

HPH336

Ben Adam-Smith 00:00

This is House Planning Help episode 336. Hello, 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.

Ben Adam-Smith 00:18

Coming up, it's a solo session. Yes, just me today. This month marks five years since I moved into my Passivhaus. I know, where does the time go? So I'm going to be reflecting on some of the decisions that I made, and also how it's been in the house over these last few years. If, however, you didn't even know that I'd built a house, or you've never heard any of the podcasts about my project, you can stop right here and delve into the archive. There's an index to all the episodes that we did on my project: houseplanninghelp.com/235.

Ben Adam-Smith 00:54

So that particular episode, I listened back to some of these, I just wanted to remember, refresh myself, was tying together elements of my audio journal over a six year period. And then there's Episode 234, which is where I reviewed my performance as a self-builder. And that was quite interesting. So I think there's a crossover today, not a lot, but I will mention the points that are crossed over. That probably means very little has changed since I moved in. So we'll embed those links into today's show notes.

Ben Adam-Smith 01:28

And a quick aside here, in our membership community- The Hub - that I run alongside House Planning Help, we go in depth on various different projects, we call it our in depth video case studies. And of course, when I came to do my own project, we decided it was a good idea to cover this. So there are over 20 videos of between 10 and 15 minutes, made at different stages of the process. Always we try and focus on the decisions being made, look at the changes taking place on site. And the whole purpose of this is that not only is it easy to consume, but hopefully it prepares you for what is ahead. And that's why we look at different projects, so you start to get a feel for what it's going to be like: houseplanninghelp.com/hub.

Ben Adam-Smith 02:11

So where do we start today? Well I think there's got to be some gratitude here, because I am most grateful for having had the opportunity. In the UK, the statistics are something like this, that maybe a million people dream of building their own house, and each year 15,000 people actually get that opportunity, so I am hugely grateful. Also the time that it happened because I'd just started a family, and there's no doubt about it, just having a bit more space, being able to enjoy the comfort as well, all of these things, I feel blessed that I had that opportunity. I know this is probably one of the busiest stages during life when you've started a family, but there's a big payoff if you can get through it without being too stressed.

Ben Adam-Smith 02:58

Overall, I'm really proud of what we achieved. We're still here five years later, which is good, and I hope to stay longer. I think the first point I have to mention is something that I mentioned in that other podcast as well, and that's having an experienced team helped massively, both in delivering what we wanted, in enjoying the project. So that was Parsons and Whitley, that was Mars builders, Gabrielle Blackman, various consultants. And what's interesting, I say a lifetime of experience, Chris retired soon afterwards, hopefully we didn't finish him off. Mark as well. But we got the best out of the people that we hired, which is fantastic. And Mars builders still around, still doing passive houses, which is again a source of joy to me. Well done guys.

Ben Adam-Smith 03:42

So this was our first time building a house. And there are plenty of things that could have gone wrong, however, with a strong team around you and the willingness to listen, I think it's much harder to go wrong. So having a clear, effective brief goes a long way, as does good communication. And despite my wife and I having slightly differing opinions on what we should build, I think we both worked well to find that middle ground. And that's always a challenge when you're in a partnership, because you're never going to have exactly the same views. This then helped in delivering the house. So that's the first thing that we have to mention - the experienced team.

Ben Adam-Smith 04:18

Secondly, and this was noted on that first podcast when I'd just moved in, but I still think it today, Passivhaus delivers on its promises. I have never regretted building to Passivhaus standard and getting it certified as well. I would do it again, I would and do recommend it to others. And there are lots of reasons for this. Firstly, it's tried and tested. This didn't come out last week, last month, last year. This has been around for decades. And it's a solution that has emerged out of understanding building physics. So it's come out of research into why there's a performance gap. You can have performance gaps in lots of things, but why do they crop up? What we have on paper we never seem to get when we measure after we build. You'd think all architects and builders would have a grip on this, but they don't is what you discover. And also, the more and more you dig into this, the deeper and deeper you go, the more you realise it's common sense. And the same applies to the community at the heart of this - The Passive House Institute. I don't think they're really driven by a desire, Oh, let's make as much money as possible. It's about get this open source, let's solve some of the issues that we have in construction. I get that vibe with all of the Passivhaus community that I interact with.

