

HPH350

Ben Adam-Smith 00:00

This is House Planning Help episode 350. Hi there, I'm Ben Adam-Smith and this is the podcast for you if you're interested in self build or retrofit. I'm exploring what houses we should be building in the 21st century, and trying to break down the major roadblocks that may get in our way. In this session, we're going to be looking at Value Engineering, no guest as such, but we do this sometimes we take a video, and then we collect some audio clips from it and I guide you through and that is the plan today. So voices you'll here include Graeme Deas, and also Stuart Headley, they are the self builders of slate house. And advised by Nick Grant from Elemental Solutions, he's also technical director of the UK Passivhaus Trust, and a trainer with Coaction. This video that I'm talking about is a Coaction video, my production company Regen Media made this video, but I was quite pleased with it at the end, you look at that, hmm this is this is quite interesting what's going on here. So Coaction have created a lot of course materials all about upskilling. Generally, we're talking about professionals. So if you work in the construction industry at the moment, this is definitely something you want to check out, but I know some of our Hub members and other self builders have been through coaction material before. So we're talking about a lot of the top people in the UK have spent a long time, trust me, working behind the scenes I know to get this material together. So go and check it out. We'll put a link in the show notes today, houseplanninghelp.com/350 to find out more about Coaction training. And here we are episode number 350. I keep doing this podcast because I want to help you and I believe that construction, it has such a big potential in changing things for the better, we can make better homes that are more comfortable, that are healthier, more energy efficient, better for the planet, we talk about it in every episode. But every 50 episodes or so, I like to stop and admire the view, sometimes do something different, which is what we're doing today. And I wanted to underline the importance of value engineering, it's possible this might be a new term to you. Nick has spent a career trying to get people to understand some of these issues and embrace them. He's helped us as well, we've recorded interviews with him three times 'how value engineering could benefit a house build', then we did one with Charles Grills as well as Nick, 'Why an integrated design approach works well for self build', and then our last one was just so interesting to see Nick's journey also, we talked a lot about the ACB, 'How to share knowledge test and debunk. So it's not that we haven't tackled this before. But I am marking this one down as an advanced topic, not so much advanced in understanding it because it makes sense and you'll probably understand it quickly, but actually incorporating it in your construction project... that might be the tricky bit, perhaps you'll forget about it, perhaps your design team have other ideas, perhaps you're just looking at the visuals. And I feel it needs a mindset shift. If you can keep an open mind, by the way, it's just such a superior quality to have approaching a self build project because I meet quite a few people, I think, well, you're just on this course, no matter what I say to you, you will just keep on going. So if you can keep an open mind, maybe embrace what we have today. And what's interesting is Nick obviously gets this, of course he does, he's helping us understand this. And Graeme does as well, because he's got a design background as a landscape designer. He knows this makes sense. However, Stewart, hmm not quite sure. So when I made this video, I was quite satisfied that I felt, we got to understand, Stuart had been on this journey and he'd come out the other side and he

realised the value that he got at the end of it. So my hope is that you can apply this on your own project. Just remember Value Engineering, it's all about creative thinking and solutions. So what tends to happen is we make our projects bigger and bigger and then later in the process, we make cutbacks, and the quality suffers, we've heard this lots haven't we. So some of this conversation is understanding why keeping things simple, allows us to prioritise the performance. Or saying it another way, maybe this is our ticket to achieving high performance, rather than dumping it late in the process because we think it's just too expensive. You can't do this. We'll just have to get by we'll follow the principles Passivhaus principles. And then we don't know if we're getting the same thing, highly likely we're not getting the same thing. So where do we begin? Quite simple. It's a formula for value engineering. So value, the U, equals function divided by cost, simple maths, value equals function divided by cost. So if we increase the function, the value goes up. If we decrease the cost, the value goes up. So let's hear Nick grant described value engineering. In his own words, this was taken from the podcast that we did on value engineering and it also outlines how he got into this.

