SAMUEL MACALISTER: OK. We'll probably just get started now because it's a 90-minute long class. Some of you are probably wanting to go and have some breakfast soon or maybe are still drunk from the party last night or have a severe headache. So I'll try not to talk too loud. Oh, yeah. Yeah, plenty of Red Bull. I've had my Monster drink and I got heaps of water to get my head right.

So, today's class-- they'll be about a 20-minute intro. And is everybody more keen for PowerPoint or for more live stuff? Live? I'm going to try and do everything live. And if I need to revert back to some PowerPoint videos if things go south. But I'll try and do as much as I can live. And hopefully we'll get a really good result at the end of the presentation.

So a quick update. The teams have released this format materials to Revit. And it's allowing you to now bring across your former materials into Revit without losing that connection. So this hasn't been released just yet. It is available in the Revit preview. And just to give you a quick-- just to give you a quick snapshot, with everything sort of live today. And let's turn off the music.

So this is just one of the demo data sets that I'll be using today, brought down from FormIt. And when you go and look at the materials that come down from FormIt. And you can see them here in Revit. We have here-- if you're going to be doing the preview or when this is released, you'll find that's the form of materials low through. So all of these materials that we create inside of FormIt are now available coming through into Revit. You don't need to bring in the model and then retexturize it. So that was something, just to highlight the beginning of the presentation, just to make you aware that the teams are about to bring this out.

So class summary-- we're going to be starting off with FormIt and looking at some of the presentation tools and applications, some of the new animation tools. Then moving into 3ds Max-- looking at the file formats you can export out of FormIt and you can bring in. And then finally finishing off with some InfraWorks 360.

So the four key points-- the presentation tools, the FormIt exports, how to get started using tools like 3ds Max. How many in the room have used 3ds Max before? OK, cool. And how many are using FormIt? Oh, less than Max. And how many are using InfraWorks 360? OK. So we've got a wide range. So we've got to show some of those workflows for those who haven't seen some of the other products.

So the quick starting point is the who, what, how, and why. Number one, who am I? I'm originally from New Zealand, just next to Australia. I actually live in Australia. For those of you who don't know, we're New Zealanders. If you just saw the show, *Flight of the Conchords,* that's where they're from. They're from Wellington. So I'm from a very far away. It's about 3:00 AM in the morning for me. I spent most of my time working as an architect over in London in the UK and a lot of health projects and AutoDesk Architectural Desktop and Revit, working for firms like HOK and Building Design Partnership.

My claim to fame at AutoDesk is I got to design the data set that ships with Revit a few years ago. This is the original one shown. When I gave it to the teams I sort of cut it down a little bit. So this one's a bit more poetic where the doors slide into the back of the house. And it's not all glazed over and there's a lot more detail on it. This one is completed with a lot of structure and some of the MEP services. So if anybody wants a copy of the original, please come see me afterwards.

And I also helped students cheat on their Revit courses. So I added the Villa Savoye exploded axonometric visual here. And what happens is a lot of students around the world reach out to me for a copy of the model so they can fast-track their way to an A. And I'm based in Sydney, Australia, which is about a 16-hour flight from here, which I'll be doing later today with my Colombian wife and my Chinese pug. Thanks.

In my spare time, I do enjoy visualization animation. So this is on my YouTube channel. This is the AutoDesk Raytracer renderer tool on the cloud. It's a Revit model linked into to Max. And using some of the basic materials and the cloud rendering engine, able to get out animation in a few hours on the cloud server. So this is still working in beta mode. But I think you can still sign up for it. But it just means, if you want to do an animation with a derivative model and then its people, you can do this very quickly.

The people from a company called Rockerbox-- they are prerigged and animated. And so you can just load 'em in and load in the rigging and then point and shoot and run the animation. So we have [? Kyle Bass ?] boogeying there on the right, trashing the apartment. And he can get this out very quickly. So I'll try and show a bi of how to do this today-- not the animated people, but we'll get close to this hopefully by the end of the class.

So number one, how many are you using a form of pro? And how many are using the free version? And how many don't know the difference between the free and the pro version?

Excellent. OK. So, the main five key points for the pro version versus the free version is the AutoDesk material library. So you can make your own materials in the free version, but the pro material library comes with a lot of prefixed materials that you can reuse. And they've got the normal maps to have add texture or more bumps to the material. So they're really handy to have. There's real-time collaboration.

And this is where you can have numerous people inside the model. So I've been demoing this at universities. And we invite the students to get into the model. And they all start designing in real-time and moving around and trekking around cameras. There's solar analysis. So you start doing basic solar analysis with your conceptual designs. And there's a link to the Insight 360 service as well. So if you've got your conceptual image analysis models ready to go, you can load them up into 360. And the really cool thing is the Dynamo workspaces.

Does anybody use the Dynamo Reach and loaded in the player? So I'll try and show a bit of this live today. We also just released this with Revit 2017.1. There's a Dynamo player. So even if you're not a visual scripter, you can get the URL scripts from Dynamo Reach and load them into the player, and then run them in FormIt space or Revit 2017.1. The other one is that in the free version, it's mainly the-- well, it's all the web browser and the mobile versions. In the pro version, it's the Windows client. So if you've got heaver, more detail models, the pro version's probably better to run on the Windows client.

And how do I get it? Number one is you can click on the FormIt app and just launch it straight away on the cloud, and that will take you up. And it will polish the materials and get the space ready to get up and running. The other one is, you can get it from your respective Android and iTunes stores. And there's also the add-in for Revit. And this is for 2015, 2016, and 2017. You can buy it online.

And how many have an AEC industry collection? Just a couple. Most people still on the suites? If you move to the collection there's about 18 different software applications. So you get FormIt. You get InfraWorks 360, 3ds Max, Revit, all the flavors of AutoCAD, Navisworks and several other ones. In Australia, it's just me, myself, and I covering AEC. I've got to know them all. So I'm very familiar with the collection. And if you're an enterprise customer, you get them on TokenFlex, and you can download the desktop app from the FormIt 360 web site.

So why am I doing this? Number one, I'm a big fan of Japanese architecture. I like minimalist architecture. So I'm a fan of Tadao Ando. And he's done some stunning buildings like the

Langen Foundation Art Museum. This is a little cafe by the reflecting pool. Naoshima-- this is another sort of reflecting pool.

But has anybody seen Alex Roman's, *The Third and the Seventh* movie? Check out Alex Roman, and you'll see this video. It's about 15 minutes long-- absolutely beautiful. And he does a lot of Japanese architecture. And this is a snapshot of some doves flying out of the reflecting pool. And the Koshino house at the very end is very big on concrete. I've heard his brother-in-law has as a precast concrete factory I think. So he specifies a lot of concrete. But he looks at things like Louis Kahn used to do with the slice of the light coming in through the building. And it's very big and bold and a lot of careful attention to scale and proportion.

And the one that we're going to be trying to do live today is the Church of Light. So the image on the left there is actually a rendering. And the one on the right is actually a photograph of the outside of the building. But we're going to try and replicate some of those in FormIt 3ds design and InfraWorks.

So these will be the three softwares. And it's going to be designing in FormIt 360 pro, rendering in 3ds Max, and animating in InfraWorks 360. And all of these come in the collection. And just a reminder for anybody who didn't see this-- you can download a QR code for your phone. And at the end I'll be bringing up some visuals. Most of them are pretty healthy. Some have some people wandering around in towels. So you'll be able to take those away with you at the end. And I've got a VR unit here if anyone wants to put their phone in stand in the space and see how good the quality is.

So, a lot of questions we are asked from customers is, why should we move to FormIt away from Sketchup? So number one is probably the reuse of the data inside of Revit. So when it comes through, you can reuse it and you apply walls to faces and floors. And then there's that new Revit materials connection with FormIt.

Interoperability-- there's so many file formats. So you can import and export. So you can reuse all your Revit RFA files, bring them into FormIt. You can bring in Sketchup files really cleanly. And a group and all the materials come through. So it's a really nice way to reuse some Sketchup data.

