HOUSE PLANNING HELP

Episode 30

Specifying Materials for a Sustainable Future

With Mark Wilson from Building Design Expert

The show notes: www.houseplanninghelp.com/30

Intro: Can you give us a bit of background on your career in construction?

Mark: Okay well I'm a . . . right, right as of this moment I'm a chartered architectural technologist. I haven't always been so because the chartership for our professional institute was only invented a few years ago, but I started life as an architectural technician back in 1985, I think I joined the institute so a good few years ago.

Basically since then I've worked in architects' offices, developers' offices, contractors' offices as a technical architectural type, producing drawings and details, designing the odd building, extensions, refurbishment of buildings. What more can I tell you!

Ben: We're calling this episode specifying for a sustainable future but I'd quite like to know what that actually means, your definition of sustainability and what do we mean when we say specifying?

Mark: Oh, now you've picked one! [Ben laughs.] How long have you got, Ben? This sustainability, it's a term that's used by an awful lot of people to my mind very incorrectly. Manufacturers, even professionals, tend to refer to a sustainable building or a sustainable product and let me say right here and now that there is, in my humble opinion, there is no such thing as a sustainable building or product or anything quite frankly if it comes down to the minutia of the argument.

For something to be sustainable it must be replaceable at a rate greater than or at least equal to its use and if you dig a hole out of the ground and start manufacturing bricks with the product of that, i.e. clay for example, what are you going to do? Are you going to put it back and create some more so you can dig it up again? That doesn't work, so sustainability in my mind is what people mean when they describe something as sustainable – it's the environment they're describing.

Let me go back a bit. Let me first identify a building. The most sustainable building is absolutely no building at all. Everything else is a compromise. So given that starting point, as soon as we start to construct we're taking materials out of the ground, general resources that the earth has to offer out of the ground. Even water comes out of the ground. It comes out of the sky but we take it out of the ground. So for something to be sustainable we're looking to sustain as best we can the environment in which we live in on this planet so that we can keep living on it in a manner to which we've become accustomed, if you like, because that is what we're trying to sustain and make sustainable.

We can't stop building. We can't stop developing because this is the way we interact with our planet but all we've got to do is limit the damage we're doing, limit the carbon that we're creating that is destroying our planet or helping to destroy the planet bit by bit. It sounds a very heavy comment if you like but I think that's where the truth lies. If people are not prepared to accept that then we have got a mighty big problem.

Sustainability – buildings are not sustainable, products are not sustainable. What we're looking to do is sustain our environment, and simple as.

Ben: Going back in history, we're obviously not a new species on the planet, when would you say that we've started to cause the damage? Is it when we first started building then, logically? Because I would say that it does seem in the last century we've done a lot of the damage.

Mark: Well, the Romans get an awful lot of credit for stuff, don't they, and I think they should shoulder a bit of the blame here as well. [Ben laughs.] They started us down the road for all this technological stuff. They invented bricks, they invented building with stone, the Romans invented concrete. So I think if you want to go back that far . . .

Ben: But there buildings are still there!

Mark: Absolutely. So you could argue they're sustainable. And they didn't use any energy to create them, not energy as we understand it today because they didn't have oil and gas and electricity.

So the answer to your question lies in, I think, the Industrial revolution, when we started to use energy big time. Technology is

the cause of our problems today. It's the way out. It's going to lead us out of this wilderness that we've got ourselves into but it's certainly the cause of it in my mind.

Ben: We didn't focus on the word 'specifying' there. Maybe you could explain that one?

Mark: Specify, read, identify. We're identifying materials, forms of construction, forms of procurement . . . If we're talking about a modern day construction project where we're identifying the route to goal, if you like, for completion of that project from its very inception and the sketch on the back of a fag packet to opening the door on day one and letting the occupants in. The specification process involves identifying the most economic, the most sustainable – can I use that word? I've just described it as something we shouldn't use!

The most sustainable way in environmental terms that we can construct that project and every little bit that goes into it. That is part of specifying a project.

