DAVE MANGHAM: So good morning everyone. How are we this morning? A bit dusty, or are we-- you know, late night last night or do I need to keep the voice down. Are we all good to go? Some baggy eyes? No, maybe not.

Thanks for coming along to this presentation, this demo. First of all, I've got a bit of an apology. I'm flying solo this morning because my American colleague who works out of our Sydney office couldn't make it over to AU because he had a rather large deliverable to get out the door this week. So we're business comes first, unfortunately. So apologies for that.

And he was going to be my interpreter as well because you may have gathered I'm English, so he was going to interpret what I was saying. So if you can't understand what I say, you've missed out on something, then please put your hand up and I'll so change it into American for you, all right?

[LAUGHTER]

So this is a quick class summary. Did anybody get their handouts that I-- [INAUDIBLE]? Did you? No. No, OK. So yeah, it's just a basic overview of, really, what I've done is a roadmap of how we implemented ESTmep at AG Coombs.

I'm not saying this is the definitive way of how you actually implement ESTmep. I'm sure there are many other ways of doing it. But this is how we went about it. We started the process about two years ago. We're now using it live, taking off projects.

We've just-- actually, the project we just done this week was 71 levels. So we did the ventilation, ductwork, and the pipework all in ESTmep. So that's sort of going to be our benchmark, hopefully, for the future.

So some key learning objectives. We're going to touch on a few, four different topics. Those who do know ESTmep-- put your hands up if you are actually using ESTmep. Well, OK. And hands up if you're thinking about using ESTmep, but you're a bit mm-- OK.

Oh, that's interesting. There's probably more of you that are-- so yeah. Well hopefully, this gives you a bit of an insight into how to go about or how we went about it. And come see me afterwards if you've got any questions.

So a little bit about me. So when people say where I'm from, I'm from Ramsbottom. But usually gets a bit of a chuckle. And then-- oh, I've got a chuckle. And so yeah, and then they say where the hell is Ramsbottom? OK, I'll show you where Ramsbottom is.

So that's Ramsbottom. It doesn't have a great big red arrow pointing down on it, by the way. It's just to show you where it is. It's in the UK, north of the UK. It's got a bit of a-- it does have a landmark there rather than a big arrow. That's Ramsbottom in the bottom of the valley there.

It's famous for-- that landmark is actually Peel Monument. And one of its famous songs is this chap here is called Sir Robert Peel. Any of you have had a brush with the law, well, I'm afraid he was the founder of the modern day police force. So that's what Ramsbottom's famous for. So sorry, guys.

It's a high speed rail link to Manchester. Actually, it's the Heritage Railway line that runs through our town. I don't know which-- that's George or Gordon. I don't know which one. If you've got kids, you'll know. And it's the home of the Official World Black Pudding Championships, which you all knew, of course as well.

[LAUGHTER]

No? Oh, OK. And of course, if you didn't know, that's the delicacy that comes from out of my hometown. And that's black pudding. So anyway, just a bit of a inside of who I am. And so I've originally started in this industry a few years ago, even though I look very young.

And in the CAM department at a large HVAC organization near where I came from. I moved over to the CAD department. Spent a brief bit of time-- some of you may know a company called MAP. So I actually spent a brief bit of time at MAP in Blackpool, the Vegas of the UK. [CLEARS THROAT]. If anybody been to Blackpool, you'll know it's nothing like Vegas.

And so then I spent some five years at a design practice learning how not to draw. Is there any designers in here? Sorry, I better be careful what I say. Is there any designers in here? No.

So sorry, no offense. But going from a 3D drafting world to drawing in 2D of stuff that will never fit for five years was a little bit frustrating. But no offense, but I think most of us in this room who've received some designer's drawings might know what I mean, but I'll try not to be too controversial.

Anyway, so I got fed up with the cold, wet damp weather and I moved Melbourne 4 and 1/2

years ago. And ever since then, I've been working for AG Coombs. And I've spent the last two years, as I said, implementing the ESTmep package for the business. Two years sounds like a long time. Yeah.

Anyway, so AG Coombs, who are we? What do we do? We're a whole of life building services specialist. You can all read that. So we do concept design to operation. We like to do innovation of delivery. We're engineering-led.

We've got offices Melbourne, Sydney, Canberra, and Brisbane that we've got. So we've got national capability. We're a privately owned corporate established in 1945. So we've actually, this year is our 70th anniversary. We had a big bash a few weeks ago.

But anyway, we self deliver models. Actually, it's a slightly interesting country to work in is Australia because in the Melbourne, Victoria state, we actually have our own-- we call them plumbers. Do you-- I don't know you guys-- fitters is it called when you install ductwork? I don't know.

But the plumbers do-- we have our own self-- we employ fitters to install ductwork. In the Sydney, New South Wales and Queensland states, they actually subcontract that. So it's quite an interesting model that we have our business because we've got to cater for two different sort of ways of working.

So a bit of a challenge to set up ESTmep software to capture that sort of stuff. Anyway, so we've got over 550 employees now. Next slide.

So we went into the prefab side of things, as you can see. I'm particularly proud of this one because I actually worked on this project when I started at AG Coombs. And so you can get-- I'm sure you've seen heaps of these slides of prefab stuff, so I'll just click through these. An interesting model we have in Victoria is we're actually 50% owners of a fabrication shop.

So we've got leverage of data from the fabricators, which helps us to build our ESTmep package and the data within it. So that's an interesting model because one of our competitors is the other owner. So yeah, it makes things interesting. Next slide.

A bit more-- these are the CAD type of projects that we generally work on-- health care, commercial. So you can get a feel for what the business is about. And these are a couple slides of the two major projects that we've been working on for the last, I guess three years now. This is Darling Harbour Live. These are both in Sydney.

This is three buildings-- a exhibition, convention, and a theater that we've been working on. And this is-- some of you may have heard of Barangaroo, which is a huge development site in Sydney. If you ever get to Sydney, you can't miss it. You'll see it when you fly in anyway.

We've got this tower and this tower that we've been doing. We've completed that one. I think we're about that level on this one. That is the casino that is going to be built next year. Nobody's been awarded that project yet, so anyway.

So that's AG Coombs. These are the software packages that we use, that we're currently using. You can all read that. So some of these packages will be familiar to you. Some of them, I haven't even got a clue what they do myself, so anyway.

