

HPH314

Ben Adam-Smith 00:00

This is House Planning Help episode 314. 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. Coming up, it's a returning guest today, Mike Coe. And there are a few projects where we tend to check in from time to time, and this is one of those. So we're going to pick up the story from where the building was watertight and take it all the way through to one year of Mike and Lizzie living in the house. There's a little bit of jumping around in this episode. We talk active MVHR systems, thermal mass, builders disappearing, balancing finance and the hands-off approach they took, that became a hands-on approach! So all that to come.

Ben Adam-Smith 00:51

Just before we introduce Mike, I wanted to mention that I'm going to return to the topic of mechanical ventilation a little bit later on. Because I've not had the best run of luck with my MVHR system: mechanical ventilation with heat recovery. In fact, I made a whole podcast about it because I thought, well, so much has happened now, I'm going to make a podcast about it: houseplanninghelp.com/299 if you want to delve into the woes, but also the reason that I'm still passionate about MVHR.

Ben Adam-Smith 01:23

Anyway, at the moment, I'm living in a house that's only being ventilated by half a machine. Well, that's what I'm calling it. So one of the fans has failed and I'm going to tell you all about that. It's been two and a half weeks and counting: full story to come before we finish up today.

Ben Adam-Smith 01:40

Let's get to my featured interview with Mike Coe. Mike and his partner Lizzie were the self-builders behind the Crophorne Autonomous House, but concerned about the effects of climate change, they wanted to be further north. So, they bought a plot on the Isle of Skye, Scotland, and started a second self-build project. This was less autonomous, but still following the Passivhaus route. If you haven't listened to any of the episodes that we've done with Mike before, it probably would make sense and probably be quite fun to play them in order. So we'll put links into the show notes today, if you choose to do that: houseplanninghelp.com/314.

Ben Adam-Smith 02:21

As we pick up the story today, Mike has been in the house a year. And I started by asking him whether he's living a normal life now? Or is he still tackling the odd job here and there?

Mike Coe 02:32

Yes, the house is finished, well, ostensibly finished, but there are still little jobs and slightly larger jobs to be picked up. We're in the one year snagging period that you get with most contractors where you

kind of say, right, okay, the house is finished, but we've got a year for any problems to crop up to be rectified, and so forth. And we're withholding a small percentage of the total payment with a view to paying that when everything is all sorted.

Mike Coe 02:56

So we've been here, we've been in semi-officially for about a year. And I'm still doing jobs, actually, we've got really serious damp in the lower ground floor porch, and only yesterday I was working on that. So there are still things to be done. But at the same time, we are leading semi-normal lives now. Because obviously during the main period of the build, it takes over everything and you don't do anything else, you don't go on holiday, you don't have any weekends off, you work every evening. So we're well out of that period, fortunately, but there are still jobs to do, which I'm picking up and there are still things for the contractor to do. And when or if they get done is somewhat uncertain.

Ben Adam-Smith 03:34

One thing I remember about you guys from Crophorne is you got everything done. I know perhaps this one, you were hoping for a bit more of a hands-off approach. But your personality does not allow you to, you can't just forget about those jobs and live your normal life. You'll be thinking about finishing it. Am I right?

Mike Coe 03:55

Well, yes. I mean, that's the burden of being a Capricorn isn't it. Yeah, I think that's just how I am. And yes, I do want to get everything finished. But I mean, it isn't far off being finished really. The things that we are living with are minor irritants, and they're things that you can forget about. I mean, some of the windows leak, but you only remember when it rains so you can put it to the back of your mind. But some of the remaining jobs to be done are just really horrible, awkward, time-consuming jobs, and I don't quite know how we're going to tackle them. One thing is the door on the lower ground floor porch, which I just mentioned, was never adjusted properly, so it sticks. It doesn't shut properly. So only recently I got round to thinking about I better have a look at this. I then discovered that the aforementioned damp problem means that the hinges are all corroded up. So all the adjustment screws that I need to turn in order to make the door fit properly, won't move, and I actually stripped the hexagon head on one of them because it was stuck. So things like that end up being incredibly irritating and incredibly time-consuming, but they don't really affect living in the house, you know, they're just kind of annoyances. You go through them on a day to day basis, I must do something about this. But you know, I haven't.

Ben Adam-Smith 05:07

Let's address some of these snags, because for me any water getting into the building, that's the number one thing that would drive me crazy. So why is that happening in those places. You mentioned the porch, and some windows was that the other thing that was happening?