Ben Adam-Smith 05:35

Let's just talk about my personal experience of living in a Passivhaus, and I find the indoor environment second to none. A lot of people don't understand the comfort aspect of Passivhaus. So we've got lots of episodes explaining how the design process works, the key aspects, airtightness, insulation. But then of course, you need mechanical ventilation with heat recovery. And you've got to make this thermal bridge-free, high quality windows and doors, good orientation, shading, all of those sorts of things. As you address the fabric of the building, making it more consistent, then the indoor environment gets better. You don't get any cold spots in the winter. And in a regular house, there might be many different temperatures going on in a room. And that's one of the fascinating things if you grab a thermographic

camera, which I've seen lots and lots of times. But you start looking around traditionally built properties and see it is all over the place. The radiator might be really hot, there might be a draft coming in through the window, it might be cold to the touch, there might be hot air rising, the surfaces are different temperatures. All of these sorts of things you notice as you walk around the room, and then often to compensate you jack up the radiators so that you think you're getting roughly the same temperature. But everything evens out in a Passivhaus.

Ben Adam-Smith 07:03

Here's another way that I like to think of it. You're creating an environment that you can control. So let's just pretend this was a lab for a second, that we wanted to conduct weather experiments, control the temperature, make it hotter and colder. You would want it continuous, your fabric, and consistent. So this is highly desirable, what you've got. And then the rest of the things that we mentioned, things like the orientation, they're just common sense. You're optimising. And at the end of this, you're making the house do the work.

Ben Adam-Smith 07:36

One of the sad things about comfort is, you don't really notice it. Once you're comfortable, that's something off your mind, you can worry about something else. So you've just eliminated a pain point. In the same way I remember I used to do stage lighting, and if everything went really well during a production/during a show, nobody even noticed you. They say the actors are fantastic. But if you made a mistake and turned the lights off, or did something very weird, everyone would start turning around and looking at you and trying to find out where is the technical person here, what a mess they're making of this. And I think it's the same with comfort, that really once you're comfortable it's not a worry. In practice, you might find that a slightly lower temperature than you were anticipating is perfectly fine because you don't have these drafts. And what you want at the end of the day is a comfortable space. So that is the goal.

Ben Adam-Smith 08:30

Another aspect is moisture in the air. And if I reflect back on living in a Victorian house, well all too often you get condensation on the windows and this can lead to all sorts of problems. Just the moisture in the house will stop you cooking all these sorts of things. You might have read headlines about mould-ridden properties. Well, the reverse can be true as well, if it gets too dry, and you might get dust mites multiplying, and so forth. So Passivhaus keeps you within an optimum range of humidity - that's 40% to 60%. And while this makes for a much more pleasant atmosphere, generally it comes into its own in naturally damp rooms such as loos and bathrooms, and a laundry room that of course you're going to have moisture there. And you never have to worry what to do with your washing in the winter because you know the moisture is going to get taken out. And the same is true in the kitchen. You know that the Passivhaus is going to deal with the smells. Yep, not immediately. It's a low power fan, but just gradually and constant. That's the important point. Constant fresh air, changing the air, getting the stale air out, bringing in fresh air, the smells will go in all the rooms.

Ben Adam-Smith 09:47

Soundproofing another benefit as well - we're on a flight path, and I've heard my friends complain about it. We can still just about hear the planes with the windows closed, but triple glazing and an airtight

building cuts out the vast majority of the noise. So that's a big plus as well. In fact, in our house, it's the fridge that makes the most noise! This is it, you design this fantastic MVHR system that is silent to the air and then forget about the fridge and all the humming and buzzing and things that it does.

Ben Adam-Smith 10:19

What else have I not mentioned? Affordability. There's no way I could live in a house of this size, if it wasn't affordable to live here. And I have friends again, who are paying ridiculous heating bills for much smaller spaces. Well, we are insulated against that to a certain degree.