Cloud services-- so being able to connect to Insight 360k, and then other services by way of the interoperability. You can start to reuse some of those services to speed up your conceptual designs and present them. And of course, having it on mobile access. So when

FormIt first came out it, it was on the mobile devices. A lot of my time-- I travel around Australia and New Zealand, and I was doing my designs on my iPad while I'm flying up in the cloud, on the cloud, and then syncing when I land and I'm able to have my sketch design ready to go. Oh, Q&A. Yeah, sure.

AUDIENCE: [INAUDIBLE]. I just wanted to clarify the materials on this. [INAUDIBLE]? If I bring something in from Sketchup, will it bring the materials in and I can do that interactively as well?

SAMUEL MACALISTER: Ah, not Sketchup. Sketchup does go through now? Tobias, the product manager here, so, he'll be able to clarify that. But yeah, the Sketchup materials do transfer through into other applications. And I can show some of that today.

And then finally, the visual scripting, which is really popular. And if you haven't seen Dynamo, that's really cool. You don't want to be an expert. You can reuse some of the scripts, hook up the Dynamo packages and primer web sites. There's a huge amount of scripting you can get access to, and then you can load in to your chosen tool like FormIt or Revit.

So I've had enough coffee this morning to kill a small horse. That's why I may be drinking a lot of water. So the part one is designing in the format 360 pro. And this is just a quick, fast video on how easy it is to sketch design. So point and shoot, drawing a line, and then using tools like [? Switch ?] profiles to sweep along the lines.

So this is the Church of Light-- just a little building next to it. And just showing you some of the tools. I don't have time to show all of them in this presentation, because I've only got 90 minutes. But this is just a sped up one to show how easy it is to do some of the tools to push and pull, offset, extrude, and very quickly model up the building from scratch. How I do windows, just cutting the holes out.

Grouping is really important. If you haven't used FormIt thoroughly, group everything and then model geometry once it's together. There are pro materials inside the application. And then some custom materials. And Beethoven's the 9th in the background. And there's really good snapping tools as well, so you can instantly start to align whatever you extrude up or down to other parts of other buildings. And that's the quick modeling part of the application.

So moving on to the live stuff. And I'm just going to stay on that and just agree to everything, sign my life away. So I'm going to go to the desktop version of FormIt and just load in one of the finished models that I've got. And I may be cancelling out of those just to load in some

other tools.

But I just wanted to show you first off the material libraries. So what you have inside of Revit, if you haven't seen this, is an add-in. And this add-in will allow you to convert data. So you can do this with both Sketchup and your RFA family files. And all you need to do is just drop all the families you want to convert into former AXM files into a folder, and then pass that to this converter file folder. And you can also sync it to your A360 Drive folder if you want to access the cloud for those files. And it will give you access to the AXM models inside of FormIt.

There's a couple of notes here in terms of the Revit categories that will be converted. So just be aware of the limitations. But it's a great way to bring across the data without having to remodel it. Now at the moment I'm not signed in, so that's why it's grayed out. So always make sure you're signed in to get access to everything you're going to need. And I'm going to have to do my sign-in here. And no one's going to see my password. That's me staring at the cloud. OK.

So now that I'm signed in, I'm going to see access to a few more services like the live sharing and the conception of engineering analysis and [? solar ?] analysis. And then these are the default libraries that you're going to get access to. So the ones that I've got available here that I've been playing around with-- some of the imported ones for the Church of Light. And if I go and drop them in, they'll come in pretty quickly off the Windows desktop client. And what you'll notice though is that they-- let me just go to my display here, and just turn off the monotone.

What you notice is they don't come in with the textures. So you can apply the textures inside of FormIt. And they come in grouped as well. So when you go to actually add up those groups, it will just give you a little warning-- any changes will be lost when converting back into the original Revit family. So just be aware if you do make adjustments to the model that there is this note here.

What we can do, though, which is really good is when you go to use some of the tools like the array-- so we just want a few copies here-- and we take these out around the model. And we go back to that original instance or one of the instances, and then edit it. And let's say we want to extrude that seat. It adjusts all of them. So it's quite nice if you've got a lot of standardization and repetition, you can bring in that family, reuse it, and then apply changes

to it.

Likewise with the materials-- this is the more advanced material library that you get in the pro version. So if I want to go down to h hardwood, there's hundreds and hundreds of preset materials that I can use instantly. And I think one of the ones I liked was the beachwood whiskey. And what's happening here is that it's got like a little HDR environment lighting it. So you can instantly see the reflections and the gloss and the normal map giving it just that little bit of indentation in the timber. So it's all ready to go.

You don't really need to do too much here. And then you just paint with that material. Click once to do the face or twice to do the solid. And that's instantly updating. And very quickly you can texturize all those chair-- finish it. And now we have the texture inside the model. And you get a little bit of real-time understanding how that's going to work inside of the visual. If you do need to look at that texture, the other nice thing it does here is it groups everything together.

So if you need to look at it, you can see the two components in it. And if you need to edit that material, this is where you have the pre-built pro normal map. So there is a tool that you can make normal maps with. Has anybody heard of a tool called Crazy Bump? Sounds really cool. Unfortunately, mine isn't working right now because I just upgraded to Windows 10 and it's a little bit temperamental. I'll just see if it's going to work. No. OK.

So what that does-- it's a really simple tool. You can take a photograph of this texture here, load it Crazy Bump, and it creates the normal map for you, a diffused map. And you have bump maps and other types of maps you can use inside of visualization programs. So that's a really handy free tool to create your own custom materials. There's also cut-up maps as well. So if you want to do like alpha channels with like for the glass, for example, you can add those. And if you want to customize just the tint on the material, there's a default color here. You can start to make adjustments to that, just to get it looking a little bit lighter if it's looking a little bit dark. The scaling and horizontal and vertical are all there.

And what I would recommend is, whenever you create a material, just have a little bit of reflectivity, because everything sort of balances light around the space. And it just makes it look a little bit nicer if you add better reflections. But the pro materials are pretty good. They're ready to go. Everything's been done for you. And you don't need to create your own materials.

If you do want to create materials-- and I'm going to make sure I stick to my structure of my

PowerPoint, just so I don't get lost and stay on time. If you do want to create your own materials, we have sites like this one. This is called-- I'm a little bit old now. It used to be CG Textures. Now it's called Textures.com. Has anybody heard of this? It gives you access to a lot of texture maps.

So if you want things like concrete timber, HDR skies, a lot of them you can get access to for free. You can get like 15 credits. And it's like one credit to download them. And if you're doing textures and you want to make sure they look nice and seamless-- so, where are we here? So concrete, for example, if you've got a lot of repetitive things like these concrete pavers, always look for the seamless textures, otherwise you see repetitive texture mapping inside your model.

So you can grab things like this if you're logged in. You've got 15 credits. And simply just to choose what you need. And they give you pretty good size textures. If you are doing a really large model, you want a lot detail, then you probably need the pro version to get the larger texture maps. But for FormIt, keep them quite low. You don't to be dragging across large textures into your design environment. So, yeah, simple at that. You can bring it into FormIt.

So if I go and just cut that. And if I want to do grow material from scratch-- and I'll just do a quick floor plate. If I want to create a material from scratch for example, just bring in that texture map. And I'm just going to paste that in there. I'll paste it into a proper program folder. And it brings in PNG files and JPG files, JPEG files. And if my Crazy Bump was working I'd try the normal map. But just with this, I typically add just a little bit of reflectivity, just to give it a very subtle sort of shine and, simply just paint that material on. And, oops. It's in the main sketch of course because it's grouped. Just ignore that. And then if you need to adjust it, you can go and change the scale as needed. So that's a simple way to create your own custom materials inside of FormIt.

Now I'm going to skip forward to one of the finished models. And still staying in the format we want to touch on interoperability. So here, what I've got is the Sketchup model. So there was a question about Sketchup before and how it comes through and how it goes out and all that sort of thing. So when you actually bring in those Sketchup models, they come in grouped. And they even come in with all the materials ready to go.

So this one's come in with color mapping. And I've turned the blue jeans to orange. But simply you can go and play around with these and make adjustments on the fly. I'll make that one,

let's say, a transparent [? north arrow. ?] And we can change those jeans now into something a little bit interesting here. So it respects the--

[LAUGHTER]

Yeah. So it kind of respects the grouping of the materials. You can reuse it. You can change it all on the fly. And it's really nice.

