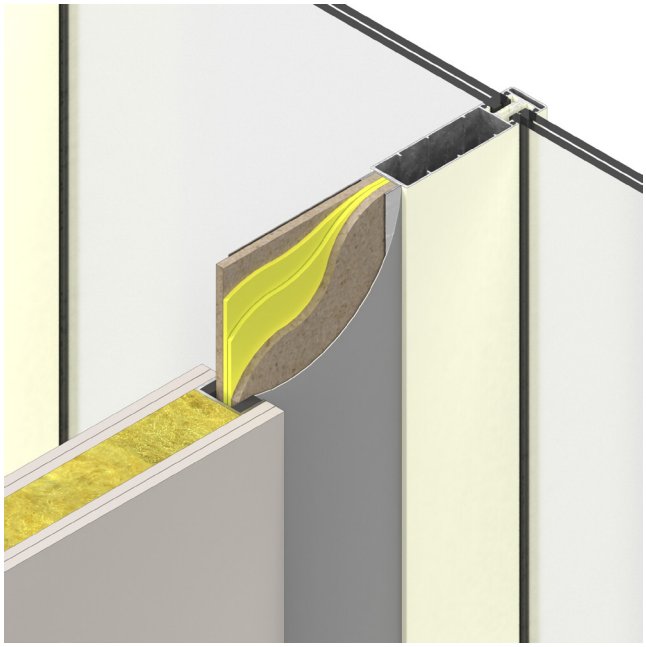
# Siderise FIP high performance acoustic panel

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



## Siderise FIP

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.

## 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 board 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 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 50kg/m$^{2}$.[2]

### 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 guidance is available, please contact the SSPL Technical Team.

**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 noise problem commonly 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 50mm thick.

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.

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 300mm, 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 solution

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.

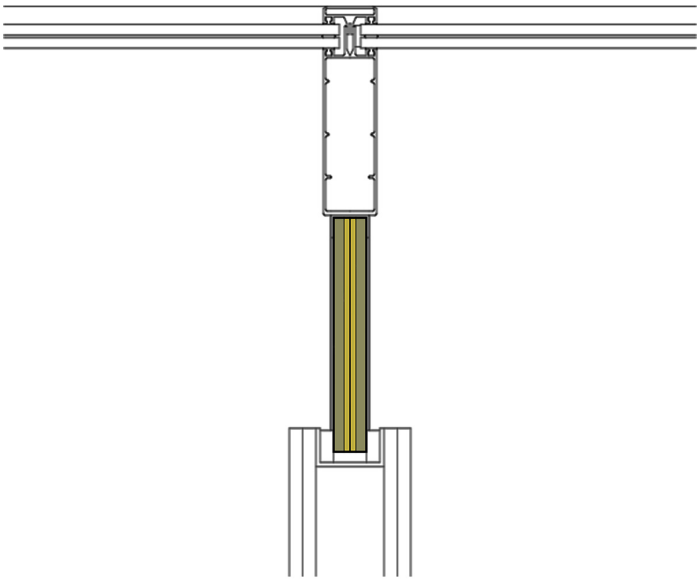


Fig 1. Plan detail showing typical movement joint with a partition

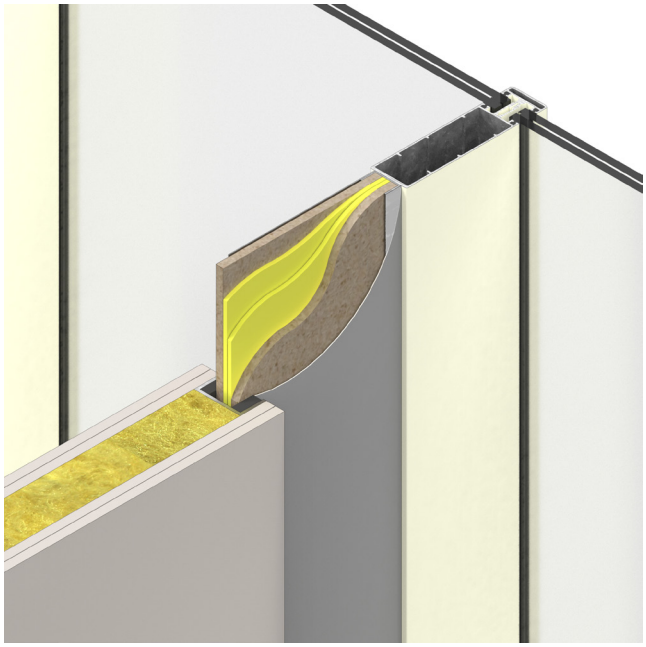


Fig 2. Siderise FIP High Performance Acoustic Panel abutting an empty mullion, post applied decorative cover plate applied.

