

STEVE SHELL: We're going to get started. Obviously, my name's Steve Shell. Believe it or not, I'm just an architect. I have no special credentials to teach other than I've been having my own practice now 30 years. And what I've learned is I have the wonderful benefit of being old, and I was taught in college how to draw.

And I don't know about you all, but architecture is an art. What we produce are drawings. They're pieces of art. I know a lot of people don't think of them that way, but they really are. And one of the problems that I've seen over the years is with the advent of the computer, the form of art is kind of disappearing, because they're thinking the computer is doing it all for you.

The reality is, we're still producing a two-dimensional drawing on a piece of paper or up on a screen or on a PDF. And that thing that you just produced has to read, has to be able to communicate your intent, because there are three people that really, really need to understand this stuff-- your client, because he or she is paying for this. It's always nice so you don't hear later, I didn't think it was going to look like that. That's not good to hear.

The contractors that have to build it. Do we have any contractors in here? You've got to read this stuff. This is hard. And then you have building officials. I know we don't have any of them in here. But if we did, they would argue they're the most important people to also understand your drawings, because if they can't understand what you're drawing, they're going to come in with a bunch of review comments and tell you why your drawings are deficient.

And you've got to come back and say, oh gee, I'm sorry. Didn't you see that detail on sheet A-4? And I clearly showed it that were doing this and this. And if you have to say that, you did not clearly show it. So those are the three people that kind of have to be able to look at your drawings.

So the first thing we're going to do is make sure you're all in the right room, because I actually have a slide here-- there we go. No, that's not it. Oh, I guess I didn't do it. No boiler plate here. No boiler plate. We're assuming we all know we're here to make our drawings look good. Is that why everybody's here? Is everybody here a Revit user?

AUDIENCE: Yes.

STEVE SHELL: OK. Is everybody here an artist?

AUDIENCE: Yes.

STEVE SHELL: Thank you. I'm going to let you know right now this is technically not an advanced class. However, I'm going to show you some things that even the Autodesk Revit designers say is impossible to do in Revit, because I was too lazy and too stupid to ever learn how to use Photoshop, because it's kind of hard. And so if I couldn't do it in Revit, I didn't do it. So it made me want to learn this and do it in Revit.

So everything I'm going to show you is just 100% Revit. There is no outside software. You don't have to go buy anything. There are no add-ins. Nothing. This is all 100%. And what we're going to be doing is basically taking everything that the older generation kind of knew to do intuitively and teach you how I do it inside of Revit. And it's all very simple stuff.

Don't knock me down on my surveys, because this is all beneath you or simple. This is simple. I mean, you weren't taught that it's hard to draw with a pencil. It shouldn't be hard. So I'm just here to show you just how easy it really is to make your drawings look wonderful. And when your bosses say, well, I'm not paying you to do that, you can go, look, it was one button. So we're here to defend you.

So Revit basically takes everything on a global setting in your global parameters of your Object Styles. And then depending on what you're doing, you just start focusing it down more and more narrow and more and more focused. So the very first thing you can do that will make your drawings look 1,000% better is go into your Object Styles and add a 1 at least to every single number that's in those tables. I don't care what number is there. Just add a 1 to it. Do we all print to PDF?

AUDIENCE: Yes.

STEVE SHELL: PDFs cut your line weights almost in half the minute you print them on a piece of paper. So even though Revit thought these were really good line weights, your PDF instantly cut them in half. So go ahead and compensate for that at least. And try to remember, do we have any people here that remember rapidographs?

Do you know that a number one line weight in Revit is a 6-ought rapidograph? I didn't even know they made a 6/0 rapidograph, to be honest with you. I thought they went down to 2/0. And that was hell enough, because that would clog up overnight. So just add a 1 to every single number, and that alone will make your drawings look better. But don't just do it to your

model objects, do it to your annotations.

In this drawing here, the most important thing on that drawing is not the cabinetry detail or my crappy handwriting. What's important is the callout to reference the other drawing that takes you to a different sheet and gives you the information you're really looking at. That's why this drawing is here.

So go through and literally add a 1 to every one of your callouts, your sections. I mean, how many people see a section cut line on a floor plan? That's probably one of the most important items on that entire plan. And it's given a line weight of 1. So just come in and just be bold. We were taught to draft with Fs and HBs and really thick lead. You know, boldness is a wonderful thing in your drawings.

And then how many people here have ever created a line in Revit? Show of hands. Very good. See, you guys are better than most conferences. Most people I get three or four. How many people just really quickly want to see just how easy it is to create a line in Revit? Does anybody want to go through the exercise? OK.

Revit's one of these things to where I don't know about you, but even when I look at this drawing, a property line. There should be two of them in your repertoire. You should have an existing and you should have a new. Because whatever project you do, you usually have your own property line and then you have the adjacent property.

So to me, just coming in and creating two different property lines is kind of critical. So if you just go to any of your floor plan views-- if I can get my browser to open. Come on project browser. There we go. No. Oh, don't do this to me.

AUDIENCE: [INAUDIBLE]

STEVE SHELL: Yeah, I'm going to just-- wow. I'm going to split them apart. Sometimes it doesn't like-- no.

AUDIENCE: [INAUDIBLE]

STEVE SHELL: Where is it?

AUDIENCE: Right at the top.

STEVE SHELL: Oh, there it is, yeah. There we go. Thank you.

AUDIENCE: [INAUDIBLE]

STEVE SHELL: No I did not. Yeah, I was a good boy last night. What you do is go into any plan view, and when you go into your Manage, what you'll find is underneath your additional settings you'll see your line styles. This is where all the lines that you use live within Revit. Just come in and say you're going to create a new line weight. Give it a name, and we're just going to go ahead and call it property-- if I could type-- new.

And go ahead and give it a bold line weight, because typically you want it a lot bolder than your existing property line. And rather than it being a solid line, go ahead and give it some sort of dash dot dash. There's usually a dash dot dash, but in this case-- it's there somewhere. We'll just call it a dash double for now.

But what you'll see is you can then come in and when you create now an annotated line, one of the options you're going to be given-- it's weird, because I'm using my out-of-the-box Revit. So if I come in under my drafting lines, one of the things you'll see now under your line styles is you'll see your property line new. And when you draw it--

[PHONE RINGING]

That's a nice phone ringer. So we'll just come in and draw a line. And when you zoom in, you'll see you've got a nice thick line that's bolder than anything you've got. You should come in and basically do a ton of your own personal lines and make the drawing basically be the way you want them to look.

You should not be at the mercy of the way Revit thought they should look. But that's something you can do. And then any time you do this, those are the things you want to add to your template, because there are things that you do all the time.

Now, does anybody remember the word [INAUDIBLE]? OK. When we would do working drawings, obviously we're printing to black and white, shades of gray. But I would also do presentation drawings for clients. So I would want to indicate some sense of color, and at the same time I care about then how they print to black and white.

We would care if we wanted to show like woodwork-- millwork-- and show that it's different than drywall. And obviously, you're noting it, so it's obvious that way. But just from a graphic standpoint, to me the drawing on the upper left isn't nearly as clear and concise as the one in the lower right.

And so what we would do in the old days is untape our sheet, turn the drawing over, take a pink pencil, color it in, and burnish it a little bit, usually with your shirt tail, which usually would piss off your significant other. And then roll it back over, continue drawing, and when you printed, you got these really nice shades of gray. It was a nice way to indicate new versus existing. It was a nice way to indicate concrete. And that's just how we did it back then, because what you don't want to do is just layer your drawing with a ton of notes. And we'll explain why here in little bit.

But in Revit, like everything else, there's a right way and there's a wrong way. But I'm here to show you the wrong way is usually the one you'll use, because time is critical. So what happens is you'll do something because it's late in the day or at night. You're doing a presentation drawing. You're not quite sure what you're doing yet.

So a lot of the times you'll want a quick workaround. And rather than do it the right way, because sometimes you don't even know if it's a real job yet, you'll kind of do a workaround. So one of the things I kind of show when we do this is if we go into the browser, and we open up one of these 3D views again, I'll come in here and basically show like, for instance, if I'm designing this building, I just knew that I wanted something about that wall. I didn't know what yet. It was just kind of boring being stucco.

