

HPH335

Ben Adam-Smith 00:00

This is House Planning Help episode 335. 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 in this session, my guest is architect Anne Thorne, and we're going to be looking at how you design a cohousing scheme, particularly because Anne has just been through that over the last few years, many years in fact, Cannock Mill Cohousing, so we'll put that under the spotlight. And I was also fascinated when Anne told me that, not only is she married to an architect, but her dad was an architect and her kids are architects - it runs in the family! So this is going to be good.

Ben Adam-Smith 00:47

We often share a resource in this early part of the show, particularly when it's relevant to the episode, so I thought if you do find this interesting, follow up - there's Cohousing Network, which is a website that provides support, information and tries to enable the process a bit. But as you discover during listening to this episode, there's always a little bit that's off piste, that is bespoke to the specific situation. And that's what makes it hard and a challenge but also what makes it a great community at the end.

Ben Adam-Smith 01:20

So it's the second time that we're focusing on Cannock Mill Cohousing. In my chat with Phil McGeevor they were getting towards the final stages, but still very much in the thick of it. So this time, we can step back a bit, reflect some more on the architecture in particular, because architect Anne Thorne not only a key member of the group, but her architecture firm was hired to head up this project. So lots to explore here. Anne worked for several architectural practices: GLC, Edward Cullinan Architects, Caroe Architecture, and she helped set up Matrix - the feminist design cooperative in the 1980s. And after that returned to set up her own practice, Anne Thorne Architects in the 1990s, with help from Fran Bradshaw who we featured as a guest on the podcast before. We'll link it into the show notes in case you want to go back into the archive. From day one, Anne Thorne Architects had a very clear direction.

Anne Thorne 02:21

We had sort of a very strong ethos that an important part of being women architects was that you have to consult with people. Because it seemed to us that in the past, nobody consulted with women and women hadn't been architects. When I first became an architect, only 5% of architects were women. And so just making sure that you brought people along with you that you understood what their ideas were, and how extraordinarily that could change the way that you design things.

Anne Thorne 02:55

We worked a lot on children's buildings, and discovered quite a lot of materials used in the building industry were very pollutant and that we were really concerned about that. So we did a couple of

nurseries, and the staff said, what a huge difference it made with children going into the spaces that we designed with environmentally friendly paints and that sort of thing.

Anne Thorne 03:21

We did a lot of work with local authority and with housing associations. And in the process of doing that, used our environmentally friendly materials, and discovered how much the tenants really wanted us to do that, and how concerned they were about those things. But also, that fuel poverty was a really big issue, particularly for Housing Association and council tenants. And that was something that we were concerned about.

Anne Thorne 03:48

And we gradually went through a process of making our buildings more and more environmentally friendly, and also better insulated and warmer. And we did do some projects where we put in a lot of things like solar panels and various gizmos. But what we realised was that people found those actually quite difficult to deal with. So that took us back to Passivhaus, where we thought fabric first was really important. And that could make a huge difference to people's lives. If you started from the basics of insulating and then moved through to anything else that might be slightly more complex, which will actually then enhance the Passivhaus, but that fabric first was the really important thing to do. And that in doing that, you could use environmentally-friendly materials as well. So things like recycled newspaper and wood fibre, things like that actually, and breathing-wall construction, help to make a very nice atmosphere within.

Ben Adam-Smith 04:57

Cohousing is what we're going to come on to, but did that feature in your work life at all? Did you ever design a cohousing scheme?

Anne Thorne 05:05

No, I never designed a cohousing scheme but I was really interested, back as a student, in how people live together. And what are the things that affect the way that you use materials and that you share things. And I became sort of quite concerned when I worked at the GLC that we were designing, building housing estates then. And when the housing estate got to a certain size, they would just provide two community centres. The community centres didn't do anything different, there was just two community centres next to each other, which seemed a very extraordinary way of not actually having understood how people live and work together. And, you know, just going back to what is a village, what does it mean for people to interact and live together and so that's something I've been interested in for a long time. And so cohousing sort of became a natural extension of that really in lots of ways.

Anne Thorne 06:04

But also then, in my personal life, I ended up looking after my mother, who was in her 90s and had dementia and gradually became less and less able to look after herself. And realising that how easy it was to become lonely in your own home, that a lot of her friends had died, that things weren't working. But at the same time, friends of mine were actually, their parents were going into homes and that didn't seem satisfactory, either. So we talked quite a lot about this and what we thought we'd like to do.

Several of us had lots of ambitions as well about being more environmentally friendly in the way that we lived. And we combined that into the idea of cohousing and researched that quite a lot.

