

HPH349

Ben Adam-Smith 00:00

This is House Planning Help episode 349. 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 try to break down some of the major roadblocks that may get in our way. Coming up in this session, my guest is Meredith Bowles, founder of Mole Architects, and we're going to talk timber, specifically the various different approaches that you can take if you use timber on your project. So we're almost up to our 350th episode and every 50 we like to do something slightly different. So I'll explain my plan as we get towards the end of this podcast, but I wanted to ask now for a favour, perhaps you know of someone who is mulling over the idea of house build, maybe they're looking for land or they're talking about it as an idea. That's always the best time for us to intercept you. So if you can ever refer us to someone else, mention it, say, Oh, you like listening to podcasts, check out this one before you go through your project, then that would be a massive help. It's the word of mouth. It is age old and it really does work, so thank you. So let's get to our featured interview with architect Meredith Bowles. We're going to explore various different timber approaches today and Meredith has a love for timber, which stems back to the early days of Mole. So I started by asking him to tell me a little bit about his background.

Meredith Bowles 01:28

I started Mole over 25 years ago, and the early work that I did was I started off in London, and I did a lot of residential projects, conversions and additions and so on. Most of that of course was building on to existing Victorian building stocks, so masonry construction. I found it a really unsatisfying way to build, you know, it was messy, it was difficult. I mean, it's forgiving, because you can push it around. But when I started, when I built my first project as a standalone building, it was built out of timber, and for me, it was transformational. It was so neat, it was so pleasant to work in, and the idea of knowing in advance of being able to plan out where all of the structure was going to go, was fabulous. The ideas of prefabrication were there from the beginning.

Ben Adam-Smith 02:26

There's a lot of timber around, we know what it is in our minds, but how does it differ?

Meredith Bowles 02:31

You mean one kind of timber from another. The clearest way is going down to the builders merchants, you know, so one way of building is just our equivalent of vernacular, what's available. So timber, which is generally known as white wood, it's mostly Scandinavian or Lithuanian, or Russian softwood. And that's what's mostly available in the timber yard. That's the easiest, simplest way to build timber studs. It originated in North America, as a building system, the kind of platform frame, timber studs. And even though we have a mediaeval tradition of building in timber, that's obviously oak framing rather than soft wood studs. But that, to me, is the kind of most straightforward way of thinking about timber building, stuff that you can buy at the builders merchants and make it out of small pieces of soft wood, which, once you sheath it, which gives it its rigidity, and strengths becomes an incredibly powerful way of

building out of small bits of timber. That's the normal timber. That's the kind of default. And then we've got engineered timber, which has started maybe from about 20 years ago started to be much more commonly available. So they're engineered products. So it's taking the original timber and transforming it into something which is then much stronger, usually with glues. CLT is the kind of probably biggest or best known version of it. But there's also LVL different forms have strips of timber that are glued together, obviously, plywood is been around for a long time. And that enables you to do much more structurally with buildings, but comes with other complications, not least the cost.

Ben Adam-Smith 04:28

Is it a conscious decision, then whether your practice that timber was going to be our thing? Or are you still starting everything with? What are our options? Why are we going down this route?

Meredith Bowles 04:39

Our default is timber, I suppose. Because we're a practice that cares about sustainability that sort of inbuilt into our way of thinking. There's obviously a number of aspects to sustainability. The primary one is cutting down our fossil fuel use and carbon emissions, which is what has been fueling climate change. And to do that, we need more insulation and if you've got a timber framed building, you've got a lot of space in it that you can fill up with insulation. So it's a really, really easy way of making a really well insulated building, because you're building it out of stuff with a lot of space, the alternative masonry construction, you're needing to build two leaves with a really big gap in between to fit the right amount of insulation in, which becomes quite cumbersome and complicated. So that's, that's why it's not that I mean, there are advantages to masonry construction.

Ben Adam-Smith 05:45

Its pros and cons. Isn't it the whole time on any different build approach that you have? There's always some positive, some negative, but I'm interested in why has timber not taken off as much as it seems like it could?

