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November 2019

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- Training & Education: Definitions and Differences



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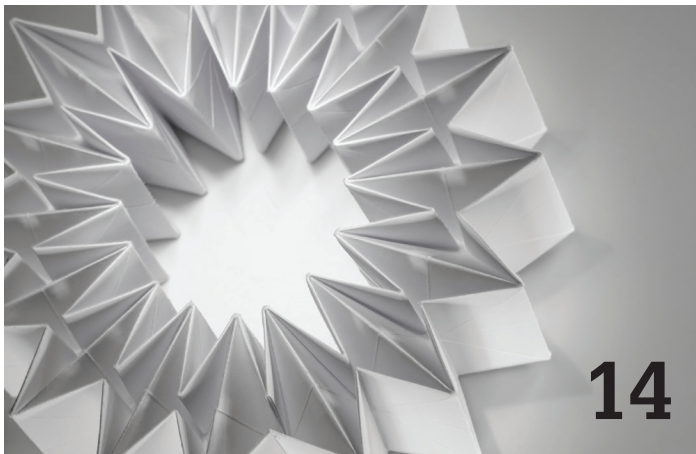
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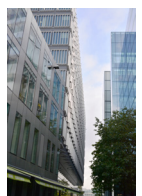
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Cover image:
Some random street in London, England
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Letter from the President



GREETINGS!

I am just going to come right out and say it. If you have employees, the best thing that you can do for them is to provide quality training from day one! If you are an employee, ask for training. There is a popular meme that asks, "What if we train them and they leave?", questioning the risk of training someone only to have them leave the job. The reply then says, "But what if we don't (train them) and they stay?!" Which is worse? The latter, of course.

Training as part of an onboarding process is critical to introduce new employees to company standards. But what about those employees who have been with the company for five or ten years or more? Do they still need training? Of course! Compare it to raising children (ok, ok, sometimes that is a fair comparison!). Parents do not stop training a child once the child reaches the age of five. The training continues until, and sometimes through, adulthood. Repetition is necessary, and each skill builds upon previous skills.

Training should be ongoing, especially in positions where software is constantly changing. I am so glad I have had training since my AutoCAD® R10 days! (Yes, I still stubbornly type in commands. Some habits are hard to break!) An hour or two per month refreshing techniques and standards can make a world of difference in productivity. The minimal amount of overhead spent on training will pay dividends in quality production.

Access to training has become so much easier with online webinars and courses. Check out one of our sponsors, CADLearning. There is a special discount on their training for AUGI members! Software resellers are also a good source for on-site or in-person training. Having employees take training outside of the office environment often helps them to focus on the training without the pressures and demands of work. Company in-house training on a monthly or quarterly basis is a great way for employees to train using real projects. Local community or technical colleges may also offer training for professionals.

As you may have guessed, our AUGI authors are focused this month on Training. Regardless of method, training is critical to the success of your employees, your company, and yourself! I am constantly learning new things even with the amount of time I have been in the industry. In the words of the great Albert Einstein, "Once you stop learning, you start dying." What a morbid thought! Keep learning, everyone!!

Cheers!

Kimberly Fuhrman
AUGI President

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Education & Training: Definitions and Differences



Let's first talk about the difference between education and training.

Education is when you are exposed to and become aware of a given topic.

Training is how you become great at that topic. Whether it is how to use Autodesk® Revit® or engineer a building, it is through the repetition of your skillset over time, which is training, that makes you great.



Learning about Revit and how to do something—initial education—doesn't always mean that you can do it. Remember the first time someone taught you how to import a model or a CAD background, then you tried to do that exact same thing months later and you were unable to? Why does this happen? It is because there wasn't enough repetition between the introduction and when you had to do it again by yourself.

Training and education are the two greatest investments a company can make in employees. Think of the best CEOs—they are reading an average of 60 books per year. Some of these books are first-time reads (education) and some are re-reads (training themselves on concepts they've already learned). By contrast, the average person in America is reading barely one book per year. The best employees in your company are those who are learning and train-

ing the most. The top firms in the world are learning and training more than their competitors, which is one reason why they are the top firms in the world.



learn-it

Education and training should not be done simply for the sake of appearances. When programs are planned and/or conducted poorly, employees can leave with a net negative experience. They may have received incorrect or outdated information, been taught poor habits or had them reinforced, or they may have completely disengaged from a process to capture its attendees. All of these factors, which is by no means a comprehensive list, result in lost resources for the companies.

Some of them, especially poor train-the-trainer programs, can result in geometrically cascading failure for a company.

Evolution and adoption of new models and standards can create challenges for businesses with regard to education and training. For example, not all managers are being educated and trained on Building Information Modeling (BIM), yet they want to enforce BIM standards within their company. Here is the big question: How can someone enforce standards when they have no idea what any of those standards mean? If they don't know how to open and navigate Revit, why would anyone in the firm listen to them? This is a rampant practice across many firms; managers are not learning how to correctly use appropriate tools to create final deliverables, yet they expect their staff to be training on those same tools.

Key metrics for training:

- ♦ Accountability
- ♦ Repetition
- ♦ Effective

Firms want all the following items:

- Make more money
- Expand
- Grow
- Improve customer service
- Land more accounts

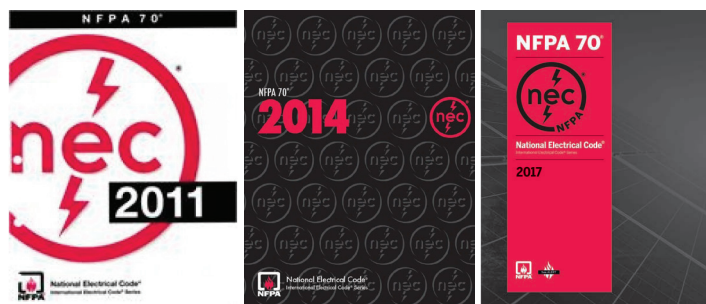
Generally speaking, going to a course for the first time is usually initial exposure to an idea. Going through the same course (or similar courses) repetitively is training, reinforcement of learned concepts through repeated exposure and practice. Therefore, being trained should mean that someone is able to do a task effectively and repeatedly with nearly perfect results. What type of follow-up has been implemented on the training to ensure that it was effective? Does management see that an employee did the training? Does management know that they are now capable of doing tasks that have been outlined for them in their duty?

Unfortunately, the typical scenario is an employee attending a one-time lesson, being exposed to an idea that they are then expected to put into practice. With no follow-up on material or confirmation of knowledge and skills gained, the employee is expected to hit the ground running.

Now let's think about this for companies in the AEC industry. How much training is done on how to have difficult conversations with customers? How much training is done on how to write contracts? How much training is done on what can or can't be said in an email for insurance purposes? How much training is done on how to review change orders? How much training is done on how to give presentations effectively and the words to use during those presentations to earn the business and that next project?

Answer this for your own firm and experience.

In our industry, AEC, there are always updates and changes to what we are doing. Whether that is code updates, different types of products being brought to the market, or an update/new version of tools such as Revit. This constant evolution, which is typically good, means we need to be educated more often and made aware of what changes are still to come. With this education and awareness, training can be established, lessons taught, and techniques implemented across the firm. Without awareness, it's hard to see what is going on in the industry, to track trends across the marketplace.



Trends can be the types of technology brought into buildings and workspaces. Trends can be the types and methods of construction and the speed at which owners want buildings put up. Revit and BIM were trends in 2013 and now they are the norm across the AEC industry. Being on the front side of these—and other—trends helped a lot of firms land more business because they showed they could adapt. In fact, it is probable those companies were able to influence these trends early on, helping shape the trends into what we see and use today.

There are still firms primarily using AutoCAD®. Those firms' deliverables are easily recognized by unfortunate markers: drawings end at two dimensions; no additional database of information; no way to plug in maintenance information; difficult to connect campuses together into a cohesive model to be used for further analysis; difficulty coordinating with contractors.



AutoCAD to Revit is an evolution in how buildings are designed, built, and maintained. This took education and awareness of this new product. Then it took training for all staff to be able to use Revit on a daily basis to design buildings. Yes, there was a learning curve. Yes, there was a production short-fall for a period of time. For the firms that made the transition from AutoCAD to Revit, was that short drop in production worth it, so in seven years your business is still relevant and salient? Only you can answer that question for yourself and your firm.



Dillon Mitchell is a licensed electrical engineer and has been using Revit for years. He is passionate about optimization and workflow improvement. Dillon has managed electrical departments designing nearly 2 million square feet of educational and commercial buildings. Having designed electrical systems for 300,000 square foot buildings, he understands that process matters. Every bit of improvement, short-cut, and timesaver makes a big difference when working on projects at scale. Dillon founded Kowabunga Studios to create tools for engineers to improve their efficiency on Revit projects large and small. When not optimizing Revit or electrical engineering, Dillon enjoys running long distance races (marathons and ultramarathons) as well Ironman Triathlons. Find him out on a trail or road testing the limits of personal endurance.

