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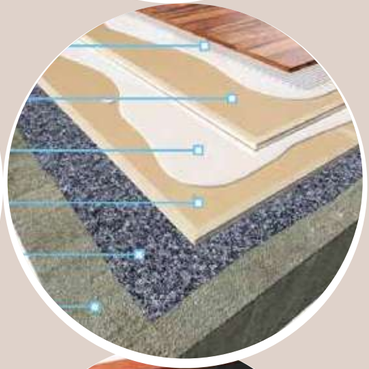

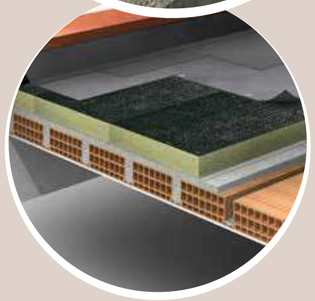

We Take Sound Insulation Seriously!

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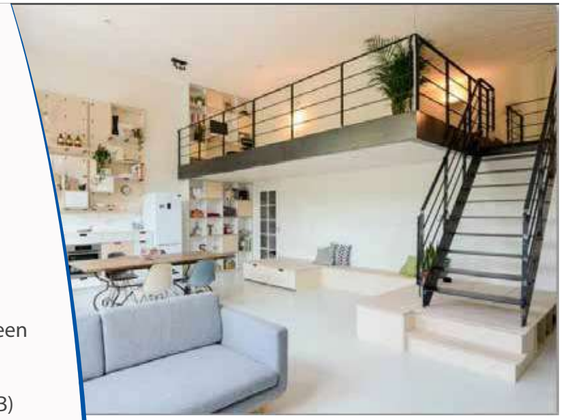
About Sound and Sound Insulation

Sound consists of vibrations and it behaves differently when in contact with different materials. Its intensity is measured using Decibels (dB). Frequency, measured in hertz (Hz), is the measure of sound vibrations per second, it is associated with pitch.



1.1 Frequency and the Intensity of Sound

Human ear is only capable of hearing sounds between 16-20.000 Hz frequencies. Human voice is generally between 200-8000 Hz in frequency and 30-70 dB in intensity.

Table Various sources and associated sound intensities (dB)

Source	dB	Health Effects
Silence	0	
Leaves rustling	20	Calming
Silent flat	40	
Radio	50	Possibly distracting
Car sound in 10m	60	
1m loud conversation	70	
Traffic congestion	80	Digestive and circulation related problems
Earphones	80-115	
-	85	Requires protection
Engine sound of heavy vehicles	90	Might cause permanent damage
Car horn	100	
Drill	110	Pain threshold
Helicopter	120	Risk of hearing problems
Jack hammer drill	130	Risk of hearing problems
Plane	140	Hearing problems

1.2 Sound Insulation

A good sound proofing uses a three step solution:
1- Damping
2- Impact absorption
3- Acoustics

Material	Density(kg/m^3)	Speed of Sound (m/s)
Car tire	900-1200	50
Air (20 °C)	0	344
Water	1000	1500
Brick Wall	700-2400	3600
Gas Concrete	600-1200	3000-3500
Concrete	2300-2500	3700
Wood	300-900	3500-5700
Steel	7850	5000
Glass	2400-2600	5000-6000

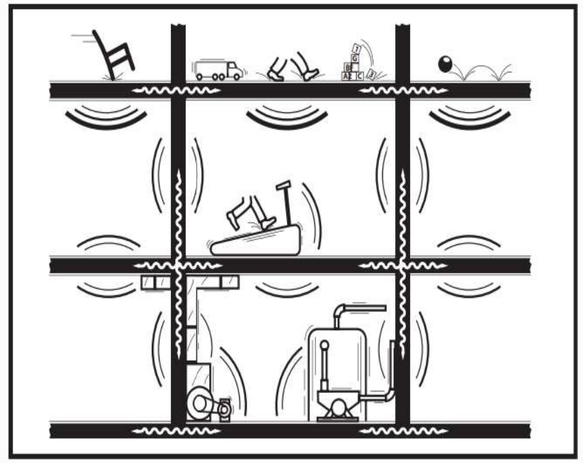
Table: Speed of Sound

Damping

Damping

An improvement can be made by an application to the roof or within the walls. The difference in the sound intensity is considered to be the quality of the soundproofing.

Rw= Rw(initial)-Rw(later)



Sound can propagate through the walls by air.

The sound proofing necessary for the walls do depend on the sound proofing quality of the walls. A wall with already good damping may only need a small application, while a bad quality wall may require additional improvements.

Impact absorption is used against solid materials that hit the ceiling and the walls.

