ROBERT GREEN: Welcome everybody, how's AU been for you so far?

AUDIENCE: Good.

ROBERT GREEN: Good? Ready for the party this evening, correct?

OK, so this class actually runs a little bit different. We are being streamed out through AU Live. So the ground rules are going to be just a teeny bit different. If you want to submit questions I've got information for you up there. You can submit through the Twitter feed, @AULiveStream, or you can use the AU App on your phone and just check into the class and post.

And then my assistant, Rick Ellis over here, is going to be moderating the questions. And we've got a couple of breaks where we're going to look at maybe answering a few questions. And for the live, for you actually here in the room, I'm happy to talk to you after the class has concluded.

My name is Robert Green and what we want to talk about today is about being a CAD or BIM manager. So I suspect most of you fulfill that job title, or if you don't have the job title, you probably function as the CAD or BIM manager within your company anyway. Whether you have the title or not. What I'm hoping that we can do through the process of this class is to give you some concrete ideas, suggestions, methodologies that you can take and hopefully apply to your own usage. I hope that everybody gets a few cool tips and tricks out of the class presentation.

I'll give you a little background on myself and we'll see what we have in common. So for me, it started with an engineering degree. And at some point I was actually dumb enough to raise my hand and volunteer to be the CAD manager. So you hear people laugh and that's true. So I would definitely feel your pain, in terms of dealing with people inside of the office and trying to get everybody standardized. And all those types of problems that we all tend to fight and struggle with.

I do maintain a Facebook group called CAD Managers Unite! If you would like to drop by there, there's typically some lively discussion. And I also maintain a link on my website for CAD Manager Resources as well. Feel free to email me if you like.

Let's go ahead and get started then. And I always like to put a picture of Albert Einstein in anything that I do because he makes me think. I always figure that I the guy can figure out how the universe works, surely I can figure out how to get people to plot correctly. Although, I've been dealing with that for 23 years and, not so much.

So let's use Albert has our inspiration today, and let's promise ourselves that we'll do the following as a CAD manager. We will always think about what's going on in our environment. We will try to think differently about how to solve problems. We won't simply walk around fixing the same problem over and over, we'll think about why we're having the problem and what possible solutions we might be able to employ to get those problems fixed.

My goal is to save the company money and to get management on my side. Because, at the end of the day, the only way I've ever been able to achieve anything as a CAD manager is if my boss likes what I'm doing, backs me up, and gives me the authority to be successful. Would you in the room agree?

So we're going to concentrate on some strategies like that. And I pulled a quote from Albert there, he says, We cannot solve our problems using the same thinking we used when we created them. Prescient advice. So as we move into the presentation, let's think about just how we can look at problems in a different way and try to propose solutions that might work for us.

Now to me, the job starts with actually understanding the expectations and the duties. What does senior management expect us to do? And you'll please notice that I'm looking at this from their perspective. Not what I want to do, not what I would like to do, but what does my management want, need, or expect me to do. And I've found that if I meet management's expectations, things tend to go better for me. That's my motivation.

So let's just go ahead and kind of look at the feedback that I get from senior management teams when I go into companies and work. Here's what they're telling me. I expect my CAD manager to keep the software and, for some of you, the hardware infrastructure running optimally so that work can get done. Now, it doesn't matter that 10 years ago we had AutoCAD and that was all. Now they expect us to support AutoCAD, Revit, visualization tools, internet-based tools.

Actually, in my surveys, 10 years ago the average CAD manager supported 1.4 pieces of software. Do you know what that was in the last survey? 5.7. So in 10 years, our software

support burden has more than tripled. So if you're experiencing this in your environment, you're not alone. Everybody else is seeing this as well.

They expect us to support the CAD tools, they expect us to support the projects. They expect us to keep things between the ditches and running so that the work goes out. Everything else is secondary to that. Would you agree?

I have never had a senior manager tell me, hey, here's a big stack of money and some software. Go over there and play with it for three months, and if you find something cool let mean know. That simply doesn't occur. They expect me to make their stuff work. They expect me to be in charge of CAD standards but they do not empower me to enforce them. Typically. And this is something that I hear very commonly from CAD managers all over the place.

They expect me to be on top of resource technology planning. Which almost means by necessity that I'm going to be involved in the budgeting process. They expect me to keep track of the files, the archives, all the pertinent documents that it takes to keep projects flowing. They expect me to manage people even though I'm not their boss, and they expect me to train people.

Now giving all those expectations out there, does this job easy to you? I wonder why it's tough. It's tough because it is tough. We have to figure out a way that we can make management understand how tough it is. So we'll be talking a little bit about that as we spin through it. I just wanted to go ahead and cover this briefly, because I wanted you to know that you're not alone. This is what all of us are experiencing. These are the pressures that all of us feel.