Nick Grant 05:29

Well as an engineer, I mean, one of the modules will ever that I've found most inspiring was, it was called Value Engineering. And it was about how to, as it as the name suggests, well I think the name suggests, give maximum value and through engineering and engineering can mean many things. And when I started working in buildings, I suddenly realised people were using the word Value Engineering in a very different way that used it as cost cutting, and it was sort of this negative thing. And I've been excited by it. It was it was the thing that made aeroplanes get off the ground, it made cars go faster, it made climbing gear work better and be lighter and stronger. And it was it was all in engineering, it seems a really, it's the thing you strive for. And you see the nature with swallows and swifts. In nature value engineers happen through evolution and without, you know, it's just how stuff works. And in nature, by definition, if something doesn't work, it doesn't exist anymore. You know, it doesn't go on to breed, it doesn't continue. And that's very different to in architecture, sometimes the idea of taking nature and use biomimicry, and so on, which is something I'm actually very sceptical of, but often use nature as an analogy for how it's very constrained and is very value engineered through this process of evolution and natural selection. So like went from this thing, being something I thought was inherently a great thing and a real challenge and exciting for me to find really good design to this thing that people say, Oh, it's been value engineered, they've ruined my project, they value engineered it, and I suppose trying to work out what this was about. And it turns out what really is meant is cost cutting. And that's something that happens when you've already designed it, Value Engineering has to happen at the beginning, as soon as you put pen to paper. That's when the value engineering happens. So as soon as you've decided the shape of your building, whether it's one storey, two storey, which way it faces, whether you dig into the ground, which way your site is, whether your site slopes, all those things immediately start to define the final value, the cost, the challenges you're going to have. And if you haven't done all that, at the beginning, when you get to the end, and you go out to tender, and all the contracts come in at twice the price, then you have to do what's the so called Value Engineering, which says get rid of all the nice stuff, put in less good windows, get rid of things, and really destroy what you thought was your lovely design. So what gives it a bad name.

Ben Adam-Smith 07:33

And you can listen to the full interview, I'll put a link from today's show notes, Nick's interview on value engineering. So there's one thing we must emphasise here that's important relating to value engineering and that's that performance must not reduce, because then it's not going to be value engineering. But it happens at the beginning of the process when you're fiddling around with your paper and ideas. So Value Engineering happens at the beginning, cost cutting happens at the end. And as you commit various different decisions, like Nick was also saying things get more serious, more money gets spent and then this idea of value engineering almost melts away. So nobody has limitless pockets. And what's fascinating is that even if we did what would happen, we're probably more likely to buy that expensive plot, to let our dreams just go a bit further. That's what happens. So no matter what we do, we end up facing this situation where we've moved through briefing settled on what the building looks like worked out the floor plans, tie this in with the planning permission, gone out to tender, got a shock because it's more money than we were expecting, and rein some aspects back in. Cost cutting, perhaps the performance is going to take a hit and maybe we want to increase the budget but we're already in a place we don't want to be. Maybe it's the materials get downgraded, cheaper windows, it's all those sorts of things. And the brave ones might go back to the beginning of the process, but it's hard, there's an emotional investment. You may have heard this fact before about we spend 90% of our time indoors. So shouldn't we almost sway things to the indoor environment? You would think so what are the things that matter inside and over the course of the many podcasts we've got in the archive now, we have mentioned the Passivhaus standard quite a few times because we know it goes deep and we know it covers a lot of bases health, comfort, energy efficiency. So what decisions could we make to give us our best chance of making it happen and being able to deliver our projects to Passivhaus standard? Let's introduce slate house. So this is the self build project that we're talking about today. It's timber frame, simple shapes, simple formula that might crop up in a minute. There's a lot of emphasis on designing from the inside out. Builder Mike Whitfield again, he's been on the podcast, we'll link that one and he delivered or his team delivered a watertight shell and then Graeme and Stuart did the internal fitouts. Fast forward a few years they've lived in their home, but was it all worth it? This is Stuart.