Another one here is bringing in the interiors. And this interior shot is some of the scenes. The photographic people-- you can bring them across and they come through nice and clean or properly texture mapped. And we can reuse that Sketchup data.

So I definitely want to stay on time, because I practiced this last night and I was over time. So, the real-time collaboration-- so I've got this tool here. Has anybody tried real-time collaboration? It's pretty fun. I can actually collaborate with myself. So I can start a collaboration session-- start that session. And down the right here what it does is it pops-up a chat window, so you can type messages to each other. And you can see how many users you want to get in here. Tobias, is there a limit on how many users you can have? No. So I've had about 10 students who were going crazy at once on this.

So now you can see under the first user here-- and I want to go and invite others to collaborate. So you've got this link. And you can email that link. But what I found is if you just use these characters here and copy those characters, you can then fire it up in another version and use those characters to collaborate. So we'll go, OK, and we go back to the Chrome version here. And let's get out of that. And I need to make sure I'm signed in, so I can sign in on these two sessions.

And now the pro feature disappears. The other feature disappears. And now I've got access to the collaboration tool. And I can join an existing station. And I just put in the ID here. In fact, I could probably just do it-- just do it that way. And now this is loading me, myself, and I into the same session. And I can invite others if I need to. But now that should be loading it in. And is there going to be tracking? I think I was probably a bit ambitious trying it with a slightly larger model.

But what you can see here is, we're both in the same position. So I could be talking to myself and typing in stuff and then tracking around the model. I'm going to have to come back to that one. It should be following this model. But maybe I was a bit ambitious with the size of the

model that I'm working on. That's a really simple way to get up and running and start working with others on the cloud, collaborating in the same model at the same time.

The other really cool thing here inside of FormIt is the scripting. So I'm just going to do a new sketch. And what I want to do inside of this-- I'm just going to close out that sharing session-- is start looking at the Dynamo player. And this is a really powerful feature. So if you go to the Dynamo Reach web site, and you log-in or sign up, you're going to get access to some of these prebuilt scripts, which you can download as the DUI in files and use inside of Dynamo, or you can just cut and paste the URL from those scripts and reuse them inside of FormIt.

If you want some really cool ones, I'd recommend on the FormIt website there's a really good blog here. So I've had clients asking about typography and the teams put together this really cool workflow on typography in FormIt 360. One of the earlier ones on the FormIt Friday Dynamo webinar is this one, which has some really good links to some of the scripts. So we have this multi-family building generator. And you sign in with your AutoDesk IDs. And it's a good thing my password's not showing because I've got unlimited cloud credits.

What this is going to be doing is it's going to be loading up this really cool script. So if you're just doing a basic masking design of a building, and you want something simple to look at the number of floors-- so we crank up the number of floors to 12. This will load the script and do it automatically for you. So really simple tools to start tweaking that design by just moving the script around. And it updates here off the cloud. So luckily the internet's pretty fast today. In Australia, a 16-hours flight from here, we don't have the speed to go to the servers in the US, so it takes us a bit longer. But here it's really fast. So I'm quite lucky to have this working for me instantly today.

The one on the main page though-- this is quite cool. I've been a big fan of Norman Foster's projects for a while after living in London. And one that I really admired was the big Gherkin building, the Swiss Re building. And I had a general components team work on that. It was very advanced. This here, you can just do it all on an Dynamo script, and then just use these adjusters for the wave in and the way to start flexing it all over the cloud. So I felt sorry for the guys who had to do all that generative component stuff, because now you've got Dynamo scripting.

So with that, how do you get into FormIt? Cut and paste, and now in the FormIt environment you just add in those Dynamo scripts. So you can add numerous scripts in there, and then

just paste it in, and go OK. And this will just load in. So this is the jewel cage. And we simply just click to bring that across. And again, it's just loading the scripts from that URL. And here we have the model inside of FormIt 360.

So what's also really cool here is it comes in grouped. And if you go to the properties, there's the information about the name for the model. If you go to click and edit the group, it then brings up that script or the sliders within the script. So you can, again, just make adjustments to different items here, and just give it a sec. It goes back to the URL, and it reloads the information and starts flexing the design for you. So I thought that was really cool. And again, that's in the Revit 2017.1 release with the player. And now you have the data ready to go inside your FormIt environment.

From the website as well, you can download an SDL and a DYN file. So how many have Dynamo Studio? A couple. So if you want to publish to Dynamo Reach you need to go through Dynamo Studio to put the script up there. And for anybody else interested in getting started with Dynamo, I finally got to attend some Dynamo classes on Monday which were excellent. There's the Dynamo packages web site.

And for anybody who couldn't get to the class, it was absolutely packed. They had put up the classes on the Dynamo Package Manager website here. So they do move quite fast. But here's the AU 2016 classes. And there's some popular ones here. But if you go for the recently updated ones, you'll be able to get some of the testing data sets for you to get up and running with Dynamo and learning from some basic scripting.

So we're not at 8:30 AM, which is 3:30 AM in the morning for me. So I think I've covered most of the items here of visual scripting. And we've covered the blogs. And I'm going to drop back to the PowerPoint here just to show you just some of the visual styles. So you can find the tools either from the drop-down ribbon or over on the right here inside of the property display. So we've got all these tools for different types of graphics. And it all comes down to user of preference or what you choose to show your client at certain stages of the project.

So sometimes clients get a bit distracted by looking at materials when you're just trying to show them the spaces or the forms. So you've got tools like the monotones surface to give you this nice ambient inclusion white model. You've also got different customizations for the colors of the faces, the back faces, and the edges. And you can turn on the shadows and the ambient shadows here.

There's the edges-- so for those of you who remember the olden days when we used to do the mock-up on the drawing boards using the blue pencils before we inked it up, you can start to customize those edges, and then extend those edges, and give it kind of a graphic that you want. And for anybody who's looking at doing, say 3D printing, there's this water-type feature which allows you to pick up any holes that might be in the model. And also, you can turn on the back faces to see the back faces of things like the glass here in the model. So there's a few things that will help you with interoperability, like going out to an SDL file for a 3-D printer. You can check that the models have got watertight issues sorted.

These are sort of my preferred settings that sort of help for interiors and exteriors. I've been doing visual sort of stuff for about 20 years now. So I always try and use morning or evening lighting. It tends to give you the best shadows. And you go for the winter type suns, and that gives you the long shadows and looks a lot more seductive and gives you better contrast.

For interiors though, you're probably better turn a lot of the shadows off, just because they make it a little bit darker. Like when you get into the ambient shadows, it's like the darker lights in the corner or the spaces, and it can make the whole room a little bit darker. So I typically turn those off. However, if you do want to keep them on and keep the direct shadows, you'll get an image like this one up here, which is a little darker. You could take it on to websites like AutoDesk Pixlr, which has some fast tools to actually enhance the image or make it pop out of the screen.

So if anyone hasn't seen that-- has anybody used AutoDesk PIxlr? It's probably one of the ones that we don't market that much. But if you can get access to Photoshop like me-- the Adobe guys don't want to give me anymore free licenses. You can go to AutoDesk Pixlr, P-I-X-L-R, not Pixar. We haven't bought that one yet. AutoDesk Pixlr is free. You can download it, and you can run it off your mobile device or off your web browser.

So we've got a couple of cool ones here. There's the editor one, which pretty much has all the same sort of buttons as Photoshop. And I don't know what's going on here, but it's pretty much the same sort of thing. So you can launch that. But the fast one is launching the web app. And this will give you an opportunity to enhance the images without having to be an expert. So if I want to do this live-- and I've probably got two minutes to do this. So I'll try and do the live thing that used to take me maybe half a day to do an industry

So back in my FormIt environment, if go and open up that previous scene here-- and I'll just

discard that-- and go to one of my interior views. And you can see now it's just loading up. What I love about it-- this is the location as well. It puts all the characters in Japanese for me. So this Church of Light space in Osaka, Japan. The scenes here-- so if I go to one of the interiors and I'll choose maybe this one.

