

ACOUSTIC SOLUTIONS FOR THE SOCIAL HOUSING SECTOR

Noise is the scourge of Modern day living

Much of the social housing stock was built in the second half of the last century mostly between 1950 and 1980. Building design, materials and construction methods have advanced greatly in the last 25 years as has our ability to generate noise. But so have our expectations of the quality of life experienced in our homes.

Higher density housing has brought the problem of “noisy neighbours” into focus. In the UK in 2005 there were over 400,000 complaints to Local Authorities. This only represents those people who found the problem so acute they could no longer stand it.

The government responded by upgrading Part E of the Building Regulations in a document known as “Approved Document E: Resistance to the Passage of Sound”. The Regulations set higher requirements, and changed the system of measurement to emphasize the effect of low frequency sound.

For the first time the Regulations introduced the requirement to test and certify that the acoustic performance of the walls and floors complied with the regulations where they formed a separating element between different dwellings.

Unfortunately the regulations only apply to New Builds and Change of Use where the owner has to comply with Building Regulations. Existing dwellings are unaffected, and the occupants of the acoustically sub standard dwellings in the Social Housing sector continue to suffer from the noise generated by their neighbours.

In the last 10 years responsibility for the Social Housing stock has been transferred from the Public to the Private sector and the concept of Decent Homes introduced requiring the private landlords to improve the housing to a minimum standard in defined key areas. Once the standard is achieved Government releases funds annually for maintenance and further improvement. Ask any tenant what is their priority for the use of the funds and it is almost always the reduction of noise between dwellings.

Xetal Consultants have developed a series of simple, cost effective and largely inconspicuous sound attenuation systems for the Social Housing sector to overcome the noise problems of the 21st Century.

Floors

Most sound reduction systems for separating floors rely on both floor and ceiling treatments. Generally the floor treatment reduces the effect of impact sound and the ceiling treatment addresses airborne sound. The great problem in Social Housing is gaining vacant access to both floor and ceiling at the same time, and more often than not the acoustic treatment can only be applied to one or the other, not both.

There are many floor treatments available to treat impact sound but to treat the airborne element requires the addition of mass and that in turn requires floor build up. This takes up room height, requires doors to be cut down and skirting lines to be changed, and where there are stairs, takes them out of compliance with the Building Regulations.

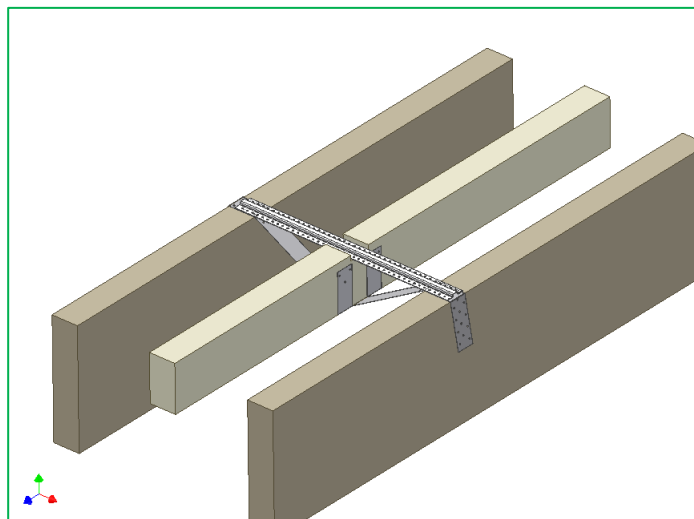
The Xetal Ecostrap (patent pending) is an innovative floor treatment that raises the floor level as little as 10mm.

The system uses the principle of an independent floor to decouple the floor and ceiling elements.

The existing floor is removed to expose the joists and a secondary joist, suitably sized for the span, is installed on joist hangers 10mm above the level of the existing structural joists.

The secondary joist is supported by the E-Cousti Ecostrap and the floor is stabilised by the brace that is fixed to the structural joist, over a notch in the secondary joist to prevent contact.

New floorboards are then fitted fixed to the secondary joist only, completing the decoupled through floor system (for detailed installation instructions see TIG20).

