

DEEPAK MAINI: All right, guys. So we might just start with some introductions if it's OK with you. So first of all, thank you. Thank you for coming to this class, first class of AU.

I love Tuesday morning classes. Everybody's pumped. Everybody's excited. Yay, AU!

Oh, that doesn't look right. I bet I'm going to trip over this. Close.

So just show of hands. How many are attending AU for the first time? Quite a few of you guys. You are going to have a fantastic time. You're going to love it. And I'm saying that, because it's my seventh AU. My first one was as an attendee. And I've been speaking for last six years.

The good thing about AU is you will find people from different countries presenting ideas from different countries and a different perspective. That way it'll broaden your horizon of how people are using, not only the software, but a technology that sits on top of your software as well. So you're going to love it.

All right. Quick introduction about myself. My name is Deepak Maini. I am the national technical manager with a company called Cadgroup Australia.

And obviously, if it's not too obvious, I live in Australia. I have come from Australia, Sydney. That's why my clock on this was still showing 2:57 AM. So if I fall asleep, blame the time, don't blame me. Yeah, I need a cup of coffee this morning. Didn't get a chance.

I'm a mechanical engineer, also a guest lecturer at University of New South Wales and University of Technology Sydney, basically, two of the largest universities in Australia. I teach construction management there. Love teaching kids. Not kids, young people.

As I mentioned, I've been speaking at Autodesk University for a while. I'm also author of *Up and Running with Autodesk Advance Steel* series of books. As a matter of fact, in this class, I'm going to give away a couple of copies of my books.

I am also going to give away a lot of other stuff. I love giving away things, especially with the first class, you know? Making it fun. So I've got some caps to give away from [INAUDIBLE] and a power bank and a few other things, some T-shirts and all.

So I'm going to ask questions, and whosoever doesn't answer the question right, gets the

prize. No, I'm just kidding. People who get the answer right will get the [INAUDIBLE]. I was checking how many of you are still awake.

All right. As I said, I'm going to give away a couple of copies of my books, a lot of other stuff thanks to Pluralsight. Anybody has heard of Pluralsight? So Pluralsight is like Linda.com. I created a course for them earlier this year on Navisworks. I'm also the author of Navisworks book as well, just in case anybody use. Anybody use Navisworks here? [INAUDIBLE]

So on Thursday morning, I'm doing a session where I'm going to give away a couple of copies of my Navisworks book as well, but it's on a program called factory design, so it's not related to [INAUDIBLE] or anything.

And then Bluebeam, every year, they let me give away a few of their T-shirts. I've also got some mouse pads. I don't know who uses mouse pads these days, but if you don't like mouse pads, that's fine too. Anybody uses Bluebeam Revu here? OK, brilliant. Then you're going to love it, because this mouse pad has all the shortcut keys for Bluebeam Revu as well. So it might come handy. Instead of your printing the shortcut keys and sticking it to your workstations.

OK. My aim, let's keep it simple. Let's have fun. I love having fun in my classes, unless I fall asleep, then it's a different story.

So this class is being recorded, which means that you can watch it again if you want. You can pass the link to your colleagues for them to have a look at this class at a later stage. It'll be in the Classes on Demand section of AU website.

I'm happy to receive emails from the attendees anytime about technical questions. I have to warn you, two questions, and I will start charging you. No, I'm just kidding.

All right. Mobile phones on silent, please. Let's be nice to other people. Let me make sure my mobile is on silent. I'm pretty sure it is. Yes, it is. Good. Nothing more embarrassing than my mobile ringing, not that anybody's going to ring me at 3:00 in the morning.

OK. You guys are in this class, so you already know the summary of the class. The whole idea is with the industry changing massively, we need to have a competitive advantage over our competition. And more and more structural engineers are now starting to use their design model and see if they can use it in the fabrication and detail model as well. And that's this class is all about, the interoperability between Revit and Advance Steel.

Show of hands. How many engineers here? Brilliant. How many detailers? Fantastic. Fantastic. Lot of engineers and detailers. I love that. I love that.

All right. So key learning objectives. We are going to start with Revit Structure model. We are going to export that into Advance Steel. We are going to create automated steel connections between the imported members. We are going to generate some drawings and NC files and some reports and so on. And then we are going to use Sync between the two programs.

How many of you use Advance Steel here? How many of you have never heard of Advance Steel? OK, brilliant. And So it's going to be a good session for you to understand what Advance Steel is.

Our friend Philip here is doing another session on Thursday on Advance Steel, which is going to go in a bit more detail. I would recommend you guys attend that session as well.

OK. Now, if we look at some of the industry trends these days, delivering BIM mandates is the biggest one. The concept of BIM actually started hitting the industry about 10 years back. So the AEC industry has, in those years, seen a massive technological change, and has seen exponential growth and BIM adoption.

So everybody now understands what BIM is. So the question is normal, what is BIM? The question is, how do I leverage BIM in my project? How do I deliver on these BIM projects?

Maintaining competitive advantage. As I said earlier, with the project leads now demanding the entire team leverage the BIM data, we need to understand how do we take the design model and utilize that in the fabrication level model or the detail model. The whole idea is to provide the best service and value to your client.

Keeping lean. This is, again, really important. Especially in the economy these days, you want to make sure the lean construction is forward and so on. The whole idea is we are not wasting time in creating models twice, the engineers creating their model, and we are, in the detail industry, we are creating our own model. We want to make sure that we leverage the model that is once created, and then use it as much as we can.

And finally, collaborating effectively. So BIM revolves around collaboration. The whole concept of BIM is collaboration, making sure that you've got the right set of information in your data, and collaborate run clashes, make sure things don't clash and things like that. So the

successful teams need to make sure that they're equipped to deal with that collaboration part. And that is one of the key industry trends these days.

Now, if you look at the current steel workflow, in the design environment, most of the engineers use Revit. The engineers here, am I correct in saying that most of you guys use Revit Structure? Yes? No? Maybe? Yeah.

All right. So most of the engineers use Revit for design process. But if we talk about detailing and fabrication, we have got programs like Tekla and Prosteel.

Now, after the design phase is finished, we need to jump the wall and we need to go into the actual construction environment, where we use programs like Navisworks, BIM 360 Glue, BIM 360 Field, and Point Layout for the total station where we export the points from our BIM data onto the total station. So it points the beam exactly where we need to place our items and things like that.

The problem is there is no intelligent sync from Revit to some of these detail or detailing programs. Normally, we have the IFC export the files from Revit, or use CIS/2 or something. And then same thing to go into the construction environment.

The problem is there's a-- I wouldn't say a massive, but there's a bit of trust issues, if I could say that, between the engineers and the detailers. So the engineers don't like the detail model or the fabrication model, and vice versa. I can see some people nodding their heads, so I'm on the right track.

So as a result, a lot of engineers want to actually see what kind of detail model was created, what were the connections and things like that. The problem is, again, it's hard to compare. Because when you're bringing stuff back into Revit, there's a huge amount of data loss. So people find it really hard to really, really figure these things out.

So what is the solution? I really like this guy or girl. My boss says, I look like her when I'm grumpy.

So what is the solution? The solution, basically, is a workflow in which we have got a single unified model all the way from design to documentation. Now, it's a good thing to say, but is it really possible? Is it really possible for us to do?

Let's see. I know some people are saying, no. Let's see what happens at the end of this class.

Maybe I'll-- I may change your opinion about that.

So the whole idea of this is it'll reduce the project complexity. The interoperability will avoid errors and redundancies.

Interoperability. It's a funny word. Took me about six months to get it right. Interoperability. Every time I type it in Microsoft Word, it says spelling mistake. Microsoft Word still doesn't understand it.

All right. So interoperability will avoid errors and redundancies, and it'll result in improved productivity. That's the whole concept. And as a result, we'll have a better project coordination.

You remember I mentioned BIM revolves around coordination? So because of all these things, we'll have better project coordination.

All right. So what is the solution? The solution is to have the interoperability from design to construction. We introduce Advance Steel.

Now, the advantage of this is it's got bidirectional sync between Revit into Advance Steel, and vice versa, and also going into some of the other programs, like Navisworks and Glue and Point Layout and so on. That's where the advantage is. That's where the biggest time-saving and the lean construction and coordination, all these things will feature in.

So what is Advance Steel? Advance Steel is a purpose built software for structural engineers and steel detailers who need to use an easy-to-use program for detailing applications.

