HPH343 – Low cost sustainable house with Josh Wood

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SPEAKERS

Ben Adam-Smith, Josh Wood

Ben Adam-Smith 00:00
This is House Planning Help episode 343. 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 try to break down the major roadblocks that may get in our way. Coming up in this session, my guest is architect Josh Wood. And we're going to be hearing about his own project. It's always fascinating when a professional decides they're going to do their own project, but particularly in this scenario, because, well, it's in the city, so it's an infill plot, there's a little bit of risk going on here, and he wants to make all the right choices, as you would expect from an eco architect. I thought because we're talking about Bristol, it's a vibrant, magnificent place. We'd mentioned another organisation that's heart is in Bristol, this is green register, all sorts of great training and events, some good free stuff, too. Josh has done a talk for them as well. So that's something you can watch for free. We'll link that into the show notes. Let's get to our featured interview with Josh Wood, Green Trace Architect and I wanted to know how this all got going, so I started by asking Josh to tell me a little bit about his background.

Josh Wood 01:15
I studied Architecture and Environmental Engineering. This was actually the first course in the UK to combine Rieber and SIPs accreditations, so very much kind of math space as much as it is architecture. So I was a kind of guinea pig on that there's only six of us. I then went into a few practices in Bristol, doing kind of sustainable architecture. I then worked for practice designing oak framed houses, which I very much enjoyed very much like this structures. And then, I went travelling in Patagonia and walked a very long way, came back and set my own practice up in 2019, which is Green Trace Architect, and that's just gone from strength to strength.

Ben Adam-Smith 02:01
And at what stage did you think that you'd want to build your own home?

Josh Wood 02:05
I'd have thought that honestly thing as long as I've known. My dad built a cabin in in Canada that he lived in for three years and that's always inspired me. I did actually build my own tiny house that was on George Clark's actually, that I lived in for three years in a very interesting location in Bristol. So that I suppose that was my first little house.

Ben Adam-Smith 02:27
That's quite a lot of experience there. So I think we need to unpack that. First of all, why did you go down this route of a tiny house?

Josh Wood 02:36
I think mainly because I just wanted to build something actually just use my hands. Maybe with an architecture, there wasn't much of a craftsmanship to it and I just liked to be able to build things. There was also the fact that Bristol is very expensive to live and I knew if I could build something, I could live in it for much cheaper, which really did help me save for buying a piece of land. So I'm really pleased I did that and it was good experience also just to live in a small space and see what's important.

Ben Adam-Smith 03:04
How is that these days in the UK? How viable is it to be able to live in a tiny house? Because I know lots of people who desire to do that but they find the reality is quite difficult.

Josh Wood 03:16
Yeah, I mean, there's the planners that I suppose one of the boundaries there, because they won't allow people to live in small spaces. Maybe that's a good thing, maybe it's a bad thing. But they do present a way to live more affordably. I found living in a small space great actually, I very much enjoyed it, because you make a very practical use out of everything. I found that drying clothes in the winter in a very small space was interesting and had to use the kind of vaulted ceiling that I'd managed to create to dry my clothes overhead. So you know, I think if it was well insulated enough, and you've got a little burner, and also you have a good access to outside, some sort of land where you spend most your time you become very much more on outside sort of person when you live in such a small space. So I know there are lots of people in Bristol, who you know, and across the UK who are hoping to live in tiny homes. And yeah, I think maybe some of these boundaries can be relaxed a bit by the planners to help that happen, its an this interesting discussion that.

Ben Adam-Smith 04:15
If anyone is thinking, I haven't got much of a budget, I'd like to do this because of all those benefits of just scaling down your whole life. Were there any useful resources during your journey or did you just I'm going to build my cabin!

Josh Wood 04:29
To be honest, yeah, I just wanted to build a cabin, so got on with it. But I have been in contact with the Bristol Tiny House Community who are very interesting bunch making waves in Bristol. So they were quite inspiring to talk to and it's also inspiring to see where they're progressing with their projects now.

Ben Adam-Smith 04:49
So that was for three years. Was it then that you started to think about can I afford to build something a little bit bigger?

Josh Wood 04:58
Yeah, so I'd been searching for land and I was always keen on buying a piece of land that everybody else thought was just useless.

Ben Adam-Smith 05:06
That is a really good tip, let's underline that here if you can address the challenges.

