Season 2 | Episode 49

The Importance of Creating a COVID-Safe, Energy Efficient Workspace

PAYCHEX Business Series

Coronavirus

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Full transcript

Gene Marks:
Hey, everybody, and welcome back to the Paychex Business Series podcast. I'm Gene Marks. And today, I spoke to Wade Conlan. Wade works for Hanson Professional Services Inc. He is the Commissioning and Energy Discipline Manager at that company. You don't know what that means, neither did I, until I spoke with Wade and he explains it all, don't worry. But what's important about our conversation is he talks about buildings and energy efficiency. What's going to happen, potentially, with President Biden's infrastructure plan? But more importantly, what you can expect and what you need to know about your office to make it a safe and energy efficient place, post-COVID as your employees are coming back to it.

Gene Marks:
Wade's got some advice for us and some stories to share. All right, everybody, so I'm here with Wade Conlan, now, Wade's title, as I said in our introduction is the Commissioning and Energy Discipline Manager at Hanson Professional Services. So, Wade, first question I'm going to have... First of all, thank you for joining us. I appreciate your time.

Wade Conlan:
Thank you for having me.

Gene Marks:
Yes. And so, the Commissioning and Energy Discipline Manager, and I want you to know, I just had a big turkey sandwich for lunch. I'm not feeling a whole lot of energy right now. Can you help me with this? Or does that mean something completely different?

Wade Conlan:
It means something different. I also had turkey, turkey and cheese, great sandwich. But commissioning is really meant for the built environment, where you are taking the different systems, whether it be air conditioning, power, lighting, and making sure that it's set up properly, that it meets the owner's intents, that it's going to operate and provide the right environment in the building for IAQ comfort, as well as for its energy consumption.

Gene Marks:
Got it. What is your background then to do that job? Are you an engineer by training?

Wade Conlan:
Yes. Yes. I'm a mechanical engineer. I'm licensed in a handful of different states. I started out doing mechanical design, HVAC systems, early on, and then throughout my career, I just ended up having to... being part of the solutions to different problems for technical designs, which led it into commissioning. Because in essence, you're troubleshooting systems, whether it's in design or whether it's in operation and you're solving problems. And it-

Gene Marks:
Sure. Where are you based out of, Wade?

Wade Conlan:
I'm located in Orlando, Florida.

Gene Marks:
Got it.

Wade Conlan:
Our office is just north of Orlando.

Gene Marks:
It just makes me laugh, because I mean, you do exactly what my son does. He's a mechanical engineer. He works for a big engineering firm in Philly, and he's all about HVAC systems and making jokes about them. But the field that you're in is, it's... I mean, I think this kid's, like you, has got job security forever. I mean, this is a hot field,

Wade Conlan:
Right. I mean, it's... And he's in Philadelphia, he's in a great spot. That's where I grew up. And I think about the concept of it all is, when I grew up, half the buildings had air conditioning. A lot of buildings were just those big radiators with opening windows, and that is far and few between these days. And then it's an energy piece to it as well. Not just in terms of keeping people comfortable but trying to make sure that they're safe and that less energy is being used. So, there's constant improvement that can be made in this field. So yeah, good news to your son, he chose well.

Gene Marks:
He did, actually he stumbled into it, but he loves it. He loves the work. What is Hanson Professional Services? How big a firm are you guys? What do you guys do? What should my audience know about them, as these are business owners?

Wade Conlan:
So, Hanson is about a 500-person consulting engineering firm. The bulk of the work tends to be on the civil side, so more roadway, aviation runways, and the flat areas, rail, major interchanges for rail yards, and those kinds of things. There's other pieces that go into it. Then there's the side that I'm in, which is more of the mechanical and electrical and plumbing design plus the commissioning and energy. So, we're a little bit more into the built environment. We're actually part of the facilities practice. What's really cool about Hanson is it's employee-owned, and no one is allowed to own more than 4% of the company. So, our leadership truly is based on your ability to be a leader and not necessarily how many shares you have. And that goes... Our CEO, Satch, has been with us 40 plus years and he was never allowed to own more than that.