So why did we implement ESTmep? Or what was the reason for us implementing ESTmep? So you can see there, we were using QuickPen, an old version of QuickPen, which was DOS based-- 6. something I think. So if anybody old enough to remember version 6 of DOS, put your hands up if you do. Not many of you probably, yeah.

So we needed to move forward. We wanted to integrate our estimating, as you can see, and our design and project management cost controls. Obviously, we wanted to be able to analyze our costs to a greater degree. More efficient business processes. So it's all pretty much self-explanatory.

I'm sorry I'm in your way there, aren't I? Of course, if you got the EST, CAD, and CAM-- so the duct fabricates, we got the CAM package. We've got that integration of the software between all three.

Those of you were here on Monday and saw the demo by Andy Robins, this will help us leverage the Revit side because of the native fabrication ITMs in Revit, which was a big game changer for us. And it was a real big win for us as well, I think, because we spent a lot of time putting this ESTmep package together. We'll just move on.

So how we went about it. So the management said we want to set up ESTmep. Some key pointers to go through here. How are we doing for time? Yeah, all right. So this is the third go around that Coombs had in setting up ESTmep. It failed twice, so being honest with you.

So this time, we said, right, we're going to do it. We're going to do it the right way. And what management said was we need the right people in place to do the setup. We had to have

management support. Some nodding heads going on here, I can see.

So we needed key people in place-- a senior estimator, who was Kevin Oliveira, the manager, the estimating manager in New South Wales; a technical leader, well unfortunately, that was me; and some support resource. Because there's a lot of-- when you're first setting this up, there's a fair bit of grunt work and time-consuming effort needed to go on in the background, which if you've had a go at doing this, you'll know.

But the management realized that this is a one-off process. Once you've done this, pretty much you've got a robust database which is good to go for a long time. So invest upfront and it's worth it, we believe.

So we're going to jump into learning objective number 1. I've cheated a little bit here because what I've done is I've actually created some screencaps, which you'll see what's coming up. And the beauty of that is I can upload them to the Autodesk Resource site. You can download them. You can use them for fits.

You can stop pause them and go, you don't do it like that. You do it like this. This is better. Whatever. So learning objective number 1, managing supplier price lists.

So we've got a-- and I'll stress it, we-- Australia has got a slight different model to you guys. And there's not all of you from America here, I don't think. In America, you've got Harrison's pricing, yeah?

AUDIENCE: Yeah, here we can.

DAVE MANGHAM: Harrison's. There's two or three or something?

AUDIENCE: Yeah, there's three tiers.

DAVE MANGHAM: Right. So there are pricing-- Harris, is that right? Is that what you call them? We don't have any luxury like that in Australia because the market is not big enough and doesn't demand that sort of pricing house. So it was a challenge from the get-go because none of our suppliers actually had anything in place to provide to us.

So we had to approach all our suppliers and say, OK, we need to have your data-- because it was all concatenated. A lot of their data was concatenated, which was useless if you know how to try and get data into ESTmep. So we said we can't use your data in this format. Please can

you go away and give it to us in some format that we can use.

So they sort of kicked their heels and, aw. Some of the bigger suppliers and our national suppliers, well, they have the horsepower to do that. Some of the smaller suppliers, it took them a little bit longer to do it. But we got there in the end with all our suppliers. And so we're going to-- I'm just going to start this video off actually and you'll get a general idea.

So here you go. Some fancy graphics going on. So there's a blank spreadsheet that we sent out to our suppliers. We didn't have a lot of data. We didn't have a lot of help from anywhere.

There's now some great support software that Enceptia, whatever they're called now-- they've created some great ESTmep support which is downloadable which we could have done with two years ago. But I think it only came out this year. So we went across to our suppliers. They flicked back their data in the format that we needed after we'd analyzed the ESTmep database and said, we need this column, this column, this column, this column.

And we basically got them to provide us with the spreadsheet. Anybody not familiar with the-- I call it the PIE-- the Product Information Editor. No? You all know what the Product Information Editor is. So the Product Information Editor is a pretty important part of setting up ESTmep.

That holds all the data, the information pertaining to each item, for want of a better word. So you can see there you've got the TA STAD valve. Don't know why I'm pointing my finger. Do that.

So you've got technical data in here. Some of the suppliers gave us more information than we actually needed. Yeah, there was excessive information. Some gave us sort of minimal information. Well, the key things to know are the ID, product ID, things like the diameter and whether it's-- some of the suppliers were giving us boxes of nuts-- 500 nuts in a box and we wanted it each.

So we got them to break it down for us so we could actually use the data and import it into the Product Information Editor. So you can see here it's running through. I don't know whether it's going to Quick Fill. I mean, like I said, you can download it and watch it slow, pause it.

So with T and up sizes, with the columns-- so there's a size there. Just going through the process. And like I said, once you've got this data into your database, you're good to go. So it's a bit of a-- I don't think it's too big a deal, really, to be honest.

AUDIENCE: Dave?

DAVE MANGHAM: Yeah.

AUDIENCE: How often to you have to update your supplier codes?

DAVE MANGHAM: In theory. Well, we've not had to update ours at all because-- I don't know what it's like. We can just stick with one supplier in Australia. We don't switch between suppliers. I think you guys might switch between suppliers over here?

AUDIENCE: We have [INAUDIBLE] price changes we a price change.

DAVE MANGHAM: Ah, that's the price list. The price list is handled in a different area. This Product Information Editor doesn't hold any pricing. All this is holding is the data pertaining to, say, a 90 degree copper elbow, its name, et cetera.

So there's no pricing held in there. That's held in the price list in the database, which we're just dipping into here. So I've just created a new-- the thing is, once you know the Product Information Editor with its product IDs in it, it links to the price list and the product IDs in the price list. So one is drawing information from the other. Does that make sense?

So I've got just-- concentrating the TA valve, I think it was. Yeah. And so we reimport the data from the supplier. And all it really does is it brings in the product ID and the cost. And then because that product ID exists in the price list, it looks at the Product Information Editor, which has got all the other data in-- and you'll see when I click on the OK button in a second or two-- a bit slow, this bit.

