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BIPS

2009

Revit Structure/MEP Secrets Exposed!

Presented by:

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Jeanne Aarhus is known for keeping her training sessions fast-moving and fun while still providing a thorough understanding of the topic. She has been working with various CAD systems and applications since the early 1980's, when she began using Intergraph's VAX-based IGDS system. She has gained experience in many CAD related fields that have included production drawing, coordination, end-user support, programming, and training for PC and UNIX based CAD applications.

Her specialty is in providing users with the necessary tools to increase productivity and get the job done as efficiently as possible. She has 25+ years of experience using MicroStation and AutoCAD in the Mapping and AEC environments, and she continues to focus on maximizing the users time and productivity using these constantly changing tools. She has experience in many Bentley and Autodesk products which enables her to assist users moving from one CAD environment to another easily and proficiently.

She has conducted seminars and workshops on CAD productivity for managers and users in both corporate and college settings. Jeanne has provided training workshops and been actively involved in International, National and Local CAD Users Groups, and is known for her "real-world" approach to learning. Here are a few comments from previous students:

- ... Presentation was exactly what I was looking for!*
- ...Jeanne is a great instructor!... Lots of energy!... Made learning fun again!*
- ...Jeanne is very knowledgeable!...and was very pleasant and patient when I needed help!*
- ...Excellent knowledge from instructor, able to answer any questions with real life experience!*
- ...Jeanne Aarhus is one of the best instructors I have ever had*

Available Training Classes

Bentley Products

- MicroStation V8i or XM Update
- MicroStation Fundamentals
- MicroStation for AutoCAD Users
- MicroStation for Power Users
- MicroStation for CAD Managers
- PDF Composer
- Interplot Fundamentals

Adobe Products

- Adobe Professional for CAD Users
- Integrating PDF's into your Projects

Autodesk Products

- AutoCAD 2010 Update
- AutoCAD Fundamentals
- AutoCAD Advanced
- AutoCAD Plotting and Sheet Sets
- AutoCAD Architecture 2010 Update
- AutoCAD Architecture Fundamentals
- AutoCAD Architecture Advanced
- AutoCAD Architecture for CAD Managers/Power Users
- MEP Fundamentals
Mechanical/Electrical/Piping
- RAC for ACA Users
- RAC Fundamentals
- RST Fundamentals

Other Presentations & Workshops

- Productivity Tips & Tricks
MicroStation or AutoCAD
- More Tips & Tricks
MicroStation or AutoCAD
- Customizing MicroStation or AutoCAD
For the USER
- MicroStation for AutoCAD Users
- AutoCAD for MicroStation Users
- Workspaces
Making Them Work for YOU
- AccuDraw & Smartline
- Cool Tools for MicroStation
- Cool Tools for AutoCAD
- What's NEW in MicroStation V8i or XM
- MicroStation "Interesting Occurrences"
ie. (Dirty Tricks)
- Using Styles in V8i or XM
- Migrating to V8i or XM
- V8/XM Tips for Users
- V8/XM Tips for CAD Managers
- What's NEW in MicroStation V8i or XM
- Automate Your Standards
MicroStation or AutoCAD
- Manage Your Standards
MicroStation or AutoCAD

Custom Training/Workshop also available



Revit Structure/MEP Secrets EXPOSED!

45 minutes

This session is also filled with time-saving tips and tricks that can be used to increase your productivity immediately. Learn both new and old tips that can make you a better user everyday. Attend this session to improve your Revit skills today so YOU can be more productive tomorrow.

If you have a COOL TOOL that you would like to share with your peers...see me after this session or give me a call or email. There is no way I can find them all on my own! 😊

LEGEND



2010

Available in RST 2010



2009

Available in RST 2009



2010

Available in RME 2010



2009

Available in RME 2009

QUICK Secrets!

Sometimes it is the littlest of tips that make the difference. Check these out!