It allows, as I mentioned, bidirectional data interoperability with Revit. It also automates the creation of complex structure models and connections that would be too tedious to create manually.

How many of you still use AutoCAD to do your steel detailing? Imagine creating connections and so on. If the connection changes, you have done your drawings, if you don't make sure that you move every single line out circle, your drawings are totally out of whack, nothing works, and the whole idea of this lean construction goes down the drain.

It increases the productivity during the creation of construction detailing and documentation drawings, bill of materials, and reports. So two button clicks-- although there's a bit of work that goes in the background, but two button clicks, and you can get your detail drawings of

every single part, every single assembly if you want. All the plates, all-- we call them as smalls-- all the smalls on one single sheet in two button clicks.

The good thing is, if anything changes, you can revise your drawings. You can add a revision number and some information. It puts a revision table in the drawing. Rev clouds the changes for us well. How cool is that? And that's what I'm going to show you in this class.

So the key features. As I mentioned, it's got bidirectional link with Revit.

Intelligent structural objects. So anybody from Australia/New Zealand region here, other than Mark? Mark is my colleague. No? OK.

Everybody from US? Or somebody outside US as well? Everybody from US? I know, Philip. England. Beautiful. Anybody else?

AUDIENCE: Canada.

DEEPAK MAINI: Canada.

AUDIENCE: [INAUDIBLE]

DEEPAK MAINI: OK, brilliant. So the good thing about Advance Steel is, when you install it, it'll give you your country options. So for example, when we are installing it in Australia, I go and pick Australian English, which means that it automatically places the Aussie A and Z sections or Russian sections or Netherland sections that we want. So the whole idea is, I'm not changing the section types and so on.

Same thing with UK. You can pick your UK sections, and it places those sections by default.

You can also, if there are certain type of sections that you use all the time by default, you can set up the system. And instead of you picking it from the list from your country code, it places the exact same section for you.

It's got parametric steel connections. And it is actually parametric.

Aldus also had a product called AutoCAD Structural Detailing, ASD. Anybody heard of that? So initially, they said, oh, it's parametric, but it wasn't really parametric. Whereas Advance Steel actually is parametric, and I'm going to show you that.

Extremely smart detailing and documentation tools. So as I said, once you put in a bit of work

in the background, two button clicks to get your drawings, one button click to get your documentation and your reports and things like that.

So I work for an Aldus reseller. And when we sell Advance Steel, we just don't sell it. We sell it with training, and we also do one-day fast start.

Anybody else who works for a reseller here, for any reseller? OK, that's fine. It's good.

So the whole idea is, when we sell Advance Steel, we sell training, obviously, with it, and we sell one-day fast start. In that one-day fast start, we come to your company, we set up your processes and your styles, so that when you press those two clicks, you actually get the drawings the way you want.

There is still about 80/20 rule. So 80/20 rule says that it'll get you to 80% of what you need in two button clicks. There would still be about 20% of what you might have to do manually. You can get all the way to 100%, but that obviously involves a lot of other customization as well.

Bill of material and report generation. As I mentioned, again, one button click, reports and bill of material.

NC/DSTV files. So it's good to have your model. But then at the end of the day, for fabrication, you need NC files and your DSTV files for your steel members and your plates and so on. Two button clicks to do that. The XL files for your plates, two button clicks.

Document management and also revision control. As I mentioned, if anything changes, it rev clouds the changes. You can also add revision number and things like that to have a look at the changes.

So let's now have a look at how do we leverage Autodesk Revit Model and steel detailing? So the capability is not delivered out-of-box. What you need to do is download this plug-in for Revit called Advance Steel Extension. Once you download it, install it inside Revit, it would then give you a capability inside Revit to export your structure model into Advance Steel. I'll show you that live in a sec.

So let's have a live demo now. Unfortunately, I have to sit down, which means that I can't look at you in your eyes, which means that you might fall asleep or I might fall asleep. So make sure we don't do that, right? I'm going to put these down.

Now, as I'm doing this, I'm going to start by asking a few questions. And when I started asking a few questions, I'm going to give away a few of these things. I need a volunteer who would help me-- maybe Mark would help me-- give away some of this stuff. Thanks, Mark. All right.

So this is Revit, as you could see. As I mentioned, the capability to export the models from Revit is not delivered out-of-box. So how do we do that? We download that app from Exchange Apps Web Store.

So question for the cap. Does anyone know what Exchange App Web Store is? Randall says, yes. I already gave you a T-shirt. You can't answer all the--

AUDIENCE: [INAUDIBLE]

DEEPAK MAINI: All right, I'll give you a cap as well. All right, here you go, Mark.

AUDIENCE: [INAUDIBLE]

DEEPAK MAINI: So Exchange Apps Store is, when you fire up any of your Aldus product, near the top right, you'll see this X button. When you are connected to the internet, when you click on this X button, it takes you to the Exchange App Store of that particular product.

So I clicked it from Revit. It takes me to the Exchange App Store of Revit, if the internet allows me to do that. And all we do is click here, and type in Advance Steel. Enter. It takes us to the Advance Steel apps page. And the one that we are after is this one called Advance Steel Extension.

Has anybody installed Advance Steel Extension on their Revit yet? Brilliant. I'll give you a T-shirt. With T-shirt, I've got a problem. I've got only one large, and rest of them are XXLs. So I think large for you? All right, brilliant.

So once you have got this installed inside Revit, if I go and open my model. By the way, people who came a bit later, at the end of this class, I also plan to plug in the Oculus. And I'll let you guys have a play around with the Oculus as well. Some of the guys had a look at it earlier. And apparently, they had fun.

All right. So this is my structure model done in Revit Structure So once I have got that plug-in installed under my Add-Ins tab, I've got the Advance Steel Extension available here.

From Advance Steel Extension, I can export the model. I can import the model. I can synchronize, and so on.

But before we do anything, if we look at the settings, we can load what library we want to use; we can decide whether we want to export the BIM shortenings. So if you've got BIM shortenings inside Revit, do you want to export that? Normally, we don't do that. Because when we put the connections inside Advance Steel, it automatically does that for us.

We want to import only the structural elements, and similarly, export only the structural elements.

Now, once I have done that-- and this is a question, again, for a XXL T-shirt-- if I want to export the entire model-- or let me ask this. If I want to export only some sections of the model, what do I do? I only select some of these sections, and then I go and say Export. I answered this question myself, so I'm going to keep the T-shirt. Right.

So the whole idea is, if you only want to export certain sections, you only select them, and then you go and say Export. But if I don't select anything, and I go and say Export, it'll export the entire model.

And that's what we are going to do here. I'm going to go and say Export. But before I do that, let's have a look at the size of this model. So currently, this Revit Structure model is 17.7 megs. And I'm going to go and say Export.

On the Export dialog box, I'll go and say I'm going to use Advanced Export. And the reason I'll choose [INAUDIBLE], because the Advanced Export exports this model in a format called SMLX. The whole concept of this interoperability is to work with the SMLX files.

Alternatively, if you don't like your steel detailer and you want to make their life miserable, you can also export it in some of the other formats. Not that I'm going to recommend that.

Always leave it as Advanced Export. You can pick the country, section, library. I'm going to go and say OK. It says, where do you want to save it? I am going to save it in here. And hospital structure SMLX file. I'll go and say Save.

All right. So a question for a power bank. Any idea what would be the size of this SMLX file? So whosoever is closest to the size will get this.

So the Revit model was 17.7 megs. Take a guess of what would be the size of the SMLX file.

Yeah?

AUDIENCE: 7.4

DEEPAK MAINI: 7.4 megs?

AUDIENCE: 5 megs.

DEEPAK MAINI: 5 megs.

AUDIENCE: 2.

DEEPAK MAINI: 2 megs.

AUDIENCE: 3.

DEEPAK MAINI: 3 megs. Sorry.

AUDIENCE: 200 kilobytes.

DEEPAK MAINI: 200 KB. Anyone else?

AUDIENCE: 1 meg.

DEEPAK MAINI: 1 meg.

AUDIENCE: 2 megs.

DEEPAK MAINI: 2 megs.

All of you are way off the mark. 28 KB. 28 KB. Imagine sending a file of this [INAUDIBLE] here was 200 KB. So a [INAUDIBLE] and this is a pretty smallish model. It's not a large model. 17 megs to 28 KB.