So then you've got units there. Sorry, but we're in metric in Australia. I know you guys are old money, not new money. Well, I was brought up on imperial many, many years ago, but I've forgotten it all now. So you've got now-- you can see there you've got the product information. That information there is all being pulled out of the Product Information Editor.

So IDs, OK. So that tees up with that. I put final step there. So we're going to the STAD valve, I think it is. Yeah, there's the STAD valve. One STAD valve. And this was the kind of time-consuming bit that we got one of our resources-- no disrespect to the resource, but more of an admin person.

So we got an admin person to actually do this sort of grunt work of populating all. Because we

didn't have any of these product IDs in any of our libraries, our IDs, our patterns. So we used a spreadsheet to populate with all the technical data pertaining to each item.

So we've now got a catalog of all the technical data within Excel. So Excel was very useful to us. So we pulled all that data into Excel. So see we've got STAD there with other STAF and a STAG for the three different types of valve. Plug that ID into there. So that's now a spreadsheet with all the sizing, the technical data, and now the product ID that came from the supplier.

And then we repopulated the button. So that's the original data there. We just deleted all that. There's probably an easier way of doing this. I don't know. If somebody knows an easier way than this, please tell me.

Yeah, you can do import. There are some smart imports, exports that you can do. We just found a copying and pasting. I think there's a CSV import/export utility now in 16. Dan, is that right? Is there an import/export CSVs for this sort of stuff?

Does anybody know? No.

AUDIENCE: I know you can do it in the Folder view in CADmep.

DAVE MANGHAM: You can do it in the Folder view in CADmep. Yeah.

AUDIENCE: Or you can do Shift, Right-Click and the menu. You can check your prices.

DAVE MANGHAM: Right. Yeah. Does anybody got any questions on that section? It's kind of once you get your head round it, I think it's fairly straightforward. It just took us a bit of time to get our heads around how to go about it.

Like I said, it's not necessarily the way to do it. There might be a better way to do it. We're talking to our IT guys that we have to see if they can come up some smarts, some SQL database or whatever that we can import and export. And now they've opened up the API in 16. Hopefully, there'll be even better ways of doing it.

I think I saw one of the-- earlier this week, if anybody was there-- Harrison's have got a front API that's-- sorry?

AUDIENCE: Sync.

DAVE MANGHAM: That's it. Yeah, so I thought that was a really good smart thing to do. We're probably not going to get that in Australia for, well, whenever.

AUDIENCE: Are you guys generating reports from this step, you can just--

DAVE MANGHAM: Are we generating reports from this? Absolutely. Yes. Absolutely.

AUDIENCE: How much of the information do you fill out? Do you do product code, pricing?

DAVE MANGHAM: We'll get to that in-- it's one of the sections. Yeah, we are very much using this information. Yeah, yeah. It's early days for us, but the more we find we want to use, we can use because we've already got it in the database. The thing is, having a robust database at the start I would say is a key thing.

So I'm going to move on to the next learning objective, which is setting up fabrication and labor tables. I focused in on fabrication tables because labor tables are, I'd say, a little bit simpler. But they're very similar. It's a similar approach for both.

So you can see I've got an array of tables there and what are in the handout. So I'll just flip through to the next video. It's easy this, isn't it? I'm not telling you how long it took me to put all this together, but anyway.

So we've got some services already set up. I'm assuming that you've already got the services set up, your different services. And those that know the system well enough know that behind each button, I should say, there's a Costing tab. And in that Costing tab, you've got M-Rates and F-Rates. So material rates, fabrication rates, and E-Rates is erection rates, yeah?

And we're going to look at the fabrication side because we've got the luxury of having a duct fabricator. We're part owner duct fabricator. We can get that data from them. I guess you've got MCAA, is it, that give you that sort of--

AUDIENCE: [INAUDIBLE].

DAVE MANGHAM: [INAUDIBLE]. So you've got some sort of benchmark rates that you can use. So we're in a better position because we've actually got real duct fabricator rates that we can utilize. Again, you'll notice a real good old Excel spreadsheet. Kevin over here is a spreadsheet king. He's a wizard on Excel. So he did a lot of this grunt work.

So we've actually got each different rectangular duct item there at the bottom of each type.

You'll notice that we've got metal only, metal plus fitting. Do you guys do internal installation in this country?

AUDIENCE: Yes.

DAVE MANGHAM: You do. A lot of it?

AUDIENCE: Yes.

DAVE MANGHAM: OK. They don't do it in the UK, so it was a bit of an alien thing to me when I got to Australia. It was a bit, what you doing? But anyway, I just wondered. Wasn't sure.

So you'd be familiar with the fact that you can assign different labor rates to applying internal installation, which we have an option in here in the Fab table to do that. I've focused in on the mitered bend, I think it was, or transition. I can't remember which one it was now.

So it's the good old green bottom. Does everybody know the green button, the new button? So you've got an option when you're doing creating Fab tables. You can either copy a new table or you can start from scratch with an empty table, completely empty table.

In this example, we've got an empty table. And we've set up this, as I've said, to fall in line with our duct fabricator. There are a number of different breakpoints that you can use to set up your table. We're looking to simplify the fabrication tables because they're quite complex at the moment. And we don't believe that there's a big difference in time between fabricating something which is point-- you use wire gauge here, don't you, rather than-- so if I said, if that's 0.6, is that 24 gauge, something like that? 0.6, 0.8. I know 1.6 is 16 gauge. That's about as much as I know.

So a machine we believe in the shop doesn't really make a discrepancy between 0.6 and 0.8 metal. You know, it doesn't take another two minutes to make something out of a slightly thicker metal. At the moment, we've got tables in our fabrication database, fabrication labor rates, which are broken down to that degree. We're looking to reassess that because it doesn't really make sense to have all that finite information. Does that make sense?

Simplification is where we're trying to get to because the simpler you have your database, the easier it is to manage. So we've got here, we've got standards rates. Again, we do it by minutes for the units. And we've got options in here, which is what I was saying there. You can apply rules for value sets, which will dictate whether or not you get your labor rate appended

by a time for applying internal insulation.

So as you can see, what I did here, I went through and I manually added in 0.6, 0.81, 1.2. And then our breakpoints, we've got a periphery here. So that's full periphery of duct. That's how we chose to do it. Some people just do alongside or short side or whatever. You could do it either.