And I knew that it needed to be something else. So I thought maybe just doing a stucco [INAUDIBLE] grid would be kind of nice. Now, the correct way to do this is to obviously create a new type of wall, come in and create a new stucco material, create your grids, build that back into-- it takes you 5 or 10 minutes to do that. I'm not even sure this is going to be a building yet. I don't want to put that kind of time and effort into this.

So graphically, the only thing I care about is on this one view, I want this one view to change to give me an idea of what it might look like. So I'll just come into the visibility of that one wall and by this one element, I'm going to go ahead and give it just a surface pattern. And in this sense, I'm just going to go ahead and just pick a dark color. I'm going to tell it just give me some sort of orthogonal grid, and boom.

Now, all of a sudden, for this one view I kind of look at that and go, well, that's kind of cool. The client might like that. I don't know what it is yet. A lot of times when you're designing, you don't really know what things are yet. But then I remember how cool it looked when I

highlighted it. And we all know how design is a science, right? I mean, it's exact.

So one of the things I learned is I kind of liked the way that looked. And that kind of reminded me of glass block, and I kind of thought, well, maybe that would need to be glass block. And yes, I could model a glass block wall. Has anybody ever modeled glass block? Yeah. It's not hard. It takes about 10 minutes, 15 minutes. But you know, if it's late at night, and I don't even know if this is going to be a building, I'm kind of lazy.

So rather than do that, I've just learned that Revit gives you some really nice abilities to basically take this and rather than using black lines, we'll just come in and use blue. And if I make the wall semi-transparent, I've learned that Revit just kind of does that. And I know it was an accident years ago that I discovered this.

But since we know that this is all a science, I'm OK with this for right now. I don't know if the client's even going to like the building, less the glass block. But to me, that at least shows the client there's something going on, and it opens up the discussion. And I'm going to show you another little trick here. It's a later slide in the project, but has anybody ever used sketchy lines? OK.

Sketchy lines, to me, have a really nice place within Revit and within any presentation. Because one of the things I've learned over the years is if you're working with a client, and let's say you've designed something that's very near and dear to your heart. You think it looks beautiful. You go all the way through the entire design process, the contractor comes back and gives you the cost. It's about 20% over budget.

A lot of your cool really ideas start to get cut out of the project. It hurts. I mean, granted it's just part of the business, and you probably shouldn't have designed something that could be removed that easily. But the reality is, some things are frou frou, and their art, and it's hard to justify that to a client.

Well, one of the things, human nature-- this just goes into basically what we do for a living-- when you're pitching a design, you're basically selling somebody on something. It's coming out of your head. You're presenting it, and you're trying to talk them into it. One of the things you don't want to do is go into a design meeting with a design that is 100% finalized and a beautiful rendering.

Clients have the feeling that it's more hands off at that point. They don't feel like they have

input. It's been kind of done, whereas if you come in with a napkin sketch or an early hand-drawn kind of look, clients look at it and go, oh, it's a work in progress. I can chime in.

Then you can start asking him or her, how do you feel about the glass block? Do you like it? And they're thinking, you know, I actually do kind of like it. But would you really do it above the roof? And you'd go, no, I would actually do it below the roof, and I would do something else. I just wanted to see if you like it. And the client's going to go, yeah, you know actually I do kind of like that. It's got the nice view. It'll get sun, and that would really light up the space really nicely.

And he goes, maybe we could even give it like a shape, like a radius or a curve. And I'll go, god, that's a great idea. I wish I'd thought of that. And then I'll come back and say let me make some changes. And I'll come back next week, and we'll have another design meeting. And of course, I'll go back and the change will be done in two minutes.

But I'll come back next week, of course, because it took a week. And I'll then show him the glass block, and he'll go, oh, that looks beautiful. Now, what do you think is going to happen six months from now when the budget comes over and the contractor goes, hell, I can save you 50 grand by getting rid of the glass block. What do you think the client's going to say?

AUDIENCE: No.

STEVE SHELL: He designed it. That's his. He owns that. He or she now feels that was their design. They have become as attached to it as I am. The difference is I'm not paying for it. Doesn't matter if I'm attached to it. I've never had a client sit there and go, I am so sorry Steve. I made your building and made it ugly.

They're paying for this, and they're just like going-- they didn't even know if it would have looked good in the glass block. So to them, it was a no-brainer. They're fine getting rid of 20 grand and making a stucco wall. This method, you come in with a loosey-goosey sketch, leave it to where it feels open, start talking about all your design ideas. Let your client become part of that design process that you're part of.

The reason we're all designers and why we do what we do is because we get to do this. Most clients don't get to actually do it. You know, they approve stuff. They tell you their needs. But it's rare that they get to sit back and tell then their friends, yeah, I came up with that glass block. Isn't that cool?

They've owned it now. And I personally don't care if they say they designed it. That's not what I'm here for. I just care that everybody sees a beautiful building, and it looks nice, goes in my portfolio. And I get to show it off. I never sit there and go my client did that part. You know, that's not what we do.

So I'd personally like sketchy lines. I use them a lot for really early on presentation work. And everybody saw how easy it was to do sketchy lines. Just a couple buttons, cross your lines, you're done.

And then this just shows the cheater's way that I did it. The first slide showed you the correct way of changing a material so that you actually do that. This is a good example of why your drawings are so dang important to a contractor. Where was my contractor? There he is. Does anybody know how contractors really bid work? It's usually subcontractors, not the GCs.

Subcontractors, I feel so sorry for them, because they work all day, they get home, they have dinner, and then around 7:30 or 8:00 they realize they've got to get a bid out. So they're usually on their dining table half lit. They unroll the drawings, they do their very best, and they call in their number in the morning.

Anything you can do as an architect or as a designer or as a drafts person or anything related to what we do, if you can make it easier for them to open up the drawings and assimilate all of this information so that they don't miss it, that's your job.

So this is a perfect example of why graphics is so important. This little triangular ceiling sat in the middle of 80,000 square feet of office. The plan was huge. This little triangle was about that big, and it was all 2x2 tegular ceiling. So all you saw was 2x2 tegular grid for 80,000 square feet of it.

But that happened to be right over the lobby area, and that one ceiling was like a \$30,000 add. It had wood paneling. It had really nice ornate intricate detailing. It was a really expensive little ceiling. Granted, I probably shouldn't have designed it to begin with, but you gotta do what you gotta do to be an architect, right? Tried to squeak in design.

The minute I colored it in like that, the contractors eye went to it before it went to anything else on the drawing. And he saw what it was, and he included the money for it. I actually got a call from the guy that got this job. And he told me had I not done that, he would have missed that in a New York minute. You know, because there was a keynote to it, or in my case, a real

handwritten note, because I don't use keynotes.

But he said he would have missed that. He would have just seen a huge floor plan. He would have seen nothing but 2x2 grid. He would have assumed the whole thing was 2x2. He would have looked to see who the ceiling manufacturer was. Was it tegular? Was it this or that? And that would have been his bid. He would have missed that entire thing.

Contractor would have been there nine months into construction going, hey, have you got all that wood and trim and millwork ready for our ceiling in the middle of the room? And he would have gone what ceiling? And the contractor would have gone, well, this ceiling right here. See that triangle? And the guy would have completely missed it. And he would have eaten that. There is no way he would have gotten away from just not having that come right off of his bottom line.

So the lesson of this is, if you make somebody's job easier, and he feels you're helping him, he will give you work. Does anybody get work from contractors? 90% of my work comes from contractor referrals. I have my long-term clients from 30 years, but the new clients that come in, they're contractors, because they like the way I do my job. And everybody likes to work with somebody that they think is good.

I surround myself with really good engineers and really good contractors. So it makes my life easier. That's the way they are. They want to be with a good architect that actually takes the time to show them what they're doing, not make them do a lot of coordination on their own, and show them that I really do care about what I do. So to me, the graphics is what's actually driving that little exercise.

