

Flexible buildings are the key to carbon savings

The most significant factor in a building's carbon footprint is the embodied energy and carbon used in the materials and the construction process. Estimates from the Carbon Compass report suggest that it takes at least 50 years to offset the embodied carbon with carbon savings from the running of the building.

The logic would then suggest that making any building last as long as possible is key to real carbon savings and achieving net zero over the lifetime of the structure. Given that no-one can predict what the need will be in 30 years or more, it is important to design new buildings with a range of alternative uses in future. In that way, apartments can be re-purposed as workspaces, or shops, or hotels - and back again.

This notion of adaptability over the lifetime of a building is a focus of Ellen McArthur's Circular Economy Foundation. [New concepts and techniques, such as modular units and moveable interior walls, are bringing greater flexibility and resource-efficiency into residential and commercial buildings.](#) These methods support the efficient and effective use of a building during its lifetime, such as repurposing a commercial building into housing, using modularity to downsize a home or an office, or supporting sharing and mixed functionality.

One of [the largest benefit of flexible architecture is the ability to keep the built environment relevant and useful](#) as time goes on. Occupant needs can change drastically even in the span of just a decade, and this typically results in the need for buildings to undergo renovations or other updates. Flexible architecture proposes a solution to this. An example is the [Serene House HCMC](#), a mixed-use development in Vietnam. It's a prefabricated structure, and it features ample flexibility for occupants. Most of the furnishings are movable, and the design blends the inside and outside to encourage movement and a wide range of uses. In fact, it's so flexible that it can be disassembled if needed.