

Electrifying Everything

Andy: This is episode 302 of Non Toxic Environments: Electrifying Everything.

Welcome back to Non Toxic Environments everybody. This is Andy Pace. Today is a fantastic episode. We're I'm really excited to talk to you today and share a conversation we had recently with somebody that Jay has known for quite a long time. They've actually worked on some projects together and I think you're going to be extremely, extremely interested to listen to this discussion. I will say this, you're going to want to have a notepad ready, or you know, be in a place where you can pause and play and write things down. A lot to digest in this episode. I think today will be a very, very informative, enlightening episode. So today we have a Matt Grocoff.

Matt is an American environmentalist sustainability advocate, writer, speaker and founder of the Thrive Collaborative. He is known for his work on net zero energy and net zero water buildings. And for the rehabilitation of the oldest home in North America to achieve net zero energy. This happened several years ago and still to this day today... he'll touch on that. Matt is a contributor to the radio show the Environmental Report produced by Michigan radio which is part of a NPR network. He's part of the Fox news energy team and was host of Greenovation TV. And that's how I got to hear about him years ago. He advocates for the modernized distributed, renewable energy networks and distributed water and wastewater systems that work with natural systems. He's working on some fabulous projects, again, a wealth of information, lots to digest. We get the feeling this episode not only will be downloaded more often than our most of our episodes we already have, and have plans to have him back on the show as his projects progress. So, without any further adieu, here is my partner Jay Watts and Matt Grocoff.

Jay Watts: Hey everyone. Welcome back to Non Toxic Environments. Andy and I are here for the first interview of the year with Matt Grocoff. Matt and I have a little bit of a history. Matt and I met back when he was working on his home in Michigan. And by the way, let me interject by saying Matt built the first net zero home in the country back then. Matt came to our company because he wanted to build a healthy home as well as a net zero energy home and we were able to do some business with our AFM products in his home. And then, Matt has gone on a greater, greater and greater heights. And I'm gonna, I'm gonna let him talk about what he's

done with his home and what he did in between and what he's got on the on the horizon now in a really, really exciting project there in Michigan. Matt Grocoff.

Matt Grocoff: Yeah, thanks. Hey, thanks for having me on guys. And great to see you again. We do go way back that the house itself, it's actually not the person who had zero house, but it's the first, historic retrofit house. So it is still sadly, actually the oldest home in America to achieve net zero energy. So in 2014, we were certified through the International Living Future Institute, living, building challenge, net sort of energy. What I say that's extraordinary about our house is that it's totally ordinary. In 2006, my wife and I were running by this old house on the old West side, in Ann Arbor in this historic district. And we found this house that was up for sale. It had asbestos siding and had lead paint in every room. It had carpeting covering heart pine floors from trees that were growing at the time Columbus had sailed for America. It had a refrigerator in the kitchen from 1987 and you could hear the thing humming all over the house and it had a Mueller climate trawl furnace in the basement, which was this gas fed steel plated furnace, that costs us about \$350 a month to heat the house. And I use the term 'heat' very generously because at night we would have to stuff buckwheat pillows and put it in the microwave down in the bottom of our comforter and sleep with full sweat pants and socks on just to stay warm in the house. And then through a process, we retrofitted the house to historic preservation standards. We electrified it. So we had DT come in and remove all the gas lines from the property. We have an induction cooktop, heat pump, water heater, geothermal. So it really got actually very basic things. Just, electrify everything, unplug the gas and put up solar. And that was functionally what we did. Everything else was really just using healthy materials and things like that. For our own personal comfort. Shortly after we put up the solar panels, we were able to achieve net zero energy from that. So that's where we are.

Jay: I'm just wondering at that time as you were doing the project and going through it, by the way, how long did it take? What was the timeframe and all of that?

Matt: Well, we're still working on it. We bought the house in the fall, late fall, early winter 2006. And then we really started working on it 2007 and we did a lot of the work ourselves, a lot of sweat equity. We completed most of the renovation by 2010 and installed the solar panels at that time. We did not do the kitchen cause what we did was we invested in, instead of investing in the kitchen, we invested in the solar panels. By the time the solar panels were paid

off, our friends who had bought an SUV the same year that we put up the solar panels, had a five-year-old SUV and we had free energy for life. And then we took that money in the energy savings, and the renewable energy credits we were receiving we renovated the kitchen. So we've got free energy for life and a virtually free kitchen.

Jay: Wow.

