JIM CONGER: OK, I guess we've had a lot of people probably finding some fun things to do. Everybody's been here, it's been the second day, it seems like the third or fourth. All right, so is there anything cool in the expo hall that I need to go see? What's the coolest thing? All of it.

AUDIENCE: [INAUDIBLE] very small mill [INAUDIBLE]

JIM CONGER: Really. So it's a maker mill.

AUDIENCE: So the [INAUDIBLE]

JIM CONGER: That's cool. Anything else that was really cool?

AUDIENCE: I haven't seen it all in there yet, but the drone that will do point cloud scanning--

JIM CONGER: Is that the one with the airplane as well, the drone and the airplane?

AUDIENCE: Yes, same booth.

JIM CONGER: Yeah.

Has anybody seen the OCC? The Orange County Choppers? Do you know that Paul, no, Jason, Jason Pohl was there yesterday. He gave me his business card.

JIM CONGER: He's starstruck.

AUDIENCE: I'm totally in with OCC.

JIM CONGER: It did have a cell phone number on it, I was thinking, I don't know if this is a good strategy for this guy.

AUDIENCE: Yeah, I've stalked him for the last 12 hours or so. OK, let's get this show on the road.

JIM CONGER: All right. So I'm Jim Conger, I am one of the three presenters here. I actually put together this class and I brought my hired guns in with me, my posse, because what we really are is a cross-section of our industry. I come from the manufacturing side, Justin comes from the consulting slash build side, and Rosie comes from the design side. And so because we are talking about inviting the manufacturers into the BIM party, I wanted to have all different views involved in this discussion.

My history is, I worked on the manufacturing side till 2009, till the recession and then on the commercial side, so it didn't hit us as quickly. And then I had transferred over into Autodesk, and I worked at Autodesk until earlier this year, and then have transferred over to Dodge Data and Analytics, to help them with their launch of their Revit product. And I'll let Rosie introduce herself.

ROSANNE SIEGAL: Thank you, I'm Roseanne Siegal. I am from the design side, I have an architecture degree, University of Illinois. I practiced for a couple of months and then the Recession hit, and so instead of going into design, I went into BIM management and became an Autodesk software specialist over the years. And I also am recently from Autodesk, now with Dodge Data and Analytics, and my goal is to connect to the design community with building product manufacturers. And I think that there's a lot of communication that gets lost in translation between those two parties, and so my goal is to help Jim talk about inviting BPMs to the BIM party. JJ?

JUSTIN JAMES: And I'm Justin James, JJ, I'm the quiet one. I am English, I am not Australian, which for some reason, everybody keeps on saying I'm from Australia. I don't understand it. [? Funnily ?] [? enough, ?] but I live in Canada now. We work with Dodge and we connect Dodge into Canada as they introduce us into America. And the relationship we've actually gained has been phenomenal for the firm for both of us, so it's a win-win. As Jim says, we're all from different, really different spectrums of the industry.

When we all sat down a couple of months ago, we just thought, well why didn't we just do something all together? And this was pushed in one of those last minute acceptances, so we were very fortunate to be here. I'm an engineer, a mechanical engineer, and then I went into project management. And then technology came out, and that was it, I just turned into a geek. So that's the intros. I want to say that we're doing two things for you. First of all, we're trying to bribe you with candy. So we've got candy over this side. So If you sat over at that side, you're going to have to come and get your candy. We did ask them to only eat half and then leave the other half on your chairs, but it didn't go down too well, so that's not going to happen. But there's some spare candy here anyway, it gives you a little bit of a sugar boost.

And the other thing we've got, and we've been a bit cheeky with this, we've got a 50 bucks Amazon voucher and we've got a Autodesk cap here. And we want you to gradually pass the Autodesk cap around during the presentation, dump your business card in there and then we'll

pull one out at the end. Now you know what we're doing, we're getting your contact information. Now the nice thing is, we're going to send you one email and we want your feedback. This is live, so it's a live documentation that you'll see and you can see you can download it, but we want feedback to continue growing what we're trying to achieve, which is to make a difference, really. We're just trying to change the way the industry works together, and that's why we want to get these manufacturers kind of board. So if you want to start, if you guys want to start passing that around and then pass it back, we'll crack on.

JIM CONGER: Why don't we find out who's here with us?

JUSTIN JAMES: Oh, cool, sure. So how many manufacturers are here?

ROSANNE SIEGAL: Welcome.

JIM CONGER: Welcome.

JUSTIN JAMES: All three of you.

JIM CONGER: It's a party.

JUSTIN JAMES: Look, you at least came. You were invited, you were invited. I think the manufacturers are probably all getting ready for tonight. We we want to quickly warn you, we're going to try and finish about five, 10 minutes early, OK. Not too early, obviously if the discussion continues and you want to stay, then we'd welcome it, but we do appreciate that you want to get ready for tonight. It's the big thing tonight. So who's a first year-er? First time here? OK. Tonight's the party night, guys. So just remember you do have classes at a 8 o'clock tomorrow morning. We will be watching you and seeing if you're there, and if not, we have your contact information and we'll be calling you up.

OK, so who else do we have in the room, any architects? Whoa. Why? Are you guys, do you all just stand together, do you all move together in drones? Like, he's an architect, architect, architect. Move that way, they're going to that class. I want to know something they're knowing. Can we just have those show of hands again? OK, that's literally like a quarter. OK, well that's good. Can I just hear from one of the architects, why did you want to come to this session? What was the interest?

