So with that let me get started. My name is Bryce Finnerty and about 12 years ago, I founded this company HingPoint to really help solve some of the kind of the automation in the construction industry to help the designers and engineers focus on what humans do best automate the busy work and so we do a lot of systems essentially what the computers do the busy work, let the humans do the fun design and thinking work and that's basically the space we play in, we're Autodesk developers and we're big fans of the cloud products and spend a lot of time in the AC industry.

And the story we're going to talk about today is how BIM360 Docs and to be totally honest, we started on A360 because BIM360 Docs was just announced last year at the show. It just came out in Beta one year ago. It just came out of beta late spring, early summer. So it's brand new, so you really haven't missed anything.

But it's here and it's clearly here to stay. And we're going to explain how you can use it going from a traditional workflow and how you can put this in to your projects and we're going to talk about that today.

The reason why we kind of gave this title is--I think a lot of people think it's hard and it's actually not. You probably have everything you need to basically do what we're going to talk about today.

So on one project, this team kind of went from traditional methods to what Autodesk would kind of be leading you toward their cloud solutions, and they did it over the course of just one single project. So it's not like you need to do it over 10 projects and finally work your way up. You can kind of just jump into it.

Let's see what this does. Not much. Let's see what this does.

So the client called me in September and invited me out to coffee. And he's usually hard to get in touch with. He's the real estate developer, he doesn't have a lot of time for people, especially people like me. And he said so I'd think you know, let's get together in a few weeks. He's like, no, tomorrow. And I'm like, oh! When? Maybe thinking lunch. He's like, breakfast. When? 7:30AM, like this urgent. It's at the top of his list.

So we go to our local coffee shop, Starbucks, so I know he's got a problem and I know he thinks we're part of the problem. Otherwise, you know, he wouldn't have had this urgency to speak with me. So he brings me Starbucks and he essentially goes on to tell us that the BIM modeling work we did for him must have had an error in it.

You see, because we helped him go from these traditional method--we we built a BIM from his CAD files and moved it to the cloud so he could have his building on his phone. So we did all the architecture, mechanical, structural, and a partial civil drawing package for him, moved it all into Revit, published it all to BIM360 Docs and so now he thinks there's something wrong with the BIM model.

So pretty serious discussion. He's usually a pretty friendly guy but clearly he was concerned. This was his concern: he thinks someone just wasted $50,000 of his money on an error on these doors--I don't know if you can see what these are, but it's in a self-storage buildinh--and these are roll up security rolling doors, that kind of roll up into these storage units. And they're all custom and they're about $1,000 each and over 50% of them are now wasted because they're the wrong size.

And he can't return them because they're custom. So he's sitting there eating $50,000 in a write off and he thinks because there was something wrong with the BIM model. So, and we've got some guys from the team, they invite us or more insist that we come down and talk to the GC about what happened here.

So we're out of Dallas and this building is in San Antonio. So he invites us down to San Antonio to resolve this issue with the GC. So we road trip down there, three of us go down there--we often verify our BIM models on site because they're really just a design and we don't really know exactly what's fabricated and constructed until we go do site verification.

So it's common for us to go down there but not usually more or less under this situation where they think we're the root cause of a problem. And so there we sit, we're invited to the construction trailer, and to keep the mood friendly they bring in breakfast tacos and we're all sitting around talking about the job and we're talking about the BIM model and they've got all their drawings out and we're trying to figure out what's going on.

The neat thing is, when I was in that Starbucks, I have the BIM model on my phone. And so does the general contractor. That's sort of the benefit, when we do BIM models for our clients, we deliver them here on the mobile apps. And so while at Starbucks--and I know you guys can't see this but I'm just kind of playing with the model--I was able to kind of drill down and look at these doors, and trying to get context. So I was able to use the tool right there inside of a Starbucks to facilitate a meeting with an important client and that's one thing that you might really benefit from. Because it's really hard to show people big drawing packages and most people don't have CAD and Rabbit or at least, the client. So this is a very easy way to show off your designs and your work and collaborate on your data.

