Transcript of ‘Building Greener Buildings’

Season 3, Episode 18, Transforming Tomorrow

[Theme music]

Paul: Hello and welcome to Transforming Tomorrow from the Pentland Centre for Sustainability in Business. I'm Paul Turner.

Jan: And I'm Professor Jan Bebbington.

Paul: How can we build more sustainably? Architects can make a huge difference to a building's cabin footprint. From the moment it's built to even centuries later.

From a room with no windows, let's find out how.

[Theme music]

Paul: Jan, have you noticed anything unusual architecturally about this room?

Jan: Um…

Paul: Where to start, thinks Jan, where to start?

Jan: [laughs] Well, it's, it's all baffled, so it's, it's soundproofed. It's got no windows, which is not a great architectural feature. [laughs]

Paul: It's got no windows. Now you see, it's not a great architectural feature, but for a podcast and recording studio, it's a perfect architectural feature.

And you might think the architects have done a wonderful job of considering exactly what this room was gonna be purposed for. Only when you consider that this only became a podcast studio about four months ago and that this building's at least 40 or 50 years old, do you begin to wonder where the window was and why there was no window in the first place?

Jan: Was there no window in the first place?

Paul: There was no window when we moved in here. No, when this got converted, they didn't have to fill in any window gaps, there was no window here.

Jan: Oh, I wonder whose office this was. Somebody who was very bad.

Paul: Yeah. There's something really odd about the architecture there.

I, I'm assuming that the purpose it was used for beforehand, which, you know, I, I'm really, really going out on a limb here and, you know, exaggerating, it's something to do with experimenting on babies, um, was necessary for it not to have a window and maybe they got it removed. Because, you really want a window in a room.

Jan: Yeah. But I suppose what I'll take from that, 'cause I'm gonna let the experimenting on babies pass me by and not engage with that thought at all, is that…

Paul: … there's something called Babylab…

Jan: …aaah…

Paul: …here at the University where they do do experiments with babies, but not *on* babies, and research with young children.

Jan: Okay.

Paul: I, I just decided to change that into experiments on babies.

Jan: [laughing] Okay.

Paul: As I said at the time, a massive exaggeration and a gross, grossly offensive view of what they actually do.

Jan: Well, um, I'm pleased we've cleared that up.

But I guess what's nice about it, and particularly coming onto our, our conversation today is that this room's been repurposed…

Paul: …yes…

Jan: …lots of places are being repurposed…

Paul: They are. But my, my old office is currently being repurposed, and the office I had before that is still being repurposed, so that I cannot go back to that office when the office I was in previously was needed to be repurposed as well. I just get moved around all over the place…

Jan: …wow…

Paul: …lots of repurposing going on for good reasons because you can't just, and you'll remember this from our discussion with not so long ago, Anna

Cockburn about the fact that repurposing can have a good impact sustainability wise, as opposed to complete demolition and rebuilding.

Jan: Yes, indeed. So why are we rabbiting on about this, Paul?

Paul: [Mock offended] Thank you for your description of this conversation as rabbiting on, Jan. It's good to know where I stand in your view of my discussion on architecture and observation of this room.

Um, we're rabbiting on about this because, Jan, today we're joined by Alfie Stephenson-Boyles, who's an architect with Donald Insall Associates who specialise in conservation and heritage architecture.

Jan: Woo-hoo. We are in the right place then.

Paul: We, we really are, uh, in the right place. Maybe it was built by him. Maybe he designed this room. [Jan laughs]

Did you design this room, Alfie?

Alfie: I'm glad to say, no. [laughs]

Paul: And now he's insulting our room. [everyone laughs]

So, welcome on to the podcast. Uh, I believe you have experience in both conservation projects as well as new builds.

So you will have an idea when it comes to, not just building anew and being sustainability wise there, but being wise about sustainability when it comes to renewing places too.

Alfie: Yes. So, uh, at DIA we're sort of specialists in historic buildings, so we work with buildings that are of, uh, cultural or historic significance, listed buildings.

Um, but we also work with any building, so we can apply the same methodologies to almost any structure, uh, whether it's, uh, Edward I's Castle in North Wales or a small, little church. What we do is we, we look at the, the history of the building. We look at the condition of the building, and we're, we're assessing sort of the capacity for change.

To what extent can the building, uh, be adapted to suit the needs, um, of its new custodians, its new owners, um, and our clients.

Jan: That'd be amazing. And what, what would be examples of maybe some of the iconic buildings that you've worked on that our listeners would, would recognise and know? But we have both UK based but also overseas listeners as well.

Alfie: Yeah, so Donald Insall Associates has been around for a long time, and our founder Donald, uh, Sir Donald Insall, founded the practice back in the 1950s. Um, and, uh, since then has worked on, like, probably some of the most famous buildings in the UK…

Jan: …wow…

Alfie: …such as Windsor Castle after the great fire…

Jan: …yeah….

Alfie: …in the 1990s and, uh, the, uh, Westminster Palace…

Jan: …wow…

Alfie: …and the Houses of Parliament. And we're, we're spread around the UK now, we've got sort of, uh, seven offices, seven studios.

