grünconsulting
PASSIVHAUS + SUSTAINABILITY

SELLING IEQ

A REVIEW OF THE LITERATURE SUPPORTING THE LINK BETWEEN IEQ AND CAPITAL VALUE

Introduction

Sustainability professionals understand Indoor Environment Quality (IEQ): the role it plays in determining an occupant's experience of a space, the underlying impacts on health and wellbeing and, moreover, the central role in creating a sustainable building. To date, however, there is very little credible research to support the idea that the general public places any value in IEQ. This creates challenges in marketing sustainability to buyers, who consider it a remote or abstract concept with little to relate to or engage with.

Our extensive, though not exhaustive, research has shown that there is little evidence to support the notion of a link between IEQ and higher sales or sales prices, or any direct link with an increase in buyer activity. Our hypothesis is that the concept of IEQ remains largely academic and defined in ways that are not communicated to, or lack engagement of, consumers.

We see an excellent opportunity for developers that can communicate the connections between lifestyle and positive health and wellbeing impacts, and sustainability and IEQ. The criteria that sells real estate is the experience of a building; currently, that experience is primarily aesthetic or tactile. There is opportunity to further exploit comfort, acoustics and biophilic experiences, as well as promote longer term impacts of materials (e.g. VOCs, formaldehyde) and air quality.

In this process, we see the place of Passivhaus as a best practice verification tool that can guarantee the elements of IEQ that most resonate with buyers have been delivered.

What is IEQ?

It is important to define what we are referring to when we talk about IEQ: indoor environmental quality encompasses the conditions inside a building — air quality, lighting, thermal conditions, ergonomics — and their effects on occupants or residents. Strategies for addressing IEQ include those that protect human health, improve quality of life, and reduce stress and potential injuries. Better indoor environmental quality can enhance the lives of building occupants, increase the resale value of the building, and reduce liability for building owners.

Creating Demand

True engagement enables changes to attitudes, and then behaviour, by creating a 'powerful, emotional connection'[1]. The reality is that sustainability credentials, or terms like 'IEQ' or even 'sustainability' do not resonate emotionally with a large segment of buyers. A common thread through our research is that this appears to be, in large part, a consequence of three things:

- Unfamiliarity with what these terms mean, and how they relate to their day to day lives;
- Expectations that it is too expensive, or 'not for them';
- Wariness of 'greenwashing' and being put off by unfamiliar terms or unknown credentials.

[1] Bill Shannon, The Shannon Company, http://www.theshannoncompany.com.au/

This is not to say that sustainability, or more specifically IEQ, does not deliver what people want, more so that prospective buyers don't see the connection between those words and their everyday life[2]. To address this missing link, the developer should start with identifying what aspects of a house will elicit an emotional response from a prospective buyer. These are likely to be things like:

- High levels of natural light;
- Feeling thermally comfortable throughout the space, including near external surfaces;
- The air feeling 'fresh', with minimal 'stuffiness';
- A general feeling of quality, including good quality finishes;
- Lack of chemical or unpleasant odours;
- Lack of mould, water damage or other signs of moisture;
- Quiet, including isolation from both outdoor noise and minimisation of internal cross-talk

Note the absence of energy efficiency from the list. This is because, while understood to be fundamental to reducing the environmental impact a building, it does not resonate emotionally with most prospective buyers. Abstractly, many buyers understand energy costs are rising and that they will save money in a sustainable house in the long run, and that energy efficiency is required to 'do their bit' for climate change. However, for many buyers it is, at most, 'a secondary consideration'[3]. At the end of the day other aspects of a building, those which impact the way people feel, are far more likely to change a buyer's decision or not.

It is likely, though not yet statistically demonstrated, that this link between emotional decision making and buying a property will be stronger the closer the purchaser is personally to the property. In other words, a decision by an owner-occupier, or a 'mum and dad' buyer, is more likely to be driven by an emotional response, compared to that made by a commercial enterprise. As such, targeting these responses is likely to reap rewards for a residential developer.

Delivery

Once the key emotive aspects of a building have been identified, the developer can articulate how they will deliver them. Recent research by CSIRO concluded that in communicating this with buyers, the developer should emphasis the direct impact of each element, and not necessarily any certification or even whole of building outcome that that element contributes to[4]. By doing so, the developer draws the between specific design choices and the buyers daily, emotional, response to the building.

For example, consider high performance windows. As building specialists understand it, a well-designed window will minimize thermal energy entering the house in summer (or leaving in winter), while allowing high levels of natural light into the space and solar heating when appropriate (given appropriate orientation and shading). This contributes to minimising the energy use of the building while providing a comfortable space year-round. In doing so it enables high efficiency and energy performance. While this is strictly the function of windows, such a description is unlikely to resonate with buyers. Our experience shows occupants are likely to respond to the following:

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[2] Adams H, Clark M, and Potts J (2016) Enhancing the Market for Energy Efficient Homes: Implementing a national voluntary disclosure system for the energy performance of existing homes.