So we go out onto the site visit to go look at the doors in question and the GC essentially is saying, the BIM model must have caused the problem. Because the drawing package comes off the model. When we model, your drawing package is literally just views and cross sections of the model. And that's how we keep the drawings in the model in sync and automate most of the drawing process.

So the doors hang from under here and it's a light gauge steel structure, it's probably a little hard to see, but see this beam here? It's made out of these two Cs, this kind of c-shaped member, is forming a beam. These two C's is

forming a beam and that beams up on top of it. And the door's hang down below. And that's where we don't have enough clearance to get these doors--they're the wrong size for this opening.

And so they're like, well you guys modeled it. Something went wrong up here And we're like, well, you know we're so high tech we have our drawings even on our phone. The other great thing about BIM360 Docs is not only do you have the 3D models, but I have all the sheets. And so we're like, we've got the drawings but the drawings seem right. There's the beam in question. So we're wondering, what's going on? The drawings are right, so we're going on and on. And we're using BIM360 Docs to try to figure out what's going on here.

These are actual screen shots from BIM360 Docs and this is one of the fun things you can do with it, is you can drill down through all essentially the call the families in Revit or all the elements in your model or CAD objects if you will. And so we're here at the overhead roll up doors, right? And you see that that's the door there in the model? This blue one's highlighted.

And then you can drill down even more into the data and like, oh, these doors are supposed to be eight feet high. And now they're discovering the opening is too small. Not only does he have a $50,000 write off on the doors but this is a self-storage building and people roll in all their boxes on these carts, and the carts are five or six inches tall.

So instead of the door having eight feet clearance, it's more like seven now. Plus the cart is like only 6 and 1/2 and he thinks he's going to have to discount renting these units now, because there's not enough clearance for big stuff to go in there.

So he's like, this is going to hurt my business model. I'm not going to get much revenue in the long term off of this building now. So that's why he's kind of frustrated. So we continue to go and look through the model using BIM360 Docs, we drill down and find the beam in question. Now we're in the light gauge structural model. The other model we were looking at was the architectural model and you can merge them both.

So we find this beam, trying to figure out what's going on with it.

And we're drilling down, it should be this short little 10 by 19 segment but they're going across the light gauge steel and this is supposed to be I-beam that holds up the light gauge steel. Does anyone work with the light gauge steel framing system?

Yeah. So that's basically what you're looking at there. And then we find the segment in question and we can see all the data about it and we're going through all that information with the team and then eventually wind up here. We're seeing the model, I don't know if it's easy for you to tell, but those two beams are kind of connected at the

same height.

But in the picture, one was below the other which is where we kind of lost our clearance. So we're like, well if models right, what happened? And we go to discover the GC is also the metal fabricator. And they took the structural sheets and they went and made shop drawings themselves and made up their own shop drawings and then value engineered that I beam and made the two C's beam instead, and then connected it wrong.

So they essentially made two change orders without informing anybody, really didn't follow the BIM model, so a little bit of the moral of the story is while everything was connected to the BIM model, everything was going great. And the first person to get disconnected kind of from the BIM model, made the first big mistake.

And so the moral of the story is, when you're working in this kind of collaborative BIM environment, make sure it's inclusive so that everybody can really participate. And the first person who's not participating, you can just predict they're going to be the first ones making mistakes and because they're out of sync with the team. And so that was a little bit of the challenge here.

And so we would consider this a fabrication quality structural model. Now if you're into structures, you'd probably disagree. But what I mean by fabrication quality is it's completely accurate. The structural engineer told us how to connect all these members. We are literally directed and approved by the structural engineer. This got stamped, this is accurate.

But now we have a fabrication sub who has their own methodology and kind of did it a different way. And so they're sort of in lies the problem. When you're working in BIM, make sure everybody's working in it as best you can.

This is what it should have been like, and this it was the design was, and this is what happened.

These are what we call immovable objects. Once this is done, no one's going to ever change that. They're going to have to work around it for the next 100 years until this building gets demoed some day. So these are the types of things we try to avoid. And the promise of BIM is that it would solve problems like this.