So I've seen some structural models of about 500, 600 megs. So when you export the SMLX file, hardly about a meg. Hardly.

So imagine sending this kind of file. You can even exchange that on an email. Forget about using A360 or BIM 360 [INAUDIBLE] and so on.

So once I've done that, this is my Advance Steel program, I want to bring that SMLX file in So

under my export-import section under Revit, I'm going to go and say Import.

So when I go and say Import, it says, where's the file that you want to import? I'm going to go in here, this 28 KB file. Double-click on it, and it brings in the entire Revit Structure model into Advance Steel as proper structure model.

So if I now double-click on any of these sections, it brings in the section with all the mirror data as real sections. So it's W14 by 145. If I look at the Revit model, same, W14 by 145.

Now, in some cases, some of these libraries have the material mapped differently. So the material might be, let's say, ASTM A360 in Revit, and it might be called as A360 ASTM inside Advance Steel.

In that case, when you do it for the first time, it'll display the Mapping dialog box. You might have to just map the material to its relevant material inside Advance Steel. You do it once, and from there on, you'll be absolutely fine.

Now, I've got this model inside Advance Steel. And as said, the whole idea is to leverage my engineering model into the detail.

So once I've got this model, I can now start putting connections, putting other stuff in here as well. Let's say, in my case, I want to start with putting some [INAUDIBLE] isolated footings.

The fantastic part of Advance Steel, it sits on top of AutoCAD. And how many of you use AutoCAD here or have used AutoCAD? Most of you.

So the good thing is, all your AutoCAD commands would still work in here. So what I'll do is, I'll say I want to place an isolated footing. And instead of placing it at the bottom here, I'm going to place it over here on purpose. It still [INAUDIBLE] displays this dialog box. It says, what's the size?

The good thing about Advance Steel dialog boxes is there's not Apply or OK button. As you punch in the values, it automatically updates the preview or updates the object. So if I go and say 4 feet by 4 feet by, let's say, 5 feet, Enter, it updates this.

Now, I place it here. What if I want to move it at the bottom of one of these columns? So I'd simply use my normal AutoCAD tools. So for example, move tool to start with. And for move, I'm in that bad habit of using shortcut keys. I'm sure a lot of you guys are too. Select this

object, Enter.

For my base point, I'll use my object snap tracking, take this here. And where do I want to place it? Let's say, at the bottom of this.

So at the end of all these sections, you'll have the node points. And I've got my node option turned on in my object snap settings. I'll place it here, and it places it there.

And again, as I said, because it's an AutoCAD-based program, I can use Copy, select this, base point is here, place it here, place it here and here, and then pick these two, copy it from here. That's how you use the [INAUDIBLE] option. I need, I don't know, five of these. And the spacing is this much. And there you go. It places all of these.

Now, some of these haven't been placed correctly, because of the size and the lengths and so on, but you guys get the idea. The whole concept of this is, because it's based on AutoCAD, it is fantastic that we can use all our AutoCAD commands as well.

Now, what I want to do next is I want to start putting in some connections. And this is where the magic starts. This is where the smart bit of Advance Steel starts.

Advance Steel comes with a massive library of your steel connections. So on the plates at beam, you've got all these different base plate connections that you can pick from. And the good thing about these connections is in this tab here, which is the Connections, when you go and move the cursor over any of these connections, in the right area here, it shows you the preview of what type of connection would be placed, but also gives you a really smart information of what type of selections you can make, the description, the options, and things like that.

So it is really, really easy to understand, and have a understanding of what exactly do you need to do. By simply reading through the description here, makes it really, really easy for you.

Similarly, I can go to any of these sections, and take a look at all the available connections in those sections. The connections that you use on a regular basis, you can click on this little star option next to them, and they then are made available inside your favorites. So that way, you don't have to browse through various categories to pick the connections. How cool is that?

So I'm going to go and pick the base plate connection. Again, because an AutoCAD-based program, it shows you all these prompt sequences. It says, select a column. I'm going to pick

this.

It says, do you want to pick a concrete object as well? You're using 2016, so you might not see this prompt. This is a new thing in 2017. It'll ask you, do you want to add a concrete object? I'll press Enter to say no.

What it does is, it then looks at that section, and then looks at the library of this base plate connection. And if it can find a matching section, it then uses those library properties to place that connection. Again, a really, really smart feature to save you time.

Now, different projects require different type of connections. But the whole idea is, at the start of a project, you can have these connections saved in your library by simply clicking on the Save value here. And then next time when you pick a connection that was used to create that original connection, it automatically picks it from the library.

You can also use some of the other ones here. No worries.

On the base plate, so now you can go through various tabs and subtabs in the dialog box to change the properties of the connection that you are putting in. But the whole idea, as I mentioned earlier, is you get it right once, and then add to your library. And next time, you pick the section, and it places the connection that you want.

I'll close this dialog box.

Now, this column is an incline column. I want to place the same section there. I'll press spacebar, and it invokes the same connection command.

So again, instead of me burning my calories-- a lot of calories to burn-- in going into Connection Vault, going in here, picking the Base Plate button. See how many calories I had to burn?

Instead of doing that, all I'm doing is pressing my spacebar to invoke the previous command. And then it says, select the column. I'm going to pick this. It says, do you want to add a concrete? I'll say, no.

Now, it looks at this incline column, again, looks at my library, and sees if I have a connection matching that, and then it uses that.

So in this connection, all I've done is instead of the direction being by column, which was in the

previous one because it was a straight column. I've said now the plate is actually placed horizontal. So instead of the plate getting placed normal to the column, it is not placing the plate horizontal, which is what we want. So again, by just doing it once and adding it to my library, I'm making sure that I'm saving time and doing all these things next time.

So I'm happy with this. Now I want the same connection to be placed here. So instead of again going into the connection vault and placing the connection, I'm going to use a really smart tool which is available inside my advanced yield tool palette. And the tool is available here.

So I've got two options. One is where I need to create only one copy of the connection and the other one is where I need to create multiple copies of the connection. So if I just need one copy, I'm going to pick this. And then every time it places a connection, it places this bounding box around the connection.

It's called connection box. Normally, I leave the connection box turned off by simply going into my layers. Again, one of the other advantages of working with Oracle-based products-- everything is based on the layers.

So the program automatically places your connection box on the connection box player, plates on the plates layer, beams on the beams layer, and so on. So I'm going to go ahead and turn off my connection boxes here. So now if I need to copy the connection, all I'll do is I'll pick one of the items in the connection, Enter. It says, where do you want to place it?

I'll say, this one, enter. It copies the same connection there, now, the next one I need to do multiple. So I'm going to go and say multiple. Pick this one, enter. It says, where do you want to place it? I'll go and pick this column and I'll go and probably pick a few more columns here, enter.

Now, as soon as I press Enter, it goes through the process of copying these connections and takes a few seconds. Once it's done that, I will return to advanced [INAUDIBLE]. Hallelujah-- copies the connection with the same properties. Now, my question to you-- and this question is for the books, right? So this is going to be a big question.

Six months down the line, you want to modify the connections. The problem is, you would not remember what was your original connection, which means that the copied connections cannot be modified. So, what do you think advanced [INAUDIBLE] does?

AUDIENCE: [INAUDIBLE]

DEEPAK MAINI: No, but let's say I forgot which one was my original connection. So if I go to one of the other-- you're not allowed to answer. You're--

AUDIENCE: [INAUDIBLE]

DEEPAK MAINI: Sorry.

AUDIENCE: [INAUDIBLE] numbers the connections [INAUDIBLE]

DEEPAK MAINI: Not really.

AUDIENCE: [INAUDIBLE]

DEEPAK MAINI: Not really.

AUDIENCE: [INAUDIBLE]

DEEPAK MAINI: No, but you are on the right track.

AUDIENCE: [INAUDIBLE]

DEEPAK MAINI: Absolutely, absolutely. So, what it does is six months down the line, I've forgotten which one was my base connection. So I can go to any of those connections in that group and I can make that master, which means that I can then go and modify all-- I told you I'm going to trip over this. It goes and mollifies all the connections in that group.

So I can go to this connection here. So I want to modify this. If I had the connection box turned on, I would double click on it.

But in this case, I can right click and say, advanced joint properties. So at this stage, everything is grayed out. I cannot modify anything. But in here, I can upgrade this to master, modify this, and it modifies all the other connections as well. How cool is that? Sorry.

