Transcript of House Planning Help episode 372

Ben Adam-Smith 00:00
This is House Planning Help - episode 372. Hello, I'm Ben Adam-Smith. And this is the podcast for you if you're interested in building new or retrofitting. 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. For this session, two guests for you, Katherine Adams from Reusefully and self-builder Connie Spoor. We're exploring the circular economy relating to construction. So how can we make reuse a priority? And not only is Katherine an expert in this area, but she suggested that we bring Connie into the conversation as well, because she was local to her and building herself, and making reuse part of that process, so a welcome addition.

Ben Adam-Smith 00:48
Just before we get going, I want to ask a quick favour. Maybe you're someone who is working your way through the back catalogue of the podcast. Good work is what I say! But also, can you do us a quick favour and review the podcast. Whatever app you're using, normally there's a way to write a few sentences to say what the podcast is about, and that will bump us up the rankings. It will give others an idea of what's going on and just to make sure they're in the right place. And this is not really a podcast that you'll listen to forever. Maybe you will, maybe you'll get into it and think this is what I want to make my life. But most of the time, you'll have finished your building and you'll turn your back on it, and just get on with your life. So if you can do that, it would be a massive help.

Ben Adam-Smith 01:30
So let's get to our featured interview on the topic of reuse. We're looking at some practical strategies so you can make this work, and some examples from Connie's own project. But I started by asking Katherine to introduce herself and tell me a little bit about her background.

Katherine Adams 01:47
So I'm Katherine Adams. I've been working in the area of construction, waste, resource efficiency for all over 20 years now. I first started at BRE actually Building Research Establishment, and back in the day, it was very much looking at waste and how we can reduce waste, much more on recycling, looking at recycling aggregates and that sort of thing, doing quite a lot of innovative research. So I stayed at BRE for a good 15 years or so. For a crazy reason I decided to leave to do a PhD, which I completed, which is all about the circular economy in construction. And then with a colleague, an ex-colleague at BRE, Gilli Hobbs, we only really intended to do a few days a week consultancy to keep our hands in. But that didn't really happen. It just grew really big. Well, the demand for work grew. We started to employ people so Reusefully is now a company with nine people, offering advice in the area of the circular economy in the built environment, and quite a lot of that is on reuse hence the name. I also work as a technical director for the Alliance for Sustainable Building Products, who I think you know. We do quite a lot on reuse there as well. We have a Reuse Now campaign, but that's also, we do a lot of other wider stuff at ASBP as well.

Ben Adam-Smith 03:09
And Connie?

Connie Spoor 03:10
I am currently trying to build a low embodied carbon Passivhaus in the village. So when Katherine heard she was going to be on the podcast, she thought it might be interesting to have me along to talk about how we were reusing materials on our build.

Ben Adam-Smith 03:24
So you say reuse. Does that mean that you had a lot of materials to begin with?

Connie Spoor 03:29
Yeah, so where we're building, there was an old house and a barn, so when we knocked those down, we tried to reuse anything we could out of the demolition.

Ben Adam-Smith 03:39
Well, this is perfect, because this is one of the scenarios that I imagined we might cover today. So maybe you can explain together, then, how you might approach something like that.

Katherine Adams 03:50
Yeah, well, we work with lots of different types of buildings. So some can be really, really big, some can be a lot smaller, and it can be industrial, commercial, and we have done a few houses here and there as well, but the process for us is always the same. You really just need to understand what's in the building when we do material inventories. So we'll try and get as much information as we can on the building in terms of drawings, architectural plans, anything? Usually there isn't very much. We'll always do a site visit, and it's quite a detailed analysis of what's in there. It can be quite tricky when we do those audits, because mainly we come in at quite an early stage, because we want to influence what materials can be used in the new design, if that's appropriate, so we don't do anything intrusive. So sometimes it's a bit of guesswork to know, know what's behind that wall, or what's in the, you know, what's in the roof void and that sort of thing.

Katherine Adams 04:50
So from, I guess, from our point of view, we do a big material inventory. We've got a clever spreadsheet that works out lots of dimensions, volumes, tonnes, and then we come up with a report with lots of recommendations, preferably for reuse first and then, if not that, then recycling. And recycling is still valid anyway, but we try and push it into a better route for recycling.

Ben Adam-Smith 05:16
So Connie, is this sounding familiar for what you did?

Connie Spoor 05:20
It sounds like Katherine would go about it in a slightly more deliberate way whereas we just knew we liked the idea of it. So right from the start, when we were talking to our architect, he was very keen on the idea as well. So it was more that the three of us, me and the architect and my husband, were

looking out for things that could be reused and then working out how to put that into the design. So one of the things that we're most happy with how it's turned out so far is we've reused the stone from the demolition in the stone gabions for the retaining walls. They look great, but it's also really nice to actually be able to use them for something that we'd have to have got a different material in if we weren't doing that.