1 Take the Links Home



Did you know that there are product links on the RECENT FILES PAGE? Use these for quick access to:

- www.autodesk.com
- Revit Structure, Revit MEP or Revit Architecture home page
- Autodesk Seek web libraries

2 Easy Ribbon Customizations



Use the new Ribbon interface to your advantage. Undock and move the Project Browser or any common ribbon panel to a second monitor or another screen location. Revit now remembers these changes when you restart the application. Finally!

3 Reset the Ribbon



Now that you know how to customize your Out-of-the-Box Ribbon; you will need to know how to reset it back to the original. Just in case you totally screw something up! 😊

STEP 1: Download the following file from the Autodesk web site.

autodesk_revit_structure_ui_reset.vbs

STEP 2: Close the Revit application.

STEP 3: <Double-Click> on the .VBS file and pick RUN to run the script.

STEP 4: It will reset both the Ribbon and the Quick Access toolbar.

STEP 5: Pick YES to continue and YES if you want to backup your current interface.

4 Speed up the Ribbon



You can speed up the Ribbon tabs by loading them into memory at the beginning of the design session. Just select each ribbon so that it is stored in memory. You can also use the mouse “wheel” to scroll between ribbons quickly.

5 Dialog Trails



If you still experience those pesky dialog trails as shown below when you move a dialog in Revit; try changing the following Windows setting to improve your visual display.

- STEP 1: <Right-Click> on the Windows desktop and select PROPERTIES.
- STEP 2: Select the APPEARANCE tab
- STEP 3: Pick the EFFECTS button
- STEP 4: Clear the setting for SHOW WINDOWS CONTENT WHILE DRAGGING
- STEP 5: Continue to pick OK to save and close the dialogs.

6 Can I use an ACAD Hatch Pattern?



The answer is “Yes, you can!”

- STEP 1: Open the ACAD.PAT file that contains the pattern definition COPY the section of the .PAT file to the windows clipboard.
- STEP 2: Open the REVIT.PAT file located in the following location, and PASTE the pattern section into this file.
- STEP 3: SAVE the REVIT.PAT file.
- STEP 4: Select MANAGE → SETTINGS → FILL PATTERNS
- STEP 5: Pick the NEW button and name and scale your new pattern.

Remember with Revit, the .PAT file is named either Revit.PAT (Imperial) or Revit Metric.PAT (Metric)

7 Spacebar



Use the SPACEBAR to ROTATE components. Check out how to do this on multiple columns!

8 Quick Shortcuts



XX or CC for CLOSE HIDDEN WINDOWS. Or had it to your QUICK ACCESS toolbar.

```

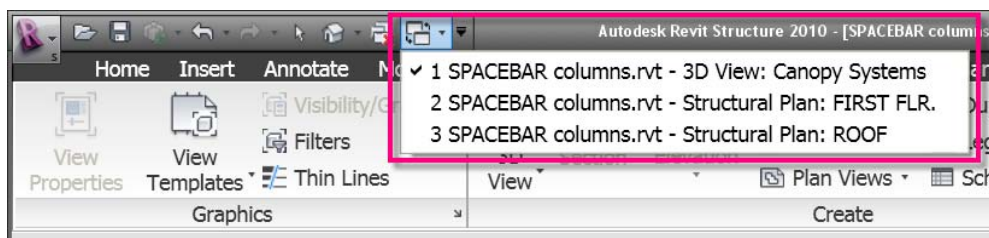
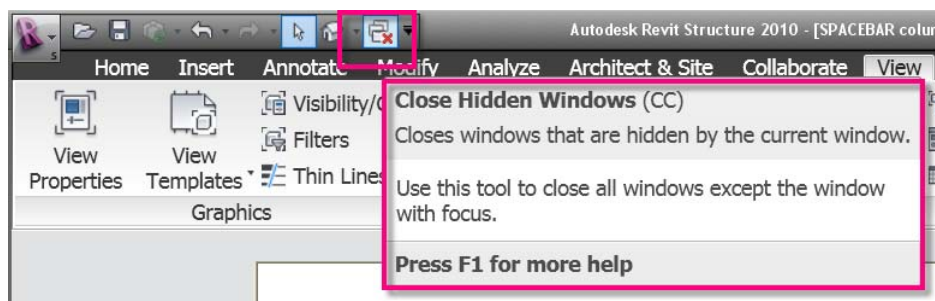
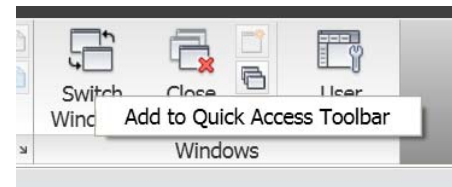
; ribbon: "View-Sheet Composition-Activate"
; ribbon: "View-Sheet Composition-Deactivate"
"CC" ribbon: "View-Windows-Close Hidden"
; ribbon: "View-Windows-Replicate"
"WC" ribbon: "View-Windows-Cascade"
"WT" ribbon: "View-Windows-Tile"
; ribbon: "View-Windows-User Interface-ViewCube"

