AUTODESK **UNIVERSITY** 2015

The Time is Now - Switching from AutoCAD® Architecture to Revit®: *The Right Attitude is Everything*

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AS9766 Are you considering a change? Is it time to make the move? Do you have the right attitude to use Revit Architecture? You may need to make changes in staff and rethink the way you do design. We will look at many of these issues and help ease your transition. If you already know how objects work in AutoCAD Architecture, and you know how a building is put together, then you are more than halfway home. Revit will help you continue on your BIM journey and help set you up for post-design use. Don't merely create drawings with your CAD package. Instead, create entire building designs!

Learning Objectives

At the end of this class, you will be able to:

- Create a checklist for success
- Describe similar functions in AutoCAD Architecture and Revit Architecture
- Address the challenges of moving to Revit Architecture
- Put together the right Revit team

About the Speaker

Tom is a highly experienced BIM/CAD/project manager who has demonstrated the ability to lead teams of design professionals in the highly competitive field of Architecture and building systems. An early adopter of CAD back in the 1980s, Tom's strong technical qualifications have been built on a track record of more than 25 years of hands-on CAD use and implementation of technology in many diverse production environments. His background in industry helps him to optimize the use of design technologies to improve workflow and ensure a positive return on technology investments. Tom is currently involved with working on Space Management solutions for Naval Facilities. Tom also holds Professional Certifications in both AutoCAD Architecture and Autodesk® Revit® Architecture.

Autodesk®

You've been working in AutoCAD Architecture, and it's taken you a lot further then just plain AutoCAD, but now what?

You'd like to take your firm to the next level and really get into this BIM thing. Although ACA (AutoCAD Architecture) is a BIM solution, it may not be the best solution for you and your company at this point. BIM and Revit seem to be synonymous with each other and they are.

Revit can take us into new and exciting directions.

We, of course may be a little hesitant to jump into the Revit pool and leave ACA behind.

But there is good news

That news is, that you get to take all the concepts you've learned/developed in ACA with you.

That's right, everything you know about how objects work in ACA will come in handy with Revit. I truly believe that once you understand and know ACA, for the most part you know a lot about Revit. It's just a matter of finding the right triggers.

P.M.A. (Positive Mental Attitude)

"The Right Attitude Will Go A Long, Long Way"

One of the things that we have to remember is that Revit is not AutoCAD and it doesn't work like AutoCAD. Revit is really a 3d design tool working completely with objects (e.g. Walls, doors, & windows). Working in Revit is more like building a building then drawing one.

Look, the great thing about Revit is that all the objects work almost the same as in ACA. So if I know how to place a wall in ACA, then you can place a wall in Revit. If I can build a wall (components) in ACA you can build a wall (components) in Revit. All the fundamentals are just about the same, there are of course a few differences but we can work through those fairly easily.

So, before we get started there are a few questions we should ask.

Questions

One of the first things we need to ask ourselves when moving from ACA to Revit is:

- Why move from ACA to Revit in the first place?
- What is the gain in changing?

- Why wouldn't I want to stay with a package that uses AutoCAD and the AutoCAD environment/interface?
- In what way are Revit models different then ACA models and how would my firm benefit from this?

The answers to both of the first questions are ***"Opportunity"***, Revit can and will give us more opportunities. And the other thing that we gain is the ability to spend more time in DD (Design Development) then CD's (Contract Documents).

The answers to the second set of questions:

The main reason is ***"habits or should I say bad habits"*** because Revit isn't AutoCAD you can't fall back on any bad habits that you or your staff may have devolved over the years.

And the real difference between a Revit model and ACA model is ***"Bidirectional Associatively and Parametric Relationships"*** What this means is that you can make a change anywhere or in any view in a Revit model and it will update throughout the building.

Let's look a little closer at what BIM is and some of the opportunities we can achieve.

- **Improved Quality**
  - You can evaluate and make changes to your building at any time during the DD or CD phase without all the difficult and time-consuming coordination tasks.
- **Greater Productivity**
  - You can design and document the building at the same time. When making a change, the consequences of that change are reflected throughout the project. Schedules, color-filled diagrams, spaces, drawings, are created dynamically while work is being done and updated in real time.

- **Lower Cost**
    - Design teams can get more done with fewer resources. This means lower costs and lesser chances for miscommunication. It can make a small firm seem large and a large firm more efficient. All this will lower costs.
- **Visualization:**
    - Renderings, animations, etc…
    - Give floor plans something more, by providing 2D, 3D rendered layouts. Ex. Brochure layout, web, model structures, etc...
    - 3D Walkthroughs / Flythrough
    - All done in-house during any phase of the design process.
- **Facilities Management:**
    - The Owners or your own company with facilities management departments can make use of the model for renovations, space planning, maintenance and more.

This of course isn't a full list but you get the idea.

And you're probably saying to yourself right now that I thought ACA was going to do all of that for me.

- Well it can, but Revit can do it a little better.

Let's talk some about ***"Bidirectional Associativety" and "Parametric Relationships"***

Revit is in one Database and ACA is in what is called a fragmented file system. That means we have a first floor.dwg and a second floor.dwg and so on. Everything, all levels, are in one Revit file. Having everything in one Database is what allows Bidirectional associatively to work.

Now don't worry about that, because if you've been using the project navigator in ACA, working in one database won't seem strange at all.