Andy: You know, that's one of the things I was going to talk about, Matt, was the payback period for solar. That's one of the questions we get a lot of times from our clients is we'd like to do it, but you know, how long is it going to take to actually pay back the investments? And it sounds like it was just a few short years for you.

Matt: Oh, absolutely. Yeah. I think the average right now, nationwide, it's about seven years. So it's more or less in some communities. But if you look at other places around the world that really eliminated the soft costs, the payback is much quicker than that. And it's not about how much time it takes to pay back. If we're talking just purely economics here. It's really the cost per kilowatt hour and the cost per kilowatt hour over time over the life of this system is a you as well, under 6 cents a kilowatt hour in virtually every place or some places where it's under 3 cents a kilowatt hour. And you can compare that to what we're paying here in Southeast Michigan and about 15, 16 cents a kilowatt hour to the utility, 2 cents of that is just for billing alone.

Andy: Wow. Well, very impressive. Very impressive.

Jay: So after going through the process, you and your wife are doing all the hard stuff. This is a story I gotta tell, I want to tell, where did that light go off in your head? I mean, were you just thinking you were going to just do this and this is the way you were going to live in, it was just going to be your story. It wasn't the truth. I mean, you went on big, big time talking about this though as many people as you could. Did that come to you as you were doing it? Did you just figure, man, we need to tell this story? Or how did that go down?

Matt: We knew we were going to be telling a story and we knew we were one of the first. We really at the time didn't consider ourselves pioneers. I'm not, I'm not an architect and an

engineer. My background was in law, actually entertainment. I think I met you during my TV Greeninnovation days.

Jay: Yeah. We want to talk about that too a little bit. Go ahead.

Matt: Again, for us it was just a matter of renovating an old house and doing it. Like at the time Ray Anderson was in the middle of their mission zero for interface carpets. Right? And I figure if a global multinational corporation can achieve a mission zero, why couldn't a single family home? And because I didn't have the educational background to tell me that it wasn't possible, we just did it. We saw, hey look, there's a house with a South facing roof. Let's insulate it. Let's tighten up the windows as much as we can. Let's make it more efficient. Let's put up solar. Let's just do it. We did it. We violated every rule at the time of of the conventional green building thinking. We did not insulate our basement; we couldn't, there's all kinds of issues there. But, what we were able to do was just, again, like they're doing in Europe really reduced the energy consumption as much as you can, but it's not about efficiency. It's really about becoming all electric and then powering that with solar. And now at the time that the solar power was seven, \$7 per installed watt, now we're talking about under \$2 and installed what, here in Ann Arbor and most places nationwide. But you know, the economics is really part of the story here. We know about this 1.5 degree target. We know that we're at this catastrophic tipping point. All of the data right now shows pretty clearly, pretty compellingly, by 2030 we will likely blow past that 1.5 degree target, just by the existing infrastructure alone. And in the meantime, we keep building new buildings that are not all electric, that haven't met the fundamental precondition of de-carbonization.

Matt: If universally cities around the globe are committing and saying, we're in a climate crisis, we have a climate emergency and make these emergency declarations, we've got Paris, we've got all the science we need. And then we have this little girl from Sweden going around the world and saying, listen, we're not doing what we need to do. It's really that simple. I thought that, more than 10 years ago when we were doing this house, and I sat in a number of interviews at the time that if we're still the oldest home in America to achieve net zero, and you five years from now, and then we failed, well, it's more than 10 years now and we haven't achieved it. So we're way falling short on those goals. So if we're really looking at a scenario where we're blowing past that 1.5 degrees before 2030, we've got really dire circumstances.

Matt: The problem with that narrative is, is that we're hearing about the wildfires in Australia. We're, we're hearing about these dire consequences of what's going on. What is missing is this really inspirational narrative of what does de-carbonization look like? Is it this world of sacrifice where we're all living in a bunch of yurts and wearing Birkenstocks and bathing in a pasta water? It's not, nobody is presenting that vision. So, this goes to what we're doing now with a Veridian at County farm, which is a neighborhood that we're building here in Ann Arbor on 13 acres of land. We're partnering with a nonprofit, affordable housing provider. And, the on the nonprofit side, they're going to be developing 50 homes. A number of those homes where people who have formerly or recently experienced homelessness. And on our parcel of the Veridian County farm project, we'll be building market rate homes.