Tips on Training



HOW TRAINING HAS EVOLVED

Remember when I first started using AutoCAD® in 1986 release 2.5. I worked for a commercial furniture company and my main role was to produce as-builts for the designers to lay out furniture cubes.

When the company first said they were switching from drafting boards over to this thing called “CAD,” no one was interested in getting trained. I threw my name out there to go for training. There was a local Autodesk reseller called Micro CAD Managers

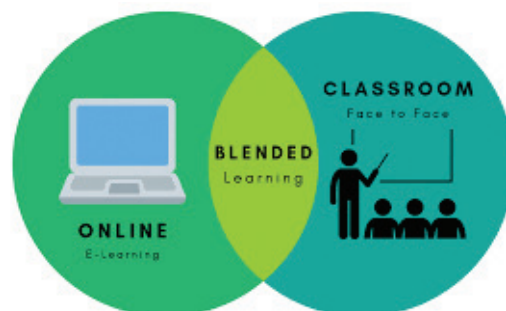


Figure 1: Blended learning is essential for success

that offered seven different AutoCAD classes. I took them all, and I was hooked. In fact, I eventually went to work for that reseller.

Each class lasted 8 hours per day for two to four days. This type of training was just a huge brain dump of information and often you would forget at least half of what you were taught. Still, classroom face-to-face training is still a very effective method of delivery.

Over the past 25 years, I have delivered training in many forms, the 8-hour-per-day cram session, the twice weekly college course, two hours per week, webcasts, recorded video training, and others. All of it is effective to a point, but my number one recommendation is a blended learning approach. For example:

- Start with a Revit Structure LinkedIn Learning class.
- Follow up with working on a project and have an experienced Revit user look over your shoulder a couple hours a day to help you along.
- You will need to have some workflow training that is more geared toward your companies' standards.
- Attend events such as Autodesk University to be motivated.
- Get involved with the AUGI organization and possibly start your own local user group if one does not exist in your area.
- Repeat the process—taking on intermediate and advanced course topics.

CHALLENGE YOURSELF

There comes a time where you become a veteran of your trade and you think you know it all. If you have been paying attention to Autodesk and technology, then you are 100 percent aware that the rate of change is getting difficult to manage. It is way beyond keeping up with the newest release of Revit on a yearly basis. The analytical space, the cloud computing, the VR/AR, the way we share and collaborate, the digital age, and so on. All of this is changing almost weekly and you need more focus than ever before.

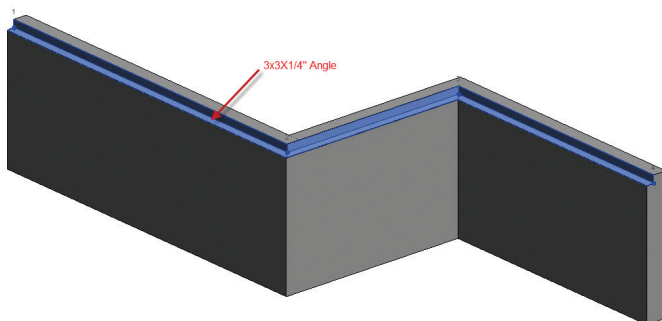


Figure 2: Angle ledge on concrete wall

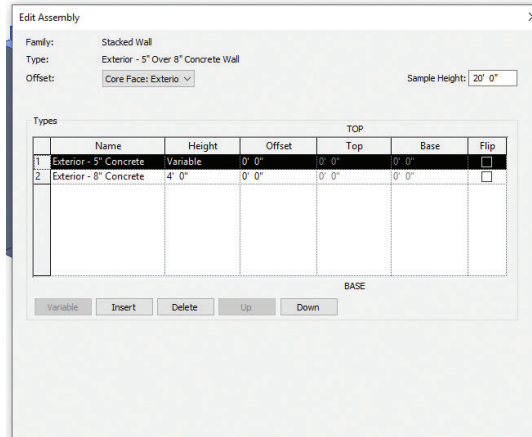


Figure 3: Stacked wall

Do not even get me started on focus! With all the distractions we have these days with our phones and social media, it amazes me sometimes that we can still get jobs out and maintain a profit. When you are at work you need to be obsessed with your job—always looking for opportunities to engage in some sort of learning experience. A few thoughts that may help get you engaged:

- Find a repetitive task and try to write a Dynamo script to automate that task.
- Scan your start-up project templates and find something to fine tune—could be a name of a family, cleaning up or adding standard line types, etc.
- Create an SOP (standard operating procedure) to help your project team for the various tasks that cause issues for new users.
- Schedule meetings with people who have your same job function and have a roundtable brainstorming session on how you can be more digitally efficient.
- Are you a good communicator? If not, take a class on composing emails, running a meeting, and so on.

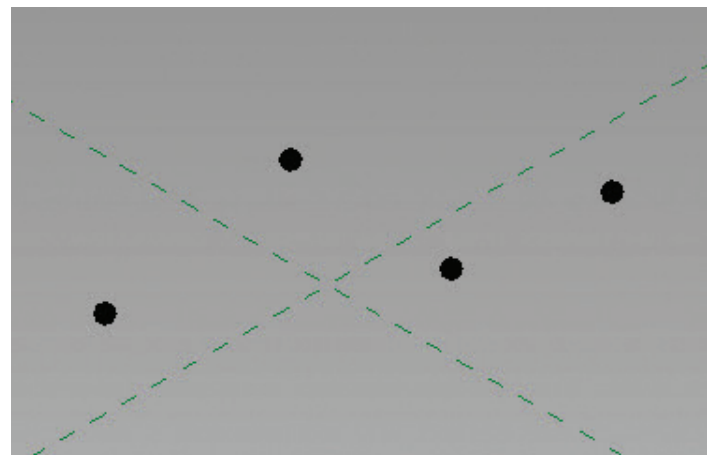


Figure 4: Four points placed

Revit Structure 2020

Training today extends far beyond the use of technical tools. You need to set aside time for your learning. Just because you may not have time during the workday or your company will not pay for you to take certain classes, you cannot afford to stop your quest to gain knowledge. If you take your focus off learning for a year, you will find yourself two years behind.

REVIT STRUCTURE LESSON

People learn in different ways. For example, I like step-by-step tutorials and short, topic-based video clips. I find that I can absorb more information if I take it in small chunks. Below I lay out a step-by-step tutorial to create a ledge on a concrete wall using a basic stacked wall and an adaptive component family. I will keep the steps basic, but at the end I have a link to the same lesson on YouTube.

Step 1

Create a Stacked wall using an 8" concrete wall as the base and 5" concrete wall as the top.