Measuring Impact Absorption

Impact absorption is measured by first creating an impact on a floor and then measuring the difference between the floor and the lower.

Soundproofing methods

There are two criteria required for sound proofing materials to qualify for impact absorption. The first is to have good dampening effect, and the second is to have elasticity so as to not have any acoustic gaps.

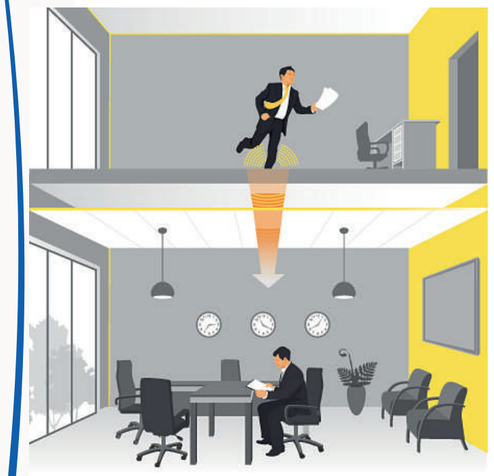
Acoustics

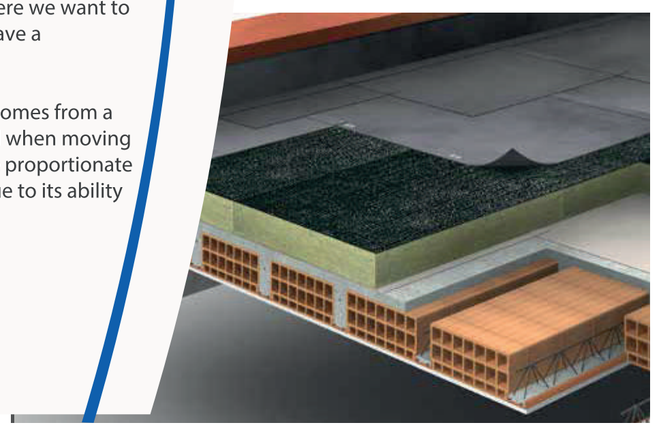
It's actually insulation works for increasing the quality of ambient sound in offices,meeting rooms,libraries,....etc. Apart from sound insulation we can define it as sound control which we can summarize it increase or decrease of area for sonic pulse propagation.

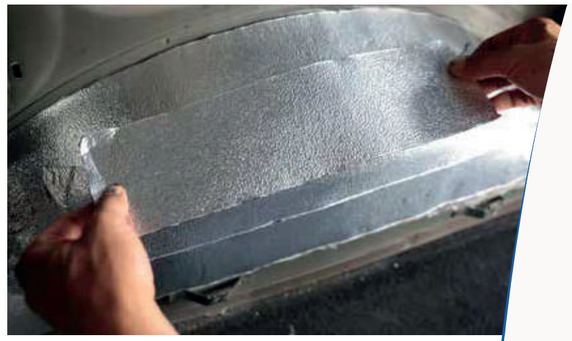
2. Sound Insulation Products

We could separate sound insulation products roughly into four categories. These are elastomeric barriers,fiberglass and rockwool barriers,vinyl barriers,and bituminous barriers. Here we want to say more about the bituminous barriers which have a comparatively less market share in Turkey.

The reason for the sound insulation of bitumen comes from a principle which we call mass-sound-mass. Sound when moving through different media loses its energy at a rate proportionate to the change in density. Bitumen is preferred due to its ability of reaching high densities.







Carrier	Polyester Felt
Binding	Polymer Bitumen
Nominal Thickness	3.4mm
Available Width	1000mm
Top Surface	Polyethylene Film
Bottom Surface	Polyethylene

SIM-SES

The water proofing qualities of bitumen were known for centuries. However, the use of bitumen in soundproofing is a more recent development. Standart Insulation, depending on its expertise and experience in bituminous technologies, has developed a variety of soundproofing products especially underneath parquetry and alums as well as in various other places in the construction industry.

SIM-SES Matress

SIM-SES Matress is an acoustics solution used under parquetry and alums, it has high tensile strength and tear resistance. It is also used for impact absorption placed between structures and alums.

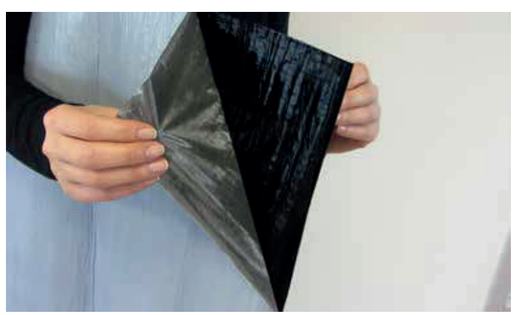
SIM-SES Walls

Applied a Sim-ses bituminous membranes especially in confined spaces. It is produced with 3-4 mm polyester reinforcement and high-density bitumen. It is effective for damping.