If I had to pick a set of skills to emphasize, I would say learn all the software that you can so that you can be most effective at support. And be as strong in project management as you can so that work goes out. Everything else kind of seems to be secondary.

So, given that and given the expectations, what kind of tips, tricks, hints, could we use to most easily excel at our tasking on a day-to-day basis and get maximum results? A reasonable question, and it's something that seems to change over time as technology changes. So let's just go ahead and throw a few ideas out there and let's see what makes sense to everybody.

For me how it started as a CAD manager was I worked way too many hours. And I walked around the floor responding to users. And every time I walked past somebody's cube, they literally almost reached out and grabbed me and said, hey come in here and look at this

problem. At the end of the day, 10 hours later, I don't think I had anything more done than when I walked in in the morning. I just fought fires all day. I was not in control of my workload. I simply didn't understand what was coming at me. I didn't know how to prioritize it. And all I did was spin my wheels. So I don't know if anyone here has had that experience as well, but it seems to be something that a lot of us experience.

What it came down to for me, is to understand that I don't manage CAD, I manage deadlines. Don't believe me? Do this. Leave your CAD environment completely alone. Don't touch the software for five years. Have every project go out on time and see how many times your senior management we yell at you. They won't. They don't care about the CAD. Be extremely technically aggressive about programming, customizing, and integrating your software and miss a deadline and what do you hear? Lots of complaints, and rightly so. Because you're missing a customer commitment.

So really, at the end of the day, they expect me to manage the deadline process. They expect for the work to go out on time. Keeping production on track is number one. And it always will be, and it should be because that's why the company is in business. If you work for a multidisciplinary architecture firm, you're not in business to implement Revit. You're in business to design buildings. Revit just happens to be the tool you use to do it.

So don't get overly involved with thinking about the tools. It's managing the tools, and the process, that's really the job. Therefore, every task that I work on has to be tied to a deadline. I have to understand what the impact of that task is on my deadline.

Early in my career, I had a project manager pull me into the room and say, you know that project we have going out next week? I said, yeah the one that's got the 60-drawing package, full discipline, full submittal? He said, yeah. I said yeah, what about it? We're on track for that project. He said, well when are we going to get the micro-station translated files for that? And who had ever told me about that? Nobody. So what task went to number one on my task list right then and there? That one. I may not always like the surprises I get, but I have to make sure that every task I work on is tied to the next deadline in front of me.

Now the way I do this is by keeping a task list. I don't know how many of you keep a piece of paper with you as you walk around the floor and people ask you things. The advantage that I've found to a piece of paper is that the battery on it never dies. It boots quickly. And I can kind of keep track of things. I carry a spiral bound thing, so it actually remains chronological.

So I could spin back through and see what happened over the last few days. I just write everything down. When I get back to the desk, I'll put it in a spreadsheet and sort it around and filter it, and prioritize it. But the main thing is just keeping track.

This methodology of keeping track of tasks and tying it to deadlines allowed me to work on the right stuff at the right time. So now when somebody would come up to me and say, hey, we want you to work on a Revit orientation class for our senior managers. I could say, OK, fine but what job is that tied to? When does that really need to occur? Oh, it's just something we need to get done in the next few months or whatever. Well, that goes on the list but it's not what I'm working on tomorrow.

I wish somebody had told me this when I first start being a CAD manager. Because once I figured this out and started prioritizing things, things went a whole lot better. I also came to understand the two crucial rules of good managers and here they are. You manage the things that aren't working. You don't manage the things that are.

You say, well that sounds simple. And it's certainly not rocket science. What does he mean by that? As technologists, we're kind of guilty of going in and fiddling around with the software a lot. Because it's what interests us. It's what we do. So I'm over here customizing something and I'm really drilling way down into this program or I'm really minutely focusing on some detail of a nut or a bolt in an inventor assembly, when really the core problem is that this project that goes out next week has a technical flaw in it or is way behind. What should I be working on? That project, not necessarily the software thing that I want to work on.

Focus your attention on the things that are broken. Look at good managers around you and you'll see that's what they do. I want to have a sidebar conversation real quick. When I go into a room full of CAD managers, I'll frequently ask how many of you would say that your senior management does not understand what you do? It's really interesting how many hands go up. Let's go ahead and do that here in the room. I apologize to the people out there streaming. So we get we got a very good response in the room from that question. Based on the two rules I just outlined to you, do we now understand why our managers don't understand us?

Which management rule are they using on you? If you're competent and you get everything done, you're not broken, are you? So are they going to manage you? Probably not. But the bad news is, if they don't manage you, then they don't know what you do, and they don't understand your value. And if they don't understand your value, is that a problem for your

career? Yes. The next economic downturn, you become expendable. And I've seen far too much of that occur over the past few years, so I don't want anyone in this room to have that problem. So we're going to look at some things later, in one of the later modules here, and we're going to talk about how to communicate that. So how to retain your autonomy but yet make sure your management understands what you're up to.