AUDIENCE: [INAUDIBLE]

DEEPAK MAINI: If you want, yeah. Yeah, you can do that. All right, so I'll keep moving.

Next, I want to put, let's say, the endplate connection here. So for that, I'm going to go into my connection vault, go and say I want to go and do a single site end plate. So again, the good

thing is being an AutoCAD based program, it gives me these problem sequences.

So it's asking me to select the main beam. The only thing is advanced yield treats the column also as a beam. Member. So internally, it says that's a beam member.

So-- although in the naming, when we define the naming, we can say it's a column. But in the problem sequence, it says, select the main beam. I'm going to pick this, enter.

It says, select the secondary beam. I'm going to pick this, enter. Again, goes into my library, has a look at my connections that I've saved in the library. If there is a connection that matches this, picks up that connection.

How cool is that? So this way, I can keep adding connections. One of the connections, which is our bread and butter connection in [INAUDIBLE] region, is a connection called shear plate.

I understand that you guys here in the US or Canada don't do too many shear plate connections. Is that right? Have you guys heard of what shear plate connection is?

All right. So I'm going to go and do that because I love my shear plate connections. Main beam, enter, secondary beam, enter. Looks at my library.

If I've got a connection saved, goes and puts that connection in. I can go ahead and modify any of these connections, change these properties under [INAUDIBLE] and so on. So for my vertical bolts, currently, I've got three groups.

Horizontal bolt, I've got one. I can go and set two and it updates the plate. So this is what we mean by parametric. You add something to it, it automatically updates the connection. And later on, I'm going to show you. Once I do the drawings and so on, we are going to modify a few connections, how the drawings are updated as well.

Right, so again, once I place this, I can use that option to create multiple copies of this connection. Similarly, the next one that I want to place is clip angle joint. I understand that you guys do a lot of clip angles joints here.

So if I go in here, I've got a single side clip angle or I've got double side. I'll go and say double side. So it says, select the main beam. I'm going to pick this, enter.

First beam, pick this, enter. Second beam, pick this, enter. It goes and puts a clip angle joint for me on both sides.

Does all the notches and so on based on my properties. I'm not showing you too much detail in the connection because that's not the idea of this class. The idea of this class is to show you the overall concept. As said, Felipe is going to do a class on Thursday where he is going to talk about these in detail of how the connections really [INAUDIBLE] as properties. But if you need more information about this, you can come and see me after the class. I can talk you through various connections as well if you want, although I might charge you extra for that. Just kidding.

AUDIENCE: [INAUDIBLE]

DEEPAK MAINI: Yep.

AUDIENCE: [INAUDIBLE]

DEEPAK MAINI: Yeah, OK. So I'm glad that you asked that question. There is a pool inside this where you can program your connection based on the sections and so on you are placing.

It's called automated connection. There, you can put in those parameters and it does that for you. Yep.

AUDIENCE: [INAUDIBLE]

DEEPAK MAINI: Yes, yes. A lot of these connections have got joint design option. You can go to this joint design.

You can put in your parameters and it actually calculates the joint design for you. The joint design is based on AISC standard, which is I think what you guys use, and European standard, which you guys use in UK or in Europe. So the answer to your question is, yes, you can do without.

Just put in your parameters here, run the calculations, and it'll tell you whether the connection meets the requirement or not. And if it doesn't meet the requirement, it actually can give you the problems that you will face. All right, so in my case, to save time, I already have a model created, which is this one here.

Now, in this particular model, I do have a lot of these connections placed. I might actually show you one more type which is one of my favorites. And that connection is called [INAUDIBLE] frame bolted with haunch. It says, select the column.

I'll go and pick this, enter. Rafter, pick this, enter. And it places this [INAUDIBLE] joint bolted with haunch connection. You can go into your properties here.

You can specify whether the haunch is on this side or the other side depending on where you're placing it. You can modify all these parameters here. The whole concept is once you modify all these parameters, you can then have them sitting in your library, which is where it picks up next time.

If I want the same connection placed here, it places this haunch at the bottom here and places the top plate. Obviously, if you're [INAUDIBLE] the top plate, we can go and say, don't want this. So I'll go and say none. It removes the plate and I can go and say continue this column. It continues the column.

If I'm putting it at the top here, I might want to put an end plates. So in that case, it gives us the option there as well. All right, so going into this model here, as I said I already have some of these connections placed.

The next thing I want to do maybe at the back is I want to put some hand railings. So again, not only Advanced Steel gives you the option of placing these sections and it also gives you all these options to place portal and gable frames from scratch. You can do your [INAUDIBLE].

You can do your mono pitch frames. You can do your joists and you can do bracings and things like that all out of box available to you. There are a couple of other Advanced Steel classes. If you want to learn these things in detail, you can go to those Advanced Steel classes and you'll learn these things in detail.

I think there's a couple of labs as well. I'm not sure-- just check the schedule. There are a couple of labs as well where you can do all these things hands on as well.

So as I said, in my case, I want to do hand railing here. So I'll go to the hand railing option. It says select objects.

So in my case, I'm going to pick one, two, three, four, enter. It says specify the start point of the railing. And this is where Advanced Steel is really fantastic. Now, I'm going to go and pick, let's say, this midpoint here as the start point of my hand railing.

Did I say end point? No, I want the mid point. I'll go and pick this. But I don't want the actual

hand railing to start at this.

So within the dialog box, I can move that end point back. Instead of me using the tracking option and track back from the midpoint, I can specify those parameters in the dialog box to do that. Similarly, the other endpoint is somewhere here.

So I'm going to use the midpoint option again, pick this. It says, do you want to pick a nosing point? I'll say no. So what it does is goes and puts the hand railing, again based on some default settings in my library. Going back in the library, it looked at the sections that I picked and it said you already had some parameters saved.

So I'm going to use those. If you don't want to use those you can go to a different setting and it puts a different type of hand railing. The whole concept is now, you'll have to manually go and modify the parameters. Yes, please.

AUDIENCE: So the library settings for [INAUDIBLE] the library settings initially place the connection [INAUDIBLE] once it's placed, and so you make changes to your library--

DEEPAK MAINI: Good question.

AUDIENCE: [INAUDIBLE]

DEEPAK MAINI: No, No. Good question. I'll actually give you a cap for that.

You like cap, or are you-- I've also got earphones. Catch.

Good on you. All right, so the answer to the question is no, it does not update the library automatically. But all you do is click on the Save button option.

It goes and creates a new row. So if I modify anything, I'll just go and say save value. And then it saves the new settings. I delete the old settings, rename the new one, good to go. Does it make sense?

AUDIENCE: Mm-hm.

DEEPAK MAINI: All right. So I'm not happy with this. I'm going to use this one.

My only problem is based on these sections that I picked, see how this post is sitting here. I don't like it, obviously. So I can go to the post option and I can go to every single post that I've placed.

And if I want, I can offset it or I can move it and so on. You can go to this spinner. And I think this is post number four.

I say I want to move post number four eight inches back. So I'm going to type in minus 8, enter. And it moves it back. How cool is that?

So this is what I meant. It's all parametric. It's not just you putting in and then changing something and it doesn't update things. This is what parametric is really. I think on the other side, it's the same problem. So I'm going to go and say next, next, next, next, next.

Oh yeah, number 17. So you can see that-- I'm not sure whether you can see it on the projector or not, but it highlights the one that is active. So, number 17 is active here. I'm going to go and say move it to eight inches. Yes, please.

AUDIENCE: [INAUDIBLE]

DEEPAK MAINI: Yeah, there are settings. So this is overriding the setting of that particular post. But there are other settings where you can decide whether you want the same settings to be used throughout the railing or only for the section that you have picked and so on. But these are all overwrites for that particular post only. So it overwrites all the other settings.

AUDIENCE: [INAUDIBLE]

DEEPAK MAINI: Yeah, in that case, I'll say this is more of an override for that post. But if you want to maintain the same spacing, then you'll have to use your default settings and modify them there. All right, so I'm happy with this hand railing.

I'm going to go and say OK in this dialog box. So, place the handwriting as well. Looks pretty good. I've already got most of these sections here. And now, the magic part starts [INAUDIBLE] advanced. So you remember I told you two button clicks for your drawings and reports.