And you can see here, this one in the displays has the shadows on. So it's maybe a little bit dark. You can save this out. And this is probably something just to know. You can save it out locally or to your drive. When you save it out to the image-- this is one of the new features-- you can save it out as the viewport, or you can go up to 5k, which gives you 5,000 pixels wide, which is huge. So you can get some really high resolution outputs here. I'll just do 1080, which is which is OK. And you can go up to the maximum size of 16,000 pixels.

So if you wanted to do a billboard as wide as this room, you can do it from FormIt. So we'll just export that out. And I'm just going to throw that on my desktop, on my live folder. And this is just a PNG. I prefer to work in JPEG. Pig And with that, we just browse to that from our cloud service on Pixlr. So you can open up from a URL outfall for cams. And here we have the export demo.

And what's really cool about this is, there's a lot of automated adjustments. So you can just go auto fix. And it will just do a little bit of adjustment in the color and the exposure. And then there's numerous tools to dip the field. I remember having to do this in 3ds Max when you had to do render passes and then do this real clever trick to do it in Photoshop to make it look a certain way. Now you can just do it instantly and apply it inside of AutoDesk Pixlr.

And the effects are really fast as well. Don't go too crazy with this. I always use the subtle ones. And the one I usually prefer is the [? Ingrid ?] one. And you can see what it does. It just enhances the it just makes it pop out of the screen. And you can adjust how heavily you want to apply that. So it's very subtle, but it just gives, say the concrete texture a lot more depth.

And then the final thing to do is make a quick adjustment with the brightness and the contrast just to get it looking right. So I'm just cranking that up just a little bit. And again, just keeping it really subtle. And you can get some quite good results without having to be an expert. So that's sort of a simple workflow to do it all inside a form of export.

For exteriors, I try and turn off the silhouette edges and just go for a really subtle sort of look and feel. So the more time and effort you put into your materials, you can get some really nice results. And there's this one here just has 25% of silhouettes, just to get it looking a little

bit nice with the texture. Also I try and always use low shots to make the buildings seem bigger and more impressive. But usually eye height is kind of the best way to explore the building, because that's the way we experience it.

A lot of the time we like to show those axonometrics. But nobody ever gets to see the building like that, unless you're up in a building above. So try and do the low shots. And I always go for adding a lot of context, which we'll show in today's presentation. So whether you are leveraging Sketchup people or bringing in some trees, we bring it up to scale in context. So you can reuse all that data.

So what I'm going to try to do here live, is show you how to create a tree inside of 3ds Max and bring it into FormIt. And this should only take three minutes. So where's my 3ds Max? OK. So here's 3ds Max. And we'll just close out of that scene. I'll do a brand new scene. And I'm going to reset it, just so there's no smoke and mirrors. Save, yes.

Now, there's a company here called Laubwerk. They're a German company. And you can actually get access to their demo plant live view browser for free. If you want plants or trees for your own region, they've got really good packs. You can buy them for a couple hundred euros. And this gives you a really powerful tree engine. I think this is the one that I can use for my demo. So you've just got apply it. And what it does instantly is it gives you this basic graphic of a tree.

And when you go to the properties here, you can start to look at the detail of this tree in real-time. And it's got every single leaf, twig, branch, trunk that you can imagine. And it allows you to choose different variants and whether you want it to be fully grown or young or spring or winter. All of that will flick through and the tree will customize. So it's a really powerful tree generator.

The thing is, if you load this into FormIt, it may kill it. Although I have loaded in a tree like this, it just took a few minutes and I got some really good results. So what you can do with this tool, is you can reduce the polygon count by going down to [? coal ?] by level, and then just reducing this to reduce the branches. So at the moment I've just dropped it down a little. And you can see the detail branches disappear. You can also turn the leaf density down to one. and very quickly we've got a stylized winter tree.

So all I need to do from here is export. And I'm going just going to go export selected. Do it as an OBJ file. And the OBJ will carry the basic color of the tree. And again, I'm just going to

throw that on my desktop here. And I've already got another tree there. Tree zero one. Everything's tree zero one. And export. And now we're ready to bring this into our formative environment. And you simply just go import tree zero one. And it should come in at the center. Just give it a second.

And again, I'm bringing it into a large model while running several programs at the same time. And let me just go to the top view. And with my trigger-- all right. Let me just do a quick new sketch. And here should be our tree coming through. Yeah. So there's the tree. It comes through grouped. And from here-- where is it? Zoom extents-- you've got a tree ready to go. It comes through grouped. And again, if you go to look at your materials, when you go to edit that group and select it-- escape, escape, escape. Yeah, this one's kind of heavy. But you can start to edit materials. Oh, it's cause I had layers on.

So, here we go. So again, it's come through as a group, like the sketch I modeled at the beginning. And you can start to edit those materials. So this one actually comes through with the color you created inside of 3ds Max. And you can have a purple tree, for instance. So that's a quick way to create a tree without having to model or go searching for Sketchup and then bring stuff in and test it. You've got the Laubwerk tree editor and you can just reduce it down. Another tip here is if you hit seven you can see the polygon count. So try and keep that really low, because the more polygons you have the heavier it's going to be and the worse the performance will be.

What did you say that German company is?

Laubwerk. And I like them because they give me a free license. And I also like them, though, because they've actually made trees for my region. So I get asked by people in New Zealand, where can I get a pohutukawa from? And the Laubwerk guys have made a native pohutukawa. And they're incredibly detailed. And there's some great tools to sort of customize it as needed. So that's a really good site. And I think I've got a slide coming up later to show you a bit more on it.

So, the final thing to a finish up here-- where are we at? 3:42 AM in the morning for me. 8:42. It's just to show the new animation features inside of FormIt. And what's really cool about this is the customization of the cameras. So here is my interior scene. And what you know is when I go to my interior scene, I've actually unchecked, include animation. And I've just got an exterior animation here.

So what you do is you have all your shots that you save here by just clicking the plus button inside the Scene Editor. And you just click on include animation, and you can play around with the transition time and the camera speed. And when you go to play it-- and this may jump a little bit just because it's pushing all this information from my card. But it will animate between camera one and camera two. And if you will pause it, it will do all sort of stuff as well.

What you can also do though, which is really cool-- I'll just make sure I stop it-- is if I go to the plan view-- and I'll just turn on the monotone surfaces, just to show you what's going on. If I go to my plan view and just turn off my shadows, and then go back to the camera, I can turn on this button here, edit scene cameras, and now it loads up the camera path.

So for anybody in Max-- I think back in the day I used to draw spines and then attach the cameras to the spines. And we do the keyframe and lots of stuff. This one is really easy and simple to use. Just grab the point of the camera, and just grab that around and you can adjust where you want those cameras to be, in both plan and in 3-D. You've got the camera location and the camera target. So a really handy tool to get started on doing an animation

AUDIENCE: Can you export the anim-- can you the animation?

SAMUEL MACALISTER: Is it is a movie file? Not yet. No. I don't know, is that in the works, FormIt?

FORMIT REPRESENTATIVE: We get that request a lot.

SAMUEL MACALISTER: Yep. It's coming out tomorrow, right?

[LAUGHTER]

So this is this is really cool. And you can also if you go to your 3D view, you can see the camera path as well. And again, you can make adjustments. So it's a really nice way to adjust how you want that camera to be pointing, and then run that in your scene.

OK. So I'm going to move into 3ds Max. And all you need to do from here is to go from FormIt to 3ds Max is just export the file locally as an FBX. And I'd recommend you choose the latest version, and just leave the other stuff unchecked. There is some little question marks as to

what these things mean. But just keep it simple. If you've got a really complex scene, either put everything on layers. And I didn't show this but I try and put everything on layers because I end up making really complex scenes. And if I just go back to my display styles and turn on that there, I try and put everything on layers so at least I can just reduce it down a little bit and sort of control what's going to be exported.

So the simple one I'll try and do live today is just the sketch design here from scratch. In fact, I might do this one. So the really handy thing is I don't want all the Sketchup people, but I want all these bits and pieces, I can I can bring them across. And when I go to my export, export locally, you can just do visible only or selected only. I'll just grab all objects, because I put everything on layers. But if you do want to just grab stuff, just do selected only.

So the latest version of FBX, just go Export, and Au Live, and Finish 01. And now we have an FBX file. And for anybody's who's not familiar with FBX. It's a file format that carries materials and lighting and all the geometry. So it holds quite a bit of information.

