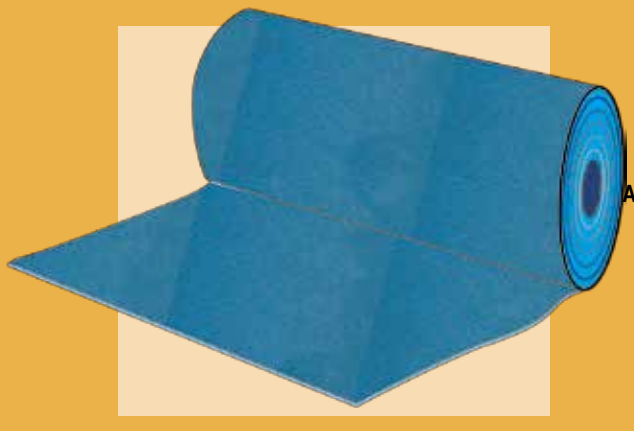


FONOSTOPCell

ACOUSTIC INSULATION AGAINST FOOT TRAFFIC NOISE FOR INDOOR FLOOR SLABS WITH FLOATING FLOORS, MADE UP OF EXTRUDED CLOSED CELL POLYETHYLENE

GRANTS *LEED* CREDITS

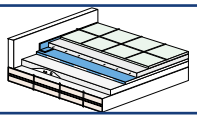
CHARACTERISTICS	ENVIRONMENTAL		
ACOUSTIC INSULATION	ECO GREEN	RECYCLABLE	SAFE WASTE

1 PROBLEM

The installation of resilient material between a floating screed, on which any type of flooring can be laid, and the load-bearing floor slab, reduces the spreading of impact noise or foot traffic noise (ΔL_w) and increases insulation against airborne noise (ΔR_w). It also represents the most flexible and effective insulation technique available. When economic resources are limited, it is difficult to respect the levels of insulation against foot traffic noise imposed by the Premier's Decree (DPCM) dated 5th December 1997.

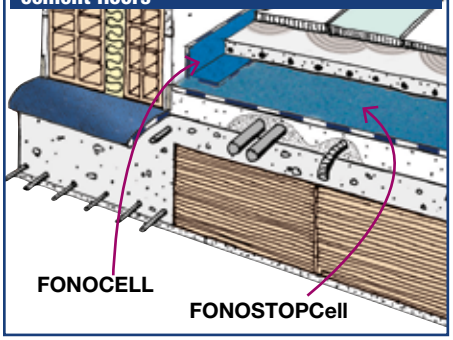
2 SOLUTION

FONOSTOPCell is an acoustic insulation sheet against foot traffic noise for indoor floating floors made of extruded closed cell polyethylene. It is waterproof, watertight, resistant to hydrocarbons, alkali and acids.
When laid with care, taking the due precautions, **FONOSTOPCell** will obtain a suitable insulation even if economic resources are limited.
FONOSTOPCell is waterproof and during the casting of the screed, the cement grout does not impregnate the sheet, hence guaranteeing the certainty of the expected result. **FONOSTOPCell** is mainly used for the acoustic insulation of indoor floating screeds, but since it can be easily modelled in individual spots and around pipes, it can also be wrapped around pipes that cross building partitions in order to prevent the transmission of vibrations.
FONOSTOPCell is an insulation product with efficient dynamic stiffness suitable for the acoustic insulation against foot traffic noise under floating screed. It is a very light sheet (150g/m^2) hence much care must be taken so as not to displace the insulating sheets when laying the cement screed, and not to perforate the insulation material and damage the sheet joins. Failing this, any acoustic bridges created by rigid connections to the floor slab underneath, caused if the cement mixture should seep through the material and stick to the floor slab underneath, would substantially reduce the acoustic insulation of the material. For the same reason, it is also a good rule to lay the screed as soon as possible so as not to expose the material to building site traffic which could damage it.



Foot traffic acoustic insulation for brick/cement floors – page 11

Foot traffic acoustic insulation for brick/ cement floors



METHOD OF USE AND PRECAUTIONS

The rolls of **FONOSTOPCell** are to be unrolled in their natural unrolling direction, the sheets should not be overlapped, but should be brought close to each other and the joining lines must always be sealed with adhesive SIGILTAPE.
The sheets will cover the whole floor slab and are to be blocked and trimmed-off at the foot of the perimeter walls of the room to be insulated. To insulate the floating screed from perimeter walls, the latter are to be lined with 10 cm of the extruded polyethylene separation self-adhesive FONOCELL strip, to limit the thickness of the screed, which will be turned over by 5 cm and glued on the insulation material laid on the floor slab where it will be further secured with adhesive SIGILTAPE.

		FONOSTOPCell	
Thickness	UNI 9947	approx. 5.0 mm	
Roll size		1.05 x 100.0 m	
Density.		30.0 kg/m³	
Mass per unit area		0.15 kg/m²	
Impermeability	UNI EN 12311-1	Passes the test	
Aqueous vapour diffusion coefficient (phonoresilient foil)		μ =2,000	
Thermal conductivity λ.		0.044 W/mK	
Dynamic stiffness under a load of 200 kg/m² • FONOSTOPCell		Apparent dynamic stiffness s't = 32 MN/m³	Dynamic stiffness s' = 32 MN/m³
Traction resistance under maximum load	UNI EN 12311-1	23/32 N/50 mm	
Resistance to impact	UNI EN 12311-1	65/70%	

The dynamic rigidity was calculated in their applied acoustics laboratory by INDEX after measurement of the dynamic rigidity and permeability to air.

✱ ***ATTENTION.*** Only the dynamic rigidity values marked in red are of value in making the calculation pursuant to EN 12354-2 and solely the transparent expression of both the apparent dynamic rigidity s't and the dynamic rigidity s' allow the designer to make a proper evaluation.

THEORETICAL ESTIMATE OF THE REDUCTION LEVEL IN FOOT TRAFFIC NOISE

Example of simplified calculation method TR UNI 11175 - (Guide to the UNI EN 12354 standards for predicting the acoustic performance of buildings) for 20+4 FLOOR SLAB IN CLAY CEMENT 300 kg/m² + LIGHTWEIGHT SCREED OF DENSITY 300 kg/m³ (thickness 10 cm): Total mass per unit area m'=330 kg/m²

$L_{n,w\,eq}$ = 164 - 35 log m = 76 dB

FONOSTOPCell

SCREEDS WITH SURFACE DENSITY m'=100 kg/m²

$$f_o = 160 \sqrt{\frac{s'}{m'}} = 90.5 \text{ Hz}$$

Calculation of the f_o resonance frequency of the floating screed system, resilient layer:

$$\Delta L_w = 30 \text{ Log } (\frac{f}{f_o}) + 3 \quad \text{where } f = 500 \text{ Hz (of reference)} = 25.5 \text{ dB}$$

$$L_{n,w} = L_{n,w\,eq} - \Delta L_w + K \quad \text{where } K = 3 \quad L_{n,w} = \mathbf{54\ dB}$$

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