Matt: Our parcel is registered with the living community challenge, which is basically a neighborhood of living buildings. So our target is that the entire neighborhood will be zero energy. It will be 100% all electric, no combustion appliances of any kind. There'll be no gas lines connected to the property whatsoever. And while that sounds radical, again, it's a preconditioned to de-carbonization how could we possibly decarbonize if we're building a new building or a new neighborhood that has a gas line pipe to it? You're immediately creating another item that you're adding to the retrofit list. That's something else that we have to retrofit. Every time we build a new building that has a gas stove in it, simply just the gas stove is a requirement to continue those pipelines that are running through Michigan and everywhere else. You can't shut down those pipelines until we find a way to remove those gas stoves. So first thing we need to do is stop adding more new guests infrastructure.

Andy: You know, it, it makes me think of years ago when, when we first got into the business, I remember going to... my background is architecture and commercial construction and I started selling healthy building materials back in 1992 and I remember in 95, 96 I was president of the largest architectural association of Wisconsin. And so all my friends were architectural principal architects and business owners and so forth. People who are icons of the industry. And I remember presenting information to these folks about products like what Jay manufacturers and whatnot and their excuse of why they wouldn't use it was, well, you know, you just got to find that customer who's willing to accept that look, to accept that that direction, you gotta find those types of customers.

Andy: I hear that. And then I hear, why wouldn't anybody buy all electric automobiles, because well, it doesn't look like a regular vehicle. You know, it gets me thinking like, why are we such basic people in this world that if we would just make things, build things that look like everything else, they don't care how it's powered, they don't care what it's made from. All they care about is that it has the look. And it sounds to me like when you're building or you're looking at building a community of homes that people aren't gonna really necessarily know or even care how you got to that point as long as it looks like their friends' homes and whatnot. But at the end of the day, once they live in it, they'll go, wow, I can't believe I'm actually living in a home like this.

I mean, you're living in a home that that takes, that now costs you zero for energy. And if somebody buys the home from you down the road, the benefit to them is, I'm not paying for energy this is unbelievable. I don't care how you got to that point. So I just think that, you know, especially here in the U S it's all about perception. It's all about how things look and how things look to other people and whatnot. As long as everything starts to sort of mainstream in the appearance, I don't think we're getting much blowback from people on what it's gonna take to get to that.

Matt: Right, right. Yeah. And again, I think what's missing, like you said, it's just that, that inspiring vision of what the future looks like. Right? And so I gave a talk yesterday where I basically showed the Veridian logo up on the screen, said, we're just going to talk about a future that doesn't suck. It's beautiful and it's inspiring. We're marketing this project not so much as this an icon of sustainability, but just a place that is beautiful to live.

Jay: Andy touches on something. So in terms of this development in the architectural features, was there a committee, you guys sat together and say, how do we make these things look so people will want to buy them? I mean, how did that go down? Was that pretty easy?

Matt: Oh gosh. Design is never easy. Although it should be. We're actually still working on the building designs. It was interesting because a couple of nights ago when I was giving another lecture somewhere else, someone came up to me, a older guy, clearly from the old school of sustainability, Very challenging and critical in saying, "well, all the roofs aren't facing South.

What's wrong with this? How are you going to make a net zero neighborhood? None of the roof's facing South." I said, well, that's, that's a really good point. I said, everything South is a great way to maximize your solar gain, your solar efficiency. Our goal is not solely to absorb as much solar energy as we possibly can on this project. Our holistic goal is primarily that this is a beautiful and sustainable neighborhood and a function of that is that it will be harvesting all of its own energy as long as we can harvest all of our own energy maximization is not necessary.

Matt: What we're looking to do is optimize in the same way that nature does. So I pointed out to him that if you look around any tree around here in Ann Arbor, Michigan, or anywhere else on the planet, not all the leaves are facing South. In fact, about half of them are on the North side and on the underside of the trees are stuck inside the dense canopy of the tree. It's not there trying to create this perfect angle based on your latitude to maximize that sunlight. It's there to harvest all of the energy that it needs and it is adapted to that site and makes it work. Because we designed the neighborhood in a very holistic fashion starting from the bottom up. And what I mean from the bottom up is literally from the soil, we've done over 23 test pits around the project. We were crying, we were asked to do six for the storm water management that we were doing. We've done 23 and we'll probably be doing some more coming up. Cause what we want to have is a really granular, literally granular level analysis of what is underground here, what's going on, and then build everything above that. And then really from that determining where is water flowing, where does it want to go, um, how do we replenish the aquifers and keep that rainwater, borrow it in the project and put it back into the aquifers where it would've gone if the development had never existed, if no development had ever existed there. And restoring those ecological conditions. We also want to have plenty of trees throughout the project. We're going to have a 30% of the landscaping is going to be dedicated to food production.

