CLOSING THE PERFORMANCE GAP - LESSONS LEARNED FROM INDUSTRY

Introduction
While Whitbread has an ambitious sustainability strategy looking to achieve challenging energy and carbon targets for its portfolio of hotels and restaurants, there are concerns that the actual performance of the estate is still beyond the predicted design stage calculations suggest. This was discussed at a roundtable with a cross section of UK Green Building Council members and hosted by Whitbread in London, on 23 January 2014. The aim of the discussion was to gather views from across the industry to enable sharing of lessons learned, review approaches to closing the performance gap and working towards efficient, well performing buildings.

Carbon and energy targets
While carbon targets are well understood by industry and highlighted in Whitbread’s current corporate responsibility programme ‘Good Together’, it was suggested that also including energy performance targets (kWh/m²/year) would help encourage the design team to consider low energy solutions which provide an extra level of detail rather than just focussing on carbon.

Specification requirements - performance based
It was agreed that, as a client, it is important to ask the right questions around targets and baselines at the beginning of the development process to ensure the best possible outcome. For example, if the specification is based on lowest cost or Part L compliance or following a prescribed, standard construction model, it won’t encourage the design team and contractor to deliver an efficient performing building.

Setting clear outcome based targets, such as actual energy performance in use, was also deemed to be key to bridging the performance gap. For example, aiming for a Display Energy Certificate ‘A’ rating would encourage the project team to collaborate to find outcome based solutions. And by setting a range of performance based benchmarks rather than an absolute target acknowledges that a lot will depend on the occupants’ use of the space which is ultimately beyond the design and construction team’s control. It was noted that these performance based targets would have to be contractually agreed to prevent a culture of finger pointing in the event of underperformance during operation.

Integrated design team
Bringing in the right parties during the design process was highlighted by a number of roundtable participants. This was especially deemed to be the case with contractors who will have a lot to contribute and will ensure what is proposed in design can actually be delivered on site. In many cases it was highlighted that designs aren’t developed to a detailed enough level before they proceed to site. For example contractors can be on site with insufficient designs and find they are making up solutions for critical elements of the building fabric and services without having the required skill set to make adequate decisions; thus implicating the performance of the building once in operation.

The same was said for the facilities management (FM) team. The need to involve them early in the design process is critical to ensure they are given a building which they can adequately manage in practice and that matches the skills of the FM team. It was suggested that facilities managers, while in some cases can be very competent, in other cases will require training to manage complex building services or alternatively a simpler building would contribute to a better managed building.
Detailed design modelling
It was also considered useful to carry out detailed predictive modelling of different design options to test outcomes, for example timber vs concrete frame, the size and depth of windows and floor plates or the use of different technologies rather than just rely on Part L models which only show compliance with Building Regulations. Heat flux sensors used during the build process can help understand performance and rectify any anomalies before hand. There is also the possibility of building prototypes to test fabric and technologies, it was suggested, to test how fabric and technologies work under load.

Operational monitoring
Metering was also considered to be hugely important. “You cannot manage performance, unless you are measuring it,” argued one participant. Another contributor suggested that installing well placed and calibrated meters had paid huge dividends when it came to operational costs and understanding performance or issues with under performance. Whitbread has installed instrumentation within hotel rooms at its Burgess Hill Premier Inn, in West Sussex, to measure conditions but needed to explore better calibrated sensors to have a clearer understanding of occupancy behaviour.

Obviously behaviour change and engaging staff will have an important and significant contribution to performance.

One potential barrier to bridging the performance gap that was identified, specifically within the hospitality sector, was carrying out post occupancy evaluation (POE). This is because hotel guests are, by their nature, transient, and getting their views on a hotel environment can be challenging. User behaviour is therefore often unknown when compared to POE in commercial or domestic buildings.

The behaviour of guests was also discussed in relation to their ability to control heating or windows in hotel rooms. It was agreed that there has to be a compromise between the comfort of guests and sustainability considerations. Good design, whether on windows and facades, can help to meet both these goals.

Processes and tools
Setting out a clear process was also considered important, and it was acknowledged that there are many tools and frameworks for this such as Building Information Modelling, Passivhaus, Soft Landings, CIBSE TM54, Building Use Studies Methodology, each with their own pros and cons, depending on the development in question. It was agreed that the process and framework that each of these provided would add benefit but they wouldn’t each provide a silver bullet solution to a better performing building.

Conclusion
Many in the industry are grappling with the challenges of ‘closing the performance gap’ – as is the term that is well known within the industry. There are a number of clear activities that can be taken on by clients but also by the rest of the value chain as highlighted in this discussion.

Attendees:
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Alison Lyndsay, Head Architect, Whitbread Hotels and Restaurants
Anna Surgenor, Senior Sustainability Advisor, UK-GBC
Ben Brakes, Environment Manager, Whitbread Hotels and Restaurants
David Adams, Technical Director, Energy Services, Willmott Dixon
David Dunbar, Energy Manager, Whitbread Hotels and Restaurants
David Mason, Sustainability Manager, Skanska
David O’Rorke, Projects manager, Zero Carbon Hub
Ian Orme, Director, Rickaby Thompson Associates
James Kershaw, Press Officer, UK-GBC
Jim Francis, Senior Project & Programme Manager, Whitbread Hotels and Restaurants
Martin Fahey, Sustainable Solutions manager, Mitsubishi Electric UK Living Environmental Systems
Mike Freed, Principal Sustainability Consultant, Hilson Moran Partnership
Mitesh Panikker, Senior Buyer (Sustainability), Whitbread Hotels and Restaurants
Sarah Cary, Sustainable Development Executive, British Land
Sean Lockie, Director, Faithful & Gould