

It's time to think 'Inside the Shell'

By 'shell' I mean of course the structure of a building, and it is time for architects and designers to think beyond the shell and look more carefully at what we propose to put inside.

As an ardent 'greenie', eco interior designer and founder of eco interiors website www.geccointeriors.co.uk I am increasingly concerned about the extent to which we are focusing on the carbon footprint and thermal efficiency of our new buildings without carrying the thought process through to the interior. Sustainable Building Codes 5 and 6 are of course striving after reduced CO2 emissions and energy usage, which is only to be applauded. Passivhaus building techniques are making headway into British construction, which again is commendable and to be encouraged.

But if we are truly caring for our environment and the planet, how can we sit by and allow occupants to pollute the air in which they live, after they have moved into a carbon neutral home?

My biggest concern with near airtight buildings is two-fold:

1. They rely on ventilation that works efficiently and continually at the optimum level, and designers/architects are too often failing to get it right. In 2009 researcher Soren Peper from the Passivhaus Institute published his study of an apartment building built with the highest standards of efficiency and air tightness. He found some apartments fell far short of healthy air exchange levels, and allowed an increased level of CO2 to build up (see ref below)
2. We are not advising residents strongly enough to alter their method of decorating or furnishing their properties, to ensure a healthy living environment or a further reduction in their personal carbon footprint. As researcher Dr Derrick Crump from Cranfield University has pointed out: "If greater energy efficiency leads to reduced air exchange, then source control is required to prevent increases in indoor pollutants".

Get these two issues wrong and we are simply creating sealed boxes in which health risks for the residents are increased dramatically and our environment continues to suffer.

A recent discussion on the AECB forum had members discussing the most efficient way to use their MVHR. Should the system run constantly with the resident altering the fan speed to increase/decrease ventilation, or should it be turned on and off at intervals throughout the day? The discussion lasted six weeks and opinions differed among the experts. What hope does the layman have of getting it right?

Professor Howard Liddell of Gaia Group (www.gaiagroup.org) argues "If we do not address the issues of indoor climate in parallel with seeking to achieve energy efficient buildings (and exacerbated because of the energy efficiency measures themselves) – we are guaranteed to be creating sick buildings. If those responsible for the creation of

indoor environments do not take this well-documented risk on board then, in my view, they are being professionally negligent and open themselves up to being called to account for failing in their duty of care.”

No doubt more time and experience with these building methods will bring consensus and I am happy for the experts to work out exactly the most efficient and effective way to live in a ‘modern’ home. But we must not ignore the issue of supporting and encouraging our ‘green’ clients to create a low carbon, healthy design scheme for a healthy life on the inside of their property as well.

We all understand the concept of off-gassing and the sometimes harmful effects of a toxic mix of chemicals emanating from paint, MDF, treated furniture, brominated carpets and upholstery. One recent client of Gecco Interiors suffered from ME and hyper sensitivity disorder. Any new furnishings in her home had to live outside for six months before being brought into the living environment to avoid crippling headaches, puffy eyes and skin irritation. We were able to solve many of her problems with a makeover using linseed oil based gloss paint, water based emulsion, untreated wood flooring, untreated and organically dyed upholstery and curtains made from organic cotton and bamboo.

We also need to understand the environmental impact of the furnishing industry when advising our clients. Gerry Cooklin of USA’s Sustainable Furnishings Council reminds us that home furnishings is the number three user of wood products in the world. In the UK we send 500,000 tonnes of carpet to landfill every year! We have all struggled with the question of what to do with petroleum based left over paint; there is a reason why we can’t put it into our household waste! We need a greener solution.

There are more and more products coming onto the market everyday to create solutions without further harming the planet, and the recycled or vintage market for furniture is growing daily. In his recent interiors book, leading eco designer Oliver Heath launched a new style of interior design called ‘Urban Eco Chic’ in which he called for a mixture of old and new elements to a room scheme. The phrase ‘upcycling’ was born and vintage furniture was finally given a new lease of life as it was collected, repainted and even wallpapered to fit with today’s tastes.

Eco designers today argue for the use of recycled, vintage or retro furnishings where possible but recognize this is not always desirable. If we need to buy new then lets encourage our clients to buy ‘sustainable’ to create a truly stylish dwelling for the future.

As architects and designers let’s embrace the new eco friendly interior movement and make the buildings of the future environmental inside their shell as well!

Further Reading (thanks to Dave Howorth, Mark Siddall and others)

Indoor air quality in highly energy efficient homes - a review’ Derrick Crump, Andy Dengel and Michael Swainson, NHBC Foundation in partnership with BRE Trust. See

<http://nhbfoundation.org/LinkClick.aspx?fileticket=O2KJ3j%2FSnkM%3D&tabid=339&mid=774&language=en-GB>

Indoor air quality in homes in England BRE report BR 433 Coward S, Llewellyn J, Raw G, Brown V, Crump D and Ross D. See <http://www.brebookshop.com/details.jsp?id=139367>

Low Energy vs Passive: better air quality - Soren Peper, Passivhaus Institute – Proceedings, 13th International Passive House Conference 2009

Indoor Air Quality and Energy Efficiency in Traditional Buildings - Gaia Research and Gaia Group on behalf of Historic Scotland www.historic-scotland.gov.uk/gaia-research-report-indoor-air-quality-and-energy-efficiency-in-traditional-buildings.pdf

Slow Death by Rubber Duck – Rick Smith and Bruce Laurie. Counterpoint LLC.

USA's Sustainable Furnishings Council - <http://www.sustainablefurnishings.org/>

Gecco's Blog - <http://www.geccointeriors.co.uk/wpress/category/green-home/>

AECB Forum – <http://aecb.net/forum/index.php/topic,2308.0.html>

Urban Eco Chic – Oliver Heath. Quadrille Publishing