

Supply Chain School Horizon Group Meeting

Date: Monday 19th March 2018; 10.30am- 1.30pm

Venue: Willmott Dixon 32 Farringdon Street London

Attendees: Laura Spence (*Royal Holloway, University of London – Chair*), Gareth Rondel (*Kier – Vice Chair*), Shaun McCarthy (*Action Sustainability*), Simon Tranter (*Willmott Dixon*), Anthony Lavers (*Taylor Wimpey*), Cathy Berry, (*Action Sustainability (AS)-Horizon Group Manager*), Erica Russell (*University of Surrey*), Tony Parry (*University of Nottingham*), Alice Owen (*University of Leeds*), Alexander Trautrim (*University of Nottingham*), Sarah-Jane Holmes (*Sisk*), Donna Hunt (*Aggregate Industries*), Emma Hines (*Tarmac*), Katherine Adams (*University of Loughborough*), Ben Lever (*CITB*)

Apologies: David Rich (*Tarmac*) Iain Walpole and Martin Crow (*Hanson*), Kieran Brocklebank (*United Utilities*), Sophia Cox (*UK Green Building Council - UKGBC*), Maeve O'Loughlin (*Middlesex University*), Vicky Hutchinson and Lucy Barton (*ISG*), Alison Bettany (*EMCOR UK*), Wyn Pritchard (*Neath Port Talbot College*), Paul Wyton and Ray Nolan (*Sheffield Hallam University*), Mohammad Rickaby (*University of Loughborough and Action Sustainability*), Stephanie Van De Pette (*Skanska*), Mark Gaterell (*University of Portsmouth*), Diego Vasquez-Brust (*University of Portsmouth*), Sophie Sharpe (*Costain*), James Douglas (*Lendlease*),

Minutes of the Meeting/ Workshop

1. Introductions

- Laura Spence welcomed everyone to the meeting especially Sarah- Jane (Sisk) and Emma Hines (Tarmac) who joined us for the first time and Katherine Adams from Loughborough

2. Actions from previous meeting

All actions completed except:

- Social sustainability and adaptive safety theory project report is still outstanding from Maeve O'Loughlin. **Action: Maeve to forward her completed report**
- Research Funding: No easy process to identify potential funding calls has been identified but we require the group to stay alert to and communicate Research council, Innovate UK and other funding competitions that may be relevant for the Group. **Action: All group members to scan and inform Group of potential opportunities**
- Maeve O'Loughlin asked the group if any members of the team would consider providing a short workplace internship for Masters level students studying Sustainability and Environmental Management. This is 150 hours of work that could be in blocks of 2 weeks or one day per week for a set duration. **Action: Cathy to contact both Simon and Maeve to follow up and see if this opportunity is still available**

3. Brief School update

- Cathy Berry provided a brief update on School matters. The School AGM was held 16/3/18 and highlights are noted in the slides. A further £20k research funding has been awarded to the Group and the School is now advertising for a Knowledge manager who should form a key link to the Horizon Group to help distil academic insights into learning material for the School. The School also recognises the need to understand the learning data it generates in more depth. The results of the School Impact survey were shared and the full report will be circulated with these

minutes. These results are impressive and form a baseline from which to monitor and improve the School's impact for both members and partners moving forward. Shaun McCarthy provided an overview of the Schools' progress engaging with architects & designers with the formation of the 'Architects Professional Practice Group' and noted that the level of sustainability/DFMA awareness was very low. **Action: Shaun to provide age profile of the Practice Group to Tony Parry.**

4. Academic funding opportunities

- **Alex Trautrim** updated the group on a funding opportunity with a North American NGO who is interested in finding solutions to end Modern Slavery across industries with little brand exposure. If successful this project would examine the business case for making construction supply chains resilient to modern slavery. It aims to look at operational efficiencies and would engage UK construction managers (in material supply chains) and labour contractors. 3 geographical components may be included UK, India and possibly Dubai. Erica Russell noted that BRE have done some work in this area and presented at APRES. Other School partners are likely to be very supportive of this work for example Marshalls. **Action: Shaun McCarthy and Tony Parry to forward any relevant middle eastern contacts to Alex to support the bid**
- This is a two stage bid, first stage requires a concept note with a deadline of 30th March and overall funding available is up to \$1.2m for a 24month project.
- **Alice Owen** provided an overview of the SMARTER Simulating Middle Actor Reactions and Technology uses in Energy Retrofits. This 3 year project aims to develop spatial models (e.g. of a town or suburb) which replicate key elements of the relationships between the housing stock, local residents, policy context and local construction supply chain. It should provide insight into how networks really operate and will allow interventions to be tested to ensure improved decision making that will produce the desired outcomes. This ESRC bid has now passed the rigorous internal university process review and the SCSS has provided a letter of support.