Ben Adam-Smith 05:56
So one of the challenges, Katherine, that you were saying is that there's a bit of guesswork when you're looking at a building. So when Connie comes to do this, it's almost the project... Is it not underway at that point? Or were you able to demolish and then design?

Connie Spoor 06:10
So we had the design first, but we knew what we were demolishing, so we had factored in that we'd have these materials, so things like stone, brick, and then we actually also used the rubble. We got the stone crusher in to use that so we could use it as part of the build-up under the foundations. So I guess it was that we knew what we were demolishing, and then we could do the design from that.

Ben Adam-Smith 06:31
And how often are there surprises?

Katherine Adams 06:33
It depends on the building and the level of information that we have, but there can be. Asbestos is still around. And anything hazardous, that obviously affects its reuse or recycling potential, and it's quite hard to know sometimes if those materials are hazardous without testing them. So that could be sometimes some timber, bitumen, but you wouldn't really reuse that anyway, and obviously asbestos, lead paint and that sort of thing. So you have to be a little bit wary of that. Yeah, it's more the structural stuff. But if you haven't got diagrams or drawings, it can be quite difficult to sort of understand that. It's probably a little bit easier in houses, because there's more accepted typologies, I guess.

Ben Adam-Smith 07:18
Well, I can understand the stone because you probably saw that in the existing building that was there. But what about, say, timbers that are hidden away... or even below ground?

Katherine Adams 07:31
Timber is really frustrating. We don't really see a lot of reuse of timber at all, well, not in a structural way anyway, so very rare that you'll get a reused timber beam that's come from one building, and then will go into, structurally into another building. There's a lot of risk there, I think, in terms of knowing how that beam will perform, and therefore it's quite difficult to get, you know, the right insurance and warranties for it.

Katherine Adams 07:59
So the steel industry, though, have really upped their game here, and they have come together, some of the trade associations and professional bodies. They've got a whole protocol on how you remark, CE mark reclaimed steel. So if you're doing that and doing it properly, and there's a few stockholders that

take you through that whole process, it gets immediately insured and warrantied. So timber probably needs to follow that steel model to tell you the truth, to reduce the risk.

Katherine Adams 08:13
You mentioned about downgrading some of the use so you could use timber for internal finishes, for example?

Katherine Adams 08:39
Yeah, that does happen. Yeah, it depends on the timber a lot of the time, doesn't it? Obviously, there's quite an active market in reclaimed timber and the parquet flooring and the hard woods, and that continues to happen. Sometimes it can be quite difficult just because how a lot of these products are fixed and installed. So if you've got a load of bitumen on your parquet flooring, that can be quite difficult to remove. And we do see some innovative projects where they will go and use some of the timber for cladding, for example, internally. I know at one company as well, they will take joists and they cut it up to make floorboards, for example. And there's a great organisation called Community Wood Recycling. They're based in lots of different areas, sort of a social enterprise, I guess. But they'll take loads of timber from a site, and they'll sort of regrade it themselves, try and sell it on. They'll also make stuff as well, because if that doesn't really happen, it will just really get chopped up for panel board or biomass, and it's a little bit soul destroying.

Ben Adam-Smith 09:48
That's not reuse at that point. Is there almost a hierarchy of useful materials within a building?

Katherine Adams 09:56
I think all materials are useful in some respect. It depends where your focus is. So embodied carbon, as you mentioned, Connie is quite a driver. Some materials are easier to reuse than others. So concrete, if we actually talk about reuse for concrete, that would be cutting a panel out and using it again in a structural form doesn't happen. That's really tricky to do. Concrete is quite a cheap material, really, so to be able to re-test it, re-certify it, cut it out, put it back in, there's lots of things that have to happen, which just doesn't make it viable, really.

Katherine Adams 10:36
But steel's working really well, structural steel, and there's also case studies of that in housing and residential projects as well. So one case study that we were involved in, they saved, I think about 40% on their material costs for using a reclaimed steel beam - so they needed it for an extension - rather than sourcing new. They could also source it really quickly. They sourced it, I think within four days. So there's also advantages from lead in time there as well. So what other materials? And there's all the interior materials. We go through a lot of them, I think. Lots of them have a short life cycle, so there's probably more reuse in some of those. And brick. We see the older brick getting reused, but it has value. But the newer brick, especially when it bonded with Portland cement, just doesn't, just really difficult to remove the cement. Bricks are quite cheap, so a lot of it is about the value of the material that you put in, is the value of the material you get out, sort of thing.

Ben Adam-Smith 11:41

And quite often, I suppose, it's how it got put into the building. If it was with disassembly in mind, it would probably make life a lot easier. Connie, I am intrigued by your project. You know, how did you find an architect who was willing to work like this? Not only you're targeting Passivhaus, but reuse so was this you driving this? Or did you just stumble into it?

