

Joseph Windover



Mike Merrill:

So welcome on the show today, Joseph. Appreciate having you on.

Joseph Windover:

No, I'm very excited to open up this conversation about modern fireproofing and construction.

Mike Merrill:

Yeah, awesome. So you mentioned that. So why specifically are we talking about fireproofing today? What's interesting about that for the audience?

Joseph Windover:

Yeah. So my organization, Sherwin Williams, we manufacture intumescent fire coatings, also known as like PFP, which is passive fire protection. We were able to acquire a company about five to ten years ago in the UK that was manufacturing an epoxy coating that was very durable. And in the UK they were able to fireproof all of the London skyline in a shop setting. So that meant there was very little laydown. The steel was delivered just in time for the Erector to place the steel. There was huge advantages of safety in that the steel was fireproofed when it arrived. They found that there was some significant savings in time and money. We can talk about that later on. But the introduction of durable epoxy into Mescent PFP made it possible to perform the process of fireproofing steel in an offsite shop, applied Fireproofing Factory. And so we've been developing this model with owners, general contractors, designers, fabricators and applicators to deliver that constructability model in a way that creates a safer, faster and simpler project site. I'll repeat that a lot because that's our tagline behind construction solutions, is safer, faster and simpler. So everything we do runs through that lens of safety, speed and complexity. We want to try and meet all of those objectives with any process associated with paint.

Mike Merrill:

Truly amazing, because everybody says they coin this phrase and they use it a lot and it gets overused maybe safety first. And people say that because it sounds good, but man, when you've got something that's safer, more durable, more efficient, quicker, cheaper, potentially than the cost of the other way, what's the downside? Why would this not be the concrete?

Joseph Windover:

Concrete? Concrete, yeah. I'll start with just the traditional construction model that has been used for fireproofing over the last 50 years, SFRM, which is a concrete substance. You encase the steel beam or column in concrete and so that's done after the steel is erected. It is performed at heights with scaffolding and lifts. So you're dealing with from the floor all the way to the ceiling then. So there's safety issues of applying that. Right, it's a very dangerous application procedure. Also you're extending the time of the construction process because the steel that could have been fireproofed in a shop and then erected is now you're having to wait until that concrete is sprayed on the steel and there's cleanup involved and a lot of issues around clean room environments. My division of Construction Solutions focuses on EV battery construction and so there's a huge boom going on right now with electrification. And the government has some really great incentives to owners to build these buildings and so they're required to build them in two years. So now you have this \$4 billion project that is constrained in a schedule. And the owners and the constructors are looking for ways to shave off time of their schedule. And the traditional SFRM or even Intumescent sprayed in the field just extends the time that a construction schedule and sequence can skin the building. Put a roof on the building, and an MEP trade could start clipping things to a cured epoxy intumescent steel structure. Because the way these EV buildings are built is top down. So you start with the roof, you hang the MEP clips, you put the air at HVAC, water, all of those functional HVAC type of structure in

place, and then you do the Mezzanine and you move down to the floor. Right. So it's very important that we can fireproof the roof beams prior to shipping it. They can put the roof on it right away. We fireproof all the exterior beams, they can start skinning the building and temperate get the environment set to enclose that building very quickly.

Mike Merrill:

Wow. Yeah. Sounds immensely more efficient to have it pre done before it arrives on site.

Joseph Windover:

Yeah.

Mike Merrill:

So when we hear the term passive fireproofing versus active, that would be the difference then, right?