So again, I'm going to do a reset. And I'm just going to reset, trying to do everything with no smoke and mirrors. And this is the 3ds Max scene. If you haven't used 3ds Max before, it can look a little bit overwhelming. I've been using it for 20 years so I'm probably a bit more comfortable than most. A lot of the tools in AutoDesk are all similar. So when you move between one application to another, there's usually the ribbon window and a lot of the graphics look the same. And you can usually find a lot of the stuff in the drop-downs.

Within 3ds Max you've got a lot of the powerful tools over here in this tabbed properties tool here. And you can start to create from here, or you can do in the drop-down. So with the starting point, I'm just going to import in the FDX file. And I did try and clean up my desktop. So this was the one I just exported out. And for me, what I try and do here before importing-- you can start to customize how you want to bring it in.

So if you brought in files from Revit before, you can do that. You can use a preset. What I try and do though with the units is turn off the automatic and just put it on to centimeters. And that's just my personal preference. You can tinker around with those, depending on what you want to do with Max. But that just tends to work better for me.

So this is now loading it in. And what you'll notice here is it's bought in the model. And it's bought in the textures. And they will come in pretty clean, except for this one. This one's kind of scaled a little bit off. So you don't need to worry about this. There's some really fast ways to

make the adjustments. What I can do is I can bring up the material editor. And the material editor will load in all the material slots.

So like in Revit, you've got to go and open up the properties of family then go through all the steps to get the materials. Max, they're just here. They're ready to go. And if I want to load that material into my material browser, I just use the iDrop tool, and just click it. And now I have that concrete that I created inside of FormIt. It's even got the name there, and it's got the material. And I can even view that material that's being created.

So at the moment it's not scaling right. I could adjust it here, using the width and height inside of 3ds Max. Or I could do something a little more advanced and use the UVW mapping. So what you can do is you can right-click. And like a lot of applications you can go, select similar. And what this is going to do is it's going to select all the items that have that material. And in the modify step here, there's a lot of modifications you can do in Max. The M&E guys are really advanced.

UVW map-- and this will just give me a tool to texture it as a uniform box. So at the moment, by default, it's just scooted across. I just want it to be 30 by 30 by 30. And now those textures are all created and they're all looking similar. And then I'm just using my alt, my wheely button to spin around the model. And you can also just right-click, go to a gizmo, and then just slide them up as needed to get them looking right, and across.

So it's a really nice and simple tool-- a powerful tool. Because I know when you go into Revit you've got to go through and do all those adjustments. This, you could do it all in real-time on the screen. And then just back to top level. So that's the model that's come in. And you can see, even the Sketchup data has come across. It's looking a little bit funky. But you can get a lot of the interoperability through. And then I've got my trees as well, which I've put some texture maps on previously.

So what we're going to try and do within, say, 15 minutes is a real-time rendering. How many people have tried to do rendering in Max and struggled? How many have succeeded? How many had a bit of pain trying to succeed? Now it's a lot easier, once you know what to do. So what I'm going to do here inside the model-- so our textures are through, our materials are through. Everything's looking OK. I'm just going to go to my top view. Max has got this nice little Alt-W tool to navigate between point A and point B. And just go Alt-W to bring up the screen.

What I want to do here in the top view is create a daylight and a camera. So you can do this from the drop-down tool here, where you down to lights. And just go daylight system. And just say, yes, this just tells you about environment maps and exposures. And just point and say yes, and bring the sun out. What this does is it gives you a date and time and a location as well. So if I just want to get the correct location-- and of course it starts off in America because this is the center of the world. We can choose Asia.

You'll see this with a lot of the programs. I'm watched *Team America* too many times. So we can go and pick from anywhere in Asia and choose the location. So if I choose, say, Japan, I think just next to Kyoto is Osaka, where this building is located. And go OK. And now the daylight has moved around to the correct longitude and latitude. And as I go to adjust the hours of the day-- so maybe I want a morning shot during the winter, the sun will move accordingly. So that's daylight set up-- really simple.

Now, likewise, if we want to create a camera, just go down to drop-down and you have all your cameras. And I want to use the new physical cameras. Is anybody old enough to remember when we used to put films in cameras and you'd buy like the 400 or 200, all that? Same sort of thing. So you just use a physical camera. And this is just point and shoot as well. So we'll choose probably here. We'll go here. And now we have a camera in our scene. Just hit Escape to get out of that. And if we hit C, that will take us to our camera view. And we can hit F3, and that will show us our materials.

Now, there's numerous ways to navigate with the camera. There's a lot of tools just here. Or you can just intuitively move around, just holding down your mouse button. And I'm going to zoom out a little bit. And I'm just going to get rid of the chairs, get rid of the benches. So I just click out of that. I don't really want them in my view.

So now if we want to do a quick render of that camera, I'm just going to hit render production. So this is straight out of the box. And what we're going to see is a really blown out white render. And this is because the exposure in the camera hasn't been set. So if I just right-click and just go, Select Camera and go to the Properties, all you need to do here is change the exposure from 6 to 16, just as a starter.

If you're doing interiors though, and it's dark interior, just leave it on 6 and that will allow more light to come into the camera. And now we do that quick production render. We'll start to see something-- oh, it's really dark on the screen. OK. So, well, I put it down to maybe 14 and just

re-render. That's looking a little better. So that's a really quick way to get out a render without having to learn too much. So it was just daylight and a camera.

Now if we want to do something a little bit more advanced with HDR lighting-- what I'm going to do here just very quickly is use some of my typical sort of setups. I like to start off with a circle for like a ground that sort of disappears into the horizon. And I like to use the mesh, Mesh Select Modifier, to just give it a solid sort of surface. So that's a simple way just to create a disappearing sort of background.

And the other thing to do that I haven't done just yet is the windows. So the glass in format doesn't come through as being transparent. But inside of Max, inside of the material editor you've got all these preset materials. So there's a solid glass all ready to go. It's a physical material. And just like we did with selecting the concrete, just right-click and go, Select Similar. And then just apply that glass.

And now you have transparency coming through here. And I'm just going to drag and drop to get another material. I'll just drag and drop that onto the base and show them the view. It's not showing up. Ah, I was just doing concrete. So I just want something on the base there. In fact, what I will do is just steal that material, and put that one on the base.

So with that, I want to create a cloud-type environment. So when you see those really beautiful shots-- like there's a lot of photos of Yosemite out there. And they're all really nice. And they're like either the morning or night time with beautiful colors. You want to try and do this with concrete, because it looks really nice when you illuminate it with a beautiful environment.

So what we can do is we can use tools like from this website-- HDRI Skies. And these used to be really hard to get hold of. But this site has very kindly made a lot of them for free. They do have the large ones. So if you're doing a really high render, it's good to go with the larger resolution. But if we go and choose one of these ones here-- and let's say I want this one at sunset, we can go and get a 4,000 wide high dynamic range image to load into our 3ds Max rendering. So they're free for that size. And then they go up I think, once you go for a larger high resolution. So you can add it to the cart and download it.

And to bring this into Max, all we need to do here is just go get material, choose bitmap, and then navigate to our folder. So these are some of the ones that I've done in the past. Let's go add one. And it gives you like a little preview of the sky before you load it. So I've got two

here. One is a sunset one. And I'm going to open that. And it's just going to tell me about the load setting. And now I have this sky loaded into my space.

But what you've got to do here is just make sure you click on environment. And that just means it creates a background environment. And instead of it being a screen, just go spherical. So it creates like a dome effect over your design. And that's pretty much all you need to do, except crank out the output to 100. And this just pushes the light into the space. And you'll be able to load this into the background.

Now what I haven't shown yet is the environment settings. By default, when we saw that first initial render, it's actually the default background sky here inside of Max. And you can see this inside the application loaded on here. So when you go to do like a little render preview, it's being illuminated by this into a physical sky. So you can get this little preview.

What I want to do here is just drag and drop the HDRI environment and instance it. And now we have it inside of our environment. So if I just go down to ground level and set my camera target. Now you can see here we've got this background loaded in. And when we come to do a quick production render-- and I just didn't UVW map my circle. Now we're getting that lighting environment giving us that warm sort of concrete effect.