5. Masters Project Proposal

- The group was supportive of the proposal circulated ahead of the meeting to engage masters level students in industry relevant sustainability issues and problems. The one page format for developing individual proposals was also supported. Cathy Berry stressed the need for Group members to think through and develop their own research proposals to generate a list of projects we could circulate across our academic network. **Action: All members to consider and develop one-page masters level proposals and forward to Cathy.**
- Tony Parry noted that to be successful (and fair to students) organizations engaging masters students must understand the requirements and demonstrate commitment and provide continuity and access to contacts /data.
- Simon Tranter noted the need to maintain a flexible approach and willingness to change to respond to the challenges and insights that emerge through the course of the research
- Alice Owen also recommended that we identify and target some specific universities and research programs with an interest in construction. A tripartite agreement should be pursued between universities, researchers and industry partners so each party's requirements are flagged, recorded and addressed. Standard agreements for disclosure etc. should also be understood and used. Students are free to select their own research topics and advised it is best to start with an 'interesting topic' and let the research questions evolve. However it is important that industry partners are transparent and specify what they want from the research. Industry partners are not expected to provide any form of bursary to cover expenses, this is voluntary

and would obviously be welcomed by the students! **Action: Alice to provide a list of Masters level programmes and universities where there is construction relevant work. Laura to provide overview of academic impact requirements and draft a proforma letter as impact testimonial for the Research Excellence Framework 2021.**

- Gareth Rondel indicated that Kier have a £1m innovation fund for internal innovation. A business case could be made to use some of this funding to facilitate masters level research within Kier. **Action: Cathy Berry to follow up with Gareth to better understand the opportunity**

6. Circular Economy: Current awareness, challenges and enablers in construction

Katherine Adams - University of Loughborough

- Katherine provided an overview of her PhD research that aims to create a CE framework for the building sector from a material resources perspective. The presentation included an overview of the principles, industry awareness, challenges, critical success factors and enablers and gaps. The slides are included with these minutes.
- Some key points to note include; the industry is poor at retaining value on resources and material flows with the majority of waste being 'down-cycled'. Industry reporting of waste data is poor with little granularity and dated performance metrics. In general not much CE data exists within construction and no formal construction definition has been agreed. Pioneering work is currently coming from Holland where policy drivers are in place to improve practices.
- There is evidence of companies undertaking piecemeal actions but this is not joined up and changing the behavior of designers and clients is key. The asset ownership model has a massive impact on CE performance and more work on finding the right levers is needed as well as creating a shared upfront vision so that everyone is striving for the same goal.
- Some key gaps/questions were noted including:
 - How do you put CE principles into existing buildings?
 - Differences between short v's longer life construction products and buildings? (A 'fit and forget' mentality exists for some manufacturers of shorter life products with little interest in performance in use or end of life)
 - Lack of understanding of value around CE and lack of data and evidence across the whole life cycle
 - Lack of incentives in place and no incentives for manufacturers to design for end of life/deconstruction
 - CE is largely driven by clients so how do we inform and educate them? (Clients are only likely to consider if it doesn't add cost for them)
 - Lack of systems thinking and understanding of how CE integrates with other building performance requirements e.g. health and wellbeing.
- Gareth Rondel commented that risk plays an important role, industry CE drivers are lacking and contractors will not address this unless it can deliver competitive advantage. The fragmentation of the industry also remains a key barrier.
- Ben Lever noted that wave 3 of the Industrial Strategy Challenge Fund is interested in CE and identifying relevant industry challenges. He suggested possibly linking up with UKGBC (who are working on CE innovation projects) to jointly inform this process and provide an industry led expression of interest. Could we ask School partners to provide insight on this? Key areas to address were suggested including client requirements, risk and how measure the success of a

CE approach, industry data and how to measure residual value of materials at design stage.