[3] https://www.theguardian.com/sustainable-business/2016/jun/23/green-homes-would-you-pay-more-for-energy-and-water-efficien

[4] Adams H, *loc cit*

- The space will be warm in winter and cooler in summer;
- They'll need to run the air-conditioning/heating less;
- They can use all the space, right up to the window, and be comfortable;
- They get great light into the space and potentially a great view;
- They can open it up for inside-outside living and/or cross ventilation;
- It won't let in or create any draughts.

By inviting the buyer to consider elements that align with their beliefs or lifestyle, an emotional connection is created that invites them to assess its relevance to them. In order for this to be effective, there is not one, single message that can be used across the sector. But there are similar messages that might appeal to a large proportion of the market.

To that end, we propose that the best approach is a singular framework for selling the concept, and, consequently, high performance buildings, based on the three stages:

- Identify building aspects (i.e. needs) that resonate with different target market segments;
- Articulate how the development will deliver those needs; and
- Verify those needs have been met using third party certification.

Much of the work in the residential sector is undertaken on a practical level, rather than academic. An existing program that might be useful to consider is the '17 Things', initially created by LJ Hooker and now further developed by the CSIRO as the 'Liveability Real Estate Specialist' training. This program empowers communicators at point of sale to reliably, and consistently, present the sustainability features of a home[5]. The system is feature focused, and based upon an identified list of '17 Things' that are both sustainability related and have been demonstrated to improve the saleability of a property.

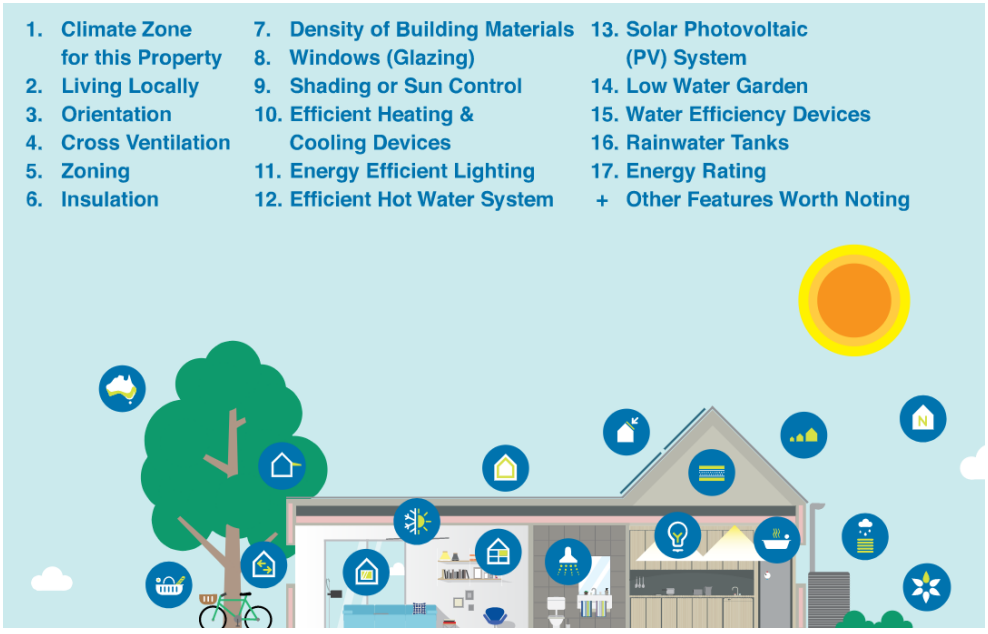

Figure 1: 17 Things Framework[6]

[5] https://liveability.com.au/lres/
[6] https://liveability.com.au/17things

Verification

CSIRO's recent EnergyFit research project identified the need for trustworthiness, reliability and repeatability as central to successfully communicating sustainability to home buyers[7]. Buyers want surety that what they are buying delivers on all the emotional triggers they were sold on. This is particularly true when selling off the plan, where a buyer cannot directly experience those things for themselves, by experiencing the physical space.

In short, this leads to the need for a third party verifiable tool that can guarantee that the building delivers on the outcomes that was promised. In the commercial sphere, this gap has been successfully filled, in many ways, by Green Star. That standard provides a verifiable mark of sustainability that can give tenants, or owners, a level of surety that their building is 'green'. That type of verification is needed in the residential sphere. However, it is more likely to resonate when communicated as a guarantee of quality, or more specifically, a guarantee that the 'needs' identified previously have been delivered.

It will be a long process to create the type of brand recognition for that Green Star demands in the commercial sphere, particularly as the target audience is not large organisations that may be managing a portfolio of properties, and hence are constantly exposed to trends in the market. Instead, the residential market needs a clearly communicable 'guarantee of quality' that appeals to 'mum and dad' buyers who may be making their one and only entry into the property market. We believe that Passivhaus is the most reliable standard to deliver that stamp of quality.