So if you're a big fan of concrete and you want to sell it to the client and they feel it's too cold and harsh, load in a nice sunset HDRI, and it will give you a nice warm effect here. So that's a real quick way to get up to speed with Max, loading in information, and get out a nice semi-photo realistic render. And what do we do in? Like about 10 minutes.

The other thing just to show you here, if I go back to the PowerPoint, is we've got a cloud service. Oh, this is the web site where the trees came from. This is Laubwerk, and they have thousands of trees. And that's the quality of them.

AUDIENCE: Can you go--

SAMUEL MACALISTER: Sorry?

AUDIENCE: --to the previous? Yeah, I'm sorry.

SAMUEL MACALISTER: Previous slide? Yep. Laubwerk. And yeah, you can get them for a few hundred euros for your own countrified plants and trees and shrubs. And they do have this little free kit. So you can

just add that to the cart, and get some nice trees just to get started and get familiar with the program. So I really like the detail of these trees. Because in the past, to do trees has been really, really hard over the last 20 years. And these guys have written this tree tool to really help.

Another one which I've just got to plug here is RenderPeople, because they give me free people. And they're really cool about it. We do this rendering for them on their web site. They, again, provide thousands of people, and they're highly detailed. Each And for anybody who's going to do the bar-code bit at the end, I've got some render people in there. Some are running around in just towels, but you can take 'em away on your phone and you can see the quality of these render people. They have free ones as well. And they have the posed ones, but also the rigged one. So if anybody wants to actually rig the model and pose it their own way, you'll get like this bone-rigging skeleton here to actually manipulate them. So the detail is incredible. And they actually-- I think they scan the people and then load them in.

Rendering engines-- I haven't really touched on this. But for anybody who has tried to learn a rendering engine like Maxwell, V-Ray, or Mental Ray, you get screen shots like this where you've go a lot of things to do of processing and render elements and global illumination. And they can take ages to master.

So what we've got new at AutoDesk is the AutoDesk Ray Trace engine. And this is the art for short. And it just gives you this really simple slider to do rendering. And inside of 3ds Max, if you don't have a powerful machine to do rendering, you could actually send it to the cloud on our new beta site. So this is like the draft render. All you do is you just crank up the slider, go to advance tracing. You can even enable a noise filtering tool. And there's a couple of other tools for anti-aliasing for customizing the edges.

But let's say if I don't have time and I want to render really fast and leverage the cloud, I can go and choose the submit to cloud rendering. And I needed to do a time limit. So you can even do it for time. Submit to cloud rendering. And on the beta version you can leverage the render service inside of our Montreal office. It looks like mine is out of date. OK. So I need to update this. But it's a very simple tool to use. And with this tool you can get out results like this.

So this is what I was wanting to fire up. And I think I've maybe overdone a little bit, and the guys in Canada have cut me off. But you can render out something that could take a week or

a month, in a number of hours using a number of their calls and their CPUs and all that sort of stuff. So there's a little bit of stats here. You can do the sequence. It tells the compute time, the total credits you're going to use. If you get onto the beta, they give you 2,000 free cloud credits. So try to get onto that, because you get a lot for nothing. And it only consumes, say, 22 cloud credits to do an animation. So I've been going pretty crazy.

And it also allows you to open it up on your phone as well. So it will send you a link, and then you can open it up in your phone and you can see the tracking of the render and even play the render on your phone if you're running late to a meeting. And this is one of the results. So the same example of the FormIt model with the ART rendering settings, the HDR cloud, the camera settings, the daylight savings, and then running it on the AutoDesk Ray tracing cloud service.

And this is what I call just like a basic render with no post-production. You can get these sort of results within a few hours as opposed to days or months or staying at the office till 12 at night making sure it's going to render over night and praying that it's going to be rendered in the morning. You can run it all on the cloud and see it calcing in real-time.

We're now on to part three. And I'm a little bit ahead of time, which is great. So maybe I've been talking too fast, or going too fast. Before I get into part three, is there any questions on the last two sections? Yep.

AUDIENCE: So I work with a lot of curvilinear forms when it comes to [INAUDIBLE] in Revit, so is there a way to-- like how do I disseminate [INAUDIBLE] materials in a model that has coordinates and then visualizing back on [INAUDIBLE]?

SAMUEL MACALISTER: So working with complex curve geometry and then texturizing?

AUDIENCE: Yeah.

SAMUEL MACALISTER: Yep. So in a lot of applications you can do the height and the width of the textures. If you do take it into 3ds Max, this is where you can get quite advanced with texture mapping. So if we go and work with, say, a more complex form. And I kind of like Max because they've got these really cold tools to instantly sketch design.

So if I go and create something like a plane, and then convert it to what's called the edible polygon modeling tool, you can instantly go and grab these components and bring them up

as needed. And then they've got these really cool-- and I'm just going to isolate that. And if you want to do a modified tool, it's got a thing called turbo smooth. And that will give you something that's a little bit more organic. Is that sort of the type of shape? So what we've got when we go with these sort of shapes is the materials being dragged and dropped on.

And then in the UVW map, this is where you've got a lot more control. Where is it? Find it, find it, find it. I haven't customized my Max in a while. Make sure it's selected to get the modified list and go to UVW. This is where you're going to get your different options in terms of how you want to texturize it. So it will give you spherical and cylinder-type mapping. And you can use these tools to adjust how you want the texture to maybe work with that certain form. So is that sort of what you wanted to--

AUDIENCE: Yeah, because usually in Revit, it [INAUDIBLE].

SAMUEL MACALISTER: Yeah. Yeah. It's a bit of a pain point to get that right. Yeah, I've been telling the Rivet guys they need to steal some of this technology from the media and entertainment, because they just like do all this cool stuff. But I'm sure it's coming out soon. OK.

So with that, are we OK to move into Infraworks?

AUDIENCE: Quick question. Is the cloud rendering available only for [? right trace ?] or for other--

SAMUEL MACALISTER: Ah, yes, good question. Good question. Yeah, so it will work with other tools. So let me just delete that. And if we go back to our camera view, and let's say we want to-- I'm just going to create another camera just so we can try and do this live and then have this at the end of the presentation. So if I just go and clone-- and like all programs you can copy or instance it. And then we'll just go a little bit closer here, and hit C for Camera. And I'm just going to move the camera target around and get a little closer to maybe that window.

So what you can do here with this shot is you can render on the cloud to the other 360 rendering service to the panoramas. Is that? Yeah. So I don't need to change the materials either. And what's interesting here is, when you go to do the rendering, if you don't do it from Rivet and it goes to cloud and then it comes almost in default-- backgrounds. And then you've got like six HDR environments to choose from and it's kind of limiting. If you want to do your customized one, you can do it here from Max, and it takes across that background HDRI.

So this is just a little work around if you want to work with the A 360 cloud rendering mode.

And you've got access to your cloud credits. Because I work for AutoDesk, I've got unlimited. It was 6 million, but it's gone up. And you can choose all your cameras that you want. And if anybody hasn't seen this, the great thing about it is it just does all the cameras you have in your model, and it will do it simultaneously. And you can directly go from either a still image to an interactive panorama or in luminance directly from the application. So you don't need to be a rendering expert. Maybe the stuff in Max you might not want to use. It might be a bit too advanced. But this one will allow you to do it without having to be an expert. Just choose the basic settings.

A little tip here is if you want to do it for free, maybe run it on cloud credits, just keep everything down on draft and medium, and it's not going to absorb any cloud credits. But if you've got unlimited, you can crank it up. And this is going to take six cloud credits. I think a cloud credit, if you've got to purchase them, they're about $1 a cloud credit. So $6. Oh, hang on, that's gone up to $54. So that's for a very large one. And I am doing an interactive panorama. And what that means is it's doing like a six-sided render. It sticks it together like a cube and then you'll be standing inside the space, and you'll experience what it's like.

And we can also notify ourselves by email, so it'll tell us when it's done. So I'm not going to test the scene compatibility. It's going to probably give me some errors, because this is kind of a bit of a workaround to get this to work. But it translates it, takes all the data up to the cloud, and it just tells me a little bit about my skies, because I'm sort of cheating a little bit here to make this work. And that will upload now to the cloud, and it will give me some results like this one that I had up.

