10 Handover, soft landings and POE

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INTRODUCTION

Buildings don't use energy: people do. Occupants play an important part in determining the energy performance and comfortable operation of a building and it is highly recommended that a soft landings programme* is planned in from the outset of any project. This is not specific to Passivhaus but a universal best practice approach.

A soft landings programme offers multiple benefits: user satisfaction, fine tuning the building systems, and ensuring the designed energy performance has been met. The soft landings and post-occupancy evaluation process also close the feedback loop, providing invaluable information for the client and the construction team alike.

This chapter outlines a soft landings approach with a focus on Passivhaus. Some aspects of using a Passivhaus can be different to occupying a conventionally designed and serviced building. The handover process and maintenance regime will need to be tailored to suit different heating, ventilation and cooling methods, different equipment and component demands, and different occupant types. Occupants should be appropriately inducted at handover stage and supported during the post occupancy stage.

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pht.guide/benefits

**https://www.bsria.com/uk/consultancy/project-improvement/soft-landings/*

OCCUPANT COMFORT AND ENGAGEMENT

Depending on the size, location and function of the building, the operation of a Passivhaus could involve different levels of user engagement. Although Passivhaus methodology doesn't require the occupants to make a significant behaviour or lifestyle change, it is still important that the users are aware of the principles and particularities of operating a Passivhaus, where certain behaviour adaptations are welcomed to ensure optimum energy performance and comfort. At the same time, appreciating that the building is carefully designed to keep them comfortable and healthy at a low cost, and how it achieves this, will encourage residents to actively engage with its ongoing use and maintenance.

As always, understanding is the key. **For the occupant**, a clear understanding of the controls and techniques available to them will ensure they can achieve a comfortable environment with very low energy demands. **For those responsible for maintenance**, an understanding of the sensitivities and contribution of components to the overall performance will ensure the comfort and energy qualities are delivered as designed.

The following pages give a simple 4-step guide for the delivery team to provide a high level of support, which will be most useful for social housing providers, but can be adapted to suit other projects.

Tree planting at Sharnbrook

Occupants are key to the energy performance and comfortable operation of a building, and implementation of a soft landings programme and post-occupancy evaluation is best practice on any project. In a Passivhaus in particular, the handover process and maintenance often have to be tailored to suit the specific services installation.

STEP 1: UNDERSTANDING THE PRINCIPLES – WHAT TO EXPECT

The prospective occupants should be introduced to the basic principles of Passivhaus prior to their move-in day. This could be through a series of client meetings and user consultations from the initiation of the project all the way to the construction and handover, or through a simple illustrated guide explaining how Passivhaus provides comfort and reduces energy consumption, and how using Passivhaus might be slightly different from the kind of conventional building that they are accustomed to. Most of the time, a combination of both is the most effective way to establish this basic understanding.

If energy performance estimation is required by the occupants, this should be supplied as a range, and should be explained that the energy consumption will partly be determined by how the occupants use the building.

It is highly recommended that a soft landings framework is agreed upon from the outset of the project, including Extended Aftercare and Post Occupancy Evaluation (POE). The specific process could be tailored to suit each project.

> *"Stunning. As soon as you walked in you just felt at home. It was lovely... We have a system which takes out the bad air and brings in good air, and it also rotates heating around the property so you save on heating becuase they're also triple glazed and well insulated. We rarely have the heating on, all the time."*
>
> **Resident at Primrose Park, Passivhaus development in Plymouth**

STEP 2: FAMILIARISATION WITH THE CONTROLS – 'QUICK START'

In preparation for the move-in day, the building system should be ready-set and functioning. Consider the provision of stickers or laminated graphic instructions affixed to plant where maintenance is to be carried out by occupants or untrained persons.