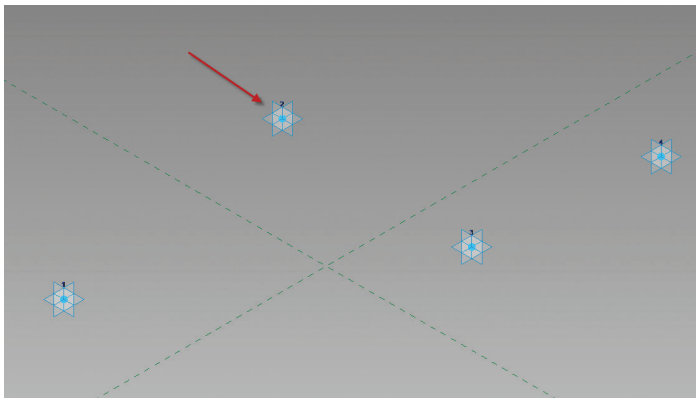


Figure 5: Adaptive points

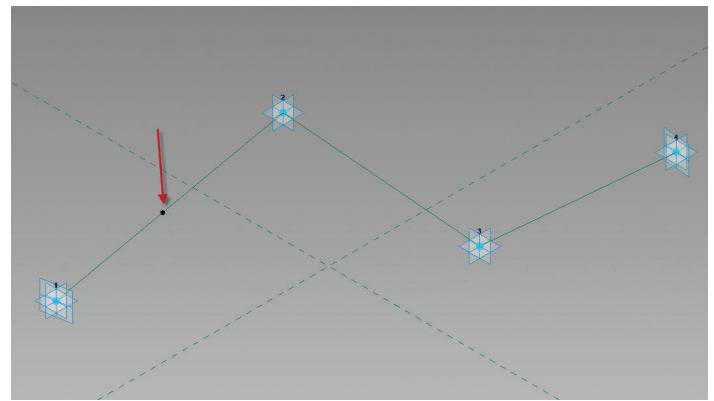


Figure 7: Place point along path on reference line

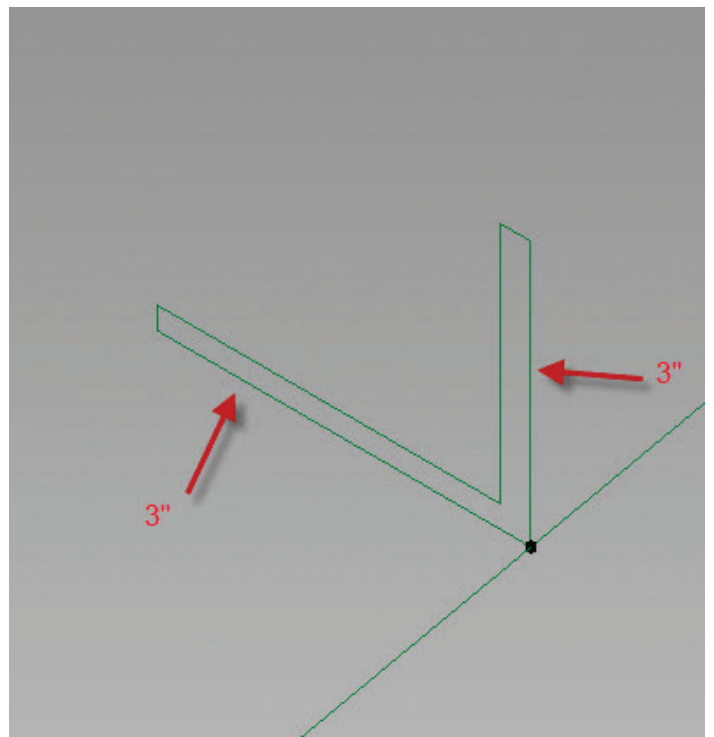


Figure 8: 3x3x1/4 angle sketch at point placed along path

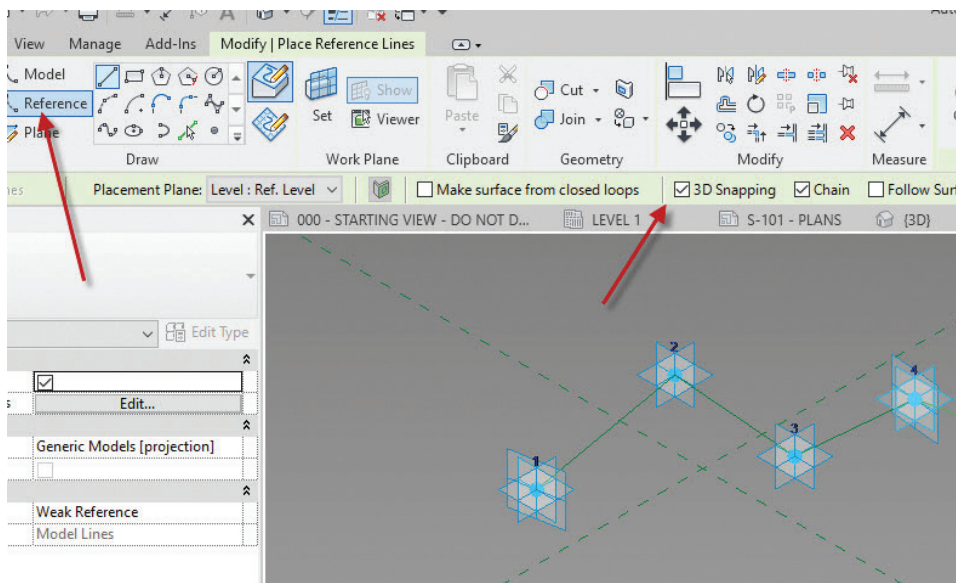


Figure 6: Reference line

Step 2

Create an adaptive component family starting with the Generic Model Adaptive.rft family template.

Step 3

For this sample we will make a four-point adaptive family that will allow us to select four points along our stacked wall to place the angle ledge. From the Create ribbon, select point and place four points on your screen.

Step 4

Next we will make these points adaptive. Select the four points with a window selection and then select "Make Adaptive" from the ribbon.

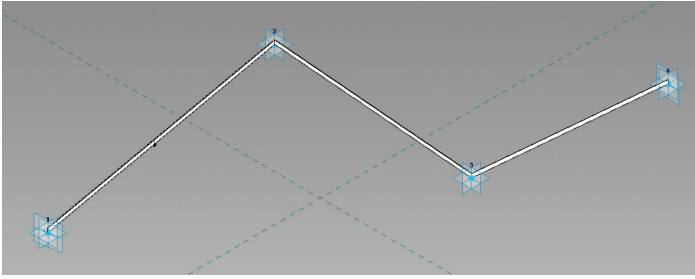


Figure 9: Created solid form

Step 5

Next we will draw a reference line connecting the four points with 3d Snapping turned on.

Step 6

This reference line represents the path on which the angle profile will sweep along. The four adaptive points will determine the path in our model. So now we need to place a point along our path to which we can anchor our profile sketch. From the Create panel, select point and place a point along the path.

Step 7

Now we need to sketch our angle profile. For this example, we will sketch a 3x3x1/4 angle. First you need to select the point you placed along the path and set it as the current plane. Then from the Create panel, select reference line and proceed with your sketch without using 3d Snapping.

Step 8

We will now convert the Sketch and the path into a solid form. Select the sketch and then the path. Once selected, pick Create Form from your ribbon panel. There is a drop-down to select solid or void. Select solid.

Step 9

Assign material to your form. For this example, I am going to make mine red so it shows up on the wall. Typically, you would use the correct material for the solid form angle.

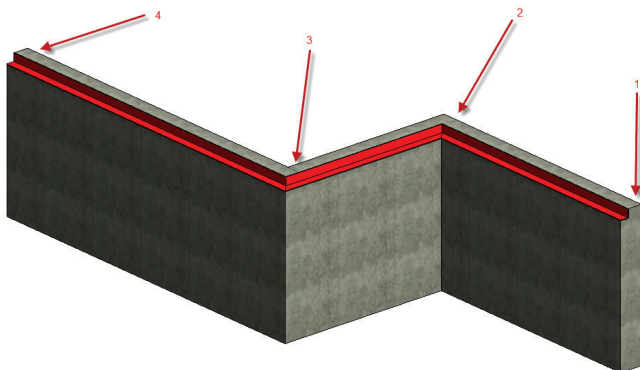


Figure 10: Four point selection

Step 10

Save your family and load it into your project

Step 11

Place your Adaptive component family by dragging it in from your project browser and selecting the four corresponding points along your wall. Do this from a 3D view.

This is a typical step-by-step approach of learning a task with visual aid. Every detail was not specified, assuming the student knows some basic Revit®. With this method of learning, it is beneficial to have these handouts for reference from time to time. When working on projects we may not need this knowledge on a day-to-day basis. That is why it is important to have a blended learning approach having more than one resource to fall back on.

TOPIC-BASED VIDEO TRAINING

My favorite way to deliver training is by producing topic-based training videos. This allows the student to focus on one task, one command, and one workflow that they need now.

To be effective, these videos typically are less than 10 minutes. Below is a link to this same lesson on YouTube.

<https://youtu.be/bjqUTm32Kmw>

SUMMARY

Put together your own training plan to keep yourself accountable. Review it every week to make sure you are staying active with your learning. Be a thought leader of your work life and never stop learning.



Philip Russo began with AutoCAD version 2.5 in 1986. Through the years he has held positions in the CAD industry as CAD Draftsmen, CAD Manager, Sr. Applications Engineer, and is a Certified Autodesk Instructor. Phil's focus has been on the implementation of standard practices for the Revit Platform. He currently holds the position of Head of Digital Design and BIM-Americas at Ramboll, a leading engineering, design, and consultancy company founded in Denmark in 1945. He has professional certifications for Revit Architecture, MEP, and Structure. Phil can be reached at Philip.russo@ramboll.com

Welcome to *AUGIWorld* Inside Track! Check out the latest opportunities to advance your skills, processes, and workflows in your firm, with the most current AEC-related software and hardware updates available.

TITLE BLOCK EXCHANGE APPLICATION



https://apps.autodesk.com/ACD/en/Detail/Index?id=7192782095511932753&appLang=en&os=Win32_64

Autodesk AutoCAD: 2020, 2019, 2018, 2017
Autodesk® Civil 3D®: 2020, 2019, 2018, 2017

Title Block Exchange Application is a powerful and flexible tool to create Drawing Register templates and export/import your title block (Titleblock) attributes for multiple drawings to an Excel spreadsheet.

Building the dynamic attribute data link between your sheet drawings (or Sheetset drawings) and the Excel Register is very useful in major projects, which usually need to update the title block constantly and effectively.

This tool can increase your efficiency and make your repetitive tasks easier, saving you many valuable hours. This application has the following main functions:

1. Create the Title Block Excel Template based on your sheet drawings, which have the title block on paper space.

2. Export title block attributes values for multiple drawings based on your initial Excel attribute template to Excel files for you to edit and analyze.
3. Import the Excel register values back to multiple drawings to update the attribute values.
4. Use the Log file to trace your template creation, attributes exportation and importation history, and pinpoint possible title block attribute errors in drawing files.