So that's already firing up the website for me to my account. So this will give you your results like this. And this one has the render people through. And again, this is just the formal model. I haven't done very much to the texturing or to the lighting, beyond what I showed just before. And it's just calcing. It's just loading it up. So that's a little bit closer. But you can get some quite good results with the render people. There's a lady in a towel there, those guys.

So you can have a bit of fun. And you can start to zoom in. So I can get right down to what's going on down at the lectern where there's more serious conversation going on. And there's some information here about loading it into some VR gear. And you can zoom back to get a more skewed sort of view. So that's a really fast way to get out of render.

And what we're going to do at the end-- I've got some bar-code scans for anybody who wants

to load these ones into the phone. I think that one might be available as well. And yeah, you get some great results. So there's a bar-code scan here. It generates it for you, and you can load that into your phone, or you can actually email the link to your customer, and then they can be standing in the space. There are Laubwerk trees. I wanted to try and test this last night.

So I loaded in quite a few trees. To do this on my machine would just kill it. It would just take it to do those calcs. Whereas, I can go and load this in, and there's a huge amount of information and the cloud just cuts through it. And I get out these type of renders. Some crazy lady. But the quality is incredible, when you start to look at this. So if anybody wants to try the headset at the end, when you see this lady up close it kind of freaks you out. So maybe not for the fainthearted. But you can get some really nice results that look pretty close to photo-real.

AUDIENCE: Is Autodesk selling [? post-profits ?] in software to use after rendering [INAUDIBLE]?

SAMUEL MACALISTER: We do. Is anybody from the M&E team in today? We did have-- I believe we still do have a creating photo suite. But I believe it works on the Linux system. So yeah. I think Adobe's sort of got the stuff that works on Windows. But then there's the Pixlr that I showed before. And that's kind of handy. There's newer ones out there, so it's just kind of searching for what you like. I don't plug Adobe as much as I used to because they stopped my license. So yeah, go for the Autodesk Create a Finishing Suite. Another question. Yeah.

AUDIENCE: In your FormIt model when you-- earlier, do you have a lot of the reveals that are running through on your model itself?

SAMUEL MACALISTER: Yep.

AUDIENCE: how as it created?

SAMUEL MACALISTER: Good question. So there's a lot of tools that allow you to-- I'll just do this from scratch, just with a new sketch. So when you're making your designs, there's the simple push and tools and just extrude up. And then in the other tools here like the advanced modeling tools, you can start to use these different tools to add more type of things like Sweeps or Lofting or Fielitz. If you just want to do the simple reveals, you can just draw on the face. It's got the snapping tools. So if I want it right in the center there, and then just just drag. Just do it again.

So it's now 4:12 in the morning for me. I'm doing OK. And yeah, if you just want to do a simple reveal, you can just push that back, and there's a reveal. And I think in the handout I've got a lot more detail on this. And what I recommend if you want to do really high-end visualization is, you can use the Fillet tool. And the Fillet tool, if you go down to, say, 0.1. you can select either an edge or an entire face. And it'll just give you that nice little chamfer from the end. Because everything in the real world just has like a little bit of a filler to it, except for a knife. And you can, like for concrete, add bigger fillets and just give it that nice look and feel.

So there's a lot of really good tools here. There's a typical [? boolean, ?] so join and subtract geometry. And the other cool one if you want, say, an interior, is you can shell a solid. Just go OK. And then if I just delete that roof, that will go on to create the double walls for you. So yeah, these are really handy tools for doing more advanced modeling if you want to get into a lot of detail.

AUDIENCE: And then will those go in forever?

SAMUEL MACALISTER: They do, yeah. It depends on how you model it. So back in Revit here I've got two different options of how sort of model it and just doing the cross-section here. So this one has the cutaway. This one doesn't. So it was kind of the modeled a little bit differently. So when you go to cut through it, it comes through as a solid. But for some reason when you look in through the window it shows as a [? port. ?] So yeah, there's numerous ways you can model things and it comes out in different ways. OK.

So moving on to exteriors. So we're down to the last 15 minutes, and everybody's still awake, sobering up, recovering. We're going to get into Infraworks 360. And this is the model builder tool. And for this one, just for time, I just want to play the video. Has anybody used the model builder? It's a pretty simple tool. Last year I did a more advanced class on Infraworks. So if you want to know more about how to customize and get more accurate models inside of Infraworks, I've got a much more detailed paper on this. But the simple one here is, because it starts off in America and we navigate through Japan to Osaka. And we can bring down the OpenStreetMap data from the model builder.

So in the OpenStreetMap data-- I mean, the more data that has been provided, the more accurate the model's going to be. You're going to get access to the roads, buildings, aerial imagery, and the elevation. So the [? DEN ?] data from the space shuttle mission. It's that data elevation model information. And this will allow you to create a site up to 200 square

kilometers. So you can get really big with this. I'm just doing 0.32 square kilometers of this area.

And so it's going to bring down all this information from OpenStreetMaps. And when you bring it into Infraworks 360 you can actually hover over the roads and it'll give you the street names and you can right-click and go to the link on where it's pulled the data in from. In Australia, we have Nearmap, which has really detailed texture maps. And in my class from last year, I've got a tutorial on how to bring all that detailed information in. Because sometimes if you're not on a good location, you can get all the accurate aerial information. Nearmaps will give you really sharp images to texturize your sites.

Finally, you can download that, and it goes to the cloud. And you can share it with groups of people. So maybe you're working in teams in different locations. You can save it to a cloud folder. And they can all access the data that you pulled down from model builder as well. And that's just a bit of metadata about that model we've pulled down.

So if I fire up Infraworks-- and I haven't fired this one not yet because it's a hungry application. It is built on a gaming engine. So you don't need to render anything out. And you can never get around in real-time. And there's even like little preset animation tools. In my class last year-- and I'll probably just, while Infraworks fires up-- it just takes a couple of seconds-- I'll give you a quick snapshot of what you can get to with this infrastructure application.

So this is one that we did of Sydney. And the quality you can get inside of Infraworks. And we've got one of Sydney, one of Melbourne. Melbourne has 5,000 models in it. And you can render it out in minutes, as opposed to hours or days. We did have a little bit help from someone providing us models like a local company providing data sets. They're lightweight models, but you can bring in your Revit models, Navisworks models, AutoCad models. It reads about 40 different file formats. It even captured part of the Barangaroo buildings that have been built at the time. And you can get this type of quality very quickly out into a full animation. And I've got another paper on this from AU last year on construction animations. If you want to see that-- and it uses some of the city and talks about how you can bring in Rivet into the application as well.

So we won't be getting to this level today. I want to try and do this sort of live. And I should be on the cloud right now. And it is not liking me for some reason-- my models. Usually you see

all your models here available to fire up. And because this is live, it just doesn't like me. So I will go back to the videos. So we'll go back to the videos. And what I want to show here is the data set that it pulled down from the cloud.

So I don't have a huge amount of models that it's pulled down from InfraWorks 360 model builder. But I do have the aerial imagery. And I have some water features here and some roads. And what I want to do is bring across my data from FormIt 360. So whether you export that as an OBJ or an FBX or whatever file format, chances are Infraworks will allow you to open it. It's got like a NavisWorks engine running in the background to create the interoperability between the applications. The model builder data though will also categorize into this data source location. So it puts everything into folders for you.

Here we brought in the Church of Light. And it's got these nice little previews. So you can instantly see what the model's going to look like before you place it. And I'm just deleting out some older models. And what you do before you place it is you can scale it. Or if you're working in a geocoordinate system, you can actually send it to the real location setting in the world. That's a whole other thing if you're looking at different geolocations. Again, that's from one of my papers from last year. But what I'm doing here is just never getting to that file and placing it.

So here's the preview. And this is the origin. So you can actually set it up in a true real-world location setting. Or you can just point and shoot. Because I'm using FBX I want to hold the textures. And it's going to come in scale a little bit odd. But if you do want it to come and scale perfectly, the best way to do it from FormIt to Infraworks 360 is go as an OBJ. The OBJ file will hold all the geometry and the colors, but it won't hold the texture mapping. So if you want to bring in a perfectly scaled, OBJ is the best way to bring it across.

