New Materials? The benefits of specifying organic, natural materials

Natural Fibre Insulation

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NATURAL FIBRE INSULATION GROUP

An industry collaboration to better communicate the benefits of natural fibre insulation products and systems

backtoearth

ecological BUILDING SYSTEMS

ecomerchant ETHICAL · HEALTHY · SUSTAINABLE

lime|green®

MIKE WYE & ASSOCIATES

NBT Natural Building Technologies SOPREMA

pavatex SOPREMA

SCHOOL OF NATURAL BUILDING

STEICO engineered by nature

therma fleece® Nature's finest insulation

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Group activities

Education, training and events

CPDs/events/trade shows

- Developed a CPD – ‘An introduction to natural fibre insulation’.
- Regular appearances at trade shows such as Futurebuild, Timber Expo/UK Construction Week.

Briefing papers

- 3-part series on Environmental Product Declarations (EPDs)
- The multiple roles of insulation
- An introduction to breathability
- Health and wellbeing benefits of natural fibre insulation products and systems

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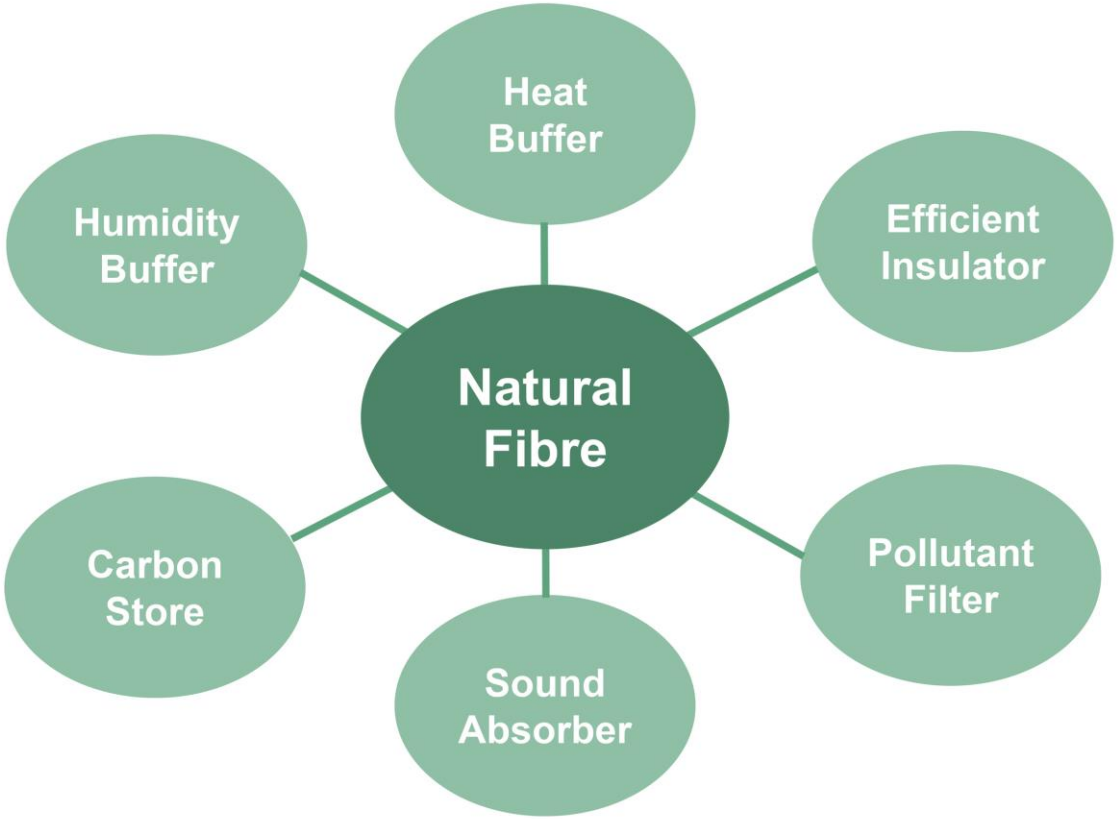
Natural fibre...