Josh Wood 05:11
Yeah, so I kind of knew the only way this is gonna work for me is if I find a bit of land that everyone else maybe might not be able to see your way through the planning system, or even if that was surely couldn't be a nice space. So I've been looking at really odd scraps of land that I found quite exciting to see how I could squeeze something on there. So I'd been saving up I suppose, from the cabin days, because doing architecture for 11 years, meant that I had absolutely no money at all. By the time I'd finished all that it had all gone on rent and other things. So living in the cabin gave me a bit, but only to the point of like 10 grand to buy a piece of land, and then I still need to build It. So perhaps I had my head in the clouds a bit, not really realising how much all this would cost, but I knew like I said it would need to be some strange plot to make this work.

Ben Adam-Smith 06:00
So that was your starting point with as little money as 10 grand in a city?

Josh Wood 06:07
Yeah, yeah. Well, by the time I'd actually found the piece of land, I had 25.

Ben Adam-Smith 06:14
Wow. But this is quite interesting, because only recently I have been discussing that self build, as a route onto the housing ladder, has all but disappeared in the south. And you'll give me an example right here of, admittedly, you've got quite a few skills under your belt, which I'm sure you're going to tell us was the the magic bit here. Wow. Okay, continue the story then.

Josh Wood 06:36
So me and my partner, that also obviously has to be added into the equation because she had another 25,000 pounds. So between us, we had 50, and then we found a plot that had failed planning. Which is a really great scenario, because usually, they're withdrawn, so you don't get any of the information. But in this case, they didn't withdraw it, which meant the officer was obliged to give his report. And the report gives you useful tips as to why it hasn't got planning and I saw that as a checklist of things that we can improve. I suppose the chap selling the sites we saw at an auction, was selling it thinking that perhaps it wouldn't get planning, I saw the opportunities in those constraints. So we then you know, about to go to the auction, but he taken it down, which is also another blessing for us, because it meant that we didn't have to quickly get some money together and take a risk on an auction, which is also a

very scary thing to do. And you have the possibility that it will just go up and up and up. So he took it down off the auction and we went and sent the letter through his door and began discussions that way and put in a fair price for it. So we did actually speak with other estate agents. And they thought that our offer, considering it had failed planning was perhaps fair, although with planning, it will be worth triple that. So yeah, we settled on 40,000 pounds for the plot.

Ben Adam-Smith 07:58
Let's just go into some of the details here. So you were searching the planning website, the local authority website, just looking at planning permissions in a particular area.

Josh Wood 08:08
We were searching actually just on, although I have done that, but in this case, we were searching on the auctions and found this plot up for sale with failed planning. And then we went online and looked up the failed application. That's where we had all this information to go on.

Ben Adam-Smith 08:24
So why did they not go through with the auction?

Josh Wood 08:28
This is a good question. I think it might be because the vendor didn't have his ducks in a row with the solicitors. So I think they had to take it down before they could issue the pack, that's what its called, isn't it? It was through the process of us agreeing a price and getting all this conveyancing done then that they actually had the time to sort that out, I think.

Ben Adam-Smith 08:50
Was there a backup plan for you? If no planning permission was granted? This is what I would recommend to most self builders. I'm not putting you in that category, because you're part of the industry. But yeah, what was the backup plan? You can't get planning permission? Do you think you would have been able to sell it on for a similar price? Or take a little bit of a hit? Or?

Josh Wood 09:12
Yeah, that's always what we were thinking in the back of our mind had to be prepared for it's not get planning. So the backup plan? Yeah, it was you know, could we sell it and if we were to take a hit of five grand, you know, maybe that's okay. But then there was also just the idea of land always goes up in value potentially in Bristol as well. So I wasn't too scared to just, I had to convince my partner many times that, you know, if we can't get planning, it's still an asset. Land is still an asset and we can sell it on later. I know other ideas came along, like could we use it for events, you know, have some sort of parties there or sell things there, getting desperate now! Yeah, exactly, or an allotment, but they don't see the value. Perhaps it's not the same sort of value as a house of course. But yeah, we did have plans, I think.

Ben Adam-Smith 09:56
So tell us about the planning application there. And and how much work it actually took.