Meredith Bowles 06:00

I'm mystified. Mostly, it seems that it's been driven by insurance and lenders who even now see timber as not traditional. And as a higher risk. It's usually statistical analysis that sits behind those kinds of reservations. So it may well be that they have had more problems with timber buildings than masonry, but I have never, I've never heard that. But that's mainly why I mean, people say, Well, I can't get a mortgage for timber frame building, of course you can, but it's not the norm, and therefore it's slightly harder. Plus, I suppose if you go to any old builder down the road, and say, can you build a house, then they say 'Oh, yes, we can build out a brick and block' and they wouldn't know where they're going with timber. So it's a whole industry, which needs to change or is changing.

Ben Adam-Smith 06:54

How can we train ourselves up, then if we are wanting to go down this timber route? Maybe wanted to bring in a builder, as you say, but how can we make sure we're properly prepared?

Meredith Bowles 07:07

I mean, I think most, most changes are better, aren't they if they happen incrementally rather than suddenly. So we are potentially going to face a great deal of difficulty. For instance, in the adoption of heat pumps, whether it's air source or ground source heat pumps, where we won't have sufficient numbers of people trained up to especially maintain the new equipment that everyone is going to have in a fairly short space of time, if the government does roll out the promise change. And that could be disastrous, as you could act against what we're all trying to do if make things more efficient, if suddenly, they're all set up poorly, and they're not acting efficiently. So actually, those of us who are interested in innovation, and doing things ahead of the majority are providing a really useful function in getting people to understand what is going to happen so that they can learn from, if you like our experimentation, sometimes even our mistakes, so that by the time it's rolled out in a bigger number, people do know what they're doing, because there's evidence to back it up. I mean, whether that's the same for timber construction, I mean, to me, we've been building in timber for so long, there is a big industry of building in timber, there's nothing that isn't known by now. And so rolling it out, or scaling it up is not going to be such a difficult problem, if everyone started to adopt a timber construction. If the products are there, I don't think it's going to be difficult for the workforce to adapt.

Ben Adam-Smith 08:50

You use the word experimentation in there and I thought this could be a quite a good bridge across to the house that we're sitting in at the moment, because a lot of the things that you've got here, and what's it coming up to 25 years you've nearly been in here are today best practice. So your experimentation obviously paid off. Why did you bring those aspects into this timber frame construction?

Meredith Bowles 09:16

This was designed about the turn of the millennium. So it was finished, I think, in 2002, before so much information was available on the internet and so on. But I was getting really interested in a better way of building and how to build more responsibly in an environmentally conscious way. So that meant both addressing climate change and energy consumption, but also the way in which we build and the kinds of products we build with. I was very concerned to make a building that was built with natural materials that cut out concrete and cement but also cuts out glues and formaldehyde in products and paint. So I was looking to the continent and to Canada as well, Scandinavia and reading about how other countries who were further ahead of Britain partly because they have to deal with a harsher climate in the north of Canada and Scandinavia. But already were building with timber and that's where I learnt, I suppose, how you could do things differently to the way in which we were doing them at the time in Britain. There are other people, thankfully, who were interested in the same thing. So there were products being developed, there were importers who were looking to the same sources that I was and realising there's products and equipment that we could benefit from here, and there were contractors as well who were adopting what were then quite experimental forms of building. So this was a building that was prefabricated timber frame, it was insulated using recycled newsprint, cellulose, it was using glulam timbers to create a ring beam out of the ground above the ground. So timber buildings don't like water, so it's sitting above the ground, and because we're in The Fens here, everything is piled. So normally, you put big piles in the ground and concrete ring beam and the building sits on a beam and block floor that will be the conventional way of of building it, and this was sitting up out of the water a bit like an old fashioned granary sits on piers so that the timber is out of the ground and well ventilated and

dry. And we had an air source heat pump. In fact, the first one we had was a an exhaust air heat pump, which is a bit more of a complicated system and an MVHR system, and we had solar canopies, because it was a building that was insulated extremely highly at the time, so we knew was then had the propensity to overheat. So a huge number of aspects that now have become the norm, let's say in terms even legislation has finally we're not quite when the future home standard actually comes in. This house will be about at the future homes standard. So more than a quarter of a century earlier than eventually legislation has dictating how we should be building.