That's what I'm going to show you now. But again, to get to those two button clicks, there was some work done in the background. And as I said, that's what we do as a reseller.

When we sell the software, we go to a client site. We set up all these things for you. So the whole idea is when you finish your training and your advanced fast start, you are actually productive from day one of using the software.

So, the first thing-- OK, this again is the question for the book. So, big question. What is the first step before you start generating your drawings? Yes please. Did you get the book? OK.

AUDIENCE: [INAUDIBLE]

DEEPAK MAINI: Numbering, oh. [INAUDIBLE] yeah, that's the answer. But I thought you'll give somebody else a chance.

That's all right. So, all the books gone. Congratulations, by the way.

So yes, the first step before you do anything is the numbering. Now, depending on how you place the sections, there is another step that you may have to do before that and that is to check whether the right namings are used for the sections or not.

Because when you number these sections, you use some prefix configurations. Now, prefix configurations says my beam that I'm placing on a detailed [INAUDIBLE] of a single pod has to have a lower case b as a prefix. But when it is being placed in an assembly drawing, it needs to have an upper case b.

So, advanced [INAUDIBLE] lets you create all these prefix configurations. Now, those prefix configurations will only work if the naming convention of these sections actually match those prefix configurations naming convention. So, to find out whether we've got the right information for these members or not, in here, we've got a really smart option called [INAUDIBLE] browser where I can go and say, show me all these different types and naming conventions, which is what model role is, and shows me all these different model roles.

So, base plates, columns-- and see how all of these are saying none? Meaning, it may not use the right prefix configurations when I do the numbering. So, what we do is we go into Edit Properties, take the first one, go in here, and pick the last one.

And I'm going to go and say these are all beam sections. It also highlights these in the background. I'm going to go and say these are all beams and then done. So the whole idea now is when I'm doing my numbering, it uses the right configuration. Now, in my case, this model is already numbered, and that's why it was showing b whatever it is in the name already.

Also, because it was originally imported from Revit, it also uses some of that information as

well. But you can always override that model role to get the right prefix configurations. So what I'm going to do here is I'm going to click on numbering. I'm doing my single part numbering as well as the assemblies.

Assemblies will start with 100 as a number, single part with 1,000 as a number. I'm going to say OK. It says because you did not select anything, it's picked up the entire model. And because it's picked up the entire model, there are too many items to number.

Are you sure you want to do that? I'll say yes, absolutely. It goes and starts numbering these sections.

And now, it shows me that these are our main part numberings using the uppercase. And these are single part numberings using the lower case. Again, it's doing this based on my prefix configuration. Now, depending on whether you are doing the construction model for building or commercial or whether you're doing it for bridge design, you've got different prefix configurations.

Advanced Steel lets you create different prefix configurations for different types of design you're working on and you can make a prefix configuration current and it uses that rather than the other one. So let's say this week, you're working on tower design. And next week, you'll be working on bridge design.

So you can have two different prefix configurations and use the one that you need for your project. How cool is that? All right.

Now, once I've done this, I want to start generating some drawings. So, the first thing I want to do is I want to do some assembly drawings. So I'll go and pick this part here.

You guys understand assembly? So, assembly is basically have the connected parts whether welded or bolted. I'm going to pick this one as well-- so, two different sizes.

And this is where I'm going to go into what we call as drawing processes. You can have the default drawing processors or you can have your own custom drawing processes, which is what I've got here. For my single part drawing and assembly drawings, I've got some drawing processes that I've configured.

Again, this is what we do when we sell the software. We come to you and we set these things up for you. So you can instead of using things out of box, these are all customized the way you

want your drawings to look like.

But as I said, we always need to keep in mind the 80:20 rule. It'll get you to 80%. You would still have to manually do 20% things.

So the process that I've got is assemblies with connected parts on NCE sheet. So it'll place the assembly drawing and also place all the connected part drawings as well. So, one click and two clicks-- remember I said two clicks?

Goes through the process and creates the two drawings. And all these drawings sit at one single location called Document Manager. Document Manager is one place where you can go for your detail drawings, your NC files, your reports, whatever you want.

And if I look at my detail drawings, it says I've got two drawings up to date-- sheet 100, which is what the naming convention was in the dialog box. It is for assembly B192 and assembly B200. I can look at the preview here to see how these look like.

So this is my preview tab. Or I can double click on this and open the drawing sheet. So once I open the drawing sheet, it does the assembly drawing. It does the single piece drawing.

It also puts in a [INAUDIBLE] or [INAUDIBLE] material in there telling me this was the main beam with this prefix and this information and all these details. It gives me the length. It gives me the grid, part weight, and even the total weight. How cool is that? Yes, please.

AUDIENCE: [INAUDIBLE] recognize those two white beams [INAUDIBLE]

DEEPAK MAINI: I'm glad you asked that question. The answer is absolutely yes. So, because this is an assembly drawing, once you do the single part drawings, you will see it gives you the detail if there are two beams of the same information, same holds and everything. It actually tells you 2 or 5 or 10 or whatever it is. Yes, please.

AUDIENCE: [INAUDIBLE] assembly drawings [INAUDIBLE] go back to the model [INAUDIBLE]

DEEPAK MAINI: How--

AUDIENCE: If you were you change [INAUDIBLE] change that in the model?

DEEPAK MAINI: Why would you want to change anything in the drawing and not in the model?

AUDIENCE: [INAUDIBLE] find an error in these [INAUDIBLE]

DEEPAK MAINI: Yep. So, the workflow is you go to the model and fix the model and update your drawing. Because that way, you can place your revision cloud.

You can place your revision dialog box with the details there. If you do the change here, it's like overriding things. And you don't want to do that because what if something else changes in the model and you need to update the entire thing? So the whole concept is, we go back to the model and fix it.

And if the drawing needs to be fixed, we revise it with the next revision. I'll show you an example of that. If there was a tiny mistake that you don't think need to be revised, you can also force update. You don't have to revise a model and bump the revision. But if it needs to be fixed with a revision, you can also put the revision table.

I'll show you an example of that as well. Let me close this. Save changes, no. Similarly, I can go and pick any of these assemblies and I can go and do the assembly drawings of these.

Let's say I also want to do some piece drawings or single part drawings. So I'm going to pick this. I'm also going to pick this, this, maybe a couple of other ones. I've picked some of these and I'll say I want to do a single part drawing.

So going here, I've got two processes here-- single part each on NCB, which is for these large parts, and then for smalls that-- we call plates as smalls. Plates, normally you would have an A1-- we call it A1, but in your case, an NCE sheet where you have all the plates sitting on one single sheet. Normally, we don't have to put single plate on single sheet.

We normally place all of them on one sheet. Is that what you guys do here as well? Yes, no, maybe?

Depends? All right. Right, so I'm going to go and say single part each on NCB.

Pick this. It starts the drawing number with number 1,000. Again, if you want your drawing numbers to be the same as your part numbers and so on, there is a workflow for that as well.

So you can have your drawing numbers the same as your part numbers as well. That can be done as well. So then I go and say, OK.

It goes through the process of generating the drawings. I'll press F2 key. And it's not showing me my AutoCAD text window.

Why does it do that to me? Oh yeah, there it is. So it's telling me that it's done these drawings one, two, three, and also gives me the information.

It says the following drawing has not been created-- part mark B1082. You remember I picked this beam as well. And it's smart enough to understand that this beam has already been detailed in the assembly.

So it says that because it's already been detailed in the assembly, you don't need a separate part drawing for this. However, if you really need a part drawing for this, you can also override this in the settings. You can go and say now I want part drawing for every single part as well.

But because in my case, the assembly drawing that I did included the single piece ring as well, I don't really need to detail it separately. Going into my Document Manager, I'll go and look at this. Now, it says in addition to my assembly drawings, I've got the individual part drawings as well.

And these are my individual part drawings. Now, some of them, as you could see, the size is not right. That's because my process said you should only use certain scales. If none of these skills fit on the sheet, just use the one that is the default one, which means that in some cases, I may have to go and modify the scale.

You remember 80:20 rule? That's what it is. Now, if you are working on large sections, you might go and add an additional scale to your style, which it's going to use in your process.

Then say, all right. Now I'm going to use this scale to reduce it a bit further. So I can go to each of these drawings. I can have a look at this.

So let's have a look at this one here. Now, see you asked this question here. It says B1022. There are five of these with this description.

