

HPH321

Ben Adam-Smith 00:00

This is House Planning Help episode 321. Hello, I'm Ben Adam-Smith, and this is the podcast for you if you're interested in self-build or renovation. 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 in this session, my guest is Paul Ciniglio, refurbishment lead for the National Energy Foundation. We're looking at whole house retrofit. I was just thinking of the old Chinese proverb is it when's the best time to plant a tree? The answer being 50 years, 60 years ago, but the next best time is now. Well, when's the best time to retrofit your house amongst hideous energy price hikes? Well, I would say now, if you haven't done it already. I'd certainly having built my own house and then gone straight into the pandemic thinking, wow, how lucky was that to have this place which was suited to our needs for the pandemic. And then now we're into this energy crisis, which doesn't really have an end to it. So today's episode with Paul Ciniglio is really setting the scene if you thought about it before, and now are getting serious, you want to retrofit your house.

Ben Adam-Smith 01:14

First, though, we've had my dad on the podcast before, when he decided to get a detailed energy assessment of the family home. We've had my wife on the podcast before, of course, we built the house together, so she featured on a number of episodes. I'm not sure whether we've had the kids possibly, but I never thought my younger brother Tim would put in an appearance until he left me this voice message, which I just thought it'd be fun to share this with you.

Tim Adam-Smith 01:41

I'd also inform you of this funny situation I had yesterday, I was paddleboarding with a friend. And we were going past some houses on the left hand side. He went oh, you know, I wonder whether that could be a passive house. And then he went on to say, I'm listening to this podcast about building houses. I was like, Really, what's the name of the podcast? And he went House Planning Help. And I couldn't believe he hadn't made the connection given that your name's Ben Adam-Smith, and there don't seem to be that many Ben Adam-Smiths. But yeah, so it turns out, he's been listening to quite a lot of your episodes. Obviously, he has an interest in building a house. So there's people out there.

Ben Adam-Smith 02:19

There are indeed including Tim's friend Andy Tindall. If you're listening now, thank you for downloading the podcast and sharing the message with Tim. In fact, should we give you a bonus fact today that my brother Tim is also the driving force behind a new music podcast called Tape Notes. So if you fancy some light relief, it's very well produced, got all sorts of brilliant names. You may actually even recognise quite a few of the names because they've gone on to be very successful. But John Kennedy is the presenter of that, and we'll put a link in today's show notes to Tape Notes.

Ben Adam-Smith 02:52

However, don't leave us just yet, because we're about to get into today's interview. Paul Ciniglio, refurbishment lead at the National Energy Foundation, is my guest. And yes, we have covered retrofit many times on the podcast before. But today, I want to start over because I'm making this episode for you. If you've watched energy prices go up. And perhaps you've had a moan with friends, but done nothing. And then prices have gone up a bit more. And then perhaps they've doubled and now you're starting to panic. What if you have the ability, or maybe even if you don't, maybe start planning for a miracle right now, get yourself in the position to take action and upgrade your home so that it's more energy efficient, more comfortable. And Paul's gonna tell us all about that. However, I started by asking him about why the energy market is so volatile at the moment.

Paul Ciniglio 03:45

Yeah, I think well, there's a number of factors here with fossil fuel prices. It's a finite resource and we're very much in the hands of the energy producers. And you know, the fact is that wholesale supply prices have really rocketed recently, obviously not helped by the war in Ukraine. It's now predicted that the average household running costs next January could be as high as £3,850 a year, which is going to be absolutely crippling to a lot of families. And we often hear this expression, you know, heating or eating, and I think a lot of families will be facing very difficult decisions come that time. But yeah, I think energy prices are just there's been a trend that they have been increasing over time. But you know, we've really seen these massive, massive hikes recently.

Ben Adam-Smith 04:39

When it comes to renewable energy, how well have we done? It seems like we're always seeing pictures of turbines out to sea, and I'm driving past solar farms. Is that making any impact?