We've got peripheries-- two meters, three meters, four, five meters. And then I just put some arbitrary times in here. Obviously, these aren't real times. And there you can see that you can manually build a table up, fabrication table. This is the longhand method, I would say. I wouldn't recommend-- personally, I wouldn't recommend managing your database in this method.

My recommendation would be to go to the good old spreadsheet and do everything in your spreadsheet. Because obviously, in a spreadsheet-- although you can append the data in here, we prefer to have our data in a spreadsheet and manage it in that environment. Again, I'm not saying that's the way to do it, that's the absolute away to do it. That's how we do it.

So the other option, as I said, was we can do just a complete copy of an existing table. So we do New. And then in the Options here, Copy Current Table. So that's what we did. We copied the current table. Zero the values out. And that saves all the time putting your gauges and your breakpoints in.

It's telling me what's going on anyway, so that's easy, isn't it? Rename the table. So we rename the table, Mitered Offset. Find that I've sort of had to give our duct fabricators a bit of a kick in because the management of their database wasn't too flash.

I like to have things in groups so it's easier to locate them. So management of database is much easier. So here you've got the table came out of Excel. And then you can just copy and paste it straight into the table here. And then you're good to go.

Once you've done that, you've got your-- make sure your buttons are mapped, which is what I was talking about earlier. And there we go. There's the F-rate there. And that's the table in that group which refers back to that table there.

And you can see we've got the value sets there. One, two, three, four, five, six seven. And those are the ones that append your data with 25 mil, 50 mil, 100 mill, and internal metal, if you've got perforated metal. And that's that section. Is there any questions on that? Really,

no?

Was it that good? Again, I'm going to upload these to the AU Resource site, so if there was any thing in there that might help you in future for setting up, then please, by all means, use it. There's some cards there as well if you want to reach out to me.

So the learning objective number 3 is kits. This is something that took me a fair bit of time to get my head around. I've never done kits before. So kits, as in pipe hangers with clevis, rod, nuts, washers. So you can actually build up a kit so when you're populating your design line and you're putting hangers in, it will actually capture all those components.

When we first set off building the database, this sort of stuff was not in the scope for configuring the database. We didn't have any intention whatsoever to do any of this work. But we ended up doing that, sort of going off in different directions, and then realizing well, we can do it.

We've got the data in the price list, so therefore, there's an option that we can do it, so we'll have a go at doing it. So I actually focused in on a Table E strainer. And I'm building up the kits for this. So hopefully this will kick off.

So ancillaries and kits. Now, this is just an example. Once again, notice a spreadsheet. So this was-- we got one of our estimates in Melbourne office to put this spreadsheet together. There are-- let me think now. Kevin did the calc on this. There are 972 iterations of pipe hangers for Australia, Victoria state only.

Because Australia has got such a diverse weather system from the North in Queensland down to Victoria, there are actually different hangers and different hanger packing insulation for the Queensland state than there are in the Victoria state. So 972 hanger variants in Victoria alone. So we've got to now revisit this database and actually build some more hangers and have a Queensland hanger spec, a New South Wales hanger spec, and a Victoria hanger spec.

So there's a bit more work to do, but that gives you an idea of how much time and energy and effort we spent doing this. So this has been running throughout if you've been watching it and not listening to me. So we even went down to the detail, as I said, of getting washers, capturing washers. Also we got welding rod quantities.

So we know how many rods it takes for each joint historically. So we've captured all that data,

even down to silver solder rod for copper. So we've got welding rod for steel, silver solder rod for copper.

Now we move over to jumping into the valves. We've got all the different tables with all the different requirements for the different bolt lengths for the different valves. The quantities for each diameter because of course, your quantities change per diameter.

So all this data was compiled prior to us starting to build the system up. A fair bit of data there. And also, we teed up with the Reece. Reece are our suppliers for this sort of stuff. We put in the codes as well, the ID codes for each of the components.

And so we jump back into the ESTmep database. So we go to the Costing section. And in the price list, we built our price list out, again, with all the-- you notice I prefixed everything with AGC. Because it's a shared database with our fabricator, they have their own components that they use to fabricate the ductwork, so I wanted to make sure that we knew that our data was AGC and theirs is separate, just self-management, easier management.

So we've got all the components in here for pipe ancillaries. Again, I like to be a bit meticulous and I have groups. And name the price list. So it's not just one massive price list with who knows what, which belongs to where. Everything is in a category. It's compartmentalized, so it's easier to find stuff.

That's just a tip that I give you. You know, free tip. And then when we-- oops, sorry. My mistake. I think I've just stuffed up there. Beg your pardon. Yes, I have.

Let's see if I can fast forward this. Sorry about this. So I'm going to have to let it run through. I'm sorry about that. I don't think we got too far down the track. Yeah, so I beg your pardon. Sorry about that.

I'm going to let this run through. So going back to where I was, we wanted to make sure that the whole of the system was fully built out. We didn't miss anything out. Actually, I didn't mention when this went through, we even went down to the extent of do you use Hawkins Paste? Do you use paste for your flange connection's paste?

See, I don't know. You've got some whatever. So we actually worked out how much paste we used per connection, so how many grams of paste. So I mean, it sounds a bit like we've gone to an extreme, but when you've got one floor with, say, 50 valves on it, that soon amounts up to a fair bit of paste per valve.

So if you do the math, you could have $100 worth of paste. Times that by a 40 level project, that really does start to mount up. So the other thing that we wanted to do was, of course, when you get to site, a box of washers and things gets knocked over by one of your guys on site and they just get thrown in a skip, taken away to a landfill or whatever, or recycled.

We wanted the ability to be able to make sure that we knew roughly how many boxes of nuts, washers, et cetera, we were going to be using on the project. Our PMs, the Project Managers, the site guys, they'll get data from us which is a lot more accurate than it ever used to be. Their cost controls can be a lot more accurate.

They can analyze our data and go, OK, we know for this floor, we need 10 boxes of and 10 nuts, for example. If they've ordered 20 boxes, there's a problem. So we're giving them a lot more data for them to leverage when we get to sites. That's one of the real goals that we're after when it comes to using the information that we can push out of this software.