Although this tool is reliable and robust and has been tested in several major trial projects with thousands of drawings, you are strongly advised to backup your drawings to a safe place before you use this application. We welcome your suggestions and feedback.

AUTOROOMLABEL



https://apps.autodesk.com/ACD/en/Detail/Index?id=5532651998685317673&appLang=en&os=Win32_64

Autodesk AutoCAD: 2020, 2019, 2018, 2017
Autodesk AutoCAD Architecture: 2020, 2019, 2018, 2017

ARLToolbar allows one-click insertion of labels with the name, number, area, and perimeter of rooms. The area and perimeter values are associated with the drawing and are automatically updated if the geometry of the corresponding room is changed. A Room Schedule using the data from the labels and predefined info about the room finish materials could be inserted in the drawing.

TRACE ELECTRICAL



<https://apps.autodesk.com/RVT/en/Detail/Index?id=2367041994395597414&appLang=en&os=Win64>

Autodesk Revit: 2020, 2019

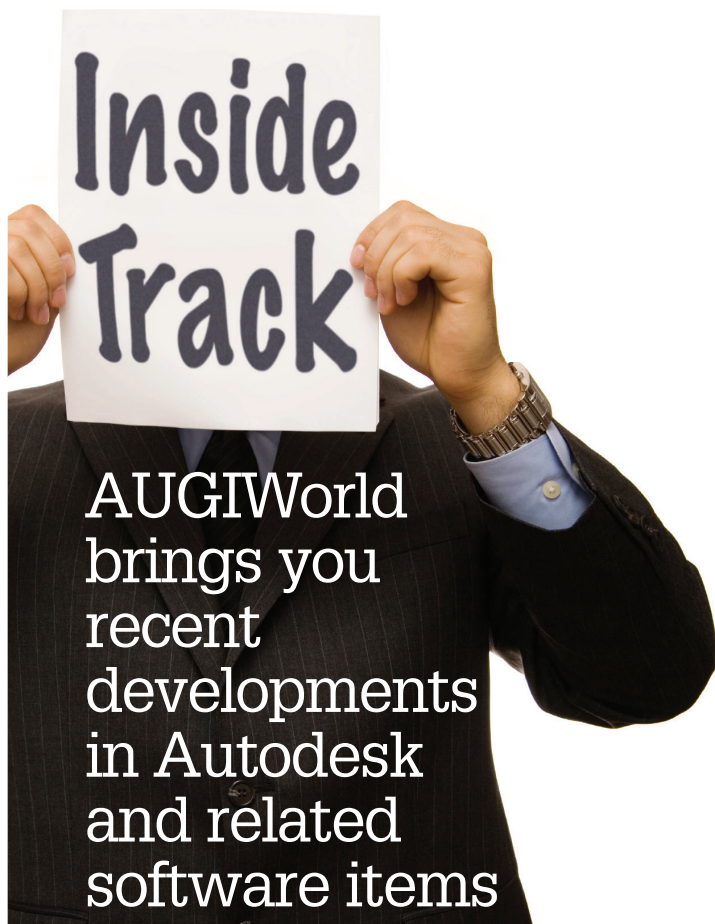
Use Trace Electrical to get an updated IFC export and an advanced object library to boost your productivity.

With the object library, you can easily manage a large volume of objects used in Autodesk® Revit® projects.

You can search for new objects, thanks to the link with the BIM&CO platform. Many objects are available.

To insert an object in your project, just drag and drop the desired object. There is nothing simpler!

If you have some news to share with us for future issues, please let us know. Likewise, if you are a user of a featured product or news item and would like to write a review, we want to know: brian.andresen@augi.com



INTRODUCING



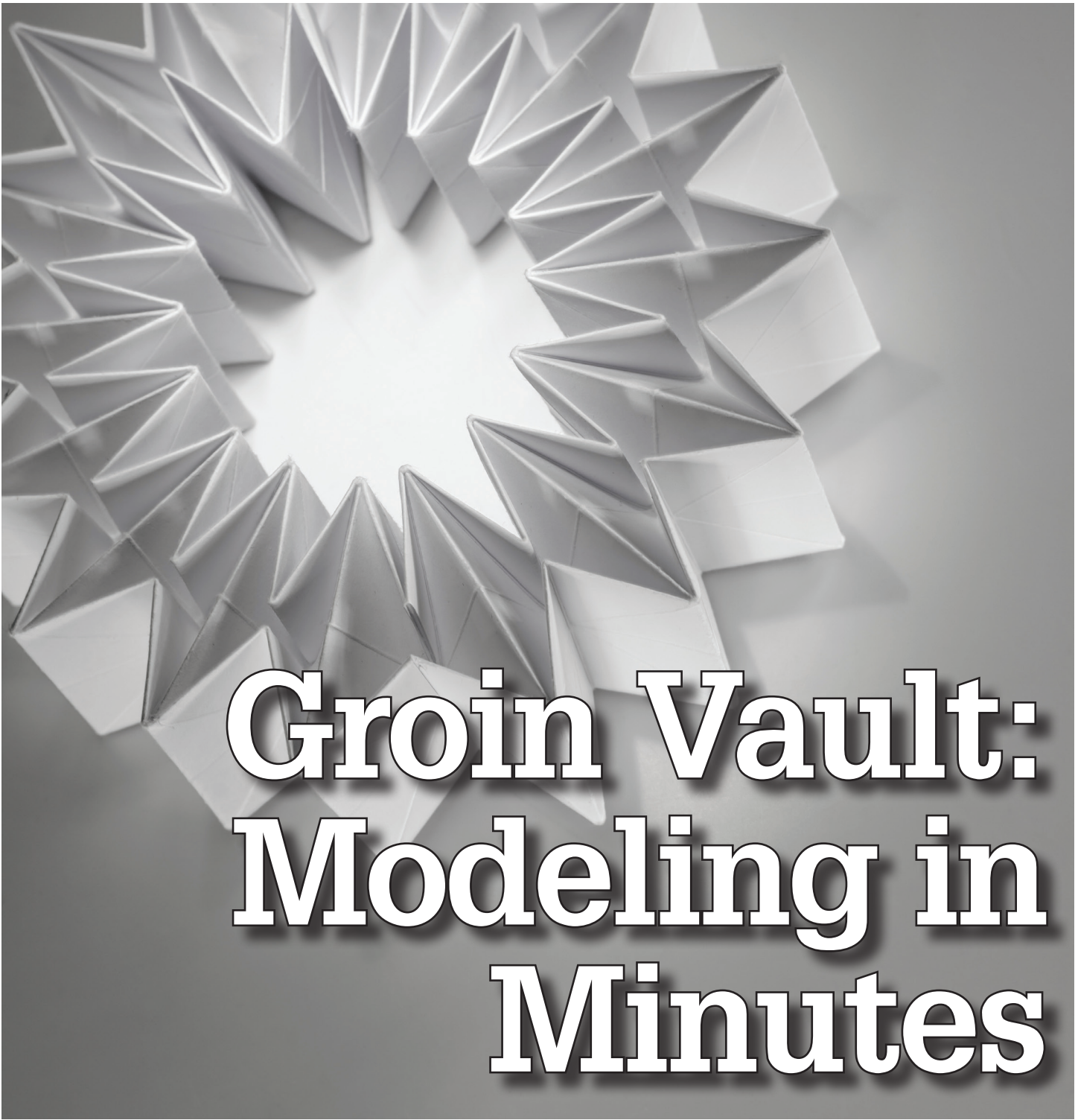
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Groin Vault: Modeling in Minutes