I'm just going to eye this one up. So you can see it's scaled down into a really small size. But in Infraworks, that's no problem. All you need to do is select the little light blue pull tool, and then just scale it up. You can type in the numerical number, and it will scale up accordingly. And that's a simple way to bring it into Infraworks here. And then there's a few other tweaks. So you can see the textures that were created in FormIt are available. I've been playing around with some of the other tools to bring across people and trees and cars. You can actually drape textures instantly across the terrain without having to do any adjustments.

So inside the application it's got tools like seamless glass. And to do things glass back in the

olden days was really difficult because you had to blend materials and do all these tricks. Infraworks 360 does it automatically for you and cleans up the boundaries. So I go and draw a terrain-- draw up coverage over that terrain area, it will instantly clean up around the roads, and it give me a basic texture. Now this is just the basic one. But hidden inside of one of the other coverage folders is some of the seamless textures. And again, I was hoping to do this live. I've got to show this a lot faster.

So this is some of the seamless textures. You just drag and drop. And you can do this with numerous features inside of Infraworks, and it will take texturize it and give you that seamless glass. And then we can just use the XYZ gizmos to move the model around to suit. I'm going to see if Infraworks has fired up again in the background. Ah, it's there. OK, great.

So here's the live model. And things always fill a bit back to FormIt whenever I go from one other application. To actually orbit in this one, you need to use your left-click. And then right-click is your pen. The application comes through animated. So this river is already animated and ready to go. And don't need to do anything. It's got nice reflections. It's not perfect by-- I know water doesn't really do exactly that in some places. But it's a really good starting point for you to have a site contextual model to load your former information into.

And then the roads here-- so when you hover over some of the information, they usually pop up. And it's probably just not working for me today. But it gives you the information and the link to OpenStreetMaps. So you'll be able to see the information about that river, about that road, the street name, et cetera. So just to repeat very quickly-- and I'm just going to do this live on the fly. This is some of the models that I've had imported in. And this is the Church of Light. The 3-D model.

And it's going to give me the quick preview. And I'll just go geolocation, interactive placing, point and shoot. And you can see it's just sitting here. Double-click. The tip here is to go close and refresh. Always close and refresh stuff with InfraWorks 360 to complete the command. And then just scale up. And I'll make it, say, nine meters. And here we have a forward model inside the application.

The other really great holes inside this application-- you've got numerous tools for doing bridges and roads and underground drainage. The basic ones though for designers and architects is to use this create tool. And if you want to do a road, for example, you can go and choose from numerous roads inside the application and just point and shoot. So if I want to

just create a road around here, point and shoot. It cleans up. And then it populates it with these odd little street lamps. What I've done in one of the other previous styles here is I've added the telephone poles that are actually there in Osaka.

And you've got this style palette. And this allows you to customize the designs in real-time. So if I want to edit that and get rid of, say, both those streetlamps or replace them, it's really easy to do it inside of Infraworks. You've got this little real-time viewer. And if I want to add something simple like street furniture, I can go into the Infraworks database.

What I always like to choose is planes and ships. And I choose a Boeing jet. And if I close it out, you can now see I've got this street populated with Boeing jets. So you can adjust the spaces. Realistically you can put people on bikes and driving cars and do something more serious. But now I've got this Roadstar. And if I go a K, it's going to now go and populate Boeing 787s all across my road. So it's a really powerful-- and I'm just going to get rid of it for now. It's a really powerful way to start customizing styles and then drawing with them and building up your site really quickly.

The other one is buildings. So if you need to make quick detailed buildings, you can go and choose these preset facades. And I'll just finish up here. We're just doing a basic one. And it actually creates geometry in those buildings. And it's built with all these little blocks. They'll stitch it together and you can customize them as you need to. But as you stretch that building up, the blocks don't adjust. And you can very quickly show a design.

If you want to change the facade as well, so if I want something maybe out of marble and stone-- I think there's one called [? Alva ?] somewhere around here. But if I want to go and change it to maybe this one or this one, just drag and drop it onto the facade. And instantly it's gone and built the geometry for you.

So if you need to build up a quick conceptual city, this is really fast. And you can actually export it out as an OBJ or an FBX. As the OJB file or the FBX, you can get it back into FormIt. So there is interoperability between both the applications. You can go to the settings here, export the 3D model. And it is OBJ. Is FBX coming soon, FormIt team? Tomorrow? So you can choose the OBJ file format. And you can leverage some of these buildings and reuse them inside of FormIt.

I've also done this with typography as well. It can be a little bit heavy but if you want to bring in a basic site, you can bring this in as an OJB file and use this inside of your FormIt application.

So I've got five minutes. And the last things-- I want to show you very quickly, trees and animations. So to do trees inside of 3ds Max, we can use that Laubwerk tool. Or we can use the trees inside of Infraworks. And there's a few trees to choose from. If I want to do a forest of trees, I could very quickly just point and shoot, and it will create a little forest trees for me.

And then if I want to scale one up, I can do one on its own, or I can select-- by double-clicking all of them, scale them up and make them dense. Don't go too crazy with making them dense, because it will just kill your machine. I did this once in a live demo and just did a massive forest. But then everything just fell apart. So the cool thing here though is Infraworks is built on a gaming engine. So when we go into those trees, all the leaves and the twigs are all there, and I can navigate around them in real-time.

The other thing we have here in the setting-- you can see in the background, we've got that sunset sort of look and feel. We've actually got an animated sky as well. And if it's a little bit too much, you can drop down the cloud cover and the wind speed just to get it looking a little bit nicer. And of course you've got the time of day as well. And the shadows are all in real-time here.

So in the last three minutes, we have the storybook credit to get an animation. And what we've got here is a preset animation. If you want to do it from scratch I'll just get rid of these, just to show you how easy it is. You can do sun path animations as well. You can add text overlays if you can get access to Photoshop for doing the text overlaying.

So a quick animation is-- I'm going to do an orbit fly around. I can do a drop-down here and go, add look around animation. And just crank it up, from say, three seconds to 15 seconds and hit play, and this automatically animates for me. So it's a really easy tool to get up and running without having to create camera paths or move around with splines, et cetera. And if you need to adjust where you want to start, we can just go reset the start point here. And we want to angle right. And maybe we want to do a 360 degree fly around and angle down. Say, 30 degrees. Play. And OK-- bad live demo. Reset. Start here. End here, play. OK. That one's not like me today. But it should be focused on it. I think I just chose the wrong thing.

So that's a really simple way to get out an animation. And there are numerous tools in here. I know we're down to the last minute. But you can go from point A to point B. And then when you come to recall that animation, just hit Export. And this will allow you to do different types of encoding of videos. So' it you want an mpg compressor and an export. You can set the

resolution, set the time. And it's doing 25 frames per second. And I'm just going to throw it on my desktop just to show you how fast this is. And it's an AVI video. And record. And now, in real-time, this will run our animation with say, 12 seconds of footage without me having to do too much.

So on the prerecorded ones-- and I'll just bring up the FormIt data and Infraworks. Because I've been making so many adjustments, I have forgot where I filed everything, cause I'm terrible at filing my data. And this was one of the videos. What I recommend is when you do open it, it tends to work best with QuickTime player.

And this is an example of a sun path and the results you can get of a sun path study with the sun going around. All those detailed, the FormIt model. And you can even add a text overlay as well to show to your client that it's going from 7 AM to 7 PM. So there's numerous tools in there. We can get through them all today. But hopefully this has been enough to sort of get you up and running. Well, everything sort of worked reasonably well live. And if anybody wants a takeaway, have a bar-code scanners ready. If you want the naked people in towels, we have them here.

So I think I've got-- the three softwares we used-- FormIt 360 Pro, 3ds Max, and Infraworks. And then there's four scans. So there's the trees. And if you need to get close, hopefully they're far enough apart to grab them. But if anybody wants to put their phone in one of the viewers here and actually stand inside the Church of Light-- we don't have any time to get out to Osaka. We can view some of those different views. And don't be freaked out when you see the people up close in the towels.

And with that, I'll let everybody finish scanning. Any questions before the next class to run to? OK. So, yeah, that's everything. So thank you very much.

[APPLAUSE]