

Speaker 0 00:00:05 Welcome to the Clear Impact Podcast brought to you by PGTI University. Thanks for joining us today. My name is Sherri Connor and I am your host.

Speaker 1 00:00:19 Can you do too insulated and laminated together?

Speaker 2 00:00:23 Yes, you can. That's the best of both worlds. That's referred to as a lummy insulated glass.

Speaker 1 00:00:28 What is glass? What is hurricane glass? What is impact glass, and how is it like a grilled cheese sandwich? We will discuss all of this with Jim Heise on today's episode. As we tackle the basics, we're calling this series Windows and Doors 101. You will learn more about all of these details and why it matters when it comes to investing in your home.

So good morning. We are here today with Jim Heise. Jim is part of the University teaching team. How are you today, Jim? I'm doing great. Thank you. Good. For those that may have missed the intro series, we'll just do a brief recap. You are a senior product specialist and code expert.

Speaker 2 00:01:05 That's what they tell me. Something like that, something like that. We all wear more than one hat.

Speaker 1 00:01:09 Right? So, you know, a thing or two about windows and doors and glass. All right. Well, we want to talk about that today. Um, there were a lot of terms that I was unfamiliar with when I first began here. So we want to educate our listener around basics, around impact resistant glass. What makes something impact resistant?

Speaker 2 00:01:32 Well, first of all, I want to clarify a terminology that sometimes people use as though they're referred to it as hurricane proof glass. And there is no such thing. Impact glass is actually referred to as hurricane resistant glass. And what it is, is the easiest way I compare it to the general public to explain to them they all understand. It's kind of like a grilled cheese sandwich, where you have the two pieces of bread and the cheese in between. Well, in this case we have two pieces of glass and then we have this vinyl in between. It's actually, an .090 thickness, which is three times thicker than the vinyl that's in your windshield on your car. And when you combine the two pieces of glass with the vinyl together, and it goes through a system, basically known as an autoclave, it sort of melts the vinyl to the glass, kind of like the cheese does to the bread and what it allows a window or door to be is impact resistant.

Speaker 2 00:02:20 It's tested with a 9lb 2x4, shot at 50 feet per second, which is basically the equivalent of what would happen with that 2x4 in 140 mile an hour hurricane. And the product then has to go through a cycling system where it's cycled, uh, positive and negative, for 9,000 times, it takes about eight hours to do that test. But then the product has to be operational for the homeowner to be able to escape in case of an emergency after the hurricane. So it's, it's a very stringent testing, uh, standard, but what it does do in reality is it keeps the home and the people inside of the home, safe from any type of serious damage that can result from a hurricane. For example, if a window or door is breached during a hurricane, the wind forces can cause a home to get enough air pressure inside. It becomes pressurized to the point where the roof can actually blow off, not to mention all the damage that goes along with the rain and the winds after that happens. It's a very important safety factor to have on a home here in Florida. So much that most insurance companies who are actually offer a discount anywhere, from anywhere from 15 to 30% on homeowners premiums, if you have a impact

system of some sort, whether it be impact windows or some type of a tested protection system on your house.

Speaker 1 00:03:35 So there's another term around glass. So that's laminated glass. That's the grilled cheese sandwich where there's the inner layer. Correct? Yes. So you said it's an .090 inner layer. Are there different kinds of inner layers? Yeah,

Speaker 2 00:03:50 There's different options that we have to put into the product. Those options generally, aren't something that the homeowner has to be concerned with. The determination of whether it's a PVB, which stands for Polyvinyl Buterol or SGP, which stands for Sentry Glass Plus, is what product we use is actually going to be based on the design pressure of the product. The design pressure is a calculation that determines how strong the product has to be, based on location of the, of the window or door on the house, as well as elevation. There's actually like five different things at calculate design pressure, but that becomes extremely important. And the SGP is a little more rigid and as a result can get, reach higher design pressure. So that's what you'll finally, usually we'll see in doors and large picture windows, things of that nature. But again, it's not something that the homeowner has to really know a whole lot about because the manufacturer has to be able to use whatever product meets that design pressure.

Speaker 1 00:04:43 If someone is in the market to purchase a laminated window product, whether that's a laminated glass in their door or sliding glass doors or French doors, um, or in their picture windows or their casement windows or whatever, it doesn't really matter what the inner layer is. As long as the design pressures are met. You're correct. Okay. Because I'm sure there's a cost difference in that as well.