Now it solves a lot of problems on this job, you're going to see more about that later, but I just wanted to highlight this one thing in how basically as a consultant, we kind of got out of some hot water. We were essentially being accused of a $50,000 cost right off essentially, but we were able to prove from the BIM model that it was actually correct.

So this whole thing kind of leads up to how can BIM be used on the job at your office? And so if you're in architecture and construction space, it all starts with development. There's somebody who has the idea for this

building. And they're usually the real estate developers, then you move to the design phase where usually architecture, engineering, interiors, are participating. And then you're in the construction. I'm going to show you how BIM 360 Docs helped with all those phases in hopes that you guys are in one of those spaces, OK? And so if you are, you're welcome to kind of ask questions to make sure we're on the same page and we can answer any questions about how it might pertain to you.

So starting with the development phase. The developer's trying to create a business model. A lot of our clients are trying to create a BIM prototype of their building so that they can build many buildings quickly. Because if you have a good BIM prototype, you're already 80%, 90% done with the subsequent buildings because you have all the data already required for this type of asset class.

So that's a strategy a lot of developers are following and why are they doing that? Because they have a vision to scale out this type of building and build literally thousands of them. So they're trying to build up a big development pipeline, attract a lot of investment interest because they have this new great building that everyone's going to want to own, because it's got a lot of profit built into the business model.

They see BIM as a strategy to get that profit. So at the very beginning they get to the heart of the profit by doing a lot of design iterations. Does anyone know what a pro forma is? It's sort of the real estate development business plan. It's like, this is how many square feet, this is how much we're going to charge for, rent this is what our energy, costs are and this is our land costs and they kind of come up m they try to go hey, investors, this is going to be good, we're going make a lot of money off of this building.

And so you sort of come up with the business model but it all ticks on net rentable. It's how much of the building you can actually sell or generate revenue on. And they used to guess at that. In CAD, it's really hard to add up the net rentable. But in BIM, it's really easy so they're testing out all these different configurations to try to find like, the best business model.

So using BIM we rapidly did, over the course of about two months, 14 different iterations of this building until we found the best one. The ones that the bankers liked the most, the one that was easiest to raise capital for, the one that had the most revenue generation in the long run.

So I'll just show you, you got a couple of different examples. That one up here had some like fancy kind of like awnings and things on, it it actually has some exterior storage units. Further research showed this is kind of in an urban setting in San Antonio that they don't need the exterior. Everyone wants interior. So the next iteration you'll see there's no more exterior access.

This iteration shows you could maximize the land. Why are we wasting all this land? They said hey, let's put some

more units over here. But once they looked at the revenue and the construction costs, they chose to leave that land empty. So that was actually a bad idea to have that. So they took that away. Actually the office flip-flopped. You see the offices on this side on this building? It wound up being built on this side. And they keep playing with all these rooms.

So we built a lightweight architectural shell we call it, it's just got the walls and all the units and we can quickly play with different configurations until we optimize the business model. So if you're in the architecture space that's probably a lot of where you live. Clients wanting to test different theories and ideas for their building.

The beauty of having a kind of a BIM model is you can actually just grab the data out of the model. So to validate the pro forma we created a custom plugin so that you could essentially scale this building and they know how to optimize the unit mix.

So we wrote a little plug-in--m for Revit and you can do the same thing in CAD, right--that adds up all the different rooms, like some are 10 by 10, some are 10 by 30, these are the different unit sizes. The quantities, and then we take off the square footage area, adding up the total square footage and then subtracting that from the gross floor plate to get net rentable calculations that you see up there.

So we could quickly try different designs and at the push of a button, know what the net rentable is for this design. Maybe next year we could talk about generative design. You guys see some of that stuff they're talking about? Where the computer would have figured this out for us. This was still trial and error to be honest with you but we plugged this data back into their business model until they found the right mix they were looking for.

