

Episode 90

Should Your Architect, Builder and Tradespeople Have Certified Passivhaus Training?

The show notes: www.houseplanninghelp.com/90

Intro: Today's interview is with Darren Macri from Bleu Nest and we're discussing whether you need architects, builders and tradespeople with the full Passivhaus training. And what happens if you just hire any old builder?! We'll also be hearing about Darren's own build, which is underway at the moment, and we answer a voicemail message from Alex in Ireland.

I started by asking Darren how he came to work in environmental construction.

Darren: Well, I took a quite unconventional route to becoming a high performance builder. My background is actually in film and photography. I went to NYU's Film School and graduated and was working in that field for some time. And then my father, who was doing some development in Hoboken, New Jersey, he and his building partner, they had parted ways and my father was left with a project. And he had said, "you know, I have this project, I have to get it done." I was kind of doing commercial photography at the time. It wasn't of that much interest to me anymore. And so I gave it a whirl and I just loved the process. I loved seeing the building come up. It was a brand new construction and so then I got more and more involved.

That was in the early 2000s and I really, really loved it and I felt it was actually more creative than what I'd been doing. And so I said okay, well if I want to keep doing this I have to do it in a way that speaks to my sensibility and I became LEED certified. LEED had a lot of nice things to it, but it didn't really bite down into the dramatic change that I think we need to make in the present and in the immediate future.

And it was through a conference here in 2009 in New York City that I discovered Passivhaus. And it was like holy smokes! Where have you been all my life, you know! And I wrote it all down in a notebook and then I let it sit on my desk for a year. [Ben laughs.]

Ben: Like all these things! That's an amazing story though. I like certain aspects. When you moved from your film and photography into this, were you drawn to a particular area or did it take some time to hone in and decide "I want to be the builder"?

Darren: Well, no, what happened was we had hired a builder to build this project in Hoboken and he quickly proved to us that he wasn't up for the task, and I just jumped in and really didn't know what the heck I was doing and learned on the job. And so I pretty much made a commitment to sustainable building early on and it's really the only way I know how to build. And I think this is probably the hardest thing in my field is that a lot of folks are committed to ways that they've been doing things and it's hard for them financially, time-wise, risk-wise, to re-tool themselves educationally and physically to building in a more sustainable manner.

Ben: Are you able then to make sure that you pick only Passivhaus projects? Are you at that level now?

Darren: I'm trying to make that 100% commitment to Passivhaus. I think no matter what project I do one person is the person, "oh, it's a standard, it's a label, I want that!" And that energises them. The other folks are like "well that sounds great, I love the idea of that, but that's really for somebody else. That's not for me." And so for those folks you quickly learn and say, "okay, we're not going to build you a Passivhaus, we're going to build you a high performance home." And we're just building the same house but just by a different name.

Ben: So, just a couple of general questions before we dig into Passivhaus. When you started going down this route to becoming a builder, is it just a natural process that you integrate with the designer? Is there much input for you or do you just do as you're told! [Ben laughs.]

Darren: Oh, I believe it's crucial. Especially when you're doing a high performance building such as a Passivhaus, that all my employees, the design team that's brought on, everybody be fully committed. Otherwise it makes the task a lot harder. And it's a hard enough task to begin with.

Ben: What does that mean though?

Darren: Well, actually I mean, I'm just getting involved in a project right now, where the homeowner was interested in building a Passivhaus, but they'd worked with an architect previously, and so they said "well

we really, really want to work with him, he's such a nice guy, we've a good relationship, a good rapport." And I said "okay, but I have resources of many architects that you can speak to that I know you'd really love, but if you're truly committed to this guy then I suggest at the very least then bring me in, bring in a Passivhaus mechanical engineer in early" and we can try and steer him down the road and help guide him. But it actually became quite difficult for the client pushing his architect to make the changes that even the client knew that he needed to make and so now he's spent money on this architect and he's going to have to move in another direction now and he's looking for new Passivhaus trained architects.

Ben: How do we find people that we know are going to be up to the task, and particularly tradespeople, but also, yeah our main architect?

Darren: I think at the very basics, the architect should be certified as a Passivhaus consultant. I mean as many certified folks as you can get on there. So then you know that they've been trained and they're committed to Passivhaus. So that's easier to find, like when I got trained for Passivhaus in 2010 there were 62 people on the class. I think there were 3 of us that were actual builders. The rest were architects and maybe one or two engineers. And so it is substantially easier to find architects than certified Passivhaus consultant builders.

In recent time they've now brought on the tradesperson standard. You could see that now the tradespeople have a way of getting trained. The training's not as deep as the consultancy training but it is a way for tradespeople to start wrapping their heads around Passivhaus and showing their commitment.

What we have done on our projects is created teams of folks through experience and relationships, and that's I guess the way it works all the time. I mean I have certain architects that I love to work with. The folks that designed the project that we're working on right now, River Architects, they're just phenomenal. I mean their whole office is fully committed to Passivhaus and it makes the process really much more of a dream.

Ben: When you first built to the Passivhaus standard, how was that experience?