Josh Wood 10:03
The interesting thing about this was because COVID hit, at this time, we had a very long time in the conveyancing with the vendor, almost a year and a half to think about the design. But we also had time to put in a pre-app. And the good thing about pre-apps is that they're not public knowledge. So we put in the pre-app, whilst we were in the process of buying this land, and found out that we had a positive response from the planning officer, who would said 'Yeah, we will be willing to support your design', and the vendor didn't know that it was likely to get planning. So we're very, very keen to get that conveyancing through. So we kind of knew we would, and bought the land on that basis. So that's a very lucky and useful position to be in knowing that the land you're buying is worth more basically, then what the vendor might think, because we've got a pre-app, which is not public knowledge. So once we got the land in our name, the planning application that I put together, myself was all ready to go. And we submitted it pretty much the day with the land was ours, well 21 days after the land was ours.

Ben Adam-Smith 11:12
At no point you were tempted to take out an option, because then it would just push the cost up was that you were prepared to take the gamble?

Josh Wood 11:22
Yeah, very much because of this pre-app. And also, I suppose, because I'm an architect and I could assess the planners response to the previous application, and put forward my design and just objectively go through it and be like I think we've tackled all those, here's the policy. So we've made up our argument. So even without the pre-app, I think I would have still gone for it, but the pre-app put that pretty much, not quite concrete, but you know, it's going to be okay.

Ben Adam-Smith 11:48
Tell us about the site.

Josh Wood 11:50
So it was the back garden of the person we bought it off, the access is very, very difficult and it is constrained on all sides, we've had to build up right against another house, which has been a very interesting thing to do, figuring out how you build a house with only 100 or 200 mil gap between them. But that means we've kind of maximised our garden in one space. And then all other sides there are houses around, so the design has been challenging to make sure things like overlooking and privacy and also not overshadowing neighbours. So being sensitive to the houses around. It's been interesting how you get light into the design, when openings are quite restricted. But that's all been quite a challenge.

Ben Adam-Smith 12:33
And what did you want from this house?

Josh Wood 12:36
A space for us to live, because we'd very much been renting and I was living with my little sister in order to save money. So I suppose just our own space for once, you know. And I've always wanted to design and build and live in my own space. So not only was it just a place to live, it was also really

important thing for me to do as an architect in order to engage with clients and builders better. So it's a kind of has been just as much as a house for ourselves as it has been an ambition of my own career and practice as an architect.

Ben Adam-Smith 13:15
So those conditions or different things that you are trying to satisfy with the planning officer, can we go through those? What were the the ones that were stopping it from getting permission? And how have you addressed those?

Josh Wood 13:27
Yeah, so I think the main one was privacy. It's a strange plot, because it's actually down an alley. But there are other houses here. So it falls under what's known as back land development, or development of back gardens. But because it's this kind of side alley, which is a public right of way, thats been here for centuries. There does have what I'd say is kind of an active frontage. So we kind of managed to switch the argument there slightly to say, whilst it is back land, you know, it can have an active frontage, and that makes it more attractive planners. So there's that aspect, but the main ones really do have amenity, amenity of neighbours and amenity of the proposed dwelling itself. So that comes into daylight and privacy, they're probably the two main ones. Daylight was an interesting one, because the previous proposal, the one that had the failed planning, it really would have restricted access to sky. So there's a thing called vertical sky component, which is kind of giving at least 25 degree angle of the sky. So our roof is pitched at exactly 25 degrees. And it's set as far back as possible from the windows of the neighbours. And I've drawn that line, which is a rule of thumb. But we even went further in the planning application because we didn't want there to be an absolute inch for the parents that do refuse this so I did undertake my own vertical sky component calculations, which will prove that the windows for for all dwellings around were Less than 98% restricted to light from this proposal, so only 2% Decrease in light, really. So that works out very well so that we could prove that the daylight it was okay, just by pushing the building further towards the house and getting the pitch right. The other ones then we're overlooking. So Windows at first floor, because we've got houses, literally on all sides. Getting a windows at First floor has been interesting, we've managed one on one elevation that does face this alley, so the active frontage, and then to the rear, we have got one but it's over 1.7 metres high, the issue there is you can't escape from it in the event of a fire. So we've had to design a protective fire escape route. And the layout has been influenced by that. And all the light then is actually coming mainly through an atrium space. So we're we're not overlooking, but we're still getting lots of light through the atrium.

Ben Adam-Smith 15:50
You've mentioned you can do a lot of this work yourself. So how does that impact on what you're designing?