Um, so we're, I'm based in the, um, Conway Studio, which is North Wales, and we work with buildings like, uh, Conway Castle, Caernarfon, uh, town walls, medieval buildings, uh, dating back to the 13th century and UNESCO World Heritage Sites.

So when I started my, my first day at, uh, Donald Insall Associates, my, my director took me to, um, a site in the town of Conway. And this is world famous medieval architecture and said, this is gonna be your first project…

Jan: …oooh, not daunting at all then…

Alfie: …yeah, not daunting at all. I was like, okay, um, [laughs] how do we, how do we go about that then?

And, uh, yeah, since then, that was, that was about three years ago, I've been working on, privileged to work on some of the most important buildings in North Wales, um, sort of historically speaking, culturally speaking,

Paul: It's a bit different to working on this studio, I'll give you that…

Jan: [laughs] …yeah…

Paul: …I can understand why he was looking down his nose slightly to our studio, [Jan laughs] when you consider the kind of buildings that the company works on, generally. Although I'm sure you know, the grand hall of Windsor Palace has nothing, nothing on this.

Jan: [laughs] I don't, yeah, we're not really, we're medieval in some ways, but not in that way, I think. [Paul laughs]

Alfie: Does Windsor Castle have a podcast studio…?

Jan: …well that would, that's an open question, isn't it?

Alfie: …I'm not sure, yeah.

[Jan laughs]

Paul: I often, the royals have quite gone down that route yet, but, you know, may be in the next few years.

Jan: You never know, you never know.

Paul: Yeah.

Jan: So what do architects do in practice? 'Cause we know you guys are out there, but I guess we're all slightly hazy about what, what does that mean?

Alfie: Yeah, so architects can take on a variety of roles, uh, in the built environment. But primarily we're, we're focused around, uh, delivering buildings, and that can mean taking a client's brief, uh, challenging the brief, developing the brief, um, taking them through a process of concept design. Um, so testing, uh, the brief against ideas that emerge from, uh, both the client brief and our own experiences, architects and, uh, testing those against also regulatory backgrounds.

So we have to have, like, quite a broad base of knowledge and from artistic, kind of, references to through the work we do to sort of regulatory and financial aspects. Uh, so we have quite a broad role. We're sort of a jack of all trades in a way.

Once we've sort of developed a, a concept design with clients, we, we typically, um, take them through the, the consents process, listed building consent, planning permission, and then developing contractual documents, construction drawings, everything that you need to, to basically build

something. Uh, the instructions to the builder, how do you build this and specifying materials, um, and organising space.

Once we've, once we've gone through that process, we then manage things in terms of, uh, site contracts, um, site inspections. Uh, so it, it's really, it's, it's a job that has many facets to it, I suppose. It's a job that's at times extremely challenging in its breadth, but also that keeps it interesting and you can kind of, as a, as somebody coming into architecture, you can kind of find something that suits your particular skillset.

Jan: And there were two aspects of your description that that really sort of, you know, hit, hit home to me.

The first one is that those early decisions dictate later outcomes. And so if you, like, you're at the start of the, the design process whereby things can be good, bad, or better or worse, or whatever.

But then the other thing is that actually the holistic nature of that means that actually all of these elements come together and are not sort of outsourced, so like the energy system's not outsourced from materials that are going to be used.

So, and I, I quite like the idea that, you know, some of the things you'll be doing, and if we're thinking back to description of Windsor Castle, are actually long term. So you stay with something and see it all the way through to the end.

So it must be a labour of love to a certain extent, to see how these things come together.

Alfie: Yeah, yeah. I mean, certainly some of our more experienced colleagues have been with buildings and getting to know buildings for a very long time. And they talk about buildings that they look after as if it's some kind of child that they're kind of, kind of tending to or… [laughs]

Jan: …yeah. No, I like that metaphor.

Alfie: Not experimenting on, [everyone laughs] but maybe experimenting.

Jan: How did, how did we, how did this enter this podcast?

Paul: There'll be a whole new episode coming up soon about experimenting on children…

[Everyone laughs]

Jan: …heavens…

Paul: …all of us apologising for suggesting such. Yes, yeah. There seems to be a lot more to architecture than just sitting down with a bunch of crayons and drawing a nice picture of a building, isn't there?

Jan: Yeah, and I'm pleased that we, we went to, to Alfie before we went to you on that one.

Paul: That's all it is. He's just making it sound good. That's…

Jan: …sounds wonderful…

Paul: …as soon as he leaves this studio, which he'll be glad to do, by all accounts, he's getting out his Crayolas and just saying, oh, I could redesign that.

And he gets, you know, a few red bits here, green bits there, drawing a stick person in the corner, sat on a chair, that's it.

Alfie: Yeah. I mean, it's, you're not wrong. I, I find myself often being a colouring in specialist, uh, as well as maybe a sustainability specialist in, in architecture. or a heritage specialist.

And, and sometimes I'll, I'll be at work and I've been thinking, well, I'm, I'm being paid to colour in. [Jan laughs] This is great.

Jan: That's not so bad.

