

Episode 69

What is Active House?

The show notes: www.houseplanninghelp.com/69

Intro: Today's session is addressing a question from Chris Macke. He emailed me and wanted to know what standards were out there, why there are so many, whether they are appropriate the world over and he specifically wanted to know about Active House.

Rory Bergin is a prolific blogger and I knew that he was involved in developing Active House in the UK, so that's why I've gone to him. As we start off this interview I asked him to explain a little bit about what he does at HTA Design.

Rory: Well I run the Sustainable Futures Team within HTA. So HTA Design is a large multi-disciplinary organisation, a consultancy. Originally architecture but now covering landscape architecture, graphic design, planning, sustainability. So we provide the advice and the guidance to our colleagues on all the projects that they do whether they be master planning a few thousand homes or whether it be building and constructing homes on sites.

Ben: I wanted to get your expertise here to help answer a question from Chris Macke who's in Missouri, USA. He actually asked about Active House which is something that I didn't know where it originated from; I did a little bit of research and that led me to you. Before we go into that though, standards on the whole around the world, how many different standards are there and why are they created?

Rory: Well there are lots of standards. I think it's been interesting over the last decade or so that we've seen a lot of development of standards aimed at, in particular, energy efficiency as everyone is pursuing the low carbon or zero carbon agenda. So you have standards like Minergie in Switzerland; you have the French regulations which are aiming for, I think it's carbon positive homes by 2020; you have the UK 2016 zero carbon legislation, you have the Passivhaus design standard and there are at least two other German standards. So all around Europe in particular and to some extent, the rest of the world, everybody is focusing their efforts mainly on developing techniques and standards to reduce the carbon emissions of their

housing stock and their new buildings. We've seen less of an interest in standards about other aspects of life or living in homes which for me is interesting and it's where the Active House standard comes in.

Ben: If a standard isn't part of building code, building regulations, does it really have an impact?

Rory: I think that it can and it does. So here in the UK, we have the Code for Sustainable Homes which was mandatory for affordable housing but ended up being used for many, many private housing. Some developers, Berkeley's for example, build everything to the Code for Sustainable Homes. Other smaller developers build all their dwellings to the Code for Sustainable Homes Level 4. So the availability of a standard - a well researched, authoritatively written, comprehensive standard - enables developers, designers and to some extent consumers to say 'that's the standard I'm interested in. I'd like a building to that standard' or 'I as a developer, I want to build my homes to that standard because that gives me a bit of an advantage in the market over other people'.

So it's a way of differentiation as well as the national standards, well that brings everybody up to the same level but then there's no differentiation. So I think the ideal world for this is a good national standard and then some voluntary standards that'll enable particular people or developers or designers to raise their heads above the parapet and say 'well we think this issue is very important'.

Ben: That's got me thinking as to whether you should always go for a home grown standard. How does a standard work worldwide? Is it always going to run into difficulties because there's just no such thing as the same here as it is over there?

Rory: Yes, I do think that there always has to be a level of local adoption or local editing of the standard to make sure that it conforms to - for example, in one instance we were looking at comparing dwellings across Europe and if you're comparing dwellings and their carbon footprint across Europe, you have to take into account the carbon intensity of the grid in each country, which is very different. So you don't get the results you expect simply because of the national energy policies in different countries. Say in Denmark, it's different from Germany, different from France, different from Italy and so on. So I do think that standards to be effective have to have local conditions embedded into them.

There's a question mark in my mind about the Passivhaus standard and how it relates to UK weather for example. It was written for German weather and we are applying it quite a lot to UK weather. I'm not a hundred percent convinced that that step has been thought through and what I'd like to see is a version of it created which is UK specific. And even in the UK we have four quite different climatic regions; different weather, different rainfall, different sunshine and so on.

Ben: Here's one for you; if you have these local variations which in one respect I can see, does it not water down the core purpose of a standard?

Rory: No, I don't think so. I think people who buy homes or people who rent homes or whatever, they're not foolish. So I think that they're capable of using their judgement providing information is given to them clearly, about whether a home is better than another home. So provided the standard is applied well, I think people are capable of making an informed decision. But I do think that one of the failings of standards as they're written to date is that they're very consumer unfriendly. So people who are buying homes or renting homes, very rarely are they presented with the information about a standard that would sway them in either direction. It's usually given to them in too technocratic or too technical language and it's not information that they can understand or make sense of.

Ben: That's a good point because a lot of the people that listen to this podcast will be looking to build their own homes and might have to make these choices so ultimately, might they just not go for anything?