And so the newschool way of working is an automated pro forma. The old school way is kind of guessing at the pro forma. So when they kind of seal the deal on a pro forma that means they sold the idea to a bank. So developers raise capital from banks and other investors, so that means someone would give them a loan. But you can't get your money in from the loan until you get your permits into the city. They won't fund the loan until you get your building permit.

So now it's a race to get their money otherwise the developers paying for it. So it's burning a hole in their pocket so now, it's a race to get the construction documents submitted. The old school way of doing things is kind of getting some lightweight drawings done in CAD, sending them around on paper. The new school way is build a 3D model off those CAD drawings, we converted them to Revit, worked with the architect and engineer to make a 3D model and then we posted to 360 Docs and send it out to everybody.

That is much faster. Let me show you how much faster. Can anyone just guess how much faster these workflows are? 50% faster. Yeah they can be. It's actually crazy how fast it can get. Humans are usually the slow ones in the

decision making process. The city might be the slow one but even hashing through all those issues, take a look at this.

The building they built before this, the year before using traditional methods which I mean CAD, printing drawings, sending them around on paper, having design reviews, flying around and meeting with one another, took nine months. We looked at those drawings, they weren't even accurate. They didn't even reflect the existing conditions. We went to that building and they weren't even right. There's so many change orders they weren't even close to as builds.

And worse was, we didn't really know what the building looked like. There was no renderings. It was really even hard to tell--in fact, the architect had a strategy not even to register their files or have a grid--which is shocking how many times we see that but you know what that means is, it's truly a drawing. We joke that those models are actually etch and sketch models. Because it's like a detail, you can't measure off it. It's not to scale. Which like I said, is interesting if that's a strategy for an architecture firm, to make drawings that nobody can measure off of.

But the new way is, our drawings are to the millimeter accuracy. That's why we say they're fabrication quality. You can measure off of them. So we started on July 17 and had by September 7th, submitted the drawings into the city of San Antonio. That was about seven weeks to do all the architectural, structural, MEP and it was a partial civil submittal, not a full, because the city still hadn't run all the utilities to the site so there are still some things undefined at that point. Just to give you guys the facts though but it was a pretty good set. It's a CD quality BIM model. There are over Though over 100 drawing sheets in that package. We even did class detection to resolve all those issues and it went through a series of revisions and we did go fly to meet the architect and engineer to make sure it was correct and the engineers and architects stamp the drawings.

So we're really almost just like the BIM data people, the modelers. There were still an architect of record and engineering firm of record on the job. So that's a game changer, right? Seven weeks is pretty fast. I know a lot of you will be jealous of those numbers. Most people are probably more on the left hand column but you'll hear later about how powerful that is. So they got their loan funded like six months earlier. Yes sir?

[INAUDIBLE]

Good question. So we were under a lot of pressure. Like I said, it was burning a hole in his pocket and he's like get 'er done. So we actually had four modelers on that job and a project manager. So there were specialists: architecture, structures, electrical, and mechanical and plumbing modeler. But yeah, a lot. So if there was one person it could have taken longer. But that was a technique to kind of crash the schedule.

What we believe the next building, it's going to be a minor cite of that. We just have to rerun the utilities and make

sure the land kind of still fits. But this is CD quality model. If we build another one in San Antonio, we think we could probably get it out the door in two weeks. And then you're getting that kind of 10 times.

He doesn't care, you know he's honestly paying the same amount for it but what's important to him, is he got his loan. He got his $10 million loan six months sooner. And he didn't have to keep floating that capital for six more months. Yes sir? Did you ever question? OK. I'm fine if you guys ask questions along the way, so.

OK so we get the drawings into the city, everything's great. And we talked about the drawings being part of the model. That's another huge kind of speed to market thing. And so let's talk about what happens next.

During construction there's always change orders. One big change order, they want to value engineer the building. And up on the upper right is a curtain wall system which is structural basically steel and glass wall. And it's a lot cheaper to build storefront, which is kind of like your traditional strip mall glass, that sits on a slab.

