

# Designing for a circular economy

A new generation of architects and designers are preparing to embrace pre-industrial principles as they look towards a climate-conscious future. In the second instalment of Maddyness x Ours to Save, we interview Charlotte Perkins, founder of another, about sustainable design.

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We've all seen buildings smashed to pieces behind billboards promising blue skies and state-of-the-art apartments. We've seen once-towering conglomerates of glass, metal and stone become pits of rubble by the side of the road. Buildings are built; we sleep, work and play in them; they get old or fall out of use and get demolished; new buildings are built. Unfortunately, there are some hefty gaps in this architectural circle of life. To patch them up, we need to ask where construction debris goes next – and to apply principles of reuse, rather than production, to the built environment.

Of the 200 million tonnes of waste generated in Britain annually, 63% is – according to Defra – construction debris. We lose tens of thousands of buildings to demolition each year and, to quote *The Architect's Journal*, 'while more than 90% of the resulting waste material is recovered, much of this is recycled into a less valuable product or material, rather than being reused.' Due to the sheer scale of building waste and the corporations that emit it, the difference between 'downcycling' and reuse is actually huge.

The construction industry is an insatiable consumer. Like other goods-based

industries, it operates in line with a linear economic model – ‘take-make-use-waste’. Every building has something like the supply chain we more generally associate with supermarkets and clothes shops. And as it stands, each step in this chain entails its own negative environmental effects. At the start, when building materials are sourced, we see resource depletion, deforestation, and loss of biodiversity. At the end – wherever disused and demolished buildings end up – we see pollution of land, rivers and oceans.

It might seem counterintuitive, but we can learn a lot about how to fix this by looking to the past. We should be refurbishing and repurposing our buildings rather than knocking them down, and putting their core materials to good use if we do end up going forward with demolition. Working with reclaimed buildings and materials is a centuries-old practice; exemplary methods of building deconstruction and reuse crop up all throughout history. Before the Industrial Revolution – which brought mass production and machines to efficiently dispose of our waste – things were a little different.

Circumstances may have changed, but a new generation of architects and designers are preparing to embrace pre-industrial principles as they look towards a climate-conscious future. Charlotte Perkins – who decided to forge her own path after struggling to reconcile her environmentalism with her career choice – is one of them. I spoke to Charlotte about how architects, designers and construction companies can best face up to the realities of the linear economic model, and about her new venture, another.

Architects and designers might seem a million miles away from the tonnes of waste at the other end of a building’s life cycle, but according to Charlotte, they “play a huge part in controlling the materials that are consumed”. The more architects and designers express an appetite to work with reclaimed materials, the “more support and investment there will be in the reuse market”. “If salvage companies are unable to sell materials and elements, they are unlikely to buy them from demolition contractors”.

This appetite isn’t yet revealing itself on a big enough scale. There are a lot of hurdles, many of which Charlotte experienced first-hand while in practice. “Short-term profit-motivated budgets, clients’ and design teams’ negative perception of reclaimed materials, and the difficulty of buying in bulk on the second-hand market” all stand in the way of a more sustainable architecture.

“*The Architects Journal* are currently running a campaign called Retrofirst, and one of their demands relates to VAT. We pay 20% VAT on most forms of refurbishment and renovation and typically between 0 and 5% on embodied carbon-heavy new builds. This incentivises rebuilding as opposed to renovation”, Charlotte tells me. “From a developer’s perspective it is much faster and cheaper to demolish and crush a building and where possible feed

into recycling streams, than it is to carefully dismantle a building and its components keeping materials in a state for in situ reuse or sale elsewhere.” The result: materials are devalued, often crushed to produce hard core.

But building techniques can, and indeed must, change. Charlotte cites digital material passports, “a method of tracking a material’s life and use, which will help with issues related to structural performance”, and spaces dedicated to storing materials in anticipation of reuse, as developments to look out for.

In terms of change-making enterprises, we can look to Belgium-based Rotor, who have “their own deconstruction and salvage company, as well as a design studio” and Feilden Fowles who designed London’s Waterloo City Farm for disassembly. Just the other day, the BBC reported on a first for Australian architecture: two skyscrapers that, instead of being knocked down in lieu of one bigger building, were stitched into one. 11,000 tonnes of carbon have been saved, say the architects. Thanks to government stimulus for green projects, a lot of money has been saved too.

Now to another, Charlotte’s own smaller-scale project, where she’s fusing her expertise in architecture and interiors in a new and eco-conscious way. One pioneering design company might feel like a drop in the ocean up against the tonnes of construction debris we need to sift through, but another sets an example to be followed.

“I wanted to work at a scale where I could stay true to my values”, says Charlotte, “I believe that influencing an industry that you know and understand from the inside to become more environmentally responsible can be as effective as being a front line activist – although this is important too!”

another is a design company centred on the principle of reuse. “Wherever possible projects work with reclaimed buildings, elements and materials, and where this is not possible we design with a circular economy in mind. The aim of another is to inspire positive change, to help create an environmentally conscious and responsible construction industry.”

A recent project provides a great example of how another’s principles work in action. Charlotte was recently commissioned to make a bathroom vanity unit, using a specific piece of reclaimed slate.

In order to work with the slate’s size and uneven nature, a bespoke base was needed. “A big part of designing in the way we do is acknowledging that some reclaimed materials will require bespoke elements to incorporate them into projects”, says Charlotte.

Even though the oak used was new, Charlotte ensured it was responsibly

sourced (FSC certified, European, and “cut to size to avoid unnecessary waste) and the vanity unit was designed with an afterlife in mind. “The unit was assembled using screws to allow for future disassembly, repair and reuse.”

Clearly, decisions made at the very beginning of the design process set the scene for what happens at the end of a structure’s life cycle – whether it be a bathroom vanity unit or a skyscraper. Architects, designers and construction professionals should see the materials they use as part of a wider store of resources, rather than as one-off constituents of one-off projects.

“What does the circular economy mean to you?”, I ask Charlotte.

“In the context of another it means avoiding waste and understanding that everything created comes with an impact. It means working in a way that considers the before and after life of materials and spaces, avoiding unnecessary demolition and prioritising retention, reuse, and deconstruction instead.”

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