Ben Adam-Smith 12:19

Yeah, it's impressive and it just goes to show that a lot of the ideas there there aren't they you did your research, and no doubt this must have massively helped your business succeed all the great projects that you've had over the years,

Meredith Bowles 12:35

There's a huge appetite you know from people to do better and to make places that are more comfortable to be in and of course, dealing with climate change, the flip side of the coin is that the houses are more comfortable to be in, you know yourself. And so there's an appetite for that. And of course, the whole self build industry is fueled by the lack of opportunity and diversity that is there in the normal provision of housing and what the general house builders are putting forward. So we've never found ourselves sort of people who are interested in what we do, because they themselves would also like something better.

Ben Adam-Smith 13:17

Let's rewind a bit and we were talking about timber and some of the attributes and so forth. But because we've been focusing on sustainability, how do we really know that the timber is sustainable? Can we trust things like FSC? What research needs to be done?

Meredith Bowles 13:34

I mean that is a good point, and I to take on trust, that claims or the understanding that I have of PEFC or FSC, timber and the chain of custody. I mean, we long long since as a practice stopped using any tropical hardwoods. Because I think even though there are supposedly chains of custody, and forms of logging that are deemed to be sustainable, it seems like the destruction of rain forests is of a different order, or a different scale of environmental problems to the cutting down of forestry land that is grown for timber from softwood. So you have to make a decision as to what you choose to do or what risks if you like you choose to take in terms of environmental provenance of the product, from what I understand they're pretty well governed those two organisations, but yeah, we personally we have chosen not to use tropical hardwoods.

Ben Adam-Smith 14:46

And I suppose there is a logic as well of trying to minimise the amount of timber as with any construction material so that you've got enough but not too much. So is that a key part of the process as well, when you're using it?

Meredith Bowles 15:01

Yeah I mean, that's a very interesting debate around that. So some advocates of timber, make a claim that the growth of timber absorbs the CO2, and therefore, using more timber is a good thing. I mean, it's a perverse kind of argument. If we are going to scale up timber construction throughout the world, in order to try and minimise the use of more carbon intensive construction methods, then there's going to be such an enormous demand on the available construction timbers, that, surely it's better to make it more widespread the use of timber more widespread, but to engineer your use of it, so you're using less of it. I can't square myself the argument that using more of anything is a good thing.

Ben Adam-Smith 15:54

We've also talked about different ways that we can use timber, so it would probably make sense to go through them one by one. But are there any timber approaches that you wouldn't go near, or that you feel have moved on with the time has been gone?

Meredith Bowles 16:10

I mean, I never say never to anything because there's usually something interesting about every form of construction and if you then think about how you design it better than potentially that, from a starting point, you can end up with something interesting. So I wouldn't say we'd never use anything but oak frames is, I think, has really are a frame timber building is a really interesting one. And there's obviously we're, certainly within the self build world, the attraction of a contemporary oak framed house is clear. You know, we've come from a country where huge amounts of the country, certainly around here in East Anglia, the traditional, the vernacular buildings were made out of oak frame. And they're fabulous, but actually doing so now on a small building, it's not the case for a large building, because then a framed structure is often the right thing to do. But if you're making a fairly small building, and you're making it out of an oak frame, and then you also want to make insulated walls, the insulated walls are made, usually with a timber stud, and the timber stud actually can do the structural work. So you end up with a sort of double, a double system and oak frame because essentially, because it looks nice, and then the timber stud walls which are really there to hold the insulation and the cladding and so on, but of themselves could do the structure. So I like there to be we talked earlier about the idea of minimising your use of material and the idea of engineering something which is efficient, to me, is part and parcel of sustainable design, not overusing things. So there's a slightly illogic to me that oak frame in a contemporary domestic building, framed parts of the building, which we've done, so where you want to have openness where you don't want walls, so you want to have big open span spaces, of course, then you need to frame it, and that may be that you use an oak frame, which we've done a number of buildings, for that part of it where it's necessary. So that one is I have a caution about, oak frame.

Ben Adam-Smith 18:25

Let's go back to perhaps some of the more traditional ways of just starting with pieces of timber, is stick building the first, the obvious one there, or should we look at one other one first?