Gene Marks:
That is great. Boy, that's a... employee-owned companies is a whole other topic for this podcast for another time. And it's actually, it's interesting, because I mean, I could see bringing you back to talk about that. Because there are pros and cons, but I think overall, if it's set up the right way, they could be really a great organization to work at.

Gene Marks:
Let's talk about building style. Okay. So obviously as you and I are talking right now, everybody's still working from home or they're starting to dribble back into the office. And I walk through downtown Philly and it's still a ghost town. All the big companies that are there have told their workers, "We're going to come back maybe in the summer, maybe in the fall." So, first of all, let's talk a little about the buildings themselves. What do you think companies are going to be doing, Wade, in the future, to adapt their offices to a post-COVID environment? What are you hearing from your customers and your clients?

Wade Conlan:
A lot of that really stems... And there's a part of that, that comes under more of a space planning and management needs coming from the higher up in the organization, which is, how many people are we going to have in a building, right?

Gene Marks:
Yep.

Wade Conlan:
And that starts to get into space use, which is not necessarily the engineering side. We kind of react to those needs and those parts and pieces, and I think that is going to be a big conversation. For existing buildings, what that could mean is that you have reduced occupancy, which means that the amount of outdoor air that your systems are designed for, maybe a lot more than you really need to operate under non-pandemic conditions. And so, there's a potential where those would have to be upgraded or improved. Then there's the new buildings where you're going to start to see people actually design in for a lot of the things that are being done now, such as better filters, the ability to increase or decrease my outside air for a pandemic, they start to be a little bit more resilient-based.

Wade Conlan:
And one of the interesting things that we talk about is that office buildings and a lot of buildings were built to keep people out of the elements, and to use the least amount of energy possible, while maintaining comfort. But if you look at like a hospital or a laboratory, they're built to keep people safe, they're built then for comfort, and then, hey, please use the least amount of energy. To a lot of these buildings, we're trying to adjust to run them more like a hospital or more like a laboratory and increase that level of safety. And so I think what's going to be really interesting is, the designers that adapt to the ability for the system to be flexible and to use and operate in non-pandemic mode and be energy efficient, and then be able to be adaptable and adjust, press of a button through building automation system controls to say, "Hey, we need the heightened sense of indoor air quality based on things occurring."

Wade Conlan:
And that can occur for not even not pandemic reasons, the forest fires out West, pollen season, those sorts of different things, the outdoor air quality can actually impact your indoor air quality. So, I think buildings are going to be a lot more dynamic when it comes to indoor air quality.

Gene Marks:
I'm kind of curious, you had to have been having these conversations before the pandemic, right? I mean, people were concerned about air quality. This isn't like a new thing. Are you hearing now your customers coming back to you and saying, "We got to make even more changes because of the..."? I mean, will the pandemic really have that long lasting impact on the design of new buildings and sort of the retrofitting of existing offices?

Wade Conlan:
I think it will. I mean, I'm not going to say that it's going to go out and change the code requirements. But when you look at something like a filter, MERV 13, you need to use MERV 13. I actually recommend it, or some combination thereof. State of California, that's already it's code minimum, so eventually that filtration level is going to increase. Now, what's more important for building owners with that filtration level is making sure it gets installed well. So that becomes part of that maintenance portion of training and preventative maintenance, because I could not...it's kind of like with a mask, you see people without it, over their nose, you kind of think to yourself, well, why do you have it on, right?

Gene Marks:
Right.

Wade Conlan:
It you don't really filter all the air, what are you doing? And so, I think some of those things will definitely come into play. I know one of the ASHRAE Epidemic Task Force's goals was to figure out how to incorporate the information we're creating into its handbooks and standards and guidelines that kind of set the standard of care. Not necessarily to be code, but so it doesn't get forgotten. And if you think back to early 2000s with the Anthrax scares, a lot of federal buildings changed how they brought in air and the processes. And then it sort of went away when that ended. So, the goal here is to say, "There's probably going to be another epidemic, potentially, another pandemic. As we move forward, let's make sure our buildings are flexible enough to adjust to it, so not everyone is scrambling quite how they are now." And then that can be done pretty simply through design, without really impacting costs at a whole, whole lot.