Paul: And you laughed at me when I suggested that's exactly what he does…

Jan: …I take it all back. I take it all back…

Paul: …indeed, indeed. Let's talk more about that then. Not the colouring in, but the sustainability side.

And how does sustainability tie into architecture? How are the kind of decisions that you're making as an architect, or that you're enabling through the decisions you are making affecting, helping, hindering sustainability

Alfie: To begin with, when we think about architects and the built environment, when we think about buildings in the UK context, uh, 40% of emissions, carbon emissions, are from the built environment.

About 75% of those are from operational uses, and then 25% is the upfront carbon, or what we sometimes refer to as embodied carbon. The carbon that we emit from construction.

So, when we're designing, when we're working, we're, it has a huge impact on, uh, emissions and people's wellbeing and health also.

We're actually mega-contributors to some of the problems that we have, [laughs] which is something I've, I've had to kind of come to terms with over, over my career in terms of how, how do I see myself as, as an architect working in, in an, in an industry that is potentially doing harm.

So a bit like medicine, we, we try and do no harm. [laughs]

Paul: This goes back to treating the buildings like babies again, doesn't it…?

Alfia: …yeah, yeah…

Paul: …a doctor attitude towards the…

Jan: …yes, indeed…

Paul: …do no harm…

Alfie: …that's it. So how do the decisions that we make as architects impact sustainability? Well, it really comes down to what you're saying about those early stages, uh, that they're key.

Sustainability lives and dies in the early stages, and sustainability is often sort of seen as a kind of bolt on or something which is added to the project. But for it to be successful, it has to be intrinsic to, to the building's entire system, entire envelope, it's entire form. Everything has to be developed through this prism of sustainability.

If it's seen as a bolt on, for example, it will be the first thing that's to be cut as soon as the costs come in.

Paul: Do you ever get customers just saying, oh, can you just throw a bit of a sustainability bit in there, just for the sake of it?

Alfie: Uh, just as a little bit of a, a kind of a sticking plaster do you mean? Sort of a, kind of a…

Paul: …almost like they got to the end of the process and think, yeah, we should probably have something to do with sustainability there…

Alfie: …a dusting, a shimmer of sustainability. Well, usually that kind of happens about stage four, when the building's being designed and then they go, ah, this is actually gonna be real. What's it gonna be like…?

Jan: …aah…

Alfie: …how's it gonna, how's it gonna perform? What's, what are the emissions gonna be? What are we, how comfortable we gonna be? Are we gonna be boiling hot…?

Jan: …mm-hmm….

Alfie: …in the summer or freezing in the winter? So that's when sometimes we come to things a little bit late. By that point, a lot of the decisions that are about reducing the building's impact or improving the building's performance have already been made.

Things like the building's orientation, the form, down to things like the, the position of the windows…

Paul: …mm-hmm….

Alfie: …we've not got any windows right now, [everyone laughs] but I'm sure if we did have windows, they'd be having an impact on our comfort, and therefore the energy that we're using to maintain that comfort.

And if I'll just talk about, um, oil age architecture a little bit. So there's this term that's going around, I think attributed to Barnabas Calder at, uh, Liverpool University. The idea that we have for the past hundred years or so been living in an oil age of architecture, and so buildings designed and operated during a time of cheap energy.

It's the idea that you can actually design a building that's of any particular shape, style, appearance, anywhere in the world, and you can make it comfortable by burning stuff, burning oil. You can burn oil to keep it cool, you can burn oil to keep it warm. Or you can burn gas, you can just burn stuff.

It's cheap…

Paul: …mm-hmm…

Alfie: …and you can stay comfortable and stay, stay as well as you can be in a, kind of, in that type of building.

Paul: I think we should just stop there. I can't see any downside to this at all. [everyone laughs] No, that seems fine.

Jan: Well, I suppose it's, it's the norm, you know…

Paul: …that's the problem, isn't it? You know, people didn't see a downside….

Jan: …yeah…

Paul: …sorry, I'll let you continue, Alfie.

Alfie: No. So, um, when we're thinking about sustainability today, what we're really thinking about is decarbonisation, that's the, the kind of number one topic for sustainability in, in the built environment.

And there's a whole load of sustainability stuff that also needs to go on. Like biodiversity, water use. But I, I think certainly in, in the kind of reuse sector and heritage sector, uh, and retrofit, what we're talking about is operational decarbonisation.

So removing carbon intensive heating and energy sources, replacing them with low carbon alternatives, heat pumps, I'm sure you'll have…

Jan: …mm-hmm…

Alfie: …come across. But also reducing that energy demand. So how much energy is required to keep the building at a temperature that is habitable.

Paul: I have, my partner works in a castle. She works in Lancaster Castle, and one of the things she frequently moans about is the temperature in there. Because she's in a castle that was at some point converted into a jail and she, her office is essentially a jail cell. There's comments here, I'm sure about whether my partner deserves to be in a jail cell or not, but I'll move on from them.

But yeah, the fact of the matter is it was a castle and. There was no heating system built into it in the 14, 13, 14th, 15th century. I should really know when Lancaster Castle was built, but my knowledge of that is sadly lacking, especially on the wing that she's currently in.