Rory: Well I think that people who are building their own homes and designing their own homes have an innate sense that this is important, that designing a sustainable home for themselves and their families is something that matters deeply to them.

And actually, a piece of work that we're doing at the moment is about looking at the labelling of homes. So as well as providing people with sales information about the size of the rooms and so on, we would suggest that developers provide information on the energy performance of the buildings, the amount of storage that's available and the daylight factor in each major living space or bedroom space and the running costs, so how much maintenance will be required to keep this building intact. So all of these things that people who are building their own homes, they pretty much

naturally take into account themselves as they're designing the homes because it's really important to them.

Ben: Let's look at Active House and see if we can give Chris a bit of background of this whole standard. So what is it?

Rory: Active House is a specification developed by a group of pan-European industrial companies, manufacturers who provide many of the components that go into modern homes across Europe. So people who provide windows, who provide building fabric, who provide roofing systems, who provide heating and hot water systems and so on, they got together, formed a group - The Active House Alliance - and came up with a specification mainly because they were concerned that all the standards that are currently being discussed and used most widely focus entirely on energy savings. And energy savings, while it's interesting to consumers and to people who buy homes, it's not the only measure.

In particular, they were concerned about air quality, so good ventilation in new dwellings, and the daylight. And for us as designers, we were approached by VELUX who are one of the members of the alliance and asked to design a pair of homes to demonstrate these principles in the UK, which we've done. And during that, we learned a lot about the value of these issues to the people who live in the homes because having built them, we then did a one and a half year study with the residents who lived in the homes for that period. And we found that their enjoyment of the homes was far in excess of our expectations. They liked them so much that - there is a natural feeling of happiness in a well day-lit space and one where the temperatures are maintained reasonably well and where the ventilation and the air quality is good. So the feedback from the residents of these two dwellings - which you can see some of on the VELUX website - is that the people slept better so people who moved in who had young children, the young children slept better through the night as soon as they moved in. Anecdotally, their health was better. They seemed to suffer from fewer colds and sniffles during the winter months that they were there. But most importantly, they just loved living in these spaces where they had a lot of natural light.

Now just to give you a comparison, the BRE Guidelines for new buildings is that you need to have a daylight factor and the daylight factor is the percentage of the available daylight that you get inside the room. So if you have a one percent daylight factor, you're getting one percent of the available daylight. So the BRE Guidelines is that you have about one percent. We achieved seven

percent. So we were achieving seven times the recommended minimum if you like. And the result is that they didn't need to switch on their lights until, maybe, eleven o'clock at night for most days during the summer months and they were woken up by sunshine in the morning and they just really, really enjoyed the experience in a way that we as designers were surprised by.

Ben: All of these elements you would hope are just elements of good design. Do they need to be built into a standard?

Rory: What happens is that if you don't have those kinds of standards which are aimed at the quality of the experience for the people who live in the dwellings, what you have is you have a lowest common denominator standard which is building regulations. And building regulations is aimed at protecting us from problems from failure but it's not aimed at giving us a good experience. So you can build a perfectly compliant home which meets all the building regulations and which will get planning permission and so on and living in it will be an utterly miserable experience. So standards like Active House, one that the Code for Sustainable Homes and other similar standards are good because they're aimed at developing a quality standard.

Ben: Thinking about the Code for Sustainable Homes though for a moment, one of the things that it seems to have done over time is become a bit of a tick-box exercise so that you actually get these comparisons where something at Level 4 could be very energy efficient and high quality building, we talked about all the good air quality and all of these things, and then because a house on Level 6 has more bird boxes or whatever it might be, I have seen different houses like that. So I know it sets out with the right intentions but somehow along the way, it just gets pushed towards another direction. That's not even really a question but ...

Rory: Yeah. I know exactly what you mean and I think that one of the failures of tools like the Code for Sustainable Homes is that it concentrates too much on telling people what to do. So it says 'if you need to achieve A, then you do B'. I like the Active House specification because it doesn't do anything like that. It simply says that you need to achieve a daylight level of between, say, three and five percent or between five and six percent or six and seven percent. How you do it, how you achieve these outcomes is entirely up to you. So it doesn't talk about process particularly. It doesn't talk about how you achieve it. There aren't really any boxes to check. 'Have you got good air quality?' and the only way you can

check good air quality is by measurement. So you have to do a certain amount of measurement after you've built the building.

Ben: Air quality; how do you check air quality, sorry?