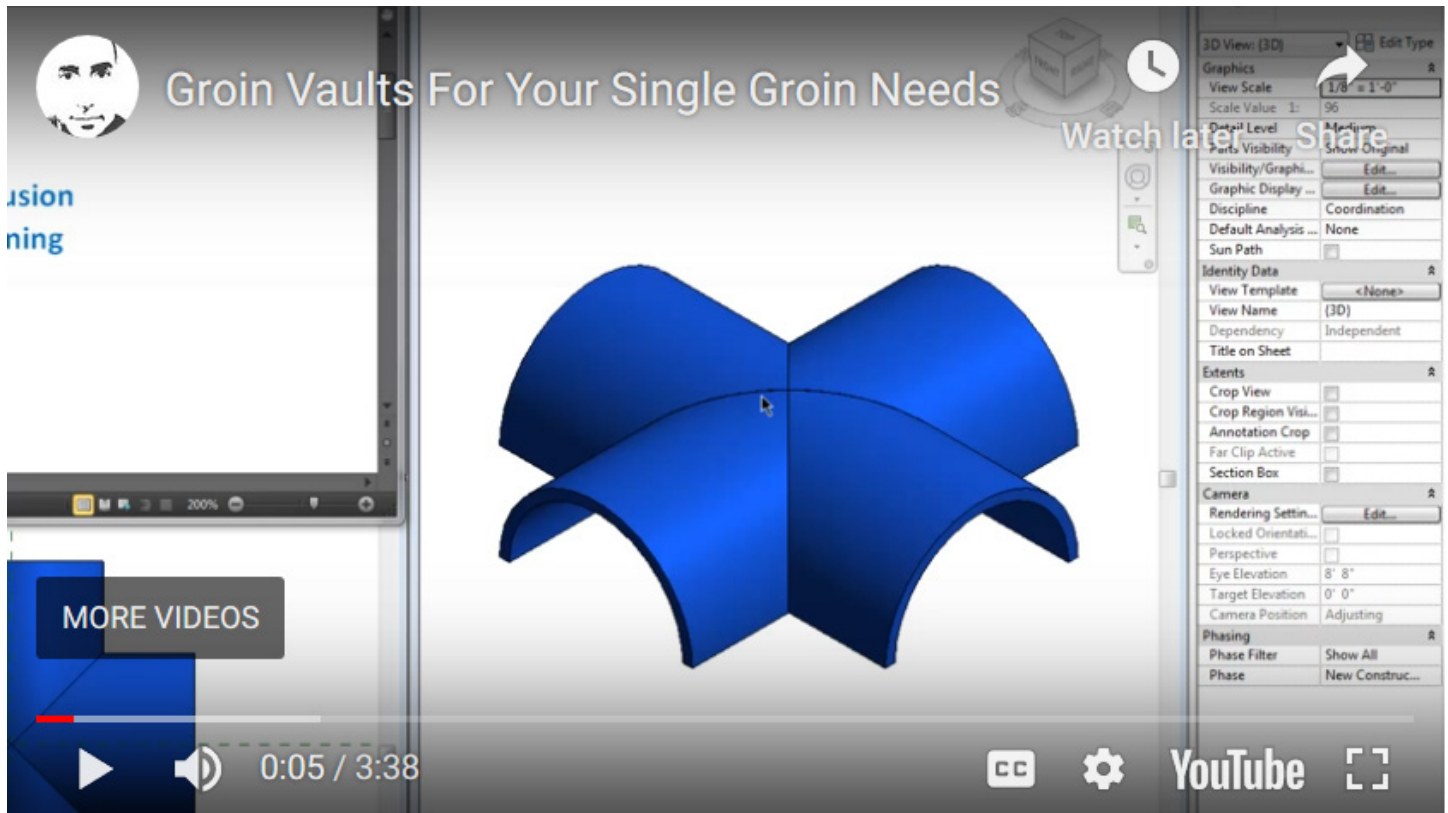
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s a preface, this is in response to the age old "mine is bigger than yours" debate... as in AECO software preferences lol.

If you want to see a Groin Vault modeled in a few minutes in Autodesk® Revit®, simply jump to the link below (at the end ;). If you want a quick dose of snark, read on...

Why do I caution? Well, so I don't have to elaborate (at this time) on my thinking that much of humanity's outlook, our outlook that things (Revit Modeling, in this case) are difficult or not as easy as "other" software, etc. is usually an ego response illustrating a lack of understanding, clarity, and/or perspective.

I posit that much of the time it is we marginally evolved primates who add complexity where there is none, just like we can find patterns where none exist. It is we who fail to think things through before bounding forth at times...



Software only does what we tell it and until we know the entire breadth (or most) of the possibilities available in any software, we are not yet qualified to render an intelligent viewpoint. But we enjoy freedom of speech, so I guess one can bring any viewpoint (erroneous or not). Just be ready for the fallout ;-)

I am not saying that I don't jump into things with both guns blazing, as it were, but if I am trying to create something in a modeling software, I might try what "I Think" should be done first. I do keep an open mind... it very well may be my lack of understanding that makes me emotionally react that "it can't be done," etc... but since usually (read as: kinda all the time) that task can be done, the solution may just be opaque momentarily.

That said: Modeling Groin Vaults in Revit® is Easy and Simple! The actual modeling time of the video's Groin Vaults was about 1 minute 50 seconds, but if I wouldn't have been explaining at the same time it would have taken 1 minute or less. I think there are six steps, so you can take notes and have a good how-to for Revit newcomers.

If you are one who complains that "in other software it only takes a few button clicks to do this" I say to you: I am NOT going to count my button clicks, but I do feel that one minute to model a Groin Vault is really a non issue.... Oh, how does "the other" software handle schedules, sheets, (shall I go on)?

https://www.youtube.com/watch?time_continue=5&v=VHjGsFAXq3E



Jay B Zallan | AECO | VDC | Design/Construction Technology Conductor | Fine Artist

Mr. Zallan brings wide-ranging Design, Delivery, Management, Mentoring and Teaching experiences to the readily changing AECO industries, founded on an expansive 35 plus year career.

Jay has focused on VDC planning, production, process development and research & development; to help enable efficiency-generative creative project execution, delivery and success throughout the AECO landscape.

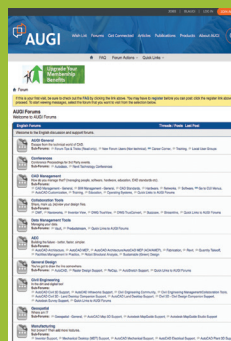
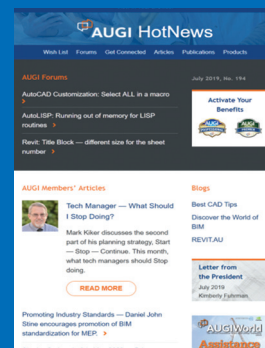
This JayZ is an educator, author and industry lecturer throughout the BIM world; Jz strives to inspire current and future generations to achieve and exceed beyond even their own expectations.

Being a Fine Artist (large format oil & mixed media canvases), Jay adds unique and collaborative insights and perspectives to every team he is part of.

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Developing a Strategic Plan, Part Two





Last month this space was used to introduce a simple strategic planning process using material developed by me and presented at Autodesk University 2010 and also posted on my caddmanager.com blog. We will finish up the topic this time around.

In brief, here is a basic process for Strategic Planning:

Step One: Look to the Past – where have we been – what got us here – what has worked – what has failed.

Step Two: Look at Now – what are we doing now – what are we doing that works – what needs to be addressed (think Start, Stop, Continue).

Step Three: Look Toward the Future – what could we do – where might we go – time to dream.

Step Four: Define your Goals – what can we rationally expect to achieve.

Step Five: Identify Initiatives/Actions – in general, how are we going to do it.

In Part One, we covered Steps One, Two, and Three. Here, we'll cover Steps Four and Five, then wrap it up.

STEP FOUR: DEFINE YOUR GOALS

Take your list that was created in Step Three and pick the ones you want to focus on.

In Step Three you made a quick list of at least 20-30, then we started narrowing it down to five to seven ideas that might be the best. Now is the time to start looking deeper at the five to seven ideas you have.

If you have noticed, some of these steps start blending together. They overlap and you may go back and forth between them, filling in the blanks as you go. It is fine that they blend together as long as you stop at some point to make sure you have completed the actions for each step.

Step Four is also where you start looking at the firm's overall goals and plans to see where your best efforts need to be. Get a copy of the firm's strategic plan if it is available. Linking your goals to firm goals and aligning them will assist in moving them toward fruition.

The Product of Step Four:

Define the main goals you will want to reach. You can think of these as Focus Statements. They define the general targets you want to hit.

Example:

- ✦ Get projects started in Revit
- ✦ Develop a library of Details

You may think you just want to start at Step Four—don't do it. Do not forget to do Steps One through Three, for they are the ground-

work that bring your targets into focus. If you do not do the first three steps, you will just be striving after the issues of the moment and may undercut your long-term progress.

Though you may be tempted to start at Step Four, don't assume you have a grasp on everything that needs to be done. You probably will not be surprised by most of what is on your short list, but the one or two ideas that flow out of the first three steps can change your priorities.

Step Four may happen really fast. But getting five to seven really brief goals with no defined dates and resources should be done so you do not just take the first three and dig in. Get all of them delineated. The list you have will lead right into Step Five. Get the full list done, then dig into each one.

STEP FIVE: IDENTIFY INITIATIVES/ACTIONS

Your Initiatives are the Action Plans you will take to meet your goals (the How and When). Now you can get down to the actionable definitions of what you are going to be doing. This is the time to add measurable targets, people, processes, resources, and timeframes.

Include Specific, measurable objectives that have a due date.

Here are some examples:

1. BIM

- ✦ Get four projects started in Revit by June 1, 2020.

2. Detail Library

- ✦ Create a standard location for all Details in 30 days.
- ✦ Develop a library of Details by adding 30 details per month—one per day.
- ✦ Define a method for laying out a Detail Sheet in under 30 minutes by retrieving standard details via our intranet by May 30th.

You could hang some memorable name on your goals. For example, #2 above could be the 30-30-30 Plan.

You will further break these down into manageable and distributable chunks in the Project Management phase. This comes after all of the strategic planning is done.