AUDIENCE: Because I want building products content to not suck.

JIM CONGER: We like you.

JUSTIN JAMES: Give him the voucher now.

JIM CONGER: Exactly. You win.

JUSTIN JAMES: By default. Who else do we have in the room? Manufacturers, we've got architects, any construction managers? Project managers? Technicians?

JIM CONGER: Engineers?

JUSTIN JAMES: Engineers? Owners, developers? Yes, right. Was you in our other one? Was you in our session two days ago? No? OK. Who was? Who came to my session Tuesday?

JIM CONGER: That was yesterday.

JUSTIN JAMES: Yesterday, yeah.

JIM CONGER: It's a Vegas day, so it seems like a long time.

JUSTIN JAMES: That's totally blowing my cover, isn't it? I wasn't drinking a thing last night. OK, so we have a nice, varied, mixed group.

JIM CONGER: So we've been very good at transitioning from the two-dimensional designing to three-dimensional designing. Or some would say it's four-dimensional, it has more than just visual information. And it took us a while, and long hard hours, learning how to use this Revit tool. And we're getting pretty good at it. But at the beginning, we were really just trying to build models. And the BIM, building information modeling, is all about doing more than just talking about 3D space. There's information in there, and that's something that we are trying to help add the I into BIM.

And it's tough. Like you said, manufacturers models tend to not be so awesome sometimes. And so we, Rosie and I, both come from Seek, and that was one of our big things was, all right, how can we get people on the same page? Create models that you can work with, because ultimately it's like the design team was built, was hired to design, not build Revit families. So what we'd like to do is be able to provide the Revit families for you. Get the ecosystem built so that you can get back to designing and spend less time building these families.

JUSTIN JAMES: You just stole all my best lines.

JIM CONGER: Well thank you. Exactly.

ROSANNE SIEGAL: How may people are familiar with Autodesk Seek?

JIM CONGER: How many people are familiar with Autodesk Seek? OK. Autodesk Seek is a repository of high end, vetted Revit families.

JUSTIN JAMES: Well, quality controlled families.

JIM CONGER: Yeah, quality controlled. Only place you can get quality controlled Revit families. Have you used Seek before? OK, so you know-- I mean, it still has some families that may not be as good as others, but it is the only place that is quality controlled, nowhere else can you find that. So what we found at Seek was that everybody's different. Everybody has a different workflow, everybody has different needs. The one thing that is trending is that everybody wants to put more information in there. Whether it's because you're being required, by contract, to add that information, or because you just want to communicate better.

And so what I'm doing with the key learning objectives you saw before, I don't need to go through them all, but ultimately, the way we have set up this discussion is we're going to start at the 50,000 foot level and then we're going to bring it down a little bit, and then Roseanne's going to take over, and then Justin is going to finish and help you implement this into your daily workflow when you get back to work on Monday.

Building information modeling is a workflow methodology. And it helps, really, to take us from ideas to an actual physical structure. So if you look at Revit at it's highest level, it's just a communication device. It's just a tool to help us communicate our design intent to everybody else in the construction industry. Problem is, with tools, these communication devices, is that if you have too much information, there's confusion. If you have not enough information, there's confusion. So what you really have to do is find this balancing point. And another problem is that the more information you have, the bigger your models are, the more unmanageable your projects are. And Justin can talk to you a lot about that because that's where we spend a lot of our time. How do you create models that have enough information in them but are not too long and bog us down with sink times, and maybe having your project not function as well.

ROSANNE SIEGAL: Yeah, I'll take it from there. Thanks.

So taking what Jim just said, too little information or too much information, how many times have you ever been inside of, maybe, schematic design, or early design documentation. And what you're working with is a Revit family that has everything that you would need to not only install, operate, maintain, construct, inspect that product, all provided to you in these early stages of design. Right. If you have a Revit family from the manufacturer that wants to help you, they're encouraged to give you all of that information. There's just no really great way to chunk out the data that you need at just that specific phase in your site.

So of those people that are ever working with building product manufacturer families, anybody? Everybody? Sometimes? From Seek, maybe, from other sources? How many times have you gotten it and you've opened up the family and the editor and hit delete, delete, delete, delete, on any of the data.

AUDIENCE: [INAUDIBLE]

ROSANNE SIEGAL: There's 5,000 parameters. So I think that's an interesting juxtaposition. There's a lot of information that is valuable to us, but just at certain stages. And certainly whenever we originally download that Revit family, we may not want all of that data to begin with, right. So what my ultimate goal here is today is to provide you with some tools that will help you to get the right amount of data at the right point in time. And so going off of what Jim, sorry, BIM Jim, it's his hashtag. Going off of what Jim said, let's think about what all can be communicated via the BIM technology. Not just design intent, but everything that you may need to be able to operate that building over the course of time. Even down to the point of end of life. What are we going to do whenever this building is ready to be demolished?