Remember: The Right Attitude is everything – Keep an open mind

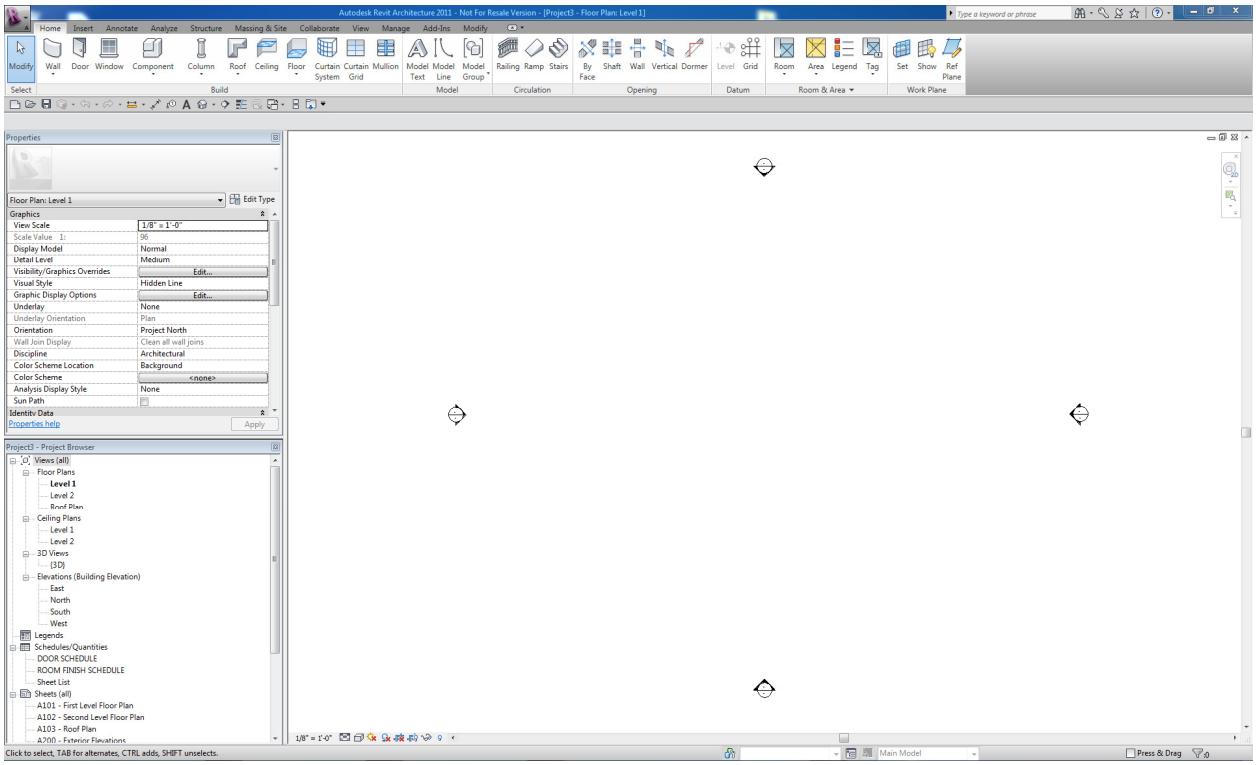
Our Evolving Industry

"The first step toward change is awareness. The second step is acceptance"

-Nathaniel Branden

Let's go ahead and look at some of the similarities between Revit and ACA (AutoCAD Architecture)

At first glance *(Figure 1.1)* we think that Revit doesn't look anything like ACA. And you know what, you'd be right.



(Figure 1.1)

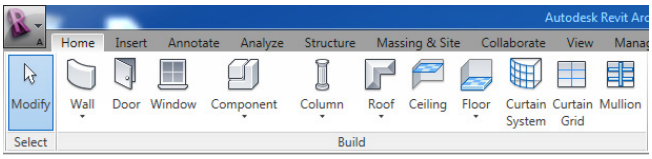
Revit has a very different look and feel about it, especially coming from ACAD or ACA. It has a much simpler interface. No tool bar or tool palettes taking up screen space. As a matter of fact I see very few tools at all.

Ah, but if we look a little closer we'll start to see things that look familiar. Like something that looks a little like my tool palette tabs in ACA *(Figure 1.2)*.

ACA Design Tool Palette Tabs

(Figure 1.2)

Revit Architecture Home Tab

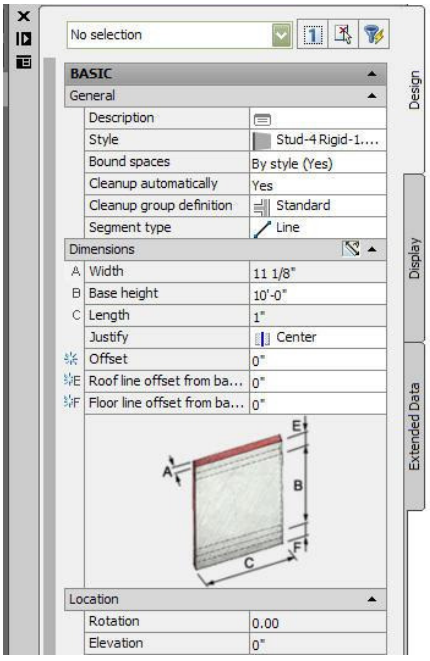


(Figure 1.3)

On the **Home** tab of the Ribbon *(Figure 1.3)*, you can see it has some of the objects that we see on the ACA tool palette.

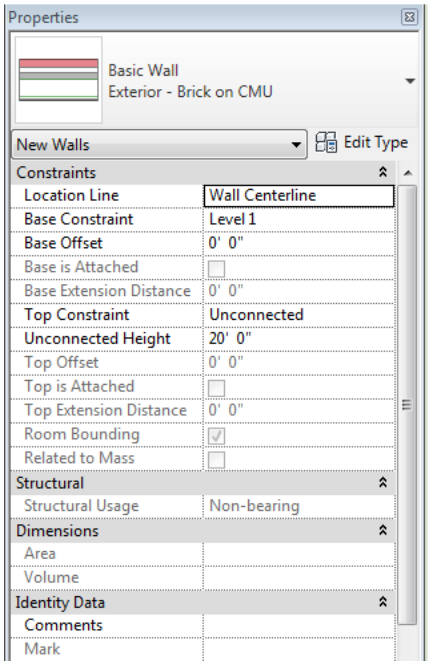
Once we've chosen a command, "Walls" for example, the Revit interface will change and we'll see that the Revit "Properties" palette *(Figure 1.5)* looks very similar to what we are used to in ACA (*Figure 1.4)*.