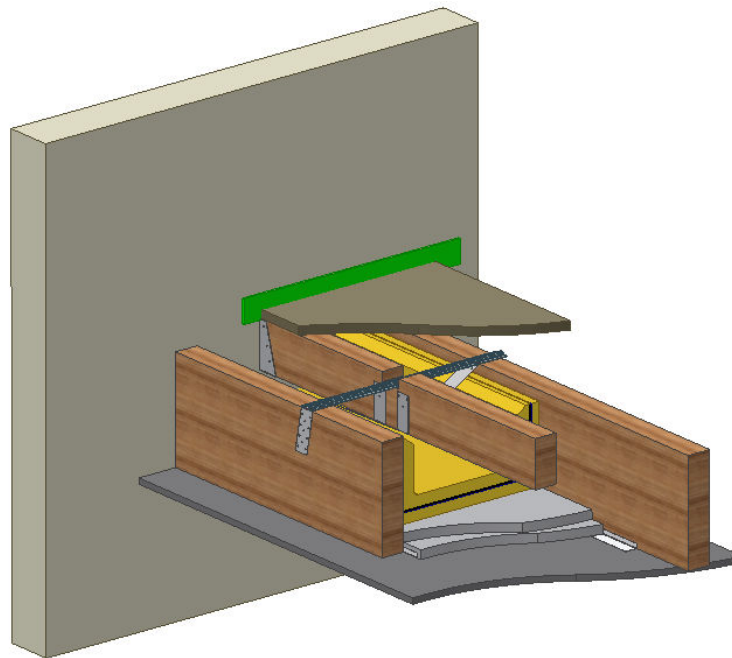


Performance Test Data FOR Ecostrap independent floor treatment

Test Element	Increase in floor height	Airborne Sound		Impact Sound	
		Dntw+Ctr dB	rdΔRw+Ctr dB	Lntw dB	rdΔLw dB
Base Floor	n/a	32	n/a	81	n/a
Std Ecostrap treatment 1 (2)	10mm	39	7	68	13
Std Ecostrap treatment 2 (3)	10mm	44	12	63	18
Std Ecostrap treatment 3 (4)	10mm	45	13	60	21
Super Ecostrap treatment 1(5)	29mm	50	18	56	25
Super Ecostrap treatment 2(6)	29mm	52	20	51	30

Notes

- (1) Base floor: 18mm chipboard over 220x50 mm joists: 12.5mm plasterboard fixed under.
- (2) Standard Ecostrap 1: Base floor with Ecostrap treatment and E-Coustiquilt fitted between the joists.
- (3) Standard Ecostrap 2: Base floor with Ecostrap treatment, 19mm plank supported over existing ceiling and E-Coustiquilt fitted between the joists.
- (4) Standard Ecostrap 3: as for 2 above except 2 layers of 19mm plank supported over existing ceiling.
- (5) Super Ecostrap system 1: 18mm chipboard above 19mm plank over base floor, 1x19mm plank supported over ceiling and E-Coustiquilt between joists.
- (6) Super Ecostrap 2: as per Super Ecostrap 1 but with 2x 19mm plank supported over existing ceiling.
- (7) Approved Document E requirements for change of use are Airborne min 43dB and for Impact max 64dB.
- (8) Every 10dB reduction in the noise level is equivalent to halving the noise perceived by the human ear.



Ceilings

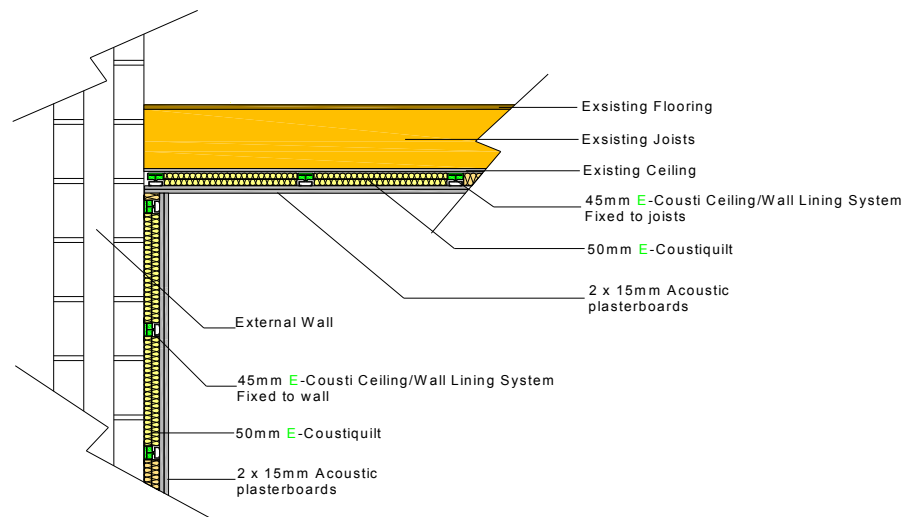
Where access is restricted to the ceiling element only, of the through floor system, Xetal, have developed the Ecoclip ceiling clip. The Ecoclip provides a high level of sound reduction, whilst only taking 70mm of room height, including a double layer of plasterboard. The system is easy to fix through the existing ceiling resulting in minimal mess and disruption to the tenant. For detailed fixing instructions see TIG 19.