Profile lines. How many people know what silhouetting and profiling means? Show of hands. OK. Profiling is Mother Nature's way of letting you know there's something behind something. It's just an old trick that painters have done and cartoonists and everybody else. If you zoom in here, see how this line right here around the perimeter, that is darker than this line right there? That's a profile edge. That tells the eye that something is happening behind it and around the corner.

Watch what happens to the drawing just by turning off the profile line. This is the way Revit comes out of the box. This is the way 99% of all Revit drawings look. Whenever you hear an older architect say that Revit drawings are ugly, this is one of the number-one concerns. This goes back to that whole line weight problem. And as Paul Aubin always says, when did line

weight become an IT issue?

So I'm a firm believer of this should always be on. It should never be turned off, and it should be part of your template. Because I've never seen a drawing to this day that doesn't need to be profiled, even floor plans. If you have countertops, it'll automatically highlight around the edge of a countertop so they're not so thin, because there's something happening underneath a countertop.

Does anybody use halftone? Why do we use it? Just yell out.

AUDIENCE: [INAUDIBLE]

STEVE SHELL: OK.

AUDIENCE: [INAUDIBLE]

STEVE SHELL: What is it?

AUDIENCE: [INAUDIBLE]

STEVE SHELL: See, those are all perfectly perfect answers. In this example, I'm just trying to show the contractor what's new and what's existing. That's the only reason I did it.

Now, obviously there are two ways to do this in Revit. One would be to create a floor that's an existing tile floor that has a slightly lighter line weight. And then you would duplicate that floor, highlight all your line weights, make it bolder, and you'd have a new floor that says new tile.

And yes, that's all well and good, but let me tell you this was probably at 10:00 at night. I didn't want to create that material. So just really quickly, it's just so nice to be able to go into Revit, go into any plan, take an item, whatever that is, and just highlight it and say, you know what? Just make this whole thing halftone.

Now, I'm going to un-halftone it so that we see the difference. It just instantly makes it a lot darker. You can see the difference just by doing before and after here. And that's a graphic trick and, yes, you're right. It's not the right way to do it, but this is drawing, people. There technically is no right or wrong. It's whatever works for what you're doing.

And if you don't have time to create a new material, you just want to show it for this one view, I don't care that the tile is shown differently in all the other views. I'm not using the other views.

This is the one view I'm going to give the contractor. I'd rather do that than sit there and start writing a bunch of notes. Existing tile, new tile. I just don't have time for that sometimes. So to me, it's nice just to come in and use that graphic trick.

And then this is just the culmination of everything we've talked about so far. These two drawings are the exact same drawing. The upper left one is pretty much the way most of our drawings look. You might not put your people and your trees in it. You probably don't have that really weird handwriting, which nobody can read but me. But it happens to be my personal handwriting, and I wasn't about to let that go. Sorry.

I still can't tell threes from fives. I have to like zoom in. But the difference is the one on the right, you can start to see that there is a wall back there. That's a little stair-step wall. You can instantly read what's wood and what's drywall, what's cut in section, what's not cut in section. That drawing just reads better, and you saw how long it probably took to do all that. It maybe added 15 or 20 seconds, maybe. I mean, that's on a stretch. That's if you didn't know where the buttons really are.

Once you do this a couple thousand times, let me tell you, that represents maybe six seconds of work. But the difference between these two drawings, to me, is monumental. But it's something that not many people know to even do. And when you hear older generations talk about their drawings are ugly, and they're not reading, this is what they're talking about.

When a drawing is just flattened, nothing but a sea of lines, it's terribly distracting. Yes, I'll figure it out. I'll go back and read the sections. I'll look at the elevations. I'll read the notes. I'll look at all that eventually. But it'll take me a while to figure out what's really going on in my mind's eye. So to me, that's just where graphics come in.

And then this just shows you how to control to what level you see things, because remember I said you can halftone for a variety of reasons? One of the other reasons is if you put something in a drawing, sometimes you want it there to give it a sense of scale. You want it there maybe to give it a sense of place. But you don't want it to be the dominant element. So to me, the trees in the upper left-hand corner are just too bold.

This is the comment I was making to you when you were showing me your elevations. That's out-of-the-box Revit. I applaud anybody for doing it. But to me, the ones that are further down the list that are starting to ghost them and get rid of the shadows, that's kind of doing what I want it to do without taking away from the building. So play with the halftone, and play with

your transparency settings. Between the two of them, you'll be amazed at what you can actually create inside of Revit just with those two buttons.

I'm not going to talk about-- your cover sheets. I know this is silly. When you go to Redbox and you rent a video, would you rent a video just by reading the title credits and who did it and all the names and all the abbreviations and all the codes that it met? No. There's a really pretty drawing usually right on the cover. Books do this too. Video stores used to do this. The cover on the box was always really important. I can't tell you how many cover sheets I see on drawings that are nothing but text, names, typing.

This is your first impression, folks. When someone's unrolling these drawings for the very first time-- a contractor bidding them, a building official, a client-- this is your first presentation. And you're giving them nothing to look at. There's no sizzle. There's no excitement. There's no nothing. Revit is wonderful for generating 3D views, even if it's just a colored-up floor plan or a colored-up elevation. I don't care what you do. Put something on your cover sheet that gives someone a little bit of excitement. It is kind of your first introduction to a project.

This is the exact same principle as taking the wood and the drywall and giving it a different color. Do this on the outside of the building. Has anybody ever seen presentations, and it's hard to describe, but when we used to do presentations, we would do them on Mylar. And when you did a Mylar, they were always really slick and really pretty.

But one of the things that was really sexy about a Mylar presentation is you turn it over and take a prisma color, the wax pencil, and you'd spread it on the back. Now granted, it took forever to do. It was a pain in the butt. You didn't want color up the whole drawing, because it looked cartoony. But you'd come in and just do a couple of things, and they spread like butter. So you get this really smooth transparent feel. They are wonderful techniques.

PDFs and slide projectors are just the same way to me. So I'll take a drawing, and I'll just highlight what I think is the most important part of the drawing. And in this case, it was those two are the same exact view. I just wanted to show the difference of where there was glass and what that upper stucco thing was so it kind of threw it in the background more, and it made the drawing a little more 3D, a little more interesting.

Both of those took, I don't know, four or five seconds to do, just overwriting. On this one, I'm showing you how to actually change it the right way by editing the material and going into the glass. But at the same time, you can come in here the same way and just go, you know what?

The drawing on the bottom doesn't really read. I mean, yeah, it looks like there's something going on there, because there are some lines.

But the one up above, the minute you give it a color, your brain perceives it as glass. And it took no time at all. Now, granted, I didn't know what color the glass would really be, and I didn't want to go into that. So I just did my little stupid trick and just overwrote it. And does everybody acknowledge that even though we call them black and white hidden views, you're getting color? Does anybody think that's kind of weird? OK. Not just me.

I just was impressed that in a black and white hidden line view you can still get color. So to me, that was something that most people don't even know they can do. They just say, well, I can't do color because the whole view is colored. And that's not what I wanted. So to me, this was a nice way of mimicking what we used to do in the past with the graphics. And then that just shows the difference between profiling and silhouetting. The one on the bottom doesn't have any. The one on the top does, I think, if I can read it right. That was the sketchy line example.

Anti-aliasing. Does everybody know what that is? I know you read about it. Anti-aliasing is that really annoying thing that your drawings do whenever you have an angle or a circle, and you get the little stair-step effect all the way down your drawing. And the computer gurus at your office will tell you, well, leave it that way, because they don't want to take a performance hit. Ignore that. Ignore that IT guy behind the curtain. Revit really does want you to change this.

You really do want to clean up those lines. And basically, there are two ways to do this. It's kind of hidden inside of Revit, the way you'd control this. But basically what happens is, if you come in here, and let me see if I have any angles. I really don't. Oh, there we go. Maybe this line will show it. If you come in here under the Visibility Graphics, there is actually a line in there that says smooth lines with anti-aliasing.

Normally this is unchecked, and you would just check this box right here. And that would clean up this one drawing. Unfortunately, if you're like me, you do something and then you forget to do it later on other drawings. And then you print them, and you don't see your mistake until you've printed it. And it's kind of too late to fix it. So I just learned to hedge my own bet.