But yeah, there, there was no, you know, let's just put the, the gas lines in and have that heating it up. And as a result, they now have a, a heating system in there, which is totally not fit for purpose. which makes me wonder. You've mentioned you've worked on things such as castles in the past. Um, it was

Edward I's castle. So we're talking here, you know, 800 years, almost seven, 800 years. Is there an option there to do retrofitting of some kind of carbon friendly heating system?

Alfie: Yes. So what would be working in a, in a castle would potentially also be working in a, in a house. So what we'd essentially be looking at is a heat pump…

Paul: …mm-hmm…

Alfie: …either an air source heat pump or a ground source heat pump. And if you can fit this castle with large heat emitters, large radiators, or underfloor heating, then you're probably in quite a good place to, to warm that building just with the heat from the, the surrounding air.

Paul: Mm-hmm. Is it harder, say if you've got say, conservation, protection orders on, 'cause I'm sure some of the buildings you'll have worked on, the company will have worked on, will have restrictions on what can and can't be built into structures.

Alfie: Yes. Um, you can do anything that you can justify, [Paul laughs] which sounds…

Paul: …this sounds like going back to the oil economy, doesn't it?...

[Jan laughs]

Alfie: …which sounds bad. But when you consider that these buildings need to adapt to survive, essentially, if you can justify that the harm being caused by said heat pump is outweighed by the, the cultural benefit, the communal benefit of keeping these buildings in use…

Jan: …mm-hmm…

Alfie: …making sure that they're not falling into disrepair or becoming redundant because nobody can afford to heat them or, or can be, or can be comfortable in them, um, then you have a pretty good case to, to make some changes.

Uh, we just finished a project in Caernarfon, actually converting, um, this, one of these Edward I gate houses actually into…

Paul: …mm-hmm…

Alfie: …into apartments. Unfortunately it was designed a while ago, so it's on gas. But I think if we'd done it now, it would definitely be on a heat pump. And, um, we have introduced some sustainability, sort of, retrofit measures, insulation, secondary glazing, and, um, an important thing which is, uh, mechanical ventilation with heat recovery, which is huge.

Jan: So that sort of leads me to, to try to tempt you into the area of telling us about passive houses and how they work. I, I, live in more or less a passive house, so, so we, we had…

Paul: …I, I've seen you and your husband, there they are. I don't think, I don't think he gets any passiveness from you, that's for sure.

Jan: [laughs] No comment. Um, so this was a, a, you know, a little, what do you call it when the two houses are beside each other?

Paul: Semi-detached.

Jan: Yeah, semi-detached. I can never remember the terms for these things…

Paul: … you see when it comes to architecture, that's my level, Jan. I can tell you what a semi-detached house is…

Jan: …you're ahead of me now.

So it's a semi-detached building and there was a, a very old lady who had lived there and then sadly passed away, and so it hadn't been touched since the 1970s. I hate to think what her gas bill was. I mean, I absolutely hate to think. And so we got some architects, we got some builders, so we basically went down to the walls and then rebuilt the, well we, we paid the money rebuilding the whole thing from scratch.

So we have a mechanical heat, ventilation, recovery…

Alfie: …oh, fantastic…

Jan: …system. We have an air source heat pump in, in the backyard that comes through and a sun amp, and we don't have solar panels yet, but I'm saving, and I've got the, the kit will take solar energy into it. And, and we've just been amazed by the, basically by the air quality…

Alfie: …mm-hmm.

Jan: …internal air quality of the place and really, really enjoying that. So I, I don't, we didn't go down the route of, this must be absolutely a passive house,

but it probably is, it'll be somewhere on the spectrum towards a passive house…

Alfie: …yeah…

Jan: …but before we get in, but let's find out what a passive house is, which is not for you and I to answer, Paul, it's for Alfie to answer…

Paul: You, you seem to know you. You just go away, Jan. You just [inaudible]

Jan: …well, we did have a wee bit of a…

Paul: …[inaudible] our guest who's meant to be the expert on these things takes it away instead, we can do that.

Jan: Yeah, yeah, I think, I think it's an Alfie question.

So tell us about that concept and how that's enacted.

Alfie: So passive house, uh, came about in the 1990s and was, uh, sort of the invention of a, a German, uh, physicist called Wolfgang Feist. And what Wolfgang observed was that we were putting more and more insulation into buildings, and we weren't actually getting much of a return on that. We weren't, the buildings weren't actually performing any better, so he came up with a system that prioritised air tightness, insulation, high quality workmanship and energy modelling and quality assurance to make sure that what we were designing was actually getting built. And what we were designing was actually working the hardest to ensure that the energy demand, what we were talking about before with, with heating, is reduced to nearly zero.

Uh, so it's a process, it's a standard and it's a, it's a kind of methodology. It's a science-based, peer reviewed mega-standard. It's the gold standard, I'd say for, for buildings, uh, building performance, and it's concerned with, with energy. It sees energy as the sort of main apex predator of building design.

It's kind of like the, the wolves in Yosemite National Park. [Jan laughs] You kind of introduce them and, and they take care of everything else, so…

Paul: …I'm worried these buildings are gonna eat people. [Jan and Alfie laugh] Don't, don't go into the passive house, it's not as passive as it might sound. You'll lose a leg.

