

KAL HOUHOU: All right. Good afternoon, everybody. Or good afternoon, Las Vegas. My name is Hal Houhou, also known as Big K. Don't know why.

I work in Washington, DC, in an architectural practice. The title says BIM Director, but actually it's way more than that. I design. I strategize IT technologies, or anything technology, so not like computers, hardware, but more like implementation workflow for the practice. So can be visualization, can be Revit, design workflow, et cetera. Our firm is, like I said, based in Washington, DC. The main project we do are historical preservation and performing arts centers, so like theaters, nationwide.

So lately now for almost two years we've been introduced to FormIt. FormIt was an app on the iOS, so iPad that was developed by Autodesk. At AU 2012 it was the first presentation, and then since then we never stopped using it. We had like 20, 25 designers working on SketchUp, and SketchUp now is passe. So we don't use Sketch anymore, since we are a full Revit shop in DC and in New York. So we've been working extensively with that.

So we're going to have some fun trying to model stuff. Anything, it can be a piece of furniture, or buildings. I will show you how to bring SketchUp content. If you have already an extensive library, so you know you will be able to grab that library and convert it into FormIt objects, content. Before starting, all guys, you are all architects here? We have some engineers, no? No engineers? One engineer? Great. Two? OK, good.

Next thing. Something very important with the FormIt is you need an A360 account. Who doesn't have an A360 account here? Some hands? A360 account, no? Everybody has one? Wow. I'm impressed.

Let's go live demo, if it works, because yesterday some glitches just opening my PowerPoint, my related stuff. Excuse me, guys. Each time the same problem with the thing. I need to duplicate the screen. All right. OK, keep changes.

OK. How do we access FormIt? So FormIt, you have a couple of things. You can do FormIt360.Autodesk.com, and then click on the launcher, and it will launch the FormIt360 app. Or just forward slash app, pull app, and you're in.

The hand out I posted is halfway to be completed, but it has the obviously the first 30 minutes

of this session. I promise I will finish it as soon as I go back to DC. I highly recommend to use Firefox as the browser. That is way faster than any others, although it crash time to time because this is Windows 10 Pro, so it crashes. Firefox crashes.

We tried with Chrome. For very complex modeling, it's not as fast of a thing. You can use Safari, so if you are on Apple, on Mac, so you can easily use your Safari. So anything that is a browser that is capable of HTML 5, that answer your question?

AUDIENCE: [INAUDIBLE]

Yeah, the HSO as well, yes. Sure, we can. I'm fine. If I crash, I will go back to H, definitely. All right, so that's the interface. So anybody here already went to a class or a FormIt lab? Some hands up. OK, some few. The canvas is pretty straightforward. It has the axis in all direction.

It is already signed on? No, it is not. Excuse me. So we need to put your information, your A360 account information in. OK. Prefer to check the box always. All right, so we're in.

OK. So, new sketch. The first part of this session is we're going to look into how to do programming. So at early stage of any project, I'm an architect as well as you guys, so we do some programming. So we have given the program of let's say the whole project. Most of the time we know the site, so we have possibilities to find out what's the area of the site. You've got it in AutoCAD, or in Revit, it doesn't matter. So you've got the area, OK.

So this is the portion that's are here. So you have gross area, you have target area, and then we have the floor area ratio. So the exercise that we're going to do today is actually what our office building is located. So the first thing I'm going to do is I'm going to click here on the location icon. And I'm just typing an address. So the address of our office now is I Street, sorry. Northwest Washington, DC. OK.

So when you zoom in, it's like Google Earth. It's reverse wheel. So be careful when you zoom. All right, so I'm going just to zoom a little bit. And then I'm going to click on Import Satellite Image. I'm going to zoom out a little bit to look at my building. I don't recognize this stuff. Is it here? Funny. Hello? It type another address.

OK. So it should be-- well, it doesn't matter. It doesn't matter. We're going to do it from scratch. OK, so I'm happy with my block, I just click on Finish Importing. So it will bring that image, satellite image of your project or whatever. And then you have multiple possibilities. So when I double click on the satellite image, you can play with the transparency. So that is handy

for a couple of things, is when you import other images.

