

WSBF & BBA roundtable: ‘How can offsite manufacture for construction drive up standards in the industry?’

1st May 2019

Top lines:

- Modern methods of construction, including offsite construction, could improve the standard and sustainability of buildings and make it easier to ensure that they meet quality assurance standards
- Current procurement practices discourages modern methods of construction, and are a barrier to its roll-out. Single stage design and build, which is how buildings are normally designed and procured, does not allow for standard designs for buildings and layouts, and therefore tends not to incorporate modern methods of construction
- Viewing a building as a product that can be mass-produced can improve the performance, measurement and evaluation of buildings, and can also de-risk projects, as developers can be sure that a building will perform as it was intended to perform

Recommendations:

- Government should procure public buildings (including social housing, schools and hospitals) using modern methods of construction. They should also use procurement practices that prioritises value, including the whole life cost of an asset, rather than just the initial capital cost of a project. This can help to drive more collaborative procurement practices in other areas.
- Government should provide support to providers of modern methods of construction through investment in early product innovation and development.
- Industry and government should collaborate on setting standards for offsite construction at a higher quality than the basic building regulations, to distinguish it from traditional methods of construction. Recommends
- Government and industry should collaborate on harmonising current digital models and formats of buildings so they are fundamentally interchangeable, or by creating non-proprietary central digital building model.
- Government and industry should collaborate on driving better performance labelling of housing, including components like light, space, ventilation, and energy performance. This can empower consumers to ask more of house-builders and this can drive building performance.



Introduction

On 1st May, the Westminster Sustainable Business Forum (WSBF) convened a roundtable sponsored by the British Board of Agrément (BBA) looking at how offsite construction can drive up standards in the construction industry. **Lord Kennedy of Southwark** was intending to chair: unfortunately business in the chamber meant he was unable to attend.

► Speakers

1. Paul Valentine, the BBA

Offsite construction represents an important opportunity for the construction industry to drive up standards in buildings, improve the sustainability of structures and making it easier to ensure that buildings meet quality assurance standards.

The development of the Modern Methods of Construction (MMC) framework will be an important opportunity. The framework will refine the term 'MMC' by defining the spectrum of innovative construction techniques, and also create a more structured dataset capturing use of MMC and its performance, enabling construction stakeholders to build a common understanding of the different forms of MMC. The BBA will be looking at how their certification of building products can fit in with this framework to better characterise systems.

The construction industry has to be mindful of fractious certification or standards. A certain framework that schemes can sit within is required, so end-of-process stakeholders are not confused about the quality of products.

2. Nigel Ostime, Hawkins\Brown

The construction industry is very fragmented and has low productivity, and this leads to low margins and low investment. Offsite construction offers an opportunity to improve the quality of housing and increase the productivity of the construction sector, but many barriers exist. These barriers include:

- **Lack of experience and knowledge of design for manufacturing and assembly amongst architects and designers:** This is an issue because modern methods of construction have to be incorporated right at the start of the design process, and architects do not know what options are available to them to design in to the building.
- **Lack of a supply chain for producers of offsite construction products, and no central database of those who are producing them:** It is a risky area for investors to move into as it requires a lot of investment when the demand is still not there. This means the supply chain remains limited.
- **Procurement practices in construction discourage modern methods of construction.** Single stage design and build, which is how buildings are normally designed and procured, does not allow for standard designs for buildings and layouts, and therefore tends not to incorporate modern methods of construction. Designers are also not used to working on standard designs and layouts of buildings.
- **Interoperability and issues with insurance and assurance:** There is a lack of interoperability between different providers and systems, which can cause problems where a single-source supplier is considered commercially risky. A degree of industry standardisation would be beneficial. There are also variations between warranty providers. The Build Offsite Property Assurance Scheme (BOPAS) is the gold standard for assurance but the level of oversight required can deter smaller developers who use less-rigorous providers.