Now do this well. Function well as a CAD manager and keep things going out on time, and your reward is going to be what? They're going to give you more to do, I promise. The reputation becomes, I don't know how she does it, I don't know how he does it, but it all gets done. And the projects go out on time. Therefore, he clearly must be under-worked.

Handle what they give you, they'll give you more. Every single time. I promise it. Now the problem is, at some point as they give you more, and more, and more, if you continue to say yes, yes, yes, yes, yes. You will over-commit and not be able to deliver on what you have promised. And I don't know if anyone in this room has ever made that mistake, but I have. And it's not a pleasant place to be. And there's usually yelling and all that. And I find that I work a lot better when I'm not getting yelled at, so I try to avoid it. If at all possible.

So when people start throwing new task load at you, you could say fine that will go on the list, but please understand that the task you just gave me is not related to a currently active or hot project. Is on the list, but it's not at the top of the list. And if they want to complain about that, then they have to do two things. They have to say that their item, their one thing that they want is more important than the project that's supposed to go out next week. Which is kind of hard to justify. And the second thing they have to prove is that they need more of me to perform all of these tasks. So maybe they need to make me less billable. Maybe they need to give me more time to do CAD management.

But either way, I'm going to have the argument in a context of supporting the projects and making sure that everything goes out on time. If you use this logic that I've just been through to manage your workload, you will not get in those arguments about why aren't you doing this? Why aren't you doing this? Why aren't you doing this? You'll say I'm doing what I'm doing because of these projects. Back that up with a spreadsheet, print it out, end of discussion. This is the only defense mechanism I know of from getting completely overloaded with tasking. Again it took me a couple of years to figure that out. I wish someone had told me that early on. Or I wish I'd asked the question early on.

Now I'm going to change, skip over to another topic here real quick. Because ordinarily I wouldn't talk about budgeting until kind of later as you got more experienced in the CAD managers role and you start worrying more about formal budgeting. But here's the thing. I find that budgeting is much easier to do if you do it in little bits and bites, a little bit at a time. And don't have to cram for it once a year. It's just kind of an ongoing, keeping track of it basis.

So let's just do talk just a little bit about the budgeting process. You need to budget in advance. The new workstations that you want are not going to be here next week. They're going to be budgeted three months from now, they're going to be allocated six months from now, and the machines are going to show up nine months from now. So getting anything done in a CAD managers role requires proactive, early, budgeting processes. Otherwise, I'm going to be stuck with old equipment.

I don't know if anybody here has that problem, but new plotters don't just materialize because I asked for it. They have to be analyzed and budgeted. So don't wait until you need something to ask for it. Proactively think about what you will need and budget for it ahead of time so that it won't be a surprise. Now I don't know what your budgeting process is, I don't know whether it's done through IT, I don't know if you do your own, budget to me it doesn't actually matter. The point is, whoever submits the budget must hear from you.

The CAD manager is the only person who knows what kind of machine it takes to run high-end, aggressive, three dimensional BIM. Or look at a 20 megabyte Topo file. This is not the same as checking your email, is it? So when you get just a plain vanilla office computer that's totally under spec for CAD, while I weep for you, I wonder why you weren't involved in the selection in the first place. Budgeting is what allows you to do that. The way that I budget is basically I just create a spreadsheet. Tabs for every major category of stuff that I need, so there's hardware, software, services, consumables, granularize it out as far as makes sense for you. I then record every item that I'm going to need in that category, what it's going to, cost and if possible a brief phrase about the justification for it. So, new plotter, $36,000, justification might be old one was installed in the Clinton administration. But hopefully there's a little more economical justification behind it than that.

What do you include in your budget? Everything. Every sheet of paper, every pen, every pencil, every training class, everything. If you skip over it you're going to have trouble getting it allocated. Now, just because you include everything does that mean you will get everything? No. But if you don't ask, you certainly won't get it.

I'm also a fan of printing some stuff out. Because I don't know if you guys experience the same things I do, but just because it was on the internet once doesn't mean it's going to necessarily be there again. So if I find something really cool, price sheets, quotes that come in from vendors, whatever. I tend to print it out and throw it in a folder. way I've got it. I'll purge it a few times a year for stuff I don't need, but at least that way I have it. This allows me to continually budget. Every time I just have a thought about what I'm going to need, what I need to budget. I just add it, pop it in the folder, a little bit at a time. Far, far, easier.

So now, coming back over to the more traditional CAD manager workflow piece. How do you dig in and really become successful managing an environment that has a bunch of CAD users that you are not the boss of? This is a typical question for most of us, and it's a hard one to answer. The only way that I've really found to be successful, ultimately, is to go to the user community and ask them what's broken. They'll tell you, and then you fix their problems. Slowly, surely, methodically win the users over and get them on your side.