The part weight is this much and the total weight is this much. So it also gives you the total weight. It knows the total count of that as well.

So this is what you asked earlier. Again, all this is configured in the back end, which is what I mentioned earlier that we do for you. We also train you on doing that as well.

AUDIENCE: [INAUDIBLE]

DEEPAK MAINI: So, to add the galvanized rate, you go and add some custom properties. So for each of these sections, there are some custom properties that you can add-- user attributes. And then you might have to use some formulas in the back end to add the galvanized rate as well.

All right, so you remember we talked about modifying the connection. So before I do that, I want to do all the plate drawings. So this is where I'm going to use this really smart tool from AutoCAD, although I can go back in here or there is an option where I can go and search for all the plates. But I don't want to burn my calories in doing all that.

You remember how I want to save my calories? There's a lot of walking during AU, so you've got to save your calories, right? So I'm going to pick one of the plates and then I'm going to right click and say Select Similar.

This is a plane AutoCAD command. Do you guys know about this? How many of you use AutoCAD and didn't know about this?

OK, brilliant. Everybody knew about it. So I don't have to charge anybody extra for this.

I'm going to go ahead and say select similar, picks up all the plates. I'm going to go into my drawing processes as multiple paths on an NCE sheet. OK, does a single drawing putting all these plates on one drawing, which is what we want. And then when I go to my Document Manager, it says part sheet 1004, shows me all these individual played drawings.

I love this. How cool is this? But then it goes even a step further-- gives you a bluff material of total quantity of the plates.

Gives you the size of the plates. Gives you the part weight and the total weight as well and also gives you the total weight of all the plates as well. Yes, please.

AUDIENCE: [INAUDIBLE]

DEEPAK MAINI: For the assembly?

AUDIENCE: [INAUDIBLE] when you select all the plates, [INAUDIBLE] assembly, will it conclude--

DEEPAK MAINI: Sorry, I should have actually remembered that. My apologies.

AUDIENCE: Will it include the single plates on this drawing?

DEEPAK MAINI: No. The reason for that is this drawing actually goes somewhere else. We need to do the laser

cutting of the plate and punch the holes and so on.

So the reason it did not detail some of those beam members is because most of those drawings go to the same people whereas this might go to a totally different company who only does the plate stuff where they are laser or plasma cutting your plates, punching the holes, and so on. And that's why it does the detail of every single plate.

But again, even that is customizable. If you still want to detail the beam that was detailed in your assembly drawing, you can specify those settings as well. All right so this is good.

I'm happy with those. But now, I want to go and modify something here. So I'm going to pick one of the plates.

Let's say advanced join properties. This is where I'm going to upgrade this to a master. And now I'll go into, let's say, the base plate.

Let's go to the anchors. So, instead of a three by four inch anchor, I want this to be, let's say, seven by eight inch anchor. And what it's done is it's not only updated this joint.

It's gone and updated all the other joints as well. I'm happy with this. Just quickly do a renumber of this. And if I go to my Document Manager, it straightaway tells me what are the drawings that need updates. So, see how it says update required?

Now, this is where I can right click on this and I can go and say, force update or update with a revision. So if I say update with a revision, I'd say add rev A author, change the anchor bolts. OK, OK.

So what it does now is it goes and updates this drawing, puts a revision table in. And also, rev [INAUDIBLE] the changes. So, if I now go into this drawing here and look at the preview-- come on, come on, come on.

So, see how rev [INAUDIBLE] everything that was changed and puts a revision table in as well. So this is what I was mentioning earlier. You're better off modifying the model because that way, you can force revise the drawings and so on as well.

So this is the Advanced Steel part of it. As I said, it's a fantastic program when you want to create your detail model and so on. But this is good. This is on the detail side of it.

But from the engineering side, the engineers are involved in this coordination process where

they take all these models into Navisworks and they are doing the coordination meetings where they have brought the architectural model in, structural model services, and so on. And they are running their clashes. Now, as part of running their clashes, let's say between structure and sealings, as part of running the classes, they're looking at-- let's do walls.

So they're looking at all these different clashes between the structural members in the walls and the other things. So fitted with the services, we are not going to move our structural model. The services need to change.

But if it is with some of the architectural objects, we might have to move some of the structural elements as well. So the engineer goes in and makes changes to the Revit model. So what I've got here is a version 2 of this model. So the version two of the model is the original model in which I went and made some changes.

So these changes could be based on [INAUDIBLE] now maybe they had a change of mind or maybe they ran classes and then moved a few things around. There were some sections missing. So what we do is from here on, we just export the SMLX file again.

I'll go and say, OK, save. It creates a new file. And now inside Advanced Steel, I want to look at the changes. So this is what I mentioned about the bidirectional associativity or the sinking. So the engineer goes and modifies the model.

In my Advanced Steel model, I want to see what those changes are. So all I'm going to do in Advanced Steel is going here under on my export import. Now, do I say import, or do I say synchronize? Who answered first?

OK, I've got a cap. You want cap? All right, catch. Good catch.

All right, so I'm going to go ahead and say synchronize. It says what file do you want to synchronize with. I'll go and load the version two file, C27KB.

Now, once I do that, in the dialog box, it now loads every single section. But this is where the Advanced Steel team has made it really, really easy for you. What they have done is they have color coded the changes.

So anything that is added new is green color anything. Anything that is modified is blue and anything that is deleted is red. So if I scroll in this dialog box, I've got a lot of blue items here. But the best thing is it tells me that the change is material. You remember how I told you

sometimes the material is named a bit different?

So that's all the changes are. If I keep scrolling down, there are some red items here. And there is a green item there as well. Now, there's a Filter button.

I can click on the Filter button. And normally, what I do is I say clear all filters and I'm only interested in beams and columns that are, let's say, modified. Apply filter.

It says, these are all the items that are modified. Now, if I go through this list, I do see that there are a couple of-- actually, three sections or three columns that have change in the section as well. To find out what these changes are, I can right click on these columns and I can go and, say, add the column from the file and add the column from the model.

So, the model is my current model. File is the SMLX file. I'll go into section. It says in my current, model, the section was W14 by 120 whereas the engineer went and changed this.

Double clicking on this actually takes me to that column as well. It tells me where that column is. So I'll say, yep, I'm interested in applying these changes. I'll say, apply all actions. It goes and changes my models by changing the columns that were in the previous column with the new ones without me worrying about anything.

The best part is, if that required updating connections, it'll go and update the connection as well. Maybe the connection needs to be changed, something. It does that as well.

And if I had my drawings done for these columns, it'll straightway in that document manager, it'll tell me that these drawings need to be revised. And I can go and update those rights by forcing update or revising them with a revision table. Next, I want to see what are the sections that are deleted, apply filter. It says there are all these beams deleted.

Any idea what these beams are? This is a question for a t-shirt. I only have 2XL. Quickly. What are these sections here?

AUDIENCE: [INAUDIBLE]

DEEPAK MAINI: Handrails, yes. Who answered? All right.

This is a 2XL size shirt. Are you interested in a 2XL side shirt? All right, we'll give it [INAUDIBLE], though. That's fine.

All right, so these are all hand rail section C, round sections. These are the hand rail sections. Obviously, in my structural model in Revit, hand rails did not exist. So that's why it's telling in that model, these were deleted. I'm not interested in those, but I'm interested in some of these ones that got deleted.

So if I double click on it, it takes me to the beam that got deleted. So apparently, this beam here, this beam here, and this beam here got deleted, which makes sense because these were like standalone, didn't make too much sense. So I'm going to pick these three and I'll go and say, apply all actions.

Goes and updates my model by deleting those sections as well. Now, there is one little catch, and that's why I double clicked on the preview. If you had the connection applied to these beams that got deleted, you will have to first go and delete the connection.

Then, you go and delete this. Otherwise, it may not delete the beams. So please keep that in mind.

Lastly, I want to see any beam or column that was added. I'll say apply filter. There was one beam added. I'll say, all right. I want to add this to my model.

So by doing this synchronization, I'm making sure that my detailed model here in Advanced Steel is exactly the same as that they had in Revit. This is the whole idea of the interoperability. This is the whole idea of making sure that we are using our design model into the detail and fabrication side of it as well.

So now, as I said, if anything changed in the drawing, I could go to my drawing Document Manager and I can look at the things that got changed and I can force update those drawings. So, this is our detail side of the story. Now, as I said, there's a bit of-- not huge amount, but there's still a bit of lack of trust between the engineers and the detailers.

