



British Wool fact sheets

Wool at Home

Natural, safe and durable, wool is a sustainable and practical choice for every home. In addition to its superior sustainable credentials, using wool products in the home can help contribute to a healthier indoor environment; improving the air quality, sound dampening and maintaining ambient temperatures. If cared for properly, these products can last you a lifetime.

Better indoor air quality

As we spent increasing amounts of time indoors², we increase our exposure to VOCs. Volatile organic compounds, or VOCs, are substances formed from a combination of chemical elements which easily become vapours or gases. VOCs are released from many products found in our homes – not only solvents, paints and thinners but also cleaners and disinfectants, air fresheners, copy machines and printers, building materials and furnishings³. Breathing in VOCs can irritate the skin, cause difficulty breathing and can damage the nervous system and other organs. Some VOCs are suspected or proven carcinogens. Concentrations of some air pollutants may be two- to five-fold higher indoors than outdoors.

See our **Wool & VOCs fact sheet** for more detailed information.

Sick Building Syndrome (SBS)

Improvements in thermal insulation, in order to reduce heat loss, and scarce ventilation in modern dwellings, have also led to a deterioration of indoor air quality⁴. The result can be what is known as Sick Building Syndrome (SBS) – feelings of ill health that seem to be linked directly to the time spent in that building. Studies have shown that common VOCs, which are implicated as a cause of SBS, can be absorbed and chemically bound by wool, improving ambient air quality⁵. When used in the home, wool can be a sustainable and natural solution to the problem of accumulating indoor contaminants.

Fire protection in the home

To find out more visit britishwool.org.uk



High in water and nitrogen, wool is naturally fire resistant. Wool does not melt, drip or to stick to the skin causing burns, and when subject to extreme heat it produces less smoke and less noxious fumes. Gas, smoke, and toxic fumes are the most common cause of death following domestic fires. Fatalities are more likely to occur in rooms where soft furnishings are found, making it vital to choose the least flammable materials. Research indicates that wool used in apparel and furnishing textiles can provide a greater level of fire safety than other fibres¹. To find out more see our Wool & Fire fact sheet.

Less stress through better acoustics

Wool is a perfect sound insulating material having the capacity to dampen or absorb both high and low frequency sound waves. This makes wool an ideal material for public spaces such as theatres, offices, aircrafts and cruiseships. Modern buildings made of concrete, steel and glass improve their sound quality by integrating wool panels, curtains and carpets in their interiors to ensure a comfortable sound level for the people living and working inside the building⁶.



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Healthier indoor environment through humidity control

In unventilated buildings, moisture from human breath and perspiration, plants, cooking and washing can accumulate to give condensation problems such as the growth of moulds and mildew. High indoor humidity levels also promote dust mites and may affect human health. Research has shown that wool carpets, furnishings and curtains exert a significant buffering effect on changes in the humidity of indoor air. Condensation on cold surfaces is inhibited and dehumidifiers may be rendered unnecessary⁷.

Thermal insulation and energy savings

Wool carpets are exceptionally good insulating materials. The insulation value of carpets can be up to 10 times higher than that of hard floor coverings which can account for 10-20% of heat loss from your home⁸. Switching to wool carpets can help to reduce energy costs in heating and cooling. To find out more please see our **Wool & Thermal Insulation fact sheet**.



References

¹ Flammability Report, New Zealand Merino Company Limited, <http://www.eco-terric.com/flammability-report.pdf> (retrieved 26 Nov 2018)

² A 2001 survey funded by the U.S. Environmental Protection Agency found that respondents spent 87% of their time in enclosed buildings and 7% in enclosed vehicles. The National Human Activity Pattern Survey (NHAPS): A Resource for Assessing Exposure to Environmental Pollutants, by Neil E. Klepeis et al. (Lawrence Berkeley National Laboratory, 2001)

³ Volatile Organic Compounds: <https://toxtown.nlm.nih.gov/chemicals-and-contaminants/volatile-organic-compounds-vocs> (retrieved 26 Nov 2018)

⁴ Respiratory health and indoor air pollutants based on quantitative exposure assessments Marion Hulin, Marzia Simoni, et al. European Respiratory Journal 2012 40: 1033-1045; DOI: 10.1183/09031936.00159011. <http://erj.ersjournals.com/content/40/4/1033> (retrieved 26 Nov 2018)

⁵ Absorption of volatile organic compounds by different wool types. Mansour, Elie & Curling, Simon & Stéphan, Antoine & Ormondroyd, Graham. (2016). Absorption of Volatile Organic Compounds by Different Wool Types. Green Materials. 4. 10.1680/jgrma.15.00031. https://www.researchgate.net/publication/295079483_Absorption_of_Volatile_Organic_Compounds_by_Different_Wool_Types (retrieved 26 Nov 2018)

⁶ McNeil, Steve. (2014). Acoustic advantages of wool carpeting. https://www.researchgate.net/publication/264195999_Acoustic_advantages_of_wool_carpeting. Accessed 27 Sep 2019

⁷ Gibson, Phillip. (2008). Effect of Wool Components in Pile Fabrics on Water Vapor Sorption, Heat Release, and Humidity Buffering. Journal of Engineered Fibers and Fabrics. 6. https://www.researchgate.net/publication/216777845_Effect_of_Wool_Components_in_Pile_Fabrics_on_Water_Vapor_Sorption_Heat_Release_and_Humidity_Buffering (accessed 27 Sep 2019)

⁸ Thermal Insulation Performance of Carpet. Fact Sheet. Carpet Institute of Australia, Australia