It kind of works like this. Where are your productivity bottlenecks? Where are the places where the workflow breaks down? Traditionally, there's always a big train wreck around the plotter. It seems like any time there's output that's being generated for jobs it seems to always be a train wreck there. So there's some kind of bottleneck, right?

Well my goal, kind of like that traffic jam you see there on the slide, my goal is to analyze where the wreck is on that road and go clean it up. So we can get the traffic on the road flowing better. The operational questions are, what's slowing you down? What's broken? What would you do to fix it?

Just because we know we have a problem and we have a suggested solution doesn't mean we will be permitted to solve it. We have computers that crash all the time because they are eight years old. What I do to fix it? I'd buy nice new ones. Well if they don't give you the money to do it, that's problematic.

But there are a lot of things that you probably can fix. That you can do for the users. How do you get the CAD traffic flowing smoothly through your CAD department? I want to walk around and just think that way all the time. How can we do this better? What are we doing wrong? Where are the kinks in our process? You kind of need to become Sherlock Holmes in order to find all this stuff.

And incidentally, this is your absolute number one value to your company. Because if you walk around making things run better, you are ultimately saving that company money, increasing the profit margin, and you are valuable person in that topology. Do this, you'll get noticed. Spend all your time walking around complaining about what's broken? You'll be labeled a whiner. Walk around analyzing what's broken and fixing it, you'll be a hero. Especially to your users. And once management figures out you're saving them money, you'll be hero to them, too.

So what I would do, I would advise anybody, and if you happen to be looking at the course guide at the moment, the PDF file that was posted on the AU site, I've actually giving you a little space in the course guide where you can do this. But every CAD manager should be jotting down where their problems are, what the solutions that they would propose to fix them, and do this continually. I don't think you're ever done. Because as soon as you get your situation working just about right, what's going to happen? New software. New project, something's going to happen. So you're never done. That list never goes away.

So list out the bottlenecks, the problems, the things you'd like to fix. A rough solution. And then we'll start doing detailed analysis of the exact solution later as we dig in. But that way, at least we're recording it, and we're walking around with a proactive, fix it mindset.

Now here's what CAD managers tend to find. Standards, either we need better standards or we need people to follow them. Would you guys in the room agree? Yes. Project procedures, those aren't necessarily standards, but it's just like, folks can you please get the PDF files in the right folder? Just things that continue to be a problem. Lack of training, something that I hear from a lot of CAD managers, the inability to do that. Hardware issues, network issues, faster computers, that kind of stuff. File organization and just digital structure that we have to execute our projects within. It's the kind of stuff that most people would catalog. So it wouldn't surprise me to see your list of items be largely this list of items. They'll be unique to your company, but you'll have unique solutions to that.

What I want you to do is when you list that, do that homework exercise when you get home from AU. And I want you just skim down through that list of things that you write, and I want you to start looking at the ones that you can tackle immediately, that can really save the company some time. Those are the things that you go after first.

My focus now becomes on cost reduction. Save time, you'll save money. Goes without saying.

So I would leave that as a homework exercise for everybody.

Now what we're going to do is take a brief break to check in on social media thing. And the video guys are going to clip off this section, and then we'll start on part two here in just a moment. So I'd like to introduce Rick Ellis. Rick's from Portland, he's a civil engineering specialist with Autodesk software, and he's watching the feeds. And do we have anything to look at?

RICK ELLIS: Nothing.

ROBERT GREEN: Nope? Nothing has come in? OK, we'll go ahead and proceed to part two.

OK, so where we left off in part one is that we were looking at a list of potential problems, items that we would like to fix. We had cataloged them and we were trying to look for things that would allow us to save time in our day-to-day environment. My logic is that save time, you save money.

So how are you going to go out and sell your ideas to the user community? How are you going to sell your ideas to senior management? Because ultimately, the users have to use whatever you provide, so they better be on board. And ultimately your senior management has to permit you to spend the time to do it. So they have to be on board as well. I find myself in a unique position, in the middle, where I'm managing the user community but I'm also having to manage the expectations of the management staff above me. And what I notice is that I have to speak in two very different ways.

Users care about getting things done fast, easy. Management cares about saving money. This is what I like to call the faster, cheaper, modality of managing technology. It always works. This is the thing. Because you think about it, why would I ever change the way I work? Why would I ever change the tools that I use? I'm going to come to you and I'm going to take a software tool that you know and have used for 10 years off your desktop and put something totally alien to you, and tell you to go get your job done in less time. How's that going to go?

Does that explain resistance to tools from some users? It absolutely does. So the only three reasons why anybody would ever want to change the way they work is because, they got their job done faster that way, they saved money doing it that way, and what would be the holy grail? Both. If I can get things done faster and save money, which I actually claim is kind of the case because you save time you save money. Time is money.