ACA Properties Palette



(Figure 1.4)

RAC Properties Palette

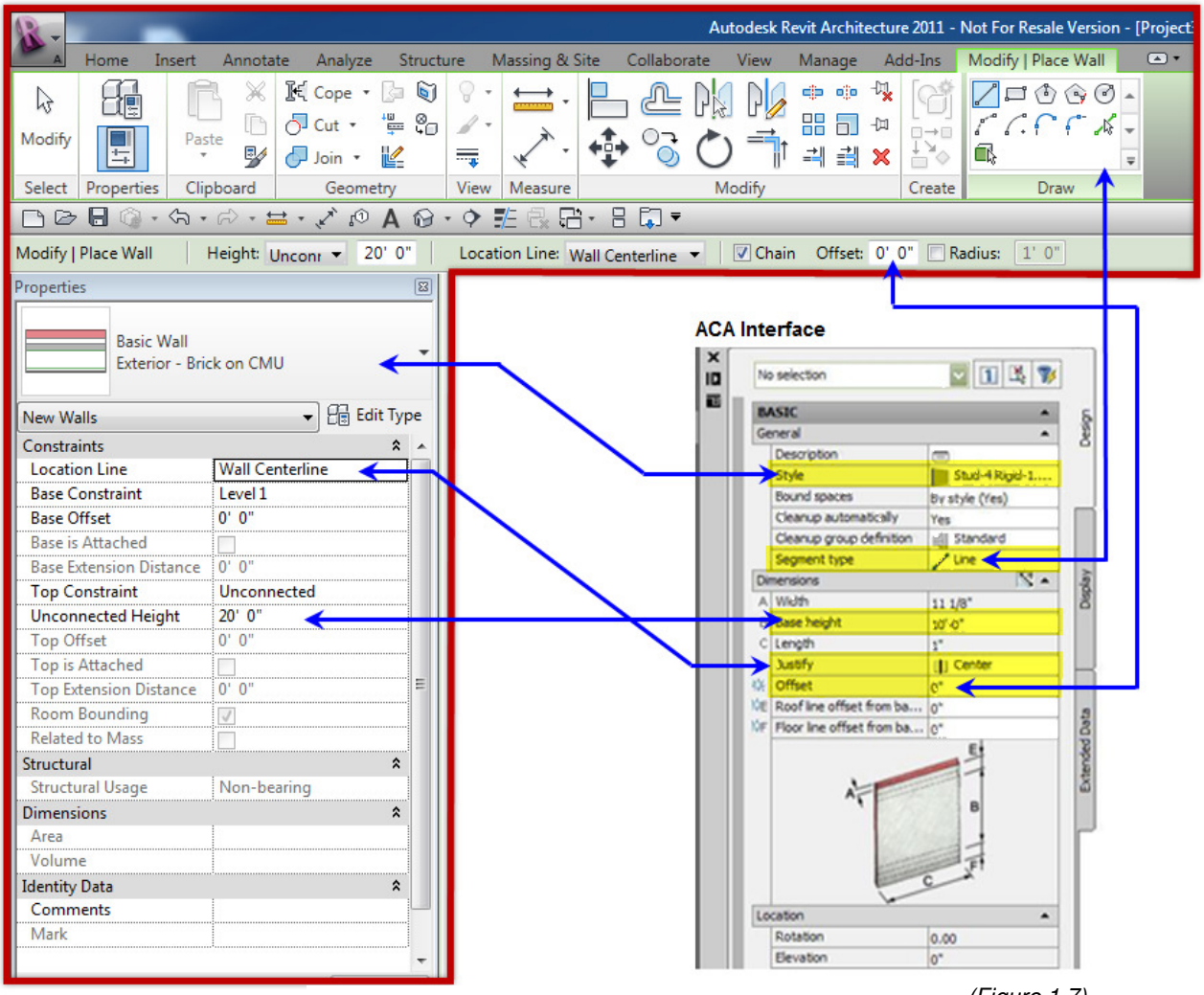


(Figure 1.5)

You will see a lot of the same options in Revit *(Figure 1.6)* that are available in ACA *(Figure 1.7)*. Not everything is the same but enough that you would know how to place a wall.

Let's look at some more similarities between the two, still dealing with WALLS.

Revit Interface



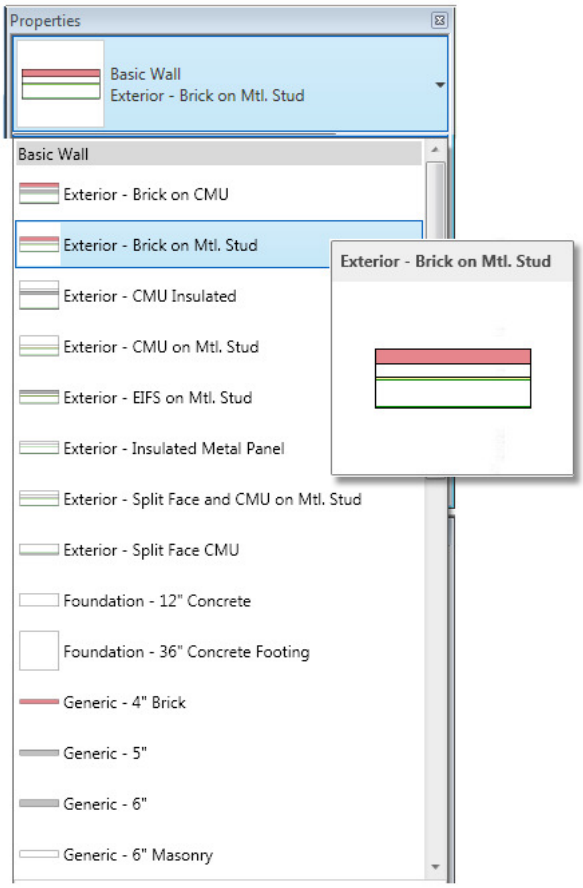
(Figure 1.6)

ACA Interface

(Figure 1.7)

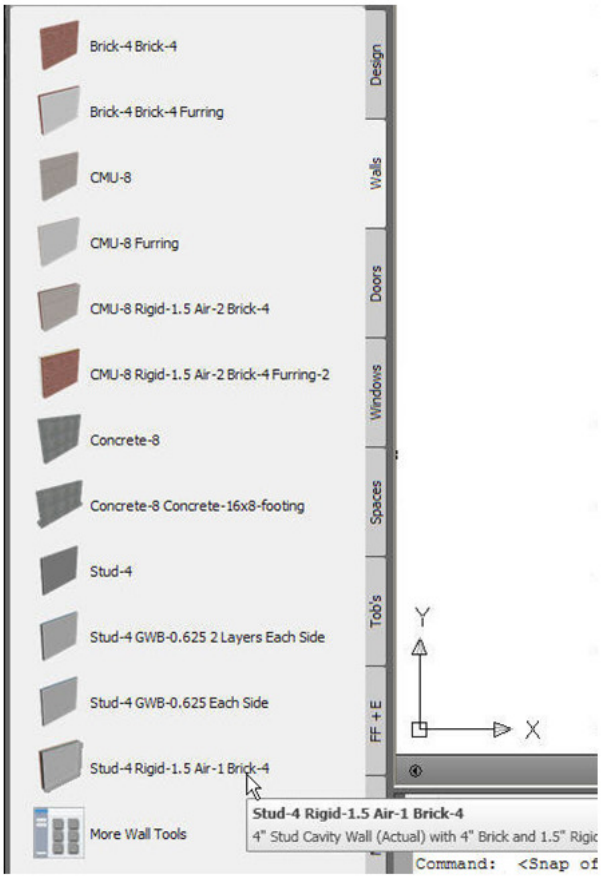
In ACA we have, as you all know tool palettes, we have a “WALLS” tool palette that is given to us right out of the box. I’m sure many of you have already created custom tool palettes with your firms’ walls on it. The same thing can be done in Revit, the only real difference is that it is a drop down menu *(Figure 1.8)* and not a tool palette *(Figure 1.9)*.