Performance Test Data for Ecoclip ceiling lining system

Test Element	Airborne		Impact	
	Test Result	rd □ Rw+Ctr	Test Result	rd □ Lw
Lab Test with Robust Detail Appendix C Floor ¹	34	n/a	76	n/a
Lab Test with Ceiling Clip System ²	50	16	60	16
Base Floor Test Site ³	32	n/a	82	n/a
Ceiling Clip System 1 on existing ceiling ⁴	50	18	61	21
Ceiling Clip System 2 on existing ceiling ⁵	48	16	66	16
100mm Lightweight Masonry Wall Painted ⁶	34	n/a	n/a	n/a
Ecoclip Wall Clip System ⁷	51	17	n/a	n/a

Notes

- 15mm OSB board 10-11kg/m², 235mm x 50mm timber joists, 100mm mineral wool 10-11 kg/m³, 2 x 12.5mm plasterboards 8-8.5kg/m².
- Appendix C Floor, Ecoclip Ceiling Clip System, 50mm RWa 45 mineral wool, 2 x 15mm acoustic plasterboards 14.0kg/m²
- Base floor – 18mm chipboard on 200mm I joists, 1 x 12.5mm plasterboard 8.0-8.5kg/m².
- Base floor – Ecoclip Ceiling Clip System, 30mm RWa 45 mineral wool, 2 x 15mm acoustic plasterboard 14.0kg/m²
- as per 4 except 1 x 15mm acoustic plasterboard 14.0kg/m²
- Base wall, 100mm lightweight block painted on one side.
- Base wall, Ecoclip, 52mm E-Coustiquilt, 2 x 15mm acoustic plasterboard 14.0kg/m²



Walls

Effective floor and ceiling treatments are often compromised by the noise flanking from one room space to the other down and through the walls, particularly at the junctions. Flanking sound typically reduces the acoustic performance by 5dB and the effect can be as much as 8dB. In terms of the perceived noise this is a very significant reduction in effectiveness of the noise reduction treatment.

The treatments outlined below can also be used to reduce sound transmission through the walls of adjacent dwellings. In the social housing sector walls separating dwellings often lack mass and the resistance to airborne sound is very poor.

The E-Cousti independent wall lining is a completely decoupled lining which requires 82.5-100mm footprint depending on the number and thickness of plasterboards used and significantly reduces the sound transmitted by the structure. This system has been successfully used for many years to combat sound transmission from adjacent dwellings.

Where there is insufficient room space for the independent wall lining the Ecoclip can be used to treat the existing walls of the room and reduce the effects of flanking sound. The clip takes only 55mm of space from the room when used with a single board system. It is fitted in the same way as when used as a ceiling clip (see TIG 19)

Site Performance test data for E-Cousti wall lining systems

	System Depth	Airborne Sound	
		Dntw+Ctr dB	rd □ Rw+Ctr dB
Base Wall (1)	n/a	34	n/a
E-Cousti Ecoclip System (2)	55mm	51	17
E-Cousti Independent Wall Lining System 1x15mm acoustic plasterboard (3)	83mm	54	20
As per (3) but 2x15mm acoustic plasterboards	98mm	57	23

Notes

- (1) Base wall of 100mm lightweight blocks, painted on one side
- (2) Base wall with Ecoclip @ 600mm centres, E-Coustiquilt between, and 1x15mm acoustic plasterboard.
- (3) Base wall, 20mm air gap, 48metal frame@ 600mm centres, E-Coustiquilt between, 1x15mm acoustic plasterboard
- (4) As per (3) but with additional 15mm acoustic plasterboard.
- (5) 10dB sound reduction represents a halving of the perceived sound by the human ear.

Costing

Below you will find costing for the individual elements of treatment for work carried out by our own highly skilled trade teams.

Ceiling System	Cost £
Ceiling lining system Labour per m2	£10.50
Ceiling lining materials per m2	£17.58
Plastering Lab m2	£7.35
Painting Lab m2	£4.00
Supply and fit Ceiling system installation cost m2	£47.32
Floor System	Cost £
Floor strap system Labour per m2	£16.80
Floor strap system materials per m2	£44.00
Painting Lab m2	£2.00
Supply and fit Ceiling system installation cost m2	£75.36
Wall System	
Wall lining system Labour per m2	£10.00
Wall lining materials per m2	£16.26
Plastering Lab m2	£7.00
Painting Lab m2	£4.00
Supply and fit Ceiling system installation cost m2	£42.76
Extras	
Move 1 Radiator Lab	£40.00
Move 1 light fitting Lab	£20.00
Move one plug Lab	£20.00
Move a door opening Lab	£100.00
Extra Materials per room	£50.00
Move furniture per room	£25.00

Whilst you cannot aggregate the gains quoted for Floors Ceilings and Walls (acoustics doesn't work like that) you can be certain that by selecting all three treatments you will achieve better sound attenuation than 2 treatments, and two will be better than one. You will know how bad your noisy neighbour problem is and can select accordingly.

Customer Service

For further information or to arrange a site visit for a no obligation quotation please contact us direct.