► Discussion summary

1. **Re-thinking procurement practices:** Construction projects are not procured in a way that favours MMC. Using innovative MMC like offsite construction requires early engagement from lots of different disciplines: but current procurement also doesn't allow for engagement with the supply chain and fabricators at the critical early stage. Ultimately, manufacturers of offsite solutions need to collaborate and standardise the way that buildings and projects are delivered to develop a uniform way to approaching projects. Until the way projects are procured contractually is softened away from the lowest cost to a more collaborative approach where companies can take a risk with innovative products, they won't use MMC.

Changes to public procurement criteria could help to start this process- particularly, through procuring for value rather than lowest cost. This would mean considering the whole life cost of an asset rather than just the initial capital cost. This should lead to higher quality assets that cost less to run and maintain, and would remove the focus on low investment and lowest cost in procurement of buildings.

2. **Moving towards seeing buildings as products:** One potential change in focus could be developing buildings as if they are products rather than designing each building as a single product, moving

towards mass customisation of buildings. A product is made with designed intent and ensure it gets produced in a way that matches that intent and is not left to multiple levels of interpretation of different contractors.

This product focus can therefore de-risk the construction sector. It allows in-use testing of the building 'product'. The building product can then be continuously improved if there are any issues, until you can be sure that it will perform as intended. A product approach also ensures measurement and evaluation of buildings is improved, and that this evaluation is fed into the next time that this type of house is built. Traditional design and build does not allow this iterative approach to building standards.

3. **Assessing and defining performance of buildings that use MMC- moving away from lowest cost:**

The basis of performance should be durability- including life cycle costs and maintenance costs. This means understanding how different components perform and how they are going to function over time. However, current procurement practices discourage this definition of performance. The primary driver of building procurement is lowest cost: building performance is secondary to construction companies, because after the initial build period responsibility for the building is handed over to the building owner and the warranty company.

Overall, offsite construction needs to show that it can be differentiated from traditional construction. There is an opportunity to map standards for offsite construction into the building regulations, so if clients specify they want offsite construction, they will know they are buying a better product overall that is complying with higher standards. Current building regulations also discourage innovation in construction, so there must also be some form of different mechanism to specify and comply with.

4. **Capturing building information:** It can be difficult to capture information about how a building was built, the products that were used to build it and how it should be renovated, maintained and used. Digital models that embody and record this information will be important. Current digital models and formats need to be harmonised so that they are fundamentally interchangeable, or a central, non-proprietary digital model needs to be developed. There is a risk of obsolescence of building data embodied in proprietary models owned by companies like Autodesk, which could lead to the loss of data on that building.

One way that is being considered by construction companies to solve this issue is vertical integration of construction supply chains. One issue with vertically integrated supply chains, though, is that they reduce the pressure to certify that different construction products are safe. Stakeholders outside the vertically integrated system, like the end user or regulators will have to apply pressure on construction companies to prove that the decisions they have made are competent ones.

5. **Creating better performance labelling of buildings:** People don't know how to judge quality of housing, and often just buy homes on the edge of what they can afford. Home-owners should be given the ability able to compare different components between houses, including components like light, space, ventilation, and energy performance. Once presented as different commonalities, consumers can be empowered to ask more of house builders and this can drive up building performance.



► The WSBF

The Westminster Sustainable Business Forum (WSBF) is a high-level coalition of key UK businesses, Parliamentarians, Civil Servants and other organisations, seeking to promote effective sustainability policy in the UK.

The WSBF brings together leading UK businesses who want to maximise business opportunities in the transition to a low-carbon economy and share a belief in the need to operate in an environmentally, socially and economically sustainable way. We publish authoritative research reports; impact on government policy through in-depth round table policy discussions and outputs; and inform the wider sustainability debate by convening Parliamentarians, senior civil servants, business experts and other stakeholders at larger policy events and seminars.

For further information please visit: www.policyconnect.org.uk/wsbf or alternatively please contact the Forum directly at rob.allen@policyconnect.org.uk or on 020 7202 8573.



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