Matt: So we'll have street trees lined with fruit. We'll have formed some formal gardens, we'll have native species that are food producing and then plants. We would harvest all of these things. So all of these things become integrated into the design. So our very first design charrette that we had three years ago, which was a very intense six hour design charrette, where we had all of our team members that are still on the team, most of them are still on the team, in one room, including the people from the affordable housing saying, let's talk with the, the biologists and the architects and the landscape architects and the engineers and civil

engineers, and the affordable housing folks and the finance people, all of them in one room together. And let's say, what do we, what are we trying to achieve? And then when you build it from the bottom up, you get this very organic like structure. And what you get is not a forest of rows of trees all with all their leaves on the South side. You get this really dynamic leaf like structure. And that's what you see at Veridian.

Andy: That's what you see in nature. And I think as architects and planners, we make the mistake of always striving for what we would call perfection nature itself is perfect because it's imperfect.

Matt: So yeah, you remind me of an old line. I used to always say in interviews and in lectures, I say it's not about perfection, it's about performance.

Andy: There you go.

Matt: And so people would come into my basement, I would love it. All these LEED reviewers. So they would come into base and say, Oh, well, you know, why didn't you insulate these walls down here in the basement? You put in foam in the sill plate, but you didn't insulate the walls at all. Right? And I said, yeah, I could have done that, but let me show you our energy bill. We are now at zero, we are achieving what we're trying to achieve. Their home, incidentally, that person who asked that, had an insulated basement, right? They were not, they were not a net user of energy.

I use the analogy which is a more effective method, to harvest and store water for an organism. Is it the is the saguaro cactus better? Is the Burr Oak tree better? Well, it depends. If I try to go and plant a Burr Oak tree from Ann Arbor in the Sonora desert, I'm not a very good mechanism for harvesting rain water and, and so you really can't compare the two, which is why I ended up never writing a book about our house because I didn't really feel like our house could inform others on what they should do. It would've been about two pages because it's really the principle of what we did that should be replicated, not the design itself. The design itself should be adapted to the place.

Andy: That is exactly how we look at, helping folks live in a healthy home. And the line I always use is it's not about perfection, it's about tolerance. It is about if somebody has severe chemical sensitivity, we're not ever going to be able to design and build the perfect home. We want to build a home or remodel a home that is tolerable to heal themselves and their other medical issues. Those in the past, we could probably talk about people we both know from the past who did write books and then got shunned by their own community of experts because they didn't do it right. You know, they didn't do it the way industry says is correct; they still did it. I know one John Bauer is a client of mine and he wrote the original book and how to build a healthy home. He's no longer in the business because, people tried his way and it didn't work for them and they thought it was his fault. And so every job is different. Every situation is different. What you did in your home is amazing for your home and you're exactly correct. What you are doing is encouraging people to create their own story.

Matt: Years ago I used to get a lecture called an Energy Ball modeled on Moneyball. Right? So if you ever read that book or saw the movie Moneyball... For a century baseball was, look, it's statistics rich, right? The green building industry has no shortage of statistics. We've got, the HERS rating was always one of my favorites. And by the way, my house, which achieved zero energy, had a HERS rating of 47, including the solar panels. And it's like, it's not measuring something right here. It's getting something wrong. Turns out years later when they finally did an analysis of the HERS rating, they found that it had about a 45% error rate. That's how accurate it was. It was accurate in the range of about 45%, almost a flip of a coin. So, nobody had ever gone back and taken a look. It's like, are these measures the correct measures? And like in Moneyball, if you really started looking at those things, let's look at the team holistically. Let's not try to get the home run hitter. And while insulating your basement might be a home run hitter, the goal is not to hit the most home runs. The goal is to get the most points on the board. Right. And that's what we're really trying to do.