Alfie: Yeah. I mean you could call it an active house because it's kind of doing the bit that you might normally do, opening windows and…

Jan: …yeah…

Alfie: …going around the house lighting fires. It's doing that for you. You're the one that's kind of passive because you are just sitting there enjoying the 20 degree comfort year out, year in, year out.

Uh, some great examples of, I think it was in Canada or something, uh, a passive house was caught in a snowstorm and, uh, the heating broke and it was minus 20 or something outside and they didn't realise for seven days that the heating had broken.

Jan: [laughs] Heavens. That's a nice, that's a testament, isn't it?

Paul: Uh, I wonder, given the fact that there's so many different climates in the world and houses are built differently in different places to work in those climates.

A passive house in the UK totally different from a passive house in Canada, from one in South Africa, from one in India?

Alfie: That's absolutely true. So it's a global standard applying climate models, from wherever the building is being designed, to the building design. So when you're doing the thermal modelling, for example, you're, you're using a climate model from that locality, there's climate data.

So if you, if you design the same building and load a different climate model, you'll have vastly different results in your energy demand and the overheating analysis and all this kind of thing.

So it's a, it's a global standard for local specificity, I suppose. Uh, it's entirely, um, about orienting the building so that you take advantage of the sun, but not so much that you overheat.

Jan: Yeah.

Alfie: Um, they're often confused actually with solar passive, which he might have come across in the 1970s. An idea that you could heat a building purely with the energy of the sun…

Jan: …yeah…

Alfie: …uh, it kinda doesn't work. [Paul laughs] Uh, you get buildings which are very hot in the summer and buildings are very cold in the winter.

It's often said that windows are actually a very expensive way to heat your building. You might turn tens of thousands on windows, whereas you might just spend a few thousand on a heat pump and a, and your annual heating bills, if you design it right.

So it's often confused with solar passive. It's not to be confused with solar passive, it's a, it's a different thing. Um, and it's not only to do with houses, even though it's called passive house, it's just the German for building.

The last thing is there's lots of sort of myths around passive house. We, we're in this room at the moment with no windows…

Paul: …as we keep mentioning…

Alfie: …a myth about passive house that you can't open any windows. It's, people always say, oh uh, we don't want to have passive house 'cause we want to be able to open the windows. Don't worry…

Jan: …you can…

Alfie: …you can, you just do it. [Everyone laughs] You can just, you can just do it, you just open them…

Paul: …there's no alarm that goes off and the police don't come around and say, what are you doing…?

Alfie: …in fact you're encouraged to do it, especially at night.

Jan: Yeah. And so that sort of contrast with things that have been in the news recently where houses have been retrofitted with, with good intentions for warmth…

Alfie: …yeah…

Jan: …but then have ended up being, you know, really quite ghastly places to live in and, and why would that come around that, that particular issue?

And we'll put a link to that in the show notes so people can see that, that issue that's come up in the UK newspapers,

Alfie: This is what we might call a national disgrace. This is, uh, government money being used to, to retrofit, to insulate our housing stock. Fantastic.

How do we go about that? Well, do we, do we get specialists in who, who understand buildings, who understand moisture, who understand detailing? No, we just, we just apply sort of blanket methodologies to, to all the buildings. We apply the wrong materials and dodgy detailing to all these buildings. So 98% of these houses, which have been retrofitted, I think under the ECO scheme, have been requiring remedial action. They've been mouldy, overheating. It's, it's a disaster.

So you, you, what you, what you need to do when you install insulation is you need to make sure that you're taking care of the rain, the water. You're not leaving lots of areas where you're creating what we call thermal bridges.

So you're not, you'll see it, you'll see them going around the gas main because it's complex, you can't get the gas people into change, move it. They just want to get in there, do the job and get out.

So you'd have all these thermal bridges where you can have mould forming, where condensation is forming, and you have areas where the water can fall behind the insulation. So it's a, its a nightmare.

And it, it could have been something that could have been such a good opportunity to build valuable skills and valuable jobs and really skilled jobs around how do we go about this? We're gonna have to do it. So how do we, how do we do it well?

And it's really just been a PR disaster for retrofit, and it's affected thousands of people's lives.

Jan: Yeah. And I, and that, I mean, the human cost is enormous, but for retrofit to then get a, uh, a reputation for being a bad thing seems to me to, you know, further worse outcome again…

Alfie: …yeah…

Jan: …in the whole thing.

Paul: So, I want to know then, Alfie, where your interest in sustainability comes from? Um, I hope it's not from just randomly bumping into Jan on the train, [Alfie laughs] which I'm told is how, how you, you met. And it turns out, as I've discussed before, Jan knows everyone, and it turns out that Jan knows your granddad. [Jan laughs]

So no, let's just assume that bumping into Jan wasn't the spark that lit your sustainability fire. Where does your interest come from?

Alfie: I think I came into architecture always with a, with a sense of wanting to do some kind of social good in the world. And that was, I'd say, challenged by my early years working in London, working for a, kind of, large property, or small property developers doing sort of small London standard housing, cramming stuff in. I kind of got a, a, a different sense of what architecture could be about, but I learned a hell of a lot.