Ben: So are we saying here that when we're looking at sustainability in this respect, almost everything you do has an impact? Even if that's your builders turning up on the site or are we just talking about the materials because you could take this down to minute degree, couldn't you?

Mark: Oh yes you could do but I think the answer to your question is yes. As soon as you start, builders turning up on site . . . They turn up with plant and equipment. They're bringing materials with them to site. Every material has got an embodied carbon content and I think ultimately manufacturers will have to start divulging their embodied carbon content in terms of the material as it leaves the factory gate, the assessment of then its route to site and everything else to add to that carbon content is going to have to be calculated separately. But I think manufacturers will have to start giving us an embodied carbon level for materials in order for us to determine their contribution to the sustainability of this project. And again I refer to it's not the project that's sustainable, it's its contribution to the sustainability of the environment.

So going back to the contractor issue, yes the very act of him turning up is contributory.

Ben: I don't want to complicate things but my brain is trying to do that at the moment. Say for example that we try and do our best and build

this with sustainable materials but then it only lasts for 40 or 50 years, is that counterproductive?

Mark: Well, that's an interesting question. I did my own podcast interview recently with Martin Townsend from the BRE. He's a BREEAM expert and this subject came up of buildings lasting a finite amount of time. It may be only 20 years, let alone 30 or 40 but the idea that we should be looking at is that these buildings should be constructed with materials that are ultimately recyclable. So, on demolition of that building, all of the materials as far as we can, can be used in either another way in that they have another use or they can be recycled into a new building.

And in fact I did understand that there's a European country, it might even be Belgium, have actually put forward a proposal which may well come out in the wash in European parliament terms a few years down the line as far as the UK is concerned but the proposal being that you can't build a new building until you've identified one that's coming down that you can recycle and use to take its place.

So that's a very interesting concept but recycling is the key.

Ben: Let's take the situation that I'm in. I'm looking to either build or retrofit a property and I want it to be more sustainable. So what responsibility do I have or is it really the people that I hire to do all the work, that have all the skills?

Mark: Yeah, absolutely. I think that the client has got to take responsibility for the end product and I think they're there . . . if you're going to employ a design professional to design your house for you then I think you should initially take the lead in saying I want this to be the smallest carbon footprint that we can possibly build, given the constraints of the site, where it is, planning regulations, budget is also going to influence it.

I said at the start that no building is the only sustainable building, everything else is a compromise and there are always compromises within that compromise as well because there are so many parameters and constraints within which you will be designing so you cannot possibly tick all boxes.

Ben: Where can we be most sustainable? Is it in the products? I'm just wondering whether we should be focussing on a particular area or just all areas as we go along? It just seems a bit vague then.

Mark: It does but again if I was to say to you . . . I could give you a tick box list and say you can be more sustainable if you use recycled products. So if you were able to go to an architectural reclamation yard, if your cheque book allowed that, you can get some beautiful second hand demolition reclaim products and build them into your new building. They will look fantastic if they're done in the right way with the right sort of professional help. So that is being very kind to the environment, very eco friendly and if you must buy new products have a look at the products with the least embodied energy. How much energy, for example, looking at concrete blocks, how much energy does it take to manufacture a concrete block. I mean they've got to be burnt at very high temperatures in a kiln so that uses sort of fossil fuel but then the materials we dig out of the ground, cement for example takes a huge amount of energy to manufacture cement. And cement is intrinsic into the content of a concrete block, so, or some concrete blocks anyway.

I think the specification of materials like that needs to have a careful look at embodied energy because if we can get that down we can reduce the carbon contribution of that building to the planet. I mean, you could go on, you could go into water harvesting, insulation levels, all those are major contributors to reducing energy in use. It's not just the building in construction, it's the building in use, it's the whole life cycle of the building we're talking about and considering here. Even down to demolition – you mentioned this earlier – that should we need to demolish the building at some stage in the future and who knows, then the constituent materials should be recyclable. And if not, why not? You know, think again.