Business Alignment is something you may hear about at your firm or in general conversations about planning. Your main Tech initiatives, in terms of budget and resources, should be directly linked to business goals and objectives. This means that when you articulate your objectives, they should reflect the same targets as some of the business goals.

HERE IS WHAT YOU MIGHT SEE...

Firm Goal: *We will extend our ability to deliver project expertise by sharing staff among offices. Each project will be staffed with the best talent from different offices.*

Tech Manager

The reality and workflow of this goal means that office staff will be relocating between offices, sending project files back and forth, opening files from remote servers, and possibly storing files on laptops.

Non-technical staff might have some “not so good” tech ideas about how to achieve firm’s goals—efforts that compromise security, expose IP data, or bog down the processes. If you fight these issues, then you will have trouble getting things done. You could try to get them to not do some of these things, but the reality is they will happen in spite of you. You should try to manage these kinds of things no matter what and get others to agree that some data exchange and storage methods are not safe or effective. Let’s see how embracing the goal would work, and better yet, what we can do to enable it.

HERE IS WHAT YOU MIGHT PUT FORWARD...

Tech Goal: *We will enable secure file sharing between offices by establishing guidelines for file transfer, remote file sharing, laptop storage, and backup requirements. To assist knowledge workers in traveling between offices, we will standardize folder structures and system setups so they can use any machine in any office and see the same setup.*

By setting your goal in alignment with the ones the firm has, you stand a much better chance of getting them done. This does not mean you have to throw out all of the stuff you want to get done. It just means you need to rethink the focus of your efforts. If you find that everything you want to do does not even come close to what the firm wants done, then you will soon find yourself at odds with most of your coworkers.

Here is another example:

Firm Goal: *We will reduce our project delivery time 10 percent by increasing our employee’s productivity.*

Hidden in this goal is a wealth of opportunity. The CAD/BIM/CAM/CIM/Tech environment is primed for productivity and poised for enhancement. Here are a few goals that will support the firm’s efforts.

Tech Goal: *We will customize our interface to provide 15 percent improvement in speed of the user’s processes by June 2020.*

Tech Goal: *We will create custom libraries that will alleviate the need for each project to create content, which will reduce production time for CAD files.*

Tech Goal: *We will unify the support folders on the server so every project can reuse existing project details that have been reviewed and approved.*

These three are a good start. You can most likely think of several more.

By bringing your purposes in parallel with the company objectives, you will make it possible for others to rally around the efforts.

WHERE TO START

Always Be Planning

- Remember that strategic planning is an ongoing activity.
- Don’t be afraid to change course.
- Look at inside and outside influences that may change your perspectives.
- Share your Strategic Plan with everyone.

The End Product of Strategic Planning

- An agreed-upon vision for the future.
- Goals to achieve—short- and long-term.
- Action plans to achieve your objectives with details and due dates.

Get your hands on the firm’s strategic plan. Review it and formulate your tech objectives so they fall in step with that plan. Look for anything in the firm’s goals that is related to technology, productivity, time savings, design processes, saving money, standardization, or improvements. Start using the five steps to develop your plan. Start thinking like the top-level management and leaders of your firm.



Mark Kiker has more than 25 years of hands-on experience with technology. He is fully versed in every area of management from deployment planning, installation, and configuration to training and strategic planning. As an internationally known speaker and writer, he is a returning speaker at Autodesk University since 1996. Mark is currently serving as Director of IT for SIATech, a non-profit public charter high school focused on dropout recovery. He maintains two blog sites, www.caddmanager.com and www.bimmanager.com.

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Paths to Success

Powerful avenues have opened up for people seeking to develop skills for using 3ds Max®. Professionals develop course work, offer one-on-one reviews, mentoring, and more. They share their experience as they fight to compete against top professionals in the world for jobs.

These aren't the typical tutorials people can find on Udemy or LinkedIn Learning (formerly Lynda). You have to dig and search and find yourself along a learning curve that places you on the right path. When you get there (if you are reading this, you probably are), you find yourselves at the doorsteps of professionals who go out of their way to share experience and skills they've honed through years of production experience. This month, I'd like to introduce a few of these professionals.

Professional: **Ciro Sannino**

<https://www.learnV-Ray.com/>

Ciro Sannino leads the path for training for architectural visualization using 3ds Max and V-Ray. His 5SRW certification program offers 40+ detailed lessons with content guiding professionals through every step to use 3ds Max with V-Ray to create realistic visualization in a consistent and repeatable way. His system covers every single thing a professional needs to know to produce the highest quality content. Additionally, his recently released book, *Chiaroscuro with V-Ray*, dives more into the various topics he covers, giving professionals all the tools they need to produce quality content. If you are serious about producing quality architectural visualizations, it's smart to be a permanent part of his program.



Figure 1: *Ciro Sannino, 5SRW Gravity / V-Ray*



Figure 2: Jamie Cardoso, Studio Lighting

Professional: Jamie Cardoso

<https://jamiecardoso-mentalray.blogspot.com/>

Jamie Cardoso spent the greater part of the last decade blogging, writing books, and contributing to the visualization industry covering many aspects of visualization. Recently, Jamie started introducing courses through Patreon, YouTube, and more.

Professional: Miloš Černý

<https://www.miloscerny.com/>

Miloš Černý is a character animator in game development, motion graphics designer, and 2D/3D animator. Milos offers numerous video tutorials with downloadable content. His experience in animation using various programs in games like DayZ and Vigor gives him a unique perspective to guide users concerning animation for content using 3ds Max. You can access additional content from his Patreon page.



Figure 3: Miloš Černý Animation



Brian Chapman is an Autodesk Authorized Developer, Digital Artist, and a Senior Designer for an engineering firm located in Las Vegas, Nevada. Brian shares tips and tricks at procad.blog with a portfolio of digital artwork and renderings at emptypawn.com. Brian's email is procadman@pro-cad.net

Training Resources

When it comes to training, one thing I have learned is that everyone absorbs knowledge and learns new tasks in different ways and by different methods. For the last 22 years I have worked in the civil engineering field performing different tasks from surveying to site civil design. Throughout those years, I used several different design software programs—from AutoCAD® R12 to Land Desktop, and now AutoCAD® Civil 3D® and InfraWorks®.

In the past, to perform the task given to me I had to take advantage of any training available for each design software. Finding the training method that best fit my needs was something I learned over time. Twenty years ago, options for training might be limited to hands-on practice and a few books.

Fast forward to the present day, where we might be overwhelmed with the amount of training resources available—eLearning, blogs, handouts, CAD boot camps, YouTube, customized training, in-person training, and much more.

Though all these resources are great in their own way, the ability to learn design software such as AutoCAD Civil 3D and InfraWorks comes down to individual users and the learning methods that are right for each person.

Over the last decade, as a CAD/BIM Manager, I have provided hands-on and online training to numerous civil technicians, architects, surveyors, EITS, and engineers. The #1 item I have stressed to everyone is that the software is only as good as the user. Users who don't understand the software won't get the ending results they want. In turn, they may also get discouraged and believe the software does not perform efficiently. In order to remedy this situation, I would determine which learning method works best for each user.

What I have learned from my experiences is there are four different types of learning methods: video presentation, repetition, reading material, and live one-on-one training. In this article, I will focus on video and online training material.

VIDEO PRESENTATIONS

As the civil engineering industry moves more and more to BIM workflows, understanding and taking advantage of collaborative BIM workflows between software such as AutoCAD Civil 3D and InfraWorks is important. One way users can learn how to use the collaboration features in AutoCAD Civil 3D and InfraWorks is through online video presentation. Users today can easily go online and find several training companies such as LinkedIn Learning (formerly known as Lynda.com), Global eTraining, CADLearning, and many more.



Figure 1: CADLearning and LinkedIn Learning are two online learning resources with free trial periods

Though there are many available training resources, most are not free, but fear not because Autodesk provides an online training video library resource, accessible from the InfraWorks Help menu. If you select the **Getting Started** option from the Help pull-down menu, you will be taken to the Welcome to Autodesk InfraWorks Learning webpage. Here you can find several training video tutorials on the latest new features, and topics ranging from component roads to collaboration tools.

From the InfraWorks Help menu pull-down you can also select Online Training Offers options to view LinkedIn Learning and CADLearning free 30-day training (Figure 1).

In the AutoCAD Civil 3D 2020 help pull-down menu, select **Videos** and you will be taken to the Help Home webpage, which provides several short tutorial videos that will provide a better understanding of the major design tools within AutoCAD Civil 3D.