Josh Wood 15:58
Yeah, so that's been fascinating. I would say empathy is something I've learned. As an architect, you often have to go to sites and have conversations with builders and have conversations with clients. And to actually experience what both of those go through is invaluable as an architect. I can have conversations with builders now, you know about how to install certain things and also with clients, you

know, what it feels like to put so much money into things and how you really do want quality. And so that's been fascinating. I also think the age old question for architects, which is how much to draw and how much not to draw, I finally think I might have found the solution to that, which is, if you try and draw too much, you're likely to get it wrong, a builder sometimes knows best. So I found in this, that I'll draw this and in the exact detail, I'll come to site and go nah that's just not going to work, actually. So you need to draw the intention, give an indication of what's required, and that's a very useful thing as drawing, because I remember coming to site and like I need to know roughly what it is. But as soon as I start to put too much detail in there, it actually becomes less useful. So I think I found urm a good balance for that, because I know what it feels like as a builder to get a drawing and try and build something from it. So I found that very useful.

Ben Adam-Smith 17:19
And what build approach are you going to use? Is it going to be timber because you're familiar with it?

Josh Wood 17:25
Yeah, so this house is all timber, most of my projects for other clients are timber buildings. I went stick build timber because of the access and we couldn't go anything prefab. We also knew that is quite cost effective if I can build it myself. I used to do carpentry as a way to make money as a student in the summertime. Yeah, I was quite keen for it to be a timber for that reason. It also meant that we could actually get thinner wall buildups, but still maximising insulation. The slight issue with the timber, I think this build has been building up against another house. Because if you're building in block work, first of all, it's fire resistant. Whereas if you're building in timber, and you can't access one of those sides, how do you do that. So if we'd built in block work, we could have built overhand as it's known, and then not having to access that side. What we did for this is build 400 mil away, which is just enough space to squeeze down this gap with an impact driver. And then we can fix the boarding and breathe membrane and stuff on after it's built. We did think about building it in panels on site and lifting it up. But very helpfully, a friend of mine said, I can honestly tell you, you want a bit more space just in the event, you need to access it, so we put that at 400 mil. Anyway, so yeah, the timber has been a great build method really enjoyable to put up with with some friends in the summertime in the golden days of the structure. Obviously, it's compatible with this natural construction system that we've gone for here, which is wood fibre, kind of sandwiching the house all around the outside. So that's the roof and the wall. What I like about this system, similar with other houses I've designed is that the roof and the wall build up in exactly the same. So we have this interesting, quite neat thermal bridge details, the eaves and things like that. And just building in the same material, I think helps with efficiencies. And it's nice because it's all a breathable, natural material. And on the wall, we've used a line renderer.

Ben Adam-Smith 19:22
So you've got a few things going on here. Because cost is also an issue. Is that the cheapest way to do it? Or were you lucky that you could invest more in the fabric? Because you've got to always balance these choices, haven't you?

Josh Wood 19:36
Yeah, that's another question that crops up a lot is you know, what's cheaper outlet main construction methods? I think my general advice there from experiencing it on different projects, is that the actual

construction method, so the superstructure phase, doesn't really make much of a difference, I'd say in terms of costs. What really starts to make a difference are some unknowns like groundworks, but also the finishes and we're noticing that this actually is those linings and the internal fit out work that almost I think has a bigger chunk of that pie. So I would say, using timber wasn't so much a cost related thing, actually, I would have gone for it anyway, if it was more expensive because I knew I could build in it. But also because I've had to practice what I preach, which is low carbon buildings and timber is low carbon, you know, it sequesters carbon, but it also works well with things like wood, fibre and other natural infill insulation materials.

Ben Adam-Smith 20:34
Yeah, that nice materials to work with. I know, you told me just before we hit record that one of the major things here also is drainage that you needed to have a soakaway. But that in itself was was a challenge. So I'm assuming that was something that you had sought out early on.

