

## Bats and Breathable Roof Membrane what's all the Fuss?

Bat group member Martin O'Connor works as a consultant and recently wrote this article for the firm's website He kindly offered it for the newsletter

As bat Ecologists we are often told/asked by Architects that they will/would like to use a Breathable Roof Membrane (BRM) in there development project, however we advise that they are not used when bats are encountered. Why?

*Background: -*

BRM's are increasing used in modern buildings due to their energy efficient nature, current insulation standards and their ability to allow water vapour (but not liquid to enter) to exit the roof void. Formerly traditional materials such as felt and air-bricks were used to prevent water vapour build up.

BRM's are produced using layers of non-woven materials that are then bonded through pressure and heat. A long polypropylene fibre is used to produce the outer layer and it is this that has caused concern amongst bat workers.

Although common, most people don't realize that some bats (due to habitat loss) now rely on man-made structures for shelter and security, often this is a dwelling or similar. This is where problems arise and these often go unnoticed due to the bats habits.

*What are the issues?*

There are three main issues with BRM's and bats: -

1. Entanglement or trapping

2. Microclimate
3. Membrane longevity

### *Entanglement*

For Ecologists this is by far the most concerning aspect of BRM's and bat interactions. Although not scientifically proven (to date) anecdotal evidence strongly suggests that bats are getting trapped in the fibres of the BRM. Stacey Waring is currently undertaking a research project on this very subject and the evidence gained strongly suggests bats do get entangled, check out her Blog

<http://www.batsandbrms.co.uk/images.php>

### *Microclimate*

A traditional felt lined roof will have very different thermal properties to a BRM (Waring, S. *et al* 2013). However the research here is lacking and other than the obvious there is no way of knowing the effect that BRM's may have on a long term roost.

Further research in roosts that have been changed from a traditional felt to BRM needs to be undertaken. It is however likely that temperature and humidity will be affected (Waring, S. 2013)

### *Membrane Longevity*

Again research is lacking but anecdotal evidence suggests that damage to the membrane can occur from when the bats claws become entangled.

This causes something called 'fluffing'. This is where the fibres of the BRM fluff up to form a cotton wool like structure on the surface of the BRM.

Other concerns are the oil in bats fur, urine and droppings causing the BRM to lose

its water vapour/proofing properties. This in turn could cause damage to the BRM installed and the water vapour and water tight properties of the BRM to become reduced or useless (Waring, S. *et al*, 2013).

*So, which BRM's are suitable to use when bats are present?*

Well the simple answer is, none!

Current advice is not to use a BRM in a roof where bats are going to be encountered. Traditional bitumen felt (although having its own issues) has been used for over 100yrs, with only a minor number of reports of bats being entangled.

Put simply, if bats are going to be present in a roof following re-roofing or a new build following demolition of an older building a traditional felt should be used. Although there is an increase in the use of the BRM current Building Regs allow the use of a traditional felt, normally known as a ventilated roof system.

References: -

Waring, S. 2013, <http://www.batsandbrms.co.uk/> assessed on 25/11/2013

Waring, S. *et al*, 2013, Double Jeopardy: The Potential for Problems when Bats Interact with Breathable Roof Membranes in the UK.

