CWG 016

Materials UK – Construction Working Group

Notes from meeting of Construction Working Group (CWG) of MatUK
11th December 2007
at Construction Products Association's offices

Attendees

Philip Ramsey, Pilkington	Glass (Chair)
Michael Driver,	Ceramics
John Davenport, TWI	Composites
Andy Tyler, Omya	Minerals
Gerry Pettit, Tarmac	Concrete Masonry
John Brumwell, DTI	Observer
Stephen Leadbetter, ICE	Non Domestic Construction
John Tebbit, CPA	Secretary

1. Update of events

PR mentioned several relevant activities which have occurred outside the Construction Working Group since the last meeting.

TSB – Low Impact Buildings

The Technology Strategy Board (TSB) was reformed in the summer, based in Swindon. A number of Innovation Platforms are being established, one being "Low Impact Buildings" under the leadership of Richard Miller, although it will only be properly launched in the New Year. Richard has run a roadmapping workshop which JT attended and fed-in the materials-related themes identified by our working group.

Richard and other TSB team leaders are drafting their funding strategies and we have a good opportunity to make sure that the materials issues are included. Alan Hooper is leading the materials area in the TSB, which cuts across the industry sectors.

PR and JT have arranged a meeting with Richard Miller and Alan Hooper in Swindon in January.

Callcutt Review

The Callcutt Review was published in November. Its terms of reference were

1) To examine how the supply of new homes is influenced by the nature and structure of the housebuilding industry, its business models and its supply chain, including land, materials and skills and
2) To consider how these factors influence the delivery of new homes to achieve the Government's target (200,000 new homes per annum – *now increased to 240,000 by 2016)* meeting housebuyers' requirements and aspirations, achieving high standards of energy efficiency and sustainability as set out in the Code for Sustainable Homes, and progressing to a zero carbon standard.

The report is available at www.callcuttreview.co.uk and is clearly very relevant to our working group. This and other exercises set out the future vision for the industry, we need to pick out the materials issues and make recommendations about how to tackle them.

There is likely to be a body set up to implement the Callcutt Review recommendations and we will need to feed our thoughts into it.

MatUK Energy Working Group Launch

The Energy working Group has been running for about 12 months longer than our Construction group and they launched their Strategic Research Agenda (SRA) for Materials in Energy in early December. There were various introductory presentations followed by summaries of the 4 reports on fossil fuels, nuclear, renewables and energy storage and transportation. The reports were well received and the working group had already secured a £12m funding call for Materials in Energy from TSB/EPSRC, so this was confirmed during the summary.

The Energy Working group is likely to disband, but be replaced by a similar group focussed on the implementation of the recommendations.

This has been seen as a successful working group and is a useful template for us to follow.

An interesting development in the Energy sector is the formation of the Energy Technology Institute (ETI) which David Clarke (ex Rolls Royce) is going to lead, based in Loughborough. ETI plans to have an overall budget of about £110m/yr to fund Energy-related R&D. The Government (largely via TSB and EPSRC) will fund half the budget and David is looking for 11 core industrial partners to contribute £5m/yr each. The remit will largely be to accelerate the deployment of new technology, rather than basic research. The intention is to fund a relatively few, large projects and ETI will potentially be able to 100% fund projects because of the funding model. This is an interesting new endeavour which may go someway towards bridging the gap between academia and industry (similar to the Fraunhofer Institutes and other organisations in the rest of Europe). It is not specifically aimed at materials R&D, but materials issues are inherent in most significant future developments.

This type of Institute is something that the Construction industry should consider and could be an excellent method of focussing R&D effort on the major issues, rather than the current fragmentation across individual sectors and companies in the industry. This is a subject that PR and JT can raise with TSB and EPSRC in Swindon in January.

Modern Built Environment KTN

This KTN is well established and Deborah Pullen has moved there and should be contacted.

2. MatUK Construction Working Group Update and Discussions

We went through the materials-related R&D themes identified at the previous meeting and reviewed comments received from members and took any further comments.

LCAs – Everyone seems to agree that good quality, consistent LCAs are needed for the major construction materials to provide the basic information needed to predict the effect of new materials and products on the sustainability and environmental impact of new buildings. There are a number of options for LCA providers and there is international competition in this area. BRE and their BREEAM methodology are one possibility, but they are very busy like other people in this area!

Also, LCAs should be suitably broad. They should not just cover embodied energy, they should include the full cycle of production, use and recycle / reuse and sustainability as a whole not just carbon / energy or environmental impact.

Roy Wakeman's paper on LCAs and Lifetime Costing was tabled and there was general agreement with the content.

Models – Again general agreement that better models of building performance are required, models which will allow the materials, products and building design to be altered in an easy user-friendly way. It was suggested that the models should be integrated into 3D CAD packages which are used by designers. SAP is referred to by Government, but only covers operational carbon to other aspects of performance will also need to be added. Options for funding development work need to be explored. BSI is also relevant here, linking the modelling into standards.

Coatings – Another common issue across the materials sectors. The recycling / end-of-use issues are likely to be difficult and require focussed work. Again some of these issues could be included in LCAs.

Thermal Mass – There was agreement that this theme should be broader, possibly "Thermal Management", to include key issues like solar gain and ventilation.

Interfaces – Again the disassembly and recycling issues of hybrid materials and systems are complex. They must be considered upfront and better understanding is required. JD suggested that "Hybrid Materials" may be a preferable theme, which would include the interfaces between them.

Embodied Energy – this is a key issue for most construction materials. It was stated that there are now several examples of the re-use of waste heat, for example Hanson's plasterboard, that reduces embodied energy.

Construction Methods – MD made a strong plea for the potential benefit of improving traditional construction methods, for example being more organised and avoiding last minute changes, rather than just concentrating on radical new methods, including most of the off-site options. This is a process issue, but is strongly influenced by materials.

Another subject running through the discussion was the issue of specifications. To achieve improved performance in one area there are likely

to be trade-offs in others, but this may be acceptable if the material / product is still fit-for-purpose. For example, if a window unit fails due to the seal, the glass doesn't need to be durable enough to survive hundreds of years.

3. Infrastructure

So far the Construction WG discussions have centred on Housing, but there are other aspects of Construction that we need to consider. SL made some comments about Infrastructure projects, such as road, rail, etc. Clearly the clients are very different compared to housing. Also, it is important to note that there are 2 types of infrastructure project:
1) Passive projects (e.g. dams) where embodied energy and lifetime are the only major issues, apart from the normal financial and regulatory issues.
2) Projects with an on-going footprint namely projects whose use has an important influence on energy / carbon, such as roads. There is usually a strong political aspect to these projects.

Further discussions will be needed to start to pull out the materials-related issues, some of which will be common to housing.

4. Next Steps

The next stage is to draft a housing SRA report, based on the discussions we've had over the last year or so. PR will draft the framework of a document before the next meeting. This draft will need to be worked into shape, circulated to the community for comments and then launched in the 2nd half of 2008 with other reports (such as Infrastructure) which we'll need to develop in parallel.

Actions:
1) Draft a housing materials SRA report and circulate before the next meeting - **PR**
2) Meet with Richard Miller and Alan Hooper from TSB and John Wand from EPSRC to make them aware of the CWG's thinking and to start to explore deployment options – **PR, JT**
3) Meet with Deborah Pullen from the MBE KTN and further discussions with SL to decide how to progress the Infrastructure sub-group – **PR**

5. Next Meeting

The next meeting was provisionally arranged for Friday 15th February 2008 at Construction Products Association's offices, starting at 10.00 and finishing at 12.30 with a sandwich lunch.

Phil Ramsey, John Tebbit
20th December 2007