Josh Wood 20:55
Yes. So we're almost not going to buy the land, even though we knew we had the good pre-app. Because, whilst you can sometimes get planning on a piece of land, you might not actually be able to build it because of building regulations. And what could have cropped up for us was surface water drainage and I feel perhaps many other developers would have just got on with it and thought about it afterwards and it would have been okay, but because we were checking all these things, really doing a thorough assessment as an any risks for this land. And what cropped up was surface water. Where did the rainwater go? Every other house around here it goes into the public sewer, is a combined sewer. But because Bristol and the rest of the country are really ramping up on sustainable urban drainage, that's really the last resort on the suds hierarchy. So we went through this suds hierarchy, he said, Look, there's not enough space on site for infiltration. So soakaway there's no high waist drain, there's no watercourse nearby. So please let us go into the sewer. And they said, No, we won't let you do that. But because we had given them a possible scenario of how infiltration could work, they were saying, you've got to go for the infiltration. And that scenario was don't meet the Building Regulations, which I've never seen happen before, but can be done subject to an engineer testing the soil. And if it drains well enough, which we have very well draining soil, we were allowed to put the soakaway closer to the building, what it has meant is a pretty hefty reinforced concrete slab. But that's worked very well with the system we've gone for anyway, because we've got an insulated raft, which would be a reinforced slab anyway, regardless of the soakaway. And this slab has solved many things for us because we're also over a coal mining risk zone, which would have meant piles a no 30 metre deep concrete piles, and potentially disrupting buildings next to us. So the slab meant we didn't even need to dig down very low, not low enough to undermine the foundations of the house next to us. So that's ticked that box. So the slab made a lot of sense, just by reinforcing it a bit more, we're allowed the soak away. So our engineer really did us a lot of favours by getting this all designed prior to purchasing the land we were so close to pulling out and if it wasn't for him, maybe we would have so it's worked out well.

Ben Adam-Smith 23:16
It feels like you've had quite a lot of support. You're obviously the main person who's going to be doing all the work, but how do you get support? When is it paid support.

Josh Wood 23:25
So it's anything wet trade, or muddy? We've had support. So the beginning of the project, a good friend of mine, Rupert, who actually designed his house, so it was a nice little kind of return of the favour I suppose. He helped us out at the very beginning, which was great because he was just but also advising on the ground works but advising on things that are later to come down the line. So having that overview was great. So Ruppert here for the foundations, but yeah, I was on site all time with him as well. We laid the insulation down, pouring the slab we got Gary the concrete king, he's a local round here to do that. And that was amazing. And that was a hell of a day getting that poured. So yeah, we definitely had paid help there from Rupert and Gary. And then another friend of mine for the structure, Chris, who again is working his magic on the helping out with this. And my friend Brendan, so after that they after we got the roof on it's just been me and Amy, and Amy has been absolutely incredible. You know, she's just learned on the job. She's got lots of experience with the tools now and also doing much of the paperwork and all that sort of warranty stuff. It's definitely been a two man show.

Ben Adam-Smith 24:42
Did she take much convincing for getting involved in the DIY or was she surprisingly up for it once he started because once you get going your your sights are on getting to the end aren't there and making this better and better?

Josh Wood 24:56
I think she actually gets envious when I'm doing more than she does. So She's very, very keen to make sure that she plays her part, we do actually have a very in depth spreadsheet about how many hours we've done each on the project, it's been a useful thing to do just to demonstrate how much time we're both putting into the project, I think it's actually encouraged to make sure she's she's doing the same amount. And she is. So that's all good.

Ben Adam-Smith 25:19
And how did you balance the time, where is that time coming from because when you're doing this, you're not doing your work.

Josh Wood 25:26
It's just been a very crazy, last year and a half, I've been working just as hard at the practice, actually, you know, I haven't really taken them the foot off the gas with that, either. It's been a lot of work, I would say, in the earlier days, when we were striving to get the roof on. We were working maybe three days a week, plus with the help from Chris and Brandon. That was, that was great. And then once we've got the roof on, we did move in pretty soon, in January, when we didn't have a working shower. We didn't have any insulation. But that gave us the I suppose the impetus or the drive to keep going with it just by living here, you know, we were, well, maybe it was more like March, we were really keen to get on it. In fact, we were living here, we could just get on with it. And that's helped us you know, save some money as well so that's been good.

Ben Adam-Smith 26:17
And were there any challenges during construction?