Sim Self Folio Covered

PROPERTIES	Unit	Sim Self Folio covered
Thickness	mm	1,5
Weight	Kg/m2	1,7
Width	cm	10-15-20-30-60
Length	m	1
Front side	Aluminium Folio	
Back side	Removable film	

Contents of the box : 6m²



Sim-Ses Wall is a thin sound insulation membrane comply with standards.

Additional Properties	Performance	References	
Classification	C1a4 A and SC1b3 A N	F DTU	52.10
Level of impact absorption	A Lw = 23dB N	F EN	ISO
Impact absorption index	Rw (C:Ctr)=58(-2;-8dBN	F EN	ISO
Increase in rigidity after a leak	onform N	F DTU	52.10
Perforation by a Nail	20 N N	F EN	12310-1
Weight Resistance	0,3mm N	F DTU	52.10
Thermal Resistance	R=0,1m² .K/W N	FE N	12667

Ion Certificate "Thin soundproofing cover"	C	ST° 03a-02Bat	n
Indoor flammable emission	A+		

The Regulations of Energy Efficiency in Buildings

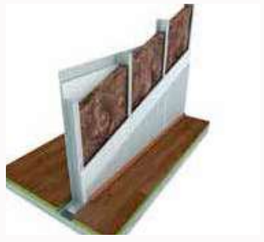
Turkish government regulations for energy performance in buildings have been enacted on the 5th of December 2009.

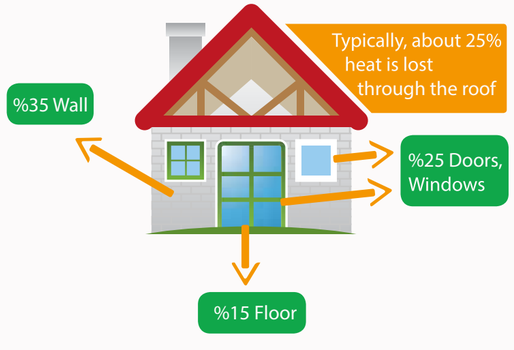
According to these regulations it has become obligatory by law, for every building to obtain an energy efficiency certificate until the 1st of January 2011. Already existing buildings are required to have this certificate by May 2017.

According to the regulations, from 1st of January 2011.

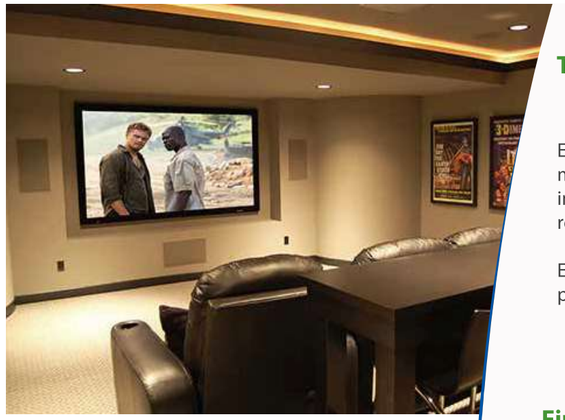
25% Percent of your houses heat escapes from uninsulated Roofs.
35% escapes from the Walls
25% escapes from the Doors and Windows
15% escapes from the ground

A correctly planned and applied insulation will reduce energy consumption of your house.





But the cost of insulating the roof is usually much lower than the cost of solid wall insulation, so it is often more cost-effective to do the roof first.



Thermal Insulation

Earthwool, with its different lambda options, provides maximum comfort in buildings. By preventing the escape of heat in winter and the entrance of heat in summer, it allows for a reduction in energy consumption.

Earthwool is flexible and can easily adapt to buildings. Can prevent potential thermal bridges

Fire Resistance

Earthwool roof covers belong to the highest fire resisting class (A10), according to TS EN 13501 standards. Earthwool is fire-proof and does not contribute to fires.
Fire resisting class:A1

Sound Insulation

Earthwool is also noted for its ability to dampen sound waves.

PHONESTAR

Phonestar boards consist of two very common materials: wood and sand. They are effective impact absorption and damping. Phonestar boards can be as effective as Rw=36 dB, equivalent to 85% damping despite their thinness at 1.5 cm. To put it into perspective, the same amount of absorption can be done by 20 cm thick gas concrete brick.