Rory: So it's looking at carbon monoxide concentrations and carbon dioxide concentrations in the internal environment to check that the air from occupied rooms is being refreshed at a sufficient rate. So there are guidelines about the - say it's a thousand parts per million I think is one of the levels. So you would aim to go below that level. So it sets quite straightforward technical guidelines that an Active House must pass to achieve the standard. But it doesn't tell you how to do it.

Ben: And how readily has this been adopted?

Rory: Well it's very early days. At this point, the specification itself is a couple of years old. We've built two homes here in the UK; there have been a number of other homes built across Europe. Again, it is mainly as demonstration projects. So I think it's at the end of the testing phase, I would put it. We're working at the moment with the Alliance to develop a set of guidelines so that interested designers can read a document that helps them to understand what they would need to do in order to meet the standards - so how would they design a building that would meet the standards? And we're looking at ways of encouraging people to take on the standard and use it themselves, whether they be individuals or developers. And the first step for all of those people is to go to the Active House website - activehouse.info - and become a member of the Active House Network.

Ben: And how did you become involved?

Rory: Well we became involved - we were involved with VELUX even before the standard was developed. So part of the work that we did in designing the two homes in Kettering for VELUX, part of that work fed into the development of the standard. So we've been involved since then and I'm on the Advisory Board for the standard.

Ben: Is there a danger that if this is driven by industry then it will in some way - we talked about daylight - perhaps help sell windows?

Rory: Well that's an interesting one, isn't it? Because one of the outcomes of all of this, as we found from the post-occupancy work, was that people felt better. They were happier, they slept better. These aren't really things that you can sell. I appreciate that you do have

to be mindful about where standards come from but in this case, the outcomes are aimed pretty squarely at health benefits for the end user and really, environmental benefits. So there are sections of the standard which look at the embodied energy for example, in the building itself. So it's not solely the individual, the people who occupy the dwellings. It's also the materials that go into the building itself. I think the test of any standard is how well the buildings themselves function. The enjoyment, the success of the end-user experience.

I think there's been a lot of talk over the last few years about standards but not enough about what happens, what kind of buildings are created as a result. In the end, successful buildings are buildings that people like and enjoy and want to look after and want to live in. That adds tremendous value.

Ben: I think we're all up for that. I saw in some of the literature that part of this - we've talked about comfort, energy and environment - the energy side of things, buildings that give more than they take. Is that purely on energy or materials? Maybe you could expand a bit on it?

Rory: Well I think that the aim is - and the aim must be really - that moving forward, buildings become energy positive or become carbon positive. I think we're some way away from that. There are only a handful of buildings in the world that have been built and have achieved that kind of standard. But as I said, in France they're aiming by 2020 to have achieved that in their standards and the EU Energy Performance Directive is now pointing towards that as a goal.

The very highest level of success on the Active House is for buildings that are energy positive but I think that's a very high goal right now and I don't think that you need to achieve that to achieve good quality buildings. The costs of achieving energy positive buildings is continuing to drop, particularly with the reduction in price of PV systems and the carbon content of grids is dropping. So all of these things is helping the building stock to achieve those goals. But I think that those goals are easy enough to achieve or are potentially easy to achieve on individual dwellings, so detached, large detached dwellings. It's easier. On high volume, high rise buildings in the centre of cities, it's virtually impossible even with the best technologies we have available and at our disposal. So ...

Ben: Why? Because you'd be needing to produce a lot of energy?

Rory: Yeah, you simply have a very high density of energy use on the footprint of the building and you've only got a certain amount of roof space and elevation space within which to use energy generation technologies.

Ben: And energy generation, a lot of our focus should be on what makes sense in terms of that sometimes it might be local scale, sometimes it might be the house individually? It's just picking the optimum spot for the renewables?

Rory: Yes, I agree with that. I don't think that there is a one size fits all solution. It's easier to achieve on larger suburban dwellings but we can't all live in large suburban dwellings. Perish the thought.

Ben: That sounds like a good point to finish up on. Any thought to conclude with?

Rory: Well, I think that interested people should go to the Active House website - activehouse.info - become members, read some of the material, look at some of the case studies. There is a very interesting set of case studies from across Europe. There are houses that can be seen or read about in many European countries. Get involved. We're at the stage of the standard where it's still relatively early days in terms of adoption and the more people that get involved, the more they can help to shape the direction of the standard from here on.

Ben: Rory, thank you very much.

Rory: My pleasure.