So they said hey, let's move this thing to storefront, we're going to save a half million dollars. We're like great, now what. So the structural engineers said oh just move the slab out over one phone call. They said move the slab out, that's going to change this one corridor and put this glass in. Literally in a one hour phone call, we had a little bit of Q&A. We had to redraw some things, remodel, but in a week we had a new submittal in to the city, new drawing package, updated model, saving a half million dollars.

So now they're starting to like us a little more. They're starting to save money, right? Working in BIM, they're starting to see the light.

The next thing that hits us is he was planning on selling this building, which is actually mustard and it actually was green, you don't have all the colors in there. But has anyone see an extra space storage unit? They're bright green. He was about to put in all this bright green costumed doors and bright green siding and signage. And he calls and tells me, they're pulling out. They're not going to buy the building.

So he thought he was developing this building for extra space, they pull out of the deal. So what does he have to do? You have to pivot. Entrepreneurs have to be ready to pivot. So he's like, I can't build a green building, I could never sell this thing.

So he says, let's go grayscale. Let's kind of make it a little more neutral, a little more classy. So we tried some different color schemes putting some different materials, rerendered the building and he kind of went with this more grayscale look, changed the stone and two days later we had a new set of materials that he bought.

Now if he'd bought the raw materials, he probably would have had to renovate the building to get rid of all the bright green stuff. He's estimated that would have cost them about another half million dollars. So he was able to

pivot in two days, change it to gray scale and now he has more potential investors to sell the building to.

Another big benefit of working in the cloud off of the desktop is because it is really just a web site, you can really link things together quite easily. You can literally embedded links inside of your models and data. And did anyone see or use photo documentation on the job? Like taking pictures of the job site? And that's kind of a hassle, what do you do with all your pictures and how you tag it. They talked a lot about machine learning this week.

There's a group called Smart Vid, anyone see the Smart Vid guys? OK, they're awesome. They have machine learning that auto tags your photography and video and we embed that photography and video back into the BIM model. So if you're talking about walls in your photography, we can tag that to walls in the BIM model and connect the two. Kind of aligning your photography embedded into the model but you know, if you put a lot of photography inside of Revit it really bogs it down so we like to keep it connected to Revit, but not in Revit.

So just these lightweight links is a really good idea that you guys could try and it works just fine on BIM 360 Docs. So that's another idea. So don't take my word for it, let's hear with this cast of characters said for themselves. see Let's see. I want you guys to listen to this.

[INAUDIBLE]

So his point helped [INAUDIBLE] investments. We moved from kind of a CAD, 2D paper based process to a 3D BIM based process and we did all the BIM modeling for architecture, mechanical, electrical, plumbing, structural and civil, put all that in a BIM model and it produced all their construction documentation.

Yeah the whole thing is to set the proto type. I mean, so that we could stamp these things out across Texas, really. Speed the market is key. Especially in this enviorment where the commerical real estate is really heated, the ability to have a proto type that produces a set of plans, that we can really get in and out of the city quickly, that really gives us a competitive advantage, I would say.

It reduces the time of sumbitting construction documentation to the city. As a real estate developer, he needs to work on what matters which is lining up capital partners, finding new development deals and getting assets billed. Instead of the busy work of construction documentation, issues management with the permitting authorities and micromanaging construction change orders.

I think it's a great tool. I think it's coming for everyone in the near future.

From our experience, you know, you get your claim from civil, key from the structural and it's up to the architect to kind of make them all cohesive, and get him permitting the whole bit. So a lot of times, you know your civil would need to be looking at what your structural is doing or your structural won't be paying attention to how your MEPs

are going in. But I think a model can bring all of this together.

Yes those are the actors in the story. That's the Larry, leading up the GC work, that was Victor, the real estate developer and then hinge point. And so I'm going to kind of end with this. We have a handout for you guys, you can also download it and it's one of the attachments for the class. But it's essentially a framework that you can use on the job. Go back to your teams, go back to your colleagues, partners, and this kind of helps you move through taking advantage of some of these new technologies.

Down the left column are the BIM characteristics like what the data is like. The potential for automation, the potential to integrate other systems and subsystems, how collaboration works with people, and then how dependent you are on paper. And we have a handout, Jimmy's handing them out for you guys, to take home and I said you also get a digital version and you also get a BIM roadmap that goes through these in detail.

