

## **Building with Biology: Stuart Shell's Biodiversity-Centered Design Philosophy | Transcript**

Welcome to Green Building Matters, the original and most popular podcast focused on the green building movement. Your host is Charlie Cichetti, one of the most credentialed experts in the green building industry and one of the few to be honored as a LEED Fellow. Each week, Charlie welcomes a green building professional from around the globe to share their war stories, career advice, and unique insight into how sustainability is shaping the built environment. So settle in, grab a fresh cup of coffee, and get ready to find out why Green building. Green matters.

00:33

Charlie

Hey, everybody. Welcome to the next episode of the Green Building Matters podcast. Once a week, I interview a green building professional somewhere in the world. Today, I've got Stuart with us. Can't wait to unpack his story and what he's got going on there at Branch Pattern. Stuart, how are you doing today?

00:47

Stuart

Good. Good to talk to you.

00:49

Charlie

And you're in the Omaha office, is that right?

00:52

Stuart

That's right, From Omaha. And I have made my career here also.

00:57

Charlie

That's where I'd love to start, is that origin story. Unpack that more. Again, where are you from? Where'd you go to school? And a little bit of that early career.

01:07

Stuart

I went to Chicago for school at IIT, studied architecture there and introduced myself to engineering and social sciences also. It was probably one of the more formative experiences for me. I was there at the campuses on the near south side, and they were taking down a lot of the public housing at the time, Stateway Gardens and Robert Taylor. That was big architecture especially when that happened during urban renewal. And so being there around sort of the admission of failure left an impression on me of the power of planning and architecture and also its failures. So sort of carry that with me, maybe even a little bit of a chip on my shoulder about what our profession could do until I recognize some of the other strategies that we have by turning towards sustainability and other ways of measuring success that maybe have been used historically in our field.

02:08

Charlie

You saw it firsthand, and you're like, I'm going to make a difference here. So when did maybe sustainability really start showing up? LEED's been good to me. It doesn't have to be LEED, but. When did sustainability start showing up for you?

02:21

Stuart

Elite was fresh as I was starting to work, and I did my first LEED certification probably in 2009 or something. Became a LEED AP 2006. So I got a nice introduction to it early on. Honestly, though, I felt like there was kind of half measures and that's because I think it was made to be

adoptable by the general community. You know, the agenda, as I understood it, was to achieve market transformation. And you don't just go from 0 to 60 when you're trying to do that. It's a big industry. It was the Living Future Institute that really, I think, stamped me out of my little. My jadedness because their 2012 conference focused on women reshaping the world.

03:07

Stuart

And it was a group of folks that were identifying the larger dimension of equity and how sustainable design couldn't really succeed until women's rights were in place at a global level. That. That really was inspiring to me. That zoomed out look and the way the Living Future Institute was envisioning where we need to go, not just where we are starting from.

03:33

Charlie

Man, that's. That's amazing. What a. What a great conference at that time. And that was a little while ago. So I like to ask about mentors. Sometimes a mentor is someone we read their material to, we might see them from stage. They kind of have an influence on us. Sometimes it's someone we meet with, they might challenge us, they open doors. Have you had any mentors along the way?

03:52

Stuart

I'm so thankful for the people that have committed their energy into supporting our education systems all the way from the earliest years through my higher ed. What comes to mind is a project I helped set up a nonprofit bike co-op in the community. That was something I was doing outside the office. It was. It was a great opportunity for me to practice leadership before I was really ready professionally to have that responsibility. And one of the board members that I invited was Michael

Alley, a principal at a local architecture firm. And he used a role model for me and really established for me a kind of appreciation of the citizen architect and what a designer who has those skills can achieve. When they move, when they turn those towards community building, you know that it's not just good for making buildings.

04:48

Charlie

Sounds like a fantastic mentor to be around there. Let's connect the dots a little bit. Kind of two big chapters, as I understand your bio here, on maybe the design side, the architecture side, and then really double down on sustainability. So can you tell us about that career path? Yeah.