Mike Coe 05:22

Well nobody knew how to adjust the windows, and they're actually quite complicated. I should have, and could have done it. The contractor was very wary of the windows because they're not a type of window that he was familiar with. Everybody, seemingly in the Highlands, uses NorDan windows. So as

these weren't NorDan windows, he was just "they're your problem. We're not adjusting them or setting them up or doing anything" They did install them obviously. And they are actually quite difficult to get right. I imagine that they were properly set up at the factory, but the transportation and the installation, they need to be set up again, a bit like when you move a piano, you know, you have to tune a piano every time you move it because all the adjustments go out. So here on the Isle of Skye, we do get some pretty ferocious weather. And we get some high speed wind-driven rain. And you get that hard onto a south facing window, and unless it's set up absolutely perfectly, it will leak and several of them do. And I still haven't really sat down and looked at the diagrams, understood exactly how you do the adjustments, and worked my way through it. Because these things don't happen. When you're, as I was with Lizzie's help, when you're putting in 800 metres of electrical cable, and you're putting in an entire MVHR system, doing the decorating and picking up the plumbing because you weren't happy with the plumber and you were beginning to run out of money, then something like spending two or three days slowly and painstakingly adjusting doors and windows, just isn't something that's a high priority. So it didn't happen. And that's why we've been left with all these leaks all over the place.

Mike Coe 06:55

There's no serious structural leaks within the main building. That is all fine. These are all windows that can be adjusted. And the porch is like a separate entity, and might now be okay. We're sort of keeping fingers crossed on that one.

Ben Adam-Smith 07:09

Let's rewind now to where we completed the last podcast, and in real time. Do you know how long ago it was that we did this podcast?

Mike Coe 07:17

It's got to be a year, hasn't it?

Ben Adam-Smith 07:19

It's three years.

Mike Coe 07:21

Is it really? Wow.

Ben Adam-Smith 07:22

Because I went searching, and I kept going back and back and back and then eventually found you there. And pretty much what was happening at that stage is the roof was going on. So I'd like to pick up the story from there and talk about MVHR. At what point did you start to do that? And also the electrics, is that coming up soon after you get your watertight shell?

Mike Coe 07:49

All the jobs I knew I was going to do, and the main ones were originally the electrics and the MVHR, I started the moment that there was another building there for me to work on. So in fact, the main ducts that bring in the fresh air from outside and take the exhaust air out, they went in almost at the foundation stage. As the wall was being built that those ducts pass through, I actually was assembling

those. I made a template of the top of the MVHR unit and screwed it to the wall so that I got the positions exactly right. And I brought the ducts in while the bricklayers are working, so they actually got built into the wall rather than having to cut an enormous hole afterwards. And I started channeling out for power points when there were just concrete block walls and not even up to the first floor level. So I was actually basically working out in the open air cutting channels for electrical cables to run in. So every time an opportunity arose, I started work. And basically from that point onwards, as the building process progressed, I was busy all the time, I never then had to wait for things to be finished because I was, you know, more walls got built as I cut channels.

Ben Adam-Smith 08:53

So where exactly did you start to specify the system, and what was available to you and how you could put it together?

Mike Coe 09:02

I started to specify in my head even before building work had started, but particularly with the MVHR, I had some reasonably firm ideas about what I wanted. And I had read about these relatively new active MVHR systems which don't just have a passive heat exchanger to extract the heat from the exhaust air and warm the incoming air, these actually contain, a micro-heat pump. I think it's about 60 or 70 watts. So it's genuinely tiny. It's nothing like when people say oh yes, we've got a heat pump for the heating. It's nothing like that. What it does is it effectively aids the heat extraction process and makes it more efficient. So it means that in the winter that the heat pump comes on when the temperatures dictate it. The MVHR system we've got which is made by Nilan, it can actually actively extract more heat from the exhaust air than a simple passive system could. So you can actually feel, when it's running you can feel that the air coming out of the ducts into the rooms which have the clean air feed, is very, very slightly warm. And as with most heat pumps, it can work in both directions. So in the summer, it can provide a small amount of cooling. Again, we're only talking about 60 or 70 Watts. It's not an air conditioning system. Its main effect is that it actually does help with dehumidification of the air. So it makes the air in the building fresher, and a tiny, tiny bit cooler. But this was key to building another house with no heating system whatsoever.

Like our Cropthorne Autonomous House, this has no heating system. But there were times there towards the end of January, when the structure of the house was really cooling down, I thought, well, a little bit of heating might be useful. So I looked at these active MVHR systems. I thought this is a really good idea. It's a good way of distributing the heat around the house because you're using ducts that you were going to put in anyway for the ventilation system. And the heat pump is tiny, but it's all you need. In a passive house, it doesn't need much help. But it had that little bit of help. And, we've come through the first winter in this house, and it was really very comfortable. I'm amazed at how well it's performing in terms of comfort, thermal comfort, both in the summer, when it did get quite warm, and through the winter. Just on a few occasions, we used our heating system, which is a 1950s one bar electric fire, for the odd hour here and there. But the rest of the time the house was warm enough.