So if you go into-- rather than doing it by just view, if you go into your Revit Options up here, and you go into your Graphic tab, you will see there's a thing in here that says-- where is it? Here it is. Smooth lines for anti-aliasing.

If I check it here, and say use for all views, once that's turned on, then you never have to go back in and worry about doing your individual view, because you won't even have the ability to change it, because it's ghosted out, and you don't have to ever worry about making that mistake ever again. And if you're like me, that's kind of nice. So I tend to make that boo-boo a lot.

Transparencies. You've seen a couple of things I do with them. Does anybody else use transparency for anything? Show of hands. What do we use it for?

AUDIENCE: Glass.

STEVE SHELL: Glass. What else?

AUDIENCE: Water.

STEVE SHELL: Water. Anything else besides transparent materials? What is it?

AUDIENCE: X-ray vision.

STEVE SHELL: X-ray vision. That's right. If I'm designing Barbie's house, X-ray vision, man. It's nice. Or Ken's house if that's the way I swing. There is another reason to use transparency. Believe it or not, it makes you a better designer and a better architect. One of the problems we have as architects and designers is sometimes you can't see everything when you're working on it, no matter how much you peel away items.

So in this example right here, my number one screw-up, I mean literally, my number one screw-up as an architect for years was cabinetry and millwork and coordinating my electrical so that I wasn't putting outlets behind drawer bases or I would forget to put a grommet in the countertop if I had an outlet in the data. I see all the smiles. I'm like, OK, I'm not alone in this.

One of the problems we have is when you're looking at a floor plan view of anything, the countertop is hiding a ton of stuff that's happening below it. Now, we all have our work-arounds. I've seen them all, doing this 30 years. The number-one thing I've seen is you take the countertops, you tend to make them disappear at the moment. You then take your line work tool, and you take all your base cabinets, and you use that to turn them into dashed lines. And then you put your countertop back, and now your dash lines are there.

And that's a great way to show where your cabinets are. But the really quick way and that

keeps you from putting things behind things, just take your countertop family and just set it to slightly transparent. No one will ever know. No one will ever sit there and go you really want transparent countertops? No. They know it's laminate. But you will always see what's happening underneath.

And I guarantee you, I've never had a contractor ever miss a keyboard pull-out drawer. They are now on every job. I've never seen a change order for them. They made every job, because now they clearly show up. I now know where all my outlets are. So to me, that's one of the tricks of using transparency. And then of course, in this case, getting rid of walls that are blocking your view. I always like using it for that.

Ambient shadows. Ambient occlusion. Does anybody know what that is, to begin with? I never knew what it was until I started using Revit 7.0, because that's when they introduced this. You can see these are the same drawings. Just one click, one little button, changed it between the two views without doing anything on my own.

Mother Nature, whenever you see lighting, takes into account that yes you do have sun and shadows. But there's also a ton of other light hitting objects, being bounced off of other items. And whenever an item hits a corner, one side of that corner is going to be slightly darker than the other side. This was Revit's attempt at trying to duplicate that little thing that happens in Mother Nature.

What I like about it is it just makes a drawing really look nice. And I'm going to show you just how easy this is and how obvious it is. So we're just going to focus in right now on the way that wall meets what I'll call sand. If I turn off ambient shadows, and you come in-- it's under Shadows-- and if you just turn off Ambient, see how everything just kind of flattened out?

I don't know why it works, and I can't explain it other than this is what Mother Nature does. But I haven't found a drawing yet that doesn't benefit from ambient shadows. Even elevation views, section views, perspectives. I mean, in this case, it's actually mimicking the radius of that wall up above. It's just something that it does in Revit. If you have two walls and one's right behind another, it will automatically make the one behind slightly darker.

And I don't care who you are, that always makes the drawing look better, because it layers it. It does what I would have spent a lot of time cheating to make it do. And the fact that Revit will do this on its own, and it's rare that I ever don't like it, to me, that's kind of a freebie.

And then realistic views. Most people have never used them. Most people don't like them. Does anybody use them? Show of hands. Six. One of the reasons we don't like them, OK? We're architects. If we were all water colorists, we would love this, because water colorists don't see lines. Water colorists see sky behind a white wall. There is no line. That's something we as architects draw, because that's just the way we're taught to perceive.

Well, Revit finally figured that out several years ago, and they gave us the ability to put lines back into these drawings. So now when you use realistic, you actually have the ability to have line work show up. But now that's not the only reason to use realistic views now.

How many people know what RPCs are? Show of hands. RPCs are-- you know in Revit when you hit Entourage, you know your buddies Ron, YinYin, all those, Alex, those are RPCs. They're rich photographic content. It's what you use when you want to render something, and you want to put those in your views. It used to be they were only visible when you rendered, full-blown rendering.

Now, if you just go to Realistic View, they automatically show up now, which is really nice, because there are a lot of times where you'll be working on a project, and you want to be able to sit there and show, like for instance, if I come in here-- and I'm going to cheat here and give you a sneak preview, because I'm going to tell you to ignore this. But if I set this drawing to Coarse, those are my RPC trees.

Those are what come in in Revit natively. They look like this, because they're little placeholders saying that you're going to render this. And when you render it, they're going to look like-- (SINGING) do do do do-- this. So that's the way they look when they render. But you used to only see these when you did a full-blown rendering, which is a pain in the butt.

Realistic views are now clouding the separation between your hand-drawn look and full-blown rendering. So not only can you do RPC plants and trees and cars and people, guess what? You can also do your lighting now. You can actually model your lights, turn off the sky, make it dark, and your lighting will now show up in a nonrendered view. That's huge.

When you're a designer, and you're playing with your lighting, that's a wonderful ability to do. And that's only because now in realistic views, they've given you that ability. This just shows you all the different RPC content that is now visible.

Backgrounds. We all generate camera views, agreed? Perspectives? We all do isometrics. We

all do elevations. Sections. How many of us put backgrounds behind all those drawings? Show of hands. Wonderful. There were about five or six of you. Revit has always had this, and this is one of the joys of Revit. I don't know how long a lot of you have been using it, but I'll tell you something-- I've been using it now for quite a while.

And I keep finding out that Revit gave me tools as far back as 2003, 2004 that 90% of Revit users don't even know exist, don't know what they do, until they take a class, because they weren't taught this. Resellers don't teach this, because resellers aren't architects.

Do we have any resellers in the room? Good. I love resellers. Don't get me wrong. They have me come and teach them, and they have me help people. But the reality is, the people that are teaching you how to use Revit are not artists. They're not graphics people. They're not architects. They don't know why to hit the button sometimes. They'll teach you to hit the button. They just don't teach you why. So hopefully that's what I'm here for. Is this kind of helping? OK.

AUDIENCE: Yes.

STEVE SHELL: So inside of Revit, you basically have the ability to create these four kinds of backgrounds in any view you do. You can have none, which is what comes out of the box, and it's what most of us do. You can actually put a photo of your choice. You can do a gradient, which means it's going to start at one color and move to another. And then there is Revit's version of a sky. It's not pretty all the time. But I guarantee you, there's one or two views that it looks really good in. It's just trial and error. You just never know sometimes what looks good.

So the first thing I'm going to show you is if you come in here, and you take a view, the fastest and easiest thing you can do that will always work-- it's never not worked-- is just come in here under Background and tell it to use the gradient and use the out-of-the-box really pretty little blue to white. It works on every drawing. I've never had that look bad.

But to me, it can look better. OK? That's just one attempt at this. So one of the things I've learned is a lot of times I don't use color. I'll do black and white presentations, because I've actually offended and lost jobs, because they didn't like the color of whatever I did.

So rather than coming in here and adding color, I'll just take the sky, and I'll make the top black, and I'll leave the bottom white. And now all of a sudden, you get this kind of monochromatic nondescript doesn't piss off anybody, politically correct background. But as

this slide showed you right here, we go back to watercolor and any other art form.