But as you move kind of from CAD, a vector drawing package to Revit or Inventor or something, a parametric modeling system, that's sort of where you want to be. But on the desktop it's still limited. Ultimately you want to be publishing in the cloud. And there's very few boundaries in your way in the cloud. So you see, essentially there's a lot more opportunity for you to innovate, streamline, craft schedules and that sort of thing. And so that's something just a framework that you guys can try to look at.

So if like man, we have a lot of vector data. That's OK! Try to convert it to a parametric model and you sort of want to go, well most of our tasks are manual today. Well you can automate them. You can build your own plug-ins in CAD and Revit and Inventor. And there's a ton of plug-ins in the AppExchange, a lot of them even free that automates stuff for you.

So kind of figure out where are you in this and try to take the next step next year. Try to get into the next kind of level of excellence if you will, as you're kind of moving more toward one common building information model. And ultimately this is not an ad for Autodesk but we are big fans of the cloud because it's just a beautiful thing. I almost don't even like opening Revit anymore. I mean, I just love seeing the data right there on your phone. It's just so easy to use. So I think you'll enjoy it as well.

So with that, there's some things you can do. In the handouts for the course you're going to get every one of these slides so you didn't miss anything, you get the entire deck. You get a BIM roadmap, you get this handout and we also have BOM to Excel app that anyone working in Revit, it's extremely inexpensive, it's 25 bucks. Anyone who comes to the class, we'd be happy to give you a copy so let us know. Reach us. And we want to help you guys get a good head start at taking advantage of some of these tools at work. And with that, it's your turn to ask questions.

It is kind crickets in here. We need some cricket music.

Excuse me?

Good question. We are working on, is anyone from Dallas? OK. You know downtown, the hardwood district, they're one of our clients. Blue Seow is one of the most special residential towers ever built. It's setting all kinds of records for outdoor living. Texans like outdoor living, they build like these fancy patios and like move their kitchen outside.

Too hot. It's hot in San Antonio. Yeah, it would melt your stuff. That's right.

So we're modeling Blue Seow and that's a $110 million dollar building so you can model big stuff.

Yes you can model all the equipment. We're working on a project with Tyson's to model all their equipment. One of our clients is Kings Span. they're a manufacturer of architectural panels and they model their manufacturing lines. You can model pretty much anything.

Okay so the question was about field verification. So inside that tool, you can comment, mark up, log issues and that's where you could if you discovered it's not the way it looked like it was modeled in the field, you log an issue like that and that embeds the issue right into the BIM model.

Yes Sir.

I'd say the developer--the question was, did the clients use the models themselves? The architecture and engineering firm, even though we modeled in Revit, actually asked us to save their models down to CAD sheets. That was their comfort zone.

We of course, use the models internally and then the clients mostly use just like the 3D model on their phone just to kind of see what's going on.

Yeah so we would do, when we had reviews with the architect and engineer, we would basically bring up the model. Yeah. And so they would see it but honestly most of their commenting were on the sheets. So they're kind of commenting both on the sheets and the model. Once they trusted that the model was being built correctly and like the steel was connecting the way the structural engineer wanted it, then most of the markups were really sheet related.

Yes, Sir.

The question was, did the city accept digital submittals or models versus paper? In the case of San Antonio, they require paper submittals. We stamped the drawings digitally, we saved them as PDF's, embedded the stamp, got them printed, and someone brought them to the city.

Yes, sir.

The question is how do we track the RFI's? Dud we do it through BIM 360? Truth be told, we did not do it through BIM 360. The city sends back a spreadsheet of all of their comments but we use that as our issues log to go to each sheet and each part of the model to fix the issue, send it back to the architect and engineer until they believe it was fixed to their satisfaction and then we put in a follow up submittal that we basically did issues management in Excel.

