

# Nilesh Jadhav on Smart Technologies Revolutionizing Building Decarbonization 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 Matters.

**00:33**

Charlie

Hey everybody. Welcome to the next episode of the Green Building Matters podcast. Once a week I get to interview a green building professional somewhere in the world. And you're probably noticing that a lot of the interviews in the last six months have trended towards technology. I'm a big fan of technology. I think it is helping us solve our climate crisis and help with the green building movement. And today I've got a guest that's an expert on that subject. We've known each other for a while, but we actually got to meet in person. Nilesh is based in Singapore. Can't wait to talk about my new role. Nilesh, how are you doing today?

**01:05**

Nilesh

I'm good, Charlie, pleasure to be talking to you again.

**01:08**

Charlie

It's great to see you. For our listeners, why don't you take us back? Where did you grow up and go to university?

**01:16**

Nilesh

I grew up in India. That's where I did most of my education. I'm a chemical engineer by training and after my basic graduation I went to the Netherlands to do my masters at Delft University and after graduating from Delft with my masters, I joined a petrochemical major in Amsterdam and I work with them in different functions, research to start with, research and technology, then moved on to operations. And that's how when I came to Singapore with an operations role in a chemical factory, petrochemical factory in what's called Jurong Island, a big large petrochemical complex in Singapore 4C assignment and started my work there and eventually I decided to stick back or stay back in Singapore. That's where my family grew and my kids and now I'm actually pretty much settled here in Singapore. Changed a few jobs in the meanwhile moved from the petrochemical industry on purpose to focus a bit more on renewables and energy efficiency and sustainability topics. I joined a university for a while and then two years ago I moved to Siemens and Siemens which is in the Siemens Smart Infrastructure or Smart Buildings team. And currently I help customers to decarbonize using smart technologies and digitalization yes, and that's.

**02:38**

Charlie

I've known you through that transition too. So how long have you been in Singapore now?

**02:42**

Nilesh

In total, about 21 years in Singapore.

**02:45**

Charlie

Amazing. I really enjoyed my visit there last fall. Obviously a very high tech

city and a lot of great buildings. How about sustainability though, Nilesh, when did it first come up either in your life or in your career?

**03:01**

Nilesh

When I was working for the petrochemical major, I was quite fascinated by solar technology. So this is a time we talk about like the mid 2000s and I've seen this company, Sun Edison, which actually grew quite rapidly. That kind of fascinated me that there is a different way to produce energy which can be much cleaner, which can be quieter, doesn't need much maintenance, et cetera and so on. And basically that kind of drew me towards sustainability and renewable energy quite a fair bit. Working for petrochemicals. I also then started looking at energy efficiency projects in the industry side and seeing how I could tie them to the overall sustainability objectives.

**03:42**

Charlie

That's very helpful to know that background and then obviously your chemical background there on the chemistry side and okay, so you're in Singapore you want to focus a little bit more on this kind of, this part of the industry, but then there's technology too. Can you connect the dots a little bit on the career there while you've been in Singapore? I know you're an entrepreneur, you've worked at a tech startup, now you're taking that experience to Siemens on this special team you're on. But tell us a little bit about your career while you've been in Singapore.

**04:14**

Nilesh

I mean you can always connect the dots looking backwards and it's been quite interesting. I decided to kind of make a purposeful career move out of the petrochemical industry, looking at different options and I did my first, let's say entrepreneur venture at that time. This is back in 2010, I started a solar energy company in Singapore. These were quite early days when Solar was probably 10 times the price it is now. And I saw that immediately. Singapore is not the market at that time for solar. It is a small country, all

the buildings are high rise buildings and it was too expensive and there were no subsidies here. I kind of decided to stick onto my venture but move it to India. That's where I met a partner, a good friend of mine who decided to take a plunge.

**05:01**

Nilesh

He moved to India. I stayed back in Singapore, supported him on doing good designs and he carried out installations in India where there was a bigger market. That's how I actually ventured into the renewable energy business. And while I was in Singapore and the Indian operations were going on quite steadily, I decided to kind of then do a bit more research. And I joined a university here, an institute called the Energy Research Institute at ntu, which is a Nanyang Technological University in Singapore. It's one of the premier institutions here. And I was quite fortunate to be really sitting with some excellent scientists and great minds who are looking at energy from the Asian perspective.