All of that data could be a part of the project, and then as a part of the project, those families within it too. So a massive amount of data. But again, we're trying to achieve this BIM, the perfect balance of BIM. What is the ideal BIM? And we have to keep in mind that BIM is a good thing. And the data behind BIM is really helping us. We just can't get overwhelmed and let us be hindered by that amount of data. So just this kind of an incentive in your mind, keep in mind these awesome statistics about what is BIM really helping us to do. It's helping the contractor, it's helping the owner and the engineers. We're reducing RFIs, we are saving time and lowering costs on the project.

But what's interesting here, by the way, this is from one of the Dodge Data Smart Market reports on complex buildings. You guys are free to download any kind of Dodge Smart Market Report from Dodge for free, around BIM, so take a look at them. I'm going to be referring to these a lot throughout the presentation. Essentially each of these benefits that are rated the highest, from contractors and owners, are really just different forms of communication. BIM is improving communication in each of these ways, and therefore reduced RFIs, reduced rework, saving time and money, it's all because BIM has helped enhance the communication through this data.

Another graph that I wanted to show you is specifically how is BIM having an impact when it comes to money, time saved, safety et cetera, et cetera? And this is, again, owners and contractors. And I just think it's nice to take a look and note, and just hone us in again on why are we doing this whole BIM thing. BIM is attributed, of course, to increased predictability on the projects, reduced rework, and reduced the amount of out of sequence work. Rated very high and high by owners and contractors. So when we asked ourselves the question of, but really, why BIM? It's all about the more information we have, the better the decisions that we can make about a project for a better outcome in the end. Would you guys agree with that? That's what BIMs all about. Thank you for shaking your heads, that makes me feel really good.

JUSTIN JAMES: We're just going for head nods, nothing else.

ROSANNE SIEGAL: Just give me a little feedback, that was great. All right, so what are the models that we are creating being used for? So my architects in the room, how many of you guys are just kind of modeling up through construction documents and then passing the Revit model off, and you're donesies? Is Anybody? Are you using it to make decisions and answer RFIs and help the construction process? Awesome.

JUSTIN JAMES: We've got nice architects in the room. They're such a rare thing.

ROSANNE SIEGAL: I know, I know, I agree. OK, how about, do we have contractors? Are you using Revit, at least at the base level, to help with your estimating, your bidding, your time lining? Awesome, very good. Prefabrication, working with building product manufacturers, maybe, sometimes for pre-fab? No, fabricators? The models can be used for so many different things. And just because you guys are A plus in progressiveness and what you're actually using the Revit models for, not everybody may be on that same path.

Architects and designers may be using it just like a 3D version of AutoCAD, right? Which kind

of sucks, it doesn't really promote the BIM theory, it doesn't help the building owner in the end if they're not really using it to its fullest extent. But I'm not judging, no judging. Anybody can use BIM to the extent that they want. It's really whatever is a part of their contract. But as we're thinking about all of these different things that we can use the BIM model for, it's all about what is the original BIM purpose, or what was the intent of use? And based on that level of intent of use, that's how much data you actually plug into your Revit model. That can vary by everybody. It can vary by the same team working on the same project.

So have you guys seen this chart before? Who has not seen this chart before? 3D, 4D, 5-- thanks, Christine. There you go, OK. And guy over there, I'll explain it to you. This is just roughly translating to level of detail or level of development. The different uses that a Revit project could have. So traditionally 2D, thinking about vector-based design AutoCAD. 3D, a 3D environment but with no additional data. What BIM is enabling are the other dimensions of information that we can embed into the project file. So when we're talking about 4D, it really adds the element of time. Construction over time, or sustainability of the building over time. Things that additional data is enabling because of us putting that into the model.

5D, of course, is cost. And we can talk about cost of the project in terms of estimating and bidding. Cost of operating. 6D is then analysis, or the performance of the building. And having rich data here is really critical too. How are you going to determine how the building will work? What are the needs for the HVAC? The electrical requirements? What is the building going to do in terms of heating and cooling with the sun? All sorts of analysis that's enabled by the BIM process. Again, contingent on quality information being a part of it. And then 7D, thinking about facilities, maintenance, and operations. All different levels that we can enable with information are Revit models.

JUSTIN JAMES: Can I just quickly ask, how many of you guys [INAUDIBLE] of the use of facility management? Excellent, about time, right? And you see that you get a huge ROI, on that, right? Because you're basically, well what you're doing is you're just using the model for another use. It's like, hey, do you want to use it for this? Have you found that you actually have to speak to the owner developer at the front end and say, if you would us to hand that over to you as a facility management model at the end, that's like an extra service we can provide. It's finally, facility management is beginning to tick those same boxes. It's finally here.

ROSEANNE So when we're talking about data, there are some questions that I just want you guys to think

SIEGAL: about. And then I'm going to ask for you to raise your hands again. So just think about the jobs that you're working on now, back in your office or in your firm. To what level are you information enabling your current BIM projects? Are you using manufacturer data that you got from Revit families? Are you yourself plugging in data into those families, to mimic the performance of the building? There you go. I like the head nods, thank you. What other ways, any other ways that you're information enabling the project? Are you relying on the contractor or the subs bidding, and actually choosing products in the end to then populate the Revit project file with what products they're choosing? No? Just think about it.

And then how much of your information relies on very accurate data? Are you actually pulling the performance information of a particular product, or are you just noting who the basis of design is and then letting that flow throughout the rest of the design cycle?

JUSTIN JAMES: I don't think the chocolate's working.