Joseph Windover:

Yeah. Just to quickly define the two and what the major difference is, active really requires a system to actually function, which requires action for something to turn it on or someone to turn it on, a system to make it function. Right. Sprinklers have to be turned on. Foam has to be turned on in a clean room where you're sucking all of the oxygen out of the room and misting it, that has to be turned on. That's active. Right. Where passive, we're putting paint on steel. The only time that it needs to perform is when it is exposed to an elevated heat scenario associated with fire. And then what the intumescent fire coating does is it is an epoxy with a chemical mixture in it that when it is exposed to the fire, it's like when you take a marshmallow and you had it on a stick and you put it in a fire and it puffs up. That black char that happens when it's exposed to fire is what we do with intumescent coatings. It actually takes the paint, which looks like paint, and it chars it into an insulative coating that protects the steel for whatever the hourly rating is 1 hour, up to 3 hours. Up to 4 hours. Right. And so that gives the people that are working in the building a chance to get out of the building before it collapses. It also gives firefighters an opportunity to come in and contain the fire and put the fire out before the building collapses. And so that's the reason that you use passive to protect the structure of

the steel and protect the building's integrity so that you can escape and you can fight that fire in a way that is safe for the first responders to do their job safely.

Mike Merrill:

So we got safer, cheaper, faster, more efficient, probably more effective. It feels like it would be a higher quality coating if it's able to be applied

in a controlled environment versus in place. Was that accurate?

Joseph Windover:

Yeah. Epoxy intumescent fireproofing is designed to withstand those types of disruption to the integrity of the building. They are very durable. We have many scenarios that have helped us change our blockout process of connecting beams to columns in the field with our intumescent on it. And if there's ever a little bit too much intumescent on it, and you have to actually remove it with a sledgehammer, maybe a centimeter by three inches, would take 30 seconds to five minutes to remove that little bit of fireproofing from the steel. So it's a painful procedure to remove the fireproofing. And that's always a big concern with our designers. When we talk to engineers and architects, the first question that they ask us is, what about the durability? Right now, we're having to ship it hundreds of miles. The Erector has to pick it up and put it in place. There's a lot of damage. Right? Isn't that true? And it's like no, it depends on the chemistry. Epoxies are very durable. Alkids and waterbornes are they're just house paint, really, in the design of it, so you can damage those chemistries very easily. And then, of course, you wouldn't want to ship a lot of cementitious beams that would be very expensive and a lot of damage on something like that with a lightweight cementitious. So, yeah, the durability is something that is definitely a value point for designers in the sense that it's an epoxy coating. And so you can make it look like paint and it doesn't look like a popcorny concrete finish that, then you have to trowel down and do things with concrete to make it look fine.

Mike Merrill:

Yeah. More aesthetically pleasing, is what you're saying. The finished product?

Joseph Windover:

Yeah. Yes.

Mike Merrill:

Nice. So are there other consequences? Positive, I guess, aside from that in the construction process that benefit from this use.

Joseph Windover:

So some of the challenges, I guess, if I were to understand your question shop applied fireproofing in a fireproofing factory is something that's easy to say, but complex to roll out as a process. The reason that is is because you have to understand the project sequencing and the constructability. Right. And so if a general contractor chooses a constructability model where fireproofing is applied to steel before it's erected, that's very different than if they're going to maybe punt it or not. Think about that process until after the steel is erected. So when we process steel in a constructability model where it's a shop applied setting, you're moving the whole process off site. And so now you have to align with a fabricator that is bidding on the project. And their traditional model is to they're going to blast and put just low like an unsophisticated shop primer on the steel that they normally would ship. Well, fireproofing has a lot of complexities in it. There's a lot of QAQC. The mill thickness of the coating has to be exactly to a certain tolerance because each beam, w size or column size has an hourly rating. And then that hourly rating is aligned with the weight and the length of the steel. And then that's how much coating thickness we put on it. So in a typical primer application, you're putting three to five mil on a piece of steel. In a typical Fireproofing application, you're putting 200 to 400 mil. So that's like a quarter inch of coating. With epoxies, you can actually put on 200 mil in one pass.

Mike Merrill:

Wow.