But I was always motivated by the, the social justice aspects of architecture, and also the quality aspects of design. And sustainability was always something that I had a kind of passing interest in, but I always felt as though wasn't really something that was part of my skillset. So, I knew there was a problem, but I didn't really know what to do about it.

When I joined, uh, Donald Insall Associates, I became part of the sustainability group. And that was about the company sustainability, but also about trying to improve our project sustainability. And through that group, uh, I got the opportunity to study the passive house designer course.

And that moment, doing that course and gain that certification, was when sustainability became, for me, the, one of the main drivers in what I do. So it was like a moment of realisation. That design quality equals sustainability, and sustainability equals design quality.

Sometimes as architects, we can get all excited about the way something looks, the way something affects our, our emotional response, uh, the way we relate to space, light, colour, form, et cetera.

We get excited about that and then we, we sort of, as I say before, we leave sustainability for someone else to bolt it on. To take care of the, the, uh, mechanical, electrical design, heating design. What I learned on the passive house course enabled me to start shaping design and shaping those poetic aspects around, uh, a scientific methodology.

So integrating sustainability in the design, in the design quality. And realising that our experience of space, of buildings, of comfort is due not only to the visual aspects of what surrounds us, but the material physical aspects of what surrounds us. The, the building physics, in effect.

So that gave me a toolkit and suddenly I was thinking, well, sustainability is a word. It's a word that we, we use a lot. It gets bandied around, means different things to different people, and it often comes with a, with a little hint of greenwashing in a lot of senses.

So to, to actually think about what that means specifically in architecture and design, uh, and have a toolkit that I can use to, to measure and progress those ideas, that was powerful. That was the turning point. During that course, becoming this passive house designer. I, I will wax lyrical and bore everyone to death about it ever since, [laughs] so…

Paul: …is that what happened on the train? Was it, was this the whole conversation…?

Jan: …no, no…

Paul: …you, you just sat down in a completely separate carriage and then the man looked at you and thought, what, would you like to know about passive houses…?

Alfie: [laughing] …yeah, yeah…

Jan: …no, it was your slides. So, because uh, we, we were…

Paul: …on a train…?

Jan: …yeah, we were on a train, it was a slide show.

[Everyone laughs]

Jan: We were on, on a, a train south. It had got stopped. We, we were…

Alfie: …there was a bit of, uh…

Jan: …yeah, a bit of…

Alfie: …whiling around…

Jan: …waiting to see, you know, looking at our watch, [inaudible] will we make the meetings and that sort, and, um, because I'm a bit of an nosy poke, I saw that, that Alfie was working on a, a presentation about passive house.

And I thought, oh, I know a little, you know, a little bit about that. We'll have a bit of a chat. And I was working on a, on a different kind of presentation. So I sort of, but partly I'm trying to learn to be more sociable in public spaces, especially when you're stuck. And sort of said, that looks interesting. Tell me

about that. So, so yeah, that's the passive house that made this podcast possible.

Paul: Ah, well, there you go. There you go. It's had an added effect that I'm sure was definitely not part of the original plan for the passive house.

Jan: Well, we can thank Network Rail for that one, I think.

Paul: Yeah…

Jan: …but then the, but your granddad, we can't leave your granddad out of this…

Alfie: …no….

Jan: …so the the most wonderful, um, Tim Lang, who I worked with on the Sustainable Development Commission, who's a Professor of Food Policy and sustainability, he must have been so made up for you when you found that the, the thing that you could link with your life, um, and in terms of skills as well as that, that sustainability agenda…

Alfie: …yeah…

Jan: …'cause we're all looking for that sweet spot…

Alfie: …he's been there all the way…

Jan: …yeah…

Alfie: …yeah. And he's been a huge influence to me. Before I even studied architecture. In fact, I, before I said, before I went to study architecture, I said to him, I want to be, be an architect. And he was so supportive of me and said, you're not gonna be Richard Rogers, you know? [Jan and Paul laugh]

And I said, who's that? He said, exactly. [Jan and Paul laugh] So he, other than that, he's been incredibly supportive. Definitely growing up around the work that he does in sustainability and, uh, and food has had an influence on, I guess, my direction within architecture.

Jan: Yeah. Um, that's nice. It's nice to keep it in the family and push it on to the next layer.

Paul: So have you got some examples then of how you've built sustainability into the projects you've done? You talked about, you know, your passion for

both of the architecture and sustainability. What examples have you got that you specifically have done and worked on, where you've built that in there?

Alfie: So building sustainability into buildings. [laughs]

Really all starts with communication and conversation. Sustainability is, as I say, it's a word that means different things to different people. And some clients will, as soon as you say sustainability, just think, ah, money, cost. No.

Other clients may think about it in differently. They may think, yes, there's a great opportunity to do some, do anything better in the world, and to reduce our, our carbon footprint.