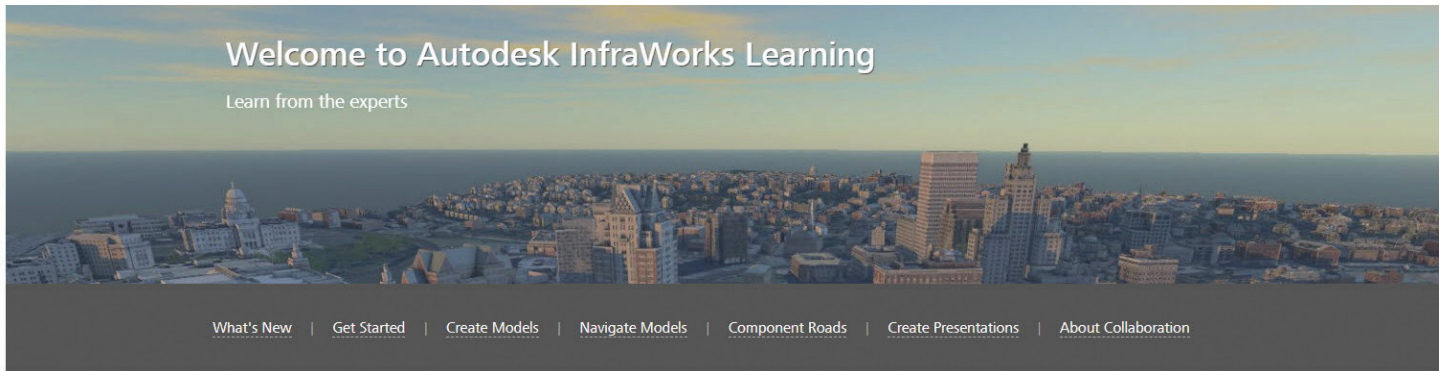


Figure 2: Autodesk's InfraWorks online training resource

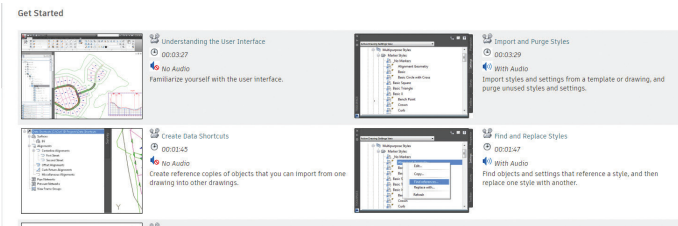


Figure 3: An example of training offerings available from the Help menu

In both InfraWorks and AutoCAD Civil 3D, from the Help menu pull-down you have an option to select **Tutorials**, which is great for all new users to view and read.

To view more advanced and in-depth training videos for InfraWorks and AutoCAD Civil 3D, user can also access the **Autodesk Knowledge Network** options from the Help pull-down menu. The Autodesk Knowledge Network website provides a large number of videos on newly released software features, problem solving/technical support, and in-depth looks into advanced design tools. In addition, you can also access troubleshooting posts provided by Autodesk and access to software update downloads.

Another great source for free video tutorials or in-depth looks into AutoCAD Civil 3D and InfraWork is the **Autodesk Infrastructure YouTube** channel. This provides access to various design topics and pre-recorded webcasts hosted by Autodesk. This resource is a great way to get a better understanding of the collaborative workflows between AutoCAD Civil 3D and InfraWorks, other BIM workflows, BIM 360 DOCS, Dynamo for Civil 3D, Vehicle Tracking, and ReCap. Because YouTube has also become a model app, it provides a quick and easy way to access Autodesk videos remotely or on the go. Other great YouTube channels to follow are Jeff Bartels, Autodesk ReCap, and Autodesk InfraWorks.

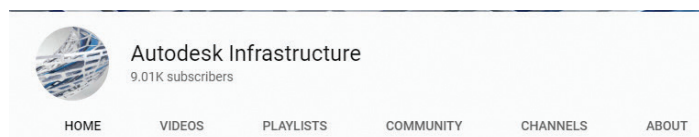


Figure 4: Autodesk Infrastructure on YouTube

Video training has become another great way for users to learn more about civil engineering design software such as InfraWorks and AutoCAD Civil 3D.

READING MATERIAL

Training books have been around for many years and were one of the most popular ways to learn and train for beginners and intermediate software users. For years I purchased books such as *Harnessing Autodesk Civil 3D* and *Mastering AutoCAD Civil 3D*. And though hard copy training books are slowly fading away, you can still find some great training books from companies such as CADapult Software Solutions and Ascent.

Having direct access to hard copy training books and handouts was always convenient, but now as technology and training has evolved, we have even more access to training materials for various design software online and through mobile devices.

I consider Autodesk University (www.autodesk.com/Autodesk-university/) and AUGI (www.augi.com) websites the two best on-line locations to browse through customized training material for numerous design software programs.

Autodesk University online is a great source for beginner and advanced users seeking training material to better understand all the latest new features and power design tools within AutoCAD Civil 3D and InfraWorks. In addition, Autodesk University contains a vast library of videos and handouts that users can access for free. Each class can vary from a specific task or topic to BIM collaboration workflows between design software such as AutoCAD Civil 3D and InfraWorks.

AUGI has become another great source for finding training material and helpful articles on various Autodesk design software. AUGI's website (www.AUGI.com) contains helpful tips & tricks and design methods when working with roads and highways with Civil 3D and InfraWorks.

The **Autodesk Civil Engineering Community Center** website is a great online source for training, getting answers and helpful tips & tricks on AutoCAD Civil 3D and InfraWorks. This webpage

InfraWorks & AutoCAD Civil 3D

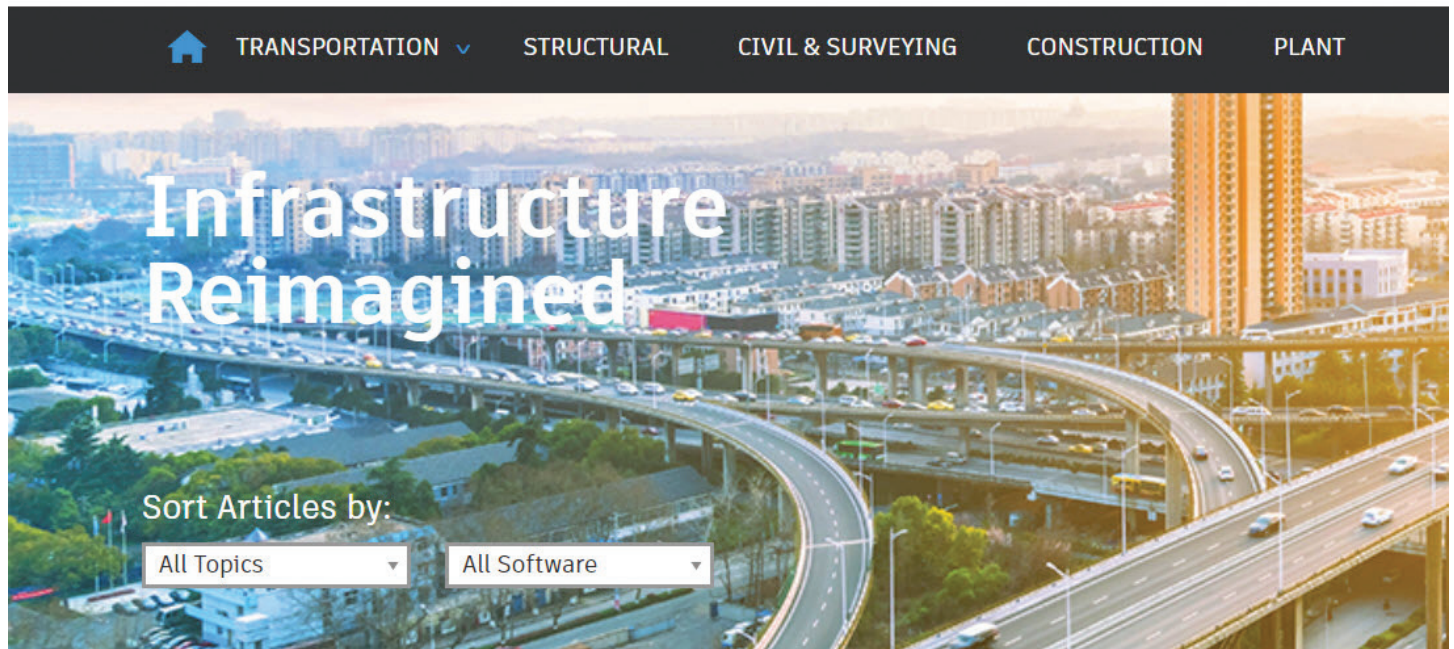


Figure 5: Case studies from various industries are available within the Autodesk Infrastructure Reimagined website

provides access to the forums where you can post questions on a specific task or design tools.

The AutoCAD Civil 3D and InfraWorks Ideastation is the best place to go to make suggestions to the Autodesk development team on how they can make the software more efficient and user friendly. The Tips & Tricks webpage section is a great source for finding advanced tips and tricks on various InfraWorks tasks. Users can also watch pre-recorded webcasts on various design topics or features. In addition, you can read about the latest industry trends and insights.