05:06

Stuart

I worked as an architect for about a decade, and that was insightful to me to discover all of the things that are in the sort of architect's responsibility. It takes a long time to figure out all those moving parts. And I think you get that exposure probably at different times. You don't need to be an architect to see how complicated you know, if you're on the construction side or even the owner side, you realize all that's involved in real estate deals and putting together a project. That was where I started. And it was a really great introduction because I was able to also work on early childhood education projects, especially supported through philanthropy, that were impacting children and families that otherwise may not have the highest quality early childhood care.

06:00

Stuart

So again, there was that layer of the social dimension of the role buildings have with that investing in people, not just buildings, but the way the quality facility sends very important messages and provides indoor air quality and lighting views to nature. All these things that are also important. But it was

powerful work to be involved with and I'm thankful for that. That, that exposure. It set me up to do what I'm doing now. I went back to school actually and got a degree in engineering mostly to learn more how to do research methodology and bring evidence to bear on practice. And at Branch Pattern, that's really what I've been focused on, is applying what we see in outcomes of buildings real building performance.

06:53

Stuart

How can we measure that, not just like energy and water, but also what are the impacts on occupants, what are the impacts on nature systems, and how can we use that understanding to inform the early design stages?

07:07

Charlie

Yeah, I've seen that trend with some design firms bringing more research in house. So let's unpack that a little more. Why don't you go ahead and tell us and our listeners about Branch Pattern and like, what are some of the kind of services you provide and then let's ride that out on the research side. Yeah, let's talk about this.

07:24

Stuart

More Branch Patterns focused on building better environments and really see a holistic approach that's impacted by design teams, but also building owners directly. That while architects and designers and sustainability consultants can transform a program and a goal into reality, it's really the owner and their goals that are the motive force in the work. So at Ranch Pattern, we're pretty attentive to that and understanding what our customers are interested in achieving, trying to really understand that business and where it engages, especially increasingly with esg like environment, social governance performance and how the investment community and the economy is also coming into play. So with the evidence

dimension, a lot of that is informed by taking a step back from the immediate needs of a project and spending a little more time in the discovery phase.

08:38

Stuart

And it's not uncommon in our field. Right. This sort of design thinking approach. Let's make sure we've got the right problem before we start solving things. And research methodology is a way of helping to assure that. One of the certifications that's helped me a lot is edac, the evidence based design accredited professional. It's a little bit of a mouthful, but it really helps people that want to apply, that learn how to consume research, how to judge the merits of a study. Maybe somebody's evaluated how lighting impacts sleep patterns for maybe it's what whether the embodied carbon in wood actually is helping or whether it might be making things worse. I mean it could be any type of research is going to be based on the ability to understand that methodology.

09:29

Charlie

So edac, I wasn't as familiar there, but that is a credential that you can get.

09:34

Stuart

Yeah, the center for Health Design, a lot of that came out of the healthcare world that the earliest insights probably in the 80s. There's that seminal study by Ulrich where there's patients in a hospital and they had the same surgery. Some have a window that looks out into a green space. Others happen to have a window because of the shape of the building. That's looking at a part of another part of the building and the patients who have the view get out sooner. Right. A really powerful research. We call that like a convenient experiment. Nobody had to set that up. It was just already naturally occurring because of the way that building was designed. But it

shows that which room you get assigned that was completely random can make a difference for the patient itself.

10:19

Charlie

Huge difference. So the research your team is doing, is it just on your own projects? Do you ever go and are hired for other studies? How does that work?

10:28

Stuart

Yeah, we have a, a research team. It's small and we focus mostly on interpreting and consuming research versus producing original research. We don't do as many studies. A lot of the work that we do is regarding a field we call ethnography. My, my colleague Marcel Harmon is an expert in this space and this is doing firsthand research and buildings to see how people are using those spaces and gaining insights not just by talking to them about how they use spaces, but through observation, gaining other insights. Maybe they don't even recognize sometimes the adjustments that they've needed to make in order to be successful if there's certain barriers in the building. So that's the type of research that we use most often. It's kind of what you call like post occupancy evaluation, just using some enhanced methodology.