But interestingly enough, when I go to users, oh by the way this is the only reason people will change the way they work. Period. It doesn't matter what else you say. Don't fight it, just appeal to their sense of laziness. Which is I want to get it done quicker. Anybody in the room a programmer? I am. You know why I became one? Because I was tired of doing things manually. Laziness, right? Why did I learn programming? To get things done faster. It's the only reason I would ever learn it.

So what I want you to do is to look down on your list of ideas, things that you're trying to fix, and I want you to format the discussion in this manner. Take these ideas to your boss. Take them to your users. Take them to anybody who will listen to you preaching getting it done quicker, saving money. I want to do this faster, cheaper faster, cheaper, better, faster, cheaper, you will become the faster, cheaper evangelist. Because that's what people are going to hear out of you all the time.

Now a funny thing happens. At first, people are very tired of hearing that. But then you fix some of their problems and you really do make them faster, than something interesting will occur. They'll start coming to you with ideas for how to make things faster. And that's when the psychology's really kicked in and taken hold. When your user base is walking up to you, hey I had a great idea for a way we could save some time. You're home free at that point. Because you're not having to push anything down anybody's throat. Works great.

If you can get people to start working in a new way, let's say the complaint was we can never get our plots done correctly. We can never get our PDF files captured correctly. Well, why is that folks? Because nobody will put things on the layers I told you to put them on. Nobody will follow the standards. So how about if we get the standards right, I'll give you a little One Touch button and your PDF will just pop out and it'll be perfect. Will they use that? Typically they will because they get done faster. But what did they have to agree to? Standards.

But a funny thing occurs. If you say, hey pull in this template. Create your drawing in this manner, and then push this button. And your PDF pops out. Man, that's great! And they just use it and they don't even realize what you just did. You just implemented a standard. But you never told them that. The best standards are the ones that nobody knows they're using. Because they're just making people more efficient. So make things fast for the user, they will want to use your solution.

Your solution becomes the de facto standard. Because people are using it. The standard is

the thing which people use. I never send out a dictatorial memo. I never said use this because I said so. People are using it because it's easier. Because they get done faster. That works. Win the user over by increasing their productivity. You'll never be the bad guy and you won't have to have arguments about standards.

Will there be people who still will not get with the program? Yes. Will there be people who are stubborn? Yes, and we'll talk about that. But this methodology works with most folks who want to get quality work done, they just want to get it done in less time and with less stress. So I'm going to try to go win the user community over using this technique.

So what we want to do is expand your standards program bit by bit, solution by solution, utility by utility, program by program, however you want to break it off into small little bite-size chunks so that you can, over time, get more and more standards put in place. Now this does not mean that you radically overhaul your standards in your company in one month. But it does mean you radically overall how people work in about 18 months or so.

And what I really find is magic is when it's time to update your software version. That's a great time to put new standards in place. And that tends to happen on, even though they send you the disk every 12 months, the reality is it tends to happen about every 18 to 24 months for most of us. Keep at it, document it as you go. So if you had this cool little utility that you produced for One Touch PDF generation and everybody likes it and it just kind of spreads virally, go ahead and write it up. Do a little tutorial for it, something like that, so that now it's a documented standard. So when you hire somebody new, you don't have to have the discussion how do we generate PDFs around here? You just hand them this. I'm also a fan of doing that in video format for those of you who like to make your own training videos.

So I have gotten to the point now where I have driven new standards behavior totally justified by productivity and ease of use through the user community that will listen to me. What I have left to deal with is those who don't want to deal with it for whatever reason. So we call them renegades, cowboys, defiants, whatever you want to call them. For whatever reason they still don't want to follow the standards.

So what I'm going to start doing is having a standards discussion with my senior management. And it kind of goes like this, you put me in charge of this CAD technology. And you charged me with keeping the projects running and I understand that. That's fine, that's my job description, that's what I do. But I want you to understand what CAD can do for you. And here's a punch

list that I've been using for years, and years, and years with senior management staffs, it's very effective.

You go to them and say, look I realize that CAD tools don't make us money. I realize we don't run the whole company around Revit. We design buildings, Revit's a tool. I understand that tool doesn't make us money, but that tool can save us money if we use it right. Would you in the room agree? If people will just use it the correct way, we can save a lot of time, money, and energy. CAD tools also have the potential of increasing quality, because as I standardize the process and automate the process, the chance for user error goes down and consistency goes up. That's one of my primary arguments for standards right there, is let's reduce rework and errors by getting our work products more consistent.