The engineer now wants to check what you have actually done. So they want to find out what you have done in their model. So, what we can do is same thing from Advanced Steel.

I can go and say Export. I can go and create an SMLX file from Advanced Steel, click Save. Because I didn't pick anything, it'll export the entire model.

And now I'm going to go into Revit. And because this was with the version two model, I'll go and say Synchronize. So, when I click on Synchronize, same dialog box appears, same

settings to here as well.

This might take a bit of time because Revit needs a bit of time to synchronize this. Come on, come on, come on, come on. So, at the start of this class there were a few people who said that the work flow may not work.

Do you think this work flow might work in your memory? Yes, no, maybe? Definitely, definitely worth a try. I'm not saying that you have to use it, but it's definitely worth a try in your environment and see how you go.

So I'm going to load this model here, which was 235K with all of the plates and bolts and so on. So, once it loads, as I said, pretty much the same setting that we saw in the Advanced Steel, we got the same settings here. I'll say show me any column or beam that was modified.

Apply filter. It says these were all modified material change. I'll say, that's fine. I'm OK with that.

What were the ones that were deleted? Apply filter. Nothing deleted.

So the detailers did a good job. They did not delete any of our sections. I'm happy with that. Now, appended, apply filter.

There are a lot of these sections appended. To find out what these sections are, I'm going to go and say file type. It tells me that these are all the hand railing sections.

Now, if I want these hand railing sections, I can bring them in into my structural model-- up to you. A lot of times, you may not need the hand railings. So you don't have to bring them in.

But if you want all the hand railing sections, you can pick all of these. And you can go and say apply all sections. It'll bring in all the hand railing sections and place them there.

The only thing is, if there is an analytical model associated with this 3D model, it might start [INAUDIBLE] about it, saying that this may not work with the analytical model. So just keep that in mind. Especially with the engineers, you might want to keep that in mind, right?

So, this is what we mean by bi-directional interoperability between Advanced Steel and Revit. Any questions before I move further? So, as I said at the start, some people had questions and had doubts. Do you think this helps you in understanding that there could be a better workflow?

Yes, good. Good to hear. Sorry.

AUDIENCE: [INAUDIBLE]

DEEPAK MAINI: Sorry?

AUDIENCE: [INAUDIBLE]

DEEPAK MAINI: What button?

AUDIENCE: [INAUDIBLE]

DEEPAK MAINI: Oh, yeah. Yes, so I'm glad that you asked that question. So, when you're bringing in these sections and if there's a problem, you can actually look at the report option and then generate the report of what those problems are. You can also delete the analytical model if you want, if that's what you want to do.

So, going back into Advanced Steel, once I'm happy with this model, I can start generating my NC and DXF files as well. So if I want to do a quick DXF file for all the plates, I'll go and pick all the plates here. And under the Home tab, we have got this option to generate the DXF files or we have got the option to generate the NC files.

Obviously, these are plates. I'm going to DXF them out, send them to the laser cutter or the plasma cutter. By just clicking on this one button here, it goes and creates a DXF file of all these components. Again, as I said, everything is sitting under your document manager.

It says the DX of all these plates. Also, it shows you the preview of these, does the etching as well. So you know and easily identify what these plates are.

Again, how fantastic it is. The good thing is if any of these things will change, even your DXF files will show you that these need to be updated. And you can update them sorry.

AUDIENCE: [INAUDIBLE]

DEEPAK MAINI: Yep.

AUDIENCE: [INAUDIBLE]

DEEPAK MAINI: Yep.

AUDIENCE: Is there a way to relocate and move where that [INAUDIBLE]

DEEPAK MAINI: In the DXO files or in the drawings?

AUDIENCE: Well, where would you do it and how would you do it?

DEEPAK MAINI: OK, so in the drawings, yes, you can decide where all these labels go and so on, where the pock marks go and so on. That can be customized. For the DXO files, you'll have to go back into the API and have a look at that.

The good thing about Advanced Steel is it's an Oracle based program. So if you've done anything with the API, you can go back in the back end and then you can modify some of these things. We've got some really, really good Advanced Steel people here at AU.

I would strongly recommend go and have a chat with them. There's a champion sitting at the back. His name is Felipe.

He is one of the best in the industry. Undo here, who stole one of our shirts, you can speak to some of these really smart people. And then we also have-- I would strongly recommend go and speak to some of these people and they'll be more than happy to answer your questions.

All right, similarly, let's say I want to do some NC files. So, I'll go and pick some of these because I'm running short of time. I'd say go and generate the NC files of these sections.

See how it straight away says NC files created. Going into my Document Manager, DSTV, NC files up to date. There you go. I actually have got a free viewer.

If you guys are interested in it, I've got a free viewer that I can give it to you, provided you give me a good rating for this class. No, I'm just kidding. So I can give you a free viewer for the NC file.

You can open the NC file in the free viewer. You can spin the model around and have a look at the NC file before you send it to your beamline and so on. All right, so-- yes, please.

AUDIENCE: [INAUDIBLE]

DEEPAK MAINI: Yep.

AUDIENCE: [INAUDIBLE]

DEEPAK MAINI: OK, that's a bit of complicated question. And the reason I'm saying it's a complicated question is because one of our customers had that problem. [INAUDIBLE] if I answer that after the class.

Normally for beam cutting, you use beamline. But we have a customer in Australia who actually went and bought a half a million dollar CNC machine from France and had a problem. That CNC machine could not read the NC files. But if you've got beamline, beamline reads these NC files and does all your beam cutting in a flash. But I'll explain the other thing a bit later.

All right, so this is the interoperability between Revit and Advanced Steel any questions? I'm running short of time, so I might just move forward.

Now, importing Advanced Steel connections into all this Revit, this is a new feature in 2017. So, what we have noticed is if you are an engineer working on an LOD 400 or above job, LOD 400 basically is a model where you need to deliver a fabrication level structure design. So if you're working on an LOD 400 plus job, your structure model needs to be a fabrication level structure model.

So if your BIM deliverables are coming out of Revit, it needs to have a fabrication level model. Also, we have noticed in some high seismic regions like New Zealand, Christchurch had a massive earthquake a few years back and they had an earthquake last week as well. LA, all these places, high seismic regions.

So, in these high seismic regions, the structural engineer has to actually design these connections and give the guidance to the fabricator of what these connections need to be. Also, the problem is that generally, the structural detailers working under the fabricators are the only people who are capable of delivering a fabrication level model because you need a fabrication kind of program to be able to do that like Advanced Steel. But lately, there has been a shift in the industry. There are certain structural engineers who are now starting to deliver LOD 400 models.

For these type of engineers, Revit 2017 actually allows you to create steel connections inside Revit. So, just like we could create these connections in Advanced Steel, we can create these steel connections inside Revit. Or, you can bring in those connections from Advanced Steel, which is what I'm going to show you here. Again, the problem is-- not the problem.

The point here is that the solution is not delivered out of box. When you install Revit 2017, it is not installed out of box. What you do is go to your manage.orders. [INAUDIBLE] where you go under your updates and add-ons. And you can download and install this connection add-on for Revit.

Anybody who needs to know more about this can come and see me. I also created a LinkedIn post detailing this of how you can do it. You can look me up on LinkedIn and you can see it under my LinkedIn post.

So, once you do that, under the Structure tab, you will see the Connection dialog box or Connection option where you can include all these connections. So, these connections are exactly the same that you saw inside Advanced Steel-- exact same connections, exact same options. So once you've added these connections, they'll be available inside Revit.

Sorry. Is it OK if I answer the question at the end? I'm sorry.

I'm just running out of time. There are a few things. My apologies for this.

All right, so just a quick demo of this. Going into a Revit-- so, because I've already downloaded that item, under my structure tab, when I click on connection option here, it shows me this dialog box. These are all the connections that are available and these are the connections that I've loaded in this file or in this model to be added.

So, once I've loaded these connections, when I go to any of these items here and I say I want to place a connection, it by default places a generic connection. But here, it gives me the option to change it to baseplate now.

Now, this option to baseplate will not be available if you haven't added the baseplate connection into the dialog box. So please keep this in mind. The reason I had some of the connections added to the right side of the dialog box is so I could see them here.