Josh Wood 26:20
There's been so many yeah, there has been so many. The the slab was interesting, because I made the insulation formwork like you get Isoquick is one system, I made that myself to save money, which I wouldn't recommend, because um you're pouring this concrete slab and if that breaks, everything is over, isn't it really, you've got a huge concrete mess. So I made that myself by rodding these plastic rods to kind of downlinking these edge pieces in. Saved a lot of money, saved five grand, but I was so scared that it was going to break. So that was definitely a challenge. I don't know whether that's worth the stress or not. But luckily, that all worked out fine. The other challenges yeah, has been building up against the other house. And we did get two lifts of scaffolding in this 410 mil gap, which is one plank. So that's another way we design that gap. We designed it just to get two bars of scaffolding, plus the enough space for your spanner and one plank. So you're squeezing down that to get siniat board, weather defence board up on the side there, was very challenging. So those two would be the key ones i think actually. Other than that the structure was a beautiful time and all went rather well, the glulam beams. So we haven't got any steels in this house, they are all glulams, very large, glulam beams that we've got that took nine of us to lift, but that was all fun. And then the other one would be the render, because it's not something I can do as involved getting other trades. And it's quite a it's very well known in Germany, but it's not so well known in in this country. It's a lime render. So the challenge there has been speaking to the right people understanding the exact sort of product we need on this wood fibre and getting that right. But I'm really, really, really pleased with that system. I think it's brilliant. So it does rely on it being breathable, but lime such a great product to work with and on the woodfibre. So the kind of learning curve, I suppose of that and making sure that's right has been actually probably one of the largest challenges, but it's worked out very well.

Ben Adam-Smith 28:27
Now you've taken a fabric first approach with the house and you know, the modelling, you're keen to check out and body carbon afterwards, all of these sorts of things. But is there any point where you would have liked more money, more funds to up the performance? Or is this just a reality of life? You know, money can only go so far.

Josh Wood 28:53
This is our first house and I think we are going to stay in it for a long, long time. Although there is an appetite to build another one, I'm sure. So I kind of think regardless of whether we were going to sell, you know, do this as a development to sell, I think we would have definitely gone through as high insulation as possible. And airtightness and all that. We didn't you know, at the outset, we pretty much had maybe 50 grand, we thought getting towards tight shell or 100 grand with all our money was up and it was all up. So we did manage to get the windows in for 100 grand, but then our you know, our money was up. So we kind of maybe pitched that about right. But I know that we put much more specification, higher spec, on the insulation and in the windows and the airtightness and the MVHR than we initially thought. The initial plan was not to have any of that because we thought we wouldn't have the money. But as we've gone on, we actually shoehorned in the MVHR because I thought we can't not have an airtight home, and if we've got an airtight home, we need the MVHR so.

Ben Adam-Smith 29:54

This is something that I keep coming back to because people they love the idea of Passivhaus but when they start to figure out the numbers, it can sometimes be a challenge. So here I am saying, well set a different target. But you almost need to follow the formula, don't you? Which sends you back to the same place? So yeah, how do you work that one out? In your mind? What advice would you give people.

Josh Wood 30:17
So I remember discussing the MVHR, with Amy, and that not only is that doing a huge thing for the energy efficiency, it's also really lovely environment. So it just felt wrong to not make the house airtight. When you're building it yourself, you can see a gap, you want to tape it up. Whereas once you've done all that, then you just need the MVHR. So we made that decision, because to purposely put leaks in the house, so there's some sort of background ventilation or trickle vents just didn't seem right. So the seven and a half thousand pounds for the MVHR was a tough one. But with these things, you will keep on working, you'll get more money, and it will come and then your wish, I wish I put it in. So we've kind of gone on that basis. And I think, again, because I practice what I what I preach, it's also useful to, to understand these technologies for clients. And so they can come and visit their home as well and see whether it's worth it for them.

Ben Adam-Smith 31:14
And tell us about the windows because that's another example along these lines, isn't it?

Josh Wood 31:19
Yes, we actually have Passivhaus windows, but they UPVC, which were three times less the price, than composite windows. They're triple glazed, U value is of 0.78 and I think they're great! We took so long trying to choose windows and definitely we would have preferred the timber for many reasons. One of them being their setup to detail well with modern methods of Passivhaus construction, in terms of how the seals are made and stuff like that. So we had to kind of work around kind of standard UPV sill detail to make it work with our Woodfibre and things like that, which was slightly tricky but worth doing because of the, like I said, the third of the price, and we're still getting the same performance. In fact, the actual performance of the UPVC frame is better than aluminium on its own for sure. So I think that was a good decision. Actually, we're not so keen on the fact that UPVC isn't the most ecologically sound material. So that is an issue, but sometimes, you got to take decisions haven't you.