Ben Adam-Smith 11:24

I remember speaking to you quite soon after you moved in. And there was definitely a sense of worry because the house hadn't heated up. So how did that work? How quickly did it come up to temperature? And did you really need a blast of sunshine just to sort of get where you needed to be?

Mike Coe 11:43

I don't know if there was much sunshine. It was just over a year ago, we moved in, we bought a curry in a box from the supermarket because this is going to be our first dinner, I said to Lizzie, and I wasn't entirely sure how to operate all the kitchen appliances, despite having installed them myself. We huddled around the dining table with our one bar electric fire on the floor right beside us because the temperature was 11 degrees. And there was a big storm raging that night. And as a result, not uncommon, there was a massive power cut. So having eaten this curry in an 11 degree house, obviously the electric fire went off and it was pitch black. So we sat freezing in the dark for a bit and then went to bed.

Mike Coe 12:26

However, things improved. And within a week or two, the first two or three days I didn't have the MVHR operating but when I got that going and the heat pump cut in, and we started we were living here and there was some sunshine within one to two weeks, can't remember exactly, the temperature was up to 19 degrees, then it was 20 degrees, then we were up to 21 fairly quickly. And from then on, we never looked back. I mean, I'm really surprised because the Crophorne house was absolutely designed for passive solar gain, super insulated thermal mass to store the heat. I thought this house being larger, and perhaps not quite so fastidious in the attention to Passivhaus detail, I didn't think it would perform as well. But it seems to be performing better than the Crophorne house did in terms of remaining warm in the winter, and again cool in the summer. So we were pleasantly surprised and genuinely surprised by how quickly it warmed up even with just two people living here, and stayed warm. I mean, it hasn't dropped to an uncomfortable temperature since then.

Ben Adam-Smith 13:30

It's so interesting, because Crophorne was following the autonomous house philosophy, but getting up to Passivhaus levels. And you were using all that thermal mass. I don't know because Es was your Passivhaus designer was he?

Mike Coe 13:48

Yeah, we employed him as a Passivhaus consultant and then realising how tight the budget was going to get, I said, I'm sorry, I can't go through the whole Passivhaus certification process. But we had all of the design input from him, which was extremely useful. No, he's not a fan of thermal mass. I've now built two very high mass houses and neither of them have, well I assume the other one still doesn't, neither of them had a heating system, and neither of them need one. And I can't see how you can build genuinely a zero heat house without having some kind of thermal storage. And the place to put the thermal storage is in the structure of the house because it then serves two purposes: it's the structure and it's also your thermal store.

Mike Coe 14:31

So I realised that there are implications because you do end up using more concrete and concrete blocks and so forth. And this house in particular, this is nothing to do with Passivhaus this is kind of pleasing the planning department with lots of stonework. This house has got a lot of steel in it, which I can't defend except to say well, this was the design that the planners were keen on and they passed it so we got lumbered with the steel, but equally we don't have any fired clay bricks or fired clay roof tiles and they're very, very energy intensive in manufacture. So I don't know, this will obviously take more time to buy back the co2 emissions involved in the manufacture of the materials of which the house is made, than a very, very lightweight predominantly timber frame house. But at the moment, I do understand all the people saying high thermal mass is not the way to do it. But in my experience, it really works. It really does.

Ben Adam-Smith 15:25

Let's move on to some of the quality control that you're doing. Airtightness: I saw all sorts of details that you and Lizzie did. How are you integrating with what your building team are actually doing?

Mike Coe 15:40

Airtightness. All they know is this very cheap silver foil tape that you can buy in most builders' merchants. That's what they use for airtightness. And it just tears. I showed them. I said, "look, this stuff just tears. Now try and tear this piece of proper Passivhaus airtightness tape, you can't tear it, because it's got incredible strength and flexibility".

Mike Coe 16:02

Yeah, I mean, I suppose I, I kept a quality control eye over all the work. And then when things were happening that I wasn't happy with, I took them over. But nobody seemed to mind. I mean, I've done enough of these things. I think I can get on with people. Builders don't seem to mind me. 25 years in the trade and here I come along, telling them how to do their job. They don't seem to take it that way. And I think they understood it was an unusual house and that I was very committed to it. And I was sort of part of the building team because I was on site every day with them.

Ben Adam-Smith 16:36

But how does that work in terms of structure? So you're saying to them airtightness - we need to do this here. I'm going to do that. Is that how the conversation would go?

Mike Coe 16:45

Yeah, more or less. Yes, yes. Or more along the lines of "I don't mind doing that. Shall I do it?" So if you put it that way, they say "oh, yeah, that's great, because we don't have to do it, then do we?"

Ben Adam-Smith 16:55

There we go. We can tick that one off! Mike, can we get you to do something else?