Stuart Hedley 10:17

We live in a very uncertain world and this place right from day one, when we moved in, has just quietly got on and done its job, absolute joy to come into this place. On a bright, cold day in winter, you really feel the benefit of the passive solar gain.

Graeme Deas 10:39

It's just really, really comfortable, pretty much stable temperature most of the year about 21 or something. If there is a downside, it's the fact that it's so comfortable. And I go somewhere else, it's a bit old. And it's like, I have to put on a jumper, which you just don't seem to have to here.

Nick Grant 10:57

It's always interesting, the journey people come on with low energy buildings, in this case, Passivhaus. But it doesn't feel like it's a big green statement. It just feels like very much an ordinary lovely house. What was the big driver? Why did you decide to, because there weren't that many passive houses in the area at the time?

Graeme Deas 11:12

I was thinking of my old age, not having to decide between heating and eating, you know, and this is happening now. And astoundingly, of course, it doesn't even affect us whatsoever. Because the bills, the thought absolutely modest.

Ben Adam-Smith 11:26

Yes, I think they might have had some solar PV on the garage as well, which certainly has helped keep those bills down. So how is value engineering going to help us achieve the Passivhaus standard, and a key step is setting the form or shape of the building. We've got lots of other examples of Value Engineering in this podcast, but this is possibly the one with the greatest impact. So let me explain a bit further. Imagine three different places to live, you've got a bungalow, you've got a simple rectangular house much like they are living in, and perhaps an apartment within a block, right in the middle there somewhere. They've all been insulated, the same, they've all got the same floor area. But the bungalow will have a bigger heat loss area compared to the two storey rectangular house, the apartment will be even better than the house if it's in the middle of the block, because it would have a smaller heat loss area still. So this is all about form factor, you can Google it, you can go to the Passivhaus Trust, or the international Passivhaus Association. This is a key thing, how much surface area is losing heat the external surface area relative to the useful floor area. And you get this number, the form factor below three starting to get good, but you just want to get it down as much as you possibly can. I've got another resource to tie in here. Alan Budden was on the podcast many moons ago and I just liked the title of the episode because it said it all 'how simple design decisions could impact performance'. And it's also as we're talking about in this podcast, going to make things cheaper if you keep them simple. One question I have how does this go down in the real world, Graeme Stuart, will they embrace a simple form? While we've already mentioned how Graeme loves a bit of value engineering? Here's Stuart again.

Stuart Hedley 13:21

I've really fallen in love with what I initially thought was rather a unexciting box to start off with, I mean Graeme. He built the canopies and the coldstore, which is added to the character of the place.

Nick Grant 13:33

I mean, some people would criticise the architecture of some simple building thinking, you know, it should be more of a statement. But what I like here is you've taken it with a blank canvas, you you basically the builder, finished an airtight box, insulated box with the ventilation in and you finished it off. So you did a lot of the actual physical work, but also this design decisions for the interiors on it. I think it's made it absolutely lovely.

Stuart Hedley 13:54

I hadn't realised that there were infinite number of ways of dividing up a box. And I kind of got into that and suddenly, having dormer windows didn't seem important anymore. The ideas I had about architecture and building came from things that I watched on the television and it was quite interesting to kick off with Passivhaus because the design was very simple and all the time you were watching the

budget, and I was possibly slightly fearful throughout how it might end up because my solution would be this kind of smart look that you frequently see in a magazine, but it's ended up absolutely fantastic.