If you haven't done that, then you won't be able to see them here. I'm going to undo this. All right, so this is when you want to do the connection inside Revit. But we don't want to do without.

Our detail model already has the connections done. I want to import those connections inside my Revit model. So, take a guess what I'm going to do here. Going back into that same synchronization dialog box, I'll pick the same file. As it's doing it, maybe you can ask your

question.

AUDIENCE: [INAUDIBLE]

DEEPAK MAINI: Yes.

AUDIENCE: [INAUDIBLE]

DEEPAK MAINI: Absolutely, absolutely. And again, Felipe is going to talk about that in detail. There are some specific type of structural section family that you have to use for the connections to work. If you do not do that, the connections will not work.

Again, I'm not touching on that because Felipe is going to talk about those things. I don't want to repeat these things in the class, but I strongly recommend you attend Felipe's class on Thursday. Felipe, is it 1:30?

FELIPE: 1:30.

DEEPAK MAINI: 1:30? Yes. So, 1:30 Thursday, I strongly recommend you attend that class. He's going to touch on all these things in detail.

I'm going to go in here and pick the same SMLX file that I brought from Advanced Steel. And this time, I'm going to go and say filter. I'll filter everything except for the connections.

So filter, I'm going to say clear all, only the connections, appended, apply filter. It shows me all these connections have been appended. So what I'll do is-- it takes a bit of time, so I might not load all the connections. I'll just pick some of these.

And I'll go and say, Apply All Actions. So now, in the back end, it starts the process of bringing the connections in. Now, this is a question for the 2XL shirt again.

Those connections, once they are brought inside Revit, would they behave as individual nuts, bolts, and plates, or as proper connections? So when you bring in those connections, is that Revit? Would they behave as individual nuts and bolts and plates, or they'll behave as proper connections?

AUDIENCE: [INAUDIBLE]

DEEPAK MAINI: Proper connections, yes. It's a 2XL-- would be a bit too big for you. All right, so as I said in the backend, it's starting the process of bringing these connections in.

Now, once those connections are brought in you, will see that there's a little problem. And the problem is none of the connections will be displayed by default. And I got this question quite a lot when this originally was released, as to-- I had [INAUDIBLE] these connections, but I can't see any of them in Revit.

And the only reason is that they are not turned on by default. All you have to do is go into your file and turn the option of the connections on. Our friend here is smiling. I think he's been through that process. Yeah.

All right, so it's still doing that. You guys didn't even tell me. Come on, that's not fair.

And I'm doing all of this and you guys are looking at the screen and not even telling me that I didn't pick the tick boxes. Give me all my stuff back. Right, just a reminder, as it's doing this, I strongly, strongly recommend you guys to please go in and fill in the feedback for the class.

So, there's a feedback for the class. I strongly recommend you guys do it. Please complete that feedback form.

It not only adds you to the list of free paths that you might win, but it also gives us an opportunity to reflect on how we did in the class and if there's something that you need to improve. I have been top rated speaker for the last three years. I would love to maintain that rating.

So if you think I did well, please rate me well. I think they have changed. It used to be out of 10, but last year, they changed it to out of five. By the way, 4 out of 5 or 9 out of 10 is not a good rating, apparently.

So if you think I did well, please see if you could give me full rating-- again, if you think I did well, I'm not saying that you have to. It's up to you guys. Also, one important thing-- the handout for the class is already up there. You can download the handout.

I have discussed all these things in detail in the handout. So you can go to the handout and have a look at this. OK, so going in here, see how I told you that there's an analytical model? So, the analytical model is telling me that some of these connections may have a problem with the analytical model.

You can click OK. And as the gentleman here who's just left said, you can look at the report

and see what those issues are. And if you want, you can delete the analytical model as well. I don't think that is a good idea, but just in case.

Also, I'm going to upload the slide that I use for this class later today. So you'll be able to download the slide deck. Please don't leave because I'm going to plug the Oculus back on.

So if somebody wants to have a look at the Oculus, they'll be able to do that as well. The whole concept of the Oculus is we are taking this model into a virtual reality environment. And if you are a steel installer or your job is to do all the steel erection, The problem is, if you look at the 3D modeling side, Revit, or advanced steel, you do not get a proper understanding of the size of the model and so on.

But once you put the Oculus on, you can actually immersify yourself in that environment, have a realistic look. You can plan your strategies around installation. And if you've got the other stuff around your building or your model, you can also decide how the steel comes in versus a crane standing and things like that. Gives you a really, really good idea to do all that stuff.

It's taking a lot longer than what it's supposed to take. But then it gives us an opportunity to ask a few questions if you have any questions. Yes, please. So, second question-- I'll have to charge you for this. Just kidding.

AUDIENCE: [INAUDIBLE]

Good Good question. That is a really-- so, the question was that a lot of engineers are not willing to share their model. But this is what I mentioned.

There's a bit of trust issue between the engineers and detailers. But the industry is shifting. If you actually speak to your engineer, they may start sharing the models as well. I'm not--

AUDIENCE: [INAUDIBLE]

DEEPAK MAINI: Yes, yes. But this is where all these fees could be built in at the start of your project. You could do that.

All right, so as you could see, I've added all these connection it's not showing me any of these connections, though. So for that, we go into Visibility Graphics here under Structural Connections. I'll make sure that all of these are turned on.

When I do that, it now only shows me the symbol of the connection it's still not showing me the

connection actually of how it looks like. And for that, all we do is we go in here under the detail level.

And we go and say fine. As soon as I change it to fine now, I can see every single connection in detail. So basically, my design model has now suddenly become an LOD 400 fabrication level model.

And the good thing is, all these connections are actually proper collections. So it tells me that this is this connection. If I go and [INAUDIBLE], it displays the exact same dialog box that I saw in Advanced Steel. You remember we saw this in Advanced Steel?

We can go and move this from one side to the other side, the haunch and so on. So all the properties or all the settings that you saw in Advanced Steel are also available inside Revit as well. So as I said, the whole concept is certainly my design or engineering model has become a fabrication level model by bringing in these connections, bringing in the plates, bringing in all the cuts and so on.

And now I can deliver, as part of my BIM deliverables an LOD 400 model. How cool is that?

The engineers, especially-- do you think this kind of work flow you could use in your environment? Maybe? Yes, no?

As I said, the option is there now. I would strongly recommend you guys to investigate this a bit further. Speak to your reseller.

Speak to Autodesk people. If you have any questions, talk to them. Let them come to your office. Let them demonstrate this to the engineers and see how you go. I can tell you back from where I come, there is this thing where people are now starting to look at this kind of workflow in detail a lot. Right, any other questions?

AUDIENCE: [INAUDIBLE]

DEEPAK MAINI: Yes, so any of these items-- if you want, you can schedule them and those schedules can be used in your tags and so on if you want as well. So the answer is yes. Yes, please.

AUDIENCE: So I'm just wondering if there's any [INAUDIBLE]

DEEPAK MAINI: With phasing yes. Look, the phasing part has to come within Revit. It's not coming from Advanced Steel.

But once you've got it here, then you can use phrasing and so on like that as well. Any other questions? Yes, please.

AUDIENCE: [INAUDIBLE]

DEEPAK MAINI: Sorry, just bear with me for a second. So, what I'll do is, as he's asking the question, I'll plug in the Oculus. And if anybody wants to come in and have a play around with the Oculus, you are more than welcome.

I'll also have it projected on the screen. One of the things that I want to show you with the Oculus is not only just looking around the model. We'll see how we can double tap on an item. It gives us all the metadata and the properties of that item.

Also, we can create issues within that virtual environment. We can create clouds and then tag the people in that we want the answers from. And they'll get the information about that. And if they don't have an Oculus, they'll be able to open it in a normal viewer.

The program I use for that is Revit store. They'll be able to open it to normal viewer, have a look at those issues, answer to those issues, and it keeps a history of everything. So as he's asking the question, I'll start to plug the Oculus in.

Takes a couple of minutes. And then you can come in and have a play with that. Sorry.

AUDIENCE: [INAUDIBLE]

DEEPAK MAINI: Yes, yep.

AUDIENCE: OK.

DEEPAK MAINI: Remember, guys. Make sure you fill in the feedback form. Yeah.

AUDIENCE: [INAUDIBLE]

DEEPAK MAINI: Yes, so it connects with BIM 360 just like any other AutoCAD object. And then you'll be able to do all that collaborative workflow, yeah.