ROSEANNE SIEGAL: So do you consider building product data, so actual manufacturer specific data, critical to enabling an intelligent BIM model, to achieve 4D, 5D, 6D, and 7D? Anybody? Do you think building product data, accurate building product data is critical? Who doesn't think that it's--? I'm going to call you out and make you stand up. Nope? You have to have it, right? Why do you have to have it?

AUDIENCE: A door is a door. Manufacturer by manufacturer is different, same thing [INAUDIBLE] higher quality, more available, less available. [INAUDIBLE] It's critical, the completion of a project, especially if you turn it over to life cycle and operation facilities.

ROSEANNE SIEGAL: Absolutely, absolutely. So one of the Dodge Data reports that we have says that a contractor selection of products is 90% based on the availability of the product within the time frame that they need. It's not if somebody's got a BIM model that they're putting out, or if they've got technical specs or three part specs, it's is that product actually available, and having access to that data in these early decision-making stages would really make a difference sometimes. Yeah, do ahead.

AUDIENCE: We need to look at the data to follow codes, [INAUDIBLE]

ROSEANNE SIEGAL: So, yes.

AUDIENCE: That's another thing. Needed in a, like you said, [INAUDIBLE] happen to be there,

[INAUDIBLE]

ROSEANNE SIEGAL: Code, time frame, fire rating. All of these different aspects of information that are critical to a decision making process when it comes to BIM, we have to have access to that, right. Absolutely. Code is a big thing, and I'm actually not going to touch it, because it's very scary for me to talk about, because you kind of get-- I'm not going to go there. But I agree. So whenever you're asking yourself about what product you'd like to choose and you're trying to find what's applicable for your particular project, another Dodge report says that you are more likely to, as a millennial, you're more likely to go to Google or try to find that information yourself.

If you're somebody that's been doing it in the industry for a little bit longer, you actually use the salespeople or the distributors at the building product manufacture the most, more than any other way of finding data, to ask and qualify a product for a project. So I'm not saying that there's a tool that fits all your needs, and really that's what this is all about, there's no one tool. But what I want to share with you are a couple of alternative tools that may help you make a decision on a product a little bit more easily, a little bit more faster.

So what you guys are probably realizing now is that we're huge advocates for making sure that building product information is a part of the design process. But for a lot of people, it's very hard, because you have a lot of work to do, especially if it's not necessarily your responsibility, contractually. You as the architect or engineer may get to choose basis of design, but it's not necessarily your responsibility to have to go and make the purchase of that product, right. And therefore putting in that kind of information about product selection, or about the performance of the product in early stages, it's just not your responsibility. It's way too much work, if you've never had to do it, you don't want to do it, and we understand.

But remember all the cool benefits of BIM and achieving the most beautiful BIM theory out there, the ideal BIM. There's tons of benefits, right? But a lot of the benefits are contingent upon having accurate data about product. So I think that we are at a, not an impasse, but it's something that's being pondered at a higher level by a lot of other people. You're not alone. It's a huge issue in the industry. But what is the right amount of information, at what stage in the design, by what party.

So what I would like to just make you guys aware of, I'm not promoting it in any way. But something that I attended, you may have been there. The building content summit was put on

recently.

JUSTIN JAMES: Did anybody go to the Building Content Summit? Oh, you did?

ROSEANNE SIEGAL: Put on by the Revit Technology Conference, yeah. RTC. Basically it's a meeting of the minds. It brings together, over two days, building product manufacturers, as well as the most fore thinking BIM managers and BIM advocates, and trying to solve the problem, or just figure out where we are in terms of, what is the right amount of data inside of our building projects and Revit content at what stage, and who's responsible for putting it there, by what party? And the answer is very hard to figure out, because it varies so much from firm to firm, from project to project, from party to party. There's really no perfect solution.

So in my day of BIM managing, I remember cursing at the Autodesk gods because they didn't give me an awesome way to find a product and then put in the right information at the right stage when I needed it. But hopefully we can fix some of those issues today with some of the tools that we're going to share. Ultimately, everybody's got different goals. The architects would like to have models that are lightweight and they aren't going to bog down. And they're easy to use and they maintain their graphics standards, so the families aren't all blurry on the construction documents at 1/8 inch scale, right? Those are things architects are thinking about.

Whereas the building product manufacturers thinking, I want to be a design partner. I don't want to just be a part of the bid. I actually want to help this architect or engineer use my products the way that they were meant to be, and grow a partnership, grow a friendship while also selling a product. So I added these top two bullet points in just before the class, because I think it's an interesting point that Jeff Kowalski brought up in the opening statements. For years and years, since really, the dawning of the age of modern technology as we know it, we've been limited by the technology tools that we're using, right.

Did anybody else think that that was a really cool thing to hear? It's very obvious whenever you think about it, but it's really revolutionary. We're limited by the tools that we have. So in what ways have the tools that we are using for building information modeling, how are they helping or hindering us in building product selection? They certainly, in my opinion, aren't at the point of helping yet, because we're still doing three part specs in Microsoft Word. Right? Why is that happening? I mean, why not just grab a typewriter, or carve it in stone? That's where we are in relation to the rest of the technology that's available. So what can we do to be

advocates of change, to really help bring up to speed product selection in this old school process, to make it just as efficient as the rest of the technology that we're using?

