

Circular Economy in Practice: Designing out waste - How to embed Circular Economy principles at the outset of building construction projects

<https://www.iema.net/resources/event-reports/2020/08/18/circular-economy-in-practice-designing-out-waste-how-to-embed-circular-economy-principles-at-the-outset-of-building-construction-projects>

18.08.20

QUESTION ASKED	ANSWER GIVEN
<p>Are there any professional qualifications that you can get in waste reduction and or circular economy?</p>	<p>Provided in session</p>
<p>An important area is highways construction - massive amounts of virgin stone still used, concern by engineers that reused aggregate not adequate for deep reconstruction.</p>	<p>Good point - infrastructure is certainly one of the most challenging areas of the the built environment for CE applications, mostly because the design lives are much longer than buildings/building components. The advantage of large infrastructure projects is that they have more leverage to develop novel approaches, pilot, test and implement them in practice - CE may mean that the use of recycled aggregates gets codified so that engineers can confidently specify circular materials.</p>
<p>How are building certifications (LEED/BREEAM et al) helping to make the shift to circular design and build?</p>	<p>Provided in session</p>

How do you measure the benefits (cost/CO2) of the measures implemented on your projects?

Currently, most carbon calculation methodologies offer too much flexibility on which life cycle stages to be included. A better way to show the benefits of CE solutions in terms of cost AND carbon would be to make Stages A-D mandatory in EPDs as well as Whole Life Carbon assessments. Circular Solutions in the built environment generally start showing their value when the time for the first major maintenance programme of an asset comes around, so a more long-term perspective is needed right from the get go (ie commitment made by the client and properly followed through by the design team) - hence Stages A-D to cover the entire lifecycle and beyond

EPDs?

EPDs take more focus at carbon - unfortunately, Stage D (Beyond end of life) is not mandatory to be included so the current framework is of limited use for the CE. Besides, embodied carbon may be higher for a component that can be reused/refurbished/recycled many times over - currently, EPDs may capture a second life (reducing first life emissions by 50%), but not more

<p>Question for Ralf - it would be interesting to understand where the data for the material use etc. forecast estimates is from.</p>	<p>McKinsey for the commodity prices chart OECD Global Material Resources Outlook to 2060 for the materials projections</p>
<p>Question for the whole panel: Circular design for projects requires strong support from end-clients willing to contemplate higher up-front costs compared to the majority of current practice, but as projects progress through to actual construction stages, 'value engineering' is common which is likely to go against circular principles. Do the panel have any experience of similar issues and how they can be overcome?</p>	<p>Provided in session</p>
<p>The Green Construction Board is developing a route map to deliver zero avoidable waste from construction by 2050. Is this ambitious enough?</p>	<p>Provided in session</p>
<p>Will voluntary initiatives deliver a circular economy?</p>	<p>If delivery organisations are not capable of making the economic case for circular solutions (ie cost savings for the client), then probably not at a large scale - unless policies like SI7 in the New London Plan set out specific requirements.</p>

<p>If we really want to stop creating waste shouldn't we just ban designers from using materials and products that are not reusable, recyclable or recoverable?</p>	<p>Good idea, but realistically, this requires a phased approach where a marketplace for secondary materials is developed (and scaled) while the use of virgin materials is phased out. At the same time, not every function in built environment assets can be delivered by circular materials today - so there's some R&D to be done first - the diffusion of these novel solutions is currently the biggest issue because designers, clients, underwriters have yet to realise that circular solutions deliver at least the same value (this would also mean not significantly more design/construction time required)</p>
<p>How can Government best intervene to achieve a CE for the built environment?</p>	<p>Provided in session</p>
<p>how do we make inroads into the market to create more demand for our service?</p>	<p>I'd recommend getting in touch with the Get It Right Initiative (GIRI) and present to their membership - it seems your service/product is a type of end-of-pipe solution for construction waste, which would be very well received by clients who have identified that concrete waste is a significant issue on their projects</p>