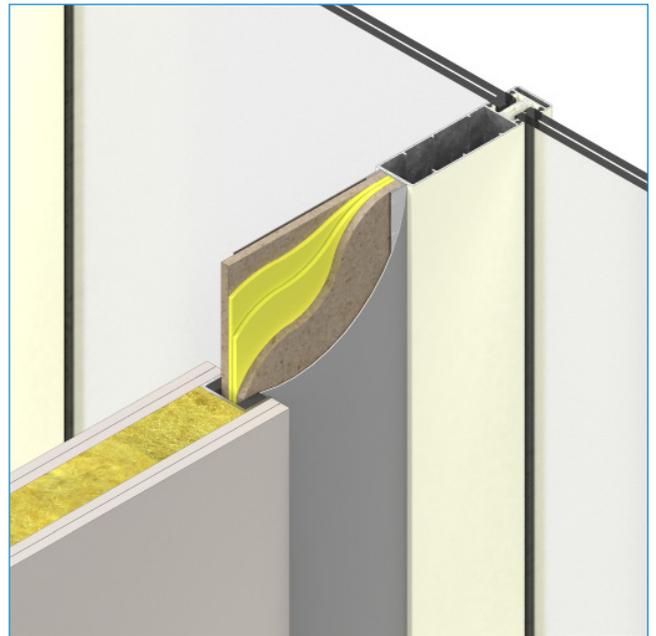
A high performance acoustic panel solution for use where an internal partition abuts a curtain wall.

Application

SIDERISE FIP high performance acoustic panel is a thin multi-layered board offering exceptional sound transmission performance and has been specifically developed to provide a solution where an internal partition abuts a curtain wall or window mullion.

Due to the impressive 46dB Rw performance at only 31mm thickness, the SIDERISE FIP high performance acoustic panel can also be used in many other conditions which demand the combination of a high SRI performance with a minimal thickness.

This simple yet effective solution has been used on a number of projects which include hotels, residential, government and commercial buildings in both the UK and overseas.



Benefits

- Innovative engineered solution to common noise control problem
- Fully tested acoustic performance
- Maintains high 'room-to-room' separation
- Improved reduction of noise pollution in adjoining areas
- Very thin construction maintains 'clean lines' and minimises obscuration of glazed areas
- Simple to detail and easy to install
- Up to 1 hour fire resistance

Curtain wall noise issues

The scope of the noise problem involves the interface between lightweight facades and internal walls in buildings.

This is illustrated in the case of curtain wall buildings where internal walls and partitions, typically 120mm to 150mm thick, need to 'taper' or 'step down' in thickness at the point where they meet the curtain wall mullions, typically 40mm to 50mm thick. The 'step down' commonly starts 200mm to 400mm before the mullion.

In curtain wall buildings where a high level of acoustic performance is required, it has been a common practice to acoustically treat the mullions and transoms ('stick' systems) by over cladding them by continuing the plasterboard on the partitions to conceal the frame section.

This may be for either practical and/or aesthetic reasons.

In recent years more and more projects require maximum visual glazed areas which has resulted in the use of a narrow interface panel to be used as a means of linking these two elements. This arrangement has the advantage of spacing the thicker internal partition away from the thinner mullion thereby reducing obscuration of the glazed areas. It also reduces the visual impact of the inherent stepped detail formed.

However, the thickness of this infill panel cannot normally exceed the thickness of mullion. The necessarily thin nature of the panel represents a significant acoustic weakness potentially limiting achievable room-to-room sound separation.

Traditionally, the internal wall would stop short of the mullion by 200mm to 400mm, requiring the gap to be filled with a thin board construction assembled on site and resulting in a significantly reduced acoustic performance. The use of an ad-hoc lower performance infill assembly will inevitably limit the overall 'Room-to-Room' performance.

With the emergence of curtain wall facades used in multiple occupancy and residential properties, this has increasingly become a problem for both developers and occupants.