Ben Adam-Smith 10:39

Finally now, and I'll probably come back to this one, summer comfort is a reality. So in the UK, we've experienced temperatures of 40 plus. It's the first time it's ever happened, and in this Passivhaus it was maybe 25 degrees by the end of the day at the back of the house, 26 at the front. Yes, it was around about the 25 mark. And that is fantastic. You can't argue with that. That's what they say, summer comfort use that insulation and airtightness on those hottest days.

Ben Adam-Smith 11:09

So what are the downsides of Passivhaus? I always like to bring this into the arguments. I think in some ways, it's tricky to get away from having XPS, or that type of insulation below the house, plastic membranes as well. Although I was at a conference where they were telling me about one that has a minimal amount of plastic and is going more towards paper. I don't know enough about that but it sounded quite interesting. So you know, hopefully these things are starting to get solved.

Ben Adam-Smith 11:41

I also feel MVHR - although it's critical, it's a little bit of a pain. It'd be nice if you could do it without it but I know you can't. Then you've got these filters that I don't know what they're made of, but they need to go in the bin afterwards, which to me, that's never a good sign. There's a maintenance cost. If you're not doing it yourself, you're having to bring someone in and it's almost a specialist skill. Still, you don't want to mess it up so you need to get the right people and that can be costly.

Ben Adam-Smith 12:08

So while we're talking about MVHR I'm going to bring this up as my next point, because the MVHR system has been my biggest problem since living in the house. The bigger your house gets, the more maintenance you will get. Whether it's the grounds or the house itself, things will break. Yeah, I understand that. And what I don't know is did I get unlucky here, because a number of times something's gone wrong with the ventilation system, I have gone to get it fixed, and then it's gone wrong or something else has gone wrong. And I know a few other people, sensor errors and all the rest of it. And I was having a casual chat with someone who reckons that perhaps the model, the unit that I had, was rushed to the market and doing a bit of research while it's already out there. So yeah, that would not be a good experience that I would say - my MVHR. But I don't know what happened, did it get dropped on site? Did something happen when it was manufactured? Am I just unlucky? Hopefully I am, I'm just sharing my experience.

Ben Adam-Smith 13:13

And I suppose my concern at the end of this is, if you didn't fully understand Passivhaus and the importance of the MVHR, you might get fed up with it and just switch it off. Maybe your social housing client or what have you, although then maybe they'd come to fix it, you wouldn't have to deal with it yourself. So I just think that it needs to get more reliable. There's a lesson in here that I embrace again and again: keep things simple. Technology will go wrong, I know that, but I don't think it should go wrong so quickly. And also, if you find this subject interesting, I made a podcast a little while back - Episode 299 - which shares the ins and outs probably when I was in the middle of it tearing my hair out. Do we really need this mechanical ventilation? Is it just adding another problem to our plate that we don't need? That's houseplanninghelp.com/299. Again, we'll work it into the show notes.

Ben Adam-Smith 14:14

We come to perhaps my biggest learning and this is that I missed an opportunity by not installing an air source heat pump. This is something where I knew about it at the time, but perhaps I was having other thoughts as well. And remember, we are going back in time a number of years, six or seven years by now, when we were specifying a gas boiler and I'll take you through my thinking which has certainly changed. I was concerned about selling the house and thinking that a future buyer would be interested in a connection to the road and that might be a big problem. So let's do it now, we can always disconnect from the gas main if we need to. Fast forward a few years though, and I just don't think it's so relevant. There's so many houses that are heated with heat pumps, that I don't think people will care so long as it's in good condition and likely to last a good few years more.

Ben Adam-Smith 15:09

What it also meant was quite a bit of investment in the infrastructure. So digging the trench, laying the pipe work, making sure it's all properly connected, quite a bit of money probably went on that when it could have gone straight into an air source heat pump. The only plus point is we are ready for an air source heat pump. Whereas other people might have to improve the fabric of their buildings to increase efficiency, we're ready to go there, we also know where the air source heat pump would go. I was aware that that might happen at some point down the road. Trouble is now that you've got all the gas infrastructure, what do I do with switching it over? Do I go sooner, or with all the embodied carbon of what I've done do I just live with it because I'm only using a small amount of gas? That is certainly something I've thought about a few times.