Jay: You know, that story reminds me of the people come to us who have had an indoor air quality person come in and do an air analysis of their home, and it's a fairly kind of ambient air test where they're just testing what's going around in the air, and of course, that can give you some sense of what's going on. But then, you know, the question becomes, well, I've got a pollution problem. Where's it coming from? I don't know what surface is the offender here, Actually, there's a formaldehyde testing protocol that Andy's pioneering now that helps people

to figure out what service in their home is actually the polluter. And then, you know, taking steps to remediate that and then moving from that to whatever other polluters may be around. You reminded me of that when you're talking about the HERS measurement. The other question I was in my mind was, um, oh boy it went away. I got on that other tangent.

Andy: Matt, I wanted to ask you about, you briefly touched on it is what you did with Greenovation TV. And I want to bring this up and I realize that you're no longer doing it, but it's...

Matt: Well, you mentioned the green innovation TV as an old friend.

Andy: Right? And so what I love about it is, I love stories about things that I think we're way ahead of its time.

Matt: That's how Jay and I actually got to know each other. Actually we may have first connected when I was living in Santa Monica, and as soon as I moved to a small home in Santa Monica in 2001 I think it was, and tried to find healthy paint. I actually had to go... I don't remember where I drove to, but it was far out to Echo Park or something to pick it up.

Jay: Yeah, yeah. You went out to Par Paint I think in Los Angeles.

Matt: That's right. Yeah. So when they were the only ones that had it. When we moved to Ann Arbor, I tried to pitch a number of shows for a green renovation style shows in the early 2000s. And at the time it was really a lot focused on energy efficiency and health. Right. But what you were doing on a show like HDTV where you had this very narrow band of shows available to you, cause it was just cable at the time, there were no internet TV shows. You were basically going to be making the argument of- oh hey, all of your sponsors are poisoning your viewers and that didn't fly. We also try to put your home also called Celebrity Greenhouses, but then when we really went through the list of stuff after you got through those five celebrities that actually had greenhouses, this series was over.

So there wasn't much opportunity for that kind of stuff. Then when are the early days of streaming came around and I'm talking about 2000, 2005, 2006, there's really just the infancy

of YouTube. And there was really this vision that there was an opportunity to kind of start having these niche shows like this podcast. Right? This wouldn't have existed 15 years ago. A bit ahead of the curve and while it was popular at the time. That technology was just not there to be watching shows on your television set that were streamed through the internet.

Andy: Desires to go back to it?

Matt: No, no, no, no, no. Uh, yeah, no, I think there's other opportunities now. I think there's really good opportunities now. There's no shortage of good environmental programming. Now you have even, you know, if you look at Richard Attenborough's new stuff, David Attenborough, wait, which one is it? David Attenborough's new stuff. He's no longer just telling you about these majestic blue whales in the ocean. He's also telling you about the impacts about those blue whales. And that was a real change in his ability to impact the BBC frankly, and saying, I need to talk about these things. We've witnessed this for 40 years now in the programming we're doing. We need to start talking about it. There's plenty of good opportunities and ways for people to learn. And the other side of this is it's not just going to be about educating consumers. This is not the consumers fault that we're allowing the poisoning of their homes. We're making de-carbonization so damn difficult for consumers. It's not about personal choice and personal responsibility. And that's what a lot of industry wants people to be fighting about is that this is your fault. You're flying around the world. It's your fault. You've got a big air conditioner instead of a geothermal. It's your fault. And that's not gonna solve the problem. What's going to solve the problem is really these more inspiring visions. So when we came to terms with selling one off net zero energy homes, the first thing to go when every project is going to have a budget problem at some point is, well, let's take away the solar panels. Well, let's just do a regular heater instead of instead of a geothermal system.

Matt: So they start striking off the line items. Whereas if you create just a beautiful vision of a wonderful community and you tell them, here is a net zero energy home, we're not going to ask you permission to not put cancer causing paint in your house. We're just gonna do it and say, this is what it comes with. We're not using red list materials. And what we find is those are actually beneficial from a marketing perspective. We're selling you a healthy home that has no energy bill and by God it's fricking beautiful and it's in your price range. So buy it. That's it. This becomes a much harder challenge when we start talking about affordable housing, because

there's disincentives actually in affordable housing to spend to shift costs. It's really what it is, right? Let's shift the cost material to get healthier materials or more efficient materials.

Matt: We'll put solar panels up, which from your shifting costs, from an operational perspective and the affordable housing from, I'm paying the energy bills for this tenant for the rest of their lives to I'm going to install solar panels now and make the building more expensive. There's no mechanism for them to do that. And in many States like Michigan, you also have issues with master metering laws, which basically say that you can't give away energy through a meter that the utility company owns. So you can't have multiple multifamily housing with solar panels. You can have solar and all the common areas, but not on the tenant areas, which is a real problem. So these are the kinds of things that need to change. And things like, renewable energy micro grids that we're really pushing hard for and we've got a good chance of achieving at Veridian because we're already deploying all of the technology necessary for a virtual power plant or a micro grid or whatever you want to call it, how I restructure it.