```

9 Quick Access



You can also add any commonly used tool to the new QUICK ACCESS toolbar located in the application titlebar. Add any tool to the QUICK ACCESS toolbar using the <Right-Click> menu on the desired tool. Get immediate access to the tools YOU use most often.



10 More Shortcuts



Use standard Windows Explorer keyboard shortcuts to control the display of views in the Project Browser.

Windows XP Explorer Keyboard Shortcuts

END - Display the bottom of the active window

HOME - Display the top of the active window

NUM LOCK - Asterisk (*) - Display all of the subfolders that are under the selected folder

NUM LOCK - Plus (+) - Display the contents of the selected folder

NUM LOCK - Minus (-) - Collapse the selected folder

LEFT ARROW - Collapse the current select if it is expanded or select the parent folder

RIGHT ARROW - Display the current selection if it is collapsed or select the first subfolder

Don't forget your functions are available for shortcuts too!

11 Hidden Calculator



Revit's Hidden Calculator

When entering distances or parameters interactively, Revit's in-built calculator can come in very handy.

For instance, if you want to move an object say 4 times a given distance (1000), while in the COPY command, select the base point of the copy and instead of picking a second point enter '=4*1000' and press <Enter>.

This will also work when entering the distance for placing walls etc. Again, after placing the first point, enter the formula you need and press <Enter>. Revit will accept any of the standard calculation variables shown below:

- + add
- - subtract
- * multiply
- / divide

Examples:

= length/number = 22/3 = 7' - 4"

= length*3 ==22*3 = 66' - 0"

12 Sloped Floors

AUGI

Users keep asking how to do this in the discussion groups; so I will start with how to slope a floor. It is so simple, that users are missing it completely!

All you have to do is ADD A SLOPE ARROW to the floor while in sketch mode. Use the SLOPE ARROW properties to modify the specific properties for the slope.

13 Cut Openings in Beams or Columns



Many exposed structural building components are modified to improve their appearance. For example, you might need to cut openings in a large beam for aesthetic reasons, connections or interferences.

STEP 1: Select MODIFY → BY FACE and choose the face of the element where you want to create the opening.

STEP 2: Sketch the opening shape and pick FINISH OPENING.

Add stiffeners as needed using HOME → MODEL → COMPONENTS

14 Unconstrain all alignments and locks



Have you ever accidentally constrained an element to the wrong thing; or maybe the element is constrained to many elements and you don't really know how it happened?

You can remove all constraints from an element by simply cutting it to the windows clipboard and pasting it back to the same location. This clears all constraints and let's you "start over".