The question that comes always with the designers in my firm is, how can I import a CAD file? A .dwg file is not that easy. So you have to go through an SAT export. But in order to export through AutoCAD an SAT file, it needs to be 3D, like a 3D solid, stuff like that. So even if it is a very light thickness. So what we have been doing lately is more like creating a JPEG at very high resolution on the site, and important as an image on top. So you can do that as well. And then you have an order here on this side of the screen.

So we can have a display order of different layers of the image itself. All right. You can name it so whatever it is, so let's say I'm just going to have site image, example. All right. How is that on?

All right. So let's say I'm having a little bit more darkness on the thing. All right. So now I'm ready to start the putting my target area. So what is our entire square footage of the project we're going to model? So let's say one million square foot, just to have some density. We ask Autodesk guys from FormIt time to time to put some-- because each time I type all those zeroes, I have no idea if I'm putting the right number. Oh see, I didn't. That's 10 million. So I have one too many zeros.

And here, even if you click on that field, you won't do anything. You know why? Because we have no buildings yet. No nothing are showing. And then we have the site area. Let's say I'm going to put 100,000 square feet, OK.

So now I'm ready to start modeling. I have favorite tools. This is essentially line or the rectangle. So line is if you have some shape like this one, it's snapping. So I can put like say 10 foot value here. I'm just doing anything. It doesn't matter if I am--

Always some glitches. Sorry about that, guys. So you have an undo command over there. I'm going to do it differently. Just doing it like that, and then we might change the shape of the building itself. So I have a surface or a closed loop. When you have a closed loop, you are able to-- see now my cursor changed, the shape of the cursor. And now I'm able to extrude that surface right away, like the pull up in SketchUp or in AutoCAD, when you are in 3D.

You see that value, 400 feet. So I can hit the Tab key, and I can enter any height. So we're in DC, so 400 feet, no-no. It's a no-no. So let's say we put 160 feet. If you put no units, it's like Revit. By default, it's feet. Because we're in imperial system.

If you are in the metric, do we have any European here or metric guys? Some hands? Yes, a couple. So you go to the gear here, Settings, and you have units, you just switch to metric. As easy as that. And your default will be meters.

So 160 feet. I'm going to click if you let me again. This building now doesn't show me anything. OK, so I'm going to make it as a group, because I like to name my buildings. It's always good to name a cat as a cat, instead of an animal with four legs and some foreign thing, meow. Always say that thing when I do my Revit classes when I train people.

So you can name the group. So let's say that building is let's say building whatever. You can put an address or building A, or whatever it is. If you allow me. Come on. All right. OK.

Layers. So the more we are going to advance here, I'm going to show you what we use the most. Before that, it says area by level, but we don't have any levels yet set. And then here, below that it says Use Levels. So before checking that box, I'm going on the right hand side. And I'm going to do a level system here. And I'm going to add, and by default is display level.

So display level is think about like a virtual line that will section your building height. And since that component is a mass, when we export to Revit, you will be able to have massing floors. And because we are having massing floors, you can schedule, correct? OK. You guys are all using Revit, I suppose? Beside Mr. Professor.

OK. So add multiple levels. Distance between levels, we know let's say floor to floor 12 feet, for example. We have 116. So it's going to be 16 levels. I go back to the properties of my building, and now I'm going to check that box. And oh, magic. Here they are, all my levels.

And because now we have levels, so that field start to fill up. It could have filled up though without putting levels, because since we have the volume and the height. We are fortunate to have one of the mastermind of FormIt in the room. Tom Vollaro.

So that's one building. We are not going to do much more on the modeling, because the point here is not to do a fancy modeling. It's about program and floor area ratio. So in that area, by the zoning of DC, since we 160 feet height top, we are limited to an FAR of 10. If I was on 180, I would be able to have FAR of 12. But that is part of the district. It's very complicated, I'm sure. If I have some people from Massachusetts, they have the same issues. So let me make another one, another building. Let's say this one here over there.

So something I'm going to, let's say, make maybe 100 foot. That's more than enough. Double click that model. Then make that building B, for example. Use levels. Since we already set up the levels, just we need to check the box so that will display them. I go back to the properties here of the thing, and now I'm coming up.

I continue to model. Again, it doesn't matter for now how accurate it is, since we're doing kind of block and stacks. So something here. Up, pull up. Building C. Use levels.

If you have questions, please feel free. Doesn't mean that you will stop me. Yes, I'm listening.