Meredith Bowles 18:36

Stick building, that's the most simple way of building, you know, the two way a platform frame or a balloon frame are the two conventional ways of building mostly it's built as a platform frame because you build the first one you put the next floor on you build the one above that building in the safety that you need to by putting the floors in as you go. It doesn't have to be finely engineered, you're probably

over engineering it by putting lots and lots of nails in, that's basically it you know there are no shot fired and now so it happens very quickly. And then and it sheathed so the traditional sheathing here was ply and then got taken over by OSB because it's cheaper and does the same job. One of the things that is problematic about what I call it traditional but because the insurance industry doesn't call it traditional but the way in which timber frame has been usually built here were sheathed on the outside with OSB or plywood, actually it is incredibly thin bits of timber which is I think possibly where the people's objection to timber frame early on came from in the it was a very thin form of construction literally thin form of construction. So it looked flimsy, even if it wasn't flimsy. It looked flimsy. But they It's built in problems with the way in which it was a conventional timber frame is built where you put OSB on the outside a very thin timber on the inside. And then you're building in the potential for condensation, because you're putting the OSB on the outside, which has a lot of glues in it and water vapour can't escape to the outside hits a cold surface and condenses on the inside. This is probably where the insurance industry's early objection to timber frame came from. And then the solution to that was to put a sheet of plastic on the inside of the construction. So it's just building in problems. So it's fine perhaps if your plastic is absolutely perfect, and there's no holes in it, but we know that doesn't occur. So once your electrician comes on site and starts running the cables in, then they don't spend enough time to repair the plastic that's broken. And so you get holes in the plastic water vapour can pass through into the construction, condenses on the innerface of the outer skin. It was a very poor way of building and it was obviously the simply the quickest way to do it, you wrap it up on the outside with OSB and you can sheath the whole thing in one go. You've then got a relatively weather tight envelope, so you can crack on with all of your services on the inside bung a bit of plastic, you know, Bob's your uncle, it's done, but except it's not done. To do a simple stick building that's not going to have those problems. It's more complicated than that and over the 25 years, I've been designing timber buildings, fantastic products have come on the market to make all that work and the building physics of it has finally been properly understood. So that we put layers with a greater resistance to moisture on the inside. And layers with a less resistance as a rule of thumb, it's a fifth of the water resistance or water vapour resistance material on the outside as on the inside. So ideally put the Ply or OSB on the inside, and you use a sheathing board on the outside that has a low water vapour resistivity. And then you don't have to worry about condensation being a problem, you don't have to rely on workmanship on an internal barrier. And then there's more products that besides that, that in terms of breather papers and intelligent membranes, intelligent vapour barriers, which negate the the anxiety that you're gonna have built in, or you're trapping moisture within the timber which of course then leads to rot.

Ben Adam-Smith 22:41

And while we're talking about moisture, coming backwards and forwards through the fabric, insulation, that's so important to think what we're using to insulate as well.

Meredith Bowles 22:53

Yeah, and those early timber frame buildings, they were nearly all built using a rockwool mineral wool kind of insulation, or glass fibre insulation, which was the standard back then, which doesn't absorb any moisture in itself. So if you do have any, any moisture that occurs within the construction, the insulation isn't assisting you in being able to cope with it. So it simply runs down pulls at the bottom and rots your plate at the bottom of the construction where no one sees it for, you know, 10 years until it finally becomes apparent because the building's rotting. So all natural incidents actually have ability to absorb

moisture, which is massively helpful. So whether it's a cellulose, recycled newspaper, or it's a wood fibre, even though wool insulation, they all have the ability to absorb moisture and then pass it out again. So they take it in in the winter and release it in the summer, which is obviously massively, massively helpful. I mean, there is a tension between the desire to use natural insulants and wanting to make a really highly insulated building up to a Passivhaus standard. Where often the space that's required with the less well performing insulants which are the natural insulants are all similar values. It can be both problematic in terms of just simply fitting things in the space as well as more expensive. All of the petrochemical insulants whether it's a polyurethane foam or a polyisocyanurate foam, I mean the PIR foam is about twice as effective as any of the natural insulants, so you only need half the space. And often when you're trying to figure out how to fit everything in, that feels like it's a much better solution. But of course, those insulants don't absorb any moisture. So the way in which the building needs to be detailed suddenly has to change. I mean, we tend to use both forms of insulation in different circumstances because there are benefits sometimes of using a PIR that can get wet without losing its insulation capacity. The building physics of it are quite complicated, and it is necessary to get to grips with that to know how to use one insulation over another.

Ben Adam-Smith 25:26

What's the next logical way to use timber that we should explore?