Connie Spoor 12:04
It was actually my husband was reading some blogs and realised they were written by this architect called David Holland, and a lot of what he was saying was on our wavelength. It was what we've been talking about when we were talking about wanting to build a house. So very early on in the discussions with him, we were talking about that being one of our priorities, and I think with what we were demolishing being such lovely local limestone, we're very keen to reuse it right from the start. And one of the reasons we wanted to build there was because there's kind of a courtyard of barns. So we are going to try and keep as many as we can and reuse what we can from the one that we did demolish to make space.

Ben Adam-Smith 12:38
So tell me a little bit about the existing buildings that were there first of all, and what is going to be the new buildings.

Connie Spoor 12:46
So there's kind of an 'E' shape of barns. So there's two concrete courtyards with barns around them. And at the moment, most of them don't have roofs on, so they've been allowed to get to the point where they're pretty much derelict. And on one end of one of the wings, there was an old, small cottage. It was very damp. It wasn't insulated. It was a lot smaller than what we would like to live in. Because we did have that conversation about whether it would be better to try and keep what was there and build with it. But we just thought, especially with trying to get Passivhaus, it was going to be very difficult to get the house we wanted going down that route. So we demolished that, and there was a stable just along next to it, so that's kind of one leg, and then perpendicular to that, there's another big stone barn. So at the moment, we've managed to put a roof back on that to hopefully stop it falling down any further and give us an outbuilding to use. So at the moment, the builders are using that as their kind of welfare site and kitchen, and then once the house is finished, we'll be able to use it as outbuilding space for us. And that's around of courtyard. So our aim is to keep the concrete yard that was there and have that as our courtyard garden. And then on the other side of the wall, there's another three barns around another courtyard, which at the moment, we're closing our eyes as we go past, because we'd love to do something with them at some point, but budget's obviously an issue, and I think it'll be a case of working out what we want to use them for and then working out what we do, but we would love to be able to save them one way or another.

Ben Adam-Smith 14:13
Katherine was saying some interesting things about sometimes the cost can be cheaper for reuse. Now I was almost thinking the reverse. Obviously, when you start with your own building, then there's going to be a saving there. So how have you found that side of things, as you've looked at the building and trying to incorporate these items in, when does it make sense, and when do you just need to move on use something new?

Connie Spoor 14:37
With the stone it was a bit like you were saying that if the value is there in the material, then it's worth reusing it. Obviously buying stone new would be quite expensive, and we probably wouldn't have bought anything anywhere near as nice to fill the gabions with if we were doing that new so that seemed to us like quite an easy win, because then actually our builder suggested that it would be cheaper to crush down the demolition arising from the house to put as one of our layers under the foundations, because looking at the cost of hiring a stone crusher is actually going to make sense. So that was good, because we'd kind of been hoping to, but then we thought, oh, maybe a lot of the stone crushers you get are very big, and then it gets very expensive. We managed to find one that that made sense. And then we're also reusing some of the stone as cladding on the gable end, and that's going to make sense financially, mainly because my husband's doing the work, so he's going to cut them down to size. So they started as big, big stone to be the kind of structural walls, and we're just using a couple of inches of cladding on one of the ends, so it kind of ties in with the barn next to it.

Ben Adam-Smith 15:37
Is your husband in construction?

Connie Spoor 15:39
He's a farmer, so he's got quite a lot of the equipment, and managed to borrow a stone cropper, which is basically like a hydraulic guillotine, which always scares me a bit. He's not going to come back with all his fingers, but he seems to be doing okay at the moment. He's got about eight days left of stone cropping.

Ben Adam-Smith 15:55
Yeah, farmers have to get stuck into everything, don't they! So tell us a little bit about the deconstruction side, because you've gone through that bit of the process already. So did you have to control the speed a little bit? Is that one of the most important parts, or what else matters?

Connie Spoor 16:10
So I think the first thing we did was try to make sure that we'd removed anything from the house that would make the rubble unusable. So we took out the plastic windows and all the wiring and everything like that from inside the house to make sure that it was just going to be things that we could reuse once they took it down. And then, yeah, we had a conversation with the demolition company before they came about, how we wanted to keep the different building materials separate. So as they were demolishing, they were separating it out into stone and brick. And then my husband was also doing a lot of sorting out of the metal, so it was copper and lead and some steel as well that were separating out to be so it could be used for scrap. Unfortunately, our big bag of lead got stolen from the site, which was frustrating.

Ben Adam-Smith 16:55
Wow, how would they have known about that? Or just coming and having a chance?

Connie Spoor 16:59

I think someone must just have been having a little look round to see what there was. And it's obviously quite portable. There's a tonne bag of it, and they must just have opened up their vehicle and thrown it all in, left the tonne bag and drove off.