AUDIENCE: Is the background 3D topography from Google Earth, or is it--

KAL HOUHOU: That's a great question, though. You are able to here this flat now. But you're able to create a terrain in SketchUp or in Revit. If you do use the terrain mode system in SketchUp, and then use the converter within Revit, that .skp file, you can import that new model into your terrain, into your project and work like that.

AUDIENCE: With an image?

KAL HOUHOU: Yes. The image, yeah. The image I think, because you need to do it through SketchUp, though I am not sure when you export that the image will come. It's not yet there. Am I right?

AUDIENCE: That'll work. That'll work.

KAL HOUHOU: It will work, the image? It will come now? OK, great then. Wow. I was not sure.

All right. So see our target now is reached. So I have too many level, and the FAR, we are very close to what we are also our target, so I'm going to maybe just having down. Actually, that building-- Doesn't want to click. Let's see this one. I'm going just to edit, if I can. Looks I crashed again. It happens sometimes.

We might just remove a couple of levels. OK. And I can go down as well on this one. That should be now. So we're very close. Maybe one more up. Just add one level. I should be OK now. Very close. OK. Any questions on this particular phase?

AUDIENCE: Question on levels.

KAL HOUHOU: Yes.

AUDIENCE: I'm very curious about the 512 [INAUDIBLE].

KAL HOUHOU: Sorry, I can't hear you. There is somebody very loud behind.

AUDIENCE: Created the four plates at 12 foot increments. Let's say building A is at 12 feet, but building B is at 10 feet. How would you do that?

KAL HOUHOU: I don't know. It's a very good question. So let's try it. But I don't think so. We'll see if everything will change. Yeah, because the levels is for the entire project. So no, not possible right now. I will recommend when you go to the forum on the website, to add a suggestion or idea station to the team, and on a daily basis they are looking at the forum, so I highly recommend to put that. And actually, I will note that in my head to have the-- [INAUDIBLE], yeah. It means that management of levels independently by buildings. Yeah, in DC we are having all the same floor heights, but you're right. You're right.

OK. Any other questions before moving a little bit more? No? OK.

What can I do now? I can also make it a little bit just more fancies for the presentation. So I can start putting some materials. So we have FormIt, the free part of it. And then you have a subscription that is \$300 a year or \$40 per month if you will by month. It can be beneficial to go by month if you have just a specific project where you need to do some stuff on that project. So what is the pro bringing you is the energy, generate insight stuff, energy costs, the solar analysis. If you go to here, so for the shadows for example, if you are in the programming but still doing some site analysis for the shadow impact, for pedestrian traffic or whatever.

And then you have the materials. So by clicking on Import Material, it will load the entire Autodesk library that is available on 3DMax, Revit, [INAUDIBLE], and so on. And for example, if I'm going to look at glazing, I might just go to blue green, import, and starting painting the facade I want. For example, OK. Yes?

AUDIENCE: If we have custom material libraries, can they be imported?

KAL HOUHOU: Excuse me. It looks like-- Pardon me?

AUDIENCE: If we have custom material libraries, can they be imported into this as well?

KAL HOUHOU: Not yet. I'm not so sure it will be possible. But you can customize the material in site, on site here on the project. So if I go back to get my materials. Sorry, it looks like I had a little crash.

So glazing, this one, import it again. So now it says it is in the main kh sketch. So I am painting the whole block here and this one here. So you can edit the material.

So you can add, let's say if we had maybe a brick wall, you could have adding some bump mappings. So if you guys are using rendering software, 3DMax, stuff like that. When you generate materials, you can add as many. So another texture, it can be an image, or something like that.

And you can play with the opacity of the material, so you customize it. No friction, low gloss. I want it less glossy. And the reflection, oblique. And maybe just call it something else. And just OK. All right, and now I can paint. Doesn't look different now. No? Likely.

When you go to samples is going to whatever has been loaded with FormIt. So you can do some green roof if you want. So I'm painting the green roof, for example. So we did levels. We did the painting. We had the property set up. Now I wanted to show you the scenes.

So the scenes is a way to present your design to other people. So by clicking on the scene here and adding scene, you can just click whatever. You can name that something that talk to you. For example, I don't know, West North. Now I'm turning--

So let's see, I'm turning now here. This is my scene two. My scene three, maybe it this some view that is closer. My scene five will be maybe something, some view here. And then you can see what you can change. So there's a camera position. Layers are involved. Sun and shadows, if you're having them, and visual style.