Ben Adam-Smith 32:26
I've met another eco architect who has done exactly the same and I think her comment after it was I cried for two weeks or something. The decision, so we understand life happens as well. What I think is interesting is that you've definitely got the Passivhaus feeling of comfort. I don't know whether you're very satisfied, or maybe it's the materials, but I can certainly it feels very even in here.

Josh Wood 32:51
Yeah, that's it, it is very even isnt it and I think the MVHR plays a huge role in that. And just the, you know, the high levels of insulation, so we have met the, I've done all the calculations using the Passive House Planning Package.

Ben Adam-Smith 33:03
I see. I think that's important as well, some people then when they're not doing some of it, or I'll skip that bit as well.

Josh Wood 33:08
Yeah, I wanted to, I suppose I quite like geeking out on that stuff. And I wanted to know, when we were choosing the windows in particular, how far could we the rooflights, for example, you know, would it push it over the line, so we couldn't reach this standard. So I wanted to do those checks prior to purchasing some of those key items. And the airtightness, we've got a superb, you know, we've reached the Passivhaus airtightness. With 0.5 something or 0.4 something, we haven't quite got the levels of insulation as a Passivhaus would, but we are meeting the AECB building standards, which is great.

Ben Adam-Smith 33:45
And was some of that down to this drainage, again, I know that sounds like a silly thing to say, but the insulation couldn't be too thick, could it?

Josh Wood 33:54
The insulation under the slab could have been thicker, the only issue would be then the formation level of the excavations would be lower, almost to a point where we would be going lower than the neighbor's foundations. So there wasn't much left in it. But we could have put probably a bit more under the slab. So that wasn't really the main restriction, although we had 200 mil insulation there. So it's pretty, pretty good. There was also just the fact that there is a small plot. I think the main reason that we haven't got deeper walls is because we didn't go for the timber I beam structure. You can get very wide webs then at 300, that's the sort of thing you might need the Passivhaus. We've gone for just standard timber that you can get from Jewsons, and there's a big cost saving in that. And if I asked that decision from a sustainable builder in Bristol said, you know, what's the difference in cost if I just did this in standard treated timber that you can get down the road? And he said that could be a big cost saving. It has meant that things aren't perhaps as straight and true as you might get with timber I joists but out that we can just order more timber, I joists, they're often cut to size and there's a design team involved in getting thatall sent to you correctly. Whereas we might be like, Oh, just need a few more of those and actually for our house, the floor, so the upper floors, and the walls, and the roof are all in the same timber. So there's actually been little waste because of that, and just kind of an easy process of procuring that timber, but that has meant that the installation was restricted to 200 mil plus an extra 80 mil wood fibre, which is a pretty good U value, but not quite Passivhaus.

Ben Adam-Smith 35:32
Let's move on to finishing, then. I know you're not quite there but have you had any ingenious ways of fitting out and saving a bit of money as you come up to completing everything?

Josh Wood 35:45
Yeah, I mean, we're sitting in front of quite an easy storage unit here, which is just made out of rather cheap doors, you know, on sliders. So that's worked out quite well. Tell you what's a really good idea is StairBox, those flat pack staircases, and that was a hell of a puzzle to put together. Because as a kind

of twisting version, but they're amazing, amazing company, pretty good value for that. The kitchen, we're going to make out filing cabinets, because I think they're charming things and they're built so well. And lots of people are selling them for really cheap, £10 they are, sometimes you get them for free. I think they're quite stylish. So we're building the kitchen out of filing cabinets, I'm gonna put a nice piece of wood on it. That's the next thing to do. And then we have this balustrade made out of old gates, which cost us £100 and I think it's rather charming, too. So yeah, those things have worked out well.

Ben Adam-Smith 36:37
Are there any lessons learned as you've looked back over the whole project?

Josh Wood 36:40
Yes, I would say the idea of just slowing down, I think I now understand the tale of the hare and the tortoise. Because I never really understood that as a kid, wheres the moral in that? And I think now it makes sense to me as a builder, you've really got to plod not run. And architects may be working at such high pace sometimes that can't be good for either you or the project perhaps. And I feel that I've learned to take things slowly and and that's been actually more beneficial to doing the project efficiently, if you slow down a bit,

Ben Adam-Smith 37:15
Does that mean enjoying it more? Or not putting yourself under pressure of I've got to finish this tonight? Or?