...makes ideal insulation

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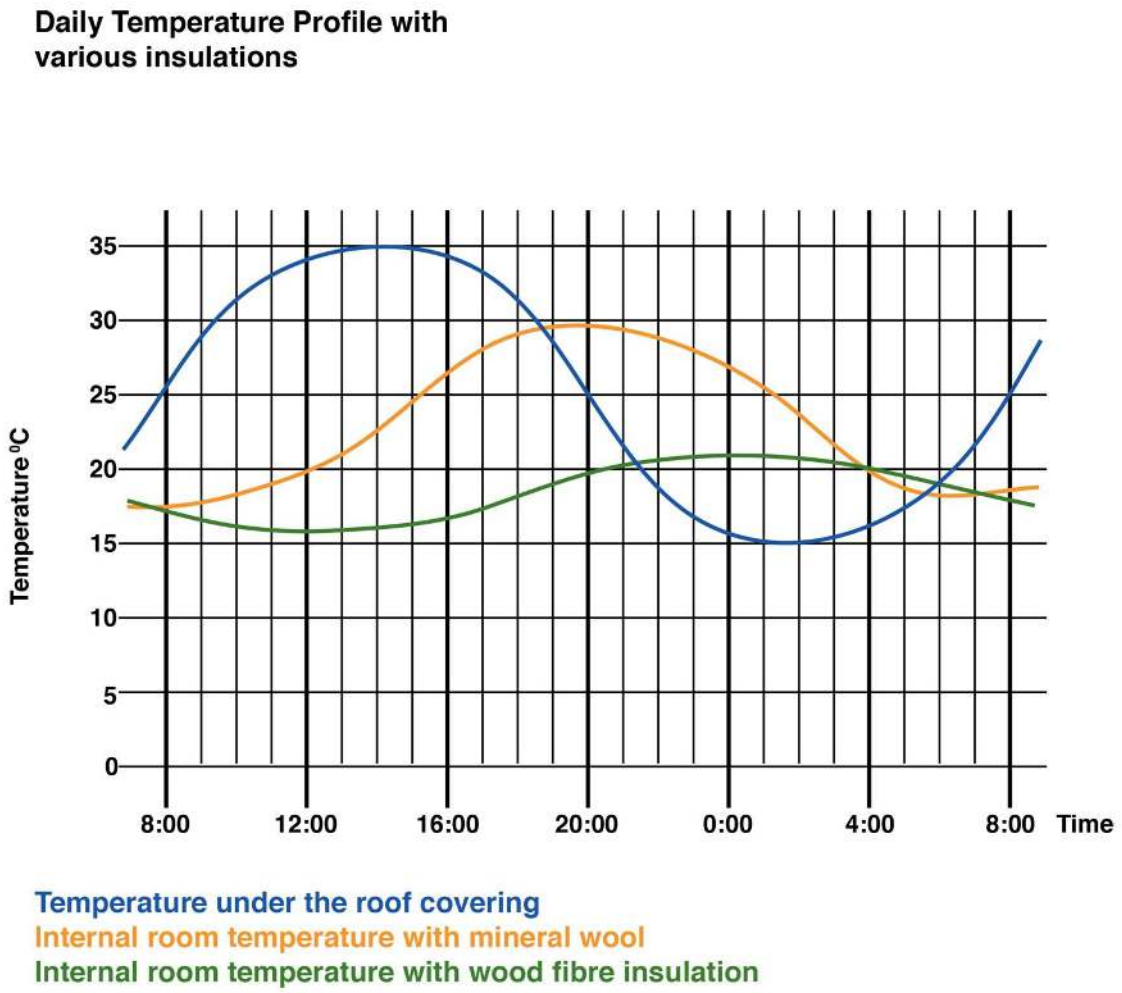
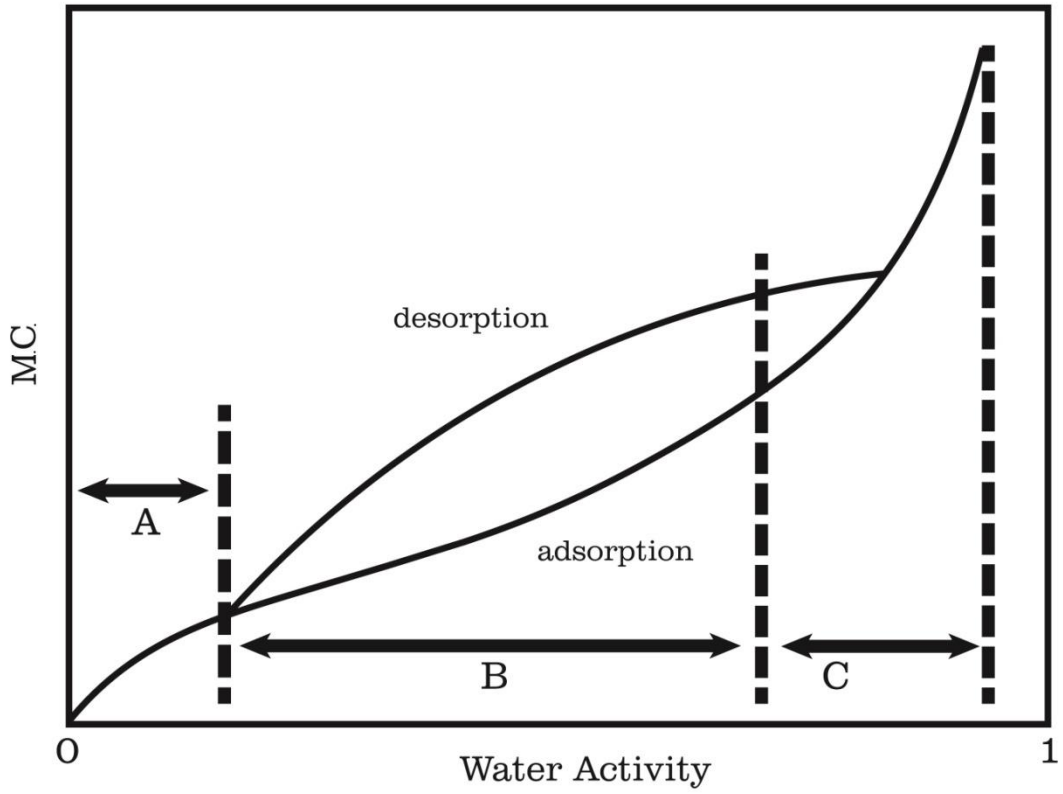
Heat Buffer