Ben Adam-Smith 06:56

Let's just do a quick starter for anyone that's not familiar. What is your sales pitch for cohousing and explaining what it all is in a few sentences?

Anne Thorne 07:05

Well, cohousing is an intentional community where people come together to live with each other, but not in the same building. So the idea is that you have an independent home where you can live, which has a kitchen, bathroom, all of those things. But there's also a common house where you can come together and do things together, like tonight we're cooking a meal. There's lots of groups going on in there, all sorts of different things from welcoming people like Refugee Action into the common house, to people watching movies on the telly together, or even the cricket or tennis or whatever else they want to.

Anne Thorne 07:49

The idea is that you can have a smaller home to live in, because you actually share quite a lot of facilities. So for example, if you want to have a party, you can just use the common house, you don't need to have a very big space to have a party. And if you have friends and family staying, we've got two guests rooms, they can go and stay there. There's a little sort of flat, almost, which they can stay in. Or, for example, when my family came, we went and stayed there just because that was easier with small children.

Anne Thorne 08:24

And then we also grow vegetables together, mostly for the common house use, but whenever there's a surplus of vegetables, people go and get those together. The other thing that we have is a travel club, where we share cars. And so there's about eight households, I think that share about five cars together. We also have things like a WhatsApp group where people announce when they're going to go on a journey. If there's going to be space for somebody else. There's all sorts of things like that, that go on. Somebody goes and buys the paper on Saturdays. It's fantastic! Makes life more fun. But it also means that we're using less of everything, because we're sharing.

Ben Adam-Smith 09:11

At the beginning of this conversation you were talking about this has always fascinated you. So I suspect that probably you've been thinking about this longer than anyone in the group. So some of these interactions, for example, architecturally, how are you going to solve that then to make sure that there are interactions but you've got your own place?

Anne Thorne 09:36

So everybody has their own house, which is quite discreet or flat, and everybody has their own small outdoor space which they can use, whether it's a balcony or a terraced garden, but then there's a lot of communal space where different things happen, and there are quite a few discrete spaces within that communal space. For example, we've now got chickens in one part of the garden, and there's a table

and chairs underneath a gazebo where you can go and sit and watch the chickens if you want to. And if somebody happens to see you sitting there, they can say hello. And you can say come and sit next to me. But you don't. They don't have to. And you don't have to.

Ben Adam-Smith 10:18

So there's line of sight almost that if you have that, oh well I will go and speak to them?

Anne Thorne 10:24

Yes. And so similarly, the houses have been designed so that they all look at the common house as much as possible. The site is very steeply sloping, which actually, although it's proved expensive to develop, has been quite a bonus because most people can actually see the common house from their house. And you can just see if there are people out there drinking cups of coffee or something. And if they are, you can go and join them, or not as you feel like it.

Ben Adam-Smith 10:54

Let's rewind a little bit and go back to beginning this process. When does it become real, then? Obviously, the construction and having a site, but there's a bit of dreaming as well. So is it those early days or?

Anne Thorne 11:08

Well, I think it was really interesting when we actually found the site. We found lots of sites, and we rejected them. In fact, it was 10 years worth of looking for sites and rejecting them. And then finally, we found Cannock Mill, which we thought was ideal because of the old mill building, and the fact that there's the mill pond and a lovely space for the terrace of houses.

Anne Thorne 11:33

But several people at that point decided that for whatever reason, it wasn't the right place for them. They didn't want to be in this location, or they didn't actually want to take the risk of doing a development. And I think that that was quite a big cut-off point was when everyone suddenly thought, Oh, my God, this is going to be 7 million pounds. Can we really do this? You know, this is a huge risk. And in fact, eight of us bought the site, eight households that is, which cost 1.2 million. That was a really big step for everybody to put up that money. People got mortgages on their houses, did all sorts of things in order to make that happen, which was a fantastic leap of faith really, and one that lots of people couldn't make.

Ben Adam-Smith 12:27

You obviously come to this being familiar with the process. So I'm right in saying am I that not all cohousing schemes will have an architect within their ranks?

Anne Thorne 12:39

No, by no means and a lot of cohousing schemes have actually developed with a housing association or with a local authority or something like that. So this is actually a quite an unusual cohousing scheme, in that it was a group of people who actually took that amazing leap of faith to not only buy the site, but also to build 23 houses, which we knew we were committed to because the land had planning

permission for 23 houses, which meant that economically, we were paying for a site which had to be developed for 23 houses, and that we'd have to sell that many and we were only actually eight households at the time. So that was really quite a big risk to be taking at that point.