Ben Adam-Smith 17:12
That's one thing that it does illustrate is that you've got something that is useful and desirable there. Was there a certain amount that had to go to landfill? You talked about some of the metals that you were able to recycle, send on somewhere.

Connie Spoor 17:24
Yeah, I think they went for scrap, so hopefully for reuse. The plastic windows went into a skip, and the painted wood, it was quite an old house, it was probably lead paint, so we just got rid of that, so we weren't worrying about the lead paint.

Katherine Adams 17:36
Not much goes to landfill these days. More goes to energy recovery now. There's a landfill tax, so it's really quite high for non-inert waste. So anything that isn't brick or rubble or concrete. It's over £100 per tonne. So there's a real financial incentive not to send stuff to landfill. But what you do find now is products that are quite hard to recycle are your plastics, are your composites, are your insulation materials that may be contaminated with each other because they haven't been sorted very well. So they tend to go to a waste transfer station and all that material, they'll pelletize it where there's some calorific value and it will go to energy from waste or cement kilns and that sort of thing?

Ben Adam-Smith 18:27
Is this going to create toxic fumes and so forth?

Katherine Adams 18:31
They are controlled. They have to have permits from the Environment Agency. They are monitored really, really closely. But stuff does go in, which isn't very nice at the end of the day. So it's a difficult one, really. I wouldn't want to live next to one, and I suspect you would probably see at some point a tax to then try and nudge those materials more into recycling. But plastics is a good point, and this isn't just necessarily related to construction. There's been about two or three plastics recyclers that have just closed down in the last month or so. So the market is just not there. Even though the government have put a few policies in place, it's still not working. It's still cheaper to buy new virgin plastic than it is recycled plastic. So it's it doesn't work.

Ben Adam-Smith 19:24
Is it also that it doesn't recycle very well, plastic.

Katherine Adams 19:27
It depends on the plastic. So some plastic is more recyclable than others. I think if you look at when plastic is coming from a construction site, there isn't that much, if you look at it. If you took your plastic windows, that's not very much, or if you look at your membranes, it isn't very much. So it's not worth

segregating out on site, so it will get contaminated. It's not worth cleaning it. The value is not in there, so it will get sent to energy.

Ben Adam-Smith 19:59
What has that made you think about the windows of your new property? What are they going to be? Not plastic!

Connie Spoor 20:04
No, they are aluminum clad wood.

Ben Adam-Smith 20:08
Aluminum on the outside and timber on the inside. Yeah, that's pretty much what I have as well. I mean, nothing is perfect, is it? It's so tricky. You can think that the aluminum will get used again in the future, that would be a good one. And then timber is something that can come back around. Just going back to the demolition, I've only seen one demolition before, and I'm not saying this was going to be good reuse, but it was pretty much bringing a digger onto site and just knocking things around, but still sorting. They still did some sorting with that. So is there a good process, even with a standard demolition company, almost along the lines of what you were saying that you get taxed for what you put in landfill?

Katherine Adams 20:49
They know what they're doing. They make money out of materials at the end of the day. So they will try and recover and recycle as much as possible. And that's pretty much standard practice now, and they can do some really good stuff with their machinery. Demo guys like their big machines, but a lot of that's come from a health and safety point of view, to try and remove the workforce away from the dangerous areas, if you like. So that's why it's gone a lot more mechanicalized. Interesting, though, if you think about reuse, you do need more physical effort, and so there is more of a consideration of health and safety. I think when we try and work with demolition contractors or clients in stretching them, we really try and say, well, let's just nudge them better than their business as usual, which is looking at opportunities for reuse, or, for example, for glass, instead of crushing that down and putting it with the aggregate, for example, sending that back to a glass manufacturer in a closed loop system, the same with a plasterboard so it's just trying to push them to do a little bit more than they usually would.

Ben Adam-Smith 22:01
Who would this fall back on? Because I like that idea of the glass going back into the system. But as with anything, I'm sorting out a few bits and pieces in my house at the moment, I'm so slow at it, because I don't want to put anything in the bin. I want it to go to the right place. So how do you find this glass recycling, for example?

Katherine Adams 22:19
Yeah, I think it's difficult, isn't it? Because especially as a homeowner, you haven't got much of it either, and companies want bigger tonnages to make it viable, really, but there are things we can do. We can talk to some of the companies around in terms of the waste management companies, what's the council doing? There's lots of different reuse platforms now, material exchange platforms, there's one

developing every day on these so that it's a very sort of growing area. Reuse isn't that common. So it is all quite piecemeal at the moment, and it's dependent on people like Connie, who see that as a main aim of their project when it really happens.