15 It's All in the Slant

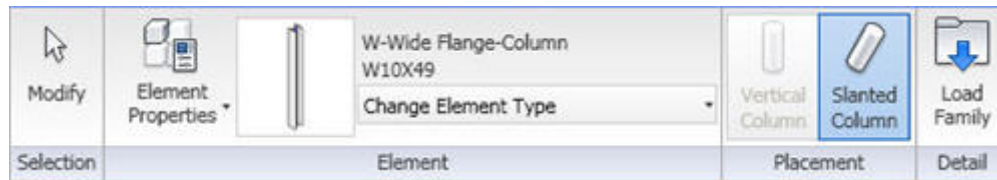
The Revit Clinic



Slanted Columns

This has been a wish-list item for a long time; and Revit Structure 2010 delivers!

- STEP 1: Open the ELEVATION view from the Project Browser.
- STEP 2: Add a column using the new SLANTED COLUMN command.



- STEP 3: Use the Beam/Column Join command to adjust the connections.

Slanted columns can be created in Sections, Elevations, and 3D views. They cannot be placed in Plan views.

Note: Currently slanted columns will not report a Column Location Mark or appear in Graphical Column Schedules.

Note: At this time slanted columns will not participate in the Copy/Monitor functionality.

Note: Slanted columns are not available in Revit Architecture and Revit MEP at this time.

16 Steel Connection Modeling

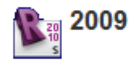
Autodesk Subscription



The new subscription tools available from Autodesk provide new tools to model typical 3D steel connections.

- STEP 1: Select a single column and beam connection
- STEP 2: Select the ADD-INS ribbon and select the EXTENSIONS MANAGER tool

17 Model Lines ⇔ Detail Lines



It isn't possible to change model lines directly into detail lines or vice versa. But you can convert them using the following steps.

- STEP 1: Create a view that contains the model or detail lines.
- STEP 2: Save the view as a DWG file.
- STEP 3: Import the DWG into a view. If you need drafting lines, check the "Current View Only". Leave this setting unchecked to import model lines.
- STEP 4: Explode the DWG.

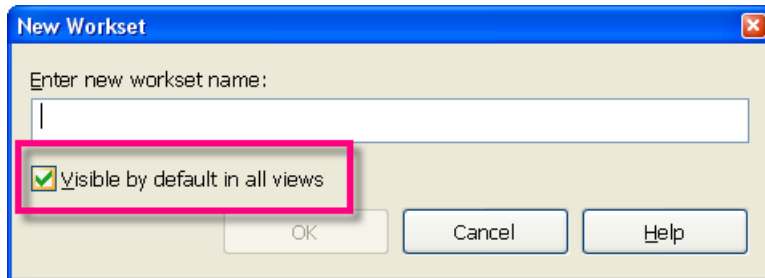
A New method:

- STEP 1: Create a view that contains the model or detail lines.
- STEP 2: Cut the lines to the clipboard.
- STEP 3: If you want model lines, start a new sketch based model element and paste the clipboard contents into the sketch view.
- STEP 4: If you want detail lines, start a new filled region sketch and paste the clipboard contents.
- STEP 5: Select the lines again; and copy them into the clipboard for a second time.
- STEP 6: QUIT the sketch based view or region
- STEP 7: Paste the new clipboard contents into the model.

18 Change a Worksets Visibility



When you create a workset you have the option to determine whether that workset is visible in all views or not. What if you have an existing workset and you want to change this option? There isn't an obvious way to do this.



- STEP 1:** Create a NEW workset with the visibility setting as needed.
- STEP 2:** Delete the OLD workset and when asked what workset you want to move any elements to; select the NEW workset (with the correct visibility setting).

19 How to remove a Beam Cutback

BIM and Beam



2009



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Have you ever wanted to disable or modify the automatic cutback on beams? Check this out!