The solutions

SIDERISE FIP high performance acoustic panel:

- Has been specifically developed as a thin product that can be practically installed at the gap between curtain wall mullions and internal walls and to ensure [the highest possible 'room to room' performance](#).
- At only 31mm thickness, can be used to [maintain 'clean lines'](#) which are visually in keeping with the internal partition or mullion, enabling the delivery of the architects' design objectives.
- Being extremely thin, it uses less material volume and provides [space and daylight gains](#) compared to thicker traditional treatments.
- Offers [practical and ease-of-fit installation benefits](#) compared to the traditional ad-hoc site-assembled solutions which are inherently wasteful and yield inconsistent performance. An aesthetic covering can be applied directly on to the panel providing continuity of finish without the need for flashings and fill materials.

Product description

SIDERISE FIP high performance acoustic panel is a bonded composite material comprising four primary layers which are bonded together to offer a combination of stiffness and damping within a high mass panel, with a nominal thickness of only 31mm.

The layers include a high mass cementitious boards either side of a central heavy elastomeric core.

A unique bonding technique is used to ensure that the finished composite is heavily damped, resulting in a product with good performance at lower frequencies (stiffness and dampening controlled regions) and no 'drop-off' due to coincidence dip.

Supply form

The product is usually supplied in standard lengths of 2400mm or 2800mm* at the required width between 100mm minimum to 600mm maximum.

As standard, the product is nominally 31mm o/a thickness with a surface mass of 46kg/m²

* The product is manufactured to order and a standard length of 2400mm would normally apply. For large quantities a 2800mm length option is available. The maximum size available is, therefore, 2400mm x 600mm (standard) or 2800mm x 600mm (large project quantities).

Due to the products weight the panels can also be supplied in two sections at half thickness, nominal 16mm each, for combining during installation on site.

Other non-standard thickness and weight combinations are also available*.

*Non tested configurations. Assessed performance values only.

Finish

As standard, SIDERISE FIP is supplied unfinished to be separately clad with a thin covering (e.g. decorative laminate or coated metal plate). Normally a decorative covering is applied to both sides.

Installation

SIDERISE FIP is normally retained by the use of metal 'C' channel or 'L' angle sections along all edges of the mullion or partition wall abutments.

Typical fixing details are available. Please contact the Interiors technical team.

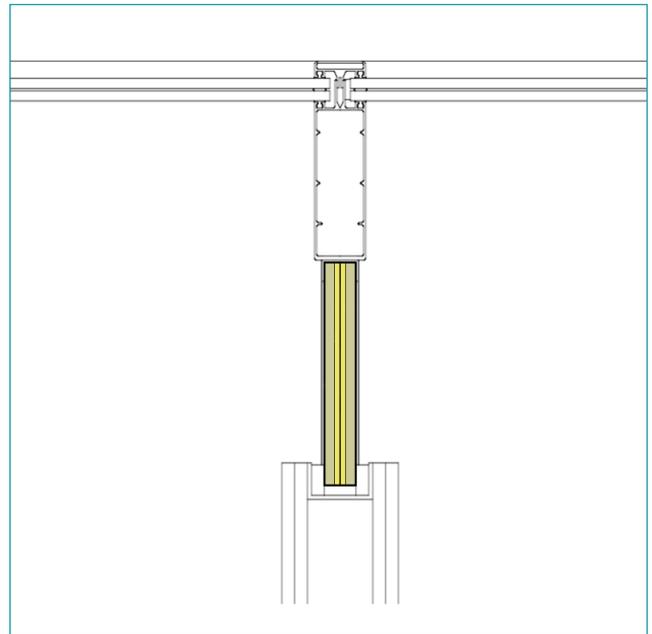


Fig 1. Plan detail showing typical movement joint at a junction with a partition.