So visual styles are accessible here. And it is all about that. So you can display [INAUDIBLE]. You can display the grid or not. And what is here between parentheses is the shortcut, the keyboard shortcut. Yes, tell me.

AUDIENCE: Is there a view cube?

KAL HOUHOU: Yes, the view cube is there. So we are in 3D. If you want to be in a plane view, you can. I use the plane view when I go precisely adding a specific silhouette of a building, specifically when it is like some contextual buildings, existing buildings, sorry. When you are building your own stuff, I don't need to be. I go visual 3D right away, but that's me again.

So go back to do the thing here, and then you can play the scenes. It will go scene by scene. But it give you some sense of a possible presentation that you can do to anybody. And it's

playing in a loop. So you can easily having that. We have actually a screen in our foyer, in our lobby, and we're playing in the loop our latest projects that we've be developing. So whenever a client or somebody come to visit us, they have a very good looking at what we're doing. So just giving you some possibilities. Then I stop scenes, and it will stop wherever I was.

So we are halfway. Let's do now some more design stuff. Let me show you. This one was a fun project though. So I was invited to-- I don't if you-- yeah, I remember some of you actually here some faces. That was the Colleoni Chapel. So it was a competition between me and two other contestants to design in 30 minutes using the Venetian, the palazzo buildings surrounding here, and--

Sorry, guys. [FRENCH] This is when you live stream, it always happens. Just click on Launch. So it's always important to save your design as we speak. So the chapel. That's my famous wedding chapel. Yeah, so 30 minutes to come up with some design. I didn't win though, but that's fine. I like the winner chapel better than mine. He has a more design skills than me. I was doing is more like a conceptual thing.

But in this project, this model that was 30 minutes, I used 95% of the capabilities of FormIt. So most of the features were used, and I'm going to show you how you can deal with that. For example, the Colleoni sitting here this is a profile. And it's a loft. It's a loft function.

So if you use Revit, are you using the conceptual massing on Revit, yeah? So the loft functionality is you create a shape profile that is actually a surface here, then the path, and then you tell the application to follow the path by using that surface. So I created that surface that is here. And then just the long path, and it will extrude this stuff.

Another tool that is interesting is these are all groups, and they were created as one piece. I can show you. So you're going to tell me how did you do. So there is a function that is very great that was added. Maybe I should switch to Edge like mentioned by one of you.

So yes, there's one functionality that I love, is the possibility to change your reference plane. Because as you saw earlier, we were all doing the stuff from the plan view. But you can easily change your reference plane, and I'm going to show you how. So right click, and you have a couple of icons that we'll show.

I told my IT guy, don't give me a Windows 10. Maybe it will be better. So I'll show you quickly know how to deal with that. Sorry, guys.

OK, so right click. Right click, and then you have here change to set your reference plane. I call it reference plane. It says Set Axes, but it's actually a real reference plane. So when you click whatever the thing, new Z. So I'm going to change my Z as the green axis to be vertical here. And automatically my grid will be vertical. So now it's easy to build anything that is whatever. Then starting either plane like that or not. Having now, I go back to your beginning of ref plane that was the default one, you need to reset. So just reset on this one.

So I'm back here. So let's see now I'm doing a path, like a spine stuff. And then I can use now my loft command here, my sweep, sorry. And now here it says select edges of face, so I can select the interface. Sorry, guys. And then my path. And now I click OK, like finish the thing. And here my sweep. So let's see, that's my building.

Remember, we can go back to our material. So input material and go again glazing. If you want to do some stuff, some [INAUDIBLE] whatever. So it's transparent now. And so on.

Somebody earlier before the class begin said, hey how can you do quickly walls? So I'm going to show you how to do quickly walls. So let's say you know that your building is 20 feet wide. 20 feet wide. It looks like it is not doing anything. So I'm doing whatever.

So now here I can go a little bit up. I right click on my top surface, the roof for example. And you have the offset command here, or OF. And now I can specify the thickness of my wall. So if I go tab, I know that my wall, let's say eight inches. So here don't forget to put the inches unit, because it might understand eight foot. And actually it is eight foot. So my eight inches are here. And now what do I need to do? Anybody?

AUDIENCE: [INAUDIBLE]

KAL HOUHOU: Exactly. Push down this surface, if it allow me. It does not allow me today. No pushing today.