Ben Adam-Smith 23:02
So if Connie is building her new house now, and she wants to think, what would make this easier in the design of this house to be dismantled 500 years down the line, or whatever it might be, what advice could you give? Because this is where it gets really difficult trying to make everything work, because you can focus on one thing and then let something else slip.

Katherine Adams 23:22
Yeah, it's a good question, because I think a lot of the buildings that we're working with now haven't really been designed for disassembly and deconstruction, so that obviously makes it harder to recover those materials for reuse. There is quite a lot of work being undertaken on design for disassembly and deconstruction, and there's quite a few principles there. For example, a lot of it's on the fixings, so making sure you've got reversible fixings, so that's screws and bolts, not glue, nails are okay, but not great. If you're looking at mortars, you want to look at lime mortars. You don't really want to look at cement mortars.

Connie Spoor 23:59
We've just been having a conversation about that. Unfortunately our timeline has slipped quite a lot. So we were hoping to do the cladding about now, but we're going to have to wait until the spring so we can use lime mortar, because otherwise we'd have to use Portland cement. So, yeah, it's funny you brought that up because, yeah, that's one of the reasons, isn't it, is you can actually get that stone back again at some point, if you want to.

Ben Adam-Smith 24:17
So take us through where you're up to in the project. You know, we've done the demolition, we've worked out what we can reuse. So maybe you can just describe what has happened to date.

Connie Spoor 24:26
So we are at an exciting point at the moment. This week, the windows went in, so we are getting there, it feels like, so yeah, we started in the spring, and that was when the foundations were poured. And then we had a bit of a break over the summer, unfortunately, while we were waiting for some structural engineering information so that we could order our timber frame. That arrived in September. So that's a timber I-joist frame, which went up very quickly. It's been very exciting to see. Suddenly there was a house, and at the moment, windows are going in, the airtight layer of Smartply is going in on the inside. Hopefully we will be able to do an airtightness test fairly soon to check we're in the right ballpark. And then the design that we have, it's very simple. It looks like a barn. It's a long, long barn shape. But then we've put an external frame on the outside to get the overhanging roof to control the solar gains, and then we'll be able to put the roof coverings on and roof lights in, and then from that point on, it should just be interior things, hopefully.

Ben Adam-Smith 25:28

And did you look to incorporate anything from outside your project when it came to reuse? Because I think, as we started this conversation, saying that it's all very well when you've got the materials there, and you can think about that, but did that cross your thought processes?

Connie Spoor 25:46
I wouldn't say, with any of the structure of the house, particularly. Now we're starting to think about interiors I think we'll try and use reclaimed materials where we can. So I think, like you were saying, with the flooring, we'll try and find some reclaimed gym flooring for our wood floors. And as I was saying, I've been scouring a Facebook Marketplace for things like cookers, and we've got a secondhand kitchen, things for the bathrooms. So yeah, trying to, trying to do it in the interiors.

Ben Adam-Smith 26:11
That's quite interesting. Secondhand kitchen. So how did you go about that, knowing that this was going to be something that can last another lifetime?

Connie Spoor 26:20
We're kind of having a look around and keeping our ears open, really, for anyone changing their kitchens. And then we were approached by a builder that we know, saying he was taking out a good quality kitchen. And so we basically got it for the cost of removing it, which was handy, yeah. And hopefully it'll last us long enough anyway, and if at some point in the future we need to replace it, then we'll see what we do then. I think ideally, we'd like to... At the start of the project, we cut down some trees in the woods on the farm, with the hope of using as much of that as we could as well. So I think maybe down the line, we'll try and make a kitchen out of some of that, once it's dried and processed.

Ben Adam-Smith 26:56
Now you're not going for a woodburner in the Passivhaus, are you?!

Connie Spoor 26:59
No.

Ben Adam-Smith 27:00
Good. Good.

Connie Spoor 27:03
I think my husband particularly was quite sad to make that decision. But I think when you're trying to build an airtight structure, it seems a bit crazy to then put a huge hole in it.

Katherine Adams 27:10
I do think it would be useful... because with my ASBP hat on, the Passivhaus Trust is our sister organisation, and I'm always sort of having, well, it would be nice to do a study with them, just looking at some of the specs and the designs that they use, and just see how well they are done or not in terms of next life and design for disassembly and deconstruction, because I think a lot of it may be glued and there's a lot of plastics there, etc., to be able to achieve a lot of that airtightness.

Ben Adam-Smith 27:45
So which components? Because the Smartply, that's pretty good, you mainly timber there. I don't know whether it's got a plastic surface on it. Possibly. You've also got insulation beneath you. Have you got that on your project?

Connie Spoor 27:59
Yes.

Ben Adam-Smith 28:00
What is it? XPS.

Connie Spoor 28:01
Yeah, the insulated raft is probably the bit we're least happy with in terms of materials, because it is XPS and then concrete. That seemed to be about our only option.