**05:46**

Nilesh

Charlie, in Asia we talk more about cooling than heating and we need to make sure that it's done in the most effective way and we can channel all our energy towards creating the best atmosphere indoors for people. When you talk about commercial buildings. I spent a lot of my life during university researching green buildings technologies, primarily looking at various aspects of green buildings which you are very familiar with. I also got to kind of get a taste of that again looking at a bit more on the smart building side. And at the end of my career at the university, I published a book which the Springer, which is a publisher, published in 2017, which is called Green and Smart Buildings Advanced Technology Options.

**06:31**

Nilesh

So quite interestingly, I was also involved in a campus sustainability initiative. We had about 200 buildings on the campus and it was a great

playground to try out the latest technologies that were available. That's how actually I met a number of corporations who are in this domain, including Siemens where I work now. Just before joining Siemens, I came out of the university with a startup company which is a tech that I worked on during my time at the university. It was all about modeling and simulation using a concept called virtual audits or doing audits primarily or only based on data and applying that to energy conservation measures at having a quick run at what impactful measures could be on buildings, one specific building.

**07:15**

Nilesh

So that was the venture that I ran for a few years and after that I joined Siemens where I found an opportunity to on a larger scale and make a bigger impact.

**07:27**

Charlie

That's where we had first met there. And I love the work you were doing with this virtual energy audit. Let's keep going. We're learning more about sustainability impacts your interest there in technology. I do like to ask about mentors. Sometimes a mentor is someone that you look up to. Maybe they're on stage, you read their material. Sometimes it's someone that meets with you and challenges you or opens the door. Have you had any mentors along the way?

**07:54**

Nilesh

I met a number of very interesting people. No personal mentor that's taken for a long time comes to my mind but I really was fortunate to meet very good people who I mean for example the first boss that I had at petrochemicals was a person who believed in me before I believed in myself. I think that's what I see is a good ability of a leader to identify the best of the best in people and maybe just to name a person that I kind of remotely got influenced with. Is this person from Sun Edison, the founder Jigga Shah. Jigga actually is a well known personality in the energy

domain. Later on he took roles at the Department of Energy, he was managing the DOE loans program and I think he's still quite active in that domain. He has been kind of an influencer to me and I followed his work and got quite excited by that.

**08:48**

Charlie

Thank you. I think it's important to look back and sometimes we're self taught, sometimes we also have someone that we would call a mentor. One more look back, what are some of your proudest accomplishments?

**08:59**

Nilesh

I talked about my book. Probably that was a good height in my career to be able to publish a book, become a published author and I think like you I then must have the courage to take upon finishing it. I think that's also on its own a significant achievement or a life stage that I had, I went through and during my time at the university I had a chance to kind of open up a bit more to let's say to the outside world. I did a lot of media interviews, I was a speaker of CNBC and at the same time I was quite honored to be representing let's say the Green Building Councils and also the association for Sustainable Energy in Singapore as well as the International Sustainable Campus Network. This actually kind of made me quite a proud achiever in this domain. I got that quick out of the petrochemicals into the green building domain and currently I'm also holding a position as an adjunct professor where I do executive courses at the NTU Business School. I am also quite proud of being able to then once in a while take a step back from the work that I do at Siemens and talk to industry experts who are willing to learn about new things and also share with them and learn from them about their experiences in this field. I mean energy efficiency, energy is an evolving domain and it is always good to see what challenges they face in the real life and how we can actually convert them to solutions and.

**10:30**

Charlie

Make it better 100%. Thank you for looking back now, let's talk about the present day. If you could tell us more about your role there at Siemens, the team you work on, and maybe some exciting decarbonization projects too.

**10:44**

Nilesh

I said earlier, I mean, one of the things I kind of like about working at a company like Siemens is really I'm able to create an impact at scale, really decarbonize companies, large corporates that scale and apply those skills that I have learned earlier or you know, that I came across earlier. One of the key projects that we're doing in Siemens is with the brewery company Henneken. I'm allowed to say that because it's also a published case study. With Henneken, we actually were involved in that entire decarbonization journey, right from the development of the roadmaps to implementing those roadmaps on 15 sites across the world.