Gene Marks:
By the way, if I throw you a curve ball here, by all means we can, feel free, you don't have to answer it, if you don't know. But I'm kind of curious, during the whole pandemic, people continued to travel, the airline industry continued on fine. And we really did not hear reports of flight attendants and people on planes getting COVID and dropping on the floor. I mean, the ventilation in the airplanes were... I think it's safe to say have been superior and have been a big reason why, it's been safe to fly. And I'm wondering what your comments are on that, and why our buildings can't be the same? Or maybe they are.

Wade Conlan:
There's a huge difference. And that's a great example with airplanes. Commercial aircraft, typically, move about 20 to 30 air changes per hour. They bring in a small percentage of outdoor air, just like a building does. And they utilize HEPA filtration, which removes 99.97% of particulate at its worst particle size. So commercial buildings, now, understand a HEPA filter versus what you typically see in a building, which is like a MERV 8 filter, the pressure drop difference between them is about point seven. The other thing is the HEPA filter takes, typically more than a foot or two feet, more of equipment space, so it's operating costs and installed costs.

Wade Conlan:
As far as the air changes, I said 20 to 30 air changes, most peak cooling, summertime peak cooling you're moving air is about six, maybe eight air changes per hour. That's if you're moving all of the air at a peak cooling. So, when you see, every once in a while, you hear the air speed up or slow down, well, it's only at eight at, call it, "peak" for a typical office building or classroom. So, to get it to that other level, now you're getting more in... that's beyond what laboratories do, in terms of protection. So, the operational costs and infrastructure costs for those systems would be a lot larger.

Gene Marks:
I got it. Okay. All right. That's a great answer. What do you expect as far as seeing changes to buildings going forward? And we're going to talk a little bit about mandated stuff, with potential infrastructure bill. But I'm hearing that there's definitely a move towards more outdoor spaces. There is a move towards more contactless buildings, obviously, there's a move for just having more of less surfaces to touch or clean. Tell us what your thoughts are on where you see those changes going, and also where you see, if businesses have to be proactive with these changes, or they'll be mandated to do it.

Wade Conlan:
So, for the longest time with this, let's say, CDC and World Health Organization, were driving that through touch was one of the main drivers for how this virus was contracted. Recently, you've come out the fine, and hear that they're saying, "No, that airborne is now the predominant pathway, for this type of virus." There's different pathways for each. It doesn't mean that the other doesn't exist, right?

Gene Marks:
Right.

Wade Conlan:
And so, when you start to go touchless, it's meant more for what they call fomite, or you touch, and then I touch and I put it into my eyeball, right?

Gene Marks:
Right.

Wade Conlan:
That is a huge thing. Now, part of that also gives people a comfort, because they understand that. It's one of those things, you don't really try and grab the bathroom handball door in a public restroom.

Gene Marks:
True.

Wade Conlan:
And whether it's clean, someone would just sanitized it or not, you still don't, because it's a mental thing. And so, a lot of being in a building is about the personal comfort, the mental comfort of that individual. So, I could see touchless and I've been fortunate enough to be able to travel around the world and do a lot of different things. And Hong Kong has some phenomenal... You walk by, scan your badge, it tells you which elevator to get on, you get on that elevator, you touch zero buttons, zero doors. It gets to your floor, you walk out.

Gene Marks:
If I could interrupt you... I mean, Hong Kong and a lot of Asian countries, they've been dealing with COVID and SARS for many years. So, I'm assuming that's had an impact on their design of their buildings.

Wade Conlan:
Absolutely. Also, their plumbing venting. Unfortunately, these viruses pass through you, so there's a lot of studies that show that the plumbing venting can play... tracing that infection pathway, if you will. And so, yeah, they are a bit ahead in that realm. It's also kind of why you see they put masks on when they don't feel well, or if they're not sure they're feeling well, because they've dealt with swine flu and SARS and now, SARS-CoV-2. They're a lot more mentally prepared for the, "we have to protect ourselves and help others and protect them too." But so, it has risen there, I guess, technology, in terms of touchless, right?

Gene Marks:
Right.

