

Carefully and intelligently marshalling materials is clearly crucial for business and the environment. The economics stack up. From mobile phones, to fridges and food packaging, there's huge value in conserving materials that would otherwise go to waste. It is resource efficient, takes cost out of the supply chain and, moreover, serves an important environmental purpose too.

But for projects and products with a longer period of use, there's a temptation to lose sight of the value of designing for re-use or recycling. However, if we are to create a circular economy,

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closing the loop must become a priority.

For the construction industry this means taking a cradle-to-cradle approach, whereby a building is designed for re-use of its materials again and again. Our projects are long-lasting, arguably more so than any other industry, and we've made great progress in delivering materials with high amounts of recycled content. It's an important step that prevents waste going to landfill in the short-term.

But it's only half the story. Our buildings do have finite lifespans – albeit far longer than those of, say, fast moving consumer goods products or electronics. Nonetheless, when buildings need to be refurbished or replaced, there's a danger that our recycled materials won't be recyclable themselves.

That's an unsustainable solution and simply defers responsibility for safely disposing of materials that are no longer useful to future generations. It's also wasteful. Huge amounts of energy go into extracting raw materials for construction projects and, as competition for resources intensifies from emerging economies, materials will become scarce.

A Shift In Focus

A CLOSED loop approach is key if we are to design resource efficient buildings; however, attention is currently focused elsewhere. More prominence is given to recycled content than to recyclability when it comes to specifying materials for a project. Take supplier assessments as an example. These are formal assessments for the suitability of materials for construction projects. They rarely ask for details about how materials can be re-used or recycled, but often position recycled content as a key requirement for meeting project targets.

This has been problematic on a number of levels, not just end of life processing. Even products with

100 percent recycled content may have poorer profiles for resource depletion and embodied carbon compared with those containing some primary materials.

Specifying recycled content is also a simpler process. It's a quantitative measure that lends itself to the specification sheet, whereas assessing future recyclability requires a qualitative understanding of design and recycling technology, making it a much more subjective issue.

High profile industry initiatives such as *Halving Waste to Landfill* has also driven demand for recycled content as it seeks to create markets for secondary materials. Clearly, diverting waste from landfill is crucial – and schemes such as these are valuable and necessary. But to stop materials from going to waste for good, we're beginning to look at ways of designing, specifying and building for recyclability.


Industry Progress

SINCE JANUARY 2013, Siniat has been working as one of 16 industry partners on a three-year research project, called the Gypsum to Gypsum Project, examining how to improve the way buildings are designed for deconstruction, so that plasterboard elements can be reclaimed and recycled.

The project is funded by EU LIFE – the EU's financial instrument for supporting environmental and nature conservation projects – and the delivery partners include manufacturers, universities, demolition companies (including Cantillon in the UK) and recycling companies.

The project has twin objectives: to increase post-consumer plasterboard recycling and to design buildings for deconstruction and re-use of their material resources. In essence, we're looking to close the loop effectively and transform the plasterboard demolition market to achieve higher recycling rates of plasterboard waste.

The major obstacle at present is that the majority of buildings are currently demolished and not dismantled in most EU member states. That leads to un-segregated waste going to landfill without the possibility of recovering valuable recyclable materials. However, we believe that selective deconstruction can be financially viable and we'll be looking at current methods, and opportunities for improvement.

Plasterboard is, perhaps, an unusual case because gypsum is infinitely recyclable. Nevertheless, there's capacity across our whole industry to design and build for the future deconstruction of a building with redeployment of the natural resources it contains. At the very least, contractors should be asking more of manufacturers when it comes to products. Otherwise we're in danger of chasing our tails in search of a circular economy. 



The Author

Steve has 15 years' experience in the drywall industry. In 2001 Steve assumed responsibility for environmental management leading to the company being the first in the sector to gain ISO14001 certification. In his current role Steve leads on environment, health & safety and continues to work across a broad range of sustainability and compliance issues.