28:02
It's a fairly safe way. You want to get out of the ground. I'm not saying it's good.

Katherine Adams 28:14
Yeah. So demolition... They hate... It's hated because, well, hopefully you're not going to demolish these houses. So that's one point. But if they do come to end of life, all that Polystyrene is mixed with concrete. It's an absolute nightmare. So you can't do anything with the polystyrene. And it really affects the recycling of the concrete. So I don't think sometimes we think towards the future with some of the products we use, really.

Ben Adam-Smith 28:45
So are there better routes for foundations? For example, I've seen on some projects, say, screw pile, and then you're doing timber frame above ground with cellulose and all the rest of it. But I would be worried for moisture in that respect. So, you know, it's all of these... What do you want to do?

Katherine Adams 29:04
Yeah, I mean, there are examples now, aren't there? I've seen a few of the screw piles, yeah, which I think can work quite well. Foundations are so heavy in terms of their material requirements, and you just chuck a load of concrete in, and sometimes steel as well. And, yeah, it's huge if you look at your whole carbon, you know, embodied carbon on your project, your foundations will probably be a good 40, 50% so there is an argument as well to use the aggregate for that. But what we would say is try and use the more rubbish aggregate for the foundation and keep the nicer aggregate, so if you've got a nice concrete aggregate, for example, try and use that in a higher grade. So that's what we would say from a sort of materiality point of view. But yes, I think foundations, oh, obviously we use what's there already. That does happen.

Connie Spoor 30:01
The frustrating thing was there was no foundations there, and these buildings have been there for hundreds of years, but obviously that's not accepted now, is it?

Ben Adam-Smith 30:10
And you sometimes have some steel as well in posi-joists. What's your view on incorporating steel in? Or is it just because it can be recycled another time? Would that be okay or try to steer clear of it?

Katherine Adams 30:23
If you look at a true circular economy, it's very much, you shouldn't mix natural, biological materials with technical materials. So if you're putting wood in with aluminum or steel, for example, you may affect one of them, probably the wood in terms of its recyclability. So, yeah, that is one of the sort of design elements we should think about, really. So putting the two together in a way that makes them very hard to pull apart is not a good thing.

Ben Adam-Smith 30:57
Okay, any other tips or anything that might be worth bearing in mind?

Katherine Adams 31:02
Yeah. I mean, when we come and look at buildings, we really struggle sometimes, just the lack of information. So having a good set of information on what you've done to your building, keeping the drawings, knowing who the original manufacturers and suppliers, is really, really important that really helps for reuse. And what you're seeing now more in the commercial world, but you're seeing quite a move towards material passporting, so you've got a really good idea of all the materials that have gone in, when they've gone in, what certificates they've got, what their life expectancy is, who the manufacturer is, because if you want to then reuse those items again in their next life, you're just adding to the certainty of that or reducing all those unknowns. And it's also enabling it to be a bit more cost effective. If you've got to take materials away from site, do a lot of testing, recertification, etc., that just adds to the costs and makes it difficult.

Ben Adam-Smith 32:05
This is what we're trying to avoid. So are you saying then, more or less, what gets taken off site, the ideal scenario is it just gets used again straight away?

Katherine Adams 32:07
Ideally. But we know sometimes that's not possible. It can be really tricky. I mean, Connie is great. She's got storage, haven't you? You've got lots of storage.

Ben Adam-Smith 32:23
That's a farm for you!

Katherine Adams 32:24
Exactly, but that's one of the key barriers, storage, because quite often there's a lag between when you take those materials off a building and need them again. So storage is a real, real barrier.

Ben Adam-Smith 32:39
Is there a lot of storage still going on at the moment?

Connie Spoor 32:42
We've got a Dutch barn that is mainly full of our building materials at the moment, which, yeah, it's a lot more storage than most people have access to. And we also have another barn that has our timber that's been milled. That was using an on-site mill, which was fun. The wood didn't have to leave the farm at any point. That's in a barn, drying at the moment.

Ben Adam-Smith 32:58
And have some of those materials actually gone out onto the site, like for the gabions.

Connie Spoor 33:05
So we've started the gabions because part of them had to be in place before we could start building the house. There's a lot more that we're planning on having along the front to retain the garden, but that's where having the extra barns that we weren't really, with no roofs, that we don't know what to do with. There's a concrete yard there. So all the stone has been... We cleared that before we started so that could be used to store the stone.

Ben Adam-Smith 33:26
Let's say that we'd gone to this example of wanting to use some materials that have come from other projects. How does that work then, if we want to start having a look around?

Katherine Adams 33:37
It's a little bit ad hoc at the moment. So obviously, there's a well-established salvage industry, and they have their reclamation yards. Quite a lot of that can be pricey!

