



“

Building a Passivhaus building is like encouraging the right biodiversity-at first it will take more co-ordinated attention from the project team and cost a bit more upfront but the result is not only a higher quality of life for years to come, but cost-savings that continue to grow”.

Stephen Choi
Co-founder of Architecture for Change
www.architectureforchange.com

What has Passivhaus got to do with biodiversity?

At Architecture for Change, we are big advocates of the Passivhaus approach as one method of designing and delivering more sustainable buildings – with some of our latest work being the upgrade of fairly old housing stock into very high comfort homes. When I was asked to contribute to this issue of RESET Developments on integrating biodiversity and ecosystem services into Passivhaus projects, I was wondering – well, what has Passivhaus got to do with biodiversity? Not a lot it may seem at first, but thinking about it more there are a few important reasons to consider how one combines ultra-efficient buildings with the most efficient of all things – biodiversity.

The first one is somewhat obvious. Living roofs (and in some cases living walls) are often inherently effective as far as thermal and acoustic insulation goes. In addition to being visually appealing, the combination of soil, plants and trapped layers of air act nicely as barriers to heat and sound.

Secondly, the importance of filtering the air. In a Passivhaus with the windows closed this is done by mechanical ventilation with heat recovery (MVHR). In a Passivhaus with the windows open (yes you can open the windows!) there is one great way of filtering the air and that is simply by planting, both inside and outside. The similarities? Both MVHR and planting can change room temperatures and their successful integration into building projects needs to be thought about in advance by the whole project team. The differences? The former requires regular maintenance,

usually some space in your ceiling void and needs boosting when you have lots of friends around. The latter can be low or maintenance-free, adjusts to the seasons on its own and in 99% of cases looks more attractive. In an urban-based Passivhaus, you need both.

On the subject of airtightness there is a fear that very low energy buildings will have no capacity to host birds and bats. This rather unexpected outcome is no doubt a challenge, but it is possible to make conscious decisions at an early stage of design to encourage biodiversity, such as roofs that allow bats to roost.

Another connection between Passivhaus buildings and biodiversity is controlling overheating whilst maximising useful solar gains and natural daylight. Well-designed Passivhaus buildings take into account nearby planting and how it changes over the seasons. Allowing in light and heat where and when you want it is critical to a good building and integrating surrounding trees into the design is an excellent way to support this aim whilst giving the occupiers something good to look at and often some much-needed privacy and shelter from the wind.

Finally, the business case. Building a Passivhaus building is like encouraging the right biodiversity – it will take more co-ordinated attention from the project team and cost a bit more upfront but the result is not only a higher quality of life for years to come, but cost-savings that continue to grow. And with that extra money and consequently time perhaps one can find a moment to tend the allotment?