Paul Ciniglio 04:52

Yeah, most certainly is. I mean, we're actually a global leader in offshore renewables now. We can, on some days, quite easily produce over half our electricity needs from the offshore wind turbines. I have a little app that shows what the makeup in the grid is. And you could often see with solar PV that's doing 10 to 20%. But you know, renewables are intermittent. So we probably do need an energy mix to keep the lights on. But you know, there's a lot more we could do, but we have made a very good start. And you know, that's more of a national sort of infrastructure level with the wind turbines. But looking at domestic renewables, what we can actually do at home with solar panels on our roofs or heat pumps, you know, that's not to be ignored either because it's an important contribution.

Ben Adam-Smith 05:46

With these energy hikes, it's really acting as a bit of a kick up the backside for us to do something. Some of us will have more choices than others. So I don't know where the best place to start is. Is it really, if we have the funds to do something? Is that the luxury position?

Paul Ciniglio 06:05

Yeah, I think, you know, there's got to be a re-think on this, you know, we've seen the government intervene this year, and I believe every household's going to be getting a £400 rebate on their bills. But

that can't really go on indefinitely, it doesn't put a particularly big dent in the scale of the increases that we're talking about in any case, but we just can't go on doing that. We need to spend that money, that same money, improving the energy efficiency of our homes, to be quite honest. That's the only way that through using energy more efficiently and cutting out waste, that we're going to be able to get our bills back down to reasonable levels, you know. I'd expect the current volatile market will settle down and prices will hopefully recede a bit, but I don't personally see them coming down a massive amount.

Ben Adam-Smith 06:54

Are we shooting ourselves in the foot, for example, if we look to our European neighbours, Germany in a nasty position, because they had, like 50% of their energy comes from Russia. So what they've done is announced a huge investment in energy efficiency, billions of pounds. And also just said, What's the point in having a gas boiler and all of these sorts of things? Are we subsidising fossil fuels in any way here in the UK?

Paul Ciniglio 07:26

Well, yeah, I guess we are, you know, you can think about things like the warm home discount for eligible sort of pensioners maybe get £150 each year through that. Again, it's money that would be better invested into making the actual home more energy efficient. And you know, once that's done, it's saving money every year. Germany's an interesting situation, they turned their backs on nuclear in the wake of the Fukushima disaster, and now quite dependent, as you say, I think it's 40/50% of their gas comes from Russia. So yeah, I think they're going to really look to expedite investment in renewables. But other things that in Germany, they have, you know, Passivhaus type approaches, super-insulating the homes. And really, if we're to get close to achieving a net zero carbon, that's the sort of level of retrofit and new build we need to aspire to in this country.

Ben Adam-Smith 08:23

What exactly will our first steps be then? We're a homeowner, we're in this good position, we've perhaps got some money tucked away. What do we do?

Paul Ciniglio 08:34

Yeah, that's a really good point. And what we find at the National Energy Foundation is most people don't really know where to start on their retrofit journey. And two big things there is who should I ask and who can I trust? This is something we see over and over again. And NEF is an independent charity, an independent voice, likes to feel that we can bring that trust and support people as they navigate their way through the retrofit journey.

Paul Ciniglio 09:00

Now, the starting point for us that we advocate is to have something produced called a whole house retrofit plan. This is carried out in accordance with new British Standard BS 40104. And a retrofit plan involves a survey of your property by a retrofit coordinator. And then they produce what is effectively like an options appraisal as to everything you could do to improve the energy efficiency of your home. And it will also show the benefits. So it will show the predicted reduction in running costs and the reduction in household emissions. It will give you estimated costs for each retrofit measure. And it will also importantly highlight the risks of the retrofit as well, because there are risks and it's important that

we're aware of those so this is very much the first step it's taking a whole look at the home, what can be done, you know now what might you want to do incrementally over time as or when you get the budget. But having one of these whole house retrofit plans which NEF can provide for homeowners is really a very good place to start. Before you spend a lot of money on your home retrofit spending a little bit on a plan, so you're informed, you know what the best decisions for you are going to be, is a very wise move.

Ben Adam-Smith 10:19

I like the way that you said whole house. So I think we need to underline this because all too often you see people implementing one or two measures. And that always makes me worried. So why whole house?

Paul Ciniglio 10:31

Yeah, I mean, it's really important to look at the house holistically, and how different things work together. And when we're doing an energy efficiency project, you know, there's always this energy design hierarchy. And the place to start is to look at the fabric performance. So let's get the basics right, let's plug the gaps up.