We can save time and time is money. Are you interested in saving time? Do a productivity study like I did at one client. We just actually sat in the plotter room and we watched the man hours there were spent by people coming in, finding the plot not done correctly, wadding up the paper, throwing it in the recycle bin, 20 minutes later the same guy's back trying it again. This happens day after day after day, 240 man hours per year. I went and asked the question, what's our average labor rate? It was about $40. So you're telling me that we're willing to spend $9,600 for people to plot wrong? Because we can't train people how to plot right? You see how I did that? I just make the argument about money. I'm not spending the company's money, I'm saving it. That is the entire way the discussion goes.

I will then have this conversation. I want to implement standards so that we can become more consistent in our work product. As we become more consistent, our rate of error drops. Our rework drops. We save time. As we save time, I can also start to automate other processes because as things become more standard I can program them more. All this will save us money.

So my closing argument to senior management is let me help you save money. How can they say no to that? They don't say no, they simply want to be convinced. And this is when you show them that list of things that you're trying to fix. With some man hours associated with it, where they really do see how much time we're spending on this stuff. Let's get proactive and attack it, right?

Now what do I need from senior management? So when I'm talking with my boss, what do I need in order to be successful? I just need for you to understand the problem that I just

described to you. I need you to empower me to make the changes. That means I need some time to do it. That means I need some time to train people on how to use the standards properly. And when people will not get with the program, I need you to help me enforce.

So a message needs to be sent about standards. We expect you to follow them because it's in the best financial interest of the company, not because the CAD manager's being dictatorial. But because it's the smartest thing for us to do from a business point of view. And please, I would say to my boss, can you put out, can you put out, not me, can you put out a message to the CAD user community that we've had this discussion about standards? And that senior management expects them to follow along? Because that gets everybody.

Now, if you can get your senior management team to agree to these items, you should be good to go. The only thing that I would say is, when you have this meeting and the boss nods his head yes, say thank you. Leave the room as rapidly as you can, and start doing it before they change their mind.

The hard core violator. How do you deal with them? Common problem, I mean we all have this problem. So how do we deal with the people who just simply won't get with it? Well we've had a discussion with senior management now. We've made the argument financial. This allows me to go to the violator and use the following process.

Here's what you're doing wrong. You sent a batch of files over to the other discipline here. They weren't on the right coordinate system. They weren't drawn on the right layer. They didn't use the right family. Whatever the problem is, you sent this stuff over with errors in it. You're violating our standard operating procedure. You're causing rework for this department, and it is costing us time.

So here's the problem, you're violating the standards. Restate the standard. I need you to do it this way, because that's our procedure. That's what we agreed to. Management says you should follow this procedure. At this point, I will go to them and I will say you tell me how to do it better. Once in a while, they'll come up with a better way to do it. And if they come up with a better way to do it than I've come up with, more power to them. I'll do it that way.

But if the answer is I've always done it that way, or that's the way I prefer to do it. I had a guy tell me in class once, we've always done it that way is not a reason it's an excuse. Now I really like that. If they still will not comply having gone through this process, then I show them the dollars and cents of what this is going to cost.

OK you passed this batch of files over into this department. This is going to cost 20 hours of rework, and when they do the 20 hours of rework, please understand that 20 hours is going to go on your cost to the project. Not theirs, yours. Will somebody notice that when it goes on the time card? A few weeks later, but yes the project manager will catch that eventually.

So I'm just making it about money. I'm saying look, I'm not doing this to be a meanie. I'm doing it because you're wasting time and money. Management wants us to be lean. They want us to get this stuff done as well as we can. I hope that we have an agreement now, and we're not going to have this discussion again. But if need be, I am prepared to go to your boss. Which doesn't make me popular, but there are times when it has to be done. And I would just leave it at that.

If you do this, though, if you go to their boss, make sure that you have the data on the costs. Make sure that you have the man hours and you can back up what you said. This may be a wake up call to their boss. That's what I've often found is the case. So just make sure that you've got your ducks in a row and go have the discussion.

And I think you'll see now that hard core standards violators are simply wasting the company's money, and that's an indefensible position. You simply can't justify that. This methodology, while not perfect and while it does require work on the CAD managers part, is the only way I've ultimately found to be successful.

Quick pause.

So moving forward with the third segment of the presentation, what I'd like to do is talk some about training and a few other topics that I think are applicable for almost all of us who do CAD management. I go into a room full of CAD managers and I say how many of you have the training program you'd really like to have for your users? Let me do the experiment in this room. How many of you have the training program you'd really like to have? One. Two. Maybe four hands.

So this tells me that most of us are laboring under the inability to train our users effectively. I'm going to go ahead and ask the question, why is that? I think the reason why training is not approved is because training has a reputation of costing too much money. Now when somebody is attending a training class, those of you who are attending AU right now, what is the major cost of you being here? You're not working. You're not billable. Every hour you're

sitting in training, you're on overhead for all intents and purposes.