First, there are two types of family templates for beams:

Structural Framing - Beams and Braces.rft

Used for two point placement beams and braces

Structural Framing – Complex and Trusses.rft

Used for type based length families

Template #1 - Structural Framing - Beams and Braces

Reference planes usage

- Left/Right - Extents of the geometry curve as shown by the blue dot when selected, which control the length of framing.
- Member Left/Member Right – Physical edge of the geometric extents, and which control the cut length of framing.
- Stick Symbol Left/ Stick Symbol Right – Extents of stick representation when symbolic representation is set to "From Family".

Behavior in project

The topmost point of the framing will attach to the current level automatically.

Also, the insertion point can be changed (if needed) using "z-Direction justification" parameter.

Have the option to add rebar, but only can add reinforcement to the regular shape framing.

Template #2 - Structural Framing – Complex and Trusses

Reference planes usage

NONE

Behavior in project

Relative position with current level will be based on the "insertion point" which is defined in the family editor. Shown below,

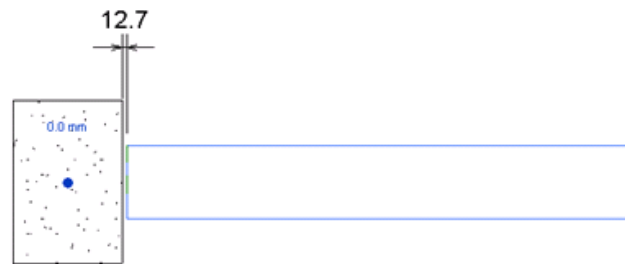
Have NO option to add reinforcement.

For the beam that is created based on the "Structural Framing - Beams and Braces.rft", the geometry cut back is controlled by reference planes - Member Left/Member right and the Structural Material Type, as well as the boundary box of the geometry the beam is connecting to.

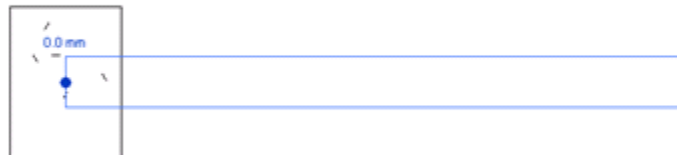
Predefined setbacks are as listed below.

- Steel = 1/2" (12.7mm)
- Concrete = 1/2" (12.7mm)
- Precast Concrete = 1/2" (12.7mm)
- Wood = 0" (0mm)
- Other = 1/2" (12.7mm)

Shown as:



Sometimes, users don't want the auto setback and want to control the beam precisely from the column center, for this situation, predefined setbacks can be over-ridden in the definition of family by constraining the ends of geometry to the reference planes – Left/Right, which are the ones that control the end of the geometry curve as shown by the blue dot when selected. In this case, cut length will always equal to length.



20 Change Reinforcement Alignment Edge



2009



2010

Use the MAJOR DIRECTION EDGE tool to change the direction of your reinforcing. For example, you want to change the direction of the AREA reinforcement.

21 Beams with sloped edges *Dave Baldacchino do-u-revit.blogspot.com*



2009



2010

How can you add a sloped end to a beam element?

If the beam end is cut with a straight line it is a simple process.

- STEP 1:** Add a reference plane to the elevation view and use the CUT GEOMETRY tool to cut the beam with the reference plane.

If you want to cut the end of the beam with a curved edge. Try this!

- STEP 1:** Select MODIFY → BY FACE and sketch the curved edge profile to define the element opening.
- STEP 2:** Select the FINISH OPENING button to complete the command.

Note: You will possibly get an error warning about cutting the host element. As far as I can tell this is a warning that can be ignored to achieve the desired result.

Note: This method is not available in Revit Architecture or Revit MEP.

22 Better Viewing



Each view in Revit has a specific discipline setting that can be applied to a view. This setting is very important when working in Revit Structure or Revit MEP. For example, when working in an Electrical Lighting Plan the light fixtures will display if the discipline is set to any of the following: Electrical, Mechanical, or Coordination. However, the light fixtures will only display if they are within the View Range specified.