Revit Interface



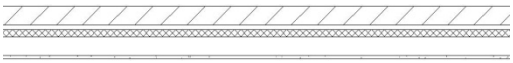
(Figure 1.8)

ACA Interface



(Figure 1.9)

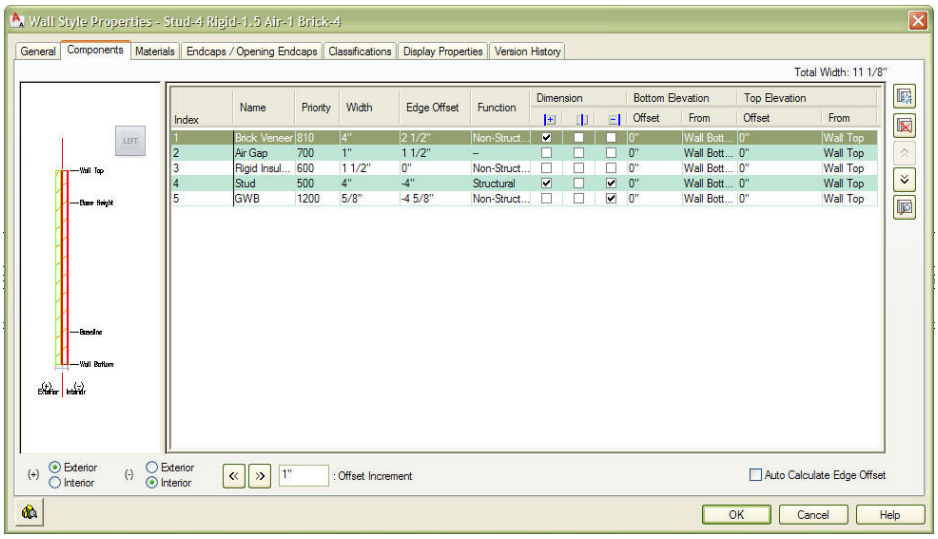
If we look at the two walls in each system we see how they are displayed. The ACA wall *(Figure 1.10)* and the Revit wall *(Figure 1.11).*



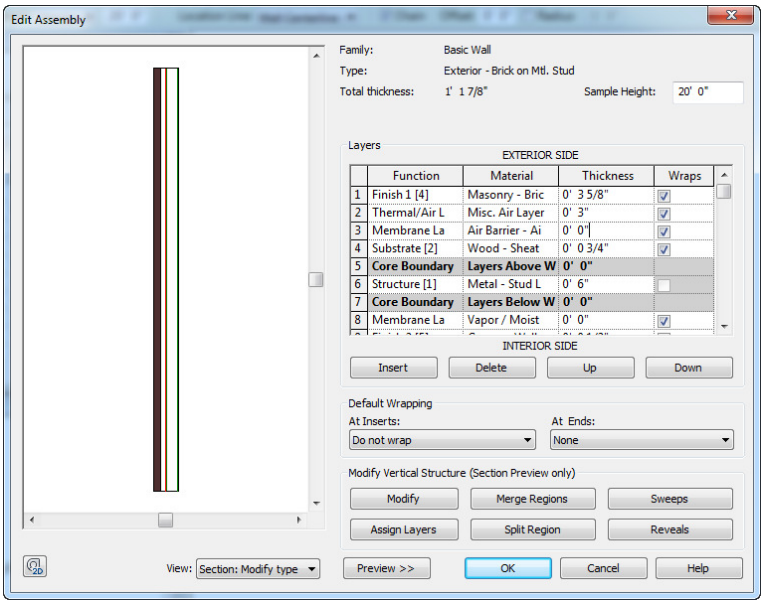
(Figure 1.10)

(Figure 1.11)

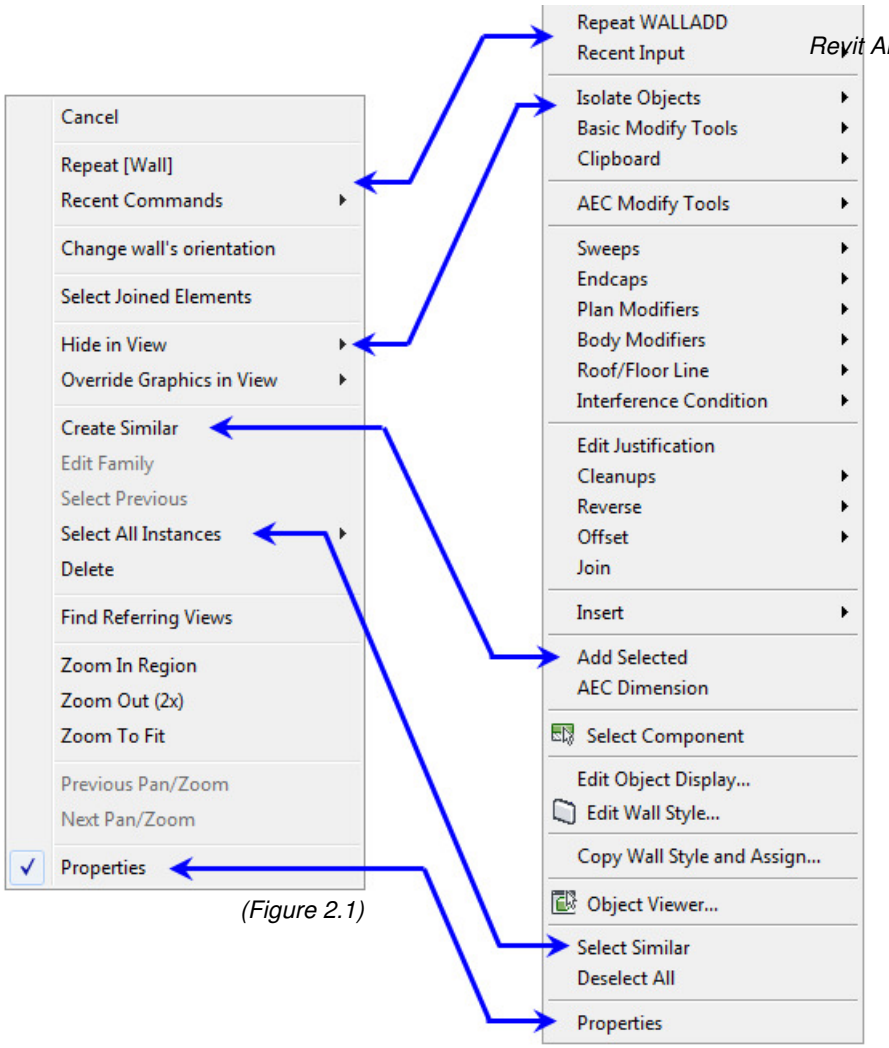
We can see that although they aren't exactly the same, there are some size differences between the two, but they are very similar. Both walls are displayed at medium detail in each of their systems. And if we take a look at how the walls are created we will again we see a lot of familiar things.