Darren: You realise that the air barrier never goes on vacation. You know, we're not doing X, Y and Z portion of the job and not thinking about

air barrier. Every day, every job you do, you're thinking about how is what I'm doing affecting my air barrier. And I've taken the approach of actually having one guy right on site, fully committed to the air barrier every day, because you know a lot of folks you just do a job, you know you're framing, everything's happy go lucky, the building's going up super quick. But now if you have a detail where let's say on our project where we're coming up below ground from a basement situation and we have to make a transition with some fabric, you only get one opportunity to do that, and you don't want to bury those opportunities inside the structure.

And so everybody on your team and all your subs have to learn to work together. It's not just oh the electrician's coming in and he's going to do his thing and then the plumber comes in and he's going to do his thing. Everybody has to work together because there's going to be times where the electrician is going to want to put a wire through the barrier and he's got to talk to the carpenters about maybe we've got to make a boot, don't drill all those wires and shove them through one hole because they'll be really difficult to air seal. Same thing with the plumber, so it's all about working harmoniously with each other.

So I would say that's probably where people see the modest increase in what would be the Passivhaus premium in cost because it probably does take a little bit more time to coordinate but as the tradespeople come more used to building this way that's going to diminish and disappear.

Ben: Is it a little bit like Groundhog Day sometimes, that when you've got new people on site you're having to go through all of the same explanations and start back there? Can it be a little bit frustrating?

Darren: Oh you definitely need continuity. It's a huge advantage obviously because you don't want to be in a situation where you're having to re-explain "why the heck are we doing things so different!" than everyone's so used to doing them. And I think when people come on and they do begin to understand what we're doing and why we're doing it you see a totally different level in workmanship. People are just so excited to be doing something that's comfortable for the folks that are going to live in the house . . . And my workers they take so much pride in the job, it's hard to get them into the truck to go home! [Ben laughs.] They stand every day, seriously [Darren laughs] every day they stand out there and they take pictures of themselves at the house!

Ben: A good old selfie!

Darren: Yes! Because, yeah and to show you know, to just keep documenting the development, and it's that level of ownership that I think you need to feel in order to have success.

Ben: Perhaps we could use one of your buildings as an example and you could explain how you become involved in a project, and what you're responsible for from start to finish and what timespan it would take? Just a really detailed idea of what a Passivhaus builder does.

Darren: We're working on a Passivhaus right now which will actually be New Jersey's first Passivhaus, and it will also be a home for me and my family.

I think the important thing to note is that a Passivhaus doesn't have to be a cold, sterile box. Let's design the house that's going to fit the client. Let's design the house that they want to live in. Because Passivhaus, most importantly, is about comfort. So comfort is thermal comfort and comfort is loving the space that you're in. And I feel with the project that we're working on right now it is a physical representation of how my family is going to live their lives in that house. And so that's number 1 when putting a project together.

Bring in your builder early. That is another key, key thing that I highly recommend, because when you bring in your builder, it's not just the architect just drawing up these plans in a vacuum and then dropping them on the builder's lap and then he walks away and the builder's there and no. Let's not do that. Let's bring in the builder, let's talk, let's get everybody getting on the same page so that we can have a project that limits the amount of change orders, it's designed exactly the way you want it so it gets built exactly the way it's designed, and then there's no cost overruns and that's I think a very very important part of the process, to bring everybody in early. I even bring in my subs, in terms of plumber, electric and then if need be have the Passivhaus consultant. For me, that would be myself, give a little presentation and tips and techniques to those subs about what we're trying to accomplish here. To have them get emotional buy-in on the process.

Ben: And what did you want from your house when you set about designing it? What were the key things, because this is something that I'm going to go through and I'm still at the stage where I can change things, so what did you want?

Darren: Well I mean, just design-wise, we wanted to keep the public spaces open and flowing. On the first floor we just tried to make a subtle division between the public and the semi-private spaces. I also love to cook.

Ben: Me too!

Darren: Yes, well you should take a look at our floor plan because I've . . .

Ben: What's your favourite meal?

Darren: My favourite thing to do is to come home, and my wife says "oh, there's absolutely nothing, we've got to order in." And then I look around and I just put the most crazy thing together and it's absolutely amazing, if I may say so! [Ben laughs.]

Ben: Well, that's an interesting point that we've both had this kitchen that we're going to use, so what have you decided about that to take you forward? What's important in the kitchen?

Darren: Well my biggest fear was in the kitchen that we would have a situation where I was searing something and it would get too smoky and smelly in the kitchen and the house would be too tight. But when you have your ERV, and you keep your ERV about 10ft the extraction, you keep that about 10ft away from the range so it doesn't get the particulate but it's going to be taking out all that smell and smoke and recapturing that heat energy that's in there. And then you have your hood, your recirculation hood over your range which will catch the particulate. And if need be we'd put a boost switch by the range to boost up the ERV for the time while you may be searing that fish. So I'm looking forward to searing and cooking and using the induction range.

Ben: That was something I was going to ask you actually, is do you have to be careful about heat gains in a Passivhaus kitchen?