Meredith Bowles 25:31

Well, an easy a kind of simple extension of a stick building. I mean, it's still stick building, but it's prefabrication. I mean, the government has been promoting they call it MMC modern methods of construction, which to me is hilarious, because actually, people have been prefabricating things for a long time. And mostly MMC means prefabrication. But there's clear advantages of prefabrication. In terms of quality control, or there should be advantages of quality control, we'll come back to that. But the idea of building something in a factory controlled conditions, that you're doing all of your drawings and making sure that you know exactly how it's going to go together, once it is taken off the back of the truck, at the other end of the journey, because it's all been pretty determined and thought through and constructed. Timber is not good when it's wet, it does dry out, but it can distort as a consequence. So the idea that you speed up the process of construction, for timber, especially, is a really good one. So you build it in the factory, you bring it to site, you put it together, we've all heard the stories, you know, my house was built in five days. Of course, we all know that's not true, the prefabricated timber frame went up in five days, it's probably been two months of doing the groundwork before, then it's another nine months to finish the job. But nevertheless, it's a very quick way of getting a watertight building and stick built but prefabricated cassettes is the next level up.

Ben Adam-Smith 27:06

Over the years, I've got to see various different off site approaches and I suppose some of it relies on more technology, I've seen the hundegger or what's something something near to that. And then I've also seen people working in a workshop environment where they might be building form of SIP, but they're doing it manually inside. So how do you split up all of those different ways of offsite construction?

Meredith Bowles 27:33

I mean, to me, it doesn't really matter how it was done. It matters how well it's being considered. And there's no reason why a really low tech way of constructing something can't be as effective and give you as good a quality as someone who's using a much more automated system. And, you know, like you I visited various kinds of factories and we've we've received, or our clients have received big consignments of prefabricated timber panels that have been simply been incorrect because the quality control wasn't there, irrespective of the fact where they have all of the machinery so they should be able to make it work. And conversely, we've worked with small contractors who are building it in a shed using a jig and you know, two blokes and the tape measure. And it's gone together perfectly. So I don't think there's one way that definitely works. And another way that doesn't, I think different companies have different reputations. And that's how you should determine it, talk to people who have used their products before, not just look at the fancy machinery and think that that's got to be better.

Ben Adam-Smith 28:54

And there's also another aspect of it in these workshops as to how much is getting done. For example, you can get cassettes that come to sites and then you put your windows in, or you can almost get the whole works ready to go. I've seen one Baufritz project that I know, was very comprehensive, they had to make a lot of decisions up front.

Meredith Bowles 29:16

Yeah, I mean, obviously, the real goal of the government's drive towards MMC is to make everything prefabricated in factory condition. So it's assembled as a complete house, it's obviously really difficult to achieve because it simply doesn't happen much. Factories that I've visited in Switzerland or Germany have managed to do much more than we're able to do here in terms of integrating services as well as Windows, so on, into the prefabricated components. I suppose the difficulty is that level of coordination, as you say, takes a hell of a lot of pre planning and someone has to figure that it's worth a while to put that time in. And if you've got a company like Baufritz, for instance, who've got a system that they've been developing over a long period of time, where all of the components are known in this country, we tend to subcontract out all of the different parts of the job separately. So integrating, it becomes much more difficult. But certainly, if you can get your windows installed in the factory, the chances are aside from getting weathertight, building up much quicker, the standard of the fitting of the windows and the airtightness, because it's been done in a factory by the same person who knows exactly what they're doing is likely to be much better. So one of the projects that we had fabricated in, in Sweden had all of the windows that were pre installed with a really good result, actually. And

Ben Adam-Smith 30:58

I wonder as well, these facilities, whether they're high tech or not, there are a lot of space, there are quite a few people involved and that comes at a cost. Whereas the arguments I've heard before for volume house builders is they don't like this, I think it's cheaper just to do it all on site.

Meredith Bowles 31:16

So there's been quite a number of factories now that have been set up MMC factories, based upon either timber frame or CLT, that have closed down. So if you're making a massive investment in premises, equipment, and staffing, if you suddenly have a downtime of three months, because you've got a problem with where your product is going to go. That's obviously unsustainable in terms of a

business model. Whereas contractors who are dealing with a lot of subcontract labour, and have no premises, their premises are in effect, the construction site, they're much more agile and can absorb changes in the workflow much more readily. So I think that's the biggest challenge. So if the government really wants to improve quality of construction through MMC, they also have to look at the idea of a pipeline of work guaranteed sites that are going to become available, and that's not just about the planning system, which is usually blamed, but it's also about infrastructure, and it's about taking hold of the process and of sale and, and values. Yeah, it's a complex issue.