Paul Ciniglio 10:50

So, you know, first of all, we want to look at the insulation in the walls, in the roof, in the floor, what the windows and the doors are like. Most homes will probably spend two thirds of their energy bill on space heating, you know, their central heating. So cutting out that loss, that heat loss through the envelope, the shell of the building is really important. If we do make the home more airtight, very important that we get good ventilation in there so we don't get dampness and we keep the air quality at a good level as well.

Paul Ciniglio 11:23

Having solved that then we start to look at efficient heating systems. And very much the future of heating in this country is going to be towards electrification. And that really implies heat pumps. Hydrogen has been spoken about and hydrogen boilers a lot but that's still a long time away before we can actually have green zero carbon hydrogen that needs renewables to generate and course we need renewables for a lot of other things as well. So we're going to see a lot of heat pumps, which are a very efficient way of heating your home, not using fossil fuels. They do use electricity to run, but it's a lot cleaner heating solution in the future. And then probably the final thing in this hierarchy that we should look at is other renewables, like can we put solar PV to generate clean green electricity on our roof in our home. And within the plan, as you add each of these measures, it will show you the consequential impact or reduction of the running costs and the co2 emissions.

Ben Adam-Smith 12:26

How are you finding things with stage retrofit? It's almost always that we don't have the money that we want. And in some ways, I'm not a big fan of the phase retrofit, because I've seen the disruption that even one stage carries with it.

Paul Ciniglio 12:42

Yeah, that's a really good point that you raise then and within the whole house plan that would show a phasing plan so that work is carried out in a logical order. And also that you don't unwittingly do something that then prevents you from adding another measure in your plan later on. And also, by doing things in the right order, you can manage to mitigate the risks, you know, you may create dampness if you do things in the wrong order. So it is very important to do it in that way.

Ben Adam-Smith 13:13

You talked about risk, and I think this is one that's worth underlining. So can you outline one, some, all of the risks? Is it basically damp, water, vapour?

Paul Ciniglio 13:25

Yeah, I'm you know, really important the risks are managed to make sure that retrofit maintains a good name, that it's worth doing, and it's not going to cause a load of problems. And again, within the retrofit plan, which follows this British Standard approach, each home is assigned a risk pathway A, B, or C. A being the lowest risk. C, for instance, might be a historic building, and 90% of defects we get in homes in this country have water somewhere in the equation. So we do need to be really careful with moisture, condensation, penetrating damp, and particularly with historic walls, you've got to be careful, you can't really put a modern insulation, if you're doing solid wall insulation on the inside or the outside and then it can't breathe, you know, you could end up trapping moisture in the wall. And that can cause problems.

Ben Adam-Smith 14:16

I was attending a seminar the other day. And this fact has stood in my mind. They were doing a visual representation of the amount of water that you produce in your home and it's around about 14 litres. So that's got to have somewhere to go. Every day, sorry I should say.

Paul Ciniglio 14:34

Yeah, indeed. And you know, I think every night just when we're sleeping, we all respire like a litre of water out. And so the ventilation strategy is absolutely key. You know, we've got to we have this quite significant problem in this country with condensation. You know, the amount of water vapour in the air and it touches a cold surface and it will condense. So, to get rid of condensation you need three things: insulation, heating and ventilation. If you haven't got those, you might start seeing like the black mould in certain areas on your walls. So, with ventilation, it's not only about getting rid of that moisture, it's also making sure that we've got healthy fresh air replenishing in the home as well.

Ben Adam-Smith 15:16

We have worked together before. I met you when I was doing some videos for Cosy Homes, Oxfordshire, which was a pilot scheme. So I know that you're also involved at this this high level. So as a homeowner, when I come to engage in this process, how do I know that I've got someone that really is taking all of the things that we've talked about into account and is going to help me execute this properly.

Paul Ciniglio 15:41

At NEF we run what we would refer to as a best practice retrofit network, and we operate this under our initiative SuperHomes, that is a paid membership for homeowners, it's £50 a year to join, but you immediately get access to events and seminars around retrofit issues. We're also, once you're a member, able to assign you a retrofit coordinator. They're all accredited professionals, they've undergone a special diploma, level five through the retrofit academy. So this is a new professional role. They're normally architects, surveyors or energy managers, project managers, but they've, in order to produce one of these plans, or the plans that we provide, you must be a retrofit coordinator. And then as an extension of having the whole house plan done, Neff has its initiative SuperHomes, which is a rating scheme, and it's a benchmark for retrofit achievement.