The role of Passivhaus

Fundamentally, Passivhaus is about getting the basics of good design 'right'. A quality assurance approach, it demands rigorous attention to, and monitoring of, the details of a building's construction[8]. If communicated as such to buyers, we believe it has the potential to be the most reliable third-party verification of building performance, with a proven track record of delivering comfortable, efficient and healthy buildings worldwide. Equally importantly, it is a cost-effective methodology to inform design to achieve those excellent outcomes. With just five principal elements, it should be seen as a straightforward and streamlined approach to delivering

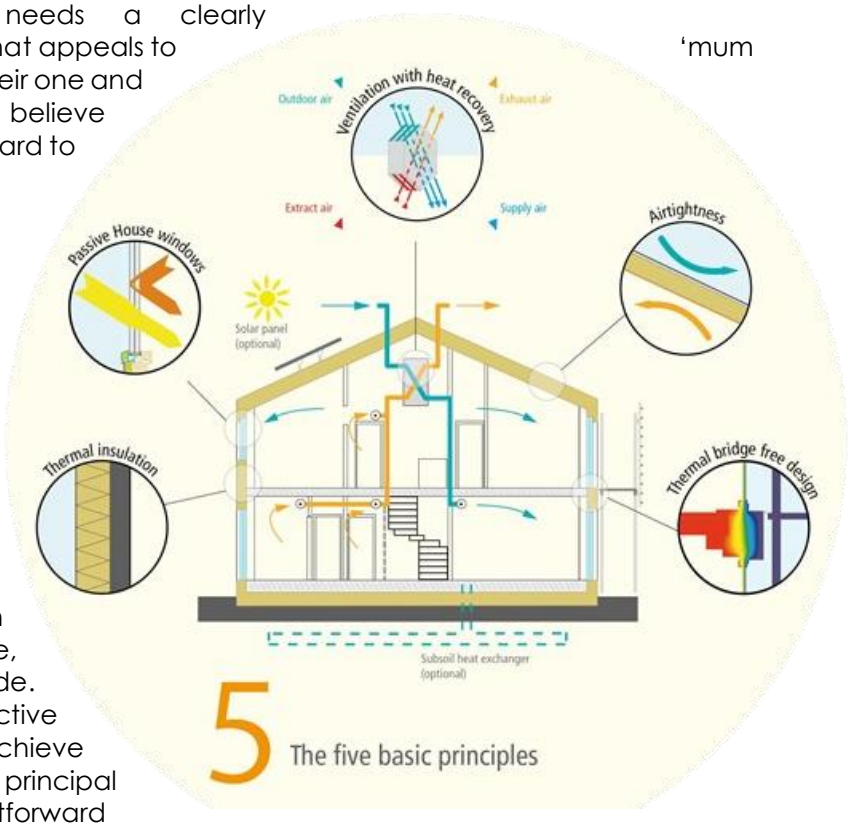

Figure 2: Five Principles of Passivhaus

[7] Adams H, *loc cit*
[8] Coterell, J. and Dadeby, A., *The Passivhaus Handbook*, Green Books (UK, 2012)

healthy, high quality and cost effective buildings (Figure 2).

The below table draws the link between key elements of a Passivhaus design, the technical outcome and the resultant emotional response. It is by no means an exhaustive list, but intended to demonstrate what forms these connections may take.

Table 1: Link Between Passivhaus Element and Buyer Response

Emotional response	Technical Outcome Required	Passivhaus Element(s)
The inside feels light, with a good connection to the outside	Supply high levels of natural light while maintaining an effective thermal barrier between inside and outside	High Performance Windows
Feeling thermally comfortable throughout the space, even when standing near a window	Reduce thermal interchange between outside and inside, resulting in less energy required to heat and cool the space	High Levels of Insulation, High Performing Windows, Building Airtightness, Thermal Bridge Free Construction, Mechanical Ventilation with Heat Recovery
The inside air feeling 'fresh', with minimal 'stuffiness'	Deliver high levels of outdoor air to all spaces of the building while retaining internal passive heating (where that is desirable)	Mechanical Ventilation with Heat Recovery
A general feeling of quality, including good quality finishes	Attention to detailing, both in design and construction, including ongoing construction monitoring.	Quality Monitoring and Assurance
Lack of chemical or bad smells	Unwanted transfer of air between outside and inside is eliminated	Building Airtightness
Lack of mould, water damage or other signs of moisture	Eliminate points of higher thermal conduction between inside and out, eliminating 'cold spots' on building elements and avoiding mould formation. Eliminate direct transfer of moisture or wet air to inside the building.	Thermal Bridge Free Construction, Building Airtightness
Quiet, including isolation from both outdoor noise and minimization of internal cross-talk	Minimise noise transfer through building fabric	High Levels of Insulation, High Performing Windows