# 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 Rw (C:Ctr) = 46 (-2; -7) dB.

### Use in practice

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

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

### Graph 1: SRI performance values

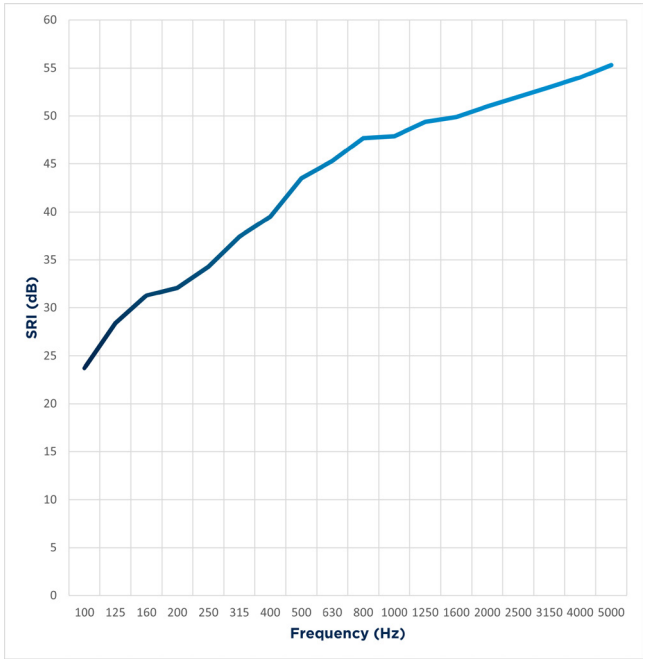



Fig 1. Plan detail showing typical movement joint with a partition

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 it's 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.

### Technical services

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

The SSPL 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 SSPL Technical Team for further assistance.

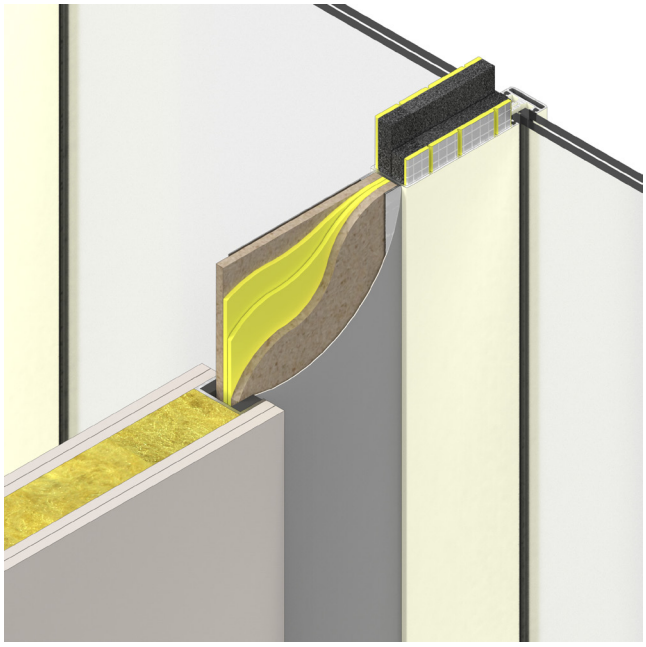


Fig 4. Siderise FIP High Performance Acoustic Panel abutting a mullion treated with the Siderise MI6 / HB inserts

### Technical specification

| | |
|---|---|
| **Form Supplied** | Sheets 2400mm x 100-600mm |
| **Colour / Finish** | Light Grey cementitious finish |
| **Thickness** | Nominal 31mm |
| **Surface weight** | Nominal 50kg/m² (Example, 2400 x 100mm = 12kg, 2400 x 300mm = 36kg, 2400 x 600 = 72kg) |
| **Acoustic performance** | Rw (C;Ctr) = 46dB (-2;-7) |
| **Fire resistance (BS EN 1366-4:2006+A1:2010)** | FIP up to 300mm wide, no horizontal butt joint – 60 minutes EI<br>FIP up to 300mm wide, with horizontal butt joints – 30 minutes EI |
| **Reaction to Fire (EN13501-1:2018)** | Cementitious board A-s1, d0; elastomeric core B-s1, d0 |

### Fire performance

Siderise FIP high performance acoustic panel comprises outer 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 1363-1:2020, and the test principles of BS EN 1366-4:2006+A1:2010 in concrete apertures.

From this test data, the Siderise FIP without any horizontal joints along the length and widths up to a 300mm wide can offer a fire resistance rating of 60 minutes (E) Integrity and 60 minutes (I) Insulation, and with a single horizontal joint along the length and widths up to 300mm wide can offer a fire resistance rating of 30 minutes (E) Integrity and 30 minutes (I) Insulation.

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

### Products available

The following Siderise products for use the Interiors Sector are available and can also be specified using NBS Plus:

- Siderise MC mullion overclad system,
- Siderise CVB acoustic void barriers,
- Siderise CBX flexible acoustic barriers,
- Siderise FLX foam based flexible acoustic barriers,
- Siderise AVC acoustic void closures for tops of walls,
- Siderise TW fire stops for profiled decks,
- Siderise foil tape: FT 120/45,

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

## Further information

### Technical support

For further information please contact our technical team at the address below.

### Available CPD's

Contact Siderise for further information on our CPDs:

- Siderise Acoustic Products for Commercial Interiors -Architect Edition
- Siderise Acoustic Products and Performance with 1/3rd Octave Data – Acoustic Consultants Edition

### Sales & Technical

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