On the right-hand side there, you see we have a building that has a white parapet. You traditionally would not want to put the white lighter sky behind that. That makes the drawing less dramatic. So a lot of times I tell people, if you have a light-colored roof, flip it. Or if you have a dark-colored roof, play with it. So it takes no time at all to go instead of black on top, I'm going to put white on top. And instead of the whitish gray on the bottom, I'm going to put black on the bottom. And look what it does to the drawing.

Now, I'm not here to tell you which one is better. This is art. What I think might be pretty, you might think is hideous. What you might like, I go ooh. I would never say it, of course. But to me, this is an art form. This is purely subjective. There's no right. There's no wrong. There's only good. And if you think it's good, then you'll be proud to show that to your client, and hopefully your client will be happy and proud to put it on their wall and show it to their employees and show where they're going to be working.

But now what happens if you're doing a competition? You're trying to compete against a bunch of other designers. Now you're in a different arena. Now you're in the arena of the car ads and people that are trying to grab your attention with bold and shocking and visually dynamic really cool stuff. This is kind of tame. It's a very conservative approach. Has anybody here ever been part of a competition entry? A few of us. Has anybody ever judged and been a jury on a competition? After you've looked at 200 or 300 drawings or designs, why did one win in your mind?

AUDIENCE: [INAUDIBLE]

STEVE SHELL: Stood out. I can tell you now, and I'm living proof, it's not whether something is good or bad sometimes, it was memorable. And whether or not I'm a good teacher or not, whether or not I'm a good architect or not, I'm memorable. I haven't needed a business card in 35 years. It's just what I am.

Your drawings are the same way. You can create drawings that are so visually different from anything else without screwing up the design. So one of the things-- I guarantee you this works-- rather than just doing white and gray, sit there and just kind of get creative. You know, take a couple of weird colors. Maybe that's not so hot. Maybe we want to do green over rust or something, just something a little more-- that right there, people will remember after 200 presentations.

They may not like it. They may not know why they're remembering it. But they'll go, hey, remember that one building that had that really weird green and red sky? Can we go back to that one? And then they'll look at that design a little more, because a lot of times you just go over stuff really quickly, just yeah, yeah, yeah, no, yeah, yeah, no, yeah, yeah, no. And then you start whittling those down.

This is a way to stand out. And sometimes I always say it's not whether something is good or bad, it just has the virtue of not having been done. So to me, if you can shock people and do something that maybe hasn't been done, then there's a place for that inside of your presentation palette. It's not for everything. It's not for everybody, and it's not for every presentation. But there is a place for that.

And then the other really cool one that I like is being able to put a sky behind a project. Now, there are a couple of ways to do this. OK. There's the way that comes out of the box. This comes within Revit, no tricks, no smoke and mirrors, works every time, really nice, but it's not a science. It's more of close enough gets you there.

I'm sure a lot of us have done retrofits, remodels. We've done projects that are within maybe a campus environment or buildings that are within a really constrained downtown urban setting. It's really nice to get the real world to be behind your design so that it has context. You can show your client how it's reacting to your neighbors. You can show your historic people how it's reacting to the buildings that are adjacent.

But this is the out-of-the-box technique that always works. You just have to have a repertoire of photos in your little palette of materials, but if you come here to Backgrounds and rather-- we'll just going ahead and set it to image. And then we're going to go ahead and browse for a photo.

Now, there are two options here. You can either, one, be a collector of pretty skies. Just wherever you see a pretty sky, go grab it and save it. I collect skies. I don't know why. Photograph them too sometimes. And then there's go photograph your own sky with your mountain range and your big high rise right behind it. You can do whatever photograph you want.

But in this case, I'm just going to pick a pretty little sky that I happen to have. So we'll go to-- I've got to find it. AU2016, Graphics Lab, Render Backgrounds. There they are. Oh, there are

my beautiful little skies. I feel like the guy that painted trees. They're happy little skies.

So we're just going to pick this one here randomly. I haven't used this one yet. And we're just going to say, we're going to try that, hit Apply, and boom. We have a sky. How many people knew you could do that? Very cool. Has anybody actually done it? Very nice.

Now, the one thing I notice in this, see how you're starting to see some mountains in the background there in that photograph? I didn't really look at it that carefully, but you can play with this just a little bit. If you come in into Customize Image, you'll notice you have a height and a width. You can actually start to raise this. And I'm going to overdo it just to show you what it looks like. But if you come in here and hit Apply now, you can actually kind of get that mountain range to be behind your image.

This is where, if you took a photo of your personal site and actually tried to line up where you shot your perspective camera versus your real world, this is a pretty fast, simple way to get the real world behind your renderings, behind your 3D views and behind all that. So to me, this is just a really nice technique. And if you don't like that, you just swap it out. You just find a sky that looks good to you, because the kind of sky you put behind a building makes a huge difference in how that building looks.

And then the other thing about Revit that's always been the most powerful tool from a presentation standpoint is play with your sun. Hopefully we've all become very experienced Revit users, and none of us cheat north. We actually put north where north really is, because I can tell you now 10 years ago, boy, it was a pain to make true north north, and people were calling any which way north. Then they couldn't figure out why their perspectives looked odd, because west was north and north was east. It was kind of crazy.

These are the same drawings, same view. To me, one just looks better than the other. I'm not saying that one's the right way, but the reality is the one in the upper right-hand corner is technically artistically more correct, because you're not supposed to put a dominant face of a perspective in shade. That's kind of graphics 101 that they teach you. But also I know that the one on the bottom here that puts one whole side of the building in shade, that actually looks better and communicates better, not to mention the trees look better, the site lays down better.

There are a million reasons to use the one on the lower left. But it's important to just play with your sun angles. And when I say play with your sun angles, I literally mean that. I think everyone will agree that if you have a building with a great big monstrous Frank Lloyd Wright-

style overhang, the last thing you're going to probably do is pick a sun angle that's really high in the sky. Common sense, your whole building would be in shadow. So if you have a huge overhang, your brain is telling you, OK, that means I want the sun maybe low. So I'm probably looking at earlier morning, later afternoon.

Now you look at your building and the view that you've chosen, because you've obviously picked your perspective, because that's the most flattering view of your building. And you go, well, I'm obviously now looking at it from the west side of the building. So what that tells me, this isn't going to be a morning shot. I'm going to want to see an afternoon shot so the sun's on that side, casting a shadow.

So I've instantly narrowed it down to I'm going to be late in the day, and I'm going to be looking at it from the left, but now I'm going to want that sun as low as possible. And we all know that the way the sun works in our hemisphere, the further back the sun is, usually the more towards winter. And as you get toward summer, the sun starts getting over your building. So just knowing that, you can quickly start playing with the sun.

And to me, there's a huge difference between taking a drawing like this and coming in and under your lighting you'll see this is out of the box, in session. It usually takes it at a certain angle at a certain azimuth, and we just use that. But I'm telling you to go ahead and set it to a time of day to still, and locate your project where you really are, and just for once, just start playing with the time. And watch what happens if I just change it two hours. Well, that went the wrong direction.

So what happens if I go just one hour? Still kind of ugly. So if I go to 11:00, I'm starting to get a little bit of shadow right here. 10:00 was what I had. If I go to 9:00, ooh, I lost everything all of a sudden. So I know I'm not going to want that. So maybe I need to change the month of the year. Maybe I need to go more towards the winter months and see what that does. Oh, that's looking kind of nice. I'm picking up some shadows on the tree here. I'm getting some nice roof overhangs.

But I'm going to want that sun maybe a little bit higher in the sky. Not great, but see what I mean, though? You change the whole feel of the building. And this is just a matter of whatever looks the best to you. You can make it whatever you want. But give yourself at least a little break and make it look as interesting as you can.

So that's why I say play with your sun angles. Sit there and experiment, because how you

make these things look in nonrendered views is huge. How they look in rendered views is critical. So to me, there is a huge difference between the two, and I'll show you. There's a slide that will show you that.

I'm not going to talk about design options, but does anybody use them? Wow. Good for you. Design options is probably one of the hardest things to use in Revit, because it kind of is a mental thing. And if you can use them, good for you. I'm assuming we're using them during the design phase or are you actually incorporating them into your working drawings?