- Eat buffering shifts frequency of heat cycles out of phase.
- Wood fibre – heat maximums out of phase by 12hrs = **12hr phase shift.**
- Mineral wood – heat maximums out of phase by 6 hrs = **6 hr phase shift**
- Achieved by:
  - Higher density
  - Higher specific heat capacity
  - Low thermal conductivity

Moisture Buffer



A – strongly bound

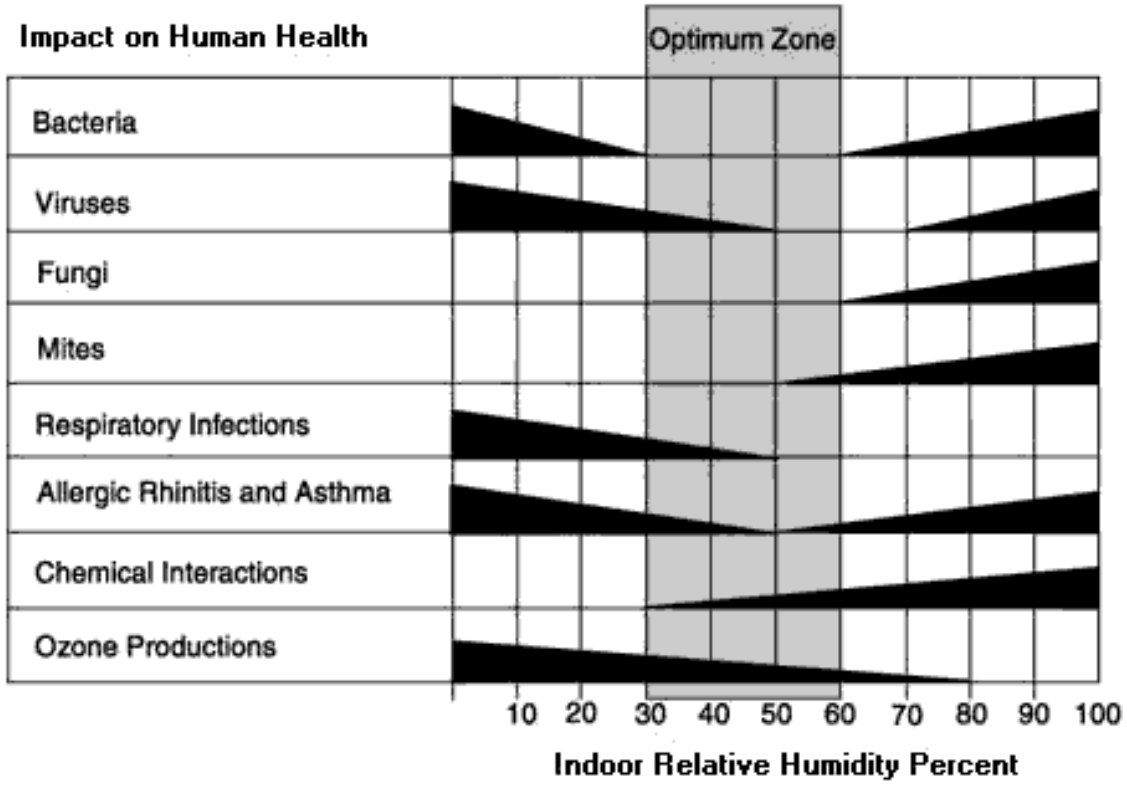
B – less strongly bound

C – free water

Zone B is the humidity buffering zone

Humidity Regulation

- Moisture can cause health problems and damage the building fabric
- Breathable materials help keep humidity within the optimum zone for human health.
- Breathable materials bind moisture in a harmless way.



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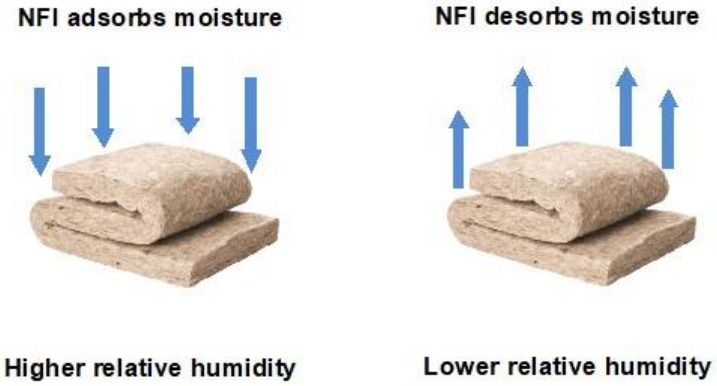
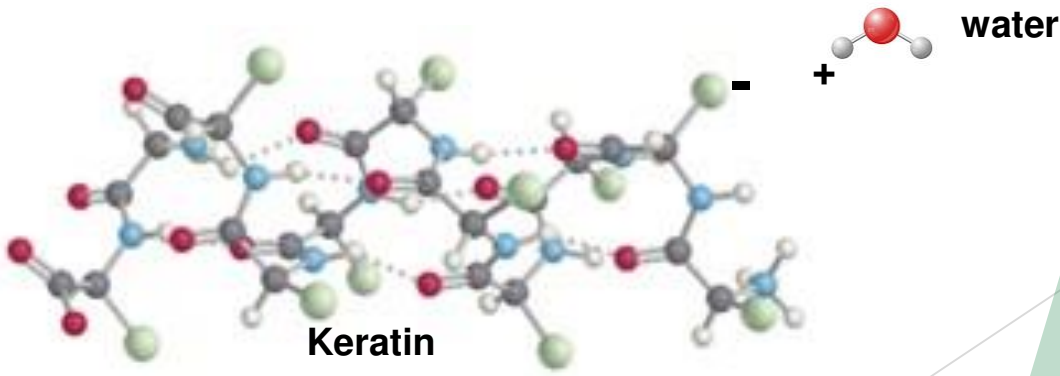
Breathable Natural Fibre Insulation

- Adjusts its moisture content to be in balance with surrounding humidity. Adjusts surrounding humidity to be in balance with its moisture content.



- Is able to bind water molecules in a harmless way.



