

Black Mountain Natural Wool insulation Meet insulation standards Now and tomorrow



■ **Insulation critical to energy efficiency**
A building's insulation has the most direct impact on its energy efficiency, comfort and running costs. Although man-made insulation can match the required building standards for u-values and thermal performance, it is unable to deal with moisture and humidity. Natural insulation materials have a number of technical advantages - including being able to absorb, retain and release moisture without affecting their performance.

■ **Buildings may fail to meet minimum standards over time**
Many buildings fitted with the required depth and density of insulation when constructed are likely to fail those standards over time. This is because the brittleness of the man-made fibres combined with vibration and moisture cause its fibres to compact, resulting in the loss of most of its insulating performance.

■ **Man-made slab insulation needs a precise fit**
But keeping that fit isn't guaranteed. Rigid board and man-made fibrous insulation have little elasticity - so they must be fitted to leave no gaps or loose contact between insulation and joists. Even a 5mm gap more than 1 to 2 cm long will reduce the effectiveness of that piece of insulation by 50%. But every professional knows that joists in new and old homes are given to warping and settling over time as the building 'beds in' - leading to well-fitted boards later becoming looser and less efficient as their position changes.

■ **Cold spots result from poor installation of passive insulation**
Where insulation is fitted, any gaps between

joists and insulation will allow cold air to flow easily between them. Air gaps, direct contact with outer leaf surfaces and dampness all result in cold spots being created.

■ **Moisture is another problem with man made insulation**
Mineral wool relies on small pockets of dry air to create a layer of insulation; the mineral wool itself is a good conductor of heat. When moisture condenses in the material the insulation capability drops dramatically - this also reduces the material's ability to dissipate humidity, which can then cause mould or decay on timbers or plaster surfaces.

■ **Man-made insulation is almost impossible to renew cost-effectively**
Man-made insulating materials break down faster than wool-based ones. What's worse, once fitted between walls and floors, they are almost impossible to renew or replace without undertaking major building work to remove and replace plasterboards, party walls, floor timbers etc.

■ **By contrast, wool lasts longer and is more forgiving**
Unlike man-made materials, wool is naturally flexible and doesn't fracture - so it always maintains its insulating capability. What's more, it's not compromised by dampness or moisture. This gives it an unmatched longevity, often measured in centuries, rather than decades.

■ **Wool even prevents condensation - naturally**
When wool absorbs moisture it actually emits energy which warms the wool and prevents condensation; no man-made insulation has this naturally adaptive capability.