Finally, the **Infrastructure Reimagined** website provides in-depth insight articles about different design industries including transportation, structural, civil & surveying, construction, and plant. Within each industry section you can read articles on how different companies used design software such as AutoCAD Civil 3D and InfraWorks to win projects and resolve land development design issues. In addition, you can also watch pre-recorded videos on how some companies used both AutoCAD Civil 3D and InfraWorks for their projects.

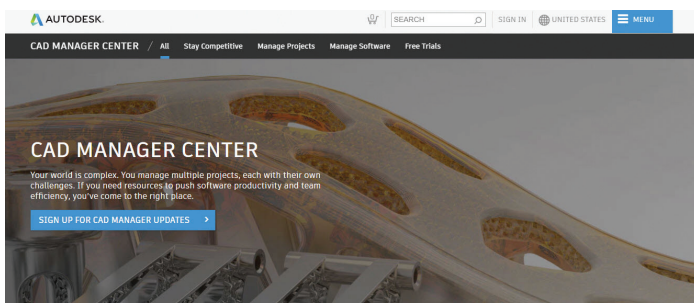


Figure 6: CAD management resources available from Autodesk

CAD managers seeking more advanced knowledge or insight will want to check out the **Autodesk CAD Manager Center** (www.autodesk.com/cad-manager). Here you can read articles about CAD management success stories and more.

Training is crucial to advancing today's workforce. Through Autodesk websites, Autodesk University, and other blogs and websites, users can easily access free online training material and videos in order to become more proficient and productive in AutoCAD Civil 3D and InfraWorks.



Tony Carcamo is president of Civil CAD Learning Solutions where he provides software training and technical support for several Autodesk software platforms. Tony has 22 years of experience in the civil engineering field, performing tasks such as surveying, platting to site, road and utility design. In addition, he has spent 12 years managing and implementing Autodesk software as a CAD/BIM Manager. Tony is a blogger, sits on several Autodesk committees and council groups, is president of the DFW BIM Infrastructure User Group, a certified professional in AutoCAD Civil 3D and InfraWorks, and an Autodesk Expert Elite member. He is also Chief Operating Officer at Modern Engineering Solutions.



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DIA DUIT AN LUCHT SIÚIL, CUIR FÁILTE ROMHAT!

So before you go off and try to figure out that sentence, I'll share the emotion with you. That's the traditional language Gaelic for "Hello traveler, welcome home!" That is what I just experienced at this year's European BiLT conference held in early October in Edinburgh. As the chairman Marcus Fich said to the 400+ attendees, this year will be truly magical.

The event was held at the Edinburgh International Conference Centre over a 5-day period where more than 100 speakers shared their expertise and experience and, in a way of true giving of oneself, explained, amazed, and listened to what everyone was contributing en masse. I learned a lot, I saw even more, and left with renewed love for some great friends as well as made new ones to carry me on for another year (hopefully).

I'd like to share just a touch of what I came across and picked up while attending this wonderful event.

As a long-time user of Autodesk software, I have a passion for new and exciting software from Adsk, and one program that piqued my interest is Project Refinery. Despite bearing a name that some might think is a bit weird for a software program, this little gem has some great potential for us. Imagine the process of designing a new multiple building form. You have to develop the general shape and then run the study of that shape for overall volume, cladding, requirements, sun studies, and even available square footing.

Now change the form to another shape... back to the calculate... rinse... repeat.

However, just by developing a parametric graph like Dynamo to frame your model you can tie this with Project Refinery and then, giving a set of conditions, let the program run through hundreds of iterations per your specific needs. The net result will be a series of highly viable options for your considerations. This then can be reported with the likes of Power BI and you have a documentation tool to help your team decide which options to present to the ownership.

Whoa. That's pretty cool.

Other sessions that got me thinking were focused not on Dynamo but the programming language under the hood, Python scripts. Back in the day I messed around in AutoLISP quite a bit. Although not as parentheses heavy that I suffered with in LISP, Python may very well come more naturally to many. To say I understand it after a class or two would be a stretch, but it does "feel" more familiar now.

Something else I noticed while networking with the many attendees (BiLT calls them delegates) is the number of people moving from being the in-house expert for a given firm to breaking out on their own (or joining consulting companies) and making their expertise for-hire to the larger community. It takes a lot of gumption to make those kinds of moves and I applaud them.

It also makes me wonder if the business world needs to take a hard look at how they are treating their experts and consider not treating them like the best in-house "hammer" and give them the proper credit for what they are able to do in spite of how they may use them. I had numerous conversations with people about their own experiences in trying to find qualified staff and it isn't easy. The vocational and higher educational institutions are not cranking out the moldable newbies anymore. Those with the skills are more valuable now than ever before. Perhaps it may be time to make your own worth more noticeable.

Now the exhibition floor at a BiLT conference isn't as much about seeing A to Z solutions across the

built environment. Rather, attendees are presented with the cream of the crop of providers, both hardware and software, who share that same passion for how you get work done and break out of the norm and use anything and everything that is available. Our jobs are not getting easier; our solutions need to be top notch as well.

A BiLT conference wouldn't be complete without a number of sessions featuring great studies of some very cool project work. I especially liked a session centered on a large mixed-use project in Israel with innovative approaches to resolving fast-track schedules with design flexibility for both the initial phase as well as the future expansion requirements.





For those not in Scotland, I must give my personal recommendation to visit this amazing land. As soon as I got off the train from London, I was mesmerized with the genuine people and place. Certainly, the accents are both delightful and frustrating at the same time, but that probably only enhances the fun factor. The city is so walkable, and dare I say, relaxed, that you really can just get lost for the thrill of it. You get lost in the architecture (most of which is hundreds of years old) and the public places are there for you to enjoy and helps you become one with the city. You're not an outsider.

Have a wee dram of scotch, talk politics, and share a laugh with anyone and everyone you meet and you'll be better for it. It's a magical place, Marcus. Indeed, very magical.



David first began using AutoCAD in 1987 in the Structural Engineering discipline. He later joined the Board of Directors for NAAUG, and later AUGI. He is an established technical editor and author, having worked on over eight books. He also teaches at Autodesk University and occasionally writes for magazines such as AUGIWorld.

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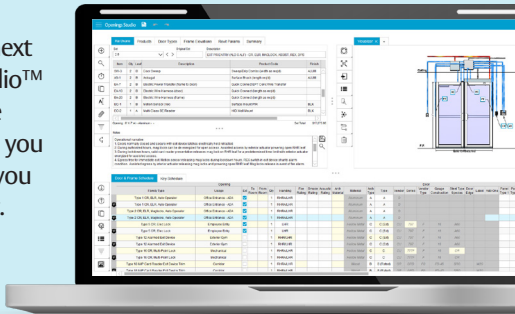
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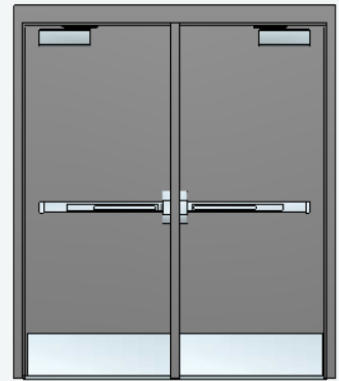
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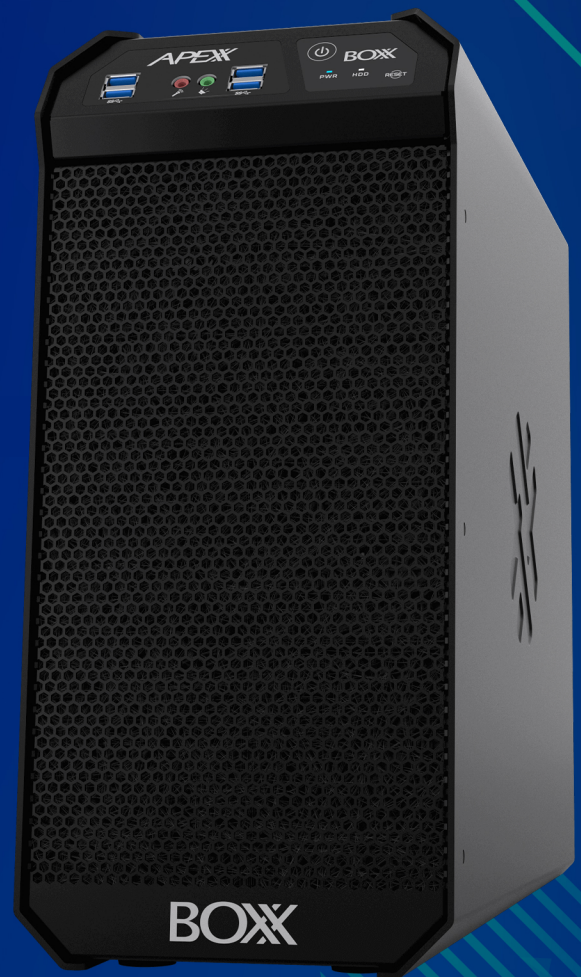
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