As you can see they both have preview windows, areas to assign and size your components. In ACA you can switch tabs and assign materials. You can also assign materials in Revit. You may not know everything you need to know about Revit walls, but you know more then you thought you did.



There are a lot of other things that are the same. For example, on Revit right click menu *(Figure 2.1)* there are many tools that are similar to those on the ACA right click menu *(Figure 2.2)*.



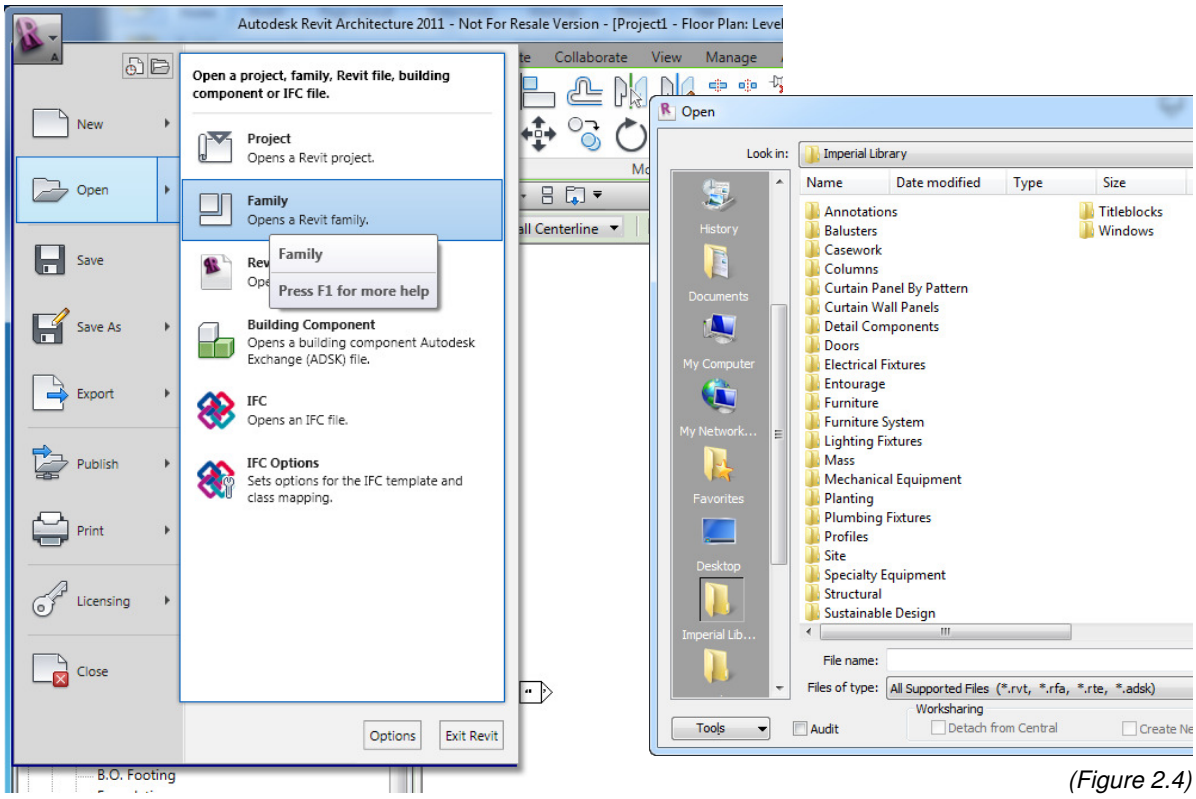
(Figure 2.1)

Revit Architecture

(Figure 2.2)