Ben Adam-Smith 14:34

Yes, so much is judged by photo appeal. If it looks good, then it must be good, glossy magazines, TV shows, when you watch them or read them just bear that in mind. Just because it's got, Oh is an amazing cantilever that comes out there or doesn't it look incredible? doesn't always mean it's sensible use of the money. I'm also going to link in, I seem to be doing this a lot today don't I, another podcast one that we did with Richard Hawks, and he has his yearly rant about the house of the year competition because the performance of the buildings are often not very good. Let's reflect on the clip that we just heard Stuart mentioned about the canopies and the cold store. And this articulation is not about, oh, what else can we add to this building to make it look interesting, everything has a reason, there's a function there as well, for example, the canopy, it might be helping for the summer comfort, or it could be a place to sit when it rains, or it might be to grow plants up just to think through it might be all of these. As a matter of fact, Stewart also mentioned that there are an infinite number of ways to divide up a box. I just think that's interesting. Because when we say simple, it doesn't mean boring. In fact, in many ways, there's a beautiful elegance to that simplicity, it's about doing more with less, a concept that we repeat a few times on this podcast. And talking about I thought I'd mentioned something else in the garage during this project were all sorts of materials that have been found. And I think Graeme really enjoyed reusing bits and pieces, particularly on the finishes, things like that. So that's another lovely aspect of this project. Let's move on to Windows. Quite a deep discussion here. But because this house was designed from the inside out, they have asymmetrical windows.

Graeme Deas 16:25

I love those asymmetrical windows

Stuart Hedley 16:27

I've grown to love them too, but I'm interested in this idea of design from the inside out in that the reason those windows are in that place, is because of the considered placement of those windows, from the rooms within.

Nick Grant 16:40

No one at any point, as far as I remember stood on the outside and placed them.

Graeme Deas 16:44

No

Nick Grant 16:44

It was a Composition, Composition is something that emerged as a design process.

Graeme Deas 16:48

Indeed

Nick Grant 16:48

We're all surprised by it.

Graeme Deas 16:50

Yeah. So we plonked that window, just to get a view from the bed and it absolutely works, it frames it.

Stuart Hedley 16:58

Its the best view in the house, it's mountain a long view. And this window too, was designed as a long window, because of the work surface. And the washing up.

Nick Grant 17:06

It is quite a nice example because it doesn't open because you could struggle to reach it, you've got other opening windows in the same room and it just gives a real lovely, simple frame view.

Ben Adam-Smith 17:16

Yeah, this could be a good moment to check out the show notes, [houseplanninghelp.com/ 350](http://houseplanninghelp.com/350) so you can see what we're talking about when we mentioned that windows, were not just decorating the facades, they were picking out views and had a function and were designed from the inside out. We move on to my favourite value engineering example relating to Windows and this has to do with mullions and transoms. If you're not sure those are the bits of the window, you're looking at a window and then you've got bars going up, and other ones going across. And over time, I've learned to hate these little things. But there's a reason why the simpler your windows are. So let's say it was just glass there instead, well, they're going to cost less, and they're going to perform better the double whammy, there may even be one more because visitors to their house. Notice the architectural quality of having clear windows like this.

Stuart Hedley 18:11

I noticed this and a lot of people that come here notice it the in a simple house, the windows are you know, they really punch above their weight in terms of just beautifully clean.

Graeme Deas 18:21

This is the funny thing. People have said, Oh, look at all these fantastic windows. And it's like, well, there's just an ordinary amount of Windows, isn't it? But for some reason, it gives you an impression of being a very, very glazed and bright from the inside.

Ben Adam-Smith 18:36

Yeah, I think this one is common sense. So we're sizing these windows nicely and optimising things for light, because did you know you can actually have too much light? If you settle on your wall of glass? It doesn't just get better and better and better. It can start to introduce problems and then you think it's too much sunlight here, I'm squinting. So I am a big fan of nice clear windows. If you want to hear a heated discussion, shall I call it that with my wife, when we talked about this because she was going in the direction of wanting the mullions and transoms and different lights and all the rest of it with the windows and I was trying to be flexible on so many points, this was one that I felt I had to stand my ground and I'm so pleased that we did go to my decision because I would have looked at that every day and