Ben Adam-Smith 16:01

Moving on, this was one that I picked up on on that podcast just after I'd moved in, but I'm gonna say it again. A timber build system would have made the house more sustainable. We often mention I beams and the cellulose insulation. And this is something that we'd been covering in The Hub, the PH15. system which I still love. But at the time, when I was building my house, I was quite interested to build a masonry cavity wall construction house, because this is still the main approach in England. I know it's crazy, by a long way as well. And as a newcomer, I thought, well, there's lots for me to learn here, which was true, I definitely did learn a lot. And I was also thinking at the time, well this will help inspire anyone building with masonry to get things as efficient as they possibly can.

Ben Adam-Smith 16:45

However, as the years have gone by, even the proponents of building Passivhaus with masonry cavity wall, I don't know, I feel there might have been a change of heart. You might remember in my early choices, I'd thought about building with straw. I don't know at the time, whether the straw panels, the certified Passivhaus components were available on the market. And I was certainly slightly nervous of going down that route. I hope today I would be braver and say this is the way to go. Certainly timber frame is very tried and tested. And also straw, they've been building with straw for years and years. I think we've had some podcasts where you have got to be careful with moisture, you've got to make sure everything's done properly. But the straw panel properties that I've visited, I've just thought this is fantastic. And you know it's going to have a very low carbon footprint.

Ben Adam-Smith 17:41

Next on my list: client intervention can backfire. And I imagine it does a lot. It's very difficult to see it when you're in the thick of it. So I'll give you some examples here. For example, we have French doors, something that we wanted, they open out onto the patio. And in our original designs from the architects they specified a sliding door. And in hindsight, I now think that was the better option. The reason being the French doors blow in the wind, and they're big doors, and it's cumbersome, and the kids might smash into them - all these sorts of things. And how often, how many times when it's those really hot days, guess what, you've got them closed. So that period of opening to the elements, I don't think you do as much as you think you will.

Ben Adam-Smith 18:28

I'll give you another example. When I look at where the kitchen, laundry room and bathrooms originally were in the architect's plans, I wonder whether they were considering the efficiency of the services, because if they're all very tightly together, you've got very short pipe runs, and that means almost instantaneous water.

Ben Adam-Smith 18:49

We also messed with the plans a bit, we couldn't understand why we had such a large utility room. I mean, we're not going to be spending all of our time in there, we want to be in the kitchen. So of course, we forced that through a bit, but the consequence of having a bigger kitchen, more open plan, was that we needed a steel for extra support. Yes, it can be done. But would it have been cheaper the other way? Yes, it would have been. And there were knock on effects of course. The reason the utility room was so large was for the MVHR. That's where it's going to live. Not when we've been fiddling around! We've made the utility room so small that I bet - here's one for the next person who buys the house - will be, well how did they get by with such a small utility room? But we thought it was the least important space in the house. So our MVHR unit is in the garage. That doesn't mean it's extracting air from the garage, it's still extracting air from outside, but it's just on the wall right beside the house. And it seems to work well. But I think if I did it again, I would like to have the MVHR within the thermal envelope. It does make sense and it does make sense that it's within the utility room. But at the time I don't know, I didn't grasp that. Or not enough. The kitchen was more important.

Ben Adam-Smith 20:01

Shall we have another example? I think so. We increased the depth of the east facing balcony. So whereas it would have been a standing area in the architect's original plans, we decided no, we want

more space, we want to be able to put a table and chairs outside so we can enjoy that lovely view. This is the challenge here, because how often have we had the chance to do that - not very often. And also, it's facing the wrong way. If you're facing east, that's the sunrise area, you're in bed, you're asleep. I think we could have got by with just having that narrow balcony. Just stepping outside every so often, it is nice just to get some fresh air. But again, we would have paid quite a bit more money, and also all the hassle of having to get planning approval again to make these little changes.