I think we've nearly caught up now. Here we are. We've got the ancillaries in here. And as I said before, we've got the product IDs here and we've got the description that's coming out of the product information that it's populating in the price list. So then we're able to report out all the information that we need, which is one of the questions asked earlier.

So once we've got that information in, we go into the ancillary section. And if it does it-- yeah. So we'll see here we've got a list of options for ancillaries. At the bottom, ancillary kits.

So what you have to do, what you need to do is you need to populate your different groups-- so say, clips, fixings, et cetera. If you populate those groups to start with, you can then start to build your kits. So there's a process that you need to follow before you can start your kits.

So we've got welding rods there. We've got a product ID in there. It's coming out of a price list. Again, I've put it in a category. So I know that in the pipes ancillaries price list, that product ID will live in there. So I can locate it very easily.

And then we've got 4 mil. We've even got it down to 3.5 mil and 4 mil welding rod. So there's the pipe ancills. And we've got Hawkins Paste in there which I mentioned earlier. And then we've got [INAUDIBLE] water, clamps for steel.

Now you'll notice that says breakpoints. So you can actually build a breakpoint table with IDs in it and the product ID and diameter, rather than having all your different sizes of clamp listed in

here. So you can build a list of the clamps, the clevises, the different diameters. And it makes for easier management, again.

So there's the clips. Obviously, corners, we don't entertain corners. That's part of the duct fabricators. So you'll see data in here that's not pertaining to what we do. It's relevant to our duct fabricator.

So we're going to go into the kits now. So I made a number of different kits kits. And we're going to focus in on the strainer here. And what I did was I just built out another breakpoint.

So the kits are compiled by creating breakpoints because there are different bolts, nuts, washers per diameter. So you can create your breakpoints there. Little table-- the good old green button comes into play again. So there's a range of diameters suits a number of scenarios. So up to-- well, you've got a range there in between, say, 125 and 200.

So up to 200, there'll be sort of 8 nuts between 125 and 200. So 150 will probably have the same configuration. Two diameters have got the same configuration. Make sense?

And I'm just showing you here that that's how you build up your kit. So you've got so many nuts, washers, fixings, gaskets, welding rods as well. So every time you put one of these strainers in, it will capture all those components and produce a price for it. So I just created a random new one here-- 500 diameter one-- just to show you how you can build this up.

So you get a dropdown list when you click on the green button. And I'm picking up the ancillary material here. You go into the ancillaries. There's the welding rod. Make up a random number. Expansive joint list.

So you've got 500 diameter, ancillary meter. Hit the old green button again. We can put some clips in. There's the clip group. Like I said, if you put your components in a group, it's easier to find them.

So I've got a 24 mil clevis in there. Throw a gasket in. Again, that's in the gasket group. There she blows. 500 mil gasket.

You've got to also realize that, as you know, a valve has two connections normally. So you put one off. You're not putting-- if you put two in, you'll double off. So it's just per connection, this, not per valve. Just a note to remember. Otherwise, you'll get expensive.

We even capture the fixings, the soffit fixings as well. We've not really got-- we do use Trimble. Like most projects, it tends to be we're too late onto the job or the builder's already poured multiple levels before we get a chance to do anything. I don't know what it's like over there, but they tend to be pretty quick at what they do and don't give us an opportunity.

So we put in there, rather than the-- you call them blue bangers here? Yeah. We put in the standard Hilti fixings, the HKDs. So there you go with nuts and bolts. I put some washers in there. I don't even know whether this strainer actually needs washers.

I'm not really a pipework guy, to be honest with you. I'm more of a ductwork guy, so this is all alien to me, all this. Pipe is something that used to get in my way, so--

[LAUGHTER]

So I just drew some-- I think we put some support rods in there. You get the general idea. So you're building up a whole list of components. You can drive here whether you want them by a specific value. It's an estimate, right. It's not necessarily an accurate.

So we made the decision that we're going to capture 1 meter of rod per hanger. Now there's some new smarts come in that have-- yeah, sorry.

AUDIENCE: I didn't want to interrupt you, but I just wanted to ask. You said since it's an estimate, it doesn't really matter. You don't purchase from this list, then?

DAVE MANGHAM: Not yet.

AUDIENCE: Not yet, OK.

DAVE MANGHAM: Not yet. No. Potentially, yeah, yeah.

AUDIENCE: Potentially, but not yet.

DAVE MANGHAM: Not yet, no. For us, it's still an estimate. Now I've said too much. I mean, this has been used in the New South Wales market at the moment. Our software has been used in the New South Wales market, which is that slightly different model whereby we go out to a subcontractor and they come back with a price.

But we're sort of using it as a check, for want of a better word, without going into too deep into what's really going, but anyway. So we've got the Table E connector here. So the way you--

have I gone into the connectors? Yeah, I have.

So you tilt your kit with the connector in the Costing section. So when you open up your connectors, it usually defaults to the Manufacturer area. Why in ESTmep, I do not know. I think if you're in EST, it should always default to the Costing section, I kind of think. Maybe one for Andy Robins.

So you'll have to go into the Costing section, find your strainer connector, and then tee up your material to that break table. Once you've done that, you'll find that you can then report out. So that's pre-configured to the kit. It should list here what you've got-- the strainer, fixings, clips, gaskets, et cetera.

And there's the strainer. Make sure that, of course, your connectors are teed up. I think you're going to the connector. Yeah, so there's the connector. That's the correct connector. And that will pick up that kit that we've built. There you go.

So it takes you to the table E strainer with the kit. So it's as simple as that. Does anybody use these kits? Does anybody configure kits? Yeah. Is that about right?

Right about right? So obviously, I just chucked a few bits of pipe into this example, dropped a few valves in. Like I said, I have no idea about pipes, so I just chucked some random stuff in there. It probably won't work, but--

AUDIENCE: If you don't do anything, then why would you [INAUDIBLE]?

DAVE MANGHAM: Yeah.

AUDIENCE: We do some jobs where it's all flanged.

DAVE MANGHAM: The flanges will pick up as well, actually. We've got a Table E and a PN16. We've got a flange set up so that if it's flanged flanged, it will pick up the-- yeah, yeah, yeah. It'll pick all that up as well.

So yeah, of course if you've got a flanged system-- which is a good question. So the question was, would it pick up the nuts and bolts, washers for just a regular flange. Yes, it will.

