THE DESIGN LIFE OF MODULAR HOMES

Modular homes currently go through an assessment to allow the durability of a building envelope to be categorised as having a 60-year design life guarantee. This often involves the proof of performance of the individual components that form the building envelope, as well as a desk study assessment.

To differentiate between a traditional build and a modular build design life, there are a number of different test programmes that can be utilised to prove the performance of a modular building. These test programmes deal with the performance of the cladding as a system, rather than individual components. It's important to remember that testing each element of a system is not adequate and systems need to be tested in their entirety. There are a number of recognised test standards that allow the durability of the whole system to be proved; they examine the interaction between the components and their compatibility.

Currently, a traditional build will be considered to have a 60-year design life if the building passes the current building regulations which do not prescribe the classification of the materials. As a result, we see material failure where inappropriate materials have been used, particularly with respect to the choice of the bricks and mortar used in the outer skin; under strength mortar and bricks that do not have the correct frost classification.

Modular builds can take advantage of the different methods of proving system performance. A series of European Assessment Documents (EADs) provide test methodologies for proving a 25-year plus serviceable life, however there are still gaps as many systems fall outside of the prescribed

systems to which the EADs reference. For example, the standard for claddings does not permit a wet finish to be applied so will not allow brick slips or mortars, whereas another standard allows a wet finish but insists on a drained cavity. Nevertheless, elements of the standards can be pulled together to provide a justified programme which would enable a 25-year plus assessment.

At present, to extend a plus 25-year classification to a defined 60-year design life, a desk study is required to assess all of the individual and ancillary components involved in the construction of an outer skin. This ensures that they all have their own certification and extended design life.

A real benefit would be to take this further than the 60-year design life, and perhaps extend this to 100-years. In order to do this, there would need to be agreement from certain stakeholders, including, test labs, certification bodies, insurance guarantors and manufacturers. It should be possible to extend the simulated weathering programme to show compliance to greater than 50-years, and the individual components having gone through certification, will have their own design life of plus 60-years. This, along with a maintenance and assessment schedule guaranteed by the manufacturer and insurer, could be used to generate a 100-year assessment. Moving forwards, this could be a great differentiator for the industry and finally banish the old legacy of pre-fabricated housing being poor quality, cold and temporary.

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