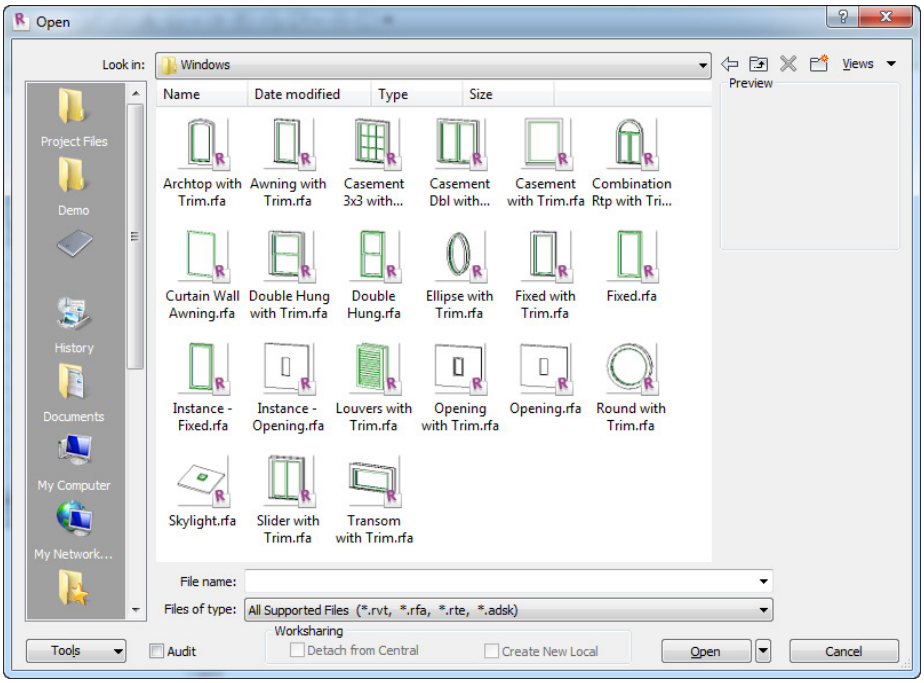
I've been giving some of these examples just to bring home the fact that the things you've learned in ACA are still applicable in Revit. Although the interface is different, the concepts are the same. Everything that we've looked at with the walls are the same for the other objects in Revit. Windows and doors are very similar. There's even an equivalent for the ACA content browser, it's the Imperial Library. Revit doesn't use "Blocks" they use "Families", and inside the Imperial Library folder is a set of objects that Autodesk has given us, just like in ACA.

Go to the Big "R" for Revit *(Figure 2.3)* in the upper left hand corner- then go to "Open" – "Family". A new pop up window will appear, that's the "Load Family" menu *(Figure 2.4)* – go to the "Imperial Library" folder. Pick the Family that you want to load off the list i.e. "Windows" – you then see the list of windows to choose from *(Figure 2.5)*.



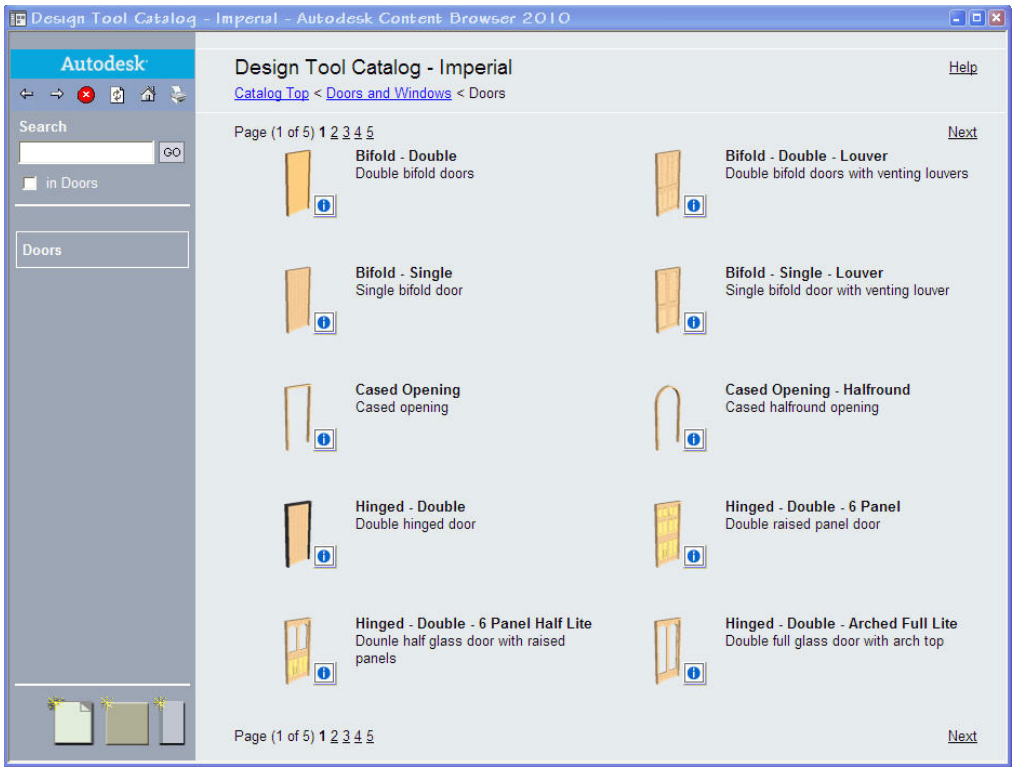
(Figure 2.3)

(Figure 2.4)



(Figure 2.5)

As you can see the Revit "Load Family" is very much like the ACA "Content Browser" *(Figure 2.6).*

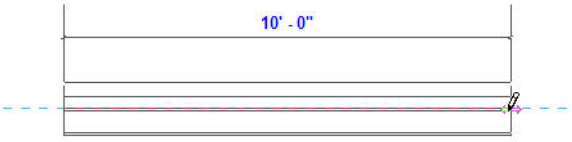


(Figure 2.6)

Now, that we can see that many of the tools are similar, we can move onto actually creating the drawing/model.

One of the biggest changes that you will have to get use to right away is that Revit's default units is feet, and AutoCAD & AutoCAD Architecture is inches. It's just getting into the habit of not having to put the foot tick mark in.

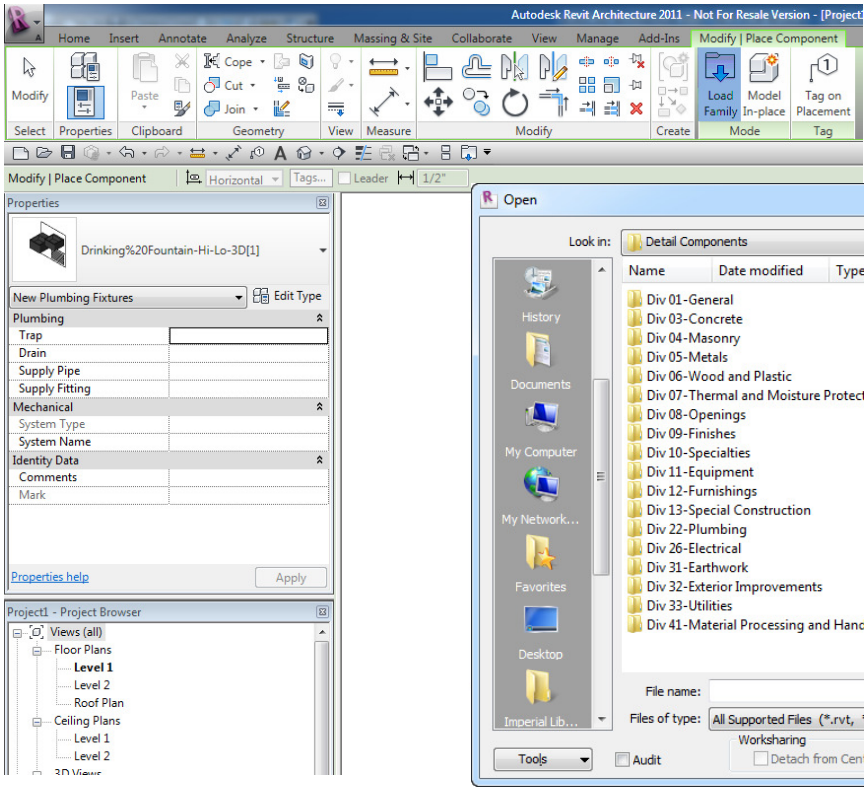
When placing walls in Revit they function very much like ACA. They both have temp dimensions to help you construct your model with key-in fields. They both (if ACA polar is on) snap to the vertical and horizontal.