Mike Coe 16:59

So yeah, well, I you know, I did plenty of carpentry and other bits and pieces as well. And the main contractor didn't mind because I was reducing the workload that his men had to do, but he didn't knock any money off. Actually, he did to be fair! He did take some money off here and there where I was

doing a lot of airtightness taping, he did say he'd reduced that particular valuation that month. Because obviously this was more of a main contractor build, but then I ended up being heavily involved. Crophorne was a project manager and a load of casual workers of which I was one. So it was slightly different here. But no, there really weren't any sort of labour force problems relating to me doing stuff. And obviously, it was known from the beginning that Lizzie and I would be doing the electrics and the MVHR. So we were on site working on those things anyway.

Ben Adam-Smith 17:43

What about the timeline? Because I know you had all manner of things, you had Covid to deal with. How did it work out in the end?

Mike Coe 17:53

I suppose we were about 15 months late. The original deal with the architects who were also the contract administrators, was that it would be a one year build. And then I said, look, if I'm doing the MVHR and the electrics, I won't be able to keep up. So can we extend that a little bit, please, because I may end up slowing the project down, which I don't want to do. I'm not going to work as fast as the professionals do.

Mike Coe 18:16

We settled on a 15 month contract build period. And in reality, I think it was about 30 months from the start of you know, first digger going into the ground to start on the foundations, to the house being ostensibly complete.

Mike Coe 18:30

We were doing all right, for the first 10 months or something. And then the contractor had already signed a deal to build a 25 bedroom extension to a local hotel, luxury hotel, which is quite a thing to take on when you've only got six men, but he just kind of takes anything on. He's just signed a contract to build a church. I don't know if it was a very big one, but he signed this contract anyway! So the owners of the hotel chain for whom he was building his extension, announced that rather than have it built at the end of that particular year, it would have been 2019, that they wanted to build it early on, so that they could be ready for the following tourist season. So basically, he just took all these men off this project and everybody disappeared. That's not entirely true. We had one freelance bricklayer still here, who was steadily doing the best job he could and he was doing quite well building the house on his own.

Ben Adam-Smith 19:23

Do you think, because I mean, this must happen all the time, do you think the purpose of that bricklayer was to say, well look, work is still happening?

Mike Coe 19:30

Yes, I think that's exactly what it was. Yes. So that I couldn't claim that it had completely, you know, ground to a halt because he didn't need a brick layer on this hotel extension because it was all sort of steel panels and things, but everybody else disappeared. So yeah, we used to go out for a stroll from time to time we always went past and there they were, all the contractors' vans were all parked outside.

So we knew that they were all there and what they were doing, and they knew as well I mean, they realised that we'd been led up the garden path as it were.

Ben Adam-Smith 19:57

Is there anything you can do though, because as mentioned, I think that's perhaps more common than we would like to imagine across any industry in some respects. If you get a big new job in, and you're struggling with manpower to do it, you might focus on one job at a time and then move back. But being in that situation, what can you do?

Mike Coe 20:17

I think we were powerless. There wasn't really very much that we could do. I only heard rumours about the size of the contract, but it was a pretty high price contract to build this hotel extension, and a local company with considerable clout in the area. And that was obviously a higher priority than us, even though this was actually one of the largest projects that the contractor had ever taken on at that stage. So that was the high priority, and off they went.

Mike Coe 20:41

So what was incredibly frustrating was that we did actually, we kind of waited out, it was almost a year while this extension was completed. And it was nearing completion, virtually at the point where they would actually be able to start booking guests for the rooms. And it was like, oh, yeah, don't worry, our boys are coming back soon, you'll have a full complement of staff on site, and your house will be you know, finished before you realise. And then blam, straight into the Covid. Lockdown.

Mike Coe 21:06

So there we were, with another what was it three months added on to the almost year long delay due to the hotel build. The hotel extension was sitting there virtually complete, but they couldn't open it because of everything was shut down because of Covid, whereas our house was nowhere near complete and nobody could work on it except me. So that was really, really, really frustrating because our house should have been finished before the lockdown, or at least close to finished. You know, could maybe have been at the point where Lizzie and I could have just cracked on with decorating and other jobs like that. So I just did what I could.

Mike Coe 21:39

I mean, I dismantled some of the temporary stairwells that the contractors or the carpenters put in. I dismantled some of them so I could use the four by two timber to continue building stud partition walls, because you couldn't get any building materials because all of the builders merchants were shut. There was some plasterboard laying around so I used all the plasterboard I could. I rescued timber that had been chucked outside, thought to be not very useful, brought it in, dried it out, used it to build stud partition walls. So I kept the project going. And I also built a new desk for my sound mixer. I was actually really busy throughout that whole period, but there was just me in the house on my own just doing all these things. But it was psychologically it was beneficial because it meant that there was still some some progress happening.

Ben Adam-Smith 22:23

So just rounding off this thing with the builder then, having this in your contract as well about overrun. Did that really mean anything?