AUDIENCE: What about on a 3D field? Do you have flood mapping set up so it'll automatically include 3D fields?

DAVE MANGHAM: What's that, sorry?

AUDIENCE: The 3D fields, [INAUDIBLE]?

DAVE MANGHAM: Yeah.

AUDIENCE: If you place the valve, is it--

DAVE MANGHAM: It will automatically put in the valves, yeah. It'll populate the 3D line with the valve and also put the flanges in as well that connect to it.

AUDIENCE: And all the kits and stuff.

DAVE MANGHAM: Yeah, yeah. The kits are pulled in from the connector. There's nothing you need to do in the button mapping at all. It will just pull in from the connector.

So this was the tables that we can call out. So you can see we've got strainers here with the size, product ID. And there is the kit. So it actually lists the whole kit that's relevant to that connector. So that's just some of the tables that we created. And then you could do a summary as well of-- well, sent to you. We can give this information to our PMs on site and say you've got 50 valves on there. You need 500 nuts, 500 bolts, 500 washers, or whatever.

This is valuable, really valuable for our site guys. Now that's the end of that section. Any questions on that? It's easy really, isn't it?

AUDIENCE: So you're assigning the nuts and bolts to the connector?

DAVE MANGHAM: Yeah.

AUDIENCE: The connector on the valve or flange doesn't define what another bolt needs in combination with those two. You know, the same flange under a different type of valve may require different bolts.

DAVE MANGHAM: It will. If you've got a same flange on a different type-- yeah, we've done it per valve. That's a good question. Yeah, that's a real good question because a strainer and a jet valve may have two different requirements.

AUDIENCE: Or above ground.

AUDIENCE: In the same valve, but two different types of flanges. We just keep running into combinations,

so we were looking at actually using it as attaching the ancillary information just to the ITM of the line.

DAVE MANGHAM: OK. Yeah. Yeah, that's a good question. That's a real good question that Darren's just come up with there. And there is actually an option in each ITM to just attach the ancillaries to the ITM. He's quite right in what he's saying. We looked at doing that, but we went away from that.

AUDIENCE: There's holes no matter which way you go.

DAVE MANGHAM: Yeah. Yeah, there's potentially some drawbacks with each one. So real good question. We've gone down that path.

AUDIENCE: Which way do you do your labor? Is it when you're placing it on the valve, does the labor come in on the valve?

DAVE MANGHAM: Yes. Yes, the labor for installing that valve is assigned to that valve.

AUDIENCE: And all of the ancillaries, like the hanger and these things?

DAVE MANGHAM: Yeah. We aren't capturing that at the moment. I think, if I'm not mistaken, MCAA rates actually capture all that anyway. And our labor for pipework is based off your MCAA tables. So is that a fair answer?

AUDIENCE: Yeah.

DAVE MANGHAM: Cool. How are we doing for time? Yeah. So this is quite a long one that I've put together. So reporting. Now this used to be my nemesis. I'll be honest with you, reporting really used to be my nemesis. I hated doing reports.

When I was a support guy at MAP, I did my best to not answer any questions on that one. I'll be honest with you. I really did. But we knew that it was a key part of the whole process was being able to report out what you've done, obviously.

So OK, what happened was Kevin originally said, right, well, we need some reports. And I said, right, well, give me some idea please because I have no idea. I'm not an estimator. So what he did, he went to his spreadsheet there, lo and behold.

And he put in the fields that he wanted us to report us out. He said, right, I need this information, this information, this information. He locked me in a room, chained me to a desk,

and he said, you don't come out until you've done that. So not quite true, but I had to spend quite a bit of time. Some people probably find it real easy.

But I kind of don't mind doing them now once you get your head around them. The tip I give is try and keep them simple, and do things a step at a time. You'll see what I mean.

One of the first things we realized was for reporting out, we wanted to be able to, for key rate purposes, we wanted to have headers with logical information in them, so it tied the report into what we'd taken off. And to do that, you need-- the best way we thought of doing it was using the job information.

Who uses the job information? Yeah, OK. Fair few of you. So the job information is you can put custom job data into your database and then populate your headers for your report with your custom job data.

Like I said, if you've got any questions, please come and ask me. So we've got a whole host of custom job data in here. Our job information sheet is a common one that we use between our estimating department and our CAD department. So that's why it looks like we've got a heap of custom job data in there.

At the bottom of that section is custom job fields which are associated to our estimating team. So you could actually use the standard form that comes shipped with the product. You could do, but we didn't. We went down a different track.

So there's actually a bit of a-- I'll be honest with you. There's a bit of a stuff up in the beginning of this video, which, I mean, I know the English never make mistakes, but I did on this occasion. I was going to edit it out, but I thought well, whatever. I'll leave it in just to prove that we do occasionally make the odd mistake.

AUDIENCE: I thought that was an American thing.

DAVE MANGHAM: Ah, no. You never make mistakes, do you? So this is the area in the database in the user interface. And you get this form comes up, which is I believe the standard form that's shipped with the product. So you're familiar with this.

You can add and remove custom data fields. You get to see in a second what I do. So in this list here, you can populate this form with all this sort of information on the right hand side. It's a drag and a drop.

And then you can resize the box. You can tweak the properties in that box now. What it's doing it's pulling the custom data out of the other side of the database you saw at the beginning. And that index there refers back to the index in the other part of the database.

Again, you can download these videos and you can look through them and go ah, right, OK. That makes sense now, if you're not following all of this. I did say that there's some really good material out there now. I think it's on YouTube, is it Darren? The EST Support Software by Enceptia?

AUDIENCE: Oh, I don't know.

DAVE MANGHAM: No? I think there's some stuff on YouTube you can download now that's was really good for ESTmep. Two years ago, there wasn't really anything available apart from help, online help. That's obviously the default install, metric install, as you can see. And that's the default.

It's a CGL file which brings up this standard form. So what we did is we-- I'm going to go to this one in a second if it moves. There we go. I updated this default CGL. And now it looks like that. Boom.

So we didn't want to use anything that came out of box. We decided to customize it. We've got all these fields here are all associated with our CAD team. So if we're doing fire dampers, motorized dampers, blah, blah, blah, we can do schedules out to that from CAD. So we use that area there for the CAD guys.