**11:22**

Nilesh

And we take obviously a very systematic approach in looking at the initial stage of assessments and audits, then going on to make solutions available with the different performance guarantees or performance assurance mechanisms. And then eventually, and this is very important to make sure that we track the implementation, performance or the success of the implementation and make sure that we can have continuous improvement. So this is a large program that Siemens had worked on a few years ago with Hurricane and I was involved in the project in Singapore and that's a fantastic project. And apart from that learning to benefit more people in different domains, such as commercial buildings, higher education, pharmaceuticals, data centers, I think those are the things that we are doing now, different projects in different vertical markets.

**12:13**

Charlie

Thank you for that snapshot. Now in your region, which sustainability items

may be a little easier, which ones may be a little harder to do? We have different clients, excuse me, we have different climates, we have different programs, sometimes leads, sometimes green marks where you are. I don't know what comes a little easier. Maybe your region, but still kind of tough with sustainability.

**12:37**

Nilesh

The topic that comes up quite often when you talk about green buildings and sustainability in Singapore and the tropics is cooling. How would you deliver the most efficient cooling at the right cost, right energy, at the same time, make sure that it does not really take a toll on the environment. And it has to do. In cooling, we have several topics to discuss, including thermal envelope, then looking at the ambient cooling. Looking at how we could deliver cooling in different ways, for example, using hybrid ventilation as well as cooling, using thermodynamic cycle and these sorts. So essentially it's, this tends to be a bigger topic that is discussed in this region, air conditioning and cooling. And that's where most people are focused.

**13:28**

Nilesh

And at the same time it's been a topic that is of interest and quite well developed in Singapore. Singapore has been quite early in developing standards for cooling, of course, following in the footsteps of Ash Day and coming up with their own standards. You mentioned, Greenmark, which is a green certification scheme similar to LEED applied in Singapore, which basically takes it to the next level and looks at how we could have the energy efficiency for building, mainly cooling systems being more efficient, but also other things like the building envelope, the passive design features and then also looking at, beyond those energy topics, looking at carbon, looking at resilience, looking at maintainability of buildings. These are some of the topics which are typically discussed in our part of the world.

**14:14**

Charlie



Thank you for sharing. I'm used to programs like LEED and well and Fit well again, there's green mark there. Can you talk a little bit about certifications? Do you have some customers that are still doing that or do you see a trend towards some customers maybe saying, hey, I don't need the plaque, but I want to do all the best practices? I don't know, how do those conversations go?

**14:36**

Nilesh

Interestingly here a lot of customers are driven by regulations, meaning that they would rely on good governance and regulation to take the next steps. Of course, large corporations would do it on their own, but it always helps to have a green building certificate. So Greenmark is quite popular and the Singapore government has pledged to make 80% of the buildings to be green certified by 2030. And there are further ambitious goals to have 80% of new buildings to be super low energy. And it's a cool term, super low energy. And what it means is that buildings would need to be achieving 60% energy savings compared to the 2005 baseline goal. And then there's another even more ambitious goal to have an 80% reduction in energy in the best in class buildings that you would build today.

**15:28**

Nilesh

So this is what we call the 80, 80, let's say targets in Singapore. And we would see a lot of building owners, corporations are quite driven by that and they would definitely want to achieve Greenmark certification because that gives the value, that gives them ability to Showcase what they're doing, how good the building is, and the plaque becomes an important showcase for them. We do see customers who say, I don't really care about the plaque, I just want to save energy and save cost and be more sustainable. But you know, at the same time they also see that it's important to get that certification under the belt so that they can display it out and attract the right tenants.

**16:05**

Nilesh

Real estate, business, buildings, business is all about making sure that you are able to attract the right tenants, make it more profitable. You're building and delivering value in the long sense. So people are now looking at appreciating more and more of those benefits that come with sustainability, energy savings, cost savings, but also resilience and getting free shipping through shipping.

**16:27**

Charlie

It's already. Well, that's a good segue to my next question. I love to ask my podcast guests eyelashes, what's next? What are you reading up on? What are you excited about? You're working at a very innovative company as I understand it, so you may even already be seeing some unique technology or other green building trends. So what are you kind of excited about, what's coming next?