thought why did we do that, it just doesn't make sense at all. We're on Windows as well just remember again, this is a sort of baggage thing that we come along with. We know what we know. And that's generally what we have in the past and a fascinating example of this is when they built the Prince's House at BRE which I think they're now calling the Natural House and I went to visit BRE on a day when they were fiddling around with that building. So it started with lovely clean pains or Glass. When I was there, they were putting in sash windows. Again, there's some cultural baggage that comes there. We think from the outside when we stand there, like Nick was saying, and that 10% of the time, oh, wouldn't it be nice if we have a pretty pattern on the window, but we lose way more than we gain is my view on that anyway. A couple more points on Windows, we've mentioned sizing them right and again, this is useful for overheating as well, not going overboard, not going with the wall of glass, it will cost a fortune. If you do go with the wall of glass is the other thing to think about, and there are aspects, for example, how much do you really see through the bottom half a metre, perhaps not as much as you think. So check out this example.

Nick Grant 20:47

I mentioned the budget was very constrained with this and one of the ways to save money was to simplify the fenestration. So the classics of Grand Designs is to go for sliding doors or bifold doors. And it's kind of an easy design win, because the budget didn't really allow that, but there was quite a lot of effort in window choosing

Graeme Deas 21:06

The fashion would have been to have all glaze down here. But in fact, a nice big window for looking through and then a door for walking through and that is fine. That works great.

Ben Adam-Smith 21:18

So we're really leaning into the budgetary constraints here. And in many ways, it's guiding the design process. What are we not mentioned about the windows, you're going to want opening windows in all the rooms, of course, probably for safety as well. So you could climb out in an emergency, you might want to think about natural ventilation, having Windows perhaps on tilt, as is very useful just to get a breeze in. But what about in awkward spots. This is one that Nick mentioned earlier, but I thought I'd underline it again, going to the kitchen is a bit of a classic really isn't it where you've got the sink and normally you'll put some bottles by the sink in front of the window. And maybe there'll be a plant there and it actually becomes a really awkward thing to open that window. So I did this on my own project, we've got a fixed window there. And again, there's a cost difference between a window that needs to open and close. And one that's just fixed. I was intrigued though, as I was searching through all the different bits of audio to hear Graeme say, well, actually, there's another aspect to think about because I clean my own windows. So when you have an openable window that opens inwards, you just open it, clean it and then close it again, you're not going to be able to do that with a fixed window, it may be less relevant on the ground floor, because you could go outside and access it from the outside. However, when you get first floor and above, well you're not going to be able to do that. So just another consideration as you think about windows, or maybe you're thinking maybe I'll get the window cleaner, they can deal with that issue. Let's move on and Nick asks an interesting question.

Nick Grant 22:55

If you suddenly won the lottery, you'd have 10 million pounds to spend on this building? Would it have been a better building? Or is some of what makes it lovely? And I think it is lovely, does that come from the constraints?

Graeme Deas 23:07

I actually would have chosen most of these materials in any case, because I don't think to me, they don't look like value engineered, you know, compromising at all. You know, I would have chosen this floor and I would have chosen the the cladding and stuff like that, so

Nick Grant 23:25

The polished concrete floor is a high value, low cost. Whereas cost cutting, it'd be like if you put plastic vinyl down on the floor on a cheap screed or use click flooring or something you know. So what I'm trying to get across is a difference in genuine value engineering. Things like the windows without extra frame and mullion, simple forms, sized right, simple building form.

Graeme Deas 23:47

Why would anyone do something that wasn't value for money in any case?

Nick Grant 23:51

It is a mystery to me as well.

Ben Adam-Smith 23:53

And we've encountered the Polish concrete floor on a few projects. So what that's doing two jobs really, it's the structural slab, but it's also the finished floor. And immediately what's coming to mind is old Holloway because they did that there as well. George can explain it in that episode, we'll share a link across something else. I don't have a soundbite from Slate House, but George did was the roof. So just the crinkly tin roof is a roof that keeps things simple. It's not complicated. It's not costly. And so long as you're designing it all and detailing it well then it just keeps a really simple but effective idea. We're starting to get towards the end of the podcast now. So I will reiterate some of the themes that we've been mentioning. We said that value engineering takes place at the beginning of the project. Cost cutting takes place at the end and we actually have one example of cost cutting.