11:25

Charlie

Understood, thank you. So sustainability here. Are you doing any research on anything very core related to sustainability. You could share.

11:34

Stuart

Yeah. Most of the emphasis of late has been on the emissions and climate, the climate risk that buildings might expose building owners to. And so

that's a big ball of wax. Right. And I know many of the guests as I've listened to your show, have addressed this and this is a lot of our work around climate action. So our focus recently has been a lot on the upfront emissions or what you'd call embodied carbon associated with construction. How can we manage that? The pollution that's caused just by needing to build a building in the first place. And it's a challenging spot because we're in an industry that runs on construction and yet construction is inherently diminishing environments. It's the right now like the best we can do is offer offsets.

12:24

Stuart

It's like, well will make up for it on the back end for this pollution that we're causing. So the movement towards regenerative design is where I think a lot of that research is. And honestly it's less what I'd call like proper research in terms of setting up an experiment that you can then draw conclusions from using statistical models. And it's more about exploration about which alternatives can the market deliver for us. Are there, are there ways that doing prefab can transform this or. We work a lot on industrial projects where the walls are often like poured on the ground on the slab and then they're tilt up and these are large concrete slabs. It's a pretty efficient way to make a big warehouse.

13:10

Stuart

But in other parts of the world they're using pretty sophisticated like they're still industrial buildings but you know, they're using metal panels. They're designed in ways that can be disassembled and those materials can be either reused or recycled in ways that it's hard to do with like a massive concrete tilt up wall.

13:29

Charlie



It's amazing. Yeah. And then we gotta think about the embodied carbon and all that too. That's still the big shift, . Not just the operating carbon, but over towards embodied carbon. So yeah, let's talk a little bit about the future of this green building movement. What are you kind of excited about? What's coming at us next in this green building movement?

13:47

Stuart

There's a lot of talk of nature and biodiversity and we see that from our neighbors across the pond. More action already with the UK's you know, net biodiversity gain requirements and CS, the Corporate Social Sustainability Reporting Directive from the EU, the CSRD. So the writing's kind of on the wall for us that it's not just going to be climate change, but maybe the broader consideration like climate change sort of fits within the discussion of biodiversity in many ways. It's a sort of, it's a factor in it. So I think we're going to see a broadening of the scope of our work in terms of when we're trying to assess those impacts. Looking more holistically at life cycle assessment, not just the global warming potential impacts, but the other effects on soil, air, water and probably.

14:40

Stuart

Although I had the living building challenge has a provision that you provide some habitat space on your site or like room for agriculture and they. Yeah, they require habitat exchange. So the area that you develop, you also have area. I think that may come to be more of a factor also where when you make a building for people, a component of that should also be of that site should also be devoted to the support systems we rely on for nature and creating habitat for other things than just the people.

15:10

Charlie

I love that. Do you think the local authorities having jurisdiction may

eventually push that? Do you think it's just the owners, the developers? Maybe they have some investor dollars coming in from Europe so they're used to that. I mean where do you think that will be driven a little bit more?

15:26

Stuart

I think it's probably more the latter that the marketplace will drive the behavior of developers and building owners. You know, higher ed universities are always pretty early adopters because of the student body they serve and that they're sort of predisposed to consumer research also and incorporate best practice. They can be swayed by evidence whereas a lot of the other markets are going to make decisions based on what seems like the right thing to do. It's probably less regulatory. But we're in a weird spot right now because like the Paris Agreement and those climate related targets, those are all based on a budget of emissions that we can achieve globally. And then those all get sort of doled out to countries, right, the nationally determined contributions and then the countries dole those out to the sector.

16:19

Stuart

So the construction industry gets a little piece of that pie in the United States and even by building. So the Science Based Targets initiative is a group that helps you figure out how big is your piece, what's your allotted pollution that will still keep you in alignment with. Yes, that connects all the way back to that global agreement that was made in 2015. So that's kind of a pretty revolutionary way. Again that's more aligned with the living future way of thinking about where we are going but the way all of our standards work right now is based on energy codes and baseline building models and those types of requirements which are often like what percent better are you going to do? And they don't have that same connection to what is really permitted.