Mike Coe 22:34

No, nothing whatsoever. Because getting angry doesn't really have any effect does it really I mean, I've sort of learned throughout my long life to when you know you can't do very much about something not to... Well, I do fret about it. But you know, we were never on bad terms with the contractor. But we all knew what was going on. And there wasn't very much that we could do about it. So we just kind of worked our way through it. And yeah, we were 15 months late I think moving in, I think that's roughly the right time period.

Ben Adam-Smith 23:04

Maybe you could talk through some of those jobs that you've been doing to push it over the finish line. So when you've got a completed house, I remember this so clearly that it does seem like everything's going really slowly for a while during the fit out. So what jobs, if you can cast your mind back, have you been doing to get it to that completion stage?

Mike Coe 23:27

Yeah, obviously during the lockdown, there were the carpentry jobs and other jobs that I did. But an additional problem which arose was the money started to get very tight. I mean, it was always going to be tight anyway. This was an expensive build. The one that the planning authority liked was the most expensive of all the options that we presented at the planning application stage. So we had all this stonework and everything. Then we started getting overruns.

Mike Coe 23:50

We started getting things like well, basically connecting the water supply turned out to be far more complicated than I thought it would be. We thought we could tap off the supply to our neighbouring bungalow, which was also our temporary home during the build, but the man from Scottish Water said no, no, you can't do that. You've got to bring your own service pipe up from the water main, which is halfway down the hill, opposite the Cuillin Hills Hotel. Immediately that was an £8,000 pipe run that we had to put in. So there were various things that came in and started to push the price up.

Mike Coe 23:57

We actually overran by something like £34,000. And this kind of changed things a bit because I realised I mean, we were genuinely, we were going to run out of money. I mean, I know we owned the bungalow that we lived in but that cash wasn't available. We looked at the cash flow and I said to Lizzie, we're gonna run out of money. So I had to, we had to take on more work than we ever envisaged.

Mike Coe 24:46

I wasn't very impressed with the plumber. He previously worked in the oil industry and he was kind of a bit of a, sort of enormous hammer drill and lots of massive great big wrenches and stuff being chucked around the place and holes made everywhere, and I didn't think the quality of his work was very good. It was competent in the sense that it worked, but I wasn't very happy with his work. So one of the things

I said to the contractor is don't bring the plumber back, I'll do all the second fix plumbing. So we'd got the first fix done, some of which I tidied up because it was actually done really badly. So that was an additional job that I took on. So basically meant fitting the kitchen sink, the plumbing for washing machine, dishwasher, fitting all the bathrooms out. And we also had to very, very reluctantly, because both of us hate decorating and had done more than enough of it, we took over the decorating. So at that stage, the ceiling of the big main room upstairs had actually been done professionally, thankfully, so we didn't have to do that. But we did most of the rest of the decorating. And the contractor hired us one of his men who used to be a professional decorator on a sort of cash basis to finish some of the decoration off. So those were additional jobs that we took on, and then all the things that I've been doing since then, basically I'll do anything. So what I was doing yesterday was cleaning out brick dust and inserting silicone in an attempt to stop these leaks in the porch. So what I'm doing now is anything, but not very often.

Ben Adam-Smith 26:09

You still have the bungalow, though?

Mike Coe 26:12

No, we've sold it.

Ben Adam-Smith 26:13

Right. So that must have changed the financial situation now?

Mike Coe 26:17

Yes, there aren't any actual money worries anymore. But you know, getting the house completed to the point where we could move in and then put the bungalow on the market, things were getting really tight. I mean, we weren't having to go without food. But if we'd had, for example, like a major problem with the car, we would have really struggled to pay for it.

Ben Adam-Smith 26:37

The one thing I would say, and I think I'm right in your particular circumstances, you haven't borrowed any money, have you? Whereas a lot of people hit the floor when they've pretty much borrowed as much as they possibly can. And I can only imagine what life must be like even if they get into the house. It must be pretty unpleasant. Because, yeah, you want to be able to live a fairly decent life without... Bills seem to come from every direction anyway, no matter how well things are going.

Mike Coe 27:04

Oh, absolutely, yes. And various people pop up and there's like there's a tree consultant that is required. A tree consultant was required for this extra run of water pipe to ensure that we didn't damage the roots of the trees that the pipe had to run close to. So that was another £750 or something because he had to come from Inverness and stay the night, presumably in a fairly luxurious hotel. So all these bills come piling in of various sizes. And then there's the architects are doing contract administration. So every time their man comes around and spends an hour here, that's an I don't know what it was, ridiculous amounts of money.

Mike Coe 27:39

So yes, we were fortunate that we didn't have to borrow any money. I suppose we were also fortunate being retired that we could actually put our time into working on the house. If we'd both got jobs, or one of us had got jobs, we wouldn't have had that time available to say, well, I'll take over the second fix plumbing, or we'll take over the decorating because we wouldn't have time to do it. So from that point of view, yeah. I mean, I'm grumbling a bit, but I am aware that I shouldn't really grumble too much.