Ben Adam-Smith 32:34

Yeah you've reminded me I went to MAKAR, once up in Scotland, and was actually surprised, why on earth are you planning a year in advance for all these, you know, they were saying they were booked up, but as for exactly that reason, that it's the biggest stumbling block. CLT, when does that come into its own?

Meredith Bowles 32:56

I mean, for us as architects, so you go through college making models out of balsa wood and so to a certain extent, its scaling it up, is something really pleasing about sheets of timber, that are solid, and that go together, in actually a very simple way, they're screwed together in a way that produces a rigid box. Earlier on, we talked about the flimsy nature of early timber frame houses. And that perhaps being one of the reasons why they weren't accepted or taken on so readily by the general public, they felt thin, and they went in. And CLT does the opposite. You know, it's a robust materials, a solid material, you can bang on the wall, and it's solid. And I think people respond to that, in our minds, the three little pigs, and the house that was blown down is a very strong image that people have, whether it actually comes from there or I don't know, but the idea that a timber frame is somehow flimsy, and what you need is a solid brick built building that's not going to go anywhere. And so CLT does address that, to a certain extent, its timber has all the same benefits and attributes that other timber buildings do in terms of sustainability in terms of the kind of warm for the actual material, but it is solid, then on top of that, or conversely, you are using more material than you need to use if you're building something that's relatively simple. So I think there needs to be a clear reason why you're doing it. So we've built buildings before houses before that have complex geometries, which will be incredibly difficult to do in a stick built timber frame. And inevitably, when you're building interesting shapes, often you find out that there's actually a steel frame that is making the shape and then that's being filled in with simple timber, rafters or joists between the steel frame so you're building in lots of embodied carbon into the steel. In CLT, you can, as long as you've got a geometry that can be dealt with, with flat planes, the CLT using three dimensional software, you can make it an exact fit that goes together and create something that has interesting geometry. That's one aspect where it's useful to use it or better to use CLT. Another is, you know, you can a CLT wall can become a beam, you can span huge distances with a CLT wall, because in effect its a deep beam, so if architectural, you're looking to make a free space underneath it without a lot of walls, CLT can be hugely beneficial there. So you can basically hold up a CLT rigid box on quite a few small columns underneath it. And obviously, much bigger buildings where you've got bigger spans, then it comes into its own. And so it was used a lot for schools buildings, where it was actually a cheaper form of construction. Because of its speed of construction, where it's prefabricated, it comes quickly. In comparison to whether it's a steel frame, with a lightweight steel infill, or the old

fashioned concrete frame and beam and block, it was generally a better and cheaper way of building for that sort of scale building.

Ben Adam-Smith 36:18

And for a self build project on the whole, it's not the default. This is its strength that it's got.

Meredith Bowles 36:25

Yeah, I mean, there's two house projects that we've done with CLT, as well as larger projects, but the to house buildings, we kind of made something of the material itself. So there was a reason to use it structurally, which we couldn't have done easily anyway, with a simpler form of timber construction.

Ben Adam-Smith 36:47

And what about the actual qualities of timber itself? We've peppered this conversation with all sorts of interesting aspects. But there are things like acoustics. And also, people get very concerned about fire, don't they? So what have we not mentioned so far about timber?