Ben Adam-Smith 16:42

Let's talk about practicalities for a moment, because I've seen this situation almost, particularly in social housing, where do you leave people in place in their homes and retrofit at the same times? Or do you take them out of their homes? And there's a downside to both of those. So what do you suggest?

Paul Ciniglio 17:01

Yeah, I mean it will obviously depend on the extent, the depth of the retrofit and risks to the residents. If you can move people out and decant them, then it's easier to crack on with the retrofit and do it more efficiently, more quickly. But that is very disruptive to the occupiers, if they have to move out temporarily and because there's costs with that. You know, an awful lot of retrofit can be done with the occupants still in situ, if it's carefully managed. Sometimes things can be done on a room by room basis. It's generally only for the deepest, most challenging retrofits that it would be necessary to move out for a temporary period. But we must remember that when there's building work going on in somebody's home, it is disruptive, it is stressful. Sometimes things do go a little bit wrong or not to plan and that's got to be managed and you know, very, very important that there's good liaison between the contractor and the occupants so they know what's happening.

Ben Adam-Smith 17:59

How do you find contractors or upskill contractors? You talked about your coordinators being upskilled.

Paul Ciniglio 18:06

There's such a massive skills shortage, a skills gap here for the amount of retrofitting that we need. The traditional builders are very busy already, you know, we've got to make this whole energy efficiency market more appealing to them so they can upsell skills there. I mean, there is the government's TrustMark scheme, which shows that contractors have been vetted and the whole idea of TrustMark is to put the public's faith in the contracting sector. So look out for TrustMark, and if you're having maybe a heat pump or solar PV fitted, then you want to look at the Microgeneration Certification Scheme, make sure you contractor is accredited to that. MCS it's also known as.

Ben Adam-Smith 18:49

You yourself have also undergone a retrofit. But interestingly you told me just before I hit record that you are redoing or reassessing the retrofit. So tell me a little bit about that.

Paul Ciniglio 19:00

Yeah, I originally retrofitted my home and became a SuperHome back in 2009. And I live in a 1989, mid terrace cottage. I upgraded the insulation in my home. I had drawings showing that there was insulation in the cavity walls, but when I looked in them, there wasn't any, the builder hadn't put it in. I upgraded my loft insulation. I put in an air source heat pump, put in solar PV, solar thermal, new windows, so I spent quite a significant amount of my own money back then and not regretted it at all. My comfort has gone up and I've got my own energy security protecting me to a certain extent with these price increases.

Paul Ciniglio 19:43

Now I've gone back and I'm retrofitting my retrofit. There were some things I couldn't do originally, for instance, putting in ground floor insulation, which is a very difficult thing to do in a retrofit because you know, normally raises the level of the floor. So I'm tackling that this time, and yeah, I'm just doing some other improvements as well.

Ben Adam-Smith 20:04

Of that original retrofit, was there anything that you've pulled out because you thought this didn't work?

Paul Ciniglio 20:12

Yes, very perceptive of you! There is actually something that I didn't put back. I had solar thermal, so solar hot water panels. It worked okay for seven years. And then for the remaining time, it was intermittently working, and eventually I decommissioned it. But I've now removed it from the roof. We seem to be seeing a move away from solar thermal and much more in favour of solar PV, the solar electric and then quite often diverting that solar electric into an immersion in a cylinder, so you're getting the electricity and the hot water heated up, preheated.

Paul Ciniglio 20:52

The reason my solar thermal didn't really work was, it was a bit too efficient, which sounds odd, it was too efficient for the size of cylinder I had. I needed a bigger heat sink, you know, by 10 o'clock in the morning, the whole cylinder would be up to temperature. And if I was going away on holiday and wasn't there to draw the hot water off, it was just stagnating, getting really hot. And it started to cause some problems to valves. So yeah, I've certainly seen a move away from solar thermal, it can be quite problematic, and most people are in favour of the solar PV, and where you can use that to heat up your hot water to do that as well.