Ben Adam-Smith 13:34

So how did you play this in terms of were you just going to get fully involved or did you try and distance yourself in some respects, because you're going to be living here as well? How did that side of things, or did it begin in one way and develop into something else?

Anne Thorne 13:50

Well, I suppose it began in one way and developed into something else. I was quite involved in all of the sort of how do we set ourselves up and all that sort of thing. But then as Anne Thorne Architects became appointed, I completely distanced myself from any finance committees, or groups that were actually making decisions about anything which might affect my tenure as an architect, because that really had to be quite separate. And basically, the group set up a building group who were, in effect the client, and there were some people in that building group who were actually very experienced at being clients. So there was someone who had worked in the Housing Association, there was somebody who'd worked as a client for big organisations like the Royal Opera House, and all sorts of things like that. So they knew quite a lot about what it was to be a client. And there were two people who had actually trained as architects, but had never been practised as architects, they'd gone into the client side of things. So that made a big difference actually, having informed people around who understood what my role was, but also the trickiness of being involved in the project and keeping it separate. And I was quite conscious of that, and quite clear that I couldn't, for example, chair board meetings or anything like that.

Anne Thorne 15:29

So the way that the group operates is that we have a series of subgroups. So there's a building subgroup, a finance subgroup, a legal subgroup that's now merged with the finance group. Since we set up so much stuff but they were separate groups. And then all of those subgroups reported to the main board, which then takes decisions. I was always very clear that at the board, I was not in a position to vote on anything really to do with the building work. And the building group was very clear about that, too, which I think has been fantastic.

Anne Thorne 15:53

I mean, everybody's had to put in a huge amount of work. Although there were people who know a lot about legal and finance, and all sorts of things. For none of them, including myself, was co-housing something that they'd done before. So you know, we had to work quite hard at How are we going about this? What do we do? And what are the systems that we want to set up?

Anne Thorne 16:32

There's several people who've been involved in the UK cohousing community and we've gone to conferences and talked to people to get experience from other people. But there isn't particularly a precedent as much the same as this one. But when it came to the actual building work, the building group was really good at making it crystal clear to everyone that any discussions... I mean, everybody

came and visited the site on a regular basis. So approximately once a month, everybody would come and look at the building work and see how it was going. And that was really important as well in recruiting people. So people who were interested would come and look and then see whether or not it was something that they wanted to be part of. And I think that was a very interesting way for them to, to get involved, and for us to get to know them. But it also meant that whatever happened, you know, we couldn't have people saying to the builder, Oh, actually, I want my kitchen over there, you know, you've got to be incredibly clear with the builder what the instruction is, and that it's not changing. Otherwise, there's huge financial implications. And it's quite easy for someone to accidentally just say, Oh, I don't like bamboo floors, and then the builder starts thinking that we're not going to have bamboo floors after all. And that upsets everyone.

Anne Thorne 17:59

So the building group was really good, because they were experienced clients telling everybody, no, look, if there's anything that you really don't like that you've seen in the building work, then you must come and talk to us about it, and then we'll discuss it with Anne, and then it'll go to the builder if necessary.

Anne Thorne 18:18

I think the other thing that was good was that we had very experienced consultants who worked with us: landscape, structural engineers, environmental engineers. And they came and talked to the group and got to know the group as well. So there were two people from the building group who were designated as client representatives on the building contract. And they came with me to every contract meeting, discussed any issues that needed to be discussed. And yeah, worked really hard to understand any issues that came up.

Ben Adam-Smith 18:59

I feel we should probably talk about the site a little bit more, because it seems like a lot of things flow from that. So just a really wider question. When you were looking at different sites to begin with, would you have settled for anything the right size, knowing architecturally there is a solution, when you were looking at your hour and a half away from London?

Anne Thorne 19:24

Yes, and no. I mean, the big issue was not so much whether or not you could fit anything on any site. I mean, we looked at everything from disused convent buildings to flat sites.

Ben Adam-Smith 19:39

Coming here, I was thinking to myself, I wonder if they ever considered a retrofit, because does that make life easier? Are there more choices then or does that complicate things?

Anne Thorne 19:48

Well most of the retrofits that we looked at would have been perfectly suitable in terms of putting the accommodation within the building. For example, the convent that we looked at in Stroud, but it was a listed building, and that in itself makes it very expensive. And also, VAT is incredibly expensive as well on top. And for example, the convent that we looked at, the area that would naturally have been the

common house was the chapel. And that was listed inside, and everybody thought it was a bit too religious, and we didn't really want it. So it was quite problematic finding a retrofit that was actually large enough for 23 households. So that was the main issue, although saying that we did find two possible places.