Ben Adam-Smith 33:48
That's perhaps where I've got my information from.

Katherine Adams 33:51
Yes. So the salvage industry, they'll take things that they know that they can sell on at a good price. So it is more the architectural, nice reclamation stuff, your London Stock bricks, probably some of that nice limestone you've got, for example. So that's one area, and then I think a lot of it is word by mouth, still. There are quite a few websites now, and I can send you a list, if you would like them, which are listing materials that are available from projects, probably a bit less from residential. It's probably more in the commercial sector, but we do lots of commercial offices, for example. They'll get fitted out every 3, 4, or 5 years, totally new stuff. So kitchens will be coming out, lovely kitchenettes. No reason why they couldn't be used in a residential setting. So that sort of cross fertilisation needs to happen a bit more. And Facebook Marketplace. There's Freegle, there's Gumtree, there's websites that specialise in secondhand kitchens. I saw yesterday, I haven't talked to them, but one that says we buy any door. Was it you that mentioned that?

Connie Spoor 35:08
No.

Katherine Adams 35:10
They are called We Buy Any Door but the person I was talking to says that's not quite true, because they bought their nice timber doors, but they didn't go near the PVC doors, for example. So a lot of these businesses are springing up, but I think it's still a little bit ad hoc and scatter gun and someone like Connie, you just have to keep going, don't you.

Ben Adam-Smith 35:33
While you're in the thick of it. So have you been using any of these sorts of websites?

Connie Spoor 35:38
Mainly Marketplace and eBay, a bit as well. And in the past, I've definitely used Gumtree as well. It's interesting what people get rid of. It's often very new. But yeah, like you're saying, with the commercial stuff, people do seem to replace kitchens and bathrooms quite frequently. It's good that they're being sold on, at least.

Ben Adam-Smith 35:54
And are you watching it, or are you looking for stuff?

Connie Spoor 35:59
A bit of both. I mean, I've got a list of things that we'll need, and so I do searches every now and again. And then, yeah, there's also just a bit of if something pops up and you might realise that that is actually something you need.

Ben Adam-Smith 36:09
Is creativity quite a big part of reuse?

Katherine Adams 36:13
Yes, definitely, I think you have to. And that's where the architects come in a lot, because quite a lot of the time it's difficult to use some of the materials in the same function. So you do need to be a bit creative. Can you create a feature wall, for instance, with some nice cladding on? Can you create some furniture, for example?

Katherine Adams 36:33
We see a lot of sort of mesh steel work type. So can you use that for anything? And I think that's quite important, because we talked about the design at the beginning, and you have to keep a bit of flexibility in the design as well to allow that to happen and not be rigid, especially when it comes to sort of the interiors anyway. And I think that's quite important from that architecture and thinking point of view. And we call it building as material banks. So rather than having a pre-determined idea of what your design is, look what's around you, use what's in those buildings or what you can find on these different marketplaces. Use that as your existing palette of materials. And so it's a bit of a change of mindset there. Sounds like you've got a good architect, though, who's...

Connie Spoor 37:23
Very on board with it all.

Ben Adam-Smith 37:25
Has he done other projects like this? Or was he keen to see the potential of what you had and wanted to do it that way?

Connie Spoor 37:31
When we first started working with him about four years ago, he was still quite early on in setting up his own practice. So it was very much what he was interested in working on, but he hadn't necessarily done that much. I think we were the first Passivhaus that he'd worked on. I think he's now actually built a couple of Passivhauses in the time that we've been delayed one way or another. But yeah, it's very much one of his interests is kind of the low embodied carbon. And he was actually at the point we were talking about Passivhaus, right at the start, a bit like you were saying, there were kind of reasons to think about it in terms of actually, it impacts which materials you can use, was a bit wary of it, and I think we've been trying to work around that, like, how do you do it with natural materials, as much as possible?

Ben Adam-Smith 38:08
Yeah, and I think most people don't end up pushing it that far. You know, there is, it's just a challenge, isn't it, to get it all 100% right. You could also maybe come to the conclusion, well, what if we built a house half the size or something, then all of the... You know, it just goes round and round and round. What would happen if we have a building that we are looking to adapt?

Katherine Adams 38:31
So I think that's really important, just taking a step back from that and looking at the design aspects. So a lot of circular economy is about designing for circular economy outcomes. So design principles include designing for flexibility and adaptability. It's very similar for designing for disassembly and deconstruction at the end of the day, but it's thinking long term for your house and how you may need to adapt it as you grow either in a family, or as you get older. So where you put your walls, for instance, is there room to have, you may need a lift at some point, for instance. So have you got room to put that lift in, in terms of the core and that sort of thing? And can you move walls which are okay to move and not, not structurally, and that sort of thing. So I think it's just having that forward look really about how you want that house to grow with you.