- Is vapour open

Low VOC's

Parameter	3 Day			28 Day		
	Thermally Bonded Sheep's Wool	Thermally Bonded Flexi Wood Fibre	AgBB Requirement	Thermally Bonded Sheep's Wool	Thermally Bonded Flexi Wood Fibre	AgBB Requirement
TVOC	< 0.01 mg/m³	2.0 mg/m³	≤ 10 mg/m³	< 0.01 mg/m³	2.0 mg/m³	≤ 1 mg/m³
CMR Substances	< 1 µg/m³	<1 µg/m³	≤ 10 µg/m³	< 1 µg/m³	<1 µg/m³	≤ 10 µg/m³
Formaldehyde	< 0.01 mg/m³	< 0.01 mg/m³	-	< 0.01 mg/m³	0.019 mg/m³	≤ 0.12 mg/m³

Parameter	Wood Fibreboard (under floor)			
	3Day	AgBB Requirement	28 Day	AgBB Requirement
TVOC	0.52 mg/m³	≤ 10 mg/m³	0.02 mg/m³	≤ 1 mg/m³
CMR Substances	< 1 µg/m³	≤ 10 µg/m³	<1 µg/m³	≤ 10 µg/m³
Formaldehyde	< 0.01 mg/m³	-	0.003 mg/m³	≤ 0.12 mg/m³

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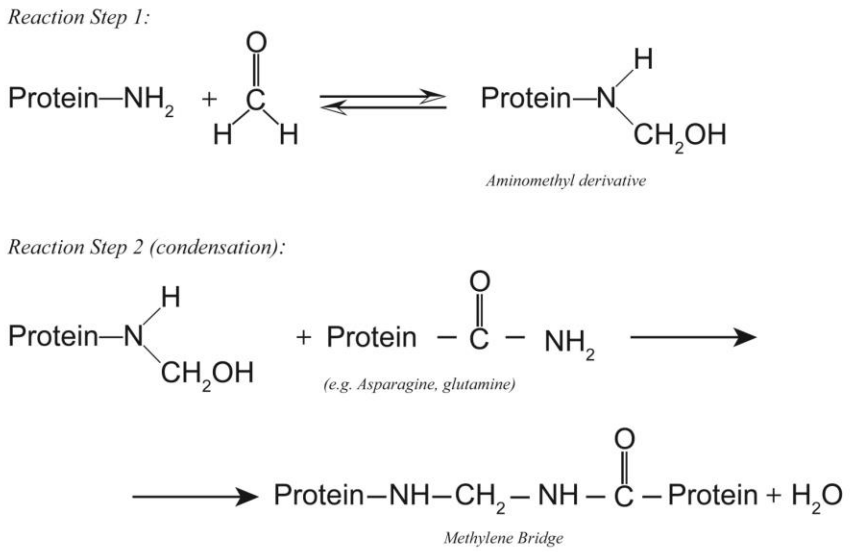
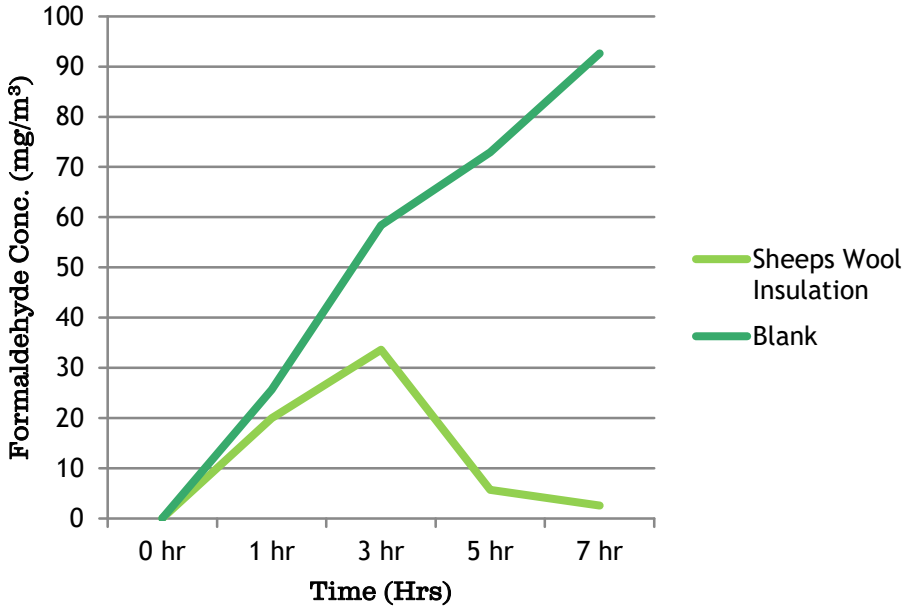
Formaldehyde Reduction - Sheep's Wool Insulation





- Sheep's wool achieved a reduction from 90 mg/m^3 to <3 mg/m^3 Formaldehyde in 7 hrs with 10-15% desorption.
- Similar tests by WRONZ achieved reduction from 7mg/m^3 to <0.1mg/m^3 in 45 mins with no recorded desorption.