**16:49**

Nilesh

I think one of the things that I'm quite excited about personally is buildings being more autonomous in the way they are managed, highly digitally enabled, more smarter, and with the advent of AI being able to completely be autonomous in terms of their performance management, in terms of their sustainability goals, and able to deliver on the goals like Net zero, for example. I mean, we are seeing more and more proliferation of the Net Zero standards and Net Zero buildings here in Singapore. We already have a number of low rise, Net Zero buildings. We are moving towards medium rise and the most difficult ones are the high rise buildings to be going towards net zero. So that's one key element, I would say, making buildings more smarter, autonomous. It's quite interesting.

**17:31**

Nilesh

It has been done for quite some time, but more often than not, we see customers struggling with data management, struggling with which is the

best system to enable. Sometimes they get too many vendors coming to them to talk about digitalization, talks about creating dashboards and platforms, and they always struggle with finding the best fit, which also then includes the check on the cybersecurity and the data management aspects. So that's one key area. The other thing I see also quite exciting is that buildings are becoming more grid interactive, interacting with the grid much more. So buildings are not on their own. They consume a lot of electricity, a significant proportion, about 20% of the electricity in Singapore is used by buildings and then the global level, about 30% of energy is used by buildings.

**18:17**

Nilesh

So buildings becoming grid means that buildings are able to participate in the grid in the new renewable energy ecosystem. Being able to do bi directional flow of electricity, being able to charge electric vehicles, and then maybe use the vehicles as batteries for the future. And really think about how you could embed energy storage, renewable energy, in a format that includes the building. And that's what I mean by grid interactive buildings.

**18:40**

Charlie

Thank you for defining that. You hear a lot about smart grids and micro grids and then resiliency and we're seeing that literally around the world. Now with your team, do you work on both some new construction and some existing building retrofits? How does that work?

**18:58**

Nilesh

It's quite a mix. As you would agree, the best time to influence or make a building that's enabled is during the design stage. And the greenfield projects are the best projects to kind of go in and put the best systems, make sure that they're able to track the performance over time. But we also see a number of retrofit projects. There are projects coming up a lot when

the regulation becomes stricter on how we could retrofit existing buildings, make them smarter, but at the same time retrofit the air conditioning units in there for better performance. We see really a mix of greenfield and Broadway projects.

**19:32**

Charlie

Understood. That's what's ahead. Now. Let's get to know you more here in our interview. What would you say is your specialty or gift?

**19:42**

Nilesh

I think I have a varied experience, like I said, connecting the dot back. Looking back, I can see that I had experience of different aspects and different parts of the technology. Starting as a chemical engineer, moving to the building physics side, moving to modeling, stimulation and digital. I think I bring in some practicality on projects and the ability to connect to wide stakeholders. I think that's quite interesting and important for buildings to be and professionals to be able to connect widely, to be able to speak the language of engineer at one time and go and sell the project to the investment committee and then bring it back to the technicians and say, how would you execute it in real life in the most critical way.

**20:27**

Nilesh

I think that connection and ability to understand a wider sense has been my gift, I would say, thankfully. And I really cherish that because that works in a way that creates the most impact for our customers and people that I talk to and network with see that as something which they can learn from and also island from them. Mostly understood.

**20:47**

Charlie

Understood. I would say that is a specialty or gift and we'll look back on the career here in just a minute. But I like to kind of also ask about habits or

routines. Do you have anything you could share that helps keep you on point?

**21:01**

Nilesh

Absolutely. One of the key habits that I would kind of point out that has helped me a lot is to really keep learning. Taking up a lot of educational content on social media these days. I look at a lot of YouTube videos in books, let's say summaries or motivational content sometimes or sometimes educational content. Looking at evolving domains like sustainability reporting. So really keeping myself up to speed has been the mantra for me. Continuous learning. I always look at opportunities to learn from. From people, but also formally from my going to courses, sitting down with people, understanding a bit more, taking certification courses wherever required. That's really my mantra for progress.

**21:47**

Charlie

That's fantastic. Well, I'm a fan of the bucket list, but not everybody has a bucket list. Is there anything, though, you could share? Maybe? Is it certain? Trav? Adventure. Do you want to write a second book? What else is on the bucket list?

