category	soundproofing
description	resilient bar
part code	A270

Custom Audio Designs

robustdetails

A270 RESILIENT BAR is a vibration-absorbing thin metal channel designed to substantially improve the sound insulation properties of plasterboard walls and ceilings. The channel effectively isolates the plasterboard from the vibrating surface, eliminating 'direct contact' and thus preventing vibration transmission and reducing impact noise penetration through the frame.

Custom Audio Designs' resilient bars (or channels) are of superior quality and highly flexible, unlike other products on the market which can be too rigid to have a beneficial effect.

Properties

- Easy to install
- Increases sound insulation – high impact and airborne noise reduction
- Lightweight
- Cost-effective
- Flexible
- Part E Building Regulations compliant
- Easily cut with tinsnips
- For walls and ceilings
- **Recyclable**

Applications

- For walls and ceilings
- Suitable for concrete wall/ceilings
- Suitable for timber walls/ceilings
- Can be used to meet new Building Regulations

Installation

It is extremely important to install resilient bars correctly. Improper installation will nullify any advantage gained from using the system in the first place.

Briefly, battens are fixed to the ceiling or wall, either over neoprene strips[#] or superquilt.[§] Acoustic mineral wool[†] is placed between the battens; the resilient bars are fixed to the battens and then covered with two layers of plasterboard[‡] screwed into the bars. You can add a layer of TS50[¶] or 2kg soundproofing membrane[◊] between the plasterboard sheets for improved performance.

You will need to apply flexible mastic sealant* to all the perimeters after the installation of each layer to achieve optimum results.

All plasterboard joints should be finished with traditional jointing methods and plaster-skimmed before decorating.

See separate more detailed installation guidance on the information sheets on our website: www.customaudiodesigns.co.uk

Acoustic Performance

This system will add around 5dB+ to the acoustic performance of an otherwise identical wall structure.

If installed correctly, Laboratory tests show that including Custom Audio Designs Robust Detail Approved Resilient Bars in a standard separating floor buildup can increase airborne and impact reduction by Rw 18dB and Lnw 17dB respectively.

Even greater improvements in soundproofing can be gained by:

- Bonding our high performance 2FT80 superquilt[§] to the wall before installing the framework.
- Adding one or more layers of one of our **soundproofing membrane**[¶] range (e.g. TS50) between the layers of plasterboard
- Securing the independent batten framework over our 10mm x 50mm neoprene strips (or speak to us about using the 2FT80 superquilt[§] for enhanced performance here).

Technical Specification

Product	A270 Resilient Bar
Weight	Approx. 0.37kg/m^2
Depth	15mm
Length	3 metres
Width	70mm
Gauge	0.5mm

Associated Products

[¶]A120/A130 – **Soundproofing membrane** – T35, T50, TS50

[§]A180/A190 – 2FT80 **Superquilt** on wall behind battens

*A250 – **Acoustic sealant** 310ml.

[◊]A116 – **Tecsound 35 Acoustic membrane** – add between the two layers of plasterboard for improved performance.

[‡]A432/A434/A436 – **Acoustic Plasterboard** (you will need two layers of plasterboard)

[†]A460 (or similar depending on thickness) – **Acoustic mineral wool** between battens

[#]NE160/NE180/NE210 – **Neoprene strips** 5mm x 50mm/75mm/100mm x 10m beneath the battens (not necessary if you use superquilt on the wall before fixing the battens).

Further information for installers

THE PARTITION WALLS in most family homes are constructed of plasterboard firmly attached to both sides of a wood stud frame. When sound waves hit one side of the wall it causes the plasterboard on that side to vibrate. Since the plasterboard is rigidly connected to the stud frame, the vibration is transmitted through the studwork to the plasterboard on the other side. Those same vibrations travelling through the studwork can also send noise throughout adjacent floors and ceilings. Noise will radiate through the structure because there is almost nothing there to cushion and absorb the sound waves.

In order to dampen the sound waves, resilient 'furring' channels can be inserted between one of the plasterboard walls and the studwork. The resilient channel acts as a shock absorber, greatly reducing vibrations coming from ***either*** side of the wall.

Depending on the application, frequency spectra and cavity depth, resilient channels generally add anything between 3 to 8dB to an otherwise identical wall or ceiling. This can often be enough to meet the D_{nTw} ratings required.

The bars always work best with deep cavities. The deeper the better. They should never be used directly fixed onto an existing wall or ceiling without suitable furring strips to create a decent cavity.

If they are used directly fixed the chances are the insulation value of the wall or floor will decrease.

It is important to distinguish acoustically-effective resilient channels from hat channels, z-channels, and other lightweight metal furring systems, which may resemble resilient channels, but they afford no movement and are simply too rigid to be effective. Only true resilient channels have any acoustic benefit.

It is extremely important to install resilient bars correctly. Improper installation will nullify any advantage gained from using it in the first place.

There are a few simple procedures that need to be followed when using resilient channels.

1. On walls, the channel should be mounted perpendicular to the framing with the narrow flange along the bottom. This allows the plasterboard's weight to draw itself away from the framing. For ceilings, the flanges should all be pointing in one direction. This keeps the channels from fighting each other.

2. When fastening the plasterboard, the screws must be connected to the channels **in between** the studs or joists. It is absolutely critical not to 'short out' the resilient channels by screwing into the wood studs behind them. This rigid connection would destroy the benefit of the resilient channels.

3. The resilient channels should be held back from intersecting surfaces about 25mm on the side edges, and about 50mm to 75mm at the top and bottom of the wall. It does little good to carefully attach the channels in the middle of the wall when the baseboard screws connect the entire bottom edge to the sill plates. Similarly, it is easy to short out the resilient channels at the top of the wall by screwing into headers.

4. The plasterboard attached to the channels also needs to be held back about 6mm from similar intersecting surfaces. If the plasterboard panels are jammed against the edges, then they will be rendered ineffective. The gaps should then be sealed, as **airtight** as physically possible, with flexible non-hardening mastic.

When resilient channels are properly installed, it should be possible to slightly flex the wall or ceiling surface. A lack of flex indicates that the channels are shorted out by screws fastened into the wood framing. Also, it usually does not matter which side of the wall is resiliently hung.

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