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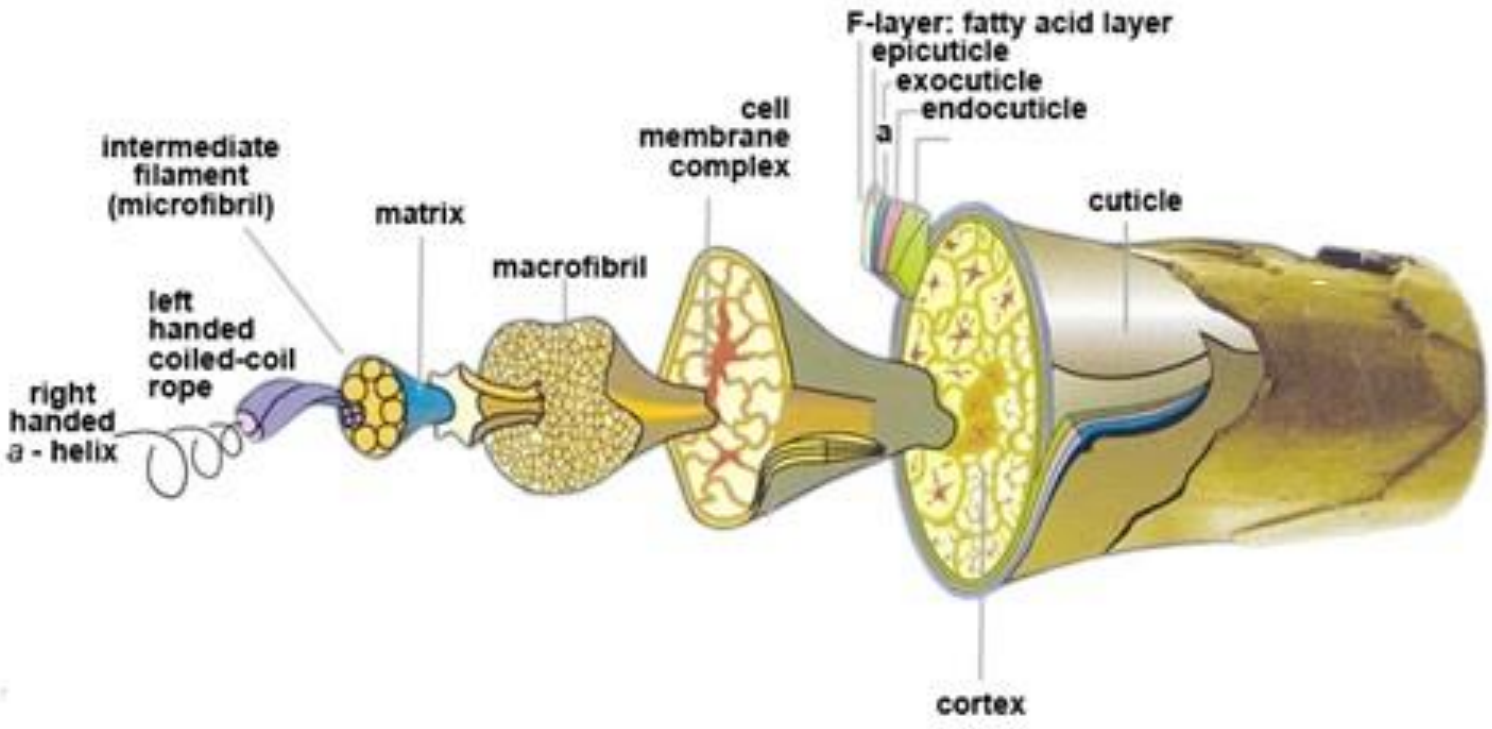
Acoustic Absorption

- Irregular shape, structure, texture and density of natural fibres help disrupt sound waves and reduce noise.
- Provides effective sound insulation at relatively low density.



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