AUDIENCE: [INAUDIBLE]

KAL HOUHOU: You believe me, so normally you pull down that top surface to the complete ground floor. And so you will have the excavated building with the wall. It's just not doing anything. I'm just laughing because yesterday I was doing also live streaming for a web service, cloud service for Autodesk collaboration for Revit, and I had the same glitches. I said that's the last time I'm doing any demo now.

See, the Edge doesn't work. This page, this one, I'm going just to Firefox now and just re-

launch it. Any questions? We have like 20 minutes. So I'm going maybe to show you now how to bring SketchUp elements.

So if you don't have a library in your company, it doesn't matter because we have the 3D warehouse, connect? And in 3D warehouse, you have the definition towers, they are available in the 3D warehouse. So something you can do much more in this case.

So within Revit, there is a converter add-in available on the website, on the FormIt360.Autodesk.com. So if I go back to that web, and go to the FormIt Autodesk blah blah. So see where it says download here, so you have the plugin available for 2016 and 2015.

So go back Revit. Now the add-in here. The FormIt360 conversion, I click on the fly out, and I have convert family content, so RFA, so from Revit into a FormIt content. I can convert very quickly and FormIt360, so .axm files into an .rvt file. Although I prefer that method than the one that says it's automatic, because when you save your sketch on FormIt normally,

I say because it depends, it goes to your A360 account. So it create also an .rvt file. I said normally, it's because I think it's queued, so you were not alone working. So if there's nobody, if you're doing it at midnight, there's no problem. So it will be instantaneous. If not, during the day I found out much easier to do that way.

And then we have the one that says for SketchUp. So what do I need to do? So be careful with that. If you want to do only one SketchUp file at a time, you can. If you have multiple SketchUp, I would recommend meant to keep the total less than five megabytes. So if you have a big background project, I won't recommend to import that to FormIt. It will crash FormIt all the time. Although the one I'm going to show you is three megabytes.

It will tell me right away if it is not here. Then we place it on the content, et cetera. So I already did the thing, so I'm not going to do it again. So I'm just going to Import here. So Import 3D Model, and that's my .axm file, so it used to be a SketchUp file, and I'm going to import that guy.

My dream city. That was done on SketchUp Years ago, project. The nice part of it is now you can, in each of the surfaces, you can change them. So you can go up. You can go down. You can change the entire buildings, even though it was SketchUp based. I think it's a huge advantage, no? Don't you think? Yeah. And et cetera. So something for the glass stuff, et

cetera.

So I show you the loft. So what are the different-- the loft. Not the loft, the sweep. The loft is always interesting because you can-- I'll show you the thing. One thing I was using a lot with the-- of course it will ask me to log in again.

So let's go back to that chapel thing, hopefully. I'm bringing back our original. You see here there are the visual styles to make it to a little bit more like sketchy. So I have the display extended edges. I can have even sketchy lines if I want. So I will show like it is not fully straight lines. So when you are presenting, sometimes some clients prefer to have that.

Here the levels are not showing, because in that scene, but it depends the scene I'm using. So like this one, it has levels. So remember, so programming PH1. Let's say I save again that guy. I go back to Revit. It want show it here, so you need to download the FormIt file from your A360 account. So how do I do that? I go 360.Autodesk.com. That's my A360 drive. The turning part is you need to [INAUDIBLE].

It's good because I'm here. So that's me, Kal Houhou, the birthday boy. Because my birthday was yesterday. So here's the file, the .xma file. So I can download that guy. It will put it in the downloadable file. It's very quick. Go back to Revit. Convert from A360 from this stuff here, and this is the one. See, only 300 kilobyte. Click open.

Tom, I had that only for Revit 2016. Is this something that you know about? Sun and shadow settings?

TOM: [INAUDIBLE]

KAL HOUHOU: Sorry?

TOM: [INAUDIBLE].

KAL HOUHOU: OK. No problem. So the mass, the elements will come right now. So just to go back quickly, when I click on a building, you're able to change the categories of the building. So by default, it's mass. I'm sorry, I'm trying. See, category mass for that group, but you can change it to something else. But I mean why would you change the mass into the furniture?

We have all those categories that are great, so when you have content that you're bringing some SketchUp or from Revit, you can assign them the specific category. So when you import

that back into Revit, Revit will understand for visibility issues or not, how to deal with that. So go back to Revit.