Ben Adam-Smith 20:53

So the lesson to draw out of here, if you've got an experienced team, well hopefully baked into their designs, their thinking, their approach, are lots of learnings. So they're not repeating mistakes of the past, and they're maybe looking at situations slightly differently to you. So just be aware of that. It's tricky isn't it.

Ben Adam-Smith 21:12

Next, we also want exactly what we want. And there's no doubt we were driving this thing. And we thought it was yep, we're gonna pay more to have this or we want these changes made. So I don't know where the line is. I am just flagging it up for you.

Ben Adam-Smith 21:25

I feel like we should take a little breather here. All okay? good. I am getting there by the way, particularly on these main ones. I've got some loose ends to tie up there. And they weren't really big things, but little things that just I feel I should mention anyway.

Ben Adam-Smith 21:41

So here's another one that I think is going to be relevant to you: large, heavy doors need constant adjustment. And I have a feeling this is just gravity at work. It wouldn't matter how good those hinges are, how well designed, if something becomes too big, it's just gravity saying, I'm going to take this out of alignment. So be aware of it. I think for windows, they often say a metre in diameter is about as big as you want to go. And I do love our windows, a lot of our windows are about that size. So I wouldn't say don't do it, just be aware, you might need a little bit of tweaking. Or you might need to ask that question about how resilient are they?

Ben Adam-Smith 22:20

And this is not exactly linked, but we've had a lot of trouble with people slamming the front door. And I do remember, before I built a house, I think it was a site visit to Lime Tree Passivhaus, and I was going to close the door and I absolutely struggled. It was one of two things that would happen, either I would think I'm closing it so carefully, it's going to be okay, and then it wouldn't shut. Or the other was I'd slam it. I'd think, oh right, we've just gotta go oh, no, I didn't mean to let go - slam! And this is exactly what we have with our house, that it's got very little resistance. But for other people who perhaps come from a door that needs slamming just to close it, they don't know how to handle this door. So I don't know what conclusions to draw from this. Again, it's just something I am flagging up to you, that these lovely Passivhaus components, they do take a bit of understanding. And maybe if you could get some extra resistance. I know if you visit the library or something they have one of those horrible things on the back of the door to close it gently. That's not what I'm suggesting. I don't think you want one of those. But if

there is some way around this issue, it has been a challenge for us because we're always getting in that argument trying to defend our doors when people are slamming it saying, It's your doors that are the problem.

Ben Adam-Smith 23:35

Next, did I mess up the architecture on the east elevation? So what's the story here? This is probably one that might be worth checking out the show notes. I will put some images in so that you can see the elevations. So let me describe originally what the plans were. There were four windows: they are vertically a bit taller than they are horizontally, and they look nice on the elevation. When we moved the kitchen, one of those had to become a window behind a sink. I was after a horseshoe style kitchen that no one would be walking through. And so on the outside of the house, you've got to think of this. At the same time, we were faced with the choice well either you can have two small windows here that look symmetrical, so it affected one of the other windows in the room, or as we did, we decided, well, let's just have the small one in the kitchen and then keep the window as is in the diner area. From the inside, looks awesome. Really, really happy. From the outside, I look at it sometimes and think did we do the right thing? Because of course there's another argument here in architecture. I know Nick Grant's very passionate about this, that we should be designing from the inside out. But then you've got to accept the fact that you're not going to get the symmetry on the outside. And if this hasn't made sense at all, I would consult the show notes now so you can get some visuals: houseplanninghelp.com/336.