Joseph Windover:

It doesn't look very good unless you back roll it, but most people will do that in two steps. But if you had to get it out, you could do that and that would be a one

day pass. So now what we're experiencing is that a general contractor would come to us and bring us in construction solutions as a trade partner to help them with evaluating paint as a process. Any coating that would go onto an asset like steel or concrete substrates and then in the fireproofing piece of it, then we are developing fabricator and applicator relationships where the fabricator now is just fabricating the steel and then shipping the raw steel that is unprepared to a fireproofing factory that is, in traditional terms, a blast and paint shop, but has an assembly line process in place that they can quickly and effectively with a high quality process steel in really one day in most cases. So now you move from going out in the field where you'll have multiple coats and 24 hours hold in between each coat. And so if you're using elkids or waterbornes, you're now talking about five to six days to do a six coat system that you just did in one day. And you did it before the steel arrived. And so you kind of start seeing it's easier to do what they've done in the past and just treat it as paint after the fact. If you're going to do it before, you need to optimize the steel. So we're working with steel designers and detailers. We're working with the Erector on their schedule and the general contractor of when that first column is going to be needed. We are aligning with fabricators and their schedule and connecting them with Fireproofing factories in close proximity to the fabricator or on the way to the job site. Right. Because now you can help them on reducing cost and damage and also carbon emission from traveling 1000 miles instead of 300 miles. Right, so we're trying to do that. Sherwin Williams is trying to really focus on a sustainable offering from a service offering to owners. So what we do, from the point of raw materials to the manufacturing, to the logistics and to the actual coating itself, how much emissions that we are actually producing in that entire end to end process, is something that owners are very interested in having that information as they're trying to solve global environmental issues where their impact on the globe is affected by what they do with us as an organization. So, yeah, the simplicity of me saying we should do it in the shop, it is new. Right. You're correct in saying this is a new and modern way to fireproof steel. And it just is education. Writing white papers, partnering with general contractors to get actual data from actual projects to then lay that down and have empirical data of showing what impact we're making with time, safety, complexity and ultimately financially for them.

Mike Merrill:

Yeah. So one of the challenges, it sounds like in the current market climate is education. So that these contractors are open minded to this process and maybe changing things up from what they're used to doing. But then once they do, once you convince them, are there other challenges they need to be prepared for, potentially? Or is there mostly? I mean, I'm hearing a lot of upside. Are there any drawbacks or challenges that they may encounter additionally, maybe besides removing a little bit of material potentially or changing their flow?

Joseph Windover:

Yeah, there's an interesting, I guess, scenario that happens very early when you're talking to a chief estimator from a general contractor standpoint, and they are evaluating procurement models and cost. So if you compare the cost of a bag of cement compared to the cost of an Epoxy intubescant, there's a pretty big delta gap there in the cost of the products themselves. Now, the one fact of the matter is you still have to pay somebody to apply that. And when you apply it, where you apply it and who applies it is the critical piece when you're going into a bid situation to understand what are the impacts on my schedule, if I do it the new way or if I do it the old way. What are the capabilities of a fireproofing factory? Because as you know, it's not just one EV battery factory going up right now. I think we're on our 19th or 20th. And then the pattern that you see is if one lands in there's another one coming right next to it. Kentucky was one and then they built another one right next to know those are opportunities to impact a project on the first build. Post mortem reviews of all of the things that we could have done better and then immediately put into place those upgrades and opportunities to optimize their project immediately. And that happened at our Kentucky project, where we had a roof design that part of that is putting a concrete layer on top of the roof deck. So that becomes a thermal insulator. And if you think of the underside of a corrugated roof deck, that means that you're addressing the top of the steel instead of the underside of the steel. So if I were going to look at a risk of something damaging, someone falling from a ceiling, I would be more concerned about something hanging on a flat piece of steel. Even paint, right? I mean, if you paint the underside of a flat piece of steel and you don't prepare it with a mechanical

bond, there's risk in that all the time, and we face that. So that was a great opportunity to fireproof the steel prior to it being there, putting the roof deck on and then putting concrete on it, because now that's thermal insulator and you don't have to address that. So it really improved the speed and it reduced the cost from a labor standpoint, from addressing that underside of the deck.

Mike Merrill:

Yeah. And I've got to imagine you've probably got some nice studies. What does an ROI model look like between the two? Is there a percentage of savings overall? Everything impacted?

