



Building a holistic future

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As the Government plans to build 400,000 affordable homes by the end of the decade, there is concern that current building regulations do not go far enough to create sustainable, healthy and comfortable living environments. *Stacey Temprell*, Residential Director at Saint-Gobain UK and Ireland, explains the importance of adopting a holistic approach to building and design that prioritises user comfort and wellbeing.

Energy efficiency and carbon reduction have been at the forefront of residential building over the past decade, with standards such as Passivhaus making an increasing impact on housing design and construction.

However, this focus on energy performance and carbon reduction means that a holistic approach to building is not often considered with a view to optimising the user's living experience.

The concept of "multiple comforts" and taking a broader, more holistic approach to building is well understood by many architects and developers, but without an

agreed standard it can also be very subjective.

Multi-Comfort

The Multi-Comfort concept for buildings, which sets tangible measurable standards, for the building, to deliver a truly comfortable house for the occupier, whether home owner or tenant.

Multi-Comfort defines five primary comforts: **thermal, visual, audio, indoor air and economic comfort**, and with standards for each. These surpass existing building regulations, incorporating the energy efficiency and thermal comfort standards set by Passivhaus and introducing new standards in audio, indoor-air and visual comfort to give the building user the ultimate experience of comfort.

Based on Passivhaus design principles, with buildings using very little energy for heating and cooling, Multi-comfort buildings achieve a 75% reduction in space heating requirements in comparison to current standard practice in new-build homes, and



provide the same level of thermal comfort.

The Multi-Comfort standard for residential new build sets out four criteria for achieving thermal comfort, with heating and cooling energy demand, thermal bridging and overheating. Prevention levels all based on Passivhaus standards, with the additional target for relative humidity of 40-60% relative to a temperature of 20°C.

Maintaining good thermal efficiency

To maintain good thermal efficiency, insulating materials must be as effective as possible to keep buildings at a constant level of thermal comfort, without compromising visual or indoor air quality. Designing for energy efficiency alone can have a direct impact on the visual comfort of a building. To maintain good thermal efficiency, some builds reduce window size, lowering the amount of natural light allowed in the building.

The windows in a Multi-Comfort building are carefully sized, oriented and designed to help improve views, natural daylight and colour appearance while minimising glare and solar gain. Using daylighting autonomy techniques, the Multi-Comfort building concept also allows for windows to be designed, using advanced UK-manufactured glazing, to maximise daylight and minimise the need for artificial lighting, adapting to conditions.

The indoor air quality of buildings also impacts on building occupants. Good, clean air can reduce health problems, as well as enhancing user comfort. Indoor pollution from outside sources, such as traffic and industry, can affect health, as can the finishes of furnishings and floor coverings at certain concentration levels. If managed correctly, innovative technology can

decompose internal pollutants into non-harmful inert compounds, improving air quality.

The challenge

By focusing on just one aspect of a house build, even such an important one as energy efficiency, then there is still a risk that the house will become uncomfortable. The challenge of designing and building homes cost effectively to achieve a balanced level of comfort can be met by the latest building materials on the market today; especially the latest developments in external and internal insulation materials, plasters and plasterboards, renders, air-tightness and vapour control membranes, and new glazing materials.

Many of these materials also improve sound insulation and reduce acoustic transmission, improving audio comfort. The Multi-Comfort building concept uses innovative absorbing materials, such as special plasterboards, and mineral wools to reduce airborne and impact noises inside the building.

The most important thing to remember is that each of the “five comforts” of thermal, indoor air, acoustic, visual and economic comfort are all closely inter-linked.

A house is also a home, and even in the current market, where demand far outstrips supply, housebuilders who deliver a house that takes into account each element of human comfort will have a competitive advantage.