Ben Adam-Smith 25:07

Additional shading would increase summer comfort. Yes. Over the last few years, I have had the chance to experience how a Passivhaus can provide that refuge in extreme weather. 40 degrees plus. I can't remember what the exact temperature was, it's probably going to happen again isn't it. And using the insulation and air tightness of the house and the way it's been designed, brilliant, we were a lot, lot cooler than lots of other people. We didn't have any issues sleeping. Good. However, I think you can take it further. And if I ever come to build a Passivhaus again, this is what I would hope to do. So I'm going to explain how it works for me, the particular design of my house, what I need to do to keep the house as cool as possible in that heatwave. Let's say it's the beginning of the day, and it's 22 Celsius in the house. Well, we still get solar gains coming into the house, sunlight shining in. And over the course of the day, it might rise by three Celsius say, so we'll finish the day at 25. It's all good. When you're faced with 40, that is good. However, that my challenge now, if I leave it like that it might drop a little bit by itself, but not as much. I've got to make sure that I purge. And I've got a bit of thermal mass that's got to cool down. So it means during the night, or first thing in the morning, I've got to cool the house down, which can be done. So you can either have the windows on tilt and turn, it doesn't tend to be too effective, unless it's really cold outside.

Ben Adam-Smith 26:42

And this is the other challenge is, you don't know what the future holds for temperature outside. But a couple of things to note here. Firstly, it takes a little bit of time to cool. And also it's most effective if all the windows and doors are open, and you can feel the breeze coming through. So what that means for me is that I make sure I'm up early to take advantage of when the air is coolest. With more shading of the windows, you'd have a smaller jump in temperature during the day. And this is not saying we should

have electric blinds across every window. That is just something that's going to go wrong. It's something that if you could optimise further, if you could. Say for example we've had that recent podcast of the straw panel Passivhaus that was up for the UK Passivhaus awards, and their approach was to have this veranda that said basically, there will be no sunlight coming into the house until you get into September. So that's pretty much the whole of the summer. And you're getting very minute increases in temperature during the day, unless you're silly enough to say, right, let's cook a Sunday roast. But you learn not to do that!

Ben Adam-Smith 27:48

So I thought that was interesting that you should definitely pay a lot of attention to overheating. If you're beginning your Passivhaus journey and this is what you want to do, it's probably the only area, well not the only area, you need to make sure everything else is done right, but if you're less concerned that you're going to get a Passivhaus, the overheating bit is really, really crucial. And I'm saying this from someone that has an overheating risk of something like 1%. It's a miniscule amount. You can have 10% and it could still be certified, which I think is way too high. You should be optimising wherever you possibly can, because this will just be another benefit that you'll love about your Passivhaus.

Ben Adam-Smith 28:31

So we've got a few loose ends to finish up on; not big things, just observations. One of those is that our driveway seems to scare people. I don't know why, they'll come in, and I think just turn around and go back out. But they don't want to turn. They want to reverse out, and normally they'll mess it up. They'll drive onto the grass because there's a slight bend in the driveway. So I don't know what it is. It might be the dimensions. I don't think they're a lot out, and I'm not advocating for converting way more land to the turnaround, I don't want that. You know, I'd much rather have garden. I think people go crazy in front of their houses destroying front gardens. No, no, no, don't do that. But could we have predicted this, could we have just given a tiny bit more space in that crunch point that's obviously scaring people that are thinking, I'm driving this big car, I cannot turn around here? That's one thought.

Ben Adam-Smith 29:24

I'm also, when we're in the kitchen, not convinced about the recirculating fans that you have. Let's just explain. So you have your mechanical ventilation system, your MVHR, and you don't really want to have something conflicting. In a traditional house, you might have an extract fan. So you have this or you can have this recirculation fan. And what I find is it doesn't really work very well. So I'll be doing my cooking beside it, and yes, it will suck all the air down but I'm really not sure is it doing anything useful? So there's a carbon filter in there which is supposedly taking out the bad stuff again, that's something to replace. So I'll explain what I do. If it's something simple, let's say you're cooking pasta, boiling an egg, some vegetables on the go, right, I don't know what it is, you just leave the MVHR, it's fine. There shouldn't be too many pollutants in the air. But if I've got the griddle pan out, and there is something smelly, we're cooking something to go in a fajita or a roast or something like that. When I feel we need more ventilation here, I'll just open the windows, even if it's just on tilt and turn, so that there's a slight breeze. You don't tend to lose too much temperature. It's an interesting light that, because it's within the thermal mass of the building. So I think you still have to have it, I'm just saying hmm, the jury's out on that one for me.