OK. So this is where I'm going to start showing you guys some quick videos, some tools that you can actually put into practice back in your firm. Ultimately we all know adding information takes time. And it is sometimes a learning curve as well, but the manufacturers that we've worked with are really wanting to help you as the design community. They want to have a seat at the design table, and they really want to help you just get your work done faster and more efficient, make correct decisions earlier in design stages, and take advantage of all of their downstream benefits that BIM can really offer if you're using accurate information from the beginning.

So there's four different chunks of efficiency tools that I can talk about. And I'm going to highlight just a few that I'm aware of or that I've been using. If you guys have others the end that you'd like to chime in and help the community understand more, that'd be great too. But the four different ones I want to go over is a tool that's going to help you choose basis of design, so architects, engineers, you're making decisions about what products you may want to base your design intent off of. And there's tools that can help you designate that within the Revit model, and let the Revit model do the memory work for you. Not your Spec writer, who's got stacks and stacks of paper all over and doesn't remember what product goes with what project.

Also there's a general building product family platforms. Things that you can, or places that you can download manufacturer content from. Those secret good sources, there's some other sources as well that we'll go over. Product configurators. This was something that has come about in the last several years as a way for building product manufacturers, I'm going to say BPM, you guys can put the two and two-- what BPMs can offer to help facilitate and ease the pain of an architect or an engineer having such a hard time getting lost in the sea of products. What's nice is to have the configurator available for you, that not only helps an engineer guide themselves through the offering of that manufacturer, but can get a Revit family out in the end.

And then, finally, manufacturer specific Revit apps. And I've got a few that I'm going to highlight, that I've used and that I like from the field. So in summary of that, information in BIM means so much more than just a Revit family. These are tools to optimize and to enhance your BIM experience. So let's dive in.

OK, so while this video is running in the background. I work with Dodge Data and Analytics. The group that we work on is Sweets. Anybody familiar with Sweets? For those who don't know Sweets, it's actually a 110-year-old business. We started off with a kid riding his bicycle back and forth between a job site and manufacturers, sharing with the contractor what kind of products would make sense on that project.

So 110 years later, we're now on the web, and it's really a building product resource. You can come and find specs, brochures, all sorts of stuff. But what we've done is we've created an app that utilizes our huge library of building product information, and it sits inside of Revit. And what it allows you to do is go into the Sweets library from Revit and find a building product manufacturer name, model, information, assembly code, and a couple of pieces of parameter data that gets plugged into your generic model inside of Revit. You don't have to download the manufacturer's Revit family in order to use the data in them to designate basis of design.

So we're basically plugging in manufacturer data into your generic objects, and letting your design intent and your basis of design information be carried on in the Revit model, from very early stages of design. If that building product manufacturer has Revit content, you can download it and use it as well, but that's not the point. The point is just for your original product decisions to be captured and carried throughout the design phases in the Revit model in a very easy way. Otherwise, you'd have to go in and type in Pella windows and then model E101, or whatever. This is just helping you speed up that process.

AUDIENCE: [INAUDIBLE]

ROSEANNE SIEGAL: So his question was is the data standardized, nationalized, you mean like is it filterable and sortable by territory?

AUDIENCE: [INAUDIBLE] or is it being shared by any other wholesalers?

ROSEANNE SIEGAL: So the way that we come across the data is by indexing building product manufacturers entire web sites, and we find that's how we create the product pages on Sweets, and then put that information into the parameters that gets plugged into the Revit project that way. Right now it's not necessarily filterable by region. There's a lot of things that need to be, I think, developed still, to be at the level of usability. Did I answer your question? Say it again for me. Say your question again, I want to make sure that I'm getting to it.

AUDIENCE: I'm from the Netherlands, and what we've done, for example, is we're wholesalers. We've

created an app that allows contractors, [INAUDIBLE] to bring in standardization in formation into generic contact. And the information itself is being used not only by the wholesaler, but it is standardizing throughout the country by more wholesalers. And actually, in Europe, we have a platform we call [INAUDIBLE], which is a classification, and so for each and every kinf of product, there are a certain amount of parameters, [INAUDIBLE] in what ways is it organized in template?

ROSEANNE SIEGAL: So right now, because the parameters are so few that we're actually plugging into a Revit family, model name, manufacturer name, assembly code, and then a couple of shared parameters that link you back to the Sweets product page, we're not doing any kind of standardization for mass parameters. But eventually we're going to have to, because the point that we'd like to get the app to is plugging in performance information. So flow rates and wattage and voltage and all sorts of different MEP things are going to need to be in part of these Revit families, as opposed to just the name of the manufacturer and the model. So Sweets doesn't do any kind of standardization, however Autodesk Seek does. And using kind of standard parameter lists are there.

AUDIENCE: [INAUDIBLE] publishing that [INAUDIBLE]

ROSEANNE SIEGAL: Yes, it will be there. Right now, it's not.