These are all masses. So if I select everything, so I'm going to filter using only mass. And click on mass m and I check all the levels. And now I'm able to do scheduling. So if I want to create a new schedule for the mass floors, I can. Classic, mass, mass floor. What do I need? I need levels. I need floor area. And that's all I need.

And then in my sorting grouping, I need to calculate the totals for the floor area. So I have my one point something, my 900,000 million, whatever, six million, seven million square foot down there. So it's easy. It's quick, don't you think?

The workflow is very straightforward. You create your masses in FormIt. You assign the levels. I'm sorry, there's no [INAUDIBLE] left. So you hide floors the way your building are set up. Then you save that FormIt file. You go to your A360 account. You download an .xmf file. You convert that into a Revit file. And then automatically it will open it into the template project, or any project you had open at that time. So it's pretty simple.

We have 10 minutes. Do you want like a QA session?

AUDIENCE: I have a question.

KAL HOUHOU: Sure.

AUDIENCE: You showed us how to bring a Google Earth image. Can you also bring topography?

KAL HOUHOU: Yeah, we answered the question earlier. Yeah, sorry. You do it on SketchUp. You do the terrain with the Google Earth map think. And then using that converter within Revit, you convert the SketchUp file into a content .axm file. So you have two format. You have .axm for anything that you deal with the FormIt as a project, the sketch. Then you have .xmf. That is the content, the families.

If it allow us, I will show you quickly how we are dealing with that. And I'm coming for the next question. In the content library here, you can link your library with A360. When I click on Browse Library, I have different categories or folders. Those folders were created how? Because it doesn't say that you can create anything here, correct?

But if you go back to you A360 drive, and I go to documents to see my FormIt, so I have

content folder. That is automatically created. And then see [INAUDIBLE], No Studio, [INAUDIBLE], Furniture, Sports Car, Tools, Program, Landscape, and then Entourage.

So here I have even people. Those people were created through Revit with RCP persons and then exported to FormIt, so having kind of scale. So it's always good when you do some complex geometry to see that you're not out of scale. When I was doing the chapel in 30 minutes, those cannelloni sea things, like I call them, were maybe 20 feet high. So then I just reduce them using the scale tool. Yes, question.

AUDIENCE: Can you export in Google Earth like you can in SketchUp?

KAL HOUHOU: Make a KVM file?

AUDIENCE: Yeah, like in SketchUp you can just straightly export it and it will go into Google Earth, and then see site context--

KAL HOUHOU: Not yet. No, not yet. The purpose is not to go to Google Earth. You can do it through Revit, if you have the Google Earth link. I understand. You would like to have it, but it's a web app. It's not like a desktop application. So I'm not so sure that Google Earth is talking, that they can be able to have it talking to that thing.

AUDIENCE: Google Earth imports KMZ. I don't know if there's a way to export out.

KAL HOUHOU: For now, the only way, the only 3D possibilities on the export side are .obj, .sat, et cetera. So when I export, see it shows here. These are the format that are available to you. So .obj, .stl, so like 3D printing, as an image, so that goes directly to your A360. Why it's nice to go directly to your A360 is because you can share those files right away with anybody from your team or your distributed team.

I don't know if you saw when I was browsing the documents, I have in my A360 drive here, I have FormIt and FormIt 1. That FormIt 1 actually are the people from my firm that are sharing documents with me, I mean the sketches. If I open that folder for example, see it shows all those .rvt .xml files, so it's plenty. They've been very prolific creating stuff. Yes.

AUDIENCE: Do you have a workflow for Dynamo yet? Are you exporting it into Revit and [INAUDIBLE] Dynamo, or exporting it back, or what?

KAL HOUHOU: It's coming. Cannot say more.

TOM: Yeah, we're working on it.

KAL HOUHOU: Yes.

AUDIENCE: Earlier with Dynamo, Revit couldn't change the loft order. Does FormIt have a specific way it lofts, or--

KAL HOUHOU: No, you cannot. Like selecting the profile path and changing that? No, unfortunately. But that's a good idea.

TOM: What was the question

KAL HOUHOU: In Revit, when you do a sweep or loft, so when you want to change the path, you are able to change the profile. I said it's not yet implemented.

TOM: Once you create geometries--

KAL HOUHOU: It's done.