Ben Adam-Smith 30:50

Also, you may not know this, but I broadcast to you from my storeroom! That is where I am now. And this is the accidental room, which I love. So going back in the design process, we had a stage very early on I think actually, when we were talking about wanting ensuite bathrooms. I didn't really want an ensuite bathroom for everywhere, and that was just the starting point. But we had in what is now my office for 99% of the time, an ensuite bathroom for that space, because the office could do double duty and turn into a guest room. We never wanted another bathroom here. So I'm definitely pleased that we decided let's just have a family bathroom that we can all use, and that is perfect, so does the job. However, this space stayed. And it's brilliant, because as part of my office, it's a room within a room, so no one else sees this. And it's also the attic, or I use it for a lot of my office stuff. If I've ever got any paperwork, it just comes in here and gets filed away, the printer lives in here. Anything that I want out of the way. So when I step into my office, it's always really tidy. And I just hope nobody opens that door and sees where the mess is, but I love having this one room, that can be really messy. And if I again, came to design something for myself, I think I would want something like this - a space that is just storage which is in a sensible part of the house. It probably for me makes most sense in the office. So just an idea possibly for you.

Ben Adam-Smith 32:23

This was interesting, to do with plugs in sinks. And I can't remember whether we cut any corners here, we probably didn't buy the most expensive plugs. But sometimes you'll just get something that's not designed very well, that could be another thing. It's a pop up plug, which I quite liked the idea of but one by one around the house, they've all gone and had to be replaced. And they almost just shear off. So again, be aware in your design that you may get little things like this. Sometimes it is very obviously if you're trying to cut costs, be careful where you do that.

Ben Adam-Smith 33:00

And then finally, we didn't cost up the garden plan. This is something worth mentioning with houses full stop. Just running a house, you've got all sorts of phantom costs, that things that you don't even think about. You may say, Oh, yes, I'm going to have maintenance but not realise what that means, what the number is. Well, we commissioned a garden plan, but knew it was not going to happen straightaway. We didn't have the budget for it before. Even though we thought we were going to do the garden plan, we have done the garden, is how much it would cost just if we sourced everything as cheaply as possible, all the plants for the garden. Oh yeah, we forgot about the shed. That's not going to be as cheap as we thought, and tackling one side of the garden or one little area per year. But it's amazing. I'm sure it's a couple of grand each time we do one of these little projects. And we're going after five years. The garden is looking good and is a source of joy. Really enjoy it. But that's something to be aware of, if ever you have one of these, oh, let's bury my head in the sand for a little while and we'll deal with that down the road. Be aware it might have been good for us just to research a few costs before we got going.

Ben Adam-Smith 34:09

Guess what? You've made it. Thank you. I hope some of that was interesting. Head online, take a look at the show notes for this session: houseplanninghelp.com/336. I've got a list of learnings for you there. Have you built a house already? Are you willing to share anything that you've learned during the

process? Well, this sounds like a good opportunity to have a chat within the show notes, just scroll down to the bottom.

Ben Adam-Smith 34:37

Also, we've mentioned quite a few resources, other podcasts that I've done, in today's episode. I'll link those into the show notes. [Houseplanninghelp.com/336](https://houseplanninghelp.com/336).

Ben Adam-Smith 34:50

My call to action is to check out The Hub. This is an extension of House Planning Help and it's our membership community which aims to simplify the self-build journey. We've got more tools, more information, you can interact with me, and I'm working on a couple of new videos on my own in-depth video case study. That's one of the things that you can delve into. We've got other ones as well, including on a retrofit project, so you can see how it's done first hand. We've got courses, live training sessions, our members-only forum. Office hour calls: as I mentioned, I'm here every week and you can chat to me whatever's on your mind, ask the expert calls, all at [Houseplanninghelp.com/join](https://houseplanninghelp.com/join). Find out more.

Ben Adam-Smith 35:34

Next time, Derek Taylor is my guest. We're going to be looking at advances in wind power and solar PV. How has it changed over the last 50 years?

Ben Adam-Smith 35:44

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