Ben Adam-Smith 28:04

Yeah, I think you have some right to grumble, you've been very involved in this build. And I remember the first time around when you did Cropthorne, you mentioned that fatigue, you do get it no matter how well things go. It's a long project, isn't it?

Mike Coe 28:20

It is yes, I don't know if there is actually a recognised medical condition of self-builder fatigue. But if there is, I think I've got it. I said to Lizzie, I don't think I'd fully recovered from the Cropthorne project before we started this, but I mean, it's nice to have moved away from. I've got to the stage now that I was at Cropthorne where I can leave things. At the end of the project it's like you don't even want to pick up a screwdriver. You just kind of really have had enough even though you know that there are more things to do. And various jobs in like it was four months, between the mirrors for the bathrooms arriving and me actually plucking up the energy and the enthusiasm to get around to fixing them to the walls. It was that long. But it had to be done, obviously. I mean, I couldn't see myself living in a house without mirrors.

Ben Adam-Smith 29:08

Now looking at the finished building, I have to say it has come out really, really well. I feel bad that you guys are so far away. And I'm constantly making excuses for never visiting you. But I will get there.

Mike Coe 29:20

No, we are a long way away. Yes.

Ben Adam-Smith 29:23

We miss you down here!

Mike Coe 29:25

That's very kind of you.

Ben Adam-Smith 29:26

Have you had many visits South yet or is that still something for a later date?

Mike Coe 29:31

We hope to travel more. Part of the plan of moving here was that we'd be able to really thoroughly get to know the Scottish Highlands and we have started doing that. We're having sort of various trips away from time to time. And the only money we spent following the sale of the bungalow, is we bought an

electric vehicle. So we now travel around without burning any diesel, which is quite satisfying. But there are other projects.

Mike Coe 29:54

The installation is booked but we're yet awaiting the installation of a photovoltaic array. The house is not running terribly efficiently at the moment because we're heating our hot water using mains electricity, which is less than ideal. But that's not the final situation. We're hoping to get this PV array in. And that will contribute to hot water and charging the electric vehicle.

Mike Coe 30:14

And I also, this is more of a kind of a schoolboy hobby project, but we have got this burn that runs down the site, which has a reasonable flow rate for most of the year. And I am looking at putting in a micro hydro generator, so a tiny little water turbine, which probably, if it works, probably only generate 100-150 Watts, but it'll do it 24 hours a day, and virtually through the whole of the year. So that's a, that's a nice project on the end of the horrors of the main house build. That's quite a nice sort of interesting little project that I'm at the very early planning stage of.

Ben Adam-Smith 30:51

Gadgets. Yeah. And how about that green roof? How's it looking? And how does it behave?

Mike Coe 30:55

It still isn't fully green, but it's, it looks okay. And it hasn't leaked. There's a zinc capping all the way around the parapet, and we lost a corner of that a couple of weeks ago. Had some really serious wind, incredibly powerful gusts, and that's come off. Fortunately, it doesn't threaten the structure of the house in any way. It's still completely watertight and weatherproof, but we've got to get that put back on and possibly look at fixing it in a more secure way, bearing in mind that the wind just ripped this piece of zinc in half. And I went upstairs one morning to start making the breakfast, and there's a piece of metal laying in the driveway and I thought what on earth's that? And went out and had a look and saw that part of this zinc capping's removed. So that's something that we're going to have to sort out. That's roof related, but the actual grass turf roof is coming along nicely. And I think by the end of this growing season, I think it'll be quite a nice, lush green surface. And it does look terrific. It looks really good.

Mike Coe 30:55

Anything else in terms of living there that you've noticed or comparisons to Crophorne?

Mike Coe 32:03

Not really, no. I mean, obviously, we don't have the composting toilets here, which were great in a way, but we never got rid of the fruit flies, even though I would never admit it. I wouldn't have admitted at the time, we never got rid of the fruit flies. And once every two months you had to rake all the, shall we call it compost, out of the compost chamber and put it on the garden and so forth. And I think although it was fun at first, and all this is really terrifically pioneering stuff we're doing, after a while it began to become a bit of a bore. It would have been too expensive to do that system here. It also isn't necessary to save water on the Isle of Skye. Building in the Midlands and South Midlands, saving water seemed

like an honorable thing to do. Here, it isn't necessary. Honestly, there's no shortage of rain on the Isle of Skye. So we did that differently. So from that point of view, this house is simpler and easier to live in.

Ben Adam-Smith 32:52

So no orange juice containers out the back, you know just getting an extra bit of water for you?