Ben Adam-Smith 21:30

Now, on your property, do you feel you have added value to it through the improvements you've made?

Paul Ciniglio 21:37

Yeah, I mean, personally, I do. I have seen my running costs go down quite significantly. Of course everyone's bills are going up at the moment, but I'm better protected against it having done what I've done. My comfort and enjoyment of the home has got much better, you know, I don't have bad draughts and I don't fear the winter anymore to be honest with you.

Paul Ciniglio 22:00

We are doing some research at the National Energy Foundation working with a firm of chartered valuation surveyors where they're carrying out property valuations both pre and post retrofit on homes. Because it certainly makes sense that a more energy efficient home should attract a higher value. And there is evidence emerging that that is the case. And I think in the wake of this energy crisis, more people will be asking about how much a home costs to run. The Energy Performance Certificate isn't really cutting the mustard there. So we're hoping to show some evidence here. And that will be of interest to all the property sector, including mortgage lenders of the financial sector as well.

Ben Adam-Smith 22:45

SAP has some good outputs, but it doesn't seem to use them does it? So hopefully, this is something they can change if they can listen and learn.

Paul Ciniglio 22:52

Yes for sure. And SAP is just a prediction of performance based on typical occupancy, typical assumptions is exactly that. And what we do with our SuperHomes initiative is once the retrofit has been completed, we install monitoring equipment, and we let that run for 12 months, we gather the data, we evaluate it, you know, actual real data, and then we know exactly how the home has performed. And it's based on that, how we certify the SuperHome and what level it's achieved.

Ben Adam-Smith 23:25

Monitoring is something that I'm becoming more and more obsessed with, because it's just completing the processes isn't it?

Paul Ciniglio 23:33

It really is, you know. You know, you can spend quite a few thousand pounds on a retrofit, you know, a whole house retrofit, you know, perhaps you'll spend £30,000 doing it and you know, surely having spent that you want to know whether it was a good investment. And virtually every other sector looks at the actual performance in use. And very important we do that with our homes as well.

Ben Adam-Smith 23:54

What metrics are you monitoring?

Paul Ciniglio 23:57

With SuperHomes we will look at the annual amounts of household emissions at each different level in our rating scheme, we've got a cap there. So at level five, the top level, you'd be producing no carbon dioxide from your home in operation. We look at something called space heating demands. This is measured in kilowatt hours per meter square a year. But it's a very important metric because it's used as a proxy for the fabric performance. You know, it tells you that your home is well insulated, it's not leaking like a sieve. So that's important.

Paul Ciniglio 24:31

And then on the health and comfort side, we look at the temperature. We monitor the temperature all year round, not just to make sure that it doesn't get too cold in winter, but also that the home doesn't overheat in the summer, which is becoming increasingly common and prevalent in this country with a

changing climate. We look at the levels of humidity in the air all year round. You know if that gets very high and then we're going to have condensation issues. So that tells us is the home being ventilated properly, and we look at air quality. Also, we use a sensor that picks up all three of these measures: the temperature, humidity and the air quality.

Ben Adam-Smith 25:11

So we talked quite a lot about what you could do if you have the funds. But let's try and go the other way, what's going to happen if you're just panicking now, and you're not sure what to do? Because you can see these energy prices are going up, and you haven't got much to do? Is it downsizing your house? You know, what are you recommending?

Paul Ciniglio 25:31

Yeah, I think, you know, you've got to start to have a plan to safeguard yourself. And really, my advice is have a whole house retrofit plan done. Know where you're gonna get the biggest bang for the buck, you know in terms of reducing your running costs. Once you've retrofitted your home and put energy efficiency measures in there, it's going to be saving you money from day one, you know, so it is a long term investment. It's one of the best returns on your money. You don't always get a payback with every measure, but we don't get a payback with a new conservatory, a new kitchen or a new car. So we, you know, we shouldn't really think about energy efficiency measures paying back there entirety.

Ben Adam-Smith 26:14

But that's not really addressing people that don't have money or?

