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Sustainable Production: PassivHaus and Prince's House debate. Issue 2

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As with the clothes we wear, the food we eat, and the gadgets that entertain us, the buildings we live and work in do not appear out of nowhere. There is an incredible and complex chain of resource extraction, manufacture, and supply that leads to their construction. The debate around sustainability has to include these issues in order to be truly effective. This is of course not a new idea, it has been addressed by both architects and suppliers for many decades, and with standards such as Forest Stewardship Council (FSC) certified timber, we can specify products with some reassurance that they are ethically and environmentally responsible. Such standards are essential, but their specification alone is a somewhat passive approach to sustainable production. A more active engagement on the other hand, through a deeper questioning of supply chains and a promotion of localised production, can help to raise sustainability standards throughout the entire construction sector, and potentially stimulate regional economic development at the same time.

For both bere:architects and The Prince's Foundation for the Built Environment, such considerations are central to their principles of sustainable production. The Foundation's *Prince's House* was designed to be incredibly simple in construction, an on-site masonry approach favored to ensure that such houses were within the capability of the entire UK building trade. As James Hulme, Director of Research at the Prince's Foundation pointed out, the UK construction industry is one of the most decentralised for it's size (around 16% of GDP) and largely dominated by sole traders and 'white van men'. Given that the quality of construction is limited to the skills of these tradesman, it is important to begin at a level that is achievable. As Hulme argued, the Foundation's approach is "an up-grading of [existing] skills to the modern day, so you're neither saying 'we've got to live in the past', you're saying 'we can achieve this and we can actually see a target we can attain, that's within grasp', rather than 'sorry guys, you can't get this, it'll have to be done in a factory, and it'll all come in from northern Europe.'"

Larch House and Lime House timber frame being assembled © bere:architects

In contrast to the *Prince's House*, bere:architects' *Larch House* and *Lime House* were both constructed using pre-fabricated timber frame panels. Chosen as part of an effort to reduce costs in the social housing prototypes, the panels were manufactured from Welsh timber by Holbrook Timber Frame less than 40 miles from the site. The close proximity not only minimised transportation costs and emissions, but also ensured that the economic benefit of the project stayed within the South-Wales region.

The problem of sourcing locally manufactured products, and the need to import materials from northern Europe was one that both organisations faced and attempted to address in different ways. James Hulme gave the example of the Ziegel blocks, the honeycomb clay bricks that form the main structure of the *Prince's House*. With brick being a native material to the UK, and with British clays that have been tested and shown to be 'eminently suitable' to such extruded forms, it should be possible to find domestic suppliers. Ultimately however, the blocks came in from Germany, but were specified only on the assurance that a UK manufacturer will soon be putting a similar product into production.


bere:architects PassivHaus windows being assembled © Vale Passive Window Partnership

For the *Lime House*, bere:architects went one step further, assembling a consortium of local joiners to develop the first UK manufactured PassivHaus-certified windows. Compared to the windows for the *Larch House* which we imported from Germany due to procurement time constraints, the *Lime House* windows were made from thermally-modified Welsh grown larch. Now known as the Vale Passive Window Partnership, the consortium has brought new skills, new knowledge, and new jobs to south Wales.

The challenge of sustainable production is greater than just sourcing environmentally responsible materials, it is about developing more sustainable supply chains as a whole, as well as constructing buildings to a standard that will last. James Hulme described it as a 'culture of building', "where building is elevated to something better than that of a standard home builders site... the quality goes up, and you secure supply chains by thinking much more carefully about where things come from."

Finally, in the words of Justin Bere, "it is also to do with finding jobs for people, for individuals, rather than jobs for big factories, and that is quite a nice thing, its more humane."

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