So if I'm going to put you in the training room and spend your time in a training room, I better deliver to you in this one hour enough knowledge to gain you back that hour over the next year. If so, I paid for your training. If I give you enough knowledge to save seven, or eight, or 10 hours in the next year, that's great. If I gave you a key Nugget that allowed you to save all 50 of your operators two hours a piece, that's pretty huge isn't it? So training can pay for itself if you do it right. If you target it and focus it.

Training must achieve a verifiable result. That is the person must leave the room demonstrably smarter then when they came in. They must have acquired some skill that now makes them more efficient. This is why I'm not a big fan of come in for an hour and let's talk about cool stuff. Cool stuff is cool, but how do I hang dollar sign on that? I really can't.

So training to me needs to be short, specific, and highly-customized to teach people specific skills but they need to be more effective in our work environment. And what you'll notice is that has a fairly high correlation to your standards program. I spend most of my time now teaching people the standard work process that they should be using. I make training pay for itself by lowering the labor cost once people leave the training. If a training class will not make users more efficient, I will not have it. Nor do I expect my management to pay for it.

This conversation needs to be had with your management team. Not your users, because if you ask users do they want training, what's their answer? Yeah, I want training, I want to come in and grab three slices of pizza then look at my phone and leave. That's how that tends to work.

But if management prioritizes training and they see it as something that will make them money, they'll actually compel people to train. Wouldn't it be nice to have that problem? To have your management insisting on you training people? If they understand that it's in their financial interest to do so, they might. We just have to have that discussion with them.

So what it comes down to for us as CAD managers is what am I going to teach people? How am I going to run a training program that meets this criteria of paying for itself and of delivering real value? Well I claim if you put a piece of paper, I'm back to that analog thing, right, a piece of paper and a thing called a pen. I see a couple people using them. They're really old school. Put it by your phone/keyboard, and every time you get an email with a user complaint, or every time you get a phone call with a question what is somebody telling you? The problem

they're having working. That may be a good idea for training.

So what are people asking me? What do people seem to have the most problems with? What are the things that I see repetitively messed up in our work environment? Wasn't this kind of like the exercise of walking around the company and finding what's broken? It pretty much is, you may have already got that stuff written down. Where are we losing the most time and what could we do to fix it? You find those problems, I'll show you what to train people.

It's not rocket science. You just have to think about it and prioritize it. Almost all of these are standard or process focused. Let me give you an example. When xrefs first came out that was to me, the only problem I could think of it was worse than plotting. People screwed things up in ways I couldn't even fathom nor imagine. People understood what an xref was. They didn't understand how to set VisRetain. They didn't understand how to get view-port specific layers set. It wasn't that xref was the problem, it was the procedure of using it that was the problem. We needed a standard to control it. We needed people in the room trained to the standard. If I do that, problem starts to go away. And I start to save time.

So again, it's not magic it's just a matter of putting your training emphasis on the stuff that can save you the most time. So whatever will save your company the most time is the thing that I would train first. If your management allocates, OK you've convinced me. You've now got eight hours per year for training to spend on a CAD user. So this means about every six weeks I can conduct a training class.

What's the very first one you do? The one that saves you the most time. What's the second one you do? Next down the list. You're just constantly categorizing your problems, your standards fixes, and then you're training people to the procedure. Whatever speeds project execution and reduces error and saves time is the number one thing that you need to be looking at. And that's what my training program will center around.

Training should save money not cost it. I'll go ahead and say that again, training should not be viewed as something that costs money, it should be viewed as an investment that saves it. So make sure that the training program that you go argue for delivers on that metric. Do that, management will continue to authorize your training. In fact, they may give you more time to do it. They may ask you to start with lunch and learns and evolve towards an actual mandatory attendance on company time, but at least I can get there over some period of time if I use these metrics. Try it, I think you'll see that it's effective.

One thing I think is chronically important, crucially important for CAD managers, and we'll start moving towards closing things out for the session, is that if you're not telling your management what you're doing, they have no clue how valuable you are. Don't let this happen to you. Promise me that you will start doing some sort of regular interval report so that your management understands what you're doing. And just by show of hands in the room here, how many of you already do something like this on a regular basis? Very good. So the AU crowd is typically pretty proactive. Usually when I ask a room full of CAD managers at a regional event or something, it's more like a third or a fourth would raise their hands.

Why should you do this? Well because, number one, I don't have a line of communication open with my boss unless I'm telling my boss what I'm up to. There's no way she's going to understand what I'm doing, what I need, what kind of resources that I'm working with or how I'm limited unless I at least report it. A lot of you, your boss or the person you report to may not be in the same office you're in. You may travel. They may travel. You may not see this person for weeks at the time. It's hard to schedule face time with senior management.