Wade Conlan:
And there's a lot of things that can happen with that. You can do lighting, you can do temperature controls, you can do occupancy, you can do a lot of different things with touchless. Bathrooms started heading in that direction, I have a feeling you're going to start to see people build disinfecting bathrooms, so instead of having just the partition stalls that aren't full height, separate rooms that between uses, you can just disinfect. And build that comfort of the individual in the building, because that's really, what's going to get people back.

Gene Marks:
That's good. Going forward, and just a few more questions for you, I know we've got limited time. But President Biden has proposed his infrastructure plan. I got to imagine, Wade, you are smacking your lips at this, because this is like it's going to keep mechanical engineers busy for lifetimes. I'm sure. I'm sure you're keeping close eye on the progress of what he's proposed. And I do believe that something will happen. There will be some type of infrastructure deal. What do you think is going to be in this infrastructure bill as far as how it will pertain to buildings and what businesses should know? How do you expect your job to be in the next five to 10 years?

Wade Conlan:
I think this bill, obviously, it's his plan right now. It needs to become a bill through Congress, so we'll see what it ends up as. But if his plan holds true, it greatly impacts the built environment. He's considering buildings as part of infrastructure. His goal is to try and make sure that buildings are safer. That they are more energy efficient. They are less energy reliant. Meaning, that they could be more self-sustaining when it comes to electricity in other sources. It specifically states that if it's a federally funded building, he wants it built better than code.

Wade Conlan:
We always hear the joke about the aircraft or spacecraft that was built for the lowest bidder. Well, that's what building codes are. That's your bare minimum that you have to do. And ASHRAE has 90.1, which is an energy standard, which is actually the federal energy code. But they also have standard 189, which is really the high performing building's energy code and IAQ. And so that's what he's pushing towards. And so, from that perspective, it's going to be able to help a lot of different buildings, healthcare, childcare facilities, schools, those types of facilities improve. With this pandemic, we were going to push in that direction, I think this bill is just going to expedite that.

Gene Marks:
All right. That's really helpful. Final question for you, and it's kind of a multi-part answer, I think you can give, is let's try and leave everybody with at least some practical advice. Okay. So, in your years of working in the world of energy efficiency and HVAC and cooling and heating, what advice do you have for people running their own offices to run them as energy efficiently as possible? Remember, clearly that's good for the environment, but we're business owners here, we like to save money too. So, what advice would you have? And what do you normally think when you walk into an office, they should be doing this or that, or the other thing?

Wade Conlan:
There's a lot. I mean, and I've been fortunate enough to be able to retro commission over 60 million square feet of property around the world. With most of the eye is towards making it more energy efficient. We also do try and include things that would make it safer for the maintenance facilities or staff. In a pandemic mode, when I walk in, right now, what I'm looking at is, are your systems bringing in code outdoor air? Well, they should be able to do that non-pandemic as well? What level of filtration do you have? And how well is it installed? And can we incorporate other proven technology air cleaners into that so that you can achieve the levels that ASHRAE's talking about? Now, that's what the main focus is when you're dealing with a building today. Now we're also looking for energy efficiency, right?

Gene Marks:
Mm-hmm (affirmative).

Wade Conlan:
And so, what you always think about is, I always love using rules of thumb. So, if I have a fan motor and I run it all year long, at eight cents, a kilowatt hour, that's $500 a year. So, when I walk into a building, where's my biggest motor. What is your biggest energy consumer? Because that's my biggest potential for saving energy, so that's what you walk in looking at. So, what I typically look at is, what are your cooling and heating set points? Do you have a dead band? Are you actually over-cooling and wasting energy? When we try and look at how systems are set up to run, one of the simplest things is schedules. There's a lot of people that don't have the ability to turn their systems and make them into an unoccupied mode when the building's not occupied and do a temperature setback. Those are easy savings without a whole lot of change.

Wade Conlan:
The other thing that really comes into play is you have to analyze them as systems. It's very...you don't typically look at an air handling unit without what it's connected to, or the spaces that it's serving. So, you have to understand that it works as a system. And so, then you want to try and understand how many optimization strategies are part of that. It's a matter of using those strategies while maintaining the same level of comfort that they've come to expect and being able to have the system do less, to do that.