There's going to be solar panels with storage. The difference now becomes with how that energy interfaces with the macro grid. And that's done simply through basic hard infrastructure and software controlling those electrons. So now you can imagine a scenario where we have this entire net zero energy neighborhood that is producing solar electrons from solar and the ability to store those electrons from solar. And now we can give the utility company the control of that software. Where are the electrons going? So they can say, this is how much energy the grid needs right now. It's more than you're producing. So we're going to push all of this energy that you're producing into the batteries. Now it's still too much. So what we're going to do is we're going to shift on some of your appliances that you need to use later, and we're going to use your solar power or the energy that we're producing from the grid right now and put that and use that energy.

Matt: And then we're going to shut off the usage. We're going to control the use patterns. We're going to have a demand response. So we're going to reduce the demand of this neighborhood at 5:00 PM when the demand and all the surrounding neighborhoods that are not micro grids are going to be rising. So now all of a sudden you have this highly beneficial solar that hasn't had an extraordinary impact on the grid, reducing the amount that they have to upgrade that grid because the electrons are flowing in a more gentle fashion rather than a

forced fashion. What happens now, and what a lot of people were pro proponents of renewable energy are saying, it's like, let's flood the grid with renewable energy. And that's not actually a good solution. There's the grids as they're designed cannot take that power often. So if you drive through Ontario, just on the other side of the border here in Michigan, you'll drive for miles and miles and miles through fields of wind turbines on a windy day.

Matt: And oftentimes half of them will not be spinning. That's called curtailment because it is easier to shut off the electrons that are coming from that renewable energy farm than it is to shut off the electrons that are coming from a coal burning power plant. So if we can shift that dynamic and create networks of micro grids, thousands them all over the state, and then have an interconnected through the macro grid and through local micro grids, and then in each individual house can also be isolated. So you've got your little nano grid, so now you're starting to scale up like nature, where you've got this nano grid, this micro grid, this, the bigger community level grid, and then the macro grid that can be regional. Now you can imagine where you have all these things in this dynamic control where you've got demand response, so you're shifting the time of day, the energy is being used. You've got an energy storage and you've got the ability to pull those electrons out or push them back in, in a millisecond rather than this long length of time that it takes to ramp up or ramp down nuclear coal or gas plants. So it's much, much more dynamic, much cleaner and then you can actually be curtailing the fossil fuel portion of that grid rather than the renewable energy portion of that grid. So you're getting what I call, you know, beneficial electricity at that point. So it sounds pretty damn exciting.

Andy: It is very exciting and you are a wealth of information and I can, I'll speak for our entire audience, especially as well Jay, I'm sure, I'm sure I'm speaking for you and I say, I think the world is a better place that you're no longer doing Greeninnovation TV and you're actually focusing on this.

Matt: No, honestly, it's interesting you say that because there that was a frustration in this. It's like, so during green innovation TV, I was out there consulting and I was partnering with my good friend Dave. People could take it or leave it when you're consulting, right? And when you're doing these one-off buildings. So after a decade of that, there was very little progress. It's like I can't convince people that an induction cooktop is better, much less looking at

something from a holistic fashion. So the people who are achieving net zero energy, even if they achieved it, what would the model have been? It would have been, you know, frankly it would have been younger baby boomers who are retiring and want to do it out of the goodness of their heart. Well, that, that's not how we're going to change the world. It needs to be changed on a bigger scale. So that's why we propose for radiant, let's just develop a neighborhood that is done right. So we were able to get the county to sell us this land at a reduced price. So where other bidders had been three and a half million dollars for this property, we were able to get the land for our purchase price is \$1 million. A third of the property is going to be used for affordable housing. Two thirds of it will be for these market rate homes, but we're able to thread that needle between the conventional building process and then still do this in a living community challenge and living building challenge framework. The next shift you're going to see in green building, in green business of any kind really of, you're starting to see it now, even this week is, is the financing field.

Matt: So, last week the CEO of BlackRock financial, very conservative financial company, they invest money for people in dozens and dozens of country around the world. They have trillions of dollars in assets. A conservative CEO and a conservative company said, climate crisis is a very serious issue for investors. Those who are not paying attention to it are going to get burned in a very big way. It is incredibly volatile. It will shift faster than people will be able to react to it. And so they are, they announced it, they are transitioning, through a letter to CEOs of all the companies that they invest in. They said we're going to be removing our assets from any of your companies that are not on a path to de-carbonization. So it's pretty extraordinary. So you're starting to see this in the real estate field as well. There's just frankly very little product on the market for people to invest in. So what we've done is we've actually opened up breeding at county farm, just a small portion, just half a million dollars of our total equity raise, a on a crowdfunding platform called Local Stake. And we opened it up for as little as \$500, so that people who live in the neighborhood can actually become equity investors in the development phase of the project, where typically you would have had to have \$3 million or so to be able to invest in a project like this, and then still be able to get the same kind of return that you would get if you were one of these wealthier accredited investors. It's a way and like everything else we're doing in this project. It's not just about this one project.

Matt: We have very big plans to expand this, to do this multiple times, and then educate other developers. Because frankly, if KB and Pulte and Toll Brothers aren't doing this in the next decade, then my home and Veridian are meaningless. You cannot have a sustainable house on a dead planet. There is no such thing. There's no such thing as a sustainable thing and has to all be part of networks. So what we're trying to make a statement with Local Stakes crowd funding mechanism is that people are interested in investing in decarbonizing neighborhoods. We want to show that those investments can be very lucrative. Ann Arbor where we're doing the projects is actually kind of a perfect storm to do this. Probably not the best metaphor. But I'll think of a positive metaphor that's the equivalent of a perfect storm. All the stars are aligning. A plot of land is actually at the corner of 130 acre park. So it's inside of this park, it's adjacent to neighborhoods where homes are selling for \$2 million, right near neighborhoods that are selling for \$300,000 houses. So you've got this balance of kind of income levels in the community. It's right near the university of Michigan and research hospitals. It's right by a Whole Foods market, walking distance to Whole Foods. So we're able to just build a neighborhood with these beautiful homes in it, try to target different levels of price points where we could have these micro units. We're calling the nest homes, which we can target for under \$200,000, which are inside of a larger articulates on the street. And it's a large home with a big wraparound front porch, a 10 to 14 micro units on the inside, each independent of each other.

Matt: They all have their own kitchens and bedrooms and bathrooms, but then they also share a common space that have the same kind of luxury amenities that the \$750,000 house, right next door has. So you get the chef's kitchen and flat screen TV in this living room, and you can share with other tenants in the building and still have your Thanksgiving dinner down there if you'd like even though you've got this one unit, this micro unit. And we're targeting these different price points, and then exploring deeper things like mobility through car share programs. So we'll have Evie car share. We'll have bike share, cargo bike share, all through a little app that exclusively people in the neighborhood will be able to have access to the cars. So really encouraging either I, you know, less car ownership or no car ownership. Even that you will be able to get around when you need to on demand to anywhere you need to go in Ann Arbor. And if you need to go a further distance to Detroit, you can just pick up your app, you can take one of the electric vehicles and you can drive yourself to Detroit.

Jay: Well I've got two quick, I got two questions for you. First question is what's the move in horizon? And then the second question is where can I send my a down payment check?

Matt: Oh yeah. So one of the criticisms we've gotten, it's interesting you mentioned that, it's really funny what people get angry at you about. On one side they're like, well, you know, this is real estate. What's the risk of you guys not selling the homes? So there's always that risk, right? It's real estate. But then two minutes later, other people are yelling at us, we really want to buy a home there, but we have all these people living in Ann Arbor from California! There's not enough homes for sale! I don't want to get into a bidding war. How are we ensured that this house isn't going to sell for above market price? Someone's going to want to put 50% cash down. And so they, the, the audience members came up with this idea. They said, what if you were to open up presales at your market rate price without any bidding war to people who invest at a certain level?

And so we actually broke that down even further and we're giving this perk that if you invest \$5,000, opportunity to, for presales for any of the units. And if you do \$2,000 you get the opportunity to get into a presale for any of the other lower cost units. And the reason we did that was we realized that, through crowd funding, you're only allowed to do 5% of your annual income maximum is what they encourage you to do. They didn't want an unsophisticated investors investing half their income in a crowd fund that somebody might be trying to scam them on. This way, somebody of a lower income level could still invest in the project and get in on an early pre-sale of a unit that's in their price range.