In embedding sustainability, it's always about finding the, the in with your client. It's always about understanding what motivates that client, what is their priority in this project? So when talking with clients, we don't even necessarily need to use the word sustainability…

Jan: …mm-hmm…

Alfie: …what do we talk about? We talk about what are your, uh, main pressures as an organisation? Are they, are they operating costs, for example? What's your, uh, understanding of, of comfort, and how do you, what kind of spaces do you feel comfortable in?

You're generally just looking for any in to say, we've got a, we've got a, a way to solve this that will work for you long term. And that could be about operating costs, reducing energy costs, which is a big driver for, say like councils, local authorities, uh, institutions, universities.

Um, but some clients, you know, wealthy clients, do they care about running costs? Not always. Do they care about comfort? Yes. Is, uh, comfort a way of saving energy? Actually, yes, if you go down the passive house method.

We had one, uh, client who's had this really amazing opportunity to create a, a new civic, uh, building, uh, an adaptive reuse of a, an existing civic building, an extension. And from the outset, when I was involved in this project, the client said sustainability is not a driver for this project, which I thought, that's insane.

This is, this is the one opportunity you're gonna get as a council to, to embed sustainability in this community. And sustainability can take many forms. It might be about, and Tim Lang would say, it'd be about the food that those

people are eating in that building. It might be about the, the energy use intensity of that building.

Um, and sustainability was not on the agenda. At all. It was seen as an extra cost, and this was a cost, project for which capital cost was king. And then we introduced some consultant friends of ours, Ecospheric, who are based in Lymm, and they did some energy modelling, carbon modelling of the proposals, and optioneering.

So they looked at all these different ways in which the building's being used, all the different retrofit measures that we can, we can, implement. And they brought out of that, the data around the operating costs of this design, of this building. When the client saw those, those figures, that was the moment the penny dropped, that sustainability was actually a driver for the project. The numbers told a better story than we could have.

Jan: And that's an example where sustainability didn't lead in that relationship. But are there, you know, how much demand would you say is there in the system where people come and say, you know, I'm doing something in the built environment context, either retrofit or a new one, and sustainability is at the core of their, their spec to you? Is that common?

Alfie: It's, it's common and growing, I'd say. I think more and more, uh, bids that we're submitting for projects, it's becoming more and more part of the, the bid process.

The reality on the ground is when you're building these things, is there's a skills gap. We can design to the standards that are required to achieve sustainability. But whether we can get things built, it's, it is a challenge.

It goes back to what I was saying about the retrofit ECO scheme. The skills that were being used weren't skills that we would really want to be used in, in this, in this regard, in retrofit.

Um, so there's things moving at pace and other things moving at another pace, a slower pace. And the built environment is known for being a very slow mover.

But in terms of client expectations and client demand for sustainability, um, I'd say over the last five, six years, from my perspective, it's increased dramatically from just being something that's seen as a hindrance, and something you've got to do to pass building regs or whatever, to be an actually an essential

component and something that you can use to apply for grant funding, as was the case with this, um, local authority client. They, they got some money, uh, due to the work that we did. I'd say it's growing.

Paul: So you've seen that growth then. What about looking to the future? What do you think is the next steps, the next frontier for sustainability when it comes to architecture?

Alfie: Stop. Stop building things. [Jan and Alfie laugh]

Paul: I, I thought you were just saying stop right now. The podcast's over, we don't, we're going home…

Jan: …yeah, that was a bad question…

Paul: …yes!

Alfie: We need to build less. We need to use less stuff. We've, I think we've already used our carbon…

Jan: …ah, the budget, yeah…

Alfie: …budget, yeah, yeah.

Will Arnold, who's, uh, a structural engineer, has this amazing diagram which has, at the top of it, build nothing.

The number one priority as architects, for us, should be understanding what, what skills can we apply to something that actually don't result in a building. But they result for the, for a beneficial outcome for the client without building anything.

So in heritage and conservation, we're already kind of doing that. The building's already there, usually we're not doing too much to it. We might be repairing it and reusing it, but we're not necessarily creating a huge carbon burp from emitting, emitting tons of CO2, from these, you know, vast acreages of concrete.

So the, the frontier, I mean, as far as I'm concerned is to understand how we can reduce the amount of work we do, building new work, new work, but while still hopefully being in a, in a job. [laughs]

Uh, and heritage is a fascinating one because for a long time it's been seen as the last priority in terms of decarbonisation. We can go for low hanging fruit. We can, uh, retrofit buildings that are not as significant. Um, but heritage for

me is where the, the innovation is and where the, it's such a constrained environment that we can actually, although it makes up a small amount of our built environment, it's actually potentially quite influential.

So we're, we're applying a passive house methodology at DIA in some of our projects using the modelling within a heritage context. So this this standard, which is seen as this sort like new build, German, swish thing, which also is a retrofit standard, we're applying it to Heritage projects. And not necessarily meeting the standard, but ensuring that we adopt the methodology, the principles in terms of, uh, quality assurance.

There's other standards. Association for Environment Conscious Building have their own standard, which is being adopted by various, uh, local authorities as well as by individuals in corporations to improve their buildings.

So they have a retrofit standard, CarbonLite. It's like a halfway house to, to passive house. It's got a lot of the benefits in terms of quality assurance and reducing the energy demand and improving comfort, but you're not going so far.