Officially, AutoDesk would say you could use a comment in the markup feature for RFI's and comments but the city wasn't using it. They are. So on the roadmap next year they're adding an RFI and a submittals workflow tool. But this line of discussion, as sophisticated as as you want to get, if the city still requires paper you need a print on demand workflow. You can be fully digital, let them be old school, but you can progress over here. Just print on demand.

It's still all about the sheets. Because also in the field, they're not sitting there looking at laptops while they're like bending steel, right? They're still looking at paper in the field for the most part, there's not a lot of screens on the job site. So ultimately you still need paper especially for some of the fabrication and trades.

And I'll let you guys in on another secret. Everyone has a phone so that's why I love the phone. The client chose not to give access. He didn't want the construction guys having access to the models for some reason. So there's corporate policy that sometimes comes into play. You probably don't share all of your company's data with your subs, do you?

Well he chose not to and that's actually what caused that error on the steel. Because when the GCs said man, I wish I'd seen the model, we wouldn't have had this problem. But the client chose not to get them into BIM 360 Docs. So sometimes your corporate policies come into play.

Yeah, no. That's how that day went basically. They're kind of like, why didn't you show us this? They thought they were saving money. Instead of like a manufactured four inch heavy duty I-beam, they thought structurally I could make one out of two C's, just like I can make a beam by just putting a couple of two by fours together.

So he thought he was saving money but what he did is he saved himself money. The owner had a G max contract so he deserved to get that beam. Someone put in a cheaper beam without his authorization so that's why he was frustrated. And he did. So point number two is structural engineers said oh, yeah that would work. They didn't think it through. Yes, so that was a little bit of the frustration. There's a little finger pointing going on. You're kind of like, you guys value engineered yourselves, saved yourself some money, didn't save me any and it caused me a problem.

OK.

That's why I like the phone. Everyone has a phone. I just feel like, I don't know why everyone's not carrying their buildings on the phone. You just literally need to hit the upload button. That's it. Hit that one button, upload your CAD or Revit models and it's done, you can have your buildings on your phone too. Yes sir?

No you have to purposely upload it. Some people like the CAD or Revit to collaboration for Revit, [INAUDIBLE] there's also a plug-in for BIM 360 Docs, you just have to publish. That'll upload v-2, version 2. But you still have version 1 and you can even compare them now which is really awesome.

So like, what changed between these two models? These things have been added, these things are the same and these things are missing. So what's been added and what's been subtracted. Comes out in a nice report.

But yes, so you'd come up with some sort of workflow. Like do we publish models daily? If you run and gun in, or do you publish models weekly? Or even some people monthly. Whatever you think is the right kind of cadence for versioning and publishing or coordination. A lot of people do two weeks. Every two weeks. Everyone let's put our work back together and see how we're doing. So you get a lot of work alone time but you get a little bit of teamwork, too.

It's a good way just to push documents around, I mean it's way better than an FTP site or something like that or Dropbox so it's a pretty good, it's a pretty good place to upload and download big files. So just the whole exchange of large files is still problematic and this solves a lot of it. Yeah it's basically exactly the same as A 360 honestly.

We do, it just comes with it. It's just part of our service. It's so cheap. It's not even worth charging them. We give

everyone on our team an account and whoever the client chooses to invite Yeah, so we work for you, we wouldn't charge you for it. You would just get it.

If we did your BIM model, that's how we send it to you. It also protects your intellectual property because you can lock it down so people can't download the model. Yeah, they just can view it. Yep.

Yeah you can even just send them a link to a viewer and they can just look at it. They can interact with the data but they can't have any of it.

Yeah there's a free viewer.

Correct. Yeah, I think if you go to BIM 360 .com/ viewer and there's a free viewer on there. If you publish a model they send you back a link. Now it's not password protected but you can show it to them, you get the full viewer.

OK so I think you guys have our contact information, I think you're going to get a thumb drive with some of these tools on it and if you need anything don't hesitate to reach out.

We're here to serve you guys, you came to this course, it's our job to make sure you get what you need out of it so if you have anything you didn't learn today, ask us. And we'd be happy to get your questions answered for you.

See you guys at the party! You've got to catch flights? You guys ready to go? Go Cubs!