In Revit MEP Ceiling Plan views, the “UNDERLAY ORIENTATION” must be set to Reflected Ceiling Plan in order to see the ceiling grids, even if the view’s Underlay option is set to NONE.

Use the Coordination discipline to help find missing elements and narrow down the list of potential problems.

23 Showing hidden lines of in-place Families



Quite often In-place Families don't show their hidden lines and the show and remove hidden line tools are disabled when the graphics style is set to hidden line

Strange but true.

If you switch the view discipline from Structural to Architectural then these tools are enabled.

Apply the hidden lines by first clicking the object you want to see through, then the object you want to see under.

Remember to switch your view back to Structural afterwards

24 Concrete Beam Hidden Line Display Parameter



2009

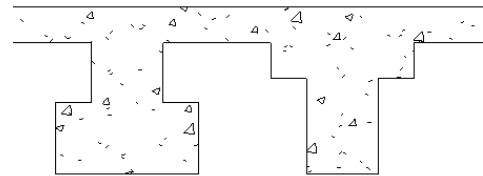


2010

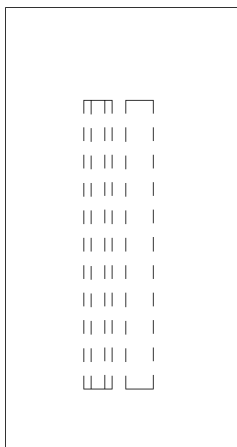
You can modify the display of hidden lines in Revit using the DISPLAY IN HIDDEN VIEWS settings. There are three possible settings you can choose from:

- **Edges Hidden by Beam Itself**
- **Edges Hidden by Other Members**
- **All Edges**

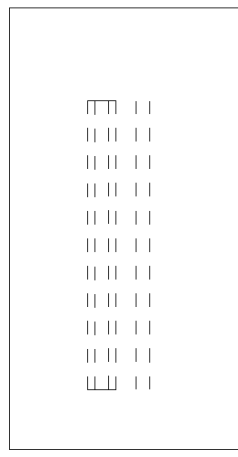
- STEP 1:** Select the beam and <Right-Click> to access the EDIT FAMILY command and pick YES to open the family file.
- STEP 2:** Select the CATEGORY AND PARAMETERS command and scroll in the lower list until you find the setting for DISPLAY IN HIDDEN VIEWS.
- STEP 3:** Here you have the three available options.



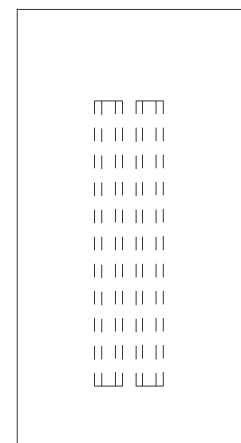
Below is an example of a concrete beam below a floor element displayed using the all three options.



*Edges Hidden by
Other Members*



*Edges Hidden by
Beam Itself*



All Edges



Places You Need to Know

AUGI	www.augi.com/revit	
Revit City	www.revitcity.com	
The Revit Zone	www.revitzone.com	
CAD Digest	www.caddigest.com	
CAD Shack	cadshack.blogspot.com	Todd Shackelford
Revit OpEd	revitoped.blogspot.com	Steve Stafford's
The Revit Clinic	revitclinic.typepad.com	
Everyting Autodesk Revit & BIM	autodesk-revit.blogspot.com	David Light
Revit Up	revit-up.blogspot.com	David Cohn
	revit-waterman.blogspot.com	Mike Hacker, Waterman
	newsletters.hagerman.com	Hagerman & Co.

That's probably more than I have time for....but hopefully not more that you wanted to know!

Thank you for your time

Hope you enjoyed the session!



Looking for customized Training and Standards consulting
using your company standards and procedures?
Call for affordable and flexible rates and schedules.

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