AUDIENCE: [INAUDIBLE]

STEVE SHELL: To me, they're wonderful for working drawings, because they keep track of your additive alternates without creating separate jobs. So if you have two or three alternate bid items, they live in the job all at the same time, and you're not creating duplicate projects and trying to edit multiple projects.

Graphic overrides. This just talks about phasing and how you show your phasing. I'm assuming we all play with our phasing and how we show that-- demo versus new construction versus existing. Because I want to focus on more fun stuff. This is the whole speech I gave on coming in and getting your client involved in design.

This shows you the three different steps in my brain that I go through when I pitch a design. The first design is nothing more than usually a black-and-white view with a little bit of wood added or a little bit of glass just to make the drawing look pretty. But it's there to discuss the building design. We're here to discuss the form, the square footage, the shape, the orientation, the layout on the property, whether the client likes sloped roofs or flat roofs. It's the overall building design.

The last thing I want to do at this stage of the design meeting stage is come in with any other drawing that starts to insinuate brick, because then the conversation will immediately turn to brick and the fact that they don't like whatever brick I picked. And then we'll start talking about brick for 20 minutes. That's not what the meeting was for. The meeting was to talk about the shape of the building, the form, the shadows, the real substance of the design.

And then as that gets done, and this is when you get your client involved early on, because they don't see a finished design yet. They still get all this input. They can then come back and say, do you think we could use some brick on the building? I really like brick. Sure. Yeah, I can

do a bunch of stuff, you know? Get them involved in the design process early, early on. And this is where black-and-white views are wonderful.

I would traditionally now do a sketchy line view at this early stage. And then as the design gets more refined, we start introducing materials. We start talking about the materials. And then little by little, if they pay me, I'll do a rendering. That's the important part. Don't give away what people will pay for. People still pay for renderings. So don't just give those away. That's something you leave in your hip pocket if they really want it. Most people don't even know you can do them yet.

So you don't divulge that. You just show them that in your portfolio, in your marketing, on your website, and then little by little clients will sit there and get tired of these little colored-pencil-looking drawings and then they'll go, how do I get that drawing that looks like that? Oh, well, that's 800, 900 bucks. I sit there and do those, but you know, we've got to wait. We're not ready yet. We don't have all our materials yet. You ease them into it. Remember folks, it's business. Number one, we don't need to practice anymore, right?

So when you start playing with your design-- remember how I showed you the glass block technique, because I wasn't sure what that was? This is the exact same exercise. I had a screen wall that went around this Jack in the Box that I was remodeling. I couldn't really mess with the roof, because it was a monstrous truss, and my engineer said don't mess with the roof or the whole thing comes off. So he said just play with it and work around it.

So I worked around the roof. But I knew I was going to do some sort of perforated metal screen of some sort, whether it was a wire mesh or perforated metal. I didn't really know yet. I just know I wanted it to read as a semi-transparent kind of thing. And as the client and I went through the design process, little by little it turned into a perforated metal that we were going to stamp. And we were actually going to stamp their little logo in it. It actually got to that level of design.

This was the one right before we turned it into their logo. But it's just a nice way to introduce a design element without it being finished so that the client could feel like he was part of this process, because that was actually a really expensive component of the design.

That perforated metal was like \$80,000, and that would be a really quick surgical cut to get rid of. But it's what kind of sold the design. It was the sizzle. Otherwise it would have been just a boring little stucco remodeling. So to me, the right tool was critical to show this and leave it

kind of flexible.

And then the other thing that's really important to do-- car ads. Has anybody noticed that cars look really cool in ads-- photo ads? Have you ever wondered sometimes that half the time you're looking at these car ads, the only time you'll ever see the view they're showing is as it's running you over.

Look at car ads from now on. You're going to see cars in ways you never want to see a car, but they look really cool. It's called dynamic tension. Dynamic anything. So to me, all of these views are really not the best view of the building. They're not how we would ever see it, unless you're in a helicopter. Actually the house below really is the way you'll see it, because you come down this hill, and you come dive-bombing into the house.

But for the most part, the only reason I like these, I use them in conjunction with more traditional views. But they kind of show the client what the building's going to feel like a little bit. They give you more of an emotional response to the building. Looking up at any high rise is always really cool. The best view of a high rise, just start photographing at the base and photograph up. I'm sure we've all done it. They don't really show the building that well, but they look really nice. So you kind of use those in conjunction.

And does everybody know just how easy that is to change in Revit? How you look at a standard camera view? If you come in-- and I'm just going to go ahead and take this view-- if you look what happens is in this one view-- where is it? It's weird. It's cutting this off, and I don't know why it's doing that. Yeah, I can't get it to show the rest of the Properties dialog. It's a graphics glitch.

AUDIENCE: [INAUDIBLE]

STEVE SHELL: Pardon?

AUDIENCE: [INAUDIBLE]

STEVE SHELL: Yeah, let's try docking it. There's another word for that, but that's not the one I'm thinking. Yeah, I can't get it to disappear.

AUDIENCE: Turn off [INAUDIBLE]

STEVE SHELL: Yeah. We'll just reboot Revit. Inside of that dialog box in any 3D view, there's eye target, and

there's elevation target. Revit out of the box is set to 5 and 1/2 feet on both, because that's the perfect perspective for the human being. Just go in and change that. Add it to where you're looking at this thing from, say, three feet on the ground, and your eye target is 200 feet. And that will give you that really cool view of looking up at a building. And just play with it. Don't ever try spinning your model in a perspective view. Has anybody tried that?

AUDIENCE: [INAUDIBLE]

STEVE SHELL: Yeah. We've all tried it once or twice, and we learn that's probably not the best thing to do. This just talks about putting yourself in a perspective. This is just perspective 101. It's OK to live with a little bit of distortion. If you can pull yourself into the drawing. You never want to look like you're standing back outside of the drawing looking at it. You want to make yourself part of the drawing. So pull it around you. Grab the grips, and it'll suck you into the drawing. And you can live with a little bit of perspective distortion. That's fine.

This technique. I actually won a bet on this one with one of the Revit developers, because he said this wasn't possible to do in Revit. Has anybody ever tried to put colors or solid backgrounds behind any view in Revit? You get the white box traditionally that's around the elevation. So you can't typically layer it like this.

But I learned years ago-- for some reason, I was playing with Revit, because that's what I do. And I like to see what it can do. So one of the things I figured out, if you go to an elevation view, what would happen if I just close it and then reopen it? Where's View? There it is. Well, at least it got rid of all that other weird stuff.

One of the things that I like to do-- hang on, I've got to shift my brain, because I forgot what I was going to do. Oh, the background. So go to an elevation view. And one of the things that I learned to do a long time ago is if you first create a duplicate of any elevation, just say duplicate it, and that'll give you a duplicate view. And then I typically rename this just to keep track. I'll just call it background.

Everybody agrees and knows that when you're in a sheet view, you can take any view and put it on top of another view. You can do this all day long. I'll show you a couple of presentations where I just keep layering view upon view upon view upon view with different settings so that I can kind of create what I'm trying to create.

One of the things I learned to do is I'll create multiple elevations on a view, but one of the

things I'm going to do is I'm going to mess with this background view. So once I have it set, I'm going to just zoom out, and I'm going to tell it I want to see a background. And for right now, we'll go ahead and pick a nice color scheme, because I feel like being bold. So we're going to just take a nice pretty blue, and we'll come in and leave the bottom white. OK. So that's my background.

What I am going to show you is just kind of silly, but it works every single time. Go ahead and turn on the grips for your border so that you can highlight this and basically just kind of stretch it out a little bit. But one of the things you're going to want to do is you're going to want to take this highlighted area and get it off the model.

Now, this is the warped thinking. The warped thinking says this is still an elevation Revit knows there's a model in it. You cannot place a view without a model element in it. I've tried everything. Revit says there has to be a model. Well, there's a model. I'm just choosing not to look at it. So now go ahead and open up a sheet view. He sees it coming. And we're going to go and place this background right on the sheet.