This is sort of a common area where we've got job description, project description, project number, drawing number, so on and so forth. So once you've got all that populated, you're going to your Item Reports section and Print Layout. And we've got a new-- what I used to do is I used to actually copy an existing report and start changing it. And I actually found that it wasn't a good idea to do that.

I kind of don't recommend doing that unless you've got something that's really close to what you actually want as a final deliverable. I found it's better to start from scratch because there's so many things. You'll see when I start dipping into the setup of this, there are so many things that you can change in here that can affect your report ever so slightly. And if you don't click on the right button, it can really stuff your report up. That's why I used to hate them, to be honest.

So yeah, new report with no data fields in it. I just created a dead simple report here, like I said. If you're not used to doing reports, the best thing to do is do them step by step, populate it with one bit of information, and then test your report.

So I put some tips down the bottom here so that you can see what I believe is perhaps the best way of doing it. I'm not saying it's the best. I'm not saying do it like this. But again, another tip, predetermine what data you want in report. That goes back to the spreadsheet that Kevin created for me.

So Kevin gave me a spreadsheet, said I want this field, this field, this information, this information. So I had a guideline from which I could work from to generate a report. So you can see I put in just a dimension, one of the dimensions, and size 1. And you've got all these tabs up here, which as I said, if you play around with these tabs, it does change your report.

What I used to do is I used to change about four things and then look at my report and think that's completely screwed up. And then I'd go back in here and think, now, which one was it that screwed it up? I haven't got a clue. So it's a case of just do one thing at once.

We also we configured our reports to always print to Bluebeam, to a PDF, Adobe or Bluebeam, whatever you call it. Why do we do that? Because we want a paperless office. We don't want piles and piles of these reports lying around.

So we'd only generate paper prints if we're delivering something to the client. So they get hard copies of reports with our, say, our square meterage of ductwork on them. Or if we're handing the package over to the PM for-- you know, we've run the project. They go, that's all the reports.

So we generally keep soft copies only, not hard copies. That's just our environment, trying to keep being green, like you should be, I think. So anyway, that's, as you can see, I put the dimensions in there and you've got a huge column listing out all the dimensions for all the pipe.

So we do a bit of a tweak. Only show one. So you've got 80 mil there. And I think lower down was 100 mil or something like that. So as you can see, I do one thing at once and hey presto.

So I went from a huge column with listing out all the dimensions to just one dimension and then a great big space. So I just do one change at the time to see what happens. Then you populate it with the next thing that you want to report out on.

I've chosen the description. That description is being pulled out of the Product Information Editor that we mentioned earlier on. And we like to have all our stuff in the center, or my American friend likes to have everything in the center, so I have to change everything to center. It defaults to left. He insists on it being center.

OK. So we've got merge rows together. And they go. Now we've got still not quite what we want, but we're getting there. So it's a process of just changing things one at a time. So I made the column width a bit wider. Have a look.

So there it's not squished all the text up. Now it's in a line. We can do some tweaks in here and that will just change the headers. So now I've got an orange header there. Oh, I've got some lines splitting all the data out now.

So I was going to focus in here just on the pipe work only. So we've got valves in there as well and we've got hangers and stuff like that. So I thought wow, OK. Well, what we'll do we'll actually filter it down into just the pipe. So I think I put a thing in here-- a tip in here that says the custom ID number is your friend.

In these reports, I found that the CID is your best friend because your CID is used to filter out the stuff that you don't want or you do want. I think that's a fair comment. I find it's the easiest way. So I've put the custom ID number in there.

I know that the pipe is 2041. And there's a rule there, exclude all the fields if not met. And there you go. So from a huge list, 80 mil, all the different diameters, we've managed to get it down to a nice list of the different pipe diameters, the description, and the linear meterage, which is there.

I've just throw a costing in there as well. So there's the cost. Aussie dollars, not worth much. And then we've got to go-- oh, we did calculate total. And I can tell you now that it's going to cost for that system, $2,000 something odd dollars.

So it's pretty quick. Once you get your head around creating these reports, it's a pretty quick process. As long as you put the right information in there and you manage it correctly, you'll get some good reports out. What we like to do is we like to have a header, obviously, that tells you what the report's about. Otherwise, it looks a bit boring with just some data there.

I've found these headers a bit clunky to manage, I think. Does anybody agree with that?

AUDIENCE: Yeah.

DAVE MANGHAM: Yeah. I think they could be a little bit smarter, but speak to Andy about that. So you've got this sort of area and you split it up. Then you drag and drop whatever information you want from this bottom list into the top list. I can stick a-- just to be politically correct-- stick a Autodesk logo in there.

How are we doing for time? Good. And you can see that I'm building up a header. Got a logo in there. So you put your business logo in there or you put your client's logo or whatever. There's some stuff which you can populate with dynamic information.

So we always like to put the date that the report was printed and the time the report is printed. As most of you all know that you'll get a variation or a new version of a drawing from a client. So we want to be able to have a definitive timestamp, datestamp on that report so we know that that's when that was created.

We also put things like the version of the drawing up there that we've based the estimate off and things like who actually did the estimate, who did the takeoff. So we like to keep things in a standard format and be able to QA anything that we've done. So this should run out shortly.

So that's the job custom data field. So again, that's bringing information in from the side of the database. You can drive the properties there. Project manager, not got that far yet because we've not won the job. So that's the one I populated it with in the other video, so I put an AU 2015 and that was index number 36. And then that will put that info in there.

We don't generally need the description in there, so you can kill the description by manipulating the information in the Properties. I think it's that one there. Show Description, get rid of that. Put it in the center of course. So that's now picking up the report name.

We would also, when we do a takeoff, we would give the takeoff the same name as the drawing that it's based on as a rule. Gets a bit of a problem if you've got multiple drawings in a takeoff because you can stitch drawings together in a PDF together and do one whole floor layout if you wanted. So that's starting to look a bit more like a reasonably good report, I'd say.

Pretty quick. Pretty simple.

AUDIENCE: Can you give me Kevin's phone number?

DAVE MANGHAM: Sorry? Kevin's?

AUDIENCE: Do you know what Kevin's phone number is?

DAVE MANGHAM: He's a real good fellow. We've had a good two years together working really well. For an American, he's not too bad. Yeah.