Graeme Deas 24:49

My biggest niggle really is the fact that we use such ridiculously cheap plumbing stuff because we had no money when we were in and one or two of those have caused trouble.

Ben Adam-Smith 25:01

Yeah, it's the old false economy and bizarrely, we had something very similar in our own house, these little pop up plugs that one by one have broken and need to be replaced. So that'll teach us for getting the cheapest ones. Value Engineering goes on and on and on. It's really a creative mission, that you've got to look to these solutions and find them. There are these common examples. And they probably go on with design examples, too, if you're a professional, looking at better ways of doing things, better ways of detailing, and I've seen that we talked about Coaction earlier and I know some of the training

that they provide just shows, you know, clever ways of thinking about things. So come up with your own examples of doing more for less. And just remember, once again, value equals function divided by cost, but we mustn't let the performance suffer, lean into the constraints. There's another podcast that I did with Andrew Michler, I'm pulling out all the ones way back in the archive today. But this was how to create beautiful designs through constraints. So that's another one. I'm giving you quite a bit of homework today. So Stuart mentioned earlier that he was apprehensive during the design process, how does he feel at the end?

Stuart Hedley 26:17

I work in nature conservation and I have I've done that all my life and it's kind of ironic that possibly my biggest single green gesture has been nothing I've ever done in the in the field of nature, conservation, but commissioning and half building and moving into a Passivhuas

Graeme Deas 26:34

A Visitor early on said, its just a complete no brainer. And I just think it so is.

Stuart Hedley 26:40

It's completely changed the way that I thought about what is a sensible, valuable house, the kind of house that should attract attention and praise, it's been a fantastic journey for me in that.

Ben Adam-Smith 26:54

Head online to take a look at the show notes that accompany this session, houseplanninghelp.com/350, where you can review the main points in our summary. Maybe better still will be to relive what we talked about today, in short video format. So this is a five minute video that I've managed to stretch out today. Hopefully, you've enjoyed it. But take a look at the visuals and see it all come together it's well worth doing. Maybe you have a comment or you'd like to ask a question. Do that either within the show notes, scroll down to the bottom or on social media, we'll give you links, of course will give you a link to Coaction go and have a look at their training, it is well worth it. Particularly if you're a professional listening at the moment. UK experts have all contributed to this and will link you to Nick Grant, thank you Nick, houseplanninghelp.com/350. Let's throw in an Apple podcast review. Normally, you can leave a review on most of the apps. So however you're listening and it just helps us if you can do that be a massive favour to us. Thank you. This is from Ruth, amazing library for self builders and others. That is the title. Ben has created an amazing library of self build information, essential listening for those considering a project either now or in the future. These don't have to be long, but they do really help. If you can write one for us. That'd be lovely present for our 350th episode. My call to action is to check out The Hub, that's our membership community that we run alongside House Planning Help and a resource that is top of mind at the moment is when Graeme came on to talk through Slate House from his perspective. So we've got that live training in the archive. Also, as it's our 350th episode, if you've never checked out The Hub before, please come and have a look. We've been working hard packing it with videos and training material, very much the visual side of House Planning Help. We don't do much in the podcast. But we like to get visual on the website and also here in the membership community. So one key aspect and we spent many years doing this is going out on site and filming complete builds. So we've got four projects that you can dive into. We've got ask the expert where you can pose your questions, the courses where we map things out, the forum where we can chat with like

mindful individuals and there's me too if you'd like to have a chat about your project, I will quite happily share what I can also refer you to others. houseplanninghelp.com/join. Next time Linda Farrow from Agile Homes is my guest and what they do oh my goodness, sustainable materials, modern methods of construction, low cost, they're trying to tie it all together with their housing solution. We'll dig into that next time. Thank you so much for listening, the House Planning Help podcast is produced by Regen Media, content that matters.