Speaker 2 00:05:06 Yeah. Usually what you'll find is the higher the design pressure, which would be, for example, you will be able to get with SGP, the higher the cost, but there's other things that deal with design pressure other than just the inner layer. It's the glass thicknesses will make a difference, there's other variables to it. It's a combination of different things put together, different variables. But it isn't anything that the homeowner has to be too concerned with as long as it meets a certain design pressure. Mm.

Speaker 1 00:05:30 Okay. So let's talk for a couple of minutes about insulated glass, because that is not the same as laminated glass. What is insulated glass?

Speaker 0 00:05:41 Be sure to tune in for upcoming episodes to help you understand the fenestration industry, what you need to know when buying windows and doors and other related topics, you can find out more about us at [pgtiuniversity.com](http://pgtiuniversity.com). You can also find us on Facebook and LinkedIn.

Speaker 2 00:06:02 What is insulated glass? Well, the thing they have in common between those two different types of glass, laminated glass and insulated glasses, they both have two panes, a two pieces of glass, the insulated glass, instead of having that vinyl in between, is going to have an airspace in between. And the insulated glass has really been around for many years. I remember when I was younger, I used to help my father up north in upstate New York, put plastic over our windows, some vinyl, basically over a windows in the winter time. And that was to help prevent the snow and the cold from coming through. Now, the more products you wear, for example, like shirts or coats, et cetera. And the more layers you put on the more insulated your body becomes, and it's the same with a window.

Then after that technology took windows basically to where they had storm windows, their storm windows would be something we would put up in the winter time, and take down into spring.

Speaker 2 00:06:50 So it was an added piece of glass that the cold would have to go through. Then, then they came up with insulated glass, insulated glass is two pieces of glass with an air space in between. So now the cold or the heat, either one, has to go through the first piece of glass, change the temperature, the air, which is generally going to be an average of about a half inch. It has to change that air circulation that's in between those two panes, and then go through another pane of glass. And that's what they're referred to as an insulated piece of glass. Nowadays, what's become a very common instead of just using air in between two panes of glass, they use a gas called argon. Argon is actually heavier than natural air. And as a result, it's harder for heat or cold to transfer through it. So it slows the process down.

Speaker 1 00:07:32 Argon is something that we can incorporate in an insulated glass.

Speaker 2 00:07:38 Absolutely. It's uh, up north, it's pretty much a standard thing on all windows and doors, because that also adds, in the resistance of condensation. Condensation is a huge issue up north because the average temperature in some of those states up there could be zero degrees in the wintertime and they're heating their house to 75. So you're looking at a 75 plus degree difference between outside the inside. So condensation is a, is a huge issue. Here in Florida, you know, it never really gets any hotter than say, 90, 93, 94 degrees, and we're cooling our house maybe to 75 degrees. So there's usually a 15 to 20 degree difference. So it's not as important here in Florida, as it is up north for condensation. Here just gives a little bit of extra energy calculation number that can help perhaps a window become energy star rated.

Speaker 1 00:08:25 Can you do insulated and laminated together?

Speaker 2 00:08:30 Yes, you can. That's the best of both worlds. That's referred to as a lamy insulated glass. That's what we'll have the two panes of glass with the vinyl in between, as your impact glass. And that'll be put up toward the interior of the house, then there'll be a, maybe a half inch airspace or approximately, and then the third piece of glass, which would be the exterior piece of glass. So now you have the insulated glass, and you also have the impact glass, and it becomes a lot more energy efficient because now you've got all of that material that the heat, in this case in Florida, would have to go through, which is basically the first pane of glass, got to change that temperature in the air between the next piece of glass, which becomes the impact. And then it's got to go through that, the vinyl and the third piece of glass.

Speaker 1 00:09:11 Mm. So that would be pretty thick in a window pane, right? In the frame?

Speaker 2 00:09:16 Well, yeah, it's, it's much thicker, but at the same time, the window was actually designed for that. So windows that can handle that type of glass are generally going to have a bigger frame. Instead of a two inch frame, they are liable to be a two and three quarters or a three inch frame. Mm.

Speaker 1 00:09:29 And so you can do that same kind of glass package in a sliding glass door? And then does that become super heavy? Like how, how does that part work?

Speaker 2 00:09:40 Well impact glass by itself, will generally weigh about 10 pounds per square foot. If you have Lammy insulated glass, you've got another piece of glass to add onto that. So we can actually do it anywhere depending on the product, whether it's aluminum or vinyl, can do anywhere from 40 to 50 square feet in a panel. So if you take a 50 square foot panel, even if it just had impact glass and alone in it, that's 500 pounds. Now you add another pane of glass, you're looking at anywhere from 650 pounds or so basically for, for a Lammy insulated panel, as far as the maximum size.