10 Reasons to use Phonestar

-Improves the value of a building due to its extraordinary soundproofing qualities
-Fast, clean, and easy to apply
-A patented product against noise pollution
-Effective at damping sound waves (85% absorption)
-Effective at impact absorption about(70%)
-A definite solution for sound proofing in ceilings, walls, floors
-Durable material with 65 ton/m2 payload
-Made out of natural materials and has a long-life
-Does not take much space, as it is 1.5 cm thick.
-Phone star is waterproof

SIM SES MATTRESS

Sim Ses Mattress is easy to use due to its flexible structure. It is used automotive, shoe-making, and construction in soundproofing as well as thermal insulation and waterproofing.

Areas of Usage
Aeroducts/Under rafter roofs/ Between walls/ Under alums and paquetry/ Suspended ceilings/ Partition walls/ Wide pipes

Product ranges
-Aside from the standard thicknesses a board can be produced up to 100mm
-It can be laminated with folio (on either or both sides), film, or self-adhesive tape.
-It can be produced with extra fire resistant additives.

Product properties
-Closed cell structure
-Low heat permeability
-Ability of sound damping
-Flexibility
-Inert to chemicals used in the construction industry
-inodorous
-No HCFC, environmentally friendly

Technical Data		
	Unit	Simself Matress
Density	kg/m³	25-32
Thermal conductivity	W / (mK)	0.040
Water vapour permeability	m £	5000
Water absorption	%	0,4
Impact absorption	db	19 - 23
Longitudinal tensile resistance	N / mm²	0,40
Transverse tensile resistance	N / mm²	0,20
Longitudinal breaking strain	%	80
Transverse breaking strain	%	68
Ideal temp. for application	°C	-40 +100

SIM ACOUSTIC FOAMS

SIM SES Non-flammable Acoustic Foams

Acoustic nonflammable foams are used in acoustics, preventing echoing, and getting maximum sound performance in an environment. Foams are produced in 100cm x 100cm or 100cm x 200cm in size, black in colour, and in 4 different designs. They are easy to apply and have a long usage life. Acoustic nonflammable foams can be produced between 1 to 7cm in 50,70, and 90 kg/m3 densities.

Non-flammable Acoustics Foams

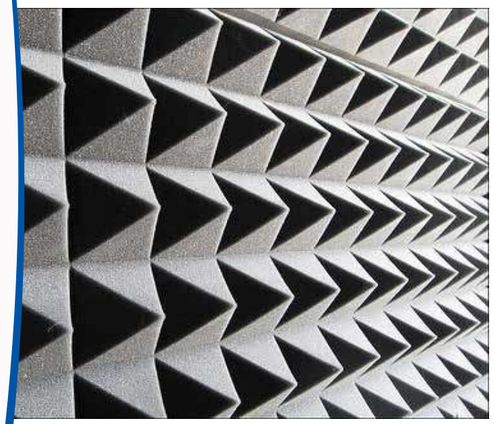
Acoustic Decorative Products and Applications

To briefly explain, foams which are used for the solution of acoustic problems are also used to improve the aesthetics of the environment. They are easily applied using doubles sided tapes. We can also produce a design upon request.

How to apply the Sim Ses Non-Flammable Acoustic foams ?

Sim Ses non-flammable foams are produced in zigzagged and pyramidal patterns. Plain and patterned non-flammable foams are generally produced in egg, pyramid, special pyramid, and labyrinth patterns.

They are applied, by the aid of a solid based glue, to walls, plaster and wooden surfaces. You can prefer the self-adhesive models for easy application. The primary purpose of acoustic foams is not full sound insulation, but to improve the acoustics of the environment and to prevent echoing. Only using these products provide low rate of sound insulation like % 10.



PN - PANETTI STANDARD

PANETTI STANDARD
Used for thermal insulation and sound-proofing in marine industry, underneath alums and parquetry, in plaster surfaces, underneath roofs, and in underlayment due to its plain and flexible nature.
Thickness: 2mm-12mm
Packaged in: Rolls

PN- PANETTI PERFORATED
PN- PANETTI PERFORATED P rolls allows for the transference of heat but not of sound. They are especially useful for soundproofing in places where heating is situated beneath the floor.
Thickness: 2mm-7.5mm
Packaged in: Rolls

PNA-PANETTI ALUMINIUM
The aluminium surface is intended as the final surface, it is laminated onto the roll. As a result PNA-PANETTI ALUMINIUM is mechanically durable. It is also used in reflective thermal insulation applications.
Thickness: 2mm-10mm
Packaged in: Rolls

PNB - PANETTI Tapes
PNB - PANETTI Tapes are the tape forms of the PN and PNA series of Panetti products. They can be produced in various widths and with a hot-melt adhesive on the backside, which allows it to be long-lasting.
Thickness: 2mm-40mm

PNL- PANETTI Panels
Panel form of Panetti products, it is preferred due to its easy applicability.