Joseph Windover:

Well, generically, I can honestly say that we save thousands of hours and millions of dollars on every project. A lot of that data is private NDA data because there are processes that certain owners and constructors are implementing that others aren't. For the most part, the people that have done it multiple times have learned a lot of valuable lessons, and they're very efficient. And there isn't a question of should we apply it in a shop? It is, hey, we have all of these projects going on in the country, and now we're looking at capacity. So fabricators that have traditionally done this work in the past are getting to a point of capacity and they're having to bring in partners and joint ventures for fabricators to actually deliver enough steel to a fireproofer to deliver the project on time. And so we are constantly trying to understand the need in the market. And then, as Sherwin Williams, we're identifying the biggest challenges our owners and constructors are facing and then applying the process through a resource, a dedicated resource that can build out a fabrication network, can build out a fireproofing network, and can build out a flooring network of qualified applicators. They're huge, huge projects, right? You've got 2 million square foot of coatings going on a floor, you've got 100,000 gallons of fireproofing going on steel. And we're part of critical path, right? If we delay a project Sherwin Williams, then that's not good for our relationships with our owners. And so far, even through raw material shortages, plants that were providing those raw materials damaged in Texas by the big snowstorm and then COVID, we were able to

still double our manufacturing capacity on fireproofing products over the last three years from our very first EV battery facility where we may have had 20,000 gallons available for the project and we needed more to now where everything is made in Cincinnati, Ohio, and from that location where the Battery Belt of America. Ohio, Michigan, Indiana, Kentucky, Tennessee where all of the existing Big Three automakers had facilities. That's where the battery facilities are going. Now, as they convert their internal combustion engine assembly facilities into electric vehicle facilities, they need to have proximity to those battery sources. So that's what we're seeing right now. We have a really good position in manufacturing and distribution and a way to reserve those coatings early on in the process with our owner and general contractor relationships.

Mike Merrill:

Yeah, this is fascinating to me for another reason. We have a customer here at our company and they've been on the podcast also, and Baker Triangle out of the Dallas, Mesquite, Texas area. And I'm being reminded of that conversation and some of the visits that I've had to their location and their prefab facility where they've kind of become a sort of a mini general contractor where they are prefabricating so much work. And they're working with all these subs in their facility to apply all these components, even electrical, plumbing, mechanical to these walls that they're encasing in drywall or plastering or exterior fascia. They've really automated so much and they've been able to make things so much safer and cleaner and higher quality and more efficient and in a lot of cases, cheaper in the end. And this is reminding me of the same thing. Here you are with Sherwin Williams, known as a paint manufacturer, paint company to the residential customer that I would be. And yet they are having this type of an impact on the steel industry and fireproofing and other subcontractors that are directly impacted by this work that you're doing. So it's very fascinating.

Joseph Windover:

Yeah, it's interesting. The inception of Construction Solutions started about four years ago. So I've been at Sherwin Williams for this will be my 6th year and my previous experience has been manufacturing construction software startups. We've done

shutdowns and turnarounds for the oil and gas space and my background has been very new. Every time I start a new adventure, it's completely new and it really forces you to be very curious. When I came into Was, I was brought in in the industrial protective and Marine Division. Which is Sherwin Williams, just for your information. It's broken into really two segments. You've got the Tag Group, which is our America's Group, which is all the store network, right? Anything that we put in the store, we're basing that off from. Somebody might come in and buy this product, right? And then there's the PCG side, which is OEM around where we're coating products in an OEM setting. We've got powder and coil coating for the exterior of high rises and buildings. And then we've got over here on the side, protective and Marine, which does high performance flooring, high performance coatings on steel. Right. So the steel and the concrete substrates are led by our triple PhD chemists in the lab, our Nace certified project development managers that are writing 100% spec. You better be right on this or there's danger of all kinds of things when you're talking about chemicals and heat and corrosion and failure. Right. And so the interesting thing for me, when I came on, I didn't know what I was really going to contribute to my customers that were looking for paint expertise. But what I really found very quickly is everyone around me was an expert, and I just needed to know who to call and when to call and bring them into the conversation. And so my background was understanding business models and buying and selling companies and understanding what their gaps were and what's the financial model, what's the opportunity to introduce into a market. And what I found know Sherwin Williams business is we make awesome paint. We're the biggest paint manufacturer in the world. We do it all over the place, and we make really good paint. And then what we found was the business behind the business. Right. The business behind the business is construction. If you're manufacturing paint and put it in a store, somebody's putting it in their house. If you're manufacturing coatings that are tank linings, bridge coatings, floor coatings, fireproofing, it's going on a building somewhere. And so we started really diving into that and found that within our organization, there wasn't anybody that was serving people that don't buy paint. And that was the differentiator we found that when you would walk into an owner or a general contractor and say, hi, I'm Joe Windover with Sherwin Williams, they would say, Why are you here?