Josh Wood 37:22
Yeah, exactly, not yeah, just it takes as long as it takes. And if you try and rush things, it's just gonna end up taking longer or be worse. So taking the time to really think it through pays dividends eventually.

Ben Adam-Smith 37:37
Are there any other tips that you would give someone who's in this position of perhaps not with a massive amount of money, high aspirations, going to do a lot of work themselves? And really, you've put yourself on the housing ladder for a very small amount of money, which not many people achieve? So I think that's fantastic.

Josh Wood 37:59
Yeah, I suppose there's an element of jumping in at the deep end, I suppose it is about taking risks, isn't it? Not that I'm much one to taking risks, actually. But I think in order to get on the housing ladder, and build something, there has to be an element of that. So it has been about finding the small site, really. I mean, that's really in a way you could summarise this project, as you know, speaking to friends being like, they managed to flip that site. And that's really what's meant that we've got more money, I suppose, for the build as opposed to putting into the land. So I'm sure there's lots of people looking for very interesting small sites out there. And in a way, we got lucky. But we have been before that, sending letters out to various people going on excursions around the country to find small bits and building up a database of little interesting plots. So we did put a lot of effort in so my advice, I suppose would be keep looking for those small bits of land, and be very creative about how you um, you might be able to make that into something.

Ben Adam-Smith 39:00
Well we're just about done here, I think for today, is there anything else we should mention?

Josh Wood 39:06
Yeah, actually, I've been listening to your podcasts, and it was an episode where you were having a discussion with an architect that I think lives down the road from you.

Ben Adam-Smith 39:14
Yes, Colin Rice.

Josh Wood 39:16
And he mentioned this book that I think he'd actually helped write. And I've got the book, I can't remember the name sorry, of top of my head. But I thought I have to go and get that because it was about how to know whether a construction detail is going to work. Some kind of overarching rules on how you assess whether a detail is going to work. And this idea of creative pessimism, I find a really useful thing for me for this project. You know, look at this detail, and you have to creatively assess how it could go wrong, which I suppose architects are doing all the time when we come up with details. But I think by building this house myself, I can see things potentially going wrong. I can stand I can look at how the waters running and The advice in this book is this idea of highs and lows. So that's gravity and another things like that high to low pressure. There's various other ways to assess things. But that idea of just looking creatively at how things go wrong, I think it's quite useful.

Ben Adam-Smith 40:16
Yeah, I think one of his other things was that because of the high to low principle, people building timber roofs, who slightly slightly worried about that, well, it's been fascinating to catch up. Well done, keep going on these final few stages of your project. And thank you very much.

Josh Wood 40:33
Thanks very much, Ben.

Ben Adam-Smith 40:36
Head online to take a look at the show notes that accompany this session houseplanninghelp.com/343. We've got a summary for you there of all the learning points during this episode, you can also take a look at some of the plans and see what a tight site it is, and what a good job Josh has done. If you've got a comment, or you'd like to ask a question, you can do that within the show notes, or tap us up on social media. And of course, we will link you to Josh's practice, Green Trace. All of that at houseplanninghelp.com/ 343. Finally, a mention for The Hub. And this is the membership community that we run alongside House Planning Help. The idea being this, that you join us and we try to give you more information, try to make it easy to consume as well. We use a lot of videos, we try to take you through entire builds. We've got our in depth video case studies. And one thing that we're looking to build up and build upon is our Ask the Expert feature Ez Tresidder is our expert at the moment in building physics, and he's got all that retrofit experience, but we're looking to add other experts as well so we can really expand and help you even further. We've got our courses, we've got our live training

sessions with guest experts and have a chat with me in office hours. I was put that last don't I? I shouldn't do that. That should be the highlight. So come and find out more at houseplanninghelp.com/join. Next time we stick with Josh, well, almost it's one of Josh's clients. And this is Janice Gardiner. So we're going to have a look at her project. She used to be in Bristol and she downsized with her family into the countryside near to Hereford. And it's terrific. It's actually won an award quite recently. So we will be chatting about how you downsize. She's an ecologist as well. So what does an ecologist choose? Well of course, a very sustainable home. We'll find out more next time. Thank you so much for listening. The House Planning Help podcast is produced by region media, content that matters.