Meredith Bowles 37:06

Well, I guess there's two aspects of timber, which are quite different. One is about it as a construction material. So never mind what it looks like as a construction material, which has low embodied carbon impact, as we said earlier, it absorbs carbon dioxide and the growth of the timber. So that's nothing to do with the aesthetics, that's just using it as a constructional material. And mostly, of course, the timber is hidden. If it's a simple stick built, stud wall, it's sheathed on the outside and on the inside, we don't see it, it's irrelevant. In some ways, what it's made from, it's just is that a good material to build a building out of. And yes, we've been through some of the reasons why it is a good material. But then the other side of timber is people respond well to the warmth of the material. And that's a literal warmth in that it's a has an insulative property. So if you put your hand on a masonry surface, it absorbs the heat from your skin very quickly, and so you feel it's cold. And timber, has intuitive properties, so it doesn't transfer the heat as well. So it feels warm. So it is literally a warm material, but also looks warm, it has those various shades of honey tones is beautiful. We talked earlier about the oak frame. I mean, the reason people like the oak frame, I think is because it's doing the two jobs, it's holding the building up, but it's looking fantastic. And that's why we respond so well to it. And CLT can do that. Also, we can expose a fair amount of the timber in the building. And we know from commercial buildings that we've built, where we're using CLT, where quite a lot of the CLT is exposed, how good that makes people feel, you know, it has a tangible benefit. It's not, it looks nice, it actually makes people feel better. So other properties, fire has become a big one. So in fact, the GRC in London has banned the use of timber in any external walls, because of the fallout from the Grenfell tragedy. In fact, of course, Grenfell had no timber in the construction, and that was not the cause of the fire, but there's been increased concern and cautiousness over anything that may be a problem in terms of fire as a consequence, and quite rightly so. And timber burns. So, you know, we know timber burns, we use it as firewood, so it's absolutely right that people are sensitive to that and that legislation is brought in to protect it. Mostly, as I said, timber is covered up and it's usually covered up with plasterboard. plasterboard is one of the best ways to stop fire reaching the material behind it. And so it's simple if you encase it in the same way that you encase steel then the heat is not going to reach the timber, which incidentally, if it does get to the timber it performs better than steel does in the same situation, steel actually deforms and

bends and can lead to structural failure much, much quicker than timber can. So fire is an issue that I think needs more work and research done on it, there's the there's a cross industry work going on at the moment between the insurance industry, the timber construction industry, and architects to produce a set of documented and tested details. So that timber can actually be brought into the same kind of legislative framework as steel currently is, which has been absent in this country, it's not quite the same in other countries, Germany or Scandinavia, so that there is a much better understanding of how timber will perform in different circumstances in fire. And that's going to happen fairly soon, which will make timber be able to be used much more widely. Prior to that, there's almost rules of thumb that have been applied. So we talked about the charring factor in timber, which is the surface of the timber, which burns or chars during a fire. And the amount of time it takes for the surface of the timber in this is not stick built, but this is using thinking about timber beams and timber columns, how long it takes for the surface of the timber to char and lose its structural properties. And so generally, timber has been oversized, in order to compensate for the timber that would be lost during a fire so that it remains structurally safe. That's going to become much more defined in the future. And there will be more tests that will be done so that people have a greater certainty of performance of timber in fire, which is going to be hugely welcomed by the timber industry itself. You know, it's very costly doing all that.

Ben Adam-Smith 42:18

Yeah, I have been meaning to do a podcast on fire in general and safety. Haven't quite got there yet, but we'll get there one day. So let's try and bring us up slowly towards the end now. Should we be mentioning SIPs at all, before we wrap up? Is that considered timber construction?

Meredith Bowles 42:35

Yeah. I mean, SIPs is really interesting. SIPs, which is structural, insulated panels. There's quite a broad definition. My definition of SIPs, which was from a long time ago is, is a sandwich construction of plywood or OSB on the outside faces, which are glued together with a polyurethane foam insulation, a bit like a what do you call those ice cream with a wafer on...

Ben Adam-Smith 43:05

We all know what you mean

Meredith Bowles 43:08

The wafer on each side and the ice cream in the middle is exactly like that. And it has amazing structural properties. And it's very easy to make a highly insulated, airtight, building out of it's incredibly lightweight. So you're saving costs on foundations, it's easily transported and can be put together very quickly and easily. In some ways, it's a really fantastic system, my hesitation of it is it is about the continued use of fossil fuels, and the potential off gassing, from the insulation and the the formaldehyde in the in the glues on either side of the sandwich. So I personally prefer a breathing construction made out of natural materials, but it certainly has its place. I mean, other people refer to SIPs as what I think of as prefabricated timber cassettes where, of course they're doing a structural drop, so in some ways, they can still be Structural Insulated Panels. But in terms of how the engineering works for them, they're the same as a stick bill but in cassette form.