Ben: One more question on this and that is if we do the right thing, is it likely to cost us? Are we as clients going to have to bear the brunt of this if we want to create a more sustainable future?

Mark: Yes and no. It doesn't have to. If you've got time, if you can research what you want to do and I'm speaking to the self builder now, if you can look into the background of the materials and even come up with your own specification, if you like. What you're going to use, how you're going to use it and where? Just learn a bit of the process of building and design in conjunction with your appointed design professional, by all means, and he or she will hopefully help you down that road.

So there is no reason, really, why it should cost you more, if you're willing to do a bit of work and research beforehand, like obtaining recycled materials but make no mistake, quality materials will always cost money. If you want a led roof, that led roof will last a

hundred years but it'll be blinking expensive to get up there, but you don't have to do anything to it. They don't really need maintaining. You might have to have a look at it every twenty years or so to just make sure that it's not peeling away at the corner or something, but there again you might have somebody come up and help themselves to it one evening while you're away on holiday so it's a tricky one, isn't it.

Quality materials will always cost money. That's just the way of the world. So it depends whether you want to draw the line on the quality of the material or its performance. I'm just trying to differentiate that one in my own head now because I know what the difference is. It's a fine line but a quality material doesn't necessarily mean it's going to perform better. You might buy something for its looks for example, which might make it more expensive but it might not make it perform any better.

Ben: Is there any question that I should be asking you or any area of this episode that perhaps we can tag on the end there? Or have we looked at it quite well?

Mark: What I think I started to refer to in perhaps the answer to the last question is that in terms of recyclability, embodied energy, we should also be looking to minimise use of resources so renewable technology in terms of rainwater harvesting, for example, that is a fantastic no brain decision that every new house builder, certainly self builder, should be looking to make.

Now this falls in line with your previous question in terms of cost because installing a rainwater harvesting tank and the pumping gear and storage that goes with it inside the new building has a capital expenditure over and above what you'd normally do in just piping your rainwater pipes into the local surface water sewer, assuming the local water authority allowed you to do so. But the saving of water over the lifespan of the building would be huge. Water is just one of those things.

Have you looked at your water bill recently? It's frightening. The renewal came through for ours a few weeks ago and wow, that's more than last year and last year was expensive.

So water is one of those things, one of those natural resources that we just use in this country willy nilly but if you think about it, current projected figures say from here to 2030, so we're only going 18 years into the future, 18, 17 years into the future, there's going to be another 14 million people in this country, not in Europe, in this

country and we won't have any more water. The water levels don't increase in the population. We've still got the same rivers and reservoirs and what have you, so that's just one to think on, that a natural resource that we very much take for granted is getting more expensive and like gas and electricity it's going to continue on the upward curve.

Ben: Well Mark, thank you for everything today. It has been fantastic but I know that you've got your own website and podcast. Do you want to tell us a little bit about that?

Mark: Yeah, okay. BuildingDesignExpert.com It's a free information hub resource, primarily to the construction industry professional, if I'm honest, but there's no reason why the avid DIY, self-builder shouldn't drop by and get something out of that. There's all sorts of information on there.

What I do, the premise of the website, is to pull together information that you might find on 20 different websites but it's all on one so it becomes a one stop shop. You can go there for information on building information modelling, planning, building regulations, I blog on it every other week, I now do a podcast on it every other week, there's an event calendar for construction industry events, I trawl the Internet and list all the construction industry events.

It takes a huge amount of time. I haven't got a clue why I do it. [Mark and Ben laugh.] I used to have a life but not any more! But no it's been very well received and it's getting a stronger and stronger following and like I say all the information is there for free, because I know people like free. I know people don't like paying for stuff so I'll just accept that and get on with it.

There's lots of downloads in terms of PDFs and what have you. Yeah, go along – BuildingDesignExpert.com – take a look. If you like it come back!

Ben: Thank you very much, Mark. Appreciate that and maybe speak to you again some time.

Mark: Ben, it's been an absolute pleasure. Thanks very much for having me along.