Revit Architecture

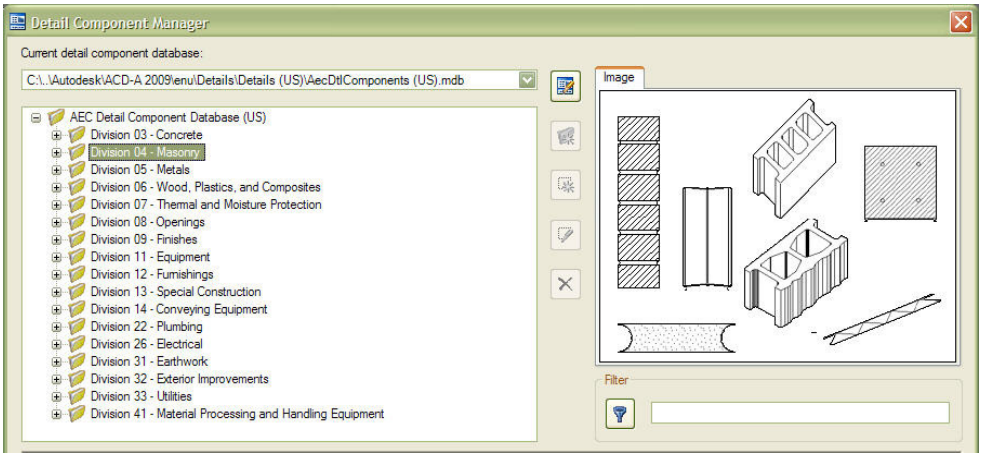
AutoCAD Architecture

From switching from 2d views to 3d views to moving around in 3d using the view cube (New in all packages 2009), to dragging and dropping views onto sheets. Revit Architecture and ACA go hand in hand. All the concepts are the same as I've shown you with the walls. Remember, the walls are just one example. As I've mentioned before many of the other objects work the same way as the walls. One other area that you will feel right at home with is detailing and creating details. Yes as with ACA you will still need to create some details. Remember we aren't modeling everything, and just because we could, doesn't mean we should.



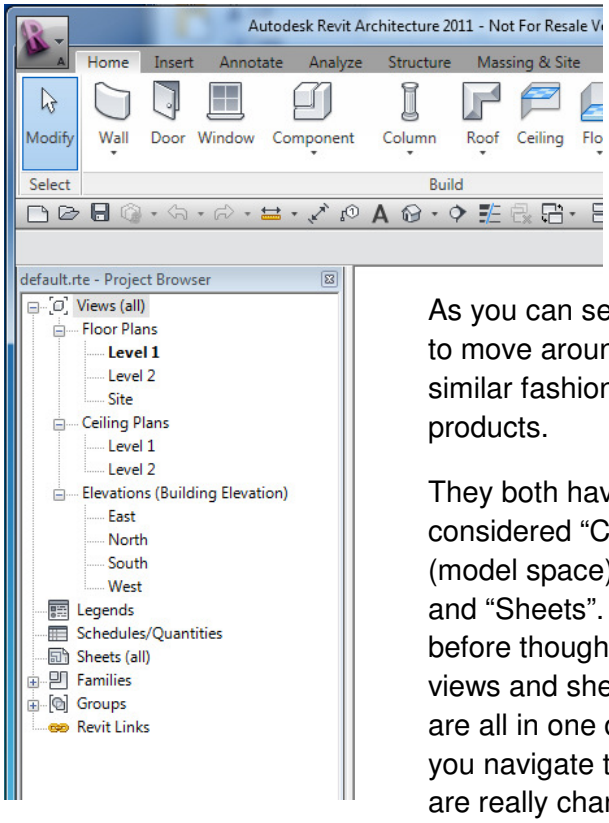
(Figure 2.7)

As you can see, once we've selected "Component" from our "Home Tab" it then loads the "Place Component Tab" for us to use. You can choose the "Load Family" button on new "Options Tool Bar" and we see the same "Load Family" popup menu. From there we can go into the "Detail Components" folder *(Figure 2.7)*. You can see it's laid out in the CSI Divisions just like the "Detail Component Manager" in AutoCAD Architecture *(Figure 2.8)*.



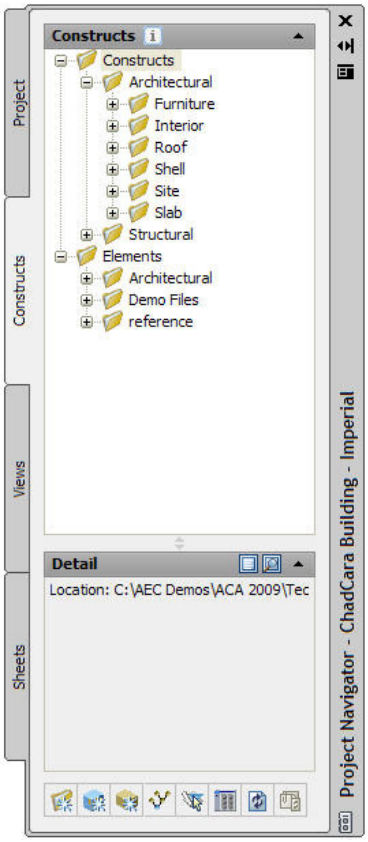
(Figure 2.8)

There is one more example I'd to show you, and that's Revit's "Project Browser" it's very similar to ACA's "Project Navigator".



