‘Architecture Matters! An exploration towards a circular economy’. A synopsis.

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Content points relating to presentation

Sustainable Design. Circular Economy. Material sources. Construction systems. There is no such thing as waste. Resource mapping. Design case studies S, M, L, XL.

Short description of presentation

Duncan Baker-Brown is the architect and academic behind Europe’s first public building made of material others through away i.e. The Brighton Waste House that was built in partnership with over 360 design & construction students. The Waste House is a pedagogic tool, an open studio, a live research project and a polemic. Baker-Brown will discuss how it has influenced his latest work in practice.

A synopsis of the presentation

A. What architecture can do?

Baker-Brown will consider briefly the idea of architecture as a force for good. Using the example of Karl Ehn’s Karl Marx Hoff built in Vienna between 1927 & 1930. One of nearly 400 municipal apartment blocks commissioned by the so-called ‘Rotes Wien’ Social Democrat administration comprising 1,382 apartments, but crucially including other supporting facilities such as shops, a dental surgery, a kindergarten, a forest garden! Baker-Brown compares this to the “social housing free” developments serving as a legacy of the 2012 London Olympics.

B. The hidden consequences of Architecture

Issues of wasteful construction systems, unsustainable mining and harvesting of materials, unethical mining and construction techniques are part of every building site. Baker-Brown briefly considers if ‘Western’ governments can believe in sustainable, circular economic models rather than further investing in unsustainable, short-term ‘linear’ models.

C. One Planet Living

This concept is defined by Baker-Brown to act as a ‘benchmark’ for further considerations

D. It’s all about managing resources

Baker-Brown looks back to recent history (early 20th Century) and considers how humankind has forced mass extinctions of many kinds of flora & fauna, but also how most of China’s megacities were ‘sustainable cities’ up until relatively recently, and finally how a RIBA Sterling Prize winning building from 2005 was ‘re-use’ exemplar without the design team being aware of it.

E. Steps towards circularity

Baker-Brown considers concepts via exemplar design case studies that manifest as Reduce, Reuse, Recycle and designing for demolition or re-manufacture. Projects test the following strategies:

Scavenging
Going local
Zero waste while on site
Locking CO2 rather than burning.

There's no such thing as waste, just stuff in the wrong place.
Re-use inspirations
Cities as a future material resource
Re-re-use projects
Strategies for Deconstruction
Resource Maps
National resource exchange
Cradle to cradle

F. Conclusion
Humankind has the collective knowledge to meet the ecological, technological, social and economic challenges that existing in a completely unsustainable, linear, manner for 300 years or so has created. However not everybody has the knowledge, understanding or expertise required to exist in a sustainable harmonious manner with Planet Earth. Baker-Brown believes that our designers, makers and manufacturers have a huge responsibility to obtain the knowledge and skills required to meet this challenge, to practice their art in a completely circular way thus enabling a process of raising awareness within and beyond their various communities and networks.

We find ourselves at a stage where:-

> *"If your design team are telling you that their green design will cost more than the norm ask them to try harder. If they can't get a team who can"*
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> Source: Neil B. Chambers from 'Urban Green: Architecture for the future' 2011, Palgrave Macmillan

Themes influencing the research

1. The UK generated 200 million tonnes of waste in 2012. 50% of this was generated by construction. Commercial & Industrial activities generated 24%, with households responsible for a further 14%[1].
2. Approximately 20% of all material arriving on building sites ends up incinerated or going to landfill and 30% of this is new material never used[2]. Finding ways to reduce or eliminate waste from the construction process could help reduce environmental destruction from mining etc., as well as add value to material resource currently defined as waste.
3. Many large corporations such as Apple Inc., Caterpillar Inc. Kingfisher plc and others are very concerned about resource security and high levels of taxation associated with corporate responsibility (including dealing with waste/ end of life products)[3]. They are taking issues of re-use and by association principles laid out in 'Cradle to Cradle'[4] by McDonough & Braungart very seriously. The Circular Economy has the potential to galvanise industries that are looking to make money providing services and goods while working in harmony with Planet Earth.
4. Proving that material currently discarded as waste can make a contemporary public building that performs to very high standards will draw attention to its potential as a valuable resource, potentially reducing the amount of waste created in the future, changing construction techniques to promote low waste alternatives such as off-site fabrication, designing for demolition/ remanufacture, while creating new jobs within this sector.
5. Learning about designing and constructing buildings is often undertaken in academic and vocational 'silos'. The need to share research data whether academic or 'at the

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[1] Source: Department for Environment Food & Rural Affairs, Government Statistical Service 'UK Statistics on Waste 2010-2012' published March 2015

[2] Source: Waste and Resource Action Plan (WRAP) publsihed2011

[3] Conversation with ReMade SouthEast in April 2011

[4] Book outlining huge potentials of 'Circular Economy' first published in 2002 by Farrar, Straus and Giroux

goal face' from a 'live' construction site is particularly important in the UK as many so-called 'low energy' projects do not perform as well as expected when occupied[5]. The need to understand and then to meet the challenges offered by designing and constructing in an authentic 'circular' or sustainable manner is hugely challenging and currently very difficult to achieve. Getting the whole design team (designers, makers, suppliers and constructors) to work together in a completely inclusive manner in order that they might learn together and from each other, and to document the outcomes from this project is perhaps the main objective of this ongoing project.

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[5] A recent Innovate UK initiative published findings in April 2014 ('Retrofit the future: a guide to making retrofit work' clearly demonstrated that many completed buildings did not perform as expected).