I don't buy paint. Right. I don't even think about paint until after the building's built. And what we found out is if you move some of the paint that is part of your construction process to the very beginning and make a decision that you're going to do it this certain way, now you can take advantage of all those innovations around new fireproofing, steel optimization, improving safety. One of the things that we found on several of our EV projects and our own headquarters building was round numbers 5% to 8% savings on insurance for the project itself.

Mike Merrill:

Wow.

Joseph Windover:

Which it's fairly significant when you're talking about the numbers. Yeah. The size of these projects are \$4 billion, and we're saving. I've never been giving exact financial numbers on that, but the number of percentages is aligned with both our underwriters and some of the underwriters that have worked in the EV space as well.

Mike Merrill:

Wow. Very fascinating. So much more to discover. We need to have you back on and continue this conversation.

Joseph Windover:

I would love to.

Mike Merrill:

Is there one takeaway for me personally, and I think the listeners will come away with this. I think those that are involved in projects that could utilize and leverage

this type of technology need to take a deeper dive into Sherwin Williams and what you're doing and what you can help provide and the value that it can add in your projects. But outside of that, are there any other takeaways that you would want the listeners to come away with the conversation today?

Joseph Windover:

Yeah. Specifically to new steel, new construction and facilities that are going to require fire rated steel in their building. If that's the case, construction solutions connecting with construction solutions early in the process allows us to work with the steel designer to optimize the steel. And what that does, from a raw material standpoint, is you might have \$2 million in steel and \$10 million in fireproofing. And then if you just raise the steel size by one, you can reduce your coatings by 20%, and then if you go up another one so we've seen anywhere from ten to 30% savings. That's where the millions of dollars comes from. Every project, we save millions of dollars on the raw materials associated with that. That has to be done prior to a steel order. We're working with our owner partners. We're working with design detailing companies and they are very involved in designing the steel in a 3d model that has an interface with our software on the backside of it. That then we can provide current mill thickness and current steel costs and then move that into an optimized model of one, two or three passes. When it comes back, the steel increases below 10% and the coatings decreases 27 30%. And we've done that fairly consistently as a pilot and with just a few handfuls of people to understand what that means at the front of it. So if you really want the most out of your construction project, don't think of Sherwin Williams and paint as a finish. Think of it as the first thing that you want to consider in your construction project, because there are a lot of benefits to that unconventional thinking. Right. It's almost contradictory to what the world believes. Paint in a spec is a finish. Right. And so finish is the end. So there's a little bit of rebranding that needs to be done in the world just for people to understand that. But there's a good model in place that we can support people that don't buy paint and people that are building the buildings. People that are designing the buildings. And then the rest of our organization reaches out into the people that actually fabricate the steel and buy the paint at the end. We have a great sales organization that covers that, but Construction Solutions is that first phone call, that first interaction to help you design the building in a way that's safer, faster and simpler.

Mike Merrill:

Sounds like a win win win to me. Well, lots of fun having you on today, Joseph. Looking forward to having another conversation next week and we'll talk further.

Joseph Windover:

I appreciate I had fun today. Thank you.

Mike Merrill:

All right, take care. We'll talk to you later.