Anne Thorne 20:40

But the other one that we found, which was actually in Essex, was potentially much easier. It was a disused college. But because it was easier, it was immediately snapped up by a developer. And that's what we found again, and again. We found a flat site, which would have accommodated us quite easily and made the buildingwork quite straightforward, instantly, it was snapped up by a developer.

Ben Adam-Smith 21:06

You say snapped up. Why could you not have snapped it up?

Anne Thorne 21:10

Because as a group we couldn't move fast enough with our finances. Also, quite often, the developers had actually got a link with the local authority. So for example, there was a site in St Neots that we were quite keen on, and we got so far with the negotiations. And then there was a local housing association, which had a strong relationship with the local authority and wanted to extend their scheme for old people on to a site and they got it. We didn't. Yeah.

Ben Adam-Smith 21:48

And architecturally, when you're looking at a site, how much thought are you doing? Was it more about this site has got planning permission for the right amount?

Anne Thorne 21:57

Well, not every site had planning permission for the right amount that we looked at, but generally speaking, yes. I was thinking, Could you fit 23? Or, you know, we'd had a minimum of 15 households, and a maximum of 30 households, I think. And so would they fit? And generally speaking, yes, they would. We didn't bother to go look at sites where we didn't think that was possible. And usually you can actually see some sort of a plan of the site when you're looking for them. The other criteria that was really important for everybody in the cohousing was that we were not isolated, so people didn't want the cohousing to be away from other houses. It's not that we wanted to be an isolated community: we wanted to be within the outskirts of a town or even within the middle of a town. But you know, well connected to local facilities, where you wouldn't necessarily have to drive a car.

Anne Thorne 22:57

I mean, there was a very good site that we looked at in Sussex. The problem with that was that there was no way that you could get to the site at all without getting in a car because there were very steeply banked roads, and there was no pavement. So even though the village wasn't that far away, you'd have to walk along this very steep and unpaved road, just was not really what we wanted.

Ben Adam-Smith 23:28

So that brings us on to this site where it did happen. And how did you first arrive here and have a look around and think, oh, this could be good?

Anne Thorne 23:38

Well, strangely enough, we found it on Rightmove having looked for sites in every possible way: approached councils, all sorts of things that we did. And two of us found it at the same time on Rightmove. So we just came and had a look. Pretty much straightaway, I said, Well, this is going to be perfectly good, although it'll be expensive. There's 11 metres difference in height between the top and the bottom of the site. And there were also a lot of springs in the hillside, so we had to sort of deal with all of those.

Ben Adam-Smith 24:10

And you could tell that by looking at it or you had to get people out here?

Anne Thorne 24:14

I could tell by looking at it that it was going to be steep. And you could tell that it was fairly waterlogged because there was a lot of little ponds and things on the site. But the mill was lovely, and the location is fantastic because it's 20 minutes walk into Colchester. There are regular buses that stop outside the site. There's a baker's and a Co-Op and greengrocers just up the road. So all of those things really matter. And also there's a lovely green path adjacent to the site, which is the Borne Valley. So you can walk for about six miles without going across a road which is a really lovely thing to have so close to the centre of town. So I must say that at that point I said, Look, we had looked by then for nearly 10 years, I said, right, if we don't, if we don't take this site, then I've had enough of looking, I'm giving up. And various other people agreed.

Ben Adam-Smith 25:16

So yeah, just one question, how much work do you think you've done? How much time, how many weekends, if you could tot it all up, do you think you'd spent? Because yeah, 10 years is exhausting. And it's hard!

Anne Thorne 25:32

Yes. Gosh, I don't know, I mean we met once a month for at least six of those 10 years. On average, every three months we looked at a site. And I did some sort of feasibility study to see if you could actually fit 15 houses, on it or 26, or whatever. Some were much more crude than others.

Anne Thorne 25:56

There was another site that we looked at, which was very hopeful. Luckily, I knew a local engineer, and I said, Why has this site not gone? It looks absolutely perfect, it's a nice, flat site and looks great. And he told me that the developer who had flattened the site had, in the process, managed to knock a canal wall down and undermine a building, which was next to the site. And also incidentally, undermined the town drain, which went through the middle of the site. So when we worked out what the repairs would need to be, the person who was selling it would have had to pay us to take it. And I noticed that it still hasn't been developed. So that was a lucky miss really!

Ben Adam-Smith 26:41

It's extraordinary, land is one of those things that there are stories to uncover the whole time. You have got to be careful haven't you?

Anne Thorne 26:47

Yeah, really careful. Yeah.

Ben Adam-Smith 26:50

So coming back to our site then, how would the process work? Does it start with you outlining where the buildings go, or what you want from the houses? Are we handing it back to the groups?

Anne Thorne 27:02

Well, that's quite tricky, because with eight households having bought the site, most of those households had some idea of how many bedrooms they wanted. But the tricky bit was trying to guess what we thought the other people who weren't part of the group would want. And at the time, the majority of the eight households wanted three-bedroom units. But in hindsight, we probably could have done with less three-bedroom units and more two-bedroom units. But you just have to make a decision at some point. And one of the things that really influenced the layout of the site, and the number of bedrooms was, in fact, the car parking requirements by the local authority.

Anne Thorne 27:49

So whereas working in London, we've been working on sites where you can't even get a permit to park your car in the street, here, they wanted two and a half car parking units per household, which was a huge ask and takes up a huge amount of the site. So some of that we actually had to negotiate that there was space to do it, but unless there was problems with local people, then we didn't actually need to build that as parking. So we didn't actually need to tarmac that surface. But some of it we made the parking spaces. We still needed some more parking spaces. So we actually put garages within the Passivhaus envelope, which was a very unusual thing to do. I don't know of many other passive houses that have got the garages within the envelope.

Ben Adam-Smith 28:44

So that is to get round this park, that's incredible. Yeah, so your spaces are within the houses so that you can limit the amount of land? Oh, my goodness.

Anne Thorne 28:54

Absolutely, yes. In fact, that's turned out to be a really good thing, because we've got two potter's who use the garages for their work, and we've got someone who plays the grand piano who can fit his grand piano in the garage. And so out of all the garages, there's only one house that actually parks their car in the garage.

Ben Adam-Smith 29:16

Interesting. Going back to the houses then, you mentioned quite a few three-bedroom properties, floor area for the properties, you're obviously going to be varying this, but how do you come to a decision?

Anne Thorne 29:31

So the houses are designed to Lifetime Home standards, so they're relatively generous compared with developers' homes, but they're not perhaps as generous as if a private client might build for themselves. We also worked to GLA standards, the Greater London Authorities standards is minimum housing sizes. Double bedroom rooms are not less than 12 metres squared and single bedrooms and not less than nine metres squared. And in fact, we haven't really got any single bedrooms, we've got some small doubles. But that's it. And that was all because we took the decision that it is really important that the houses should be as accessible as possible.

Anne Thorne 30:20

So for example, in the three-storey houses, there's a space in the floor which can be taken out and a lift can be put in from ground to the top floor. And then all the staircases are wide enough to fit a chair lift if you want to do that at a later stage, and the bathrooms are large enough to be accessible, and also have a place in the wall where you can knock through to one of the bedrooms if you need to put a hoist in between bedroom and bathroom. And that's all about the durability of the houses and that they're fit for purpose regardless of what state you're in. And that applies to the general population, not just to older people, nobody knows at what point they're going to find themselves unable to walk, or, you know, what might happen.

Ben Adam-Smith 31:14

The houses themselves when you're going to hand them over, how much has actually been done in the process?

Anne Thorne 31:21

We took the houses so that they were complete. They had all the bamboo floors in them. Every house was painted white, we had various things which we agreed on that everybody would have. So for example, the bamboo floors, the bathrooms, all the same taps and baths, that you had a choice of a bath or a shower, all the same washbasins.

Ben Adam-Smith 31:44

Is that quite a tough sell for people who've chosen their own things all their lives?

Anne Thorne 31:49

It was quite a tough sell, but I think everybody understood that if we could agree to have the same things, then it would be an awful lot cheaper, and more sustainable, yeah.

Anne Thorne 32:02

I have in the past done work with people who are doing self-build and that sort of thing, or wanted to do an element of self build and not got the rooms fully finished and painted. And I found that that's a huge mistake, because it's terribly difficult to see how well finished the joinery is, for example, and the plus plaster work. And although painting and decorating is easy, actually getting ready for painting and decorating is much more difficult. So I insisted that we painted everything, and anybody can paint whatever colour they want to afterwards and do whatever they want to afterwards. But that we'd just have a standard where we can see that things have been finished properly.

Ben Adam-Smith 32:49

How does all of this fit into that early stage budgeting then? Are you budgeting a certain amount per house? And does that change over time?

Anne Thorne 33:00

What we were trying to do is to budget on a sort of square metre basis. And so depending on the size of your house, you paid more or less. And yes, budgeting changed hugely from starting to finishing, particularly over the 10 years before we actually bought the site. Ginormous change in building prices.

Anne Thorne 33:24

On site, prices did go up as well. We had a contingency sum, 25% contingency sum. And our prices only exceeded that contingency sum by 1%, which wasn't too bad given that the building work in fact took much longer than we'd anticipated. So it was actually a year longer than the contract we initially signed. That was very tricky. We had a lot of issues with the builder to try and resolve. They had never done Passivhaus before, and I think this was the first timber frame building that they'd done. And so the combination of those two things made this a very steep learning curve for them. They did brilliantly on the ground works and straightforward building work that they knew about but things like airtightness, they'd never attempted to achieve point six. So it's a really big learning curve, to think through how subcontractors have to make wires going through the external wall airtight and all of those sorts of things and that everybody who's involved in the build has to understand that process.

Anne Thorne 34:45

And although we actually wrote within the Bill of Quantities, a whole section about the courses and the training that the builder needed to do in order to train subcontractors and be trained themselves, that still didn't actually achieve what we'd hoped it would achieve. And that's quite a difficult thing, really for our building industry to, to change in this country because it has become so rundown. Apprenticeships and so on are absolutely the absolute minimum that you could possibly expect. And in countries like Germany and Belgium and Austria, where Passivhaus is common, people are doing six year apprenticeships or three or five year apprenticeships, and here it's a year.

Ben Adam-Smith 35:37

Because some of these timber frame systems like you have here are very straightforward to put together once you've done it a couple of times, but was that the real learning curve?

Anne Thorne 35:49

That was a real learning curve, yes. And the houses are pretty uniform. I mean, we tried quite hard to make them as uniform as possible. They do change a little bit because the terrace curves round, so there are a couple of houses that are wedge shaped, for example, but the two storey houses and the three storey houses in general are all the same.

Anne Thorne 36:13

I think the other really difficult problem is that as an architect, when you design a timber frame building, which we did, we designed the timber frame buildings working with a structural engineer and designed

it in the way that we thought it would work. But we couldn't actually work with a timber frame subcontractor at that stage. Because in order to be competitive, the contractor wanted the option to go to several timber frame subcontractors. And so then when they chose a timber frame subcontractor, everything got redesigned again at that point, which was really very tricky for everyone concerned for us to redraw all the drawings and the contractor as well. But that's the way our industry is set up very competitively and it's very difficult to get somebody in at the outset.

Ben Adam-Smith 37:09

A few other aspects that I want to talk about, so maybe you could just technically describe what this timber frame is, so that we get an idea and how the building changed, maybe even start at the foundations and work up.

Anne Thorne 37:23

Well, we started within what we called an enabling contract, which was basically digging a big ditch four metres deep, right the way across the site in order to collect the spring water, which was in the hillside and bring it to two points. And so those two points then go through the terrace. So there are two openings in the terrace where that spring water comes through, and goes into the pond. The ground conditions are quite variable across the site: some of it's gravel and some of it's clay. And it's also very wet in lots of places, even though we've dug those trenches, and to some extent, managed to direct the water.

Anne Thorne 38:06

So the scheme is on piled foundations, which in some instances are 25 metres or deeper than that. Then the other thing is that the buildings go around and they have to meet the mill. And so we had to excavate around the mill and there were a lot of old buildings there, which had to come down. And then we discovered there was more drainage down there which had actually taken the water after the mill so all of that had to be sorted out.

Anne Thorne 38:37

But on top of the foundations, there's a basic concrete slab and then there's insulation, and then on top of the insulation, there's a screed. And then the timber frame comes up, and that's 38 millimetre studs basically, stud wall although was actually pre-formed by the timber frame subcontractor in their workshops and then brought to site in panels, but without anything fixed to the panels except for the stud work. And then that is faced on either side with either wood fibre board or with plywood. And on the inner face it's what's known as smart ply which is actually an airtight layer. And then holes were cut in the smart ply and the insulation, which is newspaper, was blown into those holes and then the holes were put back again and it was plugged.

Anne Thorne 39:40

And then on the outside of that there's a wood fibre panel again, which has got a mesh on it, and there's render sprayed onto the mesh that's been done as you know in different colours, so there's red, yellow and the pale cream and so on. That was quite fun, because we said to everybody, they could decide what colour house they wanted. But you must negotiate with your neighbour so that you haven't got the same colours. And so everybody negotiated and there was a long drawn out conversation about

all of that and we came up with the colour scheme which everybody liked. And then we sent it in to the planners and the planner said, there were two colours we couldn't have that we we had used, so we actually had to redo that all completely, at which point everybody said, Oh, for God's sake Anne just choose the colours!

Ben Adam-Smith 40:35

A lovely planning involvement here, I can't see what difference the colour of the render makes!

Anne Thorne 40:40

No, but apparently you can't have blue or green. That's what difference it makes. So we decided on the colours and tried to give people what we thought they'd asked for, but some of it worked, and some of it didn't.

Ben Adam-Smith 40:52

And the roof?

Anne Thorne 40:52

There's the roof construction, which has got all the insulation in it. And then on top of that, there's additional rafters, which carry the 100 millimetre deep roof, which is a green roof, which goes on top of an egg crate type membrane, which enables it to collect a lot of water. And that then goes into little channels, which take it through various stainless steel chambers. So the roof pretty much represents what the site was before houses were built. So in other words, when it rains, the roofs almost absorb as much water as the site did before the houses were built, but not quite. So you get a slow trickle of water coming out of the rainwater pipes, and then that trickles on the surface of the pavement and then goes into the porous tarmac on the road. And underneath the porous tarmac, there's a trench, well, a container with stones in it, and the water drains through that and drains into rain gardens, which have particular planting in which the landscape architects designed. Then it goes down into the pond and then from the pond into the river Borne. So what that means is that no water actually goes into the surface drains from the houses. That also means that we get a reduction in our water bills, which is handy.

Ben Adam-Smith 42:29

And one of your key objectives is to slow the path of water. Is that what that's trying?

Anne Thorne 42:34

Yeah, so when there's a one in a hundred year flood, it slows it right down. And it's quite interesting when you're walking down the path the day after it's rained heavily, you see the water dripping out of the rain water pipes the next day rather than the day it's raining.

Ben Adam-Smith 42:51

That's quite satisfying. What else have we not talked about then, particularly from an architectural point of view?

Anne Thorne 42:59

I suppose the other thing that's important is that the houses are upside down. So the living rooms are on the top floor. And we did that because of the steep north facing slope. Everybody was concerned that there was going to be enough sunlight in the living rooms, so we put the living room on the top floor. And in lots of ways that's worked really well, because being on the top floor, it means that the whole of the top floor is open plan. We didn't have to have any partitions because the roof is carried across the party walls. That enables a very nice open plan kitchen and living room.

Ben Adam-Smith 43:40

What were the biggest Passivhaus challenges then, whether it be ventilation or design?

Anne Thorne 43:48

I think the biggest one was the installation of windows and doors. The contractor found somebody locally to install windows and doors who hadn't done it to Passivhaus before. And one of the issues with Passivhaus is that because the windows and doors are triple glazed, and particularly because we've got these large windows, both on the top floor and on the ground floor, which are sliding, folding doors, they're incredibly heavy and difficult to install. And so there were quite a few windows and doors that were not installed correctly and that we were getting a lot of air leakage from around those. In hindsight, what I would do is insist that the suppliers install the windows and doors because they actually know exactly what you have to do with Passivhaus, and also what you have to do with a triple glazed window and how tricky it is to manipulate it.

Ben Adam-Smith 44:52

Now I've been warned off these sliding doors, folded bi-fold I think is one term, is that what these are? So what's your take on it then?

Anne Thorne 45:03

They've worked fantastically well on this top floor. I think everybody thinks they're great. It's lovely that you can open the whole of the top floor living room up to the balcony, especially in the summer. It sort of extends the room. On the ground floor, they've not worked quite as well. And we used a different detail for connecting the doors to the timber frame. And I think that that's made a huge difference, really, to the way that they operate. But also they were poorly installed. And that has taken a long time to get right. And we've now had the specialist from the people who make the windows come a couple of times, and he's adjusted them, and they are actually fine now, but that was a really big issue to begin with.

Ben Adam-Smith 46:00

Something we actually haven't talked about, the listed building. How did you approach that?

Anne Thorne 46:05

Well, we wanted to insulate that as much as we could, but we knew we wouldn't be able to achieve Passivhaus or retrofit. And the main reason for that was because the conservation officer wouldn't allow us to change any of the windows at all.

Anne Thorne 46:22

The mill had quite a DIY overhaul at some point and the windows and doors, except for in a few cases, are quite ropey really. So we never would have got the airtightness that we needed on the windows and doors. We have put secondary glazing on them.

Anne Thorne 46:41

And what we decided to do was to take the boarding off the outside of the mill. It's got just larch timber boarding on it. And we took that off, and we put insulation between the studs. Again, it's a timber frame building. And we also put in an airtightness layer, which is basically like a GoreTex, so it's breathable, and allows the structure to breathe, which is really important with historic buildings. Then we put an insulated board on top of that of wood fibre and then put the cladding back on again. So it is actually very well insulated.

Anne Thorne 47:24

When we got it, we used to have our first meetings in there and invited people who were interested to come and it was absolutely freezing because there was no insulation at all. So everybody was really worried that it was going to be very cold, so we put a wood burning stove in on the top floor. But actually, it's turned out that it's far too warm. And we've only managed to use the wood burning stove about once I think or twice, hardly at all. It's far too warm in there - the insulation's made a dramatic difference.

Ben Adam-Smith 47:56

And how do you look at the functionality almost of the whole scheme? Is it working as desired?

Anne Thorne 48:04

Yes, I think so. I think most people would say it was working as they wanted it to work. I think people really, really liked the houses, which is great. A lot of people were quite sceptical about the Passivhaus. They were coming because of the cohousing not because of the Passivhaus. And they didn't really believe that we could make such a dramatic difference to fuel bills, for example. So the fact that now our heating and hot water costs less than our internet is really amazing to the majority of people here.

Anne Thorne 48:36

The other thing that you know, it's a classic thing that everybody's concerned about is, it's Passivhaus you won't be allowed to open the windows. Well clearly you can open the windows in Passivhaus, and you need to open the windows and get cross-ventilation in the summer. But without opening the windows, the air quality that you get through the air circulating from the MVHR is actually fantastic. And the houses are just very comfortable to live in. I've never lived in a Passivhaus before. I've been involved in designing them for other people but not lived in one myself and I'm really impressed by the air quality and so on. I think the only thing that happens a little bit is that it sometimes it gets a bit dry but it's easy enough to get some more plants and water them.

Ben Adam-Smith 49:27

And what would you suggest to anyone thinking about cohousing? It's been a long old journey for you on this one here. Can you bypass any of that time or is it just it will take as long as it takes?

Anne Thorne 49:42

Bitter experience has shown through most cohousing groups that it takes as long as it takes! There are now some developers who are seriously thinking about cohousing and there are a couple of schemes like the one in Cambridge which has been done with the local authority and a developer. And happened pretty quickly because it's part of a larger housing scheme.

Anne Thorne 50:09

But one of the things that's worked really quite well here, although, you know, there's pros and cons about this, is that because people have been involved from the beginning, they've invested a lot, not only in the, in the scheme, but also in the community and in their faith and understanding of each other. And so people have really got to know each other very well, and to trust each other incredibly well, through going through the building process. So I don't think that it's necessarily a bad thing for a community, I think it can actually be quite consolidating really in lots of ways. We've developed ways of working together, which have helped a lot. The disadvantage of that is that the sort of 20 households or so who actually bought in before the scheme was anywhere near finished, have in a way become a very sort of consolidated community, and that's made it slightly more difficult for people who are new, coming in and joining.

Ben Adam-Smith 51:20

There's definitely different stages isn't there of a cohousing community? Different entry levels. And as you mentioned earlier on, people also exit too before it's finished.

Anne Thorne 51:29

Yes. That hasn't always been easy. But I think we've got sort of a fairly good basis. And then there's quite a lot still to work out. And we still you know, we're only just at the point where we're finally doing what should have been a six months defects is coming to an end. Once that's done and we can actually put the building contractor aside, I think things will change quite a lot.

Ben Adam-Smith 51:57

I think it's wonderful and great that you've put all this work in and developed such a great community. So Anne, thank you very much.

Anne Thorne 52:05

Well, thank you.

Ben Adam-Smith 52:07

Head online to take a look at the show notes for this session at houseplanninghelp.com/335. You can review the main information, we always provide a summary alongside our podcast. There's the video as well of the scheme from the UK Passivhaus awards - it was a winner there. We've got photos at different stages. Links to Cammock Mill cohousing website, we'll also link in various cohousing projects that we featured on the podcast over the years. All of that at houseplanninghelp.com/335.

Ben Adam-Smith 52:40

Finally, today, if you've enjoyed this episode, then try another. Yes, we have plenty of them or hit subscribe. Even better to learn about ecological building from various different people, different approaches. It's what we do here - housing, and then if you really like what you hear, we would love a review on whatever app you are listening to us on.

Ben Adam-Smith 53:02

Thank you so much. Next time I'm flying solo. If you've listened to this podcast for some time, you may remember I built a house. My goodness, it is five years ago since I moved into that house, and I'm going to reflect on that time. So, looking forward to that. Thanks for listening. The House Planning Help podcast is produced by Regen Media: content that matters.