Speaker 1 00:10:12 So we've got some pretty heavy duty rollers on that.

Speaker 2 00:10:15 Yes, we do. You have to have em, it's interesting. You can have the heaviest and biggest panels out there. And if you have the proper roller system on it, you know, an 80 year old person, you can open it with just two fingers and it just keeps right on sliding.

Speaker 1 00:10:27 Wow. Oh, so that's where the team of engineers comes in pretty handy around here. Absolutely. So if someone is installing or someone is shopping for windows and doors, and they're looking at that kind of a glass configuration, and they want to know why it costs so much to have it installed. that's why. Because it's a very heavy, um, manually intensive. Yeah,

Speaker 2 00:10:49 Absolutely. And keep in mind, we have a lot of two-story homes here in Florida now. And as a result, sometimes you have to get that up to the second story and to make it even worse. I've seen where they've had to go up to a second story and have to go through a spiral staircase to get it up there. So usually though they'll have to incorporate some sort of a lift or mechanical device to be able to move those products.

Speaker 1 00:11:11 But it's an investment and it helps protect, um, your home against wind debris. And it also helps with noise, right? Absolutely.

Speaker 2 00:11:20 With all of that, but it also gives you a lot of people, they get an impact window like that, or a door they think about hurricanes, but it gives them what we call 24/7 protection, which is, I think equally more important.

Speaker 1 00:11:31 Right. Cause nobody's going to go hurling a brick through your window.

Speaker 2 00:11:34 No, no. You could throw a cement block at it and you can't get through.

Speaker 1 00:11:37 Ah, very nice. I know in some of your classes you have some fun videos and if we were in a video podcast, we could maybe show some of those, but maybe we'll throw some of those on our YouTube channel just for fun.

Speaker 2 00:11:48 Yeah, they are fun to look at and very realistic.

Speaker 1 00:11:52 People trying to break windows and not succeeding. Yeah.

Speaker 2 00:11:55 We've actually seen it. I have a video that shows during the disruption that was done up in Seattle. I believe it was, uh, last year, trying to break in. Basically the mobs trying to break into storefronts with bats and that, and couldn't get through the glass.

Speaker 1 00:12:09 That is a great amount of information about laminated and insulated glass and the, the difference between air and argon and things like that. I'm curious if you have a really fun or interesting story about laminated glass.

Speaker 2 00:12:22 The best story I use to demonstrate the importance of it, isn't, isn't really fun. Although I'm noted for giving a lot of funny stories, but this one is a very honest story. I had a dealer in one of my classes ask if he could share with the group. And I said, absolutely. He said, my wife and I are one of your smaller dealers. And we go to work every day, generally around eight o'clock, 8:30. He says we also have a 14-year-old daughter. Well, one day we went to work, and we left our daughter at home, sick from school and being 14, we weren't really concerned or worried about, you know, about her being alone like that in a locked house. Well, when we came home that day around five or 5:30, one of the first things I do when I come home is we have a fence backyard with the dogs in, and I let the dogs in. And when I went down to let the dogs in and the sliding glass panels in the back of the house were smashed with a cement block at the bottom. I thought to myself that didn't give me any type of hurricane protection, but my wife and I cannot give you the dollar value that it gave us a protect our 14 year old daughter who was in bed that day all by herself in the house, what could have happened, which statistic it could have caused. Wow.

Speaker 1 00:13:24 That's amazing. So even a security system doesn't really protect you around something like that.

Speaker 2 00:13:28 No. Because the security system, basically, it's going to send off an alarm, but that doesn't stop someone from getting, going in and doing what they call a snatch and grab, by the time the police come or anyone else responds to it. They're long gone. Yeah.

Speaker 1 00:13:40 Wow. That's a powerful story. Not a fun one, but a powerful story. Well, I appreciate your time today, Jim. Thank you so much for sharing a little bit of your wisdom with us. And uh, we look forward to having you again soon. Thank you for inviting me. Thanks.

Speaker 0 00:13:53 PGTI University is the customer education team for an entire family of brands. We began with the original Eze-Breeze porch enclosure line, then became PGT, America's leading brand of impact resistant windows and doors. We then added CGI, CGIC, WinDoor, Western Windows, New South Windows, and Eco Windows and Doors. We create products built to withstand major storms, keeping people safe, secure, and prepared. Our exceptional brands give you the protection you need without compromising design or functionality. PGTI University is here to educate you, our listener, so that you can be a more informed consumer of window and door products.