Now traditionally, I would get rid of the view title, but I'm not going to mess with the Properties dialog box at the moment. I'm not going to-- I'm a little gun-shy of it. But watch what happens when you place an elevation on top of this elevation.

For whatever reason, Revit alpha channels the sky and it alpha channels the entire background of any view within Revit. I didn't know it did this and neither did the Revit developers, because nobody ever did this before.

And this is the only time this event will ever really surface. But to show you how cool this can be for presentations, to make this further, you can then just drag another elevation and place it on the view. You can start to arrange these things in such a way.

The possibilities are absolutely endless on this. And to make the one and start playing, just activate the view that has the sky, and start playing with the grips to where it entraps the entire drawing and covers it up. If you want to, you can make this even bigger. And then come in here and grab another elevation and maybe put it up here. Come on.

AUDIENCE: You have a view activated.

STEVE SHELL: Oh, I still have view activated? I don't anymore. There we go. OK. So this is how you start to build this background. But now imagine this-- we're not going to go through the exercise-- but

just imagine this. When you do a presentation on multiple boards, multiple sheets, part of the exercise of that used to be you would always have a theme that ran through all four boards, whether that was a border along the bottom with your title block. It was a ground plane, and you put all your sections and elevations along the bottom, and you had that nice earth grounding your presentation. Maybe you did a sky or a mountain range that meandered across it.

If you were Frank Lloyd Wright, and you were doing a presentation for falling water, you actually had this beautiful waterfall river kind of drawn. And you placed the three different floor plans along that. The possibilities are endless. The same way-- remember, I showed you in backgrounds, you can use photographs? Those could be floor plans with a background set to photograph. And you can literally take photographs of your site and start placing views on top of that. Your own imagination is your only limitation here. I'm just trying to show you now that this is possible within Revit with no effort at all. Yes.

AUDIENCE: [INAUDIBLE] for elevation?

STEVE SHELL: No. I'll use camera views, perspectives. They all work. It alpha channels all of them, for whatever reason. But now, if you want to give this background a fun little shape like I show, all you do is just go into your annotation and grab a masking region. I miss my little shortcuts. Where is masking region? It's here somewhere. There it is. Thank you.

I'll do a simple one for right now just with straight lines but splines do work, by the way. But I can come in here and just add an angle. And what happens is you can start getting kind of artsy fartsy. You can actually create a ribbon of sky across all of your elevations the way we used to do it with prisma color skies. You'd create this ribbon that kind of meandered across all your elevations, if you had your elevations. You can do borders like I showed on that very first slide. To me, this slide right here kind of shows how I use these just very simplistically.

On a presentation board, I just wanted to have a border on to land and highlight the drawing. So they were against a dark background, because the drawings read better. The drawing down there in the middle, the basic presentation was all based on a square within a square rotated. So that's how I came up with the square within a square, and I just rotated it.

The curve was just an example I did for the class. And I kind of liked it, so I did a screengrab and I used it. But this technique can be used for absolutely anything that you're doing within a

presentation, to where once you do this, literally-- and you can start layering this. You can create another elevation with another sky color and actually have it work along with this, just depending on how you set up your sheet.

Because I've done presentations where I've had the sky ribbon on top, but I've had the earth down below. And it just looks really cool. And everybody sits there and assumes you're doing all this in Photoshop and you're not. This is all just native Revit. It takes no work at all. No extra power. And it's just a really powerful-- to me, a graphic technique. Does anybody have any questions on this in particular?

AUDIENCE: I think it's cool.

STEVE SHELL: Thank you. Does anybody think they would use this?

AUDIENCE: Oh, yeah.

AUDIENCE: Yeah.

STEVE SHELL: Yes. You have a question?

AUDIENCE: I would use it, yes. And does the background always get in the back [INAUDIBLE]?

STEVE SHELL: It goes down the way you place them.

AUDIENCE: [INAUDIBLE]

STEVE SHELL: That's always a secret. I've messed that one up a few times. But the cool thing is, you can actually create a view inside of that little window, because you create a background. And you actually create this void space that you can put a window within that little background area. But it just depends. I mean, this is obviously art, and it's hard to justify to your bosses sometimes that you're spending a lot of time doing this.

So I've come up with ways that I think are really quick to get a maximum amount of payoff and bang for my buck. Because although you have to worry about a boss worrying about your hours, I have to worry about my own time. That's my sleep I'm eating into or dinner or now time with the family. So I kind of care how long things take.

This is what I was telling you about overlaying view after view and changing the visibility settings. I did this exercise because I got tired of explaining to people-- contractors, city,

clients, everybody-- that there was a Jack in the Box under this. You can actually see the old shake tile roof. It's there. There's an old Jack in the Box. There's the old roof, and there's the main roof.

And I tried to explain to people it's really not that hard, folks. I'm just building this little frame. And I'm just dropping it right on top of the roof. And the minute they heard that, they kind of figured it out. And then I went, I'm just getting tired of describing this. So that was the drawing I came up with.

I basically set a view to nothing but anything new. I got rid of all the existing, duplicated it three or four times, took the entire view and ghosted it different levels of transparency and different levels of halftone. And then set the view on the view cube to the corner so that it always oriented exactly the same way.

And then I just started stacking one upon the other and seeing which one looked best, how high to raise it. And it kind of created this animation view, to where it looks like it's dropping down on top of it. And a lot of people think this is all Photoshop, but it's not. It's just simple Revit.

But that's the joy of Revit-- model something correctly, have it in the computer to where it's 100% accurate-- it's everything-- and then all you have to worry about is how you're going to look at it. And that's the hardest part of Revit. Once you learn how to model, that takes you maybe six months to a year, you're done. What's left to learn? How to make your drawings look good. I mean, that's what we struggle over, over and over and over again.

And then that same technique I did here. I was trying to explain to the contractor and the owner what I was doing to his tilt slab building that they said I couldn't remodel. I'm a firm believer of I'll do whatever I want, thank goodness, because I'm an architect. So I just cut off part of the whole front of the building and said I'm not messing with any panels. I'm just going to reframe it.

But I wanted to explain to people that this building had a lot of different components that, yes, it's complicated if you look at it in its entirety, but when you look at each individual component, it really was a simple project. So I just kept taking view after view, floor plans, 3D views, isometrics and then just started isolating elements to where you didn't see the rest of it.

It's all the same view, just duplicated over and over again and then trading out to

transparency. And then placing it in such a way that it actually looks like I'm dropping something down, I'm moving something over. It could have been done with assemblies and all that. Revit's really good at it now. But it doesn't give me the visual control I was looking for this way, because I didn't want to assemble everything into groups. Yes.

AUDIENCE: So on the view on the right, where did you add the dashed lines that were showing the [INAUDIBLE]

STEVE SHELL: That's a pure drafted red dash line.

AUDIENCE: Well, I figured that, but if you do it in the sheet--

STEVE SHELL: In the sheet view.

AUDIENCE: In the sheet--

STEVE SHELL: Has to be on a sheet view, because all this has to be done on a sheet. You can't actually create that view in Revit.

AUDIENCE: Right.

STEVE SHELL: But in a sheet view, man, anything's possible. You can do all kinds of hell in a sheet. And you just control the visibility of your title blocks, and you create new families that don't have title blocks and things like that.

This is just my favorite subject that's another whole class-- how to incorporate AutoCAD and Revit. That's about as bad as it gets, incorporating AutoCAD and Revit, because I was just too lazy to duplicate everything my landscape architect gave me. And he is 100% AutoCAD. So there is a ton of AutoCAD in that. And, yes, I do partially explode stuff. I know. I'm bad. What can I say?

This is an example of how to be lazy. This comes from hand drawing, folks. I didn't want to draw two complete floor plans of this balcony, because the balcony had two different views. One is I wanted to show the glass and dimension it, and then I wanted to show the planter above it.

So rather than creating two entire drawings with two separate notes and duplicating everything, I just did one drawing, noted the heck out of it, dimensioned it, and then duplicated the view and set the cut plane to where it cut just the glass. And then just put it on the sheet,

moved it over, aligned it, and I just grabbed my levels, my section cuts, and my dimensions across both drawings. And didn't give it a title, because in the old days, when you drew it by hand, you really had to make a decision, was it worth drawing, because it took a lot of labor to do it. And then you would figure, do I really want to letter this thing twice? Nah.