Therefore I reverted to writing. Which I've done when I was directly employed, and I've done it in my consulting career as well. I get this line of communication open, I immediately start to dispel myths. Oh wait a minute, don't you just install Revit? I see the shortcut on the desktop that means we're done, right? No. If they have a trail of reports from you over the past six months chronicling your problems with trying to get BIM implemented, they at least have a chance to understand that it's not that easy.

So regular reporting builds understanding on senior management's part. Hopefully it leads to a more open and communicative dialogue with my senior management staff so that they're talking to me more. That's all I really ask. If they could just work with me and empower me a little bit, I'll do the work. I just want to get the conversation and the face time with my boss. I need their support. I need them to understand what I do for them. And I don't know any way to do it other than report to them on a regular interval. And you put it this way, who else can do this? Nobody. There's typically a solitary position. I can't think of any other time when I get in a room with 200 CAD managers besides AU. Normally, it's just me.

Here's what I started doing. An easy, simple reporting format that serves me well and communicates well to senior management at the same time. I simply keep a task diary. This is very simple. This is installed new plotter on floor number three. Configured new 11 by 17 laser

printer on fourth floor. Updated aviation computers to 2014. Just like that. It's chronological just so that I can remember what's going on. As I do that, I am essentially writing down what I did this past week.

Now, if you write down what you hope to achieve next week you can condense this down into a one page report that is last week I did this, next week I hope to do this. Send this to your boss at the same time every week so they know to expect it. And if your boss isn't a real great email person, or whatever, print it out and slide it under their door, or put it on their chair. I actually went out and bought a ream of green paper. You get it, right? Last name Green, green paper. So that they knew that when they saw green paper on their desk but it was coming from that pest of a CAD manager guy. And I kept it the one page so they'd read it. Do anything more verbose, they typically won't read it thoroughly.

So just get the tasking in front of them so they know what you're up to. My ulterior motive here is that I'm trying to show them that I am not an overhead expense, I am crucial to the operation of their projects. And in self defense of your career and your job, is it crucial that you not be viewed as overhead? Yes.

So when I report, I go out of my way to say fixed PDF problem for submittal of job A, B, C, D, E, F. Installed new solar calculation software for military base ABC lead design project. So I'm putting a little thing in every task description that shows what job I'm involved in. That way I'm not just playing with software, I'm making projects go out the door. And its subliminal, but it's crucially important that you do that.

I'm going to link CAD management to project execution. My argument is if I'm not there optimizing your tools, enforcing your standards, making things better and more efficient, your projects may go out but they'll probably go out late and you'll probably spend more time. Why would you want to get rid of me? I'm not overhead, I'm crucial. I am a production resource, not an expense.

Another thing I did which perturbed some project managers I talked to is when they asked me to do something that I knew full good and well was on a project, I asked for a charge number. OK I want to bill that to your project. What do you mean? That's not a project expense, you're on overhead. I wouldn't be doing this is if it weren't for your project, right? So get as many hours off overhead as you can on your time sheet.

Ultimately you may have noticed that there's been a theme that's kind of permeated

everything that I've talked about, which is I try to think like the boss. I've gone out of my way to do cost justification, I've really thought about time efficiency, now yes I'm still configuring CAD tools, I'm still a computer person, I'm still a technical person, but I can't do the technical things I need to do unless the boss is on my side.

And in order to get that management support I have to think like them, I have to talk to them in their native language, which is financial. So that's why I go out of my way to do this. Think more like your boss. Speak to your boss as a manager and what will happen is they will start to view you not just as the technical guy or the technical gal, they'll start to view you as the manager who happens to be technical. And they'll start to respect you as a manager. And that's when your career will evolve. And I see more CAD managers become engineering managers, project managers, it is a very upwardly mobile and promotable position if you develop your management chops.

So I don't know if you may be a design architect who is also coordinating BIM. Maybe architecture's your passion and management isn't. If not, that's fine but it's still not going to hurt you have your boss' support. I just don't see a bad side, I don't see a bad side effect of thinking more like your manager.

And I'll just ask you a few rhetorical questions. Who's going to approve your budget? Who's going to give you a raise? Who's going to promote you? Who's going to give you the authority that you need to do your job? Is it your users or is it your boss? It's management. So if you're not speaking to them, it literally pays to think like management. If you think about it from a career point of view, it pays to think like your boss.

And I would leave you in closing with don't just think like your boss, just think more. Walk around the environment just thinking about what you can do to make things run better and ruthlessly attack it. Remember, we cannot solve our problems by using the same thinking we used when we created them. So we have to walk around thinking about how to do things.

To summarize chronologically, greater savings typically are generated by having better standards, better training, better communication with your users and your senior management staff. This all leads to a more profitable company. It leads to career success for you. It's how I did it. It's how most successful CAD managers I know have done it.

And with that I'd like to thank you all for coming to AU. I hope you had fun. And feel free to email me with any follow up stuff. Please have a great remainder of AU. Have fun guys.

[APPLAUSE]