Mike Coe 32:57

No, no, I did put in a quite a large header tank in the roof space, which all but the kitchen cold tap are fed from that tank, and also plumbing for gray water which we could get from the stream. Just in anticipation of if things go wrong with public services in the future. I'm not saying they will. But just if the water supply is cut off, all these things can happen in a remote location. We've got a 50 gallon buffer, if we know the water's off, we've still got water, we haven't connected everything directly to the mains.

Mike Coe 33:28

And the only other thing is, as we were discussing earlier, we've been genuinely surprised by the thermal performance of the house, how it has remained comfortable. It genuinely hasn't needed any heating. It's not particularly warm outside today. And there's no sun, but I'm sitting here chatting to you, and I only have a T shirt on. I brought a jumper with me for this conversation. I thought I might need a jumper, but I haven't needed it. I'm sitting in just a t shirt. And I'm very comfortable. It's very nice.

Ben Adam-Smith 33:56

Well finally, is there anything you'd do differently? Any lessons learned?

Mike Coe 34:03

The main lesson I've learned is that I would never build another house ever again.

Ben Adam-Smith 34:07

But you said that last time?

Mike Coe 34:08

I know I did, well yes, but this this time I really mean it. Also, I can't see, I don't know where we'd go after this. We'd have to go even further north and we'd have to go to Iceland or something. We'd have to do a self build in Reykjavik.

Mike Coe 34:20

No, I think in both cases, having got to the end of it, we sort of look back and say well, yeah, lots of things went wrong, but they got corrected. Most of the decisions we made, fortunately were right. I mean, we changed the layout of the kitchen at the building the house stage, but now you look back on it, it was so obviously what needed to be done. I'm not particularly good at looking at plans and envisaging a real building. So sometimes, and I think there's probably a lot of people like this, sometimes you don't really realise what you're getting until construction has started. But as long as it's not some major structural alteration that you want to make it's basically just taking out an internal wall that we did. So no, I think obviously we did have the benefit of the experience of a previous build. But

there were still new problems that this project threw up which we had to deal with at the time. I think we're pretty happy overall, with the end result, not necessarily with how we got here.

Ben Adam-Smith 35:16

Well, I want to say another really big thank you, because you've been fantastic over the years and always popping on to the podcast. You're probably our most featured guest I would imagine. And just being honest with your experience, which certainly helps others. So Mike, thank you very much.

Mike Coe 35:32

Okay, no problem at all. Thank you

Ben Adam-Smith 35:34

Get more online today in our show notes, which you'll find at houseplanninghelp.com/314 for this episode. It includes an option to look at our summary, we provide this with every conversation that we have so you can review the key points once again. You can check out a few photos of Mike's build, including how things changed from being watertight, and going right the way to the end of the project, got some professional photos as well. It's always good to do that. You've been on this journey, get the professional photos. If you're one of our hub members, you can check out a presentation, not only from Mike but from Lizzie too! A rare appearance, but much appreciated. So you can hear more of the stories behind the build and get their take collectively on things.

Ben Adam-Smith 36:19

We also mentioned Es Tresidder in this episode, and he's actually just popped up on the Building Sustainability Podcast. We had Jeffrey as a guest a couple of episodes back. So that's all good. You can hear him talking about thermal mass, we'll link that in. If you've got a comment or you'd like to ask a question, well you can do that within the show notes or on social media. We'll link to Mike and Lizzie, to Portree Passivhaus, where I hear Mike is working on another video report. They are epic productions, so go and have a look at the websites, all of the links you need today at Houseplanninghelp.com/314.

Ben Adam-Smith 36:58

You may remember earlier on, I said I had an issue with my mechanical ventilation system with heat recovery. Now for the full story. Oh, I know. Yeah, I like to share things because I think it's going to be helpful, hopefully to someone, maybe an issue is cropping up with you. Just remember, we're always told how reliable these systems are. So I am the odd one out here. But I'm still going to tell you about it.

Ben Adam-Smith 37:23

And it started when the fan or the unit got really noisy. So if that happens to you, that is a warning sign that it's probably about to pack up. And I think I did the right thing and I tried to put in the maintenance call. But as we talked about on that additional podcast that I did, houseplanninghelp.com/299, there's not really any 24 hour repair option that happens. You just have to get to the back of the queue, and it has to be scheduled in. And so by the time that happens, all was quiet. So hmm, yesterday the system was very noisy, today, it's very quiet. And of course there was a flashing red light, which was a fan error - one to add to my collection of errors. And investigating it, what had happened was fine for air coming into the building that all looked pretty normal as I checked the flow rates and the fan. The other way

around, the extract just looked dead. Nothing was happening. So I put in the call and half expected them to say yeah, it's a problem with that fan. So the good news is that it was dealt with quickly, got booked in, happy days.