**22:01**

Nilesh

Actually, honestly, I am not a fan of bucket lists or I do not have a bucket list, which is elaborate. And I think that's a personal way. Obviously there are some wishes. I definitely want to progress more in terms of imparting knowledge, creating more impact widely on the security field. I would love to write a second book since you talked about it now. But one of the interesting things, maybe just to share on a personal basis is I never thought and I never had it on my bucket list, but I did skydiving 10,000ft. And that was super exciting. And something which I really look back at and smile that I signed up for and went for it. Skydiving is fun and it's an adventure. It's a great adventure at the same time.

**22:50**

Charlie

Oh, I admire you for that. I've not done it. I'm sure it's scary, then. Thrilling, huh? Could you do it again?

**22:58**

Nilesh

I would love to do it again, actually. Just carry for a few seconds and then after that you really have fun.

**23:04**

Charlie

Thank you for sharing that. That's fantastic. I like to ask my guests, Nilesh, is there a book you'd recommend? It doesn't have to be about buildings or if not a Book, a podcast or a documentary or a TED Talk. Just something that you might want to share.

**23:19**

Nilesh

I listen to a lot of podcasts, including yours, and also read a lot of books. The recent one I'm reading, maybe I can. I can express my memory in the book called Power of Moments. Power of Moments. And moments are basically something that you would want to create for your customers, for your kids, and really making sure that you create moments which add value. For example, if you complete a project, you throw up a party. This is a simple example of creating a moment. It could also be about having a special way of treating new joiners in a company. It could also be about making sure that your course participants get a fantastic, let's say, gift or a momentum at the end of the course. So those are the things which I. Which I saw quite interestingly observe in their books of the power of creating those moments. It's a book by Chip Heath and Dan Heath.

**24:13**

Charlie

Yes. No, they're great authors. They have a couple really good ones in there. So we'll put a link to that book and a link to your book in the podcast. Show Notes. Thanks for those recommendations. Well, just a couple more things as we start to wind down. I'm getting to know you even more than I already did, and I'm sure our listeners are loving this. So thanks for sharing your story. As you look back on your career, is there anything you wish you'd have known earlier?

**24:38**

Nilesh

I would probably have benefited from knowing how to create your niche and really honing in on it and becoming the best at that or becoming the top person in that. In that niche. I think it's really useful to do that. And the earlier you could understand and appreciate your niche and discover it. It's good for you. And I feel I look up to you, Charlie, sometimes in being able to do that in the domain that you're in. I would have also kind of known that earlier. Focusing on too many things at the same time, learning about management, learning about accounting, going a bit wider, and that's also another way to progress and grow. But then I personally really feel that having a good hold on a niche, be it sustainability, be it green buildings and creating buildings itself, is a vast topic. Kind of finding the niche within that and then becoming the best at that, meeting the top person in that, I think that's something that I would wish I would have done much earlier.

**25:40**

Charlie

There you go. Final question. Say someone's listening to the podcast. They're getting really excited about your story about the green building movement, about technology, how it's helping with decarbonization, and they're jumping into this industry. It's been good to you, it's been good to me. Any words of encouragement for someone that's just now starting in our industry?

**26:04**

Nilesh

I would say sustainability. Green buildings. These are vast topics. As you start learning about them, you'll see so many things in them. You and I know that we can probably spend a year just learning about each of them, but then my advice would be to really have a quick run, maybe read a few books. You can also read Bibles, which gives an overview of different technologies between buildings. And there are a number of other excellent resources. Pick up something that you like or you feel passionate about. It could be recycling, it could be smart buildings, it could be passive technologies, it could be air conditioning. Anything that you think you can connect to and like, create a niche in that. Really go deeper, try to become an expert if possible. And it could not necessarily be an expert technically.

**26:49**

Nilesh

It could also be an expert in, let's say, generating funds and developing a network around it and creating value in different ways. Any background, including finance backgrounds, accounting background, it could still be a possibility to venture into sustainability, but by finding out what exactly is your niche, basically marrying your skills, all your likings to an area that can appeal to you and that you think can create an impact and then go ahead and make that impact.

**27:18**

Charlie

Go make that impact. You heard it here. Hey, to our listeners, please connect with Nilesh on LinkedIn. Let them know what you thought of his story. And if you're ever in Singapore, please look him up. Alex, thanks for sharing your story on the Green Building Matters podcast. This was fantastic. Thank you.

**27:35**

Nilesh

Thanks for having me.

**27:37**



Speaker 4

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