AUDIENCE: What if you had three profiles involves between the three? You didn't pick the order--

KAL HOUHOU: With the profile, gone. The profile gone.

AUDIENCE: [INAUDIBLE].

KAL HOUHOU: Because the profile are gone. They don't stay as profiles. They don't exist anymore.

AUDIENCE: Can you demonstrate the lofting quickly?

KAL HOUHOU: Ah, sure. We have five minutes. Why not? In the meantime, yes, when I'm doing my stuff.

AUDIENCE: [INAUDIBLE] windows, like in SketchUp it's super easy to input the window into a wall, and [INAUDIBLE].

TOM: There's no auto cutting yet. So below he's showing work planes, like you can rotate the grid [INAUDIBLE], and use any other reference in the model to create work planes. But unlike Revit, it's not required. You can sketch in any dimension. By default [INAUDIBLE].

AUDIENCE: Are all these tools in [INAUDIBLE] as well?

TOM: No, so these three are not in there yet.

AUDIENCE: [INAUDIBLE].

TOM: I mean, it's similar, but it's [INAUDIBLE].

KAL HOUHOU: I'm trying. One, two, three. And then finish. As easy as that.

TOM: So if you had five or six of those, you could pick them in any order and loft them.

KAL HOUHOU: It ask you first the order. So you need it, yeah. Because how it will understand that the middle one is not the first one? Makes sense? So think about it. It's a very user friendly tool. There is no need of training.

I apologize for the people who are over 60, but we have our director of preservation who is a designer, he's 63. We put him on FormIt. He doesn't know CAD. He doesn't know SketchUp. He was able. He was able to jump on it right away. Because he's very good with the programming stuff. He knows all the zoning codes and stuff. So very quickly, you can quickly develop many things. You can bend.

I wish I had another half an hour. We show you some stuff maybe. If I had to one more half an hour, I would have shown you something like that. Give me one second. It's one of our first. This project maybe. Let's see if it works. It's a facade study for an office building. So everything was created in FormIt but the slab. The slab profile at that time, we didn't have any converter for Revit. So we exported from Revit the slab profile as an .obj.

In the apps exchange, you got the .obj exporter for free. So we exported it as an .obj. We imported the thing. We create it as a group, then we just populate that slab, that portion profile everywhere. It took us maybe a couple of hours to do the complexity of the nuts and bolts and the profile to extrude, but it was easy.

And actually it was an internal competition, because we have people who say, SketchUp, SketchUp, we love it, we love it. I put some new guy on FormIt, and they finished a day before. So huge. We are doing actually Cincinnati Music Hall, so a project in Ohio. So we have a lot of existing condition in that project. CMH, CMH.

So we hire an interior designer for this project. It's coming. And our principal designer, let's say she was hired Monday. Tuesday, he came to her and he said, by Thursday I need you to come up with some lobb design, et cetera.

She came all panicked. Kal! What can I do? How can I do? What's the workflow? What are you guys using as tools? She was just hired, correct. So on and so on. So I told her, I'm going to show you FormIt. Oh, what's that? Wednesday afternoon at around two o'clock, she delivered. She worked in parallel with Revit. So she was able to import that back, so those columns, lobby thing. She put some RPC. That's not my wife. And so on.

AUDIENCE: I have one last question.

KAL HOUHOU: Yes, tell me.

AUDIENCE: So you know how you rotate your z-plane up? Say the user forgot to rotate it back--

KAL HOUHOU: You just right click, reset.

AUDIENCE: OK. But like say the user forgot to do that, [INAUDIBLE]. If I put it back into Revit, is that going to change my z-axis vertical in Revit too for the project?

KAL HOUHOU: No. No, it's independent. It's a grid reference. It's virtual, doesn't exist. Any other thing? Yeah?

AUDIENCE: How old is FormIt?

KAL HOUHOU: FormIt? 2012. Exactly three years. It was introduced at AU 2012 by Carl Bass at the general session.

AUDIENCE: [INAUDIBLE]

TOM: Every two to three months.

KAL HOUHOU: Two to three months, yes.

AUDIENCE: [INAUDIBLE]

KAL HOUHOU: We are like version 12 now. A lot of things were added.

AUDIENCE: You said earlier about the [INAUDIBLE].

TOM: Yeah. We're not working on that actively.

AUDIENCE: [INAUDIBLE]