Jay: So when in the moving van it's going to be able to move in. What's the timeframe?

Matt: We're in planning right now with city Ann Arbor. We've gotten very good, very positive feedback from the city of Ann Arbor. We've been in close communication with staff for over two years now. We hope to have approval from city council sometime in early spring of this year. Once all of our financing is in place, we'll break ground. So hopefully this summer we'll be breaking ground for the horizontal infrastructure. And that's the part of the investment. Then once presales are complete, then money from that goes back to pay off the investors. And the banks and the construction, the vertical construction begins, and that is financed through everybody's mortgages. We're looking at a pathway for us to bypass the conventional bank

structure. Through some really higher end, very sophisticated investment firms that are looking to accelerate these kinds of neighborhoods. They would basically be our bank. For us, the money is more expensive for us, but it gives us more flexibility. We're not dealing with banks who are saying, we'll give you this much money for your storm drains. And then we'll give you the second half and you can build a second half of the pipe later. That's the typical way of bank would work. The conventional finance system works. It's like we'll phase the money as you need to add a pipe. We're not doing conventional pipes for our storm water. We're not even calling it storm water. We're calling it rainwater cause that's what it is. So it's rainwater management. And so our design is very upfront and very holistic. So again, it's designed with the food production. It is designed with the narrative of beauty for the neighborhood. So all the food and the native plantings and the sidewalks are all a part of our water infrastructure need to be built all at once. So again, by opening this up, crowdfunding, this gives the opportunity to do other developers later to say, hey, what if we looked at it like other conventional developers have done and done do the entire thing through crowd funding and bypassing the conventional bank infrastructure? So if we can get to our goal of the half million dollar raise pretty quickly, we'll be able to say that in our next project we might ask for more through crowd funding that way. Once we get through that process and vertical construction begins, we're looking at 2021, 2022 for moving dates. And then that's when the living community challenge would begin and occupancy. We'll be doing indoor air quality testing. So if we're using AFM paints, we can be assured that if there is something going on, we were going to know where it's coming from, which we don't expect.

Jay: All I can say is that as you just mentioned at the beginning of the podcast, there hasn't been a vision and I think you've really created an incredible vision for our future exists. And I know Andy would agree. I'm seeing him shaking his head. Yes, exactly right. Andy, any other questions for Matt before we before we end this podcast, which has been an incredible, incredible podcast. I'm really inspired. I was serious when I was asking those questions about moving and money.

Matt: No, we get that quite a bit. A larger investor came to us and said, you know, I'd like to invest in the project and, by the way, we really want to live there. Can we get in? We had to put into his memorandum of understanding when he was investing that he gets first dibs.

Andy: Unfortunately, we have come to the conclusion we have, we are run out of time. However, it's clear Matt we need to have you back on the show to, to hear how the object is going.

Matt: It'd be nice. I actually going to be doing the environment report on public radio. I'm gonna be doing a series for them using different elements of the living community challenge. And I'm happy to come back and talk about each one of those things. What are we doing for energy? What are you doing for equity, for water, for native landscaping, habitat exchange, all these really exciting dynamic stuff. And then talk about financing and things like that too. And I do want to give a shout out and if we can that, veridian@countyfarm.com it's a Veridian with E, veridian@countyfarm.com or you can find me on, on LinkedIn, Matt Grocoff. Get in touch. You have any questions about investing or anything like that. It's pretty straight forward. It's all done through the Local Stake platform. We don't see any of the financial information or we don't even see your email. If you do it through the Local Stake platform. So they're a third party broker. They do, they handle all of the investment process for us. It's a great way to be able to use your investments to accelerate this transformation to a truly sustainable world.

Andy: So that was our interview with Matt Grocoff, excellent interview. Like I said, a lot of information and we will be posting links to the information that he's providing to his website, how to get in touch with them, a link to the video he was mentioning throughout the interview and we will definitely have him back on the show. And as always, folks, we really look forward to getting some feedback from you about the episode and any questions that you have, anything you want clarified, please feel free to send along to us. I'm andy@degreeofgreen.com, and as always, we ask you to please go to iTunes and leave us a rating and a review. Those both help new listeners find the show. And we are still the most popular green and healthy home program on the entire iTunes podcast platforms, so we could not be more honored. So thank you very much. We will talk to you again next week with Jay Watts. This is Andy pace, Non Toxic Environments.