Action: Cathy to pick up with Shaun and Ian Heptonstall to assess opportunity

7. CE Metrics Project- Tony Parry University of Nottingham

- Tony Parry provided an overview of the outputs of the CE metrics project funded by United Utilities. CE metrics have not previously been applied to construction industry and this project adopted 2 circularity metrics the Linear Flow Index and Material Circularity Index generated by Ellen MacArthur Foundation and Granta Consulting (Note the Linear Flow Index or LFI is a measure of the amount of virgin material used and disposed of and the Material Circularity Indicator or MCI is a measure of the resource efficiency). These metrics were generated and case studies developed across 4 construction products or projects:
 - Armstrong- ceiling Tiles
 - Tarmac- asphalt products
 - British Gypsum and Wastecycle - plasterboard take back scheme
 - Keir- circular built assets.
- These case studies are due to be published on the School site in May along with an intermediate level e-learning module, the excel circularity indicator calculation tool and supporting guidance document. A half day training suite of materials has also been developed.
- These indicators should also be considered alongside supplementary indicators which are; carbon footprints, water footprints and material scarcity and toxicity, this is to ensure balanced decision making. Collaboration along the supply chain is required as calculation of these indexes require data inputs across the entire lifecycle. Industry standard data sets can be used in the first instance as primary product, usage and recycling data is gained over time. One limitation of these indicators are that they do not distinguish between reuse and recycling.
- Circularity indicators provide value in that they are possibly easier to understand and quicker to compete than cradle to cradle and lifecycle analysis, so are arguably a more useful tool to promote behaviour change. They could also be used as an output performance indicator to assess extent of changing business models.
- A final recommendation was that the concept of utility (adopted for MCI) does not make much sense for longer life elements and it is better to assess LFI only. (This is because the design life of a product often extends beyond the functional life anyway so extending this further to promote a better MCI value is not helpful)
- Emma Hines noted that the value of the indicators can help move away from just thinking about embodied impacts in cradle to gate LCA studies to whole lifecycle impacts and performance (Are these indicators easier for designers to understand rather than translating complicated EPD's into something useable by designers?).
- Shaun noted that we should maintain momentum and use the School network to identify a product or project to apply this approach. Gareth mentioned that the innovation fund at Kier could be used to complete a pilot possibly with Highways England. He is also keen to task category managers with adopting this approach in line with their strategic focus to move away from waste to a resource efficiency model and mindset. **Action: Cathy Berry to pick up with Shaun and Gareth**

8. AOB

- Gareth brought everyone's attention to their recently published gender pay gap report which highlighted a 22.7% gap between male and female employees.
- Alice noted that a presence at Eco-build may be a useful platform to engage with different stakeholders

9. Actions

- **Maeve** to submit research project ASAP
- **All** group members to proactively scan for and inform Horizon Group of potential funding opportunities
- **Cathy** to follow up with Maeve on status of intern placement availability and liaise with Simon Tranter.
- **Shaun** to provide age profile of the Practice Group to Tony Parry (Done!).
- **Shaun and Tony** to provide industry relevant contacts/information to Alex Trautrim to support his modern slavery funding bid.
- **Alice** to provide a list of Masters level programmes and universities where there is construction relevant work. (Done!)
- **Laura** to forward academic impact criteria to Cathy.
- **All** members to consider and develop one page masters level proposals and forward to Cathy.
- **Cathy** to follow up with Gareth to understand how Kier innovation fund could help fund masters research and pilot CE metrics in a project (possibly Highways agency).
- **Cathy** to follow up with Shaun and Ian Heptonstall to assess how to engage partners and UKGBC to inform wave 3 of the Industrial Strategy Funding in relation to CE.

10. Next meeting

- **Date:** Monday 19th June 2018- 10.30-13.30 with lunch provided afterwards

Venue: Hanson Ketton Cement Works. Ketco Avenue Stamford Rutland PE9 3SX. A plant tour can be arranged as long as people bring own PPE (Glasses and gloves can be provided), this tour will finish around 15:30.

Note Ketton Cement works is 10mins by taxi from Stamford station with hourly train service from Kings Cross and 30mins by taxi from Peterborough station.