Use of BREEAM, BIM, and Soft Landings in Sustainable Buildings:
valuable steering wheel or costly box-ticking

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Abstract

Given that more than 50% of the total UK carbon emissions are attributed to buildings, prognosticating, comprehensive, actively applicable tools are required to promptly commission a step-change in building design and construction performance. Integration of such tools assists in designing and delivering low-energy, sustainable buildings by providing a holistic perspective and approach.

Building Research Establishment Environmental Assessment Method (BREEAM) is one of the leading and most-widely used tools to assess the environmental performance of a building during design and construction. Soft Landings (SL) is a process focused on achieving the operational targets, which involves the end-users in design development and the design and construction stakeholders in the handover and first years of operation of the building. Building Information Modeling (BIM) provides a common platform for data sharing that helps with coordination, design visualization, buildability, as well as, transfer of design and construction knowledge to the facility managers after handover.

The Lyell and Oriam buildings, shown in Fig. 1, are procured and delivered on Heriot-Watt University campus employing BREEAM, BIM, and SL. The extent of use and efficiency of the tools and the barriers for full and effective adoption were investigated through semi-structured interviews with the design and the construction team parties. Moreover, the operational quality of the delivered buildings were assessed from the perspective of the building users and facility management by means of post-occupancy evaluation surveys using the BUS method. Consequently, this project pinpoints the adequacy and efficiency of BREEAM, BIM, and SL in implementing the best practice in design, construction, and operation of the two case-studies and offers the resultant insights.

\begin{figure}[h]
\centering
\includegraphics[width=\textwidth]{figure1.png}
\caption{The Lyell and the Oriam buildings, from left to right.}
\end{figure}