JIM CONGER: Right now, the Sweets app is really for those people that like to do generic models. They're not going to that level of detail they may [INAUDIBLE] It's really for, it's like a bookmark. You're in your model, you've got a door there. It's a generic door to open the Revit library. I just want to say that this is a Super door Model number 12, because six months from now, I may get pulled onto another project. And then the person that takes over, we want your design intent to still be in there. So it's just a really basic [INAUDIBLE] Exactly. So you go into the schedule so that you can actually communicate to your specifier exactly what you want. That's what that level is. And then there are other levels out there. So if you need more information and you're they type of designer that is going to increase the level of information, then there are other options out there. But the Sweets is just for those generic models. Doesn't play around with geometry at all

ROSEANNE SIEGAL: It's level of detail 100 glorified with Smith manufacturer information. So Autodesk Seek, however, I think there are several other groups in Europe that do standardization of content.

Autodesk Seek has standards that they require your Revit content for manufacturers to meet, that's why we were saying it's quality control.

And what they've got that I think is worth sharing is an app that sits inside of Revit, that really just makes all of the Revit families and the data behind them available for you and easy to download, it makes a really nice part of the design process. Yes there's an old school Autodesk Seek panel that sits inside of the insert ribbon that's been there since like Revit 2007. Just ignore that. Download this app, it's totally worth it. If you are wanting to have manufacturer information that is vetted, quality, sometimes overloaded with data, yes, but still very nice and handy to have as a part of the product selection and decision making process.

JIM CONGER: And one of the quality control measures is file size. Very cognizant of the file size and we did not want to have large file size, we know that's a concern. So we made sure that we tried to find that real good balance between rich manufacture data but also small file size.

ROSEANNE SIEGAL: And really it's hard sometimes, because building product manufacturers, of course, like I said--

AUDIENCE: I'm sorry. I have to-- I couldn't make a discussion on that one. I mean it's much more important to look at the [INAUDIBLE] as an overall picture, to look at the Revit project. And strictly to a Revit [INAUDIBLE] file. The reason is very simple.

JUSTIN JAMES: What we're trying to do is show the different platforms, all the different levels, and give a choice. We're not saying either of these are right or wrong, or will be useful for absolutely everybody in the room. For yourself, you have your own one, and I think that your product is going to work for you where you are. There is probably, we had to shorten this down and actually, I think we had like six, seven different products we were going to try and show, but because we're limited on time, we're probably just add them in to the handout, to the PowerPoint that you'll be able to download. But I agree with you, there isn't one single platform that's ever going to work for everybody. It's just, that just very hard.

You have to have a choice and you have to have an LOD level which actually splits those apart and say, OK, well me at this stage of the project, at concepts going through to somewhat detailed design. I don't need to switch those out and replace those at a later day or bump the LOD up myself. So there isn't one tool that is perfect for absolutely everybody. It's an amalgamation, which is why we're going to try and show you a mixture of all of them.

ROSANNE SIEGAL: I mean coming out of the Building Content Summit, the number one most requested tool was something that would help architects, engineers, plug-in different levels of detail at different stages of design from the building product manufacturer. And that is, essentially, what each one of these tools could do, just depending on what level of detail you're at. So what I'm envisioning is use something like Sweets to help designate your product selection or your envision, your intent. And then use something like Seek-- and just to be fair, there are many other places for you to download content from. Modlar, BIM object, CAD details, there's--

JUSTIN JAMES: We just tend to prefer the safe ones.

ROSANNE SIEGAL: There's many out there that you can use. And then as it's time to actually get down to the nitty gritty of what is going to be chosen for my project, and I need to now get performance and analysis information out of that manufacturer and into a Revit family specific for my installation, there's these other tools as well.

So moving on, another tool that I want to bring to your attention is by a group called BIMSmith, they've got a cool booth over in the Expo hall. And basically, it's a way for a configurator tool for system families, where no matter what brand of, let's just say, insulation or metal studs or vapor barriers and finishes, can all be configured and combined into one family, done by anybody in the design team and done on the web. So you can have a complete product configuration sponsored, in this case, with multiple manufacturers playing together to ultimately spit out a Revit family that is going to perform accurately inside of your Revit project file, without you really having to do any of the manual work. So product configurators are a nice way to get down and accurate about what's going to go into your project.

And it's not just system families. It can be plumbing fixtures, it could be HVAC equipment. I know for a fact that there's some heavy duty configurators coming out from manufacturers for mechanical equipment that would play really well in this configurator tool. So the next and most detailed level, the most complex level of tool out there that I would recommend that you look into are tools that are provided specifically by manufacturers. There's a lot out there. And I think that if you can use them, it will not only help initiate the conversations earlier in their design process with the building product manufacturer to, again, speed up the project and make the project more accurate, but also really help you make decisions that are going to be better for the building, better for the owner, and better for the project overall.

So this is a configurator provided by Otis elevators. And it's nice because in this case, did you

see some code information in there on that last screen? I know you guys were worried about code before. It basically allows you to say what kind of elevator I'd want. What are my options for compliance? What are my heights of floors, where do I need to have the elevators open at? You configure the entire elevator system according to your building installation.

You're being educated about the product at the same time that you're actually configuring your Revit family. At the end of this process, they are providing you a complete Revit family that functions exactly inside of that design context of your Revit project file. And so if only every manufacturer had something like this for us as designers to use, our jobs would be much, much more easy. I like Otis because it's got a really nice video that just shows that simplified process to help you select a product based on all of the product's options, and then providing you the Revit family in the end to really kind of complete the BIM cycle. Decision making, product selection, and then putting it into the project and selecting it for the end.