Paul: Thank you very much for joining us Alfie. That's been a really good conversation. Thank you.

Alfie: Thank you very much.

[Theme music]

Paul: I am really worried, Jan, that the person who designed this room in the way that it is, is going to listen to this podcast and notice that we've mentioned approximately 512 times that there were no windows. [laughs]

Jan: [laughs] But for its functionality, it's perfect there's no windows. And I, and I suppose, I mean, there were so many delightful things that Alfie talked about, but one of those things was sort of like almost, you know, a, a fetish for glass and windows…

Paul: …mmm...

Jan: …and actually maybe that's not functionally smart. And then that's certainly came through in some of the things that he described to us.

Paul: Yeah, certainly putting more windows on buildings in Lancaster isn't gonna help you get more sunshine in. There's a whole bigger problem with the

weather and the climate round here as to why you're not getting heat from the sunshine. [laughs] It doesn't matter how many windows you might have.

Jan: Indeed. But there was a lot of going on in there. There, there were lots of fantastic sort of, uh, phrases. Eco bling, I liked that. You know, you sort of, you know…

Paul: …yes…

Jan: …slap it on and make it shiny kind of thing, as well as oil age architecture. I mean, that's really…

Paul: …yes, no, but that, it makes total sense, doesn't it? From the moment it became possible to just burn something and make, uh, something else happen, then that's, yeah, that's it.

You know, from like the 19th century, mid-19th, late 19th century onwards, it's just, yeah. Oh, you want to do that? Yeah, we can do, we'll just burn down this entire forest or whatever, you know, we'll, we'll just build another oil well and extract all the oil and gas from it.

But no, certainly what you're saying there about, you know, the bling, the built in, rather than bolt on. And that was kind of a key thing, and it's something we've heard in other contexts as well. We've heard it in regard to the curriculum and teaching. How if you want to have sustainability as part of a teaching curriculum, you can't just bolt it on and throw in a quick, um, sustainability module. You'll need to have sustainability threaded through it all.

We've heard it in regard to businesses and how they plan and act. I'm sure you've heard it with regard to accounting…

Jan: …yeah…

Paul: …as well. Yeah, it's so many ways that you can see architecture fits in with the bigger picture that we've covered across the last two and a bit years on the podcast.

Jan: I was already feeling proud, but I felt more proud about the heat, use of heat pump technology in the university, which we discussed with, um, Anna a few, um, episodes ago, in terms of using that as a way of, of creating the heating load we need for the, this institution.

Paul: Yes. And seeing, obviously you're proud of your own house, [Jan and Paul laugh] that you talked about, or you obviously, you could see your eyes talk,

say, this is what I've done with my house. Hey, I'm, uh, you know, you're a, you're a trendsetter, a sustainability mover and shaker.

Jan: Well, we had the chance to do it, and it would just seem crazy not to have done it. And…

Paul: …and not everyone does have that chance, which is where you come to things such as the projects, the nationwide project for insulation that…

Jan: …yeah…

Paul: …Alfie talked about and how if you are going to do things like this, it needs to be properly planned and thought out. You can't just hire a load of people just to throw insulation in without considering the individual qualities of buildings and such, and the problems that this is going to lead to.

What was it, 98% of all the buildings that have been involved in this project, which should have had nothing but positive effects of needing retroactive action?

Jan: No, that's really horrible. And then the final thing I, I really liked is sort of like, I mean, I feel was quite poetic, but also scientific. And so that's sometimes seen as being a natural divide, but in, in architecture, it clearly comes together, fuses together and creates that really beautiful outcomes.

Paul: And you missed an opportunity today, Jan. I was amazed I was waiting for you to jump in with this opportunity. When talking about the passive house movement and how it was a global movement that was adapted locally, there was a word you could have used there, [Jan laughs] um, which you didn't use, and I honestly felt there's never been a better moment for you to have used said word, but you didn't. Well, I'd like to thank you for your restraint.

Jan: Um, well, I did fear… well, well, I'm, yes, I did…

Paul: …you did. Did you fear for something about babies being sacrificed…?

Jan: …I fear the repercussions…

Pauyl: …yes.

Jan: So after our foray into the built environment, what's next?

Paul: Old people.

Jan: Old people… [laughs]

Paul: …yes…

Jan: [laughing] …I suppose old buildings, old people, there's a rationale.

Paul: Uh, yes. Uh, having offended babies earlier on, I'll now go out and, I dunno if you can offend a baby, they're too young to understand. I'll now go out and offend, uh, the, the elders, uh, of the community.

We're gonna be talking about issues regarding elderly communities and how that ties in with sustainability and looking after people, care of them, all these kind of things as well.

And we've got Qisha Quarina who is a professor in the Department of Economics at the Universitas Gadjah Mada in Indonesia, who's one of our partner institutions and a partner researcher. So she's gonna be filling us all in on that, which will be a wonderful thing to discuss.

Jan: I look forward to it.

Paul: Until then. Thank you very much for listening. It's goodbye from me, Paul Turner.

Jan: And it's goodbye from me, Jan Bebbington.

[Theme music]