Darren: Yes, you do. When you're using gas a lot of the heat doesn't just go into the pot that you're cooking in. It goes all over the kitchen. But I would say even more of an issue is the fact that here in the US you have a connection cost to the gas company, and most Passivhauses don't need any gas unless you want to have it for your range. You're not going to use enough gas cooking on your range to justify the connection cost. So you're kind of just throwing money away if you have a gas range in a Passivhaus.

Ben: Got you. Are there any other things about your house that are going to be special or that you'd like to mention?

Darren: So the primary thing when I was talking earlier about the comfort and the flow of the house, I mean also with a Passivhaus you always want to design to the south right? You want to have 20% of your glazing to the south, and then 5% everywhere else. But that's ideal. In our case we have great southern exposure but our view is really to the north. So we weren't afraid, we put as much glass as we felt we wanted, but we knew we had to compensate in other areas. So our walls are a little thicker probably than most Passivhauses and our roof probably is a little thicker than most Passivhauses as well.

Ben: Now Darren, that's really interesting what you've said there, because I've had this question in on SpeakPipe from Alex. Let's take a listen. [Ben plays the voicemail message.]

Alex: Hi there, my name is Alex. I'm leaving this message from literally the centre of Ireland. First of all, thanks very much for your website and podcast. They've provided a lot of information over the last few weeks and months. Myself and my wife are embarking on a self build. We hope to go passive and the question I have is related to the site that we've found. The site has wonderful lake views to the north. The site is completely open. We've got full blue skies to the south, and the east and west so there's no issue with solar gain in that direction. My question is what do you do with a northern-facing site when the views are there . . . I know you can put windows there, triple glazing of course, if not quadruple! I wondered if you have any information or comments on what to do with a north-facing site.

Ben: So Darren, what can we say to Alex? Is there any help or advice you can give him?

Darren: Sure, I mean when you're designing the house and you're putting into PHPP, design the house that you want and then work your way and adjust within the PHPP because you could see as you're making those changes, what you need to do. You know, if you have some big, beautiful windows, and we have a floor to ceiling Intus window with French doors that go off the back. We have a gigantic Lift 'n' Slide on the north side and then another door and window on the north side as well. So we have a lot of glazing on our north and it's unabashed you know, but we're still achieving the standard. You've got to rob Peter to pay Paul. So we have R45 walls and an R90 roof. Just a little bit more insulation than a typical Passivhaus.

Ben: So it doesn't get you into problems, say for example you want to use solar gain on the south then, but you can't afford to because you've got to have smaller window sizes on that side?

Darren: Smaller window sizes on the south?

Ben: To make up for the north or am I not understanding that?

Darren: No, no, you still want to keep 20% of your glazing on the south side. You want to get that solar gain, that low winter sun coming in and you want to make sure that you have enough shading on that south side. You treat that south side as you traditionally would and then you try and limit what you have on the east and the west and then you do all of your views to the north if need be. And that was actually a very typical question that you get during the, even the Passivhaus exam in the consultancy training they would throw that at you and you would have to design a house with the views to the north in 45 minutes.

Ben: In other words, this is solvable with design, if solvable is a word! [Ben laughs.]

Darren: It is! It is and like I was just saying, the Passivhaus consultants are trained to solve that problem. We want to make the house that fits you and then Passivhaus is just on top of that. It's not about trying to fit you into a Passivhaus, it's about fitting a Passivhaus into your lifestyle.

Ben: Let's get back to your house for a moment. Has there been anything that you would do differently next time or lessons that you've learnt?

Darren: I would say one of the biggest lessons learned that I had on this particular project would be that when you're looking at the house that you want to build and you have the site and there's a house on it already, is this house worth saving? In our situation the house really wasn't worth saving, and we knocked the house down but then we worked with the existing basement, and I think when all is said and done it wasn't such a great choice to work with the existing basement. It created this funny air barrier detail because the actual building is larger than the existing basement so we have this crawl space and it would have just been much easier either to eliminate the basement altogether or to make the basement fit underneath the building properly. So, I think you have to seriously consider what is worth saving or is it just best to just start new.

Obviously in New York City there's all these gorgeous brown stones and you want to save those and make those more energy efficient. Or there's plenty of homes worth saving, but when in doubt knock it down, it's going to be a lot easier. Some other lessons that I learned is that the mechanical systems are so simple and small, that our carpenter team was able to install the mini-splits, the ducted mini-splits doing all the ducting and the ERV. These were great things that helped us keep our costs down and kept the project moving because we did them all in-house. And I was delighted to see how well that worked out for us.

Ben: Well Darren, I've really enjoyed our chat today. Thank you very much for your time and is there a final thought that you'd like to finish on?

Darren: Hmm, well I would say that we shouldn't accept being uncomfortable in our own homes any more. Now that we know that there is a better way to build, we all must take it upon ourselves to build better. Because these buildings outlive us and they're really our legacy and it's our gift to our future, so let's be comfortable in the present and give the world a better future by building better.

Ben: Darren, thank you very much.

Darren: My pleasure Ben. Thank you so much and what a great podcast. Thanks for having me on.