AUDIENCE: How do you guys go about getting that back into Excel?

DAVE MANGHAM: That is really good question. How do we go about getting that back into Excel? At the moment, it's a manual data entry. We are now looking at doing CSV export. I think it was Darren's-- somebody in one of your classes. Somebody in one of the classes earlier this week was talking about CSV export/import.

AUDIENCE: I don't know. You probably can take a PDF version of a spreadsheet.

DAVE MANGHAM: You probably could. There's a tool in the software which you can actually, rather than doing a print, you can actually export a CSV, which we have played around with. We've not got there yet. We know that we can do it. As long as you've got the fields lined up, you can do it. Yeah.

AUDIENCE: We found that's the best way to do it. Then you can use pivot table formatting in Excel and you've got all the data there.

DAVE MANGHAM: Yeah, because I guess a lot of you guys will probably still be using Excel to finalize your deliverable, your estimate. Our goal is, because we've just done a 71-level project with this software, with the ductwork and the pipework. And we've ended up having to manually type all the data that's come out of it, which isn't really smart.

We know it's not smart. We know there's a function in there to export as a CSV. We just need to get the data coming out going into our existing Excel spreadsheets, if we can tee that all up, then we've hit the jackpot really. Jackpot. Vegas. Sorry, no pun intended.

This is just some sample reports that I chucked in at the end of what we actually use. So you've got all this listing out. That's from that pipe takeoff. So you've got the-- I think you saw this earlier-- the product IDs there, the kits, quantities, and there you go. Mentioned Hawkins Paste. Nuts, bolts, washers summary. Yeah?

And ancillaries. So we've got an ancillaries one there. And you can see this was quite a complex report. There's a lot of tables in here. Once you've created one table, you can copy

and paste them if, like I said, you know that there's not much change. Maybe it's just a product ID filter change.

So if you're doing one whole table, get one right, and then copy and paste it within that report and then just do your tweaks. Kind of a bit of a tip. So it's just a summary here of what I said earlier.

So plan ahead. Compile all your data, generally with a spreadsheet. Have the right team in place. So that is key, having the right team in place. Because if you've got somebody that's really not sure what they're doing, then it's going to make your project a lot longer to get off the ground.

Have a strategy. Have deadlines, goals. It's easy to get sidetracked, I find. When we were setting this up, it was very easy to get pulled off in different directions, very easy. And once you start showing management it can do this, it can do that, then they start saying, oh, can you get it to do this, can you get it to do that. So try and stay focused is what I'd say. Don't get sidetracked.

That was one of the key things as well. Right at the bottom there-- we did actually validate, test and validate every single thing that we did. And I saw there's some good stuff from Darren about having to export his stuff yesterday. His class was really good for me because you can do some exports, some stuff, and it gives you all the product IDs, et cetera, which I wasn't familiar with.

So thanks for that Darren. And has anybody got any questions on any of that? Yeah. Yeah.

AUDIENCE: So you can create an awesome database and get the software really styling. How do you get people to let go of those spreadsheets?

DAVE MANGHAM: How do you get people to use it is a good question, a real good question. That's the $6 million question. So we decided that we wanted to make sure we did this the right way. So I put my hand up and said I'm going to train people.

So we locked in a solid week of training people. I've got a 65-year-old estimator who's been using spreadsheets for years using this software in a week.

AUDIENCE: In a week?

DAVE MANGHAM: Yeah.

AUDIENCE: Was he happy?

DAVE MANGHAM: Yeah. He was absolutely-- he was delighted with it. Honest. I'm not making this up. Rodolpho's his name. He's a really nice guy. He was really, really made up with it. He thinks it's an awesome, awesome piece of software because he knows how much time, energy, and effort he has to do when we get a variation in and stuff like that.

AUDIENCE: So right now, when we're doing the estimation software, you don't create, basically, the design line and populate a 3D model of what you're taking off?

DAVE MANGHAM: Yeah. We'll use a design line. We use design line trace. Yeah, and takeoff using design line.

AUDIENCE: What do you do when you get to [INAUDIBLE]?

DAVE MANGHAM: What we do when we get, sorry, what?

AUDIENCE: Do you use [INAUDIBLE] or where you have multiple connections, like in sheet metal where you have some subassemblies?

DAVE MANGHAM: Oh, subassemblies. Yeah, yeah. Actually, so we've got about 10 minutes. What I'll do is I'll just kill that. If you bear with me for one minute, yeah, if you need to get off, please do.

So what we did-- good question. Subassemblies. We've created these subassemblies. Is that kind of what you're asking?

AUDIENCE: That's exactly, yes.

DAVE MANGHAM: So we know the fan coil units, that sort of stuff, all that-- heating coils, cooling coils all have a sort of standard arrangement of valves. So we created these subassemblies here.

We wouldn't draw these. Obviously, you don't want an estimator drawing all this stuff out. So we just populate it in the items here. We'd just say 10 of those, just for speed.

Somebody earlier on this week was talking about equipment. Our equipment that we have does have labor rates assigned to it. I'm in the right place here. I'm not sure. The equipment's gone.

But the equipment that we have, like how many units, et cetera, fan coil unit, has a labor rate

assigned to it. We wouldn't draw them out specifically in the right place. We'd just drop them in the items folder just to capture the labor time.

What I will do is very quick-- so we've got this. This is just to finish off. We got this project, which was somebody said to us how much does BIM cost? BIM, I hate that acronym. So this is a dead simple job.

And if you look in a front view, so there's a few levels, just a few bits of duct, run with some fan coil units going back into the top view. Some of the guys early on this week were talking about if you assign a section to each service, you can then color up by section. So these run are all on sections for levels.

I'm going to just jump into the filters. I'm going to filter out all the layouts, switch them off. So there's the duct. OK. Now we're going to a top view. And I'll just switch off the design line as well.

So you just got the duct there. So normally, when we've done one of our takeoffs, we'll do the reports for the client, say there's x meters of pipe and x square meters of ductwork. And we like to give them a 3D visualization of what we've taken off as well.

So we do it through the-- you're familiar with the LOS command? So there's LOS. So this is what we presented to them. There you go. And that's it. Thank you very much for coming.

[APPLAUSE]