There's a few other manufacturer specific apps that are out there. And I'm just tip of the iceberg, by the way, these are not everything that's out there. So please, please go ahead and do your own searching as well. ASSA ABLOY Opening Studio, very popular tool to help you configure doors along with the hardware for your Revit projects. Of course the Pelco and Axis camera apps are really cool too. Those are something that Jim and I had a hand in building whenever we were over at Autodesk Seek. Basically helping you to place a camera, for those that may be doing any kind of security or camera layouts. Place the camera, configure it based on what kind of mount, what kind of lens, what kind of camera. And then actually put yourself in the perspective of the camera, so that you can create a Revit perspective and see what's going on according to the way that you've designed that camera in the Revit project. So a really nice configurator with some cool visualization tools.

Another one is one of my friends over at Vulcraft, they've created an add-in that actually helps you with all sorts of structural design, and all the way through fabrication and detailing your designs as well. Another app that sits inside of Revit, it's pretty complex. I do not know structural so I have not played with it, but it's worth checking out if anybody does structural here.

And then something really simple that I don't want to overlook is some of the CTC Express Tools that help you to create-- everybody has, especially manufactures, if you all downloaded those Revit families, from Arcat or from Seek, you see that there's different shared parameters that all may represent the same data. But those shared parameters can never talk to one

another in the Revit schedules because they're different parameters. So they've got a tool called Parameter Jammer, which merges different shared parameters into one column, which means that it can now, Revit families from different building product manufacturers, can finally communicate the same data in the same column. So take a look at that if you haven't, it's pretty worth it. Parameter Jammer.

JUSTIN JAMES: CTC Suite is huge now. Who's been over to the CTC stand? Did you just go over to get a band so you could go to the party last night? Speak to Don or--

ROSANNE SIEGAL: Oliver Turrin. Oliver or Don and ask them just to quickly show you it, because if you think you know CTC Suites, they've got so much more in there now. I know we all tried CTC maybe a year ago, they've come on leaps and bounds. What they've actually done is just listened, they listened to what we wanted, so another good option.

AUDIENCE: [INAUDIBLE]

JUSTIN JAMES: This is totally unfair, he's allowed to sell and we're not.

ROSANNE SIEGAL: So whenever we were at Autodesk Seek, there is the Autodesk standard for Revit content that we put out there, and is basically any content on Seek, which is the Autodesk official source of Revit content, follows that standard. And it's for every category. There's shared parameters that are available for you to put into content, and we make that publicly available. So whether you're in the firm building your own Revit families and you want to build them to the Autodesk standard, you're welcome to that shared parameter file and then use them to generate your families with.

So there is standardization, it's just how many different sources are creating their own standards. And it's different between the US and I think Europe, and even Canada as well. Just communicating all the standards together. So I'm going to wrap up because I know we've only got about 10 minutes left, and we probably should get you out early. So I'm saying this. Let's get building product manufacturers to RSVP to the BIM party. They really would like to enhance your work life, make things easier for you, saving you, ultimately, time and money.

So I challenge you, designers, architects, contractors, engineers, to think about your everyday workflow, and think about something that is a challenge to you. If there is something that can potentially be improved because of a technology enhancement, again, think about Jeff Kowalski and what he talked with us in the opening ceremony about. If there's something that

technology is limiting you on, if you didn't have that technology barrier, what could be improved upon by a new tool or a new process?

And so I encourage you to reach out to a building product manufacturer that you would be willing to partner with, or just have a conversation with, and say, hey, if you can help me create this tool to do xyz, I would be ever so grateful and I would buy all your products. Not really. It's just I would have a better time designing because of this tool, please help me. They're willing to have that conversation, they want to have that conversation with you.

JIM CONGER: They want to have it and the one thing that I've noticed is that they don't hear that a lot from you. The design team, I mean, and therefore they're hesitant to invest because it's not inexpensive to provide that information for you, especially when it comes to configurators or anything of that level. Have that conversation, you talk to manufacturers, I'm sure, all the time. Just let them know that it is important for your workflow, because once you do that, they will provide it for you, and our [INAUDIBLE] will grow and it will make your job a lot easier and you can spend more time designing.

JUSTIN JAMES: So I'm going to wrap this up. We're looking pretty good for time. What I deal with with our client base, we started a firm just three years ago, we started a consultancy, turned it into an educational institute, where you come along and we just teach you the grass roots stuff. So I'm the very bottom level, five feet approach.

Now what we're trying to achieve across our teams is to actually get buy in, is to actually get manufacturers and actually talk to the people that are using their content, or may use their content. And we've had to find ways to convince them to do it. So we use this kind of fun little table. First of all, we have to ensure that our content is clean and lean. And I'm sure that not everybody works on $5 billion arenas, but when you do, and you're trying to buy in with a team of 60, 70 guys, and those models are growing and they getting larger and larger, you have to synchronize those models, and you have to synchronize back to a server.

And if you're clicking synchronize and it takes five minutes, we had a synchronization calculator-- actually, do you know Robert Green who does presentations here? So last year, he did a fantastic presentation and it was around this premise. So I'm not going to bring the pictures up yet. So smaller models equals a decrease in sync times, or just general running on your PCs. It also means you have to buy less powerful machines to run this stuff. That increases your production speed, which gives you leverage to the people that are making the

decisions within the company and say, well, why would I invest in this? So we deal with companies where they're not even in Revit, and we have to convince them of why. Why is this a better format? Why is this a better communication tool.