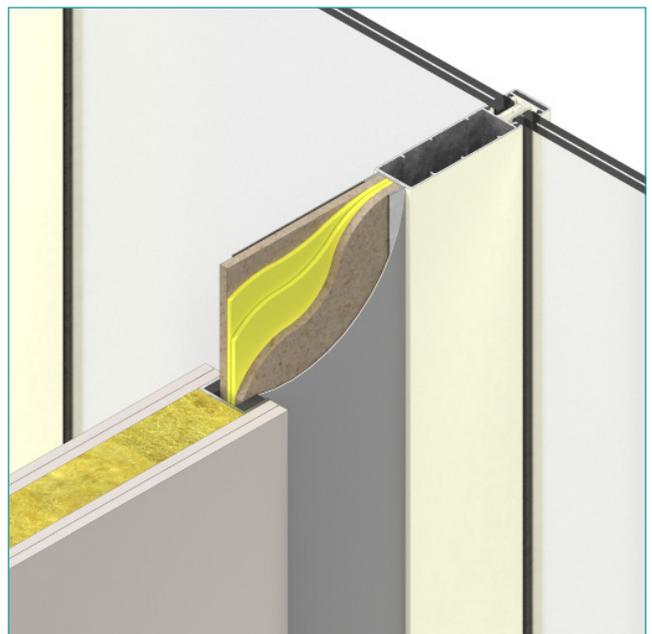


Fig 2. SIDERISE FIP High Performance Acoustic Panel abutting an empty mullion, post applied decorative cover plate.

Acoustic performance

Independently tested

SIDERISE FIP high performance acoustic panel has been tested to BS EN ISO 140-3:1995 & assessed to BS EN ISO 717-1:1997 and achieved 46dB Rw performance.

The octave graph shows a near straight line, highlighting its efficient performance in the 'stiffness' and 'dampening' controlled area of the 'SRI curve' and 'No Coincidence Dip' within the 50Hz - 10,000Hz range. Third Octave data is available on request.

SIDERISE FIP has been independently tested at UKAS accredited Sound Research Laboratory and achieved $R_w (C:Ctr) = 46 (-2; -7)$ dB

Use in practice

When SIDERISE FIP is used in combination with a partition offering a 50dB Rw performance, no measurable loss in total room-to-room separation is expected.

Even if the partition value increases to 55dB Rw, the overall performance is only reduced by 1dB. By comparison, for conventional infill materials this value would be nearer to a 10dB reduction.

The practical airborne sound separation achieved between adjoining areas is often limited by the weakest element(s).

"We set out to achieve a performance greater than 40dB Rw, a challenge for such a thin, single panel which would normally be limited to around 30-35dB. The result of 46dB Rw for the SIDERISE FIP High Performance Acoustic Panel doesn't quite defy the laws of physics, but its a very impressive outcome, and a very useful product." - Ed Clarke, Clarke Saunders Associates, Noise Consultants

Treatment to Mullions and Transoms

To ensure acoustic integrity it is important to ensure that the overall 'room-to-room' performance is not limited by sound transmission through the hollow mullion and transom sections.

SIDERISE offers a range of specialist inserts for this purpose.

Please refer to SIDERISE acoustic mullion/transom inserts data sheet for further information.

GRAPH 1 : SRI performance values

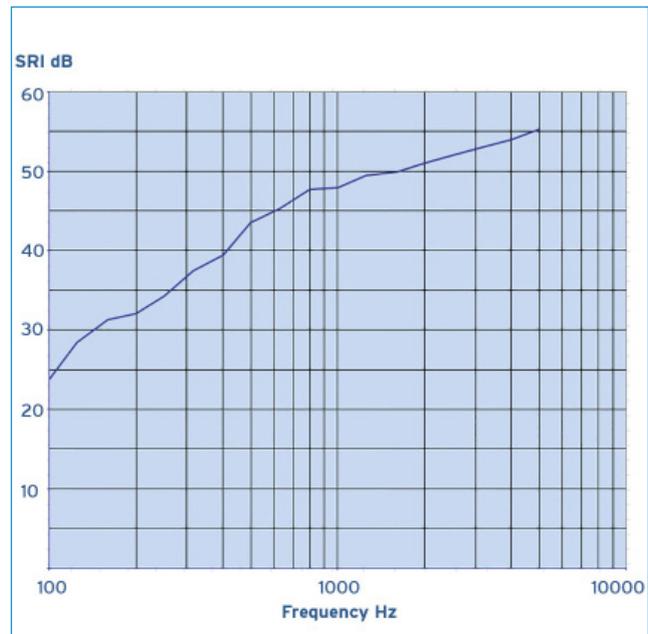


Fig 3. Sound Transmission Loss Performance.