Paul Ciniglio 26:17

You know, people on lower incomes, there are government grants available to help private homeowners insulate their homes. There was a local authority delivery grant program administered through regional energy hubs and households generally under £30,000 income might be quite surprised what they can get from that. We also have a new Energy Company Obligation. This is what the big six energy suppliers are made to pay and invest in, in energy efficiency, and this called Eco4 that's just come out. So that's another source of funding. Sometimes there's local grants available as well. But you know, it is important if you are, if your occupancy is lower than the number of bedrooms, then yeah, you know, perhaps do turn the heating down in the bedroom you're not using. Probably don't turn it completely off. You don't want the walls to get entirely cold. But yeah, I mean, insulation is the most cost effective way to retrofit. If we can do that in the simple ways like cavity wall and loft insulation. It's much more of a challenge if you have a solid wall, and 7 million homes in England do have a solid wall, then it's very difficult to retrofit and we're either looking at putting insulation externally changes the appearance, but there are a variety of finishes there. Or it has to go internally.

Ben Adam-Smith 27:40

Yeah, I've seen a retrofit firsthand in Oxford over the last year or so. And it has been fascinating. But it is a lot of work and thought that goes into it. And I must admit, I am slightly sceptical that people are just going to turn their heating off or perhaps revert to a log fire.

Paul Ciniglio 28:06

Yeah, I think you know, this, this energy crisis will drive families to take some quite strange decisions, you know, to safeguard themselves. I mean, obviously, the temperatures, the way we heat homes now has gone up a lot. When I was a boy, you know, 17 degrees in your living room was fine. Now most people want to live 21 degrees most of the year round. And a lot of people like living in shorts and T-shirt all year round. But it makes sense just to put on some extra layers. As a you know, before you turn the heating up.

Ben Adam-Smith 28:39

Is there a final thought that you'd like to close with?

Paul Ciniglio 28:43

Yeah, I'd like to encourage listeners to take a look at the SuperHomes website. It's www.superhomes.org.uk. And you can find out much more about our SuperHomes initiative there and think about joining the network as a homeowner. And if you'd like to have a whole house retrofit plan done, then please get in touch with us, we'll assign you a coordinator. And if you want to go really deep with your retrofit, you know, then then do speak to us about having a SuperHomes assessment done as well.

Ben Adam-Smith 29:15

Paul, thank you very much.

Paul Ciniglio 29:16

Thank you very much, Ben.

Ben Adam-Smith 29:18

Get more in our show notes, which you can find today at houseplanninghelp.com/321. With a summary of our conversation, we always like to highlight the takeaways. You can see Paul's retrofit he talks about it as well in our conversation. Perhaps you have a comment or you'd like to ask a question, well there's an opportunity to do that within the show notes or on social media. We'll give you all the links and of course not forgetting the links to the SuperHomes website and to the National Energy Foundation. Houseplanninghelp.com/321.

Ben Adam-Smith 29:53

My call to action is to check out The Hub. This is our membership community that I run alongside House Planning Help for anyone thinking, I want more. And particularly, we try to do it in different formats. We have courses, we have videos, we have a community forum, so you're with like minded people. And we've been talking about retrofit today so it makes sense for me to tell you that we have a deep retrofit case study. It's the Kinver story, Guy Hargreaves has opened his doors, he's let us film all the way through, which has been very kind and fascinating as well. Loads of interesting things here. If you want to see what a deep retrofit is in practice it's the perfect way.

Ben Adam-Smith 30:31

And the latest episode that has just gone live, the triple glazed windows are going in at this stage, they've got this huge one, which I think will probably form the next episode, which is craned into

position. But these are slightly smaller. This is the front of the house, and they're mock sash units going in. So we see the old ones go out, which are not going to land in a skip actually, I think they're quite valuable these original sash windows, so they get used somewhere else. And these new triple glazed units come in, but from the outside, you would not be able to tell that anything has happened whatsoever. That's I guess one of the tough sides of retrofit is you're investing so much in the fabric of the building, you can't really see where the money is going. Unless you're filming it like we're doing. So have a look at that.

Ben Adam-Smith 31:13

We're getting closer towards everything being weather tight. I think there's some work on the roof in this latest episode as well. And then at some point, the first air test and I know Guy was keen to move back in so all of this will be covered. Check out The Hub: houseplanninghelp.com/join If you want some more details.

Ben Adam-Smith 31:34

That's as far as we go for today. Thank you for being there. The House Planning Help podcast is produced by Regen Media: content that matters.