17:07

Stuart

And so those things are coming into tension now with building performance standards like that. You do see municipalities. New York's Local Law 97 I think is the one that we notice most. But they continue to expand throughout the United States and those are really following more of that Paris Agreement model where there's, they're capping your emissions. It's not about how much less you're using than a baseline. These are building owners that are only, they're running buildings and they're being capped by that climate target. Even if maybe they're, they got some LEED points for having a really sustainable building, it's not being measured the same way as their allotted budget is.

17:47

Charlie

You've got a good read on it. Good handle. I was just in New York City recently and yeah local on 97, the carbon cap catching some buildings here in 2025 that really hadn't done much. But it's the 20, 2030 cycle that even good buildings, maybe some buildings still need to improve. And you're only allowed so much per square foot, right? It's great. Let's get to know you a little more here. Kind of some rapid fire questions. What would you say is your specialty or gift?

18:13

Stuart

Stuart I really love learning new things. Always looking for ways to expand my own sort of awareness and ability to help. And my role at Branch Pattern really allows that, which I'm very appreciative for because we are involved in so many different aspects of green buildings from helping with certifications to like ESG ratings like Graz. And we also do high performance design. So those are all quite different things and I love learning about each of them. I feel like they contribute to each other.

18:50

Charlie

That's a great man. Eternal learner. Stay curious. Do you have any really good habits, routines, rituals that help you stay on point?

18:57

Stuart

I'm kind of bad at that. I need help with that. Eric Charlie to be honest, I have success in bouts like doing an exercise and meditation routine in the morning. But sometimes when I get stressed out at work that goes away. But I do therapy also and I've really found that when I do make progress personally that translates pretty directly to professional progress too. I didn't really get that early on in my career. I was imagining, oh just work harder and then you'll be more successful and that does. It doesn't always work out.

19:28

Charlie

No, but it's also tough. There's not really a balance. It's a system. I'm a big fan of the book Atomic Habits. James Clear. You don't rise to the level of your goals. You fall to the level of your systems and habits. And so just make sure you at least have some here that will catch you and maybe improve those. For some of my guests it's not necessarily a fitness thing or this or that. Thanks for sharing those. I just said I'm really good at planning out my week or I use this tool or I use this hack. Any of that maybe help you how you plan ahead?

19:59

Stuart

I am pretty reliant on my coworkers, my peers that can really support the parts of the job that I'm not as good at. And planning is actually, is really one of those areas. So that's become my best strategy. That sounds a little

bit like I'm avoiding your question. I've just, for a long time I held myself to these expertise. I should be able to do this. I shouldn't procrastinate. And I found that if I am upfront with the people I'm working with and let them know, hey, I'm going to need a little bit of positive reinforcement. Would you be able to provide that for me and maybe set that deadline a little before you need it? That's allowed me to be more successful than actually changing those behaviors that are just difficult within me.

20:42

Charlie

That's a great habit just to have that self awareness say, hey, here's how this is getting faster. So I love that. Thanks for sharing. I'm a big fan of the bucket list. Not everybody has a bucket list, but you know, for some it could be travel, adventure, maybe writing a book. Are there a couple things maybe on your bucket list?

20:59

Stuart

Typical architect. I've always wanted to build a house. The thing that's interesting to me about that is I was so. I was thinking about that recently, looking in my backyard. It's changed. Like when I was young, my house was like a passive house, a plywood box out in the prairie, like alone, like a permit. And now like my idea of what the house is like, this is very much in my head, like the ideal house is like deconstructing my detached garage that's 100 years old and reassembling it into a modern machine for a living. That's so I think that's just being influenced by trying to hold myself accountable to what I believe. I believe we should reuse the things that we already have and that circle economy mode. And so that's slowly sort of changed the way that bucket list item looks.

21:54

Charlie

That's a cool one. I love that. Nothing greener than that existing in that

case. Structure that existing building. Let's repurpose it. I love to ask about travel though. Is there a place you'd love to go back to one day or a new place? Gosh, I've always wanted to go there. Just curious.