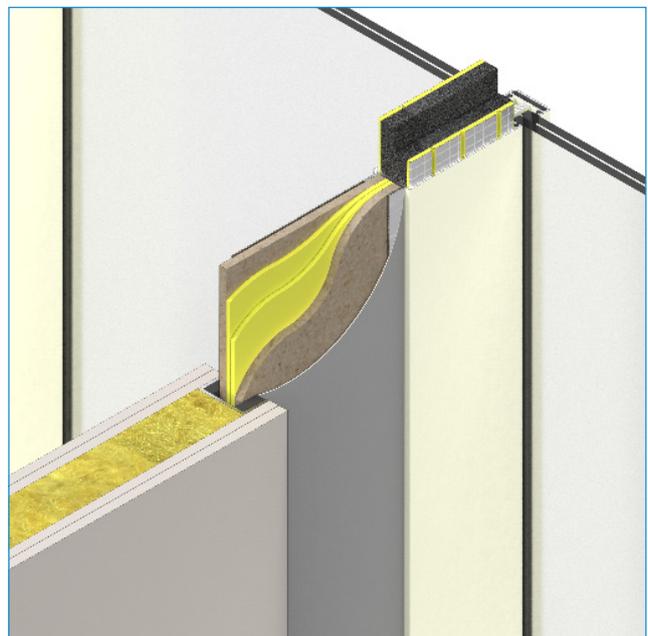


Fig 4. SIDERISE FIP High Performance Acoustic Panel abutting a mullion treated with SIDERISE MI6 / HB inserts.

Acoustic services

'Composite SRI' calculations can be used for components and constructions with known surface areas and tested performance values.

The Interiors technical team includes a number of professionally qualified acoustic engineers who are able to provide these calculations to determine the likely overall separation performance between two areas.

Additionally, advice can be given on any potentially performance limiting elements and, importantly, practical guidance can be given on cost-effective measures to mitigate against them.

Please contact the Interiors technical team on a project basis for further assistance.

Fire performance

SIDERISE FIP high performance acoustic panel comprises boards which are inherently non-combustible and is considered fire safe.

SIDERISE FIP has been tested to the temperature and pressure conditions of BS EN 1363 Part 1: 2012, and the test principles of BS EN 1366 Part 4: 2006 and achieved a 60/60 rating, (E) Integrity was in excess of 80 minutes. Test report BMT/FEI/F15081 refers.

From this test data the standard SIDERISE FIP panel can offer the following fire resistance ratings: 60 minutes (E) Integrity and 60 minutes (I) Insulation.

Higher performance ratings may be possible from formal assessment of specific project details and construction materials.

Further information

Products available

The following products are available and can also be specified using NBSPlus.

- SIDERISE FIP facade interface panel
- SIDERISE mullion/transom inserts
- SIDERISE CVB (CVB/LAM, CVB/P) acoustic void barriers
- SIDERISE FLX flexible acoustic barriers
- SIDERISE CBX flexible acoustic barriers
- SIDERISE SC cavity barriers and fire stops
- SIDERISE AVC acoustic void closures for tops of walls
- SIDERISE TW-PP fire stops for profiled decks
- Foil tape: FT 120/45

Contact us for a copy of our SIDERISE ceiling void barrier range brochure.

Available CPDs

Contact SIDERISE for further information on our CPDs:

- SIDERISE CVB range: Use and Specification for the Suspended Ceilings Industry
- SIDERISE Acoustic Products & Performance - Information for Noise Consultants

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