Ben Adam-Smith 39:29
And is some of that keeping quite a sensible shell to the building and then making the internals that you can fiddle around with?

Katherine Adams 39:36
Yeah, definitely. So 'structure, long life; internals, lose fit' they call it. So, yeah. So can you make sure it can shape around you?

Ben Adam-Smith 39:47

Just going back to the material passport, so say, for example, Connie, she's got all her plans. It's all been done really nicely. What would she do then, she's moved house? The plans, you know, do you give that to the next person? Do you give it to some company that's going to lock it in time?

Katherine Adams 40:03
It's a good question, isn't it, and I think material passports are pretty straightforward, but how you keep that information with the building is quite difficult, really. In the commercial world, there's platforms set up, but they would be too expensive for a homeowner. But maybe there's something that can be done with the mortgage, and it sits with the deeds of a house that would be the best place.

Ben Adam-Smith 40:26
Definitely.

Katherine Adams 40:26
Because, yeah, at the moment, there isn't really anything particularly driving that, so you would need some sort, I don't whether you would need regulation, but you would need someone to come in and be able to provide that service at low cost.

Ben Adam-Smith 40:43
Now, what are you most looking forward to in your completed house?

Connie Spoor 40:48
No draughts! The house we live in at the moment was built in the 20s as a chicken house, and I think it was a model chicken house at the time, but yeah, it's still quite draughty, and having a warm floor as well is going to be quite life changing, I think, or at least not a cold one.

Ben Adam-Smith 41:03
So we've ruled out a fire for heating the house. How are you going to just get that little bit of extra heat?

Connie Spoor 41:08
So there'll be underfloor heating on the ground floor, and then we'll have a couple of towel rails in the bathrooms upstairs, air source heat pump, yeah.

Ben Adam-Smith 41:16
And how would you like to wrap up this conversation?

Katherine Adams 41:22
I would just encourage anyone that's thinking of either retrofitting or building new, just have a think about the materials that you're using. And you know, we're not saying that everything needs to be coming from a reclaimed, reused source, but have a think about what can. There are lots of materials out there, as Connie's found out. And even if you're not demolishing and haven't got your own supply, there's still stuff out there. So just, just have a think.

Ben Adam-Smith 41:49

Well thank you so much for your input today. Connie and Katherine, thank you.

Connie Spoor 41:53
Thank you.

Katherine Adams 41:54
Thank you.

Ben Adam-Smith 41:56
Head online to take a look at the show notes for this session - houseplanninghelp.com/372, where we've got a summary, so you can head through the information and the key points once again. We've got those resources that we mentioned. So have a look. Find something that works for you. We've got photos of Connie's project, specifically those reuse elements. So you can have a look at that and where she's up to with her project. Maybe you've got a comment, or you'd like to ask a question, well, you can head down to the bottom of the show notes for that, or on social media. So we'll give you links for that, and we've got a link to Reusefully, houseplanninghelp.com/372.

Ben Adam-Smith 42:28
My call to action is to check out The Hub, and this is our membership community that we run alongside House Planning Help. And every now and again, we get a question like this. This is from Alison, saying, "I haven't even got a plot of land yet. Is it worth joining The Hub?" And we say yes, it is worth joining for a few reasons. Let me just give you a handful of them. First of all, we can help you with the land search, and we've got courses on how you go about that. There are other people in the community who are looking for land at the moment, so you can rub shoulders with them, get some tips. And sometimes it is just you have to keep on going until you've got the right site for you. And then secondly, the beginning of the project is when we can have the most impact on what you're going to do. Those decisions at the beginning, they're the most important ones really. Once you're into the project, or once you've got the technical specification, or once you're on site, there's not so much that we can be helpful with. So those early stages are really useful. And then the other thing is you just come and go as you please. You quite often find this with resources that you don't absorb everything all in one go, you get what you want, you go away, you get what you want, and you know, come back. So we say come and go as you please. And we've got all sorts of things in there, whether it's the courses that you're after, or perhaps our 'ask the expert' sessions, where we bring our guest experts in to help you, or maybe our in-depth video case studies, where we've invested a lot of time on sites following whole projects so you can watch them back. Could be a chat with me in office hour, one of our live training sessions, all sorts of things we're always working on useful tools, mainly digital, that you can go through in your own time. Houseplanninghelp.com/join.

Ben Adam-Smith 44:10
Next time Laila Dudhill is my guest, and we are dropping in on her project a couple of times as it progresses. For this first installment. We're dealing with rainwater on the site, because it's a sloping site. She's building at the bottom. We don't want any floods or anything like that. So what do you do? And then also, there's the foul drainage side, because that's quite complex as well. She's got a willow

bed and all sorts of other things. So we'll find out all about that next time. Thank you so much for listening. The House Planning Help podcast is produced by Regen Media - content that matters.