Ben Adam-Smith 44:24

I'm sure we can work with timber in all sorts of different ways. But are there any other main categories that I have missed out and should be asking you questions about?

Meredith Bowles 44:33

Well, there's some interesting ones that probably never gonna become mainstream, but there's solid timber, a number of different products none made in this country. So I think it's called Brettstapel, which is a idea of making solid timber walls without the use of fixings or glues. So these are basically layers of timber with dowels that connect them all together. So you're making a solid timber wall. Structurally, they're incredibly strong. I think the same thing probably applies to thinking about CLT in houses is that why would why would you make something out of brettstapel because you're using a lot of timber where you could use much less of it. But the idea of making things just with dowels with no fixings is quite interesting.

Ben Adam-Smith 45:25

And let's tie in a couple of examples just off the top of your head either maybe showing the diversity of different projects, mainly, we're thinking of standalone houses if possible for this one.

Meredith Bowles 45:38

Well, recently, we finished a project which was good Wuduhus, out in The Fens, which we did with comfortable Beattie Passive, which you undoubtedly have heard about and Beattie Passive have been making their own form of prefabricated timber panels built up to Passivhaus standard. That was a little house in The Fens, which was pretty successful. Probably about 15 years ago now, there was a couple of CLT houses that were built one in Cambridge at Cavendish Avenue and the other one with Norwegian architects, our partners Håkon Vignsnes which is the Dune House out in Suffolk, which is the one with the complex geometry on the coast. So there were the kind of interesting CLT houses that we, that we did. We're working at the moment. So in terms of thinking about a more engineered use of timber and reducing the amount of timber that you use, we're working at the moment with Kiss House, who Mike Jacob set up a number of years ago, and Mike's been developing a prefabricated panelized system that reduces the amount of timber that's used, whilst at the same time getting a highly insulated fabric, that's a breathable construction that can be built up to Passivhaus standard so you will see us on site in the not too distant future with a Kiss House project.

Ben Adam-Smith 47:14

Is there anything you would like to close with either something we haven't mentioned, or maybe something you want to underline from our conversation?

Meredith Bowles 47:24

My ambition as an architect is to explore ideas and every project is different, every client's different, and I don't come with a predetermined idea about what I want to do. And so for me, the excitement is each time, it's an exploration of a new project and what what's going to come out of it. And I think that's the same with the structure and the construction. There are so many different ways you can do things, that the idea that one is better over another, I don't think it's true. I mean, actually, you have to figure out what is right for your project. That's not going to be the same for one project or after another even if the

same person did a different project, the circumstances would change and so it will be a different building.

Ben Adam-Smith 48:21

Meredith, thank you very much.

Meredith Bowles 48:24

Thank you. Really good to talk to you, Ben.

Ben Adam-Smith 48:28

Head online to take a look at the show notes, which you will find today at houseplanninghelp.com/349. We always give you a summary of our conversations that we have, we'll give you links as well to Mole Architects and photos of Meredith's house. And it's just that was a lovely chat wasn't it hopefully, you're a bit clearer as well about how you could use timber on your project, It is one of the materials that self builders absolutely love. So I'm sure there's no getting away from it in some capacity. So the shownotes once again, houseplanninghelp.com/349. My call to action is to check out The Hub and this is the membership community that we run alongside House Planning Help. The idea being that we want to accelerate your learning journey perhaps include some visual elements. This is a podcast, so it's audio only. But we get visuals. So we've got our in depth video case studies where we follow complete projects. So start to finish making 10 minute 15 minute videos as we go along with all the different stages just to prepare you what's it going to be like, you might have watched Grand Designs, but that just focuses on the drama doesn't always have to be like that, but this is very much focused on the decisions that you make. We've got our Ask the Expert feature, which we're looking to expand as well. We've got our courses. So you can check out various different parts of the process that you're going to go through and we try and map it all out for you. So everything's clearer. Got our members only forum and of course you can chat to me in office hour. It's all there within The Hub. We're always trying to help teach us that little bit more and make things easier for you. Find out more at houseplanninghelp.com/join. Next time to celebrate our 350th episode, we'll be looking at value engineering. So this is value engineering that takes place at the beginning of the project, is often misunderstood. We're not talking about cost cutting at the end of the project. Confused well, you need to listen next time. Thank you so much. The House Planning Help podcast is produced by Regen Media: content that matters.