Ben Adam-Smith 38:32

So why am I bringing this up? Well, because there's a slight issue. World circumstances, as we know, have been turbulent over the last couple of years, whether that be a pandemic, war, there's actually quite a few issues in resuming a normal service. I'm sure if you're investigating construction materials, or equipment, there's a longer lead time at the moment for all sorts of things. If you were going to get yourself a new MVHR unit using the manufacturer that I have, at the moment they're saying, well, the wait could be anything up to 46 weeks! I'm really hoping that my repair will not take that long. Apparently, they are prioritising existing customers. So that's good news.

Ben Adam-Smith 39:19

And while this is all annoying, I like to reflect on the positives. First of all, this is not happening in the winter, where I feel my mechanical ventilation system is most useful, recovering all that heat. This is happening en-route to mid spring so things are getting warmer during the day. At nighttime, yeah it's still cold at the moment. But my point is that we're heading towards summer, it's not the other way round going into winter. So that buys me a little bit more time.

Ben Adam-Smith 39:48

And the second thing is, it gives me another scenario to experience and report on. Relying on mechanical ventilation. There's no doubt about it, it is a pain. But as mentioned in that episode I've already talked about, episode 299, it comes with so many benefits, so I would never really want to live in a house that doesn't have a mechanical ventilation system.

Ben Adam-Smith 40:14

Where are we at now? What does it mean then having a house that's only got air coming into the house? Well, the first thing is, it's not the end of the world, as I've discovered. I was under the illusion, I'm going to be doing a lot of natural ventilation. So I'm going to be opening windows, particularly when we have showers or I do some cooking, even if it's cold outside, I'm going to get that air into the house. When it is cold outside though, everyone complains when you do that. And so yeah, perhaps I eased off on the natural ventilation. And you start to notice a couple of things. First of all, the front door, or any door for that matter, there's a slight pressure or suction or something going on, it seems like everyone's suddenly slamming the door. And I had a chat with my friend, Alan Clarke, a top ventilation expert here in the UK. He was saying, well is the incoming air, does it look like everything is working normally? As far as I can tell, it does look like that. And so there doesn't seem to be a buildup of condensation on any of the windows. Even in the laundry room where you might expect it, it's about 45% humidity. So that's not very high at all, when you've hung up some clothes that you know have got a lot of moisture in.

Ben Adam-Smith 41:30

So we suspect that air is being pushed down the extract ducting, so it is working and probably being recovered, the heat to come back into the house. The issue is obviously that not as much air is going to be pulled down there as it would be normally. The main issue that I have living in the house at the

moment is I don't feel it's as even temperature as it would be normally. That's one of the huge benefits of Passivhaus, is that each room feels good, you don't walk out of one room into another and think, oh, it's cold in this one, because it's just all usable space.

Ben Adam-Smith 42:10

So I've noticed on certain days, perhaps most of all when it's cold outside, when you've got lots of sunshine, that the front of the house can be possibly three to four degrees warmer than the back of the house. And so I'm looking forward to that repair. But it's not the end of the world. We can deal with this for now. And yeah, it's just another interesting thing to experience. You know, I'll update you if I feel there's something else I can share.

Ben Adam-Smith 42:37

A couple more bits of business to finish up with. Firstly, we've had a new review in the Apple Store. Thank you so much EcoSmurf.

Ben Adam-Smith 42:47

"Looking into a self or custom build and tried this. Very glad we did. Well presented with various formats, huge range of information from people who have walked the walk, including Ben himself. Great links to other information, all of the 20 or more I have listened to have been of relevance, even if not initially obvious. Infectious too."

Ben Adam-Smith 43:10

EcoSmurf, thank you so much, and please keep on going through the collection. I've no idea what the best way is to go through them, whether jumping back to the beginning, as some people do, or just look at some titles that you like. Thank you for leaving us that review. If you do the same, the main thing it does really is help bump us up in the rankings and get this information to more people.

Ben Adam-Smith 43:33

Finally today, a hub update. This is the membership community that I run alongside House Planning Help, giving you more information, trying to lay it out in a more logical order and some real life case studies. We're currently following the Kinver story. This is a retrofit project. And in our latest episode that we've just added, there's talk of thermal bypass. What is that? Why do you have to be careful putting in insulation and making sure there's not gaps between that and whatever you're insulating between, so we talk a little bit about that. We find out why a twin stud timber frame, or larsen truss, is being used, and it can be cost effective as well. That all in the latest chapter of the Kinver story.

Ben Adam-Smith 44:18

Then we've got our courses which lay a path for you. We've got our live training with guest experts, our members-only forum so you can network with like-minded people, the office hour so you can check in with me and I'll give you whatever feedback and help I can. If that's you, you want to join us, please do: houseplanninghelp.com/join.

Ben Adam-Smith 44:40

There we go, the end of another episode. Thank you so much for being there. The House Planning Help podcast is produced by Regen Media - content that matters.