Trees and people. How many people are happy with the way your trees look in nonrendered views? Show of hands. Anybody happy? You don't like that? Cotton ball puffy little paper cut-outs. How many think this looks a little better? Mixing AutoCAD and Revit again. There I go. Most of those are CAD files, old DWG blocks that I found online. And then the tree on the right, and they're spread out throughout, are actually the original trees in Revit prior to Mental Ray when it was Accurender. And they did what we call the dead twigs. I actually still like them.

But one of the things I learned is I can cheat how Revit chose trees and, very simply, what I do-- let me undo all this. This view will show it really nicely. Remember early on, I hit this to coarse and suddenly my trees turned into those? Was anybody curious what that was? Not a lot of curiosity people?

What happens is I learned that if I'm going to render this scene or do a realistic view, I am forced into using the RPC trees that come in Revit. YinYin, [INAUDIBLE], Ron, deciduous trees, deciduous shrubs, all that stuff. They don't look great in these nonrendered views.

Now, we're lucky that the palm trees almost are tolerable. I see most people still use those, but the other trees, the deciduous? Oh, my god. They look hideous. But you need them in the model, because if you're going to render it, they have to be there. I just came up with this really silly notion that why do I have to look at them?

So what I learned to do is if I set this to medium, you will see that for every one tree, there are actually two trees. I'll say that again-- for every one tree on my project, there are actually two trees. So if I go to a floor plan or a site plan, and I zoom in here, you will notice that there is an RPC tree, and there is a CAD-- well, I opened the family. I apologize.

There is this CAD file tree. And they are controlled by whether I set the view to coarse or if I set it to fine or if I set it to medium, I can show both. Because I have learned there are times where I want to see both trees, and I'll pick and choose which one I want to see. I'll just override graphics on that one view. I might want to see one of each, because one might look good. You never know.

But the way you do this is really very simple. You just open up the family in the Family Editor, and if you highlight this, under the visibility, you'll see you can decide whether or not they're visible and coarse, medium, or fine. I just turn off fine. And then I save it, and I'm done.

And then I do the exact same thing for the CAD file tree. And this will show you-- this is a CAD file. If I spin and turn this, you'll see it's just a stupid little CAD block. It doesn't do anything. I can't edit any materials. I can't really do much to it, but they really look nice.

And I've spent years and years combing the internet for content. But there are tons of it from all you AutoCAD users over these years. It's all there. You just gotta find it. So I just turn on this, and I set its visibility to only show in fine and medium. And that's how I control my trees. That way, in any view I do, I actually have two complete sets of trees, depending on what I want to show. And for that it makes it to where I can then control how I want to see this view.

Not only do I do this with trees, but I also do this with my people. How many people are happy with the-- oh, I lost-- see, I lost it. That's what I was worried about. I don't have my visibility control. What I did with people is, if I open this family in the Family Editor, I did something really sick. How many people remember Chartpak? Show of hands. There are a few people that remember Chartpak.

Chartpak were rub-on people, trees, cars, entourage, for people like me that didn't want to draw them. So when we were younger, if we wanted to have people, we would buy a sheet of Chart Pack people, and they would come in every scale. They were like \$12 a sheet. They were really expensive. Only the big firms could afford them. We would buy them, make Xerox copies and then I'd sell them. So I actually made money off these.

But we had, at every scale known, every kind of person, tree, plant, car, flag, you name it, we had it. We called it a morgue, and that's what we traced. So I knew these were out here. So I searched the internet for all the Chartpak content that people made over the years, turning them into DWG blocks. And what I did was I found the exact Chartpak, believe it or not, that somebody did do, and what happens is in any one family, there are actually three things going on.

There's this guy. He's the Chartpak person that someone turned into a CAD block. He actually mimics the pose of the guy in Revit, the way he looks rendered. And then I took just a simple mass-- well, I think I did this has a default wall-- and I traced the DWG and created this mass so that what ends up happening is I can sit there, and I wish I could show you this, but I can't.

I can come in here and highlight-- yeah, I have no way to control this visibility without being able to see my little checkboxes, yes or nos. But what happens is I can check this off to where I can show either a-- let's see. We'll see if it renders, because the RPC guy-- yeah, see, I have them turned off. Oh, is he going to be visible? Nope. I can't see him. I apologize. I wish this didn't happen.

But what happens is, that little CAD person is a wire frame drawing. I have it set to yes or no. I can turn him on and off. I have the RPC person that comes in Revit-- you know, the little guy when you hit the spacebar, he dances for you? We all like him. And then I have the mass. And what the mass is, that's actually something that when we would draw in the old days, we wanted to insinuate people without really seeing people. We just wanted to have a crowd. And we would put a ton of these on a drawing, and that's how we mimicked a crowd. But this was my workaround.

And if you go into my handout, you will see all this written out. And when you go to download my class materials-- eventually when AU figures out how to let me do it, because this isn't a lab, they don't have a way to let me yet-- Each one of you will have access to one of my people so that you can take this back to your office and play with it and figure out how I did it. It's actually-- you see, it's really simple. None of this stuff is rocket science. So that's in a nutshell my key things on this.

And then I just want to show you really quickly, for those that say Revit can't render, Revit actually does beautiful renderings right out of the box. This shows you what 20 minutes of a sun changes a rendering. That's the exact same rendering 20 minutes apart. All the materials shifted, the glass became transparent. All kinds of things happen in Revit.

So when you're doing renderings, it's an art form. I teach a whole other class that's an hour and a half just on rendering. There's a lot that goes into it. But for every rendering I do, I get four renderings for the price of one, because if I've gone to the trouble to set up materials and set up my scene and do everything I've done, it takes me about a minute to create a sunset view, another minute to turn on my lights, create a nighttime view, and then another minute maybe to change to a sunset view.

Because the work is done. The rendering is set up. Now all you've got to do is just change the sun and then play with the post-rendering settings so that you change your exposure. That's it. So for every rendering I do, I actually do three minimum, because a sunset and a night shot

are really nice to do.

So for me, when people say you can't do pretty renderings in Revit, I kind of say pshaw. These are all done-- this is the overlay technique, just superimposing the old with the new and getting the real world in there. And then render your elevations. They're almost free. They take no time at all to render, because there are very little bounces.

So if a rendering traditionally takes 10 minutes or 20 minutes, this will take you-- I don't know-- 15 seconds? Because there's no bouncing. There are no reflections, basically. And then render your floor plans. Clients have never seen these usually. They look really cool. They make for wonderful presentations. Just pick a couple of floor materials and you're done. Give it a shade and a shadow, because they're cut at four feet. So you'll naturally get shadows. Dim them down a little or make them really, really bold, however you choose to do it. But clients rarely see this kind of thing. And it really does impress them.

Same with doing a reverse perspective. Set your sky to black and your font to white, and you kind of create a negative. And then my first presentation in 2003. I think it was actually 2002. I lied. But that was my very first Revit presentation. So practice does make perfect. So don't be discouraged. And then please fill out your surveys. They're critical to us. They don't ask us to come back. So we always appreciate that. So has this helped?

AUDIENCE: [INAUDIBLE]

[APPLAUSE]

STEVE SHELL: Thank you.

AUDIENCE: Good work. Thank you very much.

STEVE SHELL: Oh, thank you.

AUDIENCE: I do a rendering in AutoCAD.

AUDIENCE: Thank you, sir.

STEVE SHELL: Thank you.

AUDIENCE: But I just started in Revit. So you've been a great help. I appreciate it.

STEVE SHELL: Oh, wonderful. I'm glad to help.

AUDIENCE: I thought I knew Revit.

STEVE SHELL: Huh?

AUDIENCE: I feel-- I thought I knew Revit. But after this class, I know shit.

STEVE SHELL: No. You do know what you know. You do know what you know.

AUDIENCE: [INAUDIBLE]

STEVE SHELL: Thank you. I appreciate that.