As you can see you are able to move around your model in similar fashion with each of the products.

They both have what would be considered "Constructs" (model space) and "Views" and "Sheets". As I mentioned before though, all of Revit's views and sheets and so on are all in one database. When you navigate though ACA you are really changing drawings (.dwg's).



Now, by all means Revit and AutoCAD Architecture are not the same product. But if you understand the way AutoCAD Architecture works and functions, moving to Revit Architecture won't seem hard at all.

As a matter of fact it will seem as if this is the next logical step in our BIM evolution.

Our Evolving Industry

"Any change, even a change for the better, is always accompanied by drawbacks and discomforts".

Arnold Bennett

Yes, that's right drawbacks and discomforts or as I like to call them "Challenges".

You are facing a *"Change"* a Challenge.

Remember: P.M.A. (Positive Mental Attitude)

CHALLENGES 

There are some challenges that firms are going to run into when moving from AutoCAD Architecture to Revit Architecture. I've tried to list a few of them for you. But Don't Panic, it's not anything you can't handle.

- **Knowledge – Know How** 

  You and your firm know AutoCAD and AutoCAD Architecture pretty well. What's going to happen to all my existing knowledge? Don't worry, as I've mentioned earlier if you *really* have been using ACA, then most of your knowledge will go with you.

- **Resources Pool** 

  I won't kid you here; your pool for new hires will be smaller. In the past you could take an AutoCAD user and quickly get them to ACA. If they don't already know ACA or Revit it will be a little tougher. You just need to know this and plan for it. As BIM (Revit) grows so will your pool of resources.

- **Working Well With Others** 

  Remember, not all of your consultants may be using Revit. So working with multiple disciplines inside or outside your firm may have some challenges of their own.

- **Budget** 

  That's right money. You are making an investment in Revit, with that comes time to setup and learn/train on the new system. Yes, as I've stated throughout this document if you know ACA this time will be less. But it all does affect the bottom line.

MIGRATE TO REVIT WITH SUCCESS 

- **Management** 

Management Understanding & Buy-In are Mandatory

That's right management. If management isn't behind this process and support the idea of moving from AutoCAD Architecture to Revit Architecture you may end up not making it. Management needs to understand that although the concepts are similar, this is a different way of working and that there may be some people who are not on board with the change. Many users' who don't what change will try to buck the system. Management needs to step in and back up the new system. They've put some time and money in this and need to see it pay off.

 **More Questions**

Is your firm really ready to make the change?

- Many have tried and not made it, mainly because of lack of standards & control. If you haven't already done so, you need to create a whole new set of standards & control for the way a 3d BIM program like Revit works.

What components are really needed?

- Firm standards must be revised, rather than matching existing CAD standards. An entire new set of standards will be needed to allow for control over material naming/management of the rendered model.

1) Create a Transition Plan. 

- Take an objective look at your Firm.
- Plan for existing process revisions:
  - ✓ Standards, Control, Knowledge & Constructability
- Clearly define and understand your goals.

2) Put together the Right Team. 

- Internal Leaders
- Resistance

What kind of Team do I need?

- Revit requires a diverse team. Make sure to include project architects, project managers and others involved in the decision process. This is not just a cad drafting solution.

Remember Attitude is Everything (P.M.A)

Some will feel at ease immediately with Revit, especially when coming from ACA, while others will struggle. The strugglers might bring a lot of talent and experience to the team and if they don't grab a hold of the system right away give them some time. Every member needs to respect each other, work together and build each other up to their level of knowledge (if each member is motivated to do so). You also need to recognize those that drag down the rest of the team with their attitude. This goes back to management buy-in. If management is on board, then where do those with the bad attitudes go to complain?

3) Choose the Right "Pilot" or "Test" Project. 

What is a "Pilot" project and what it isn't?

- A Pilot project would be a simple design project that is billable. It isn't on a fast track time schedule.
- A Pilot project isn't a large complicated project that has a short dead line. What we want to do is have project that allows us to learn the software, and not worry so much about the building.

What is a "Test" project?

- A Test project is a simple existing project that you can redraw. It's non-billable. Its purpose is to learn how Revit works without the worry of design.

4) Define What Is Needed.

- What needs to be done now vs. later?
  - ✓ Organization Standards - Use a *"Phased Approach"*.
  - ✓ Consider ROI on time spent to create - Hardware.

Focus on good templates, well created families, organized drawing and tuning up office standards. Firm standards and protocols must be revised.

What is a *"Phased Approach"*?

- Many people have the wrong idea and tend to panic when it comes to the implementation of Revit Architecture. They believe they have to use the whole product right from the get go. Just because we're going to use this feature doesn't mean we have to use all the features. If you think that's what you have to do, then you're not going to be successful.

5) The Right Mix of Training & Education.

- Self-Motivated Education.
  - ✓ Product Tutorials – Trial & Error – Hands On – Lunch & Learns
- Packaged Learning.
  - ✓ Feature Based - Process Based - Project Based Training.

6) Provide Ongoing Support and Mentoring.

- Support – Internal & External.
- Mentoring – Project & Organization.

7) Constantly Evaluate and Adjust.

- Search out areas for improvement (dedicated project reviews)
- Get feedback from users, peers & partners
- Evaluate staff (determine a baseline levels of knowledge for new and existing)

"Checklist for Success"

1) Create Your Revit Transition Plan

2) Put together the Right Team

3) Choose the Right "Pilot" or "Test" Project

4) Define What Is Needed

5) Choose the Right Mix of Training & Education

6) Provide Ongoing Support and Mentoring

7) Constantly Evaluate and Adjust when Needed

CONCLUSION

Remember –

If you already know and use AutoCAD Architecture then moving to Revit won't be that hard. If you know how a building is built or put together then you already know a lot about Revit. All the concepts from ACA are the same.

A "Phased Approach" is the best way to implement Revit.

P.M.A

(Positive Mental Attitude)

"The Right Attitude is Everything"

Well that about sums it up.

Thank you for your time

I hope you enjoyed this session and learned something

Looking for more information

Contact me at:

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Exceeding Expectations & Providing the Most Innovated Solutions Possible.

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