22:09

Stuart

India comes to mind. I had a great opportunity just through a rotary exchange trip to spend a month there. Being hosted by other folks in that organization. And that was pretty eye opening to me. The culture is just difficult to describe the differences I felt from the communities that I had that I've grown up in and have known. And so that would, I think, be on my list to go back to and see how it might feel different now after it's been a few years.

22:41

Charlie

Okay, thanks for sharing. That's exciting. Just a couple more things here as we start to kind of wind down. We've gotten to know you more and your journey and branch pattern. Is there a book you might recommend to our listeners? Doesn't have to be about buildings. If not a book, TED Talk or documentary, just something you really enjoyed.

22:57

Stuart

A couple things come to mind that feel a little underappreciated to me, but they're not recent. One is Aaron Antonovsky's work around salutogenesis. That's kind of a big word, but it really inspired me and changed the way I still think about what buildings can do. Salutogenesis is a model of health that's really based on the way we find resilience in our own lives. Do we have the resources to manage the things that are happening around us? Are they comprehensible? Do we have a source of meaning? And when you have those things in place, people exhibit this ability to heal and recover from trauma. This is his. This was Antonovsky's research from

those who survived the prison camps during World War II. And that really has perfect application in buildings where it's hard to design from a pathogenic perspective.

23:48

Stuart

That's kind of like what the well building standard is. They're looking at. Let's keep contaminants out of the air, let's make sure the water's clean. You're trying to eliminate bad things, what people really need for Health is to have the resources to overcome those bad things are going to happen, so the resources to overcome them. So that sort of thinking, I think is important, and I hope we'll gain more popularity.

24:09

Charlie

Sounds like it's really inspired you there. And it's kind of a reality check, too. It's. I don't know, I love to ask my podcast listeners, just, hey, is there something, a book or something? And then I have a running list of all the books too, so I got a lot to catch up on here. So as you look back on your career, Stuart, is there anything you wish you'd had known earlier?

24:28

Stuart

It goes back to, I think that what I was saying before about recognizing relationships that are in place is really where change happens and not so much like the outcome of how. What decisions are made on a building. And in a lot of ways, it's almost a. It can be, I think, a healthy practice for us that are really committed to sustainability and those outcomes to be able to have a little detachment because it can be frustrating in this space. Oftentimes you see decisions that don't seem to line up with what we need to be doing. We're surrounded by them. And so being able to put your belief and your energy and measure your success by the energy you bring

into the process and the energy you're getting back and using that as a guide, I wish I had practiced that more initially.

25:24

Stuart

I was so focused on trying to make the thing a certain way, trying to get the rainwater harvesting on this project or how can I convince this building owner that photovoltaics just makes sense and that thinking it was kind of toxic, to be honest. And it held me back in my career. It held back those projects too.

25:43

Charlie

Thanks for reminding us of that. I think on the come up, we just, I don't know, we don't have that perspective yet. It's good that you mentioned that. Let's say someone's listening as we start to wrap up here, really inspired by your story. Maybe they want to make a career out of the research side of this amazing movement we're in. If someone's just now jumping into the green building movement, any words of encouragement for them?

26:07

Stuart

I do think that the certifications can be a great way to quickly learn what opportunities you might have because increasingly you find there's a certificate. Even in sort of adjacent areas like commissioning, you can get a certificate in that or the evidence based design accredited professional like I mentioned. So that I think can be a quick way of testing. The first one I got was Construction Documents Technologists, which is a CSI certification, but it's just how to put together a set of drawings and that helped me orient myself to which things I might enjoy and do well. So that I think has served me well. Wanting to explore things has helped me navigate where I might want to put more energy.



26:51

Charlie

You heard it here, the certifications, the credentials, a decade as an architect, a decade here as a researcher. And I know you love green buildings. So everybody is listening. Make sure you connect with Stuart on LinkedIn. Want to know what you thought of the interview and check out Branch Pattern. Just an amazing company there. And I just want to say thanks for spending time on the podcast. Stuart, this has been great. Thank you so much.

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