So we had a bit of fun. This is the Kardashian sisters. We want smaller models, which equals decrease in sync times, which equals increased productivity, which gives us leverage. Did anybody ever watch this show? Yes, one person is nodding their head. Two. These guys told me they wouldn't get it. They said leverage, what's that? No, there was how many nods, give us a show of hands. This is going to get me beers tonight. There you go, three. That's a win for me. OK. OK, that's good enough. Now this leverage, this is important. What we-- please work. OK what we try and point out here is that time equals money. That's all we're trying to do. So with this entire process that we're actually introducing BIM into, which includes the content, what we're trying to do is make you more efficient. By making you more efficient and making you faster at what you're doing, and more accurate, we're not letting go of our original standards.

I started on drawing boards. So I know I look incredibly young, but I'm 42, and I started at 16 on a drawing board for the first five years. So we drew everything by hand. Now the new generation, what we do is we pick stuff off a library and we don't even check it. So there no concentration, so that we have human error. So we can't forget the fact that, yes, this content could be fantastic. We still have to quality control this stuff. We can't just assume it's all right when it comes out the box, even Revit stuff we check.

If it says it's a three inch pipe, have you actually ever measured it and checked? You know, somebody might have renamed that family in your library just before they left as a bit of a joke, and really it's a two inch pipe. So just check this stuff. The name, just because it says it on the tin-- I used this analogy before. How many of you use dermatologically tested products? It's been dermatologically tested, right, so it's safe. Well actually, 17 people could have died. All they're saying is it's dermatologically tested. Now try and go and look for a product that says dermatologically approved or you will only find 3% of products on the shelves today who have dermatologically approved on them. It's actually really hard. I have a skin condition, eczema, so I can't use products. It's terrible.

So rather than you going and looking for the content and having to build it up every single time, what you're doing is you're paying your production staff to-- they love this slide, those guys. So you recognize this guy from *The Hangover?* Love this. So what we've got is a

decrease in productivity. Now both Jim and Roseanne touched on this subject a little bit. Now I feel strongly about this. I used to manage 75 production guys that were just doing Revit all day. Very large company in Canada, a consultancy.

And the amount of times they were taking so long to seek out, excuse the pun, seek out manufacture's content and then spending all their time doing that and not actually getting on with the design. And certain stages, I'd say why did you source [? the air handler ?] this stage? I don't care if [? the air handler is ?] just a box. You just stealing space at this stage. There's no kind of management of that. So we had to kind of introduce the system where you wasn't sitting there and either waiting six minutes for it to synchronize because you had manufacture's content came directly off their web sites, and it was huge data, so anything over 500 megabytes.

What we did is we've got a tool with Drew Jarvis, who's another one of the prolific speakers here, and we use a model health checker. And people have been asking for this for years so he just made it, he's a coder. And what it does, it goes through all your families and just checks and categorize and says, which ones are over 500 MG, or sorry gig, sorry MG. Kilobyte, sorry, geez. 500 MG, that's big. 500 kilobytes, and it flags them and gives you a warning. So it goes through thousands of them and it will search your entire model in about a minute. Fantastic tool, so we wanted to tell you about it.

What we're really coming back to again is time equals money. The leverage comes from you saving time, which means you're the decision maker within the company, if you're not that person, you're using this is as almost like a leverage tool. Well I will reduce production eventually. Or production time. So I want to do the hat. Do you want to grab it? And you can pick the name. If it's your own, these guys are going to go crazy. Yeah, right?

JIM CONGER: This is for the car.

JUSTIN JAMES: Yes.

ROSANNE SIEGAL: I got it.

JUSTIN JAMES: You go it?

JIM CONGER: [? Kenzuki ?] [? Yazui? ?]

ROSANNE SIEGAL: Yay!

JUSTIN JAMES: There you go. Draw another one, and then give the hat away.

JIM CONGER: All right, one more and then the cap. Bates. Aaron [? Speights. ?]

ALL SPEAKERS: Yay!

JUSTIN JAMES: We did not fix that, that was a joke.

JIM CONGER: By the way, Aaron, if you want to sell.

AUDIENCE: That's the fourth thing I've won today.

JUSTIN JAMES: Really? So one of the things that we do want to and we feel very passionate about is improving every year and changing up. I speak here at least twice a year, and we do want the feedback. So you can leave it either on the the app. I don't know if you've all got it, but you can network and scan people's QR codes, it's fantastic. But we want to continue to improve. We won't improve unless you tell us where we're going wrong. And if we think we're out to lunch, we want to hear it. OK?

JIM CONGER: Give us five stars.

JUSTIN JAMES: Oh there you go.

JIM CONGER: For everything.

JUSTIN JAMES: Yeah. Just remember, we provide candy when you come. By the way, did you see-- there's more here. Did you go to one of the sessions where the guy was giving beer out yesterday? Did none of you go to it? So they had a keg, they made a keg. Live, like this-- not one of you went to it? And he was giving out beer, and it was the whole session. So he was-- one of the guys we was chatting to last night, Mark, he had three beers in the session. And he's like, I really shouldn't of had the third beer because I got really chatty towards the end. It was like, OK. He's not invited. OK guys, you are free to go. Thanks very much for standing in.