On the move-in day, provide the occupants with a very simple 'Quick Start' guide to the various controls and techniques, checked and proof-read by a non-technical person, ideally someone fluent in the occupant's language. It should contain a short simple overview followed by a number of simple headings such as 'what to do if I'm feeling too cold', etc. The advice should be limited under each section to no more than a couple of paragraphs. Including photographs or graphics of the controls being discussed, with simple descriptions of each function, will be helpful.

This 'Quick Start' guide should be both physical and electronic. Consider making a short yet specific 'how to' video of each topic for posting online, which will cater for a wider generation and more neurodiverse occupants. The occupants can take their time to go through the 'Quick Start' guide by themselves after they have settled in, without being overloaded on the move-in day with further demonstrations and explanations.

Identify who to call when faults or more complex maintenance tasks require action in the guide, and if necessary, include a script to use. Complications often arise with inexperienced call centres who may not know what a Passivhaus is or what MVHR stands for.

More technical or complex documents should be included as appendices within the overall building manual or log book.

Quick Start Guide Image: John Gilbert Architects

STEP 3: LEARNING AS A COMMUNITY – TRIAL AND ERROR

During the initial occupancy stage, a learning/feedback session should be arranged no later than two weeks after the occupants have moved in. Consider who should lead the session – it is important not to overwhelm or frighten the occupants with hoards of technical experts. In a relaxed atmosphere, work through the 'Quick Start' guide (perhaps using a checklist) and explain each of the main functions. Involve occupants in hands-on experience, and avoid the temptation to demonstrate. Learning by doing through trial and error is far more effective and confidence-building. Questions often occur after the session so provide a further point of contact.

Repeating a similar session at the following change to winter/summer provides an opportunity to catch up with how the users have coped so far as well as to go over how users might control for cooling instead of heating, for example. Those sessions are important in fine tuning the systems and ensuring proper operation in the first year of occupancy. There should be a designated project team that oversees those sessions and responds to issues raised promptly.

It is recommended to involve as many occupants as possible collectively in this learning process. Learning as a community has proven benefits in encouraging sustainable behaviours and improving the lived experience.

STEP 4: CONTINUING THE SUPPORT – MONITORING AND TROUBLESHOOTING

It is important to continuously support the occupants through the extended aftercare process. Make sure that they know who to contact in case of fault/problem and that the maintenance and fault response team is well-informed and approachable (see chapter 8 above for detailed advice on MVHR maintenance). At the same time, keep the communication channel open for occupants who want to go the extra mile to save energy.

In addition to the two learning/feedback sessions, consider running an informal quarterly energy audit session with the occupants where collective problems can be resolved and experiences/best practices can be shared. Results can be shared with occupants via a regular newsletter which also gives an opportunity to remind residents at season changes of the best ways to optimise their own comfort in their homes – for example, closing blinds during the day at the peak of summer to reduce solar gain and opening windows at night time for cooling purge ventilation.

As part of the extended care, conducting Post Occupancy Evaluation (POE) is an effective way to gather performance and comfort data and occupants' feedback to improve energy efficiency. This could include monitoring energy and internal comfort data as well as BUS (Building Use Studies - busmethodology.org.uk) surveys and thermal imaging reports. This should form part of the soft landings agreement from the start of the project to be sure that the necessary equipment will be in place for the POE.

Castle Crescent, Closeburn. Image: © Tom Manley

do

- **provide advance information. The earlier the journey starts, the sooner it finishes**
- **set the building up to function prior to 'move in' day**
- **provide a very simple 'Quick Start' guide, stickers or posters where appropriate**
- **consider accessible video guides**
- **familiarise occupants through hands-on experiences**
- **re-familiarise at change of season**
- **ensure maintenance teams and fault response teams are well informed**
- **provide continuous support throughout the soft landings process**
- **involve maintenance teams in the design**

don't

- **over complicate user guides**
- **wait till the 'move in' day**
- **dump all information in one go**
- **frighten occupants with complicated or technical explanations**
- **restrict occupants' behaviour or design out the role of the occupants**
- **leave the maintenance team in the dark**