Wade Conlan:
One of the great ones is you see supplier temperature reset, but it's a dynamic, static pressure reset. You move air to the space to provide cooling or heating. If one space needs less air, what typically happens is a damper slightly closes off. And it's kind of like when you would kink the hose a little bit as a kid and you'd get less water. Well, the fan ramps up, so you use the same amount of energy. Well, what if I slowed that fan down to accommodate what my system's actually asking for? And so, if you do that, you use a lot less energy. And so, it's an overall approach, at times, it becomes a little bit more of an art than science, when you're trying to find energy savings in an operating building. Because you still have to keep their comfort, noise level, all the other expectations while modifying a system to improve it.

Gene Marks:
It's so complicated. I mean, and there's nobody I know, none of my clients has the ability to walk around and figure that stuff out on their own. So, what do they do? I mean, they can call in companies like yours, at Hanson. They can, I mean, I guess their local utilities provide maybe free inspections or services, but what do you recommend?

Wade Conlan:
So, there are a lot of the local utilities will do what they call is a level one audit. And that audit kind of benchmarks your energy, how your building is using energy, compared to buildings that are like yours. Then-

Gene Marks:
Let me interrupt you-

Wade Conlan:
Yeah.

Gene Marks:
... on that. I mean, is that worthwhile? I mean, are these guys legit when they're doing this or is it... Again, I mean, a lot of my clients would be like, "I don't trust the utility companies. They're out there to figure out ways to charge you more money."

Wade Conlan:
And so that's the thing, that's a beginning level of, should I? You almost want to benchmark a little bit of your building so that you know, do I need to worry about it, right? Especially-

Gene Marks:
Right.

Wade Conlan:
... if you have your own building stock. Then when you realize, okay, this one seems like it's out of line, then let's bring in a professional, a commissioning professional designer and engineer to evaluate those systems and look for those savings. I like to say commissioning professional, not just because of what I do, but it really is, my day-to-day job is trying to make systems work better, to do what the owner wants, and that could be safety, but a lot of times it's energy. And so, I like to say, to go to that professional.

Wade Conlan:
The other reason is, I don't sell parts and pieces. I sell my brain power. I sell my time.

Gene Marks:
Sure.

Wade Conlan:
And so, I'm going to give you all the ideas I can come up with because I'm not necessarily making profit on selling you a widget that may or may not really help you. And so, I'm going to give you the ideas that I would do myself. I mean, a lot of these things I look at is, okay, if these were my dollars, what would I be recommending? And so that, personally, from that aspect, you can do more of an ASHRAE level two energy audit. You can get more into the retro commissioning, where you're actually testing and looking at systems, and how are they functioning? A lot of the lower level ones end up being a little bit more deferred maintenance, or your equipment is really old, and you need to replace it. As opposed to, we'll look at the sequences, and say, "Oh, hey, you've got a set point here." Or, "You've got a timer here." Or, "Hey, you could flip this switch," and your facility maintenance staff can do that tomorrow and you can start saving money. And that does provide a benefit.

Gene Marks:
That's great. Wade Conlan is the Commissioning and Energy Discipline Manager for Hanson Professional Services. Wade, first of all, you're an engineer, you've just had a turkey and cheese sandwich, and here you are, you communicated with energy and it was interesting and informative. I mean, I'm not sure you were telling me the truth at the beginning of this conversation on either front. But listen, thank you very much for joining us. It's really great to talk with you, and we'd love to have you back some time as well, to talk about more ways... As the infrastructure bill starts fleshing itself out, I think there are a lot of things that business owners or business people are going to want to know about it, and it'd be great to rely on you for doing that. So, thank you for joining us.

Wade Conlan:
Thank you for having me and absolutely, anytime.

Gene Marks:
So, for those of you guys that want more tips or advice in help running your business, please join us at paychex.com/worx. That's W-O-R-X. You can also get past episodes of our podcast as well. My name is Gene Marks. Thanks so much for joining us, and we will see you again next time.

Speaker 3: