SYMBOLS

Architectural Desktop 2005 - Development Guide

PART 17

DOCUMENTATION

Contents:

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1 Documentation - Access

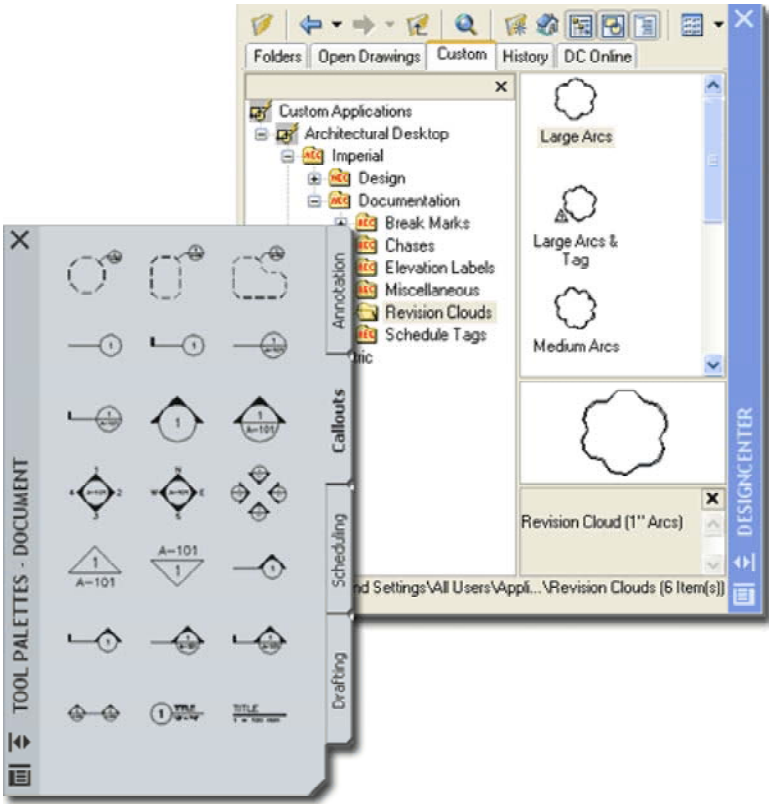
Documentation toolbar

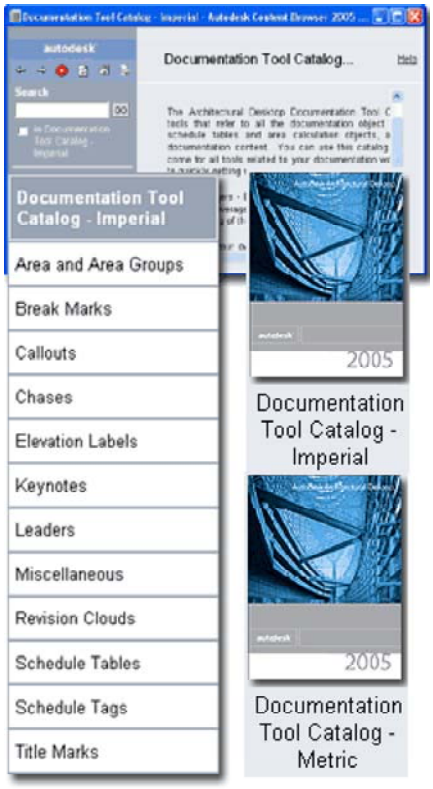
How do I get this toolbar?

Though I show the Documentation toolbar, to the right, that I migrated over from ADT 3.3, many of the symbols have been removed from the **DesignCenter** leaving the buttons without any place to point. I am currently trying to figure out if I can make the buttons activate the Tool Palettes but have yet to make progress on this desire. It appears that we will eventually be forced to use the **Tool Palettes** for all Documentation Symbols.

Documentation menus

Illustrated to the right I show the **DesignCenter** and the few remaining **Documentation** Content Folders it currently offers. Below, left, I show the Content Browser and how you can use the Documentation Tool Catalogs to create or populate existing Palettes with all of the documentation Content available in ADT; including the items remaining under the DesignCenter. I also show the default **Tool Palette** with the **Document Group** active to show where much of the Documentation Content has migrated to.





If you have been using previous releases of ADT and grown accustomed to using the DesignCenter you are likely to continue to be disappointed as this tool fades in development. Many of the Documentation Symbols that you will find on the Tool Palettes have now been consolidated into single drawing files, much like Object Styles, which is quite different from the individual Block-like files the DesignCenter works with. The command sequence (a.k.a. command string) typically created with the **AEC Content Wizard** is now part of the Tool icon's Properties making it far easier for you to read and modify.

To **insert Symbols from the DesignCenter** you can simply drag-n-drop an item from the right-hand List Pane (not the Preview Pane). You can also right-click to access a context menu over any of these items for more options.

To **insert Symbols from the Tool Palette** all you have to do is Select the item but you may also use the drag-n-drop technique as long as you are careful about where you drag to; tool icons can be moved on the tool palette.

IMPORTANT:
The size of Documentation Symbols is based on the current Drawing Scale as it applies to Printing. You can set this scale on the **Drawing Setup dialog** or on the Drawing Window Status Bar. Changing the Drawing Scale after insertion of these Symbols does not change the Symbols.

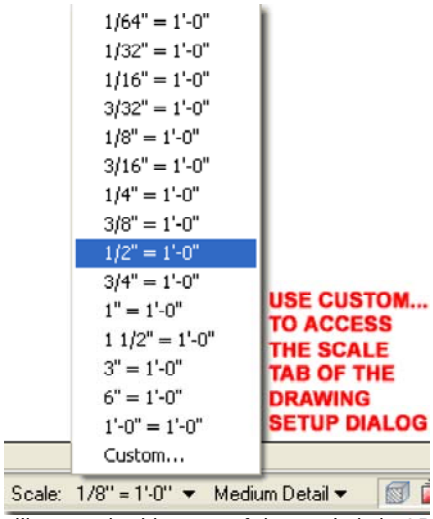
Setting the Drawing Scale for Annotation Symbols

Menu **Format> Drawing Setup...**

Keyboard **AecDwgSetup**

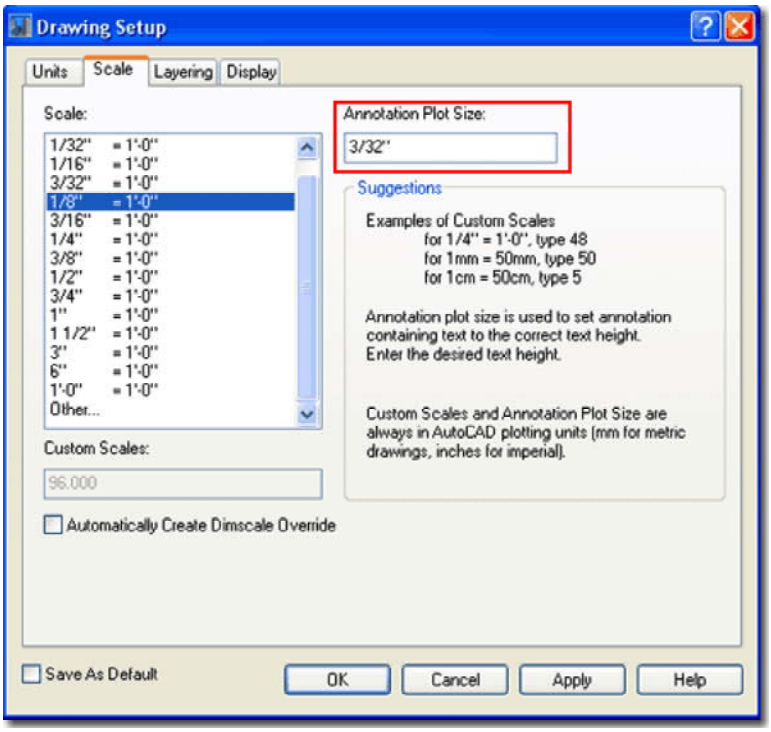
Links Drawing Setup Dialog Boxes - for more information on this dialog.

Most of the Documentation Symbols are scaled upon insertion by a ratio derived from the current drawing's **Scale** as set on the **Drawing Setup dialog** illustrated to the right. Documentation Symbols that involve Annotation, such as Callouts, will use the desired **Annotation Plot Size** at the desired drawing Scale as their ratio.



Unlike Dimension Styles in AutoCAD and ADT, there is no simple fix for dealing with Documentation Symbols that don't match the desired drawing Scale; i.e., if you change the drawing scale the symbols remain at their original sizes. This means that you better get the drawing Scale and Annotation Plot Size right before you start Documenting; but that's no different than how most have used AutoCAD for years now. If you typically place your Documentation Symbols on Layouts over Viewports, be aware that this practice will not work with many of the symbols in ADT because they need to interact directly with the Model.

The default **Annotation Plot Size** for Imperial Unit drawings has been set to 3/32" because users complained that the more logical 1/8" value made most of the Documentation Symbols too large; rather than changing the symbols, the programmers changed the default value. You may need to tinker with this value to get the Annotation portion of the Documentation Symbols to match your preferences. Keep in mind that many Symbols also use the drawing Scale to figure out how large to make things like Leader Tails on Section Marks.



If you are unfamiliar with how AutoCAD and ADT employ the concept of drawing scale, think in terms of ratios: 1/8"=1'-0", for example, is 1" = 8'-0", is 1"=96", which is also expressed as the ratio 1:96. Using this ratio, symbols can now be scaled from their original scale of 1:1 up to match your desired drawing (or print) scale. For Metric users things are so much easier because everything is already expressed in ratios.

Documentation Symbols using Annotation will typically apply the following mathematical formula to determine the proper scale: **Annotation Plot Size x Scale Ratio**. You should find, for example, that Annotation Symbols will be scaled up by 12 times in drawings with a Scale of 1:96 and with an Annotation Plot Size at 1/8" - 12 = 96x1/8.

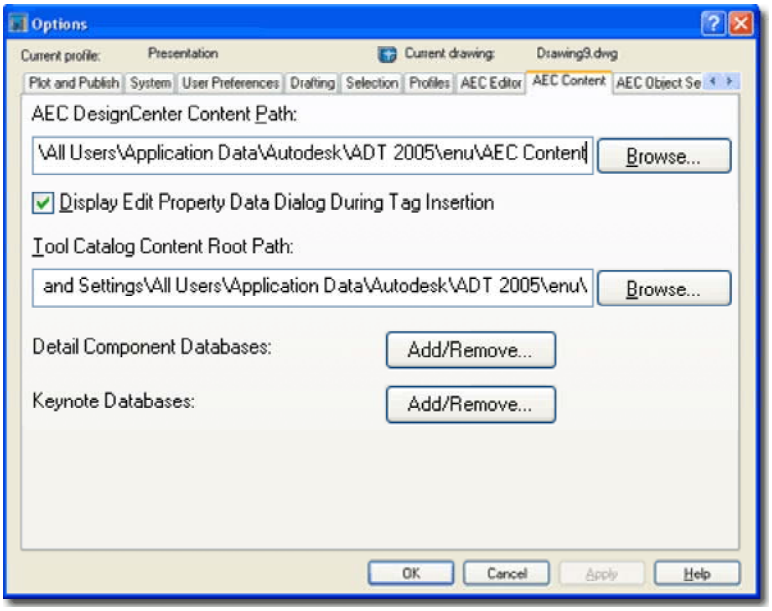
Design Content - Path settings - Options dialog

Links ADT Installation - Setup - for information on other content options

Illustrated to the right is the **Options** (type "OP") dialog box with the **AEC Content** tab active. You can use the path statements here to change where ADT will look for DesignCenter and Tool Palette tool Content.

AEC DesignCenter Content Path - use this path statement to direct ADT's DesignCenter to any location, local or Networked based, for the "AEC Content" folder and all sub-folders as per original installation. In other words, if you move the original AEC Content folder, all sub-folders much be move as well since the DesignCenter can only look in one place at one time. Also, these sub-folders and their location is crucial to keeping the Tool Palette tool functional - see comments below.

Display Edit Schedule Data Dialog During Tag Insertion - this is one of those options that you wind up living with though you can turn it off so easily. Un-checking this option is much like making Attributes Preset upon insertion. To see what this thing does, try attaching a Window or Door tag to a Window or Door and look for the **Edit Schedule Data** dialog box. Uncheck this option and repeat the exercise. Then, decide which option is better. Unchecked, right? I leave it unchecked.



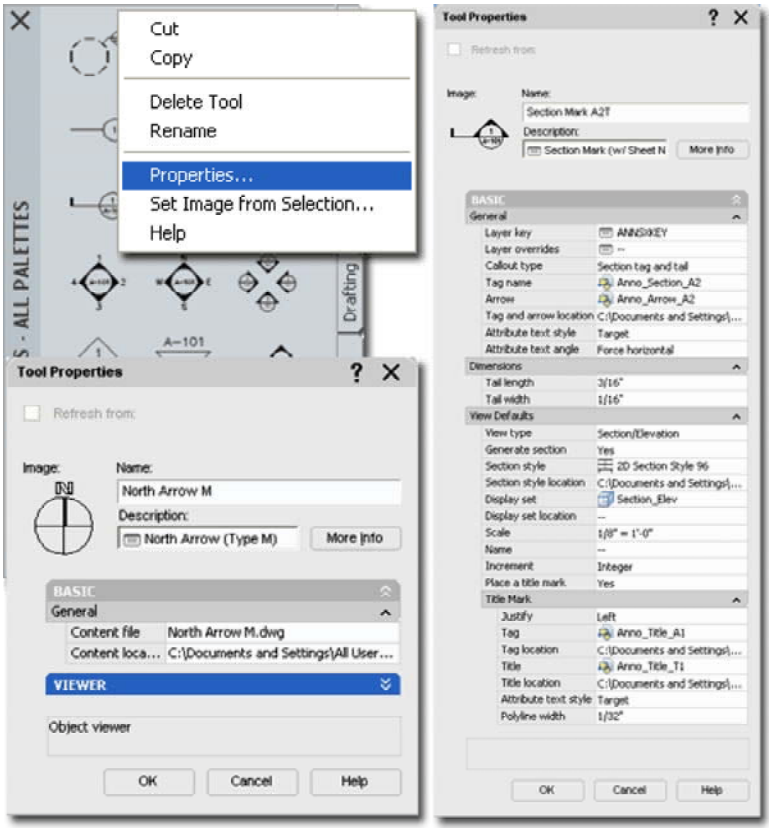
Tool Catalog Content Root Path - use this path statement to direct ADT's Tool Palette and Tool Catalog tools to another location. Because there are numerous tools in ADT that pull directly from the AEC Content folder (and sub-folders) you really are not free to direct this path to any location you prefer. In fact, this path and the AEC DesignCenter Content Path statements are bound together even if it does not appear as such here. The crucial relationship between these two path statements is such that the AEC DesignCenter Content Path (and physical folders) resides one folder below wherever you direct the Tool Catalog Content Roof Path. If you don't maintain this physical folder relationship, many tools simply won't work because they can't find the source objects.

Detail Component Databases and Keynote Databases - use the Add/Remove... button to access .mdb (Microsoft Data Base) files for component and keynote data. Architectural Desktop comes with a few examples but users familiar with Access can create their own. The databases listed here are the default sources and do not necessarily represent what users may encounter for specific Projects. With the use of the Project Navigator, project-specific databases can be set and all others can be restricted - see Add or Modify Project in the Project Navigator.

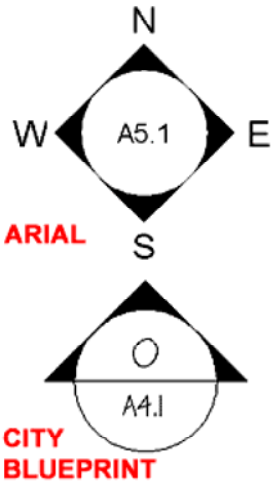
Documentation Symbols and Behavior

When you insert any of the various **Documentation Symbols**, you may notice that **some behave differently than others**; some, for example, offer a host of options on the command line while others function like traditional Blocks.

You can use the Context menu to access the Properties of any Tool Palette icon as illustrated to the right and if you compare a symbol as simple as the "North Arrow M" to something as sophisticated as the "Section Mark A2T", you are likely to get a surprise.



Documentation - Text Style and Fonts



ADT will use the current **Text Style** for the **Documentation** Symbols and in the ADT template files, you should find that the Text Style **RomanS** (mapped to **Romans.shx**) is the current Style.

You can change the Font for this Style if you have already used it for your Documentation Symbols or you can create a New Text Style, as illustrated to the left.

The Height of the Text Style is not important because it is determined by the Annotation Plot Size.

If you prefer to have your symbols use a **predefined Text Style**, you can force the symbol to use the Text Style set by the Symbol instead of by the current drawing - See **Attribute Text Style** (Target or Content) under the Tool Properties as illustrated above. For other symbols you may need to use the Aec Content Wizard to work with a similar setting.

Documentation Symbols and Fields

Among the Documentation Symbols that exhibit more sophisticated behavior than that of simple Blocks, you will find some that not only employ **Attributed Text** but Attributed Text as **Fields**. Such Symbols tend to have a gray box around the Field and often default to the question mark "**?**" character.

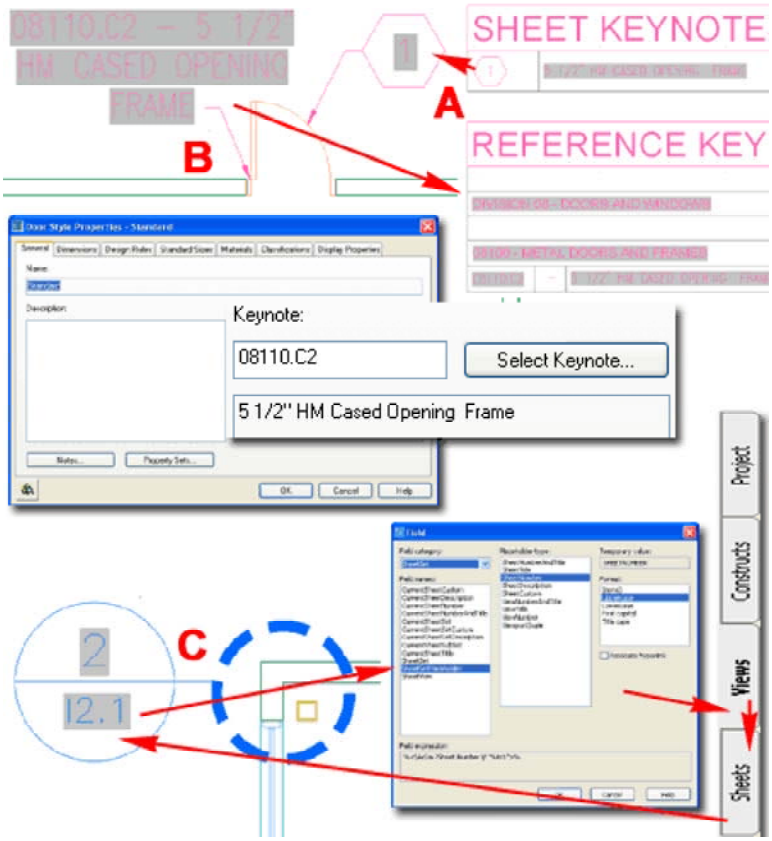
If you edit these Fields as you would any Attribute Text (by double-clicking or with the "AttEdit" command), you remove the Field functionality and thus reduce the Symbol to more of a common Block with Attributes. The Field actually works as a superior form of Text because it can acquire values or data from other sources. For Documentation Symbols, Fields were embedded in Attributes to allow you to Override any data or values that might be erroneous thus providing you with that ability to work with them as common Blocks with Attributes. The default "?" character, for example, can easily be changed to the text or number you prefer; should that be necessary.

Some Fields have been designed to work with data directly in the current drawing file while others work with data in other files; this "higher level" of connection to other files is only possible through the use of the **Project Navigator**.

Illustrated to the right I show two **Keynote** Documentation Symbol examples and one **Detail Mark** example. In example "**A**", I show a **Keynote Leader** with a **Field** in the hexagon bubble. This Field will not be filled in until a **Keynote Legend** has been created because the Field derives its numeric value from that legend.

In example "**B**", I show another **Keynote Leader** with a **Field** that extracts its data directly from the **Object Style's Keynote** assignment. A legend can be created from this Keynote as well.

In example "**C**" I show a "**Detail Boundary**" Callout which has two **Fields** that acquire their values through the use of the **Project Navigator**. For optimum results, this Symbol requires that an associated View be Generated. This View is then associated with a Sheet which completes the data required to fill in the two Fields that could reside on a drawing under the Constructs, Views or Sheets category of the Project Navigator.



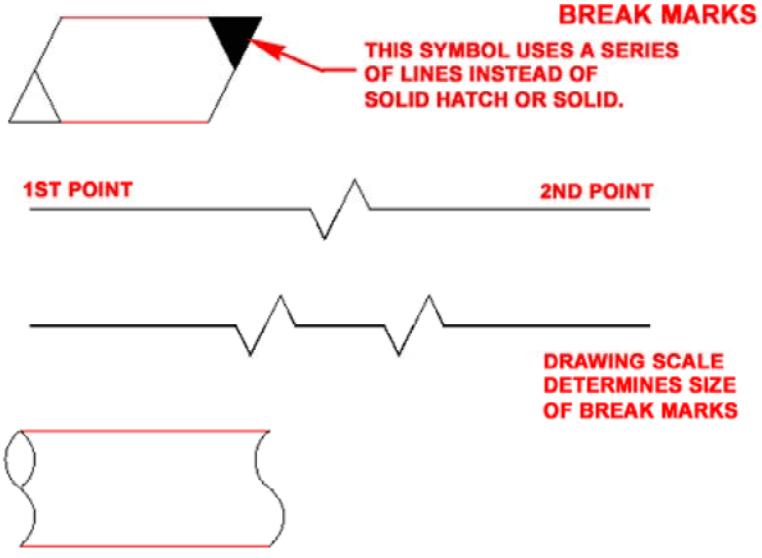
Note:
When using more sophisticated symbols, such as Callouts, the question of where to place them may arise. Though you can place Callout symbols in Constructs, Views or Sheets, you cannot avoid working with Views. Callout symbols acquire their Field data by a process of tying or connecting Views to Sheets. This means that you can pace Callouts on Sheet drawings as has been customary in most architectural offices, but you will need to allow the symbols to generate Views in View Drawings under the Views tab of the Project Navigator so you can drag these Views to Sheet Drawings (even if it is the same file as the source of the symbol).

2 Adding Documentation Content

Adding Break Marks

Menu	**N.A.**
	
Keyboard	**AecDcSetImpBreakMarks -** imperial, **AecDcSetMetBreakMarks -** metric
	_AecAnnoBreakMarkAdd - command
Browser	Load from Documentation Tool Catalog, Break Marks
Links	Aec Content Wizard - for information about symbols that do not have Tool Properties.
Status	Not updated for Tool Palettes
Note:	See also Express Tools > Draw > Break-line Symbol (Breakline)

The **Break Marks** folder and Documentation Browser Catalog offers **Bar**, **Cut Line** and **Pipe** break marks. These symbols are simple objects and not Multi-View Blocks so they will not only be easy to use but also easy to edit with Grips



Command: _AecAnnoBreakMarkAdd

or other common AutoCAD commands.

The **DesignCenter** and **Tool Palette** versions of these symbols are identical because they have not been updated yet for the Tool Palette; i.e., if you check the icon Properties of any BreakMark tool you will find that it just defers to the Command String associated with the AEC Content Wizard and the DesignCenter. You can also use the "**AecAnnoBreakMarkAdd**" command to work with these symbols, add your own block or select another "break type" option - see command-line example, right.

```
Specify first point of break line or [Symbol/Type]: _SYMBOL
Specify symbol block name or [?]<NONE>: Anno_Break_Single
Specify first point of break line or [Symbol/Type]: _TYPE
Specify break type or [STretched/SCaled] <STretched>: _Stretched
```

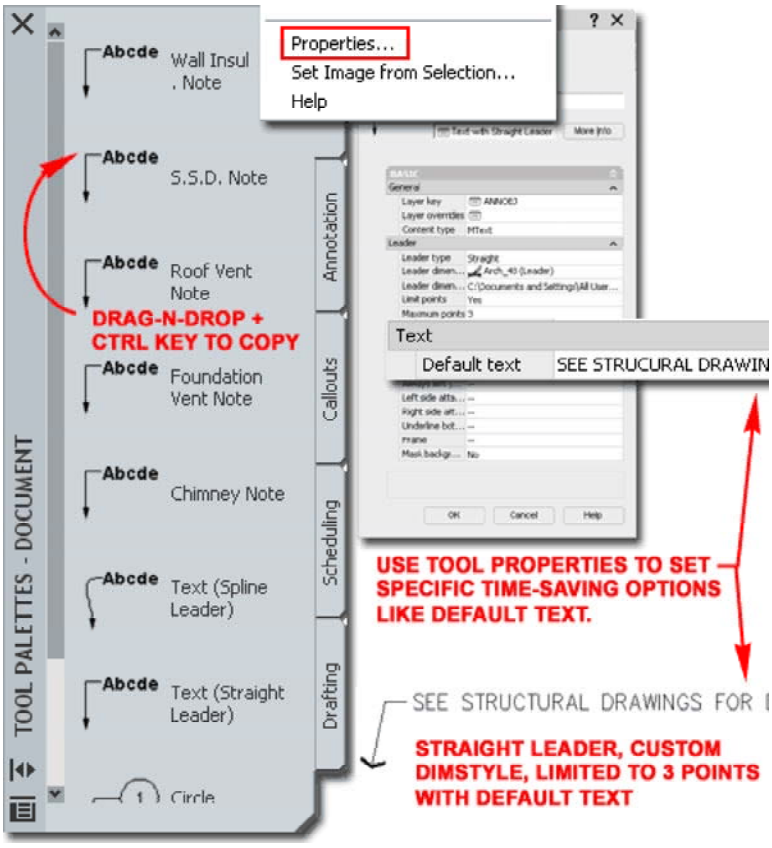
Adding Leaders

Menu	**N.A.**
	
Keyboard	_AecAnnoLeaderAdd **-** completely Tool Palette driven for easier use
Browser	Load from Documentation Tool Catalog, Leaders
Links	Stock Tools and their Properties - for more information on working with the custom settings on Tool Property dialogs.
Status	Fully Updated and improved for use with Tool Palettes. No DesignCenter equivalent anymore.

There are numerous Objects in Architectural Desktop that fall into the category of "Leaders" but for this discussion I will focus on those listed in the Documentation Tool Catalog under Leaders.

The Leader Tools are little more than standard AutoCAD Leader Dimension Objects with a few extra ADT-based Properties such as Layer Keys. This makes them rather easy to understand and equally easy to create for custom use; I urge you to take advantage of this capability.

Illustrated to the right I show how you can easily **Copy** an existing Leader Tool using the **drag-n-drop** technique while holding the **Ctrl key** depressed. After making one or more Copies of a Leader Tool, you can right-click to access the **Properties...** Context menu option. On the Tool Properties dialog you can Name your Tool and set numerous valuable properties; including Layer Key, Content Type (Mtext or Block), Leader Type (None, Straight or Spline) and Default Text. See comments under **Stock Tools and their Properties** for more on this subject and a breakdown of the options on this Properties dialog.



Note:
Do not attempt to create an ADT Leader Tool by dragging over a Leader Object from your screen area. This action will only result in a Tool that produces regular AutoCAD QLeaders.

Adding Keynotes

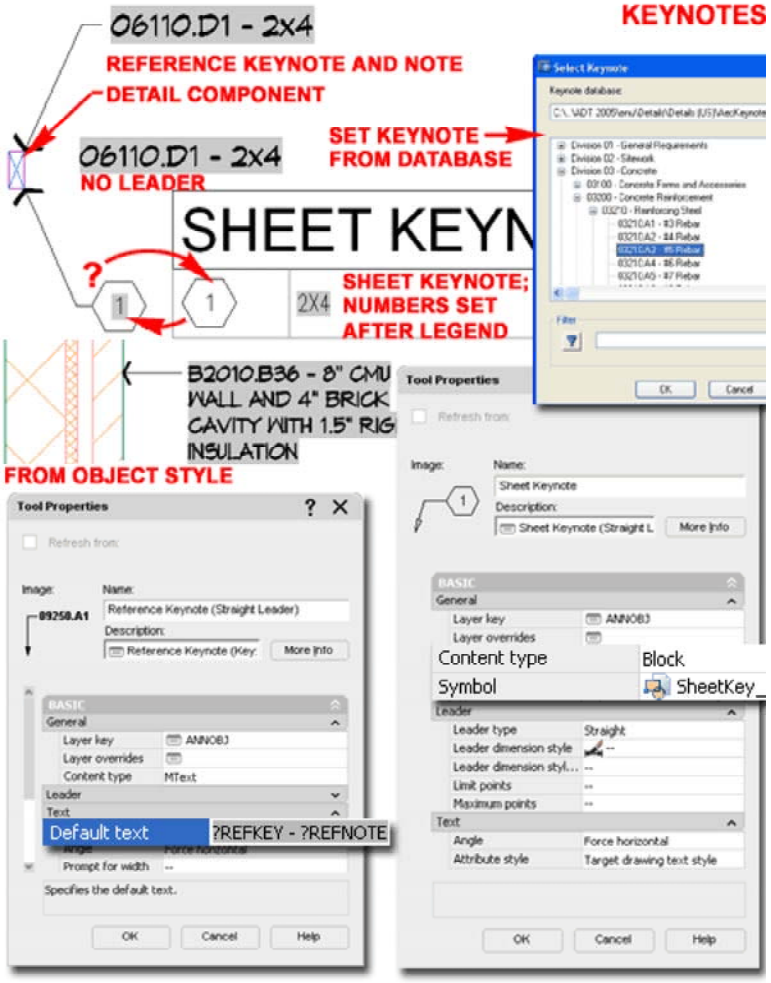
Menu	**N.A.**
	
Keyboard	**N.A.** - these are only Tool Palette driven and work under the Detailer Tools.
Browser	Load from Documentation Tool Catalog, Keynotes
Links	Stock Tools and their Properties - for more information on working with the custom settings on Tool Property dialogs.
Status	Tool Palettes Only.

Keynotes are new to Architectural Desktop 2005 and as such are in their first phase of evolution; appearing to have been optimized for the Detail Component Manager; i.e., the Keynote Tools are from the Details section of the program.

The structure of Keynote symbols is nearly identical to that of Leaders with the exception of one or more **Fields** preset as "**Default text**" or embedded in a Keynote **Block** symbol. This means that you can create Keynotes with as many variations as you can with Leaders and that includes having no Leader as well; e.g., a keynote note.

If you are fairly well versed in how ADT works, then you are likely to understand how Tags and Schedules can mine for Property Set Data based on Selected Objects. Unfortunately, Keynotes don't employ this system and introduce yet another form of Data that is Database driven using Microsoft Access files as the source. When a Keynote tool is used to Select non-Detail Objects such as Walls, Doors, Windows and so forth, it derives its connection to a database by the Object Style Keynote assignment. This means that it is actually tragically easy to have a Keynote label a Wall type as one form of construction while the Property Set Data identifies it as another form in a Wall Schedule. And unlike Tags, Keynotes presently (should change in a future release) do not update when the source Object is changed.

Reference Keynote - this type of keynote uses a preset Field in the **Default Text** value field of the Leader Tool Properties. It has a matching Reference Keynote Legend that reads Reference Keynotes in a local file or any of the Sheets in the current Project.



Sheet Keynote - this type of keynote uses a Block as the "Content Type" of the Leader Tool Properties. The default Block employs a Field embedded in an Attribute. It has a matching Sheet Keynote Legend that must be used to fill in the missing Field data (usually a number) which is then correlated to matching reference data in the corresponding keynote database.

Adding Miscellaneous

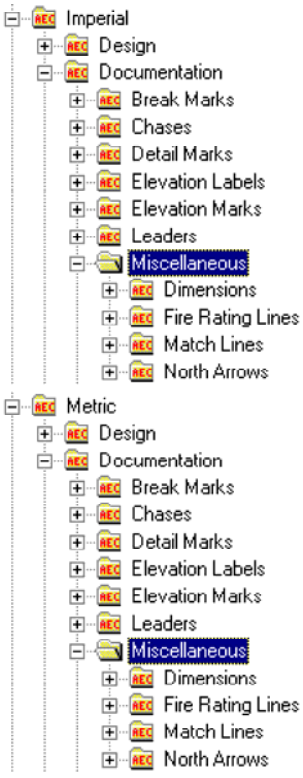
Menu **N.A.**

Keyboard **AecDcSetImpMiscellaneous -** imperial,
AecDcSetMetMiscellaneous - metric

_AecAnnoSymbolAdd - most common command but check other symbols if this is important for you.

Browser Load from Documentation Tool Catalog, Miscellaneous

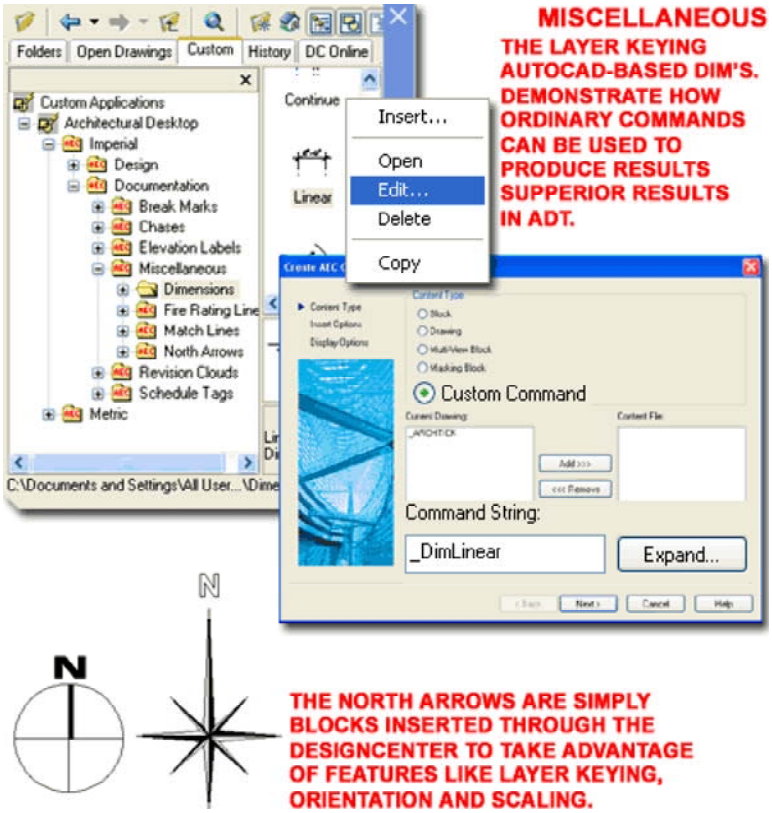
Status Not updated for Tool Palettes



The **Miscellaneous** folder lives up to its name by providing access to a variety of Objects that have little in common other than the fact that most are related to documentation. One of my favorite items to complain about is the North Arrows sub-folder; this is not "miscellaneous" content to me since I happen to use a north arrow on every project I do. Of course, it is usually the same north arrow unless I am doing presentation drawings.

If, like me, you prefer to use AutoCAD-based **Dimensions** instead of the Aec Dimension Objects in ADT, you may find the Dimensions Folder of particular interest. These Dimensions are not new Objects but simply Command Strings that take advantage of features available through the Aec Content Wizard; features like Layer Keying. Unfortunately there is no Tool Palette equivalent so if you drag any of these tools over to a Palette, the icon Properties will simply defer to the DesignCenter (they will still function properly).

The **Fire Rating Lines** folder offers five Linetypes for various Wall hour ratings and requires that you Select points on Wall Objects to indicate the length of the Line. You can use the "**_AecAnnoRatingLineAdd**" command to work with these Objects and set your own Polyline **Width**, **Color** and **Linetype**.



The **Match Lines** folder offers a couple of match line options based on a Pline and Text. These Objects work similarly to the Fire Rating Lines but are are not tied to Objects so you can draw them as you would any Line or Pline. You can use the "**_AecAnnoMatchLineAdd"** command to work with these Objects and set your own Polyline **Width**, **Color**, **Linetype** and **Symbol.** The Symbol is the Match Line Text label that accompanies the Match Line Object when you insert it from the DesignCenter.

The **North Arrows** folder provides access to numerous North Arrow **Blocks** that Scale, Rotate and Layer Key upon insertion. They are not, however, MvBlocks and you may want to consider creating one or two that take advantage of how MvBlocks can accommodate different Scales and Display Representations depending on View Orientation and/or Display Configurations. You can use the "**_AecAnnoSymbolAdd**" command to work with these Objects but since there really are no options other than Block Name, Insertion Point and Rotation Angle (both set on screen), it is better to work with them directly from the DesignCenter or Tool Palette.

Adding Elevation Labels

Menu **N.A.**

Keyboard **AecDcSetImpElevationLabels -** imperial,
AecDcSetMetElevationLabels - metric

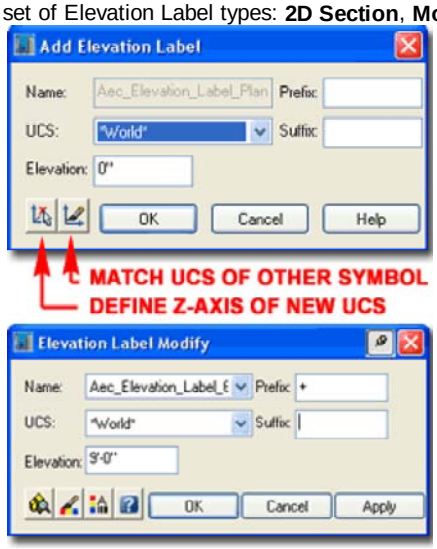
_AecAnnoElevationLabelAdd - command to add

_ElevationLabelModify - command to edit

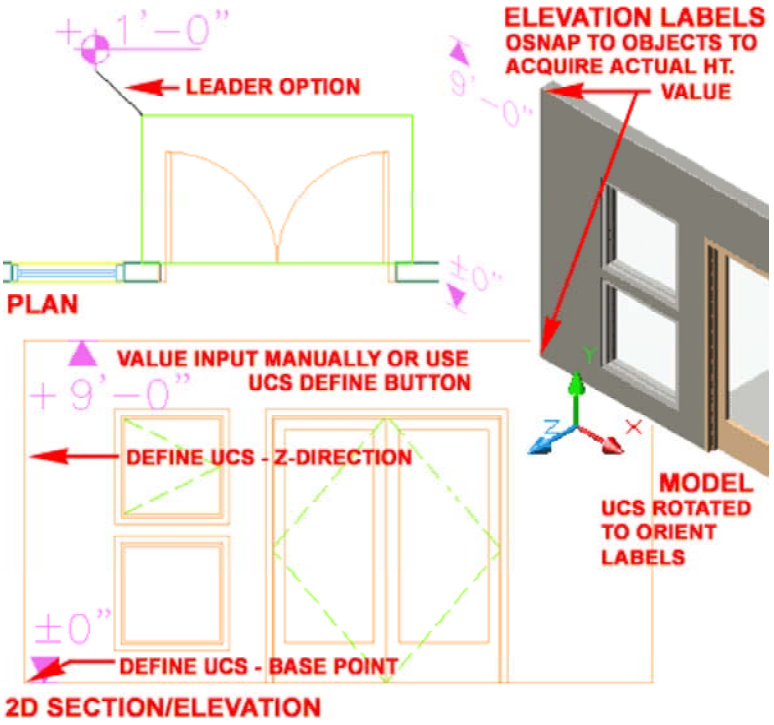
Browser Load from Documentation Tool Catalog, Elevation Labels

Status Not updated for Tool Palettes

The **Elevation Labels** folder contains three sub-folders; each with its own set of Elevation Label types: **2D Section**, **Model** and **Plan**. Despite the different folder names, each symbol works on the same basic principle which is to read the Z-axis height value and label accordingly. Upon insertion of any of these Attributed MvBlocks, you can use the **Add Elevation Label dialog** to specify the actual Elevation value you may want, include a Suffix or Prefix, match any existing Saved UCS's or Define a New UCS to orient the Z-axis in the direction of the Height value.



After an Elevation Label has been placed, you can regain access to the main dialog by using the Context menu (ElevationLabelModify) - see illustration left. Because the Attribute Text is embedded within these MvBlocks, using the Elevation Label Modify dialog is the easiest solution for changing the text labels.



Of the set, the most confusing Elevation Labels are the ones you are likely to want to use the most: the **2D Elevation** types. The reason they may prove to be confusing to use is that they only read the **Z-axis height value** and 2D Sections and Elevations don't have a Z-axis height value (it's always zero). To resolve this problem, you can use the "**Define UCS**" **button** on the **Add Elevation Label dialog** (illustrated right) to set the "**Base point**" and then the New **Z-axis direction** as it applies to the Height value you want the symbol to register - sounds crazy doesn't it. When you "define" a new UCS, you will also be forced to **Name** it. This effort may be worthwhile if you have a lot of similar Labels to place that all relate to the same newly defined UCS.

Adding Revision Clouds

Menu **N.A.**

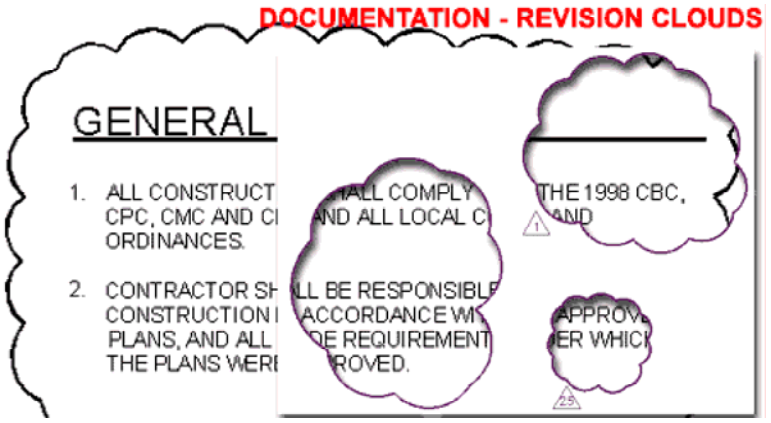
Keyboard **AecDcSetImpRevisionClouds -** imperial**,**
AecDcSetMetRevisionClouds - metric

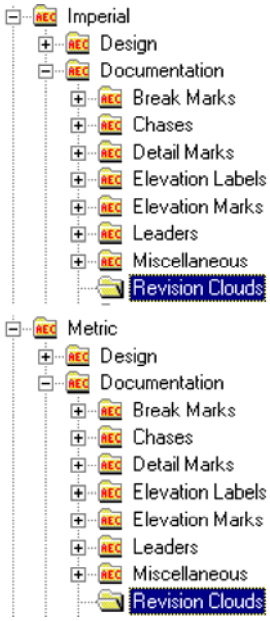
_AecAnnoRevisionCloudAdd - command

Browser Load from Documentation Tool Catalog, Revision Clouds

Status Not updated for Tool Palettes

Note: See also Draw > Revision Cloud (RevCloud)

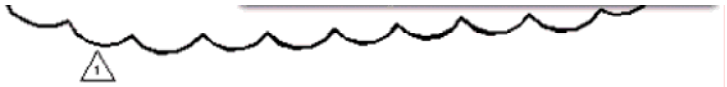




The **Revision Clouds** folder and Documentation Browser Catalog offers several cloud types with small and large arc segments that come with or without a triangular-shaped tags.

The **DesignCenter** and **Tool Palette** versions of these symbols are identical because they have not been updated yet for the Tool Palette; i.e., if you check the icon Properties of any Revision Cloud tool you will find that it just defers to the Command String associated with the AEC Content Wizard and the DesignCenter.

You can use the "**_AecAnnoRevisionCloudAdd"** command to work with these Objects and set your own Polyline **Width**, **Color**, **Arc Length** and **Symbol.** The Symbol is the triangular Block with a single Attribute for the cloud number.

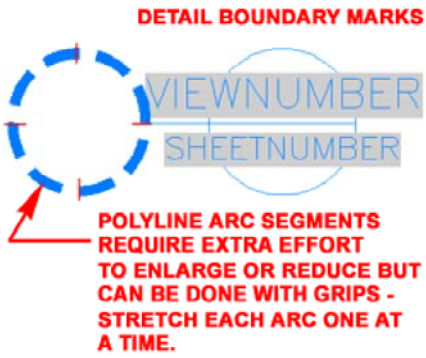


To draw a Revision Cloud, you will need to draw in the counter-clockwise fashion and then conclude the routine by coming back to the original arc segment. The cloud will automatically terminate and if you have a Tag to insert, you will be queried for its location and number. Revision Clouds use the current drawing's Scale to determine Arc Segment size but use the Scale and the Annotation Plot Size to determine the size of the tag.

If you use the same Revision Cloud type in Model Space and Paper Space, you can make them look identical as long as you use the same Drawing Scale as the Viewport Scale. Paper Space (Layout) Revision Clouds are automatically set to a scale of 1:1 but the Tags are affected by the Annotation Plot Size.

Adding Detail Marks

Menu	**N.A.**
	**Callouts** tab
Keyboard	**N.A.**
Browser	Load from Documentation Tool Catalog, Callouts
Links	Callout Marks and Block Structure - for more information on how the annotation bubble is constructed.
	Callout Marks and Views - for more information on how annotation text is threaded through the Project Navigator.
Status	Fully Updated and improved for use with Tool Palettes. No DesignCenter equivalent anymore.

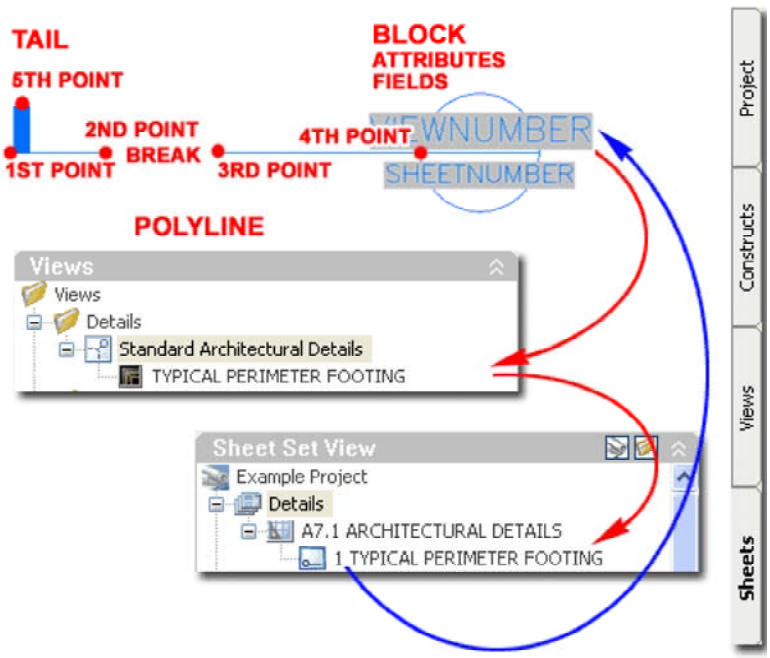


In Architectural Desktop there are two primary Detail Callout Types: **Detail Boundaries** and **Detail Marks.** Though they differ in the graphics used to indicate where the detail is cut, they share the same annotation bubble structure used for most of the Callout Marks.

Illustrated to the right I show an example of a common **Detail Mark** and some of the options available when drawing this documentation symbol. The cut-line portion is a single **Polyline** unless a manual **Break** has been defined during creation (notice the Break option on the command line after the 2nd Point has been drawn). When you are done drawing the cut-line, hit the Enter Key to automatically insert the annotation bubble and look for the last point to specify the direction of the tail.

The annotation bubble is similar to many of the other documentation symbols which employ a Block with linework and attributed text. However, all of the Callout Marks use **Fields** embedded in the **Attribute Text** to provide a type of data-linking to other drawing files. These Fields are typically defined by a gray box that will not print but is there distinguish them from other forms of text.

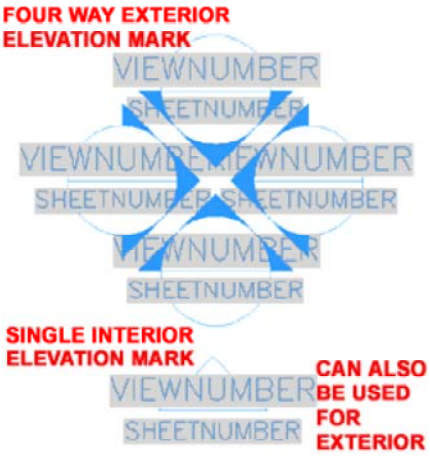
As long as you avoid using the "Callout Only" option on the **Place Callout** dialog, the Fields within the annotation bubbles should not be filled in manually as you typically would with Attributed Blocks; instead, the **data can be derived automatically** by using the **Project Navigator** to associate Detail **Views** with Detail **Sheets** as illustrated above, right.



Note:
Detail Marks, like Section Marks, utilize the **BldgSectionLine Object** to determine the Boundary for the cut they make in your Model. Though this Object is typically not displayed, you should be able to Select it by Selecting the cut-line as illustrated to the right. If you choose to use the symbol as a "Callout Only" and/or you do not use "Generate Section/Elevation" option, the BldgSectionLine Object will not be created. This Object has its own Display Representation and you can find it under the **"Representation by Object"** in the Display Manager Window.

Adding Elevation Marks

Menu	**Documentation> Documentation Content> Elevation Marks...**
	**Callouts** tab
Keyboard	**AecDcSetImpElevationMarks -** imperial
	AecDcSetMetElevationMarks - metric
Browser	Load from Documentation Tool Catalog, Callouts
Links	**Elevations -** for information on elevation line objects, subdivisions and display properties
	Callout Marks and Views - for more information on how annotation text is threaded through the Project Navigator.
Status	Fully Updated and improved for use with Tool Palettes. No DesignCenter equivalent anymore.



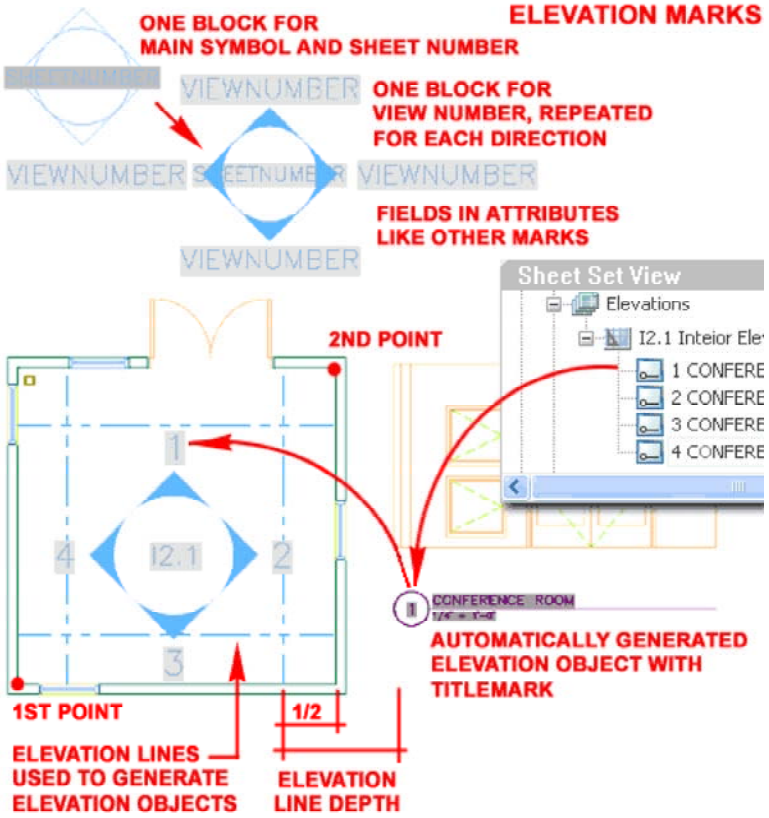
In Architectural Desktop there are two primary Elevation Callout Types: **Elevation Single** and **Elevation Four Way.** The Single Elevation Callout Mark is basically one direction of the Four Way Callout Mark so if you can figure out how to use the more complicated one the single one will be easy.

The **Four Way Elevation Callout Mark** is arguably the most sophisticated or complex in the whole group. Not only does it employ two **Blocks** and **Attributed Text** with **Fields**, it uses **four copies** of one of these Blocks in different directions that each relate to **Views**. This is much like combining four Detail Marks in one symbol.

When you insert an Elevation Mark, you will be required to specify the direction for the first number (or "North" direction). I found that this symbol does not work correctly when you specify non-orthogonal angles so you may need to rotate the symbol after creation or rotate the UCS icon prior to insertion.

After this symbol has been oriented, the **Place Callout** dialog will appear as it does for all of the other Callout Marks - see comments under Callout Marks and Views for more information on this dialog. Though you can choose to use the Callout as a "Callout Only" its greatest function lies in how you can use it to "Generate Section/Elevation" automatically.

Illustrated to the right I show how the four way Elevation Mark will request two diagonal points (on the command line) to define the space from which you want your interior elevations generated. You can then specify an "**Elevation Line Depth**" and "**Elevation Height**" to complete the dimensions for the 3D elevation areas. The "Elevation Line Depth" appears to divide the specified value in half relative to the outer points originally used to define the plan area; but I've found many unusual anomalies that make me question what is really happening with respect to this information. Once you have the Elevation Line Objects you can use Grip Editing to adjust them as needed.



After the Elevation Line Objects have been defined, you should find that you are required to place the first Elevation Object and the amount of distance you want between each of the remaining Elevation Objects.

To complete the annotation work, you will need to drag the Elevation Views from the Views tab of the Project Navigator into a Sheet file. Once the Elevation Views (and Objects) have been placed on a Sheet, you should find that the Sheet Number and View Numbers are automatically resolved.

Note:
If you are not quite ready for the full use of this symbol and all of the fancy Project Navigator linking, you can still get some automatic work out of it. If you assemble an Elevation Drawing, for example, by Xref'ing in Foundation, Plan, Roof and other files (as required), you can insert one of these Elevation Marks and use it to "Generate Section/Elevation" linework for you that you can then use as you see fit. Ultimately, you can even Explode this linework and work with the lines as in the past.

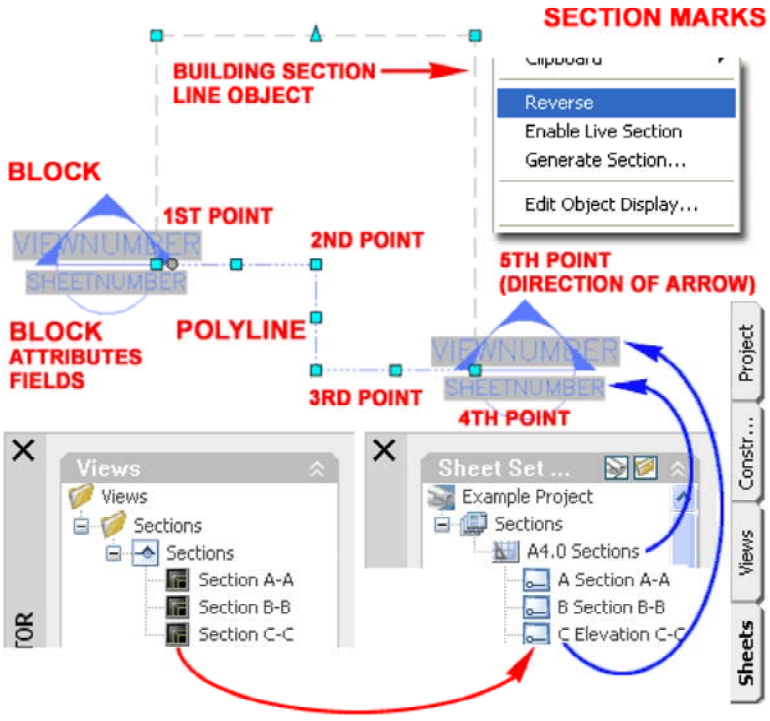
Adding Section Marks

Menu	**Documentation> Documentation Content> Section Marks...**
	**Callouts** tab
Keyboard	**AecDcSetImpSectionMarks -** imperial
	AecDcSetMetSectionMarks - metric
Browser	Load from Documentation Tool Catalog, Callouts
Links	Modifying Section Lines **-** for information on how the Add AEC object option works; Boundary and Subdivision Lines.
	Callout Marks and Views - for more information on how annotation text is threaded through the Project Navigator.
Status	Fully Updated and improved for use with Tool Palettes. No DesignCenter equivalent anymore.

In Architectural Desktop there are two primary Section Callout Types: **Section Tag and Tail** and **Section Tag and Tag.** The Section Tag and Tag uses a Section Tag on both ends of a connecting line. For the Section Marks with Tails, you have several options including having no tail at all.

The **Section Marks** folder offers four Section Mark types; the options include tails and number of text fields.

Illustrated to the right, I show that you can use the **Section Mark** for both annotation and automatic **Section Generation** with subdivision lines and everything. When you add a Section Mark you should find the option to **Add AEC section object? [Yes/No] <N>:** Adding this object will provide the means to Generate a Section. See the discussion on Sections for more information on how to accomplish this.



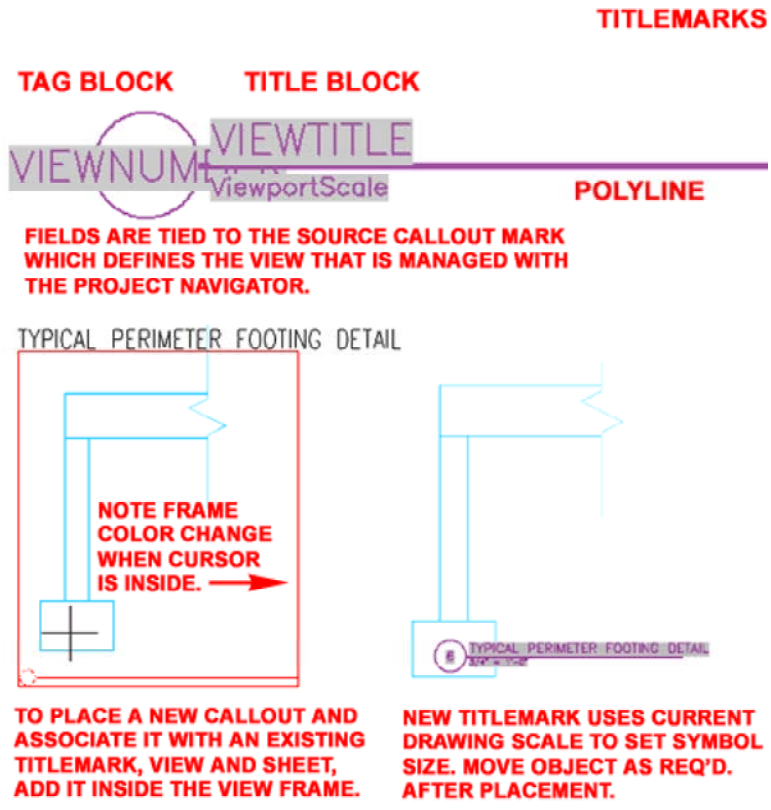
Adding Title Marks

Menu	**N.A.**
	**Callouts** tab
Keyboard	**N.A.**
Browser	Load from Documentation Tool Catalog, Callouts
Links	Callout Marks and Views - for more information on how annotation text is threaded through the Project Navigator.
Status	Fully Updated and improved for use with Tool Palettes. No DesignCenter equivalent anymore.

Titlemarks in Architectural Desktop were designed to be more of an automatic process rather than a manual one. If you look through the Tool Properties of most other Callout Marks you will find a View Defaults section that includes an option for "Place a Titlemark". When this option is set to "Yes", more options will appear on the Tool Properties dialog and those Properties are the exact same Tool Properties you will find under the Titlemark Tools. However, when Titlemarks are included as a Property of the other Callout Marks, an association is established between it, the primary Callout Mark, the View Name and the Sheet it is finally placed on.

Should you forget to Add a Titlemark as part of your Callout work or otherwise lose one that was associated with a View, you can re-establish the association by carefully Adding a New Titlemark inside a Named View - see illustration to the right.

Should you wish to simply Add a Titlemark for general purpose use, you can manually override the Fields embedded in the Attribute Text and treat these documentation symbols as regular Attributed Blocks.



Adding Chases

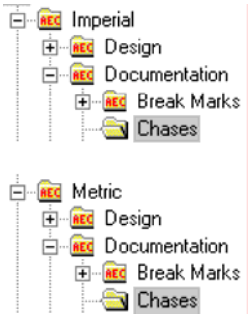
Menu **N.A.**

Keyboard **AecDcSetImpChases -** imperial

AecDcSetMetChases - metric

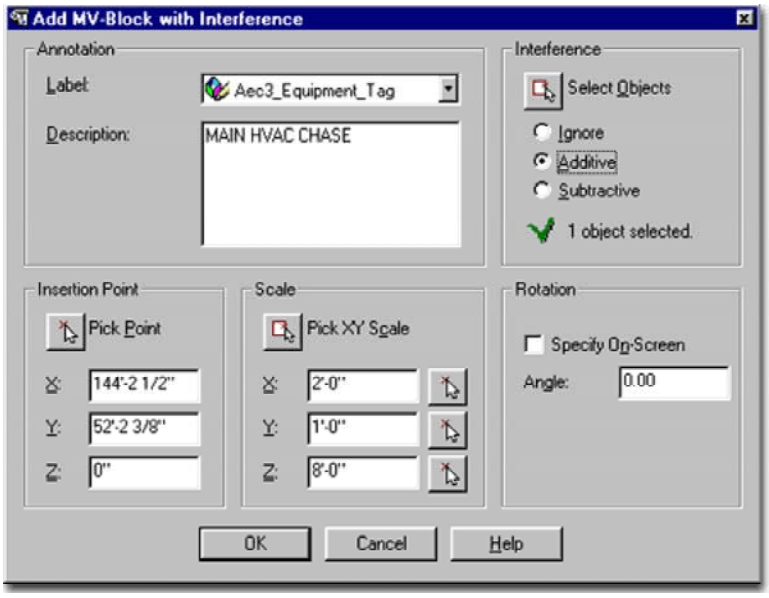
Browser Load from Documentation Tool Catalog, Chases

Status Not updated for Tool Palettes



The **Chases** folder offers rectangles with various symbols inside but they are actually Multi-View Blocks with 3D Interference Blocks. When you drag-n-drop a Chase symbol into your drawing, the **Add MV-Block with Interference dialog box** will pop up with options for Labeling, Descriptions, Interference settings, position and size - as illustrated to the right.

All Chases are rectangular and you cannot create irregular polygon shapes with this tool. A default rectangular size will appear under the Scale section of this dialog but you can use the Pick XY Scale button to match any rectangular size you may need. By default, the symbol will only display in Plan but if you use the Interference option to Subtract it from other Objects, you should find holes in 3D Views. If you Modify the MvBlock Definition, you should find that an Interference Block has been added. Should you wish to see a Solid Mass, as illustrated below right, you can Add the same Interference Block as a View Block under the Model Display Representation.



Label - in order to used this option, you must have a label object defined in your drawing. Just having a Property Definition Set Style loaded isn't enough, you will need to have one of the tag symbols in the drawing for the Label drop-down list to see it. All this does, is automatically activate the insertion of the label or tag at the end of the Chase creation process, so this is not critical; in other words, you can just insert the tag later.

Adding Chases Example

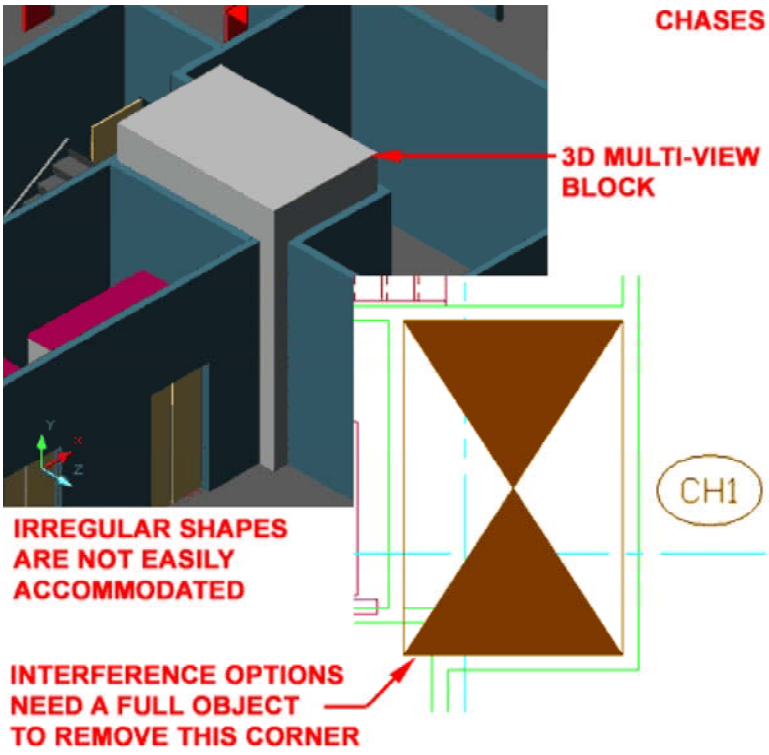
Description - this is the same Description field that you get on the Multi-View Block Properties dialog box and is also not critical. The nice thing about a Description though, is that it will be easier for another person to know what you had in mind for this Chase when you created it.

Interference - this is an option similar to those available for Mass Elements or Interference options with other objects. By using an interference, you can make a Chase punch out (Subtractive) a hole right through other selected ADT objects; like floor Slabs. Another option is to make your Interference Additive so the Selected Objects, like a Slab, expand around it like a Shrinkwrap effect. The only problem with the Additive option is that they broke it in ADT 2004 and haven't fixed it yet. In order to see the actual results of an Additive operation, you will need Modify the MvBlock Definition of the Chase Object and Add the Interference Block as a Model Display Representation View Block. Once you have done this, you can see the results of an Additive Operation by turning Off the Chase Layer. This is all basically nonsense work to solve a bad flaw for a poorly designed Object. I recommend that you consider using a Mass Element Instead.

Insertion Point - is simply where you want one corner of the Chase to start.

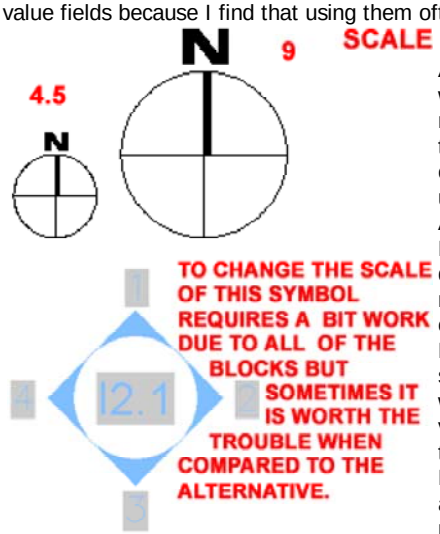
Scale - is simply where you want to other corner of your Chase to end. Notice that there is a Z-axis value to define how tall your Chase should be and this is important if you plan to use it as an Additive or Subtractive Interference condition. It is also important if you want to display your Chase correctly in a 3D view.

Rotation - this is the same as other rotation options in AutoCAD and ADT and refers to the Plan View rotation, not the Vertical rotation.

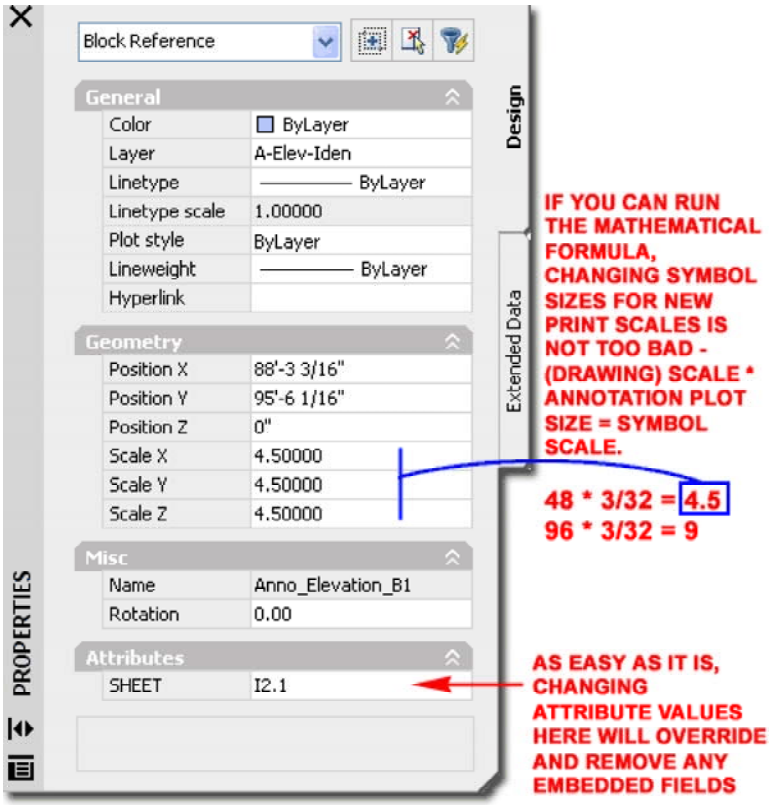


Modify Documentation Content Properties Palette

Since most of the Documentation Content is based on Blocks, you have to think along those lines for basic modifications. Illustrated to the right I show an example of the **Properties Palette** for the **Interior Elevation symbol** illustrated to the left. As you can see there is not much that you can alter here but you may want to know about the **Scale X**, **Y** and **Z** value fields because I find that using them often saves me a lot of trouble.



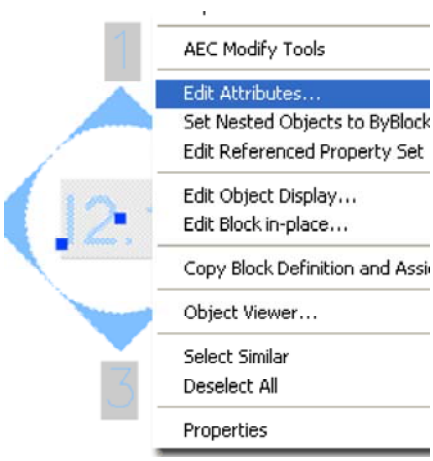
As you become more familiar with Fields, you will recognize how important it is to keep them alive and connected. For example, if a user sees the "Sheet" Attribute value field on the Properties Palette and decides to input a new sheet number, the Field is overridden and removed. Below I will discuss repairing such damaging work but what this means is that the value is no longer connected to the Sheet tab of the Project Navigator and thus any updates there will not be reflected back in this symbol.



To avoid losing Fields, obviously it is better to avoid filling in Attributes manually, but it also better to keep a symbol that is "connected" than to attempt to Add a new one when print scales change. Therefore, I show how you can derive the Scale for the X, Y and Z values so you can input a scale number when you need to increase or decrease symbol sizes for printing scale issues. All you have to do is look at the current drawing Scale and Annotation Plot Size (DrawingSetup dialog) to figure out the ratio ADT uses when inserting Documentation Content - see Setting the Drawing Scale for Annotation Symbols

Documentation - Block and Attribute Editing

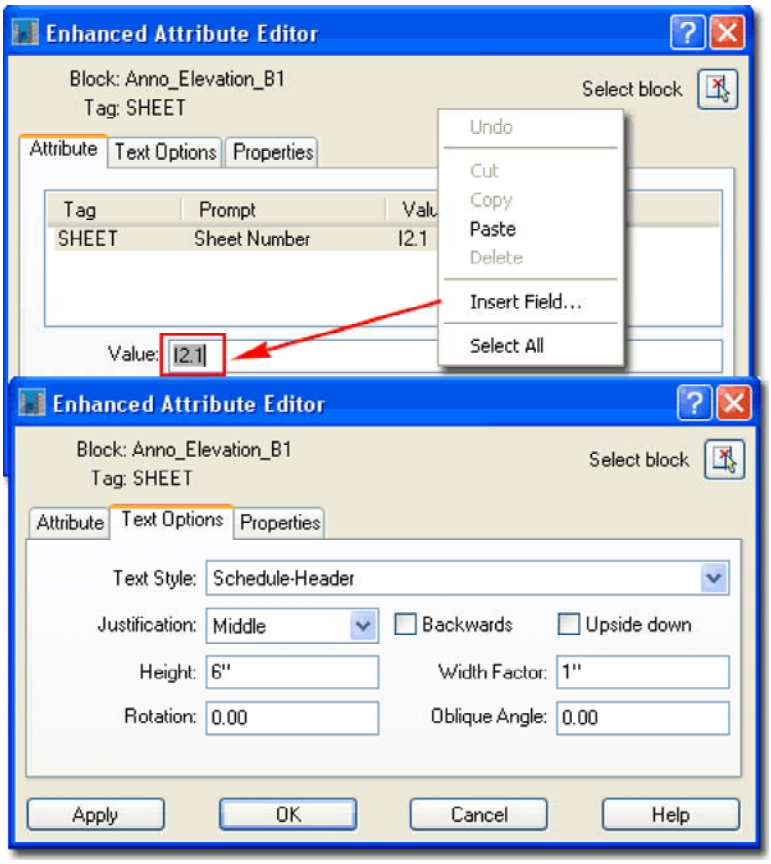
Most of the Documentation objects use Blocks with Attributes. This means that you can use common AutoCAD commands to work with these symbols; commands like **AttEdit**, **RefEdit**, **Insert** and **Explode**.



To edit the text within Documentation objects, you should find that **double-clicking** on the symbols or text will activate the Edit Attributes dialog box. If this does not work, try using the "**AttEdit**" or "**ATE**" commands.

To edit the symbol or attribute within a Documentation object, you should find that the **RefEdit** command will allow you to go inside and change or add linework or text to these symbols. Since these symbols are Blocks, you can also Insert them at a one-to-one ration (scale of 1), explode them, edit them and re-Block them with the same name.

Inserting Documentation objects from the **Insert Block** dialog box will not produce the same results as with the drag-n-drop technique from the DesignCenter and Tool Palettes. This is because the dragging action triggers a sequence of commands while the insert command simply brings in a Block.

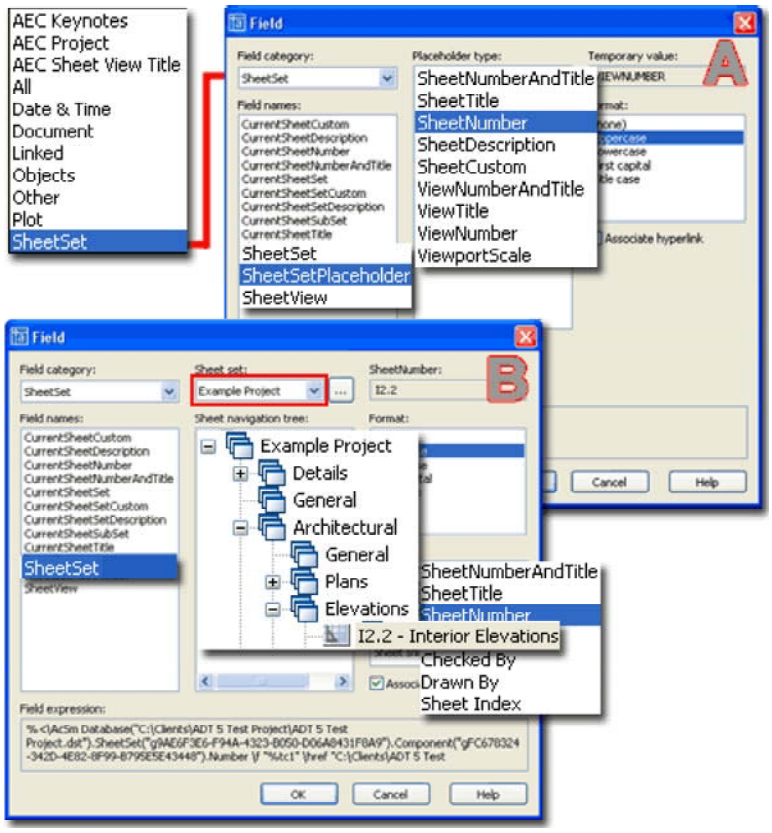


Field Associations

As discussed above, the act of changing an **Attribute Value** that has a **Field** embedded in it, not only overrides the Field but removes it. It is certainly highly unfortunate that there is no way to keep a Field while overriding the Attribute Value but maybe we can hope for improvements in the future. In the event that a Field has been removed, you can either Delete the Documentation symbol and Insert a new one to replace it or you can attempt to reset the Field association. For some symbols, such as Interior Elevation bubbles, it can be quite frustrating to Insert a New symbol if the existing symbol has already been set and connected to Views and Sheets.

Illustrated to the right I show two examples of how the Sheet Number Attribute in Callout Marks functions as a Field. When you first insert a Callout Mark, for example, the Field associations are set to be "Placeholders" because the associations to Views and Sheets have yet to be made. If, at this point, an Attribute Value has been overridden, you can simply use the **Attribute Editor** to **Insert Field...** and reset the "**Placeholder**". In the case of the "**SheetNumber**", use the **SheetSet Field Category** and look for **SheetSetPlaceholder** Field Name. Then, under the Placeholder type, look for **SheetNumber**.

If a symbol, such as a Callout Mark, has already been associated with Views and Sheets prior to being overridden, resetting a Field may provide a bit more difficult than in the previous example. Once Field associations or links have been established, the "Placeholder" is changed to a definitive connection. In **example** "**B**" to the right, I show how an example SheetNumber went from a "**SheetSetPlaceholder**" to "**SheetSet**" that uses the **Sheet Set drop-down list** to be connected to an actual **Project**. Under the **Sheet Navigation Tree** list, are all of the Sheets for the current Project and the SheetNumber is associated with one of them. If you know the Sheet Name and the location, you can reset the Field by manually selecting these options.



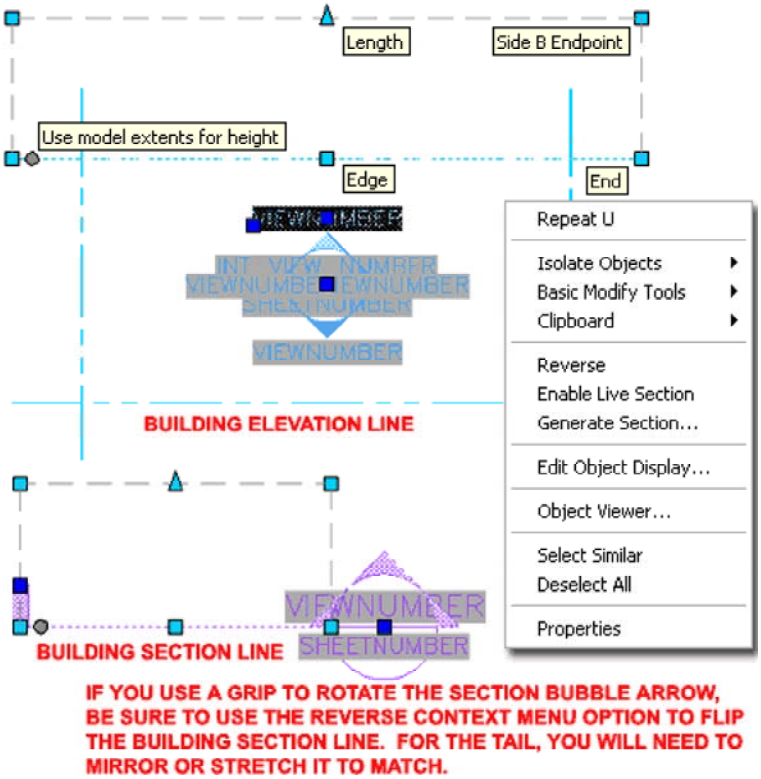
Note:
Though Keynotes employ "Placeholders", I have not found a way to reset them as discuss above for Callout Marks.

Documentation - Grips

Using **Grips** for editing Documentation Content Symbols should prove to be rather self-explanatory for most symbols. For other symbols, however, such as Callouts, you may need a few tips.

Illustrated to the right I show an example **Interior Elevation** and **Section Symbol** with corresponding cut-lines. Because the Interior Elevation Symbol includes the cut-line it is easy to see and consequentially easy to Select but the Section Symbols don't display anything unique unless you Select the cut-line. On Section Symbols, be aware that there is a Polyline cut-line and a Building Section Line Object that share the same location and you can inadvertently Select the wrong Object and not get the results you seek.

You can use basic AutoCAD commands, such as "**Move**", or Grip options such as those illustrated to the right to modify the Building Elevation and Section Line Objects to control the information included in your automatically Generated Elevations and Sections. Building and Section Line Objects are associated with the symbol but are also independent Objects that you can Modify freely; they don't even have to be near the symbol itself.



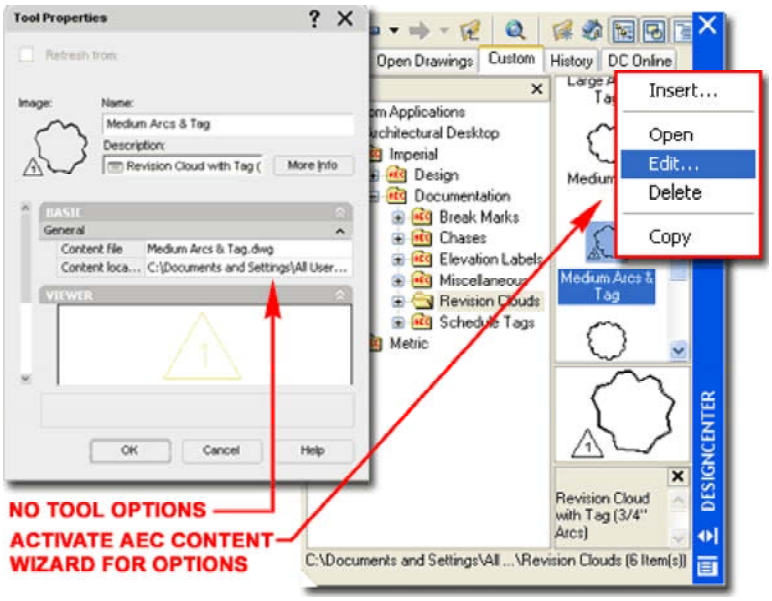
Tools without Properties

Links
Aec Content Wizard - for information on how the Aec Content Wizard and DesignCenter work together to create "smart" symbols.

When it comes to understanding, modifying or creating Documentation Content, it can get a little confusing. At the time of this writing, for ADT 2005, a good portion of the default Documentation Content is still rooted in the old **DesignCenter** system that uses the **Aec Content Wizard** as a predecessor to Tool Properties. If you think of the DesignCenter images as Tools, then right-clicking over one of them and using the **Edit...** Context menu option, is like using the Properties option from a Tool Palette icon. Like it or not, the DesignCenter is facing retirement though it may hang out for years to come.

Documentation Content that is still DesignCenter driven can be dragged over to a Tool Palette (as all of them have), but the only Properties you will find for such Tools are "**Name**", "**Description**", "**Content file**" and "**Content Location**". Such Tool Properties may appear as if all you are doing is inserting a Block, but the fact of the matter is that much more may actually be happening. You see, the **Aec Content Wizard** can embed numerous settings and functions within the Symbol as long as it resides under the **Custom Applications** Folder Structure in the DesignCenter.

Below I will discuss Tool Properties for Documentation Content that has been fully migrated to Tool Palette tools. See Aec Content Wizard for information on Documentation Content that has not been migrated.



Stock Tools and their Properties

Menu **Window> Content Browser**

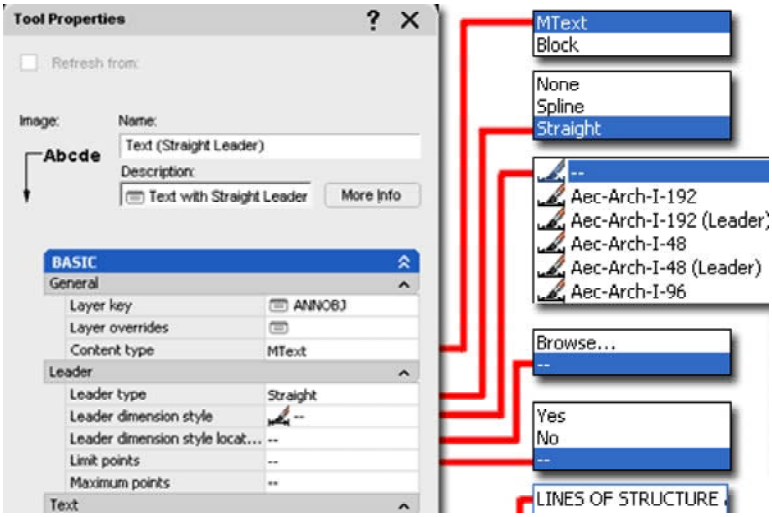
Keyboard **ContentBrowser** or **Ctrl+4**

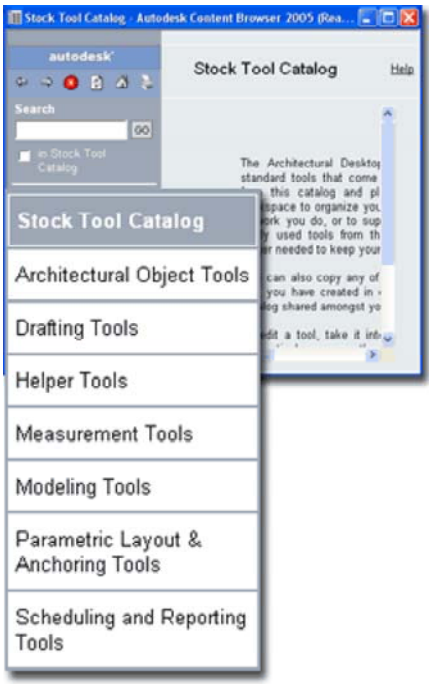
Links
Content Browser Overview - for more on the Content Browser

Adding Leaders - for an example of Default Text

Aec Content Wizard Overview - for information on Tool Properties with no options such as those for Tags, Revision Clouds and more.

In Architectural Desktop there are two types of Tool Palette tools: AutoCAD based and ADT based. In the case of **Leaders**, for example, if you drag an ordinary AutoCAD based Leader on to a Tool Palette, you will only get the AutoCAD tool Properties but if you Copy an existing

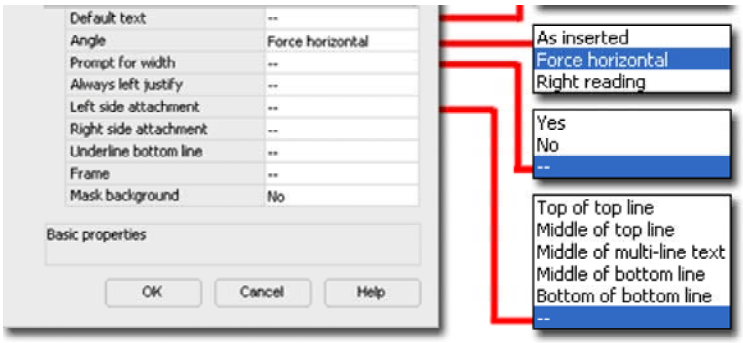




Architectural Desktop Leader Tool, you will find a much larger list of Properties.

Illustrated to the left I show how you can access the **Stock Tool Catalog** in ADT for tools such as the one illustrated to the right: Text Tool (accessed via the Drafting Tool Catalog). For more specific Documentation tools, you can access either the Imperial or Metric **Documentation Catalogs**.

Illustrated to the right I show the Tool Properties of the "Text (Straight Leader)" tool and the enormous list of options and settings that you can work with to create custom results. For ADT users, the most important feature is the option to set a Layer Key so the Leader will automatically be layered. You can, of course, create custom versions of a Tool such as this one and have them Key to different Layers. You can also take advantage of the Leader and Text options to vary the appearance and functionality as needed.

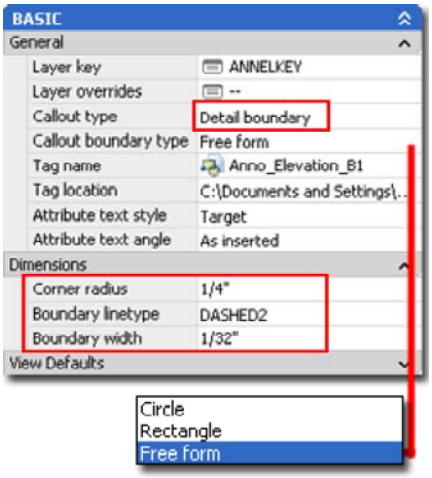


The "**Default text**" option, under the Text section is one of my favorite options because you can use it to preset a series of common notes that are used over and over in different projects.

The **Text Tool** is actually a Leader Tool in disguise controlled by the **Leader type** Tool Property setting; which offers "**None**", for Mtext and "**Spline**" or "**Straight**" for AutoCAD-like Leader Objects. If you use the "None" option this tool will act like the Mtext command but you can use the Layer Key and Text options, like "**Default text**", to make it more sophisticated.

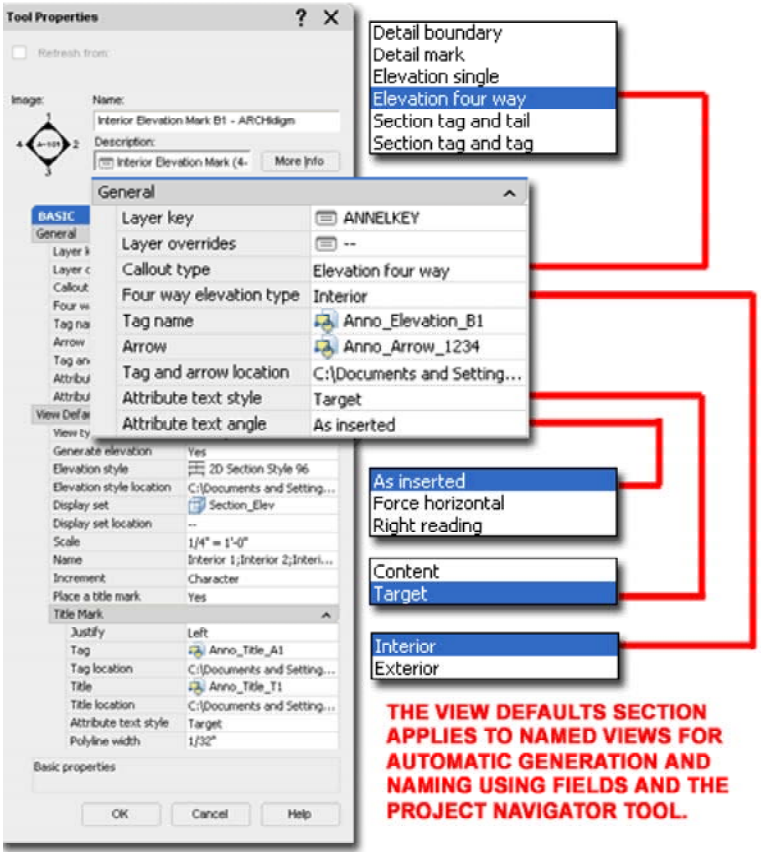
Callout Marks and their Properties

The **Detail**, **Elevation** and **Section** Marks are all based on the same set of Tool Properties and are arguably the most complicated to comprehend. Not only do these types of Symbols tend to have more information and components, but now they are also tied to Named Views and tools within the Project Navigator.



When working with these Symbols and their Properties, you must accept the hard-coded functions programmed into each of the Callout Types. Unlike inserting basic Blocks or MvBlocks, these Symbols have been designed to produce more sophisticated results. The **Detail Boundary type**, for example, will always be a Symbol connected to a "boundary" form that can either be a "**Circle**", "**Rectangle**" or "**Free form**" as illustrated to the left. When you choose the Detail Boundary Callout form, notice that a few additional options become available under the "**Dimensions**" section.

Illustrated to the right I show the **Tool Properties** for the default "**Interior Elevation Mark B1**" Documentation Symbol which uses the "**Elevation four way**" **Callout type.** By using the "Four way elevation type" drop-down list you can set this symbol to either Interior or Exterior; illustrating that there is little difference between the two. This Callout type utilizes two Blocks or MvBlocks to allow independent control over the annotation center and the surrounding arrows.

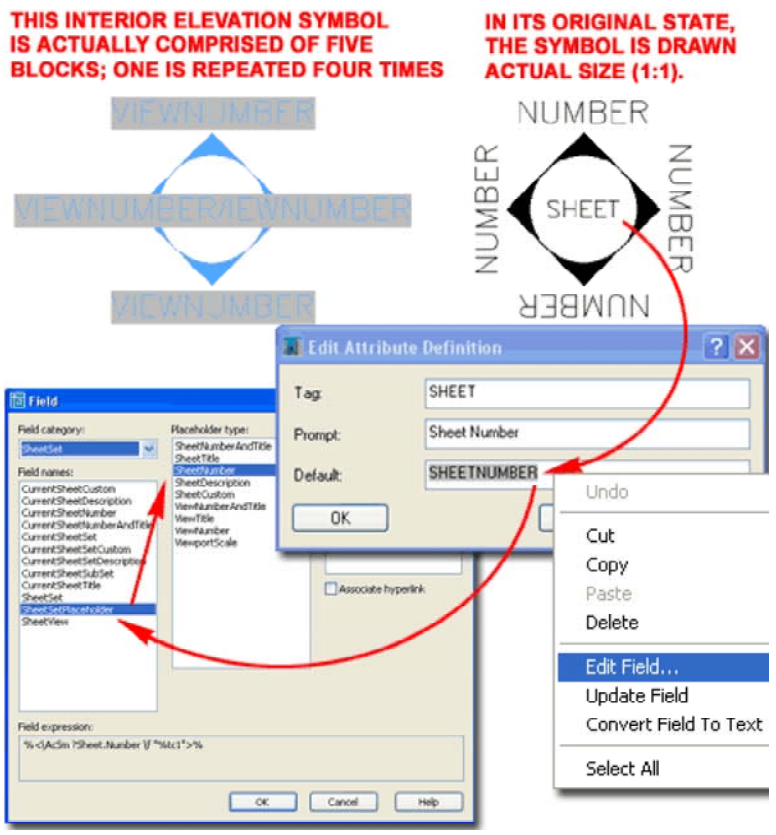


Callout Marks and Block Structure

All of the default Callout Marks have annotation components that have been designed for use with the **Project Navigator**. This fact does not mean that you must use the Project Navigator when using these documentation symbols but it does mean that their behavior may prove irritating when you don't. With the interior Elevation Marks, for example, you will find that the View Numbers default to the term "View Number" instead of the more logical "1, 2, 3, 4" or "N,S,E,W".

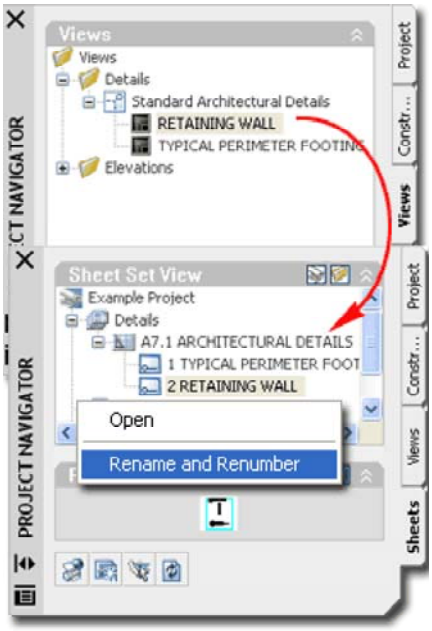
Illustrated to the right I show what the default "Interior Elevation Mark B1" Callout Mark looks like when first inserted into a drawing (left) and what it looks like in its original pre-Block state (right). When you insert this symbol, you actually acquire two Blocks that are scaled and matched according to the Tool Properties discussed above. For this particular example, there are two Blocks and each was drawn at a **scale of one-to-one** before being converted into Blocks. Symbols, like this, are typically set to **Layer** "**0**" with all Properties set to "**ByBlock**". The Attribute Text can be any Text Style, often "Standard", if the Tool Property is set to "Target" for "**Attribute text style**"; otherwise you can use a specific Text Style and set the Tool Property to "Content".

Since Attributes can have Fields embedded as the Default value, you will find that these symbols all use this feature to provide the best of two options: automatic Field-based data or manual typed-in overrides. In the illustration, lower right, I show how the "Sheet" number Attribute is actually a Field that has a temporary placeholder value that points to a future "SheetNumber" value. This value is temporary because the Field cannot determine the actual value until data has been provided by the user who must use the Project Navigator to thread Views to Sheets.



Callout Marks and Fields

As discussed in the cell above, Callout Mark symbols utilize **Fields** that are embedded in **Attribute Text** and those Fields have been designed to acquire their values through the actions of the user who is supposed to use the **Project Navigator** to establish Object and Data Links.



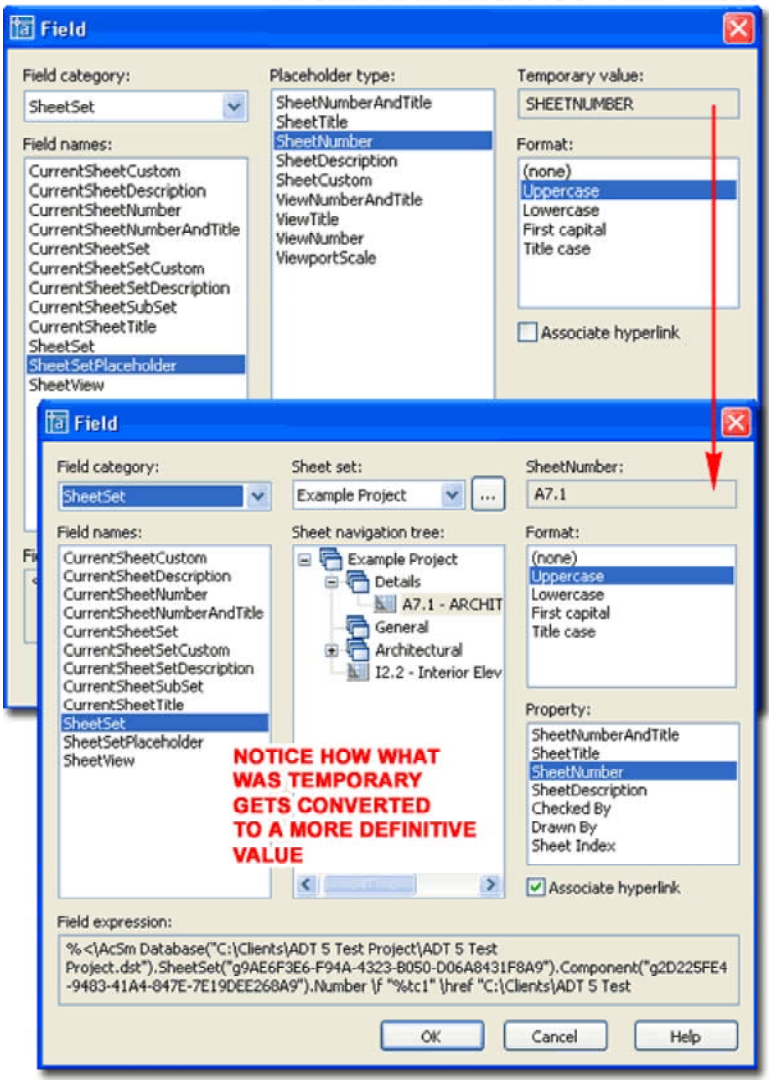
Callout Marks use a unique **Field Name** called a "**SheetSetPlaceholder**" under the **SheetSet Field category**. Currently, the Placeholder type list is fairly short and rather limited but for this example, the "**SheetNumber**" illustrates how the placeholder can defer data acquisition until future action is taken within the Project Navigator.

Since Callout Marks typically refer to a specific frame or region of a drawing, this frame can be thought of as a "view". In Architectural Desktop all of the Callout Marks include Tool Properties that automatically link the symbol to a View (referred to as a "**Named View**"). Views of this type are stored and managed on the Views tab of the Project Navigator where they await assignment to your construction documents (referred to as "**Sheets**").

When you physically drag a Named View from the Views tab of the Project Navigator over to a Sheet, the Fields within the Callout Marks symbols are fed the data they need to become complete. Once this data linking has been established, the "Placeholder" is changed by the Project Navigator to a more specific and definitive Field Name. In the illustration to the right I show how the "SheetSetPlaceholder" for the "SheetNumber" changes to "SheetSet" with a very specific target listed under the **Sheet navigation tree**.

Notice that not only does the Field dialog change in appearance by providing more information and options but that the Field expression code expands by several fold in order to thread this information together.

BEFORE AND AFTER SHOTS OF FIELD VALUES



In the Project Navigator illustration to the left, notice how Detail Marks acquire both Detail Numbers and Sheet Numbers from the Sheets tab. You can right-click or double-click over any Detail View to Rename or Renumber them and this data will automatically be fed back to the corresponding symbols. Unfortunately, you cannot Renumber by changing the symbol values directly on the Sheets where they have been placed; i.e., this data-linking system is not bilateral.

Callout Marks and Views

After you have completed the insertion and placement of a Callout Mark, you should find that the "**Place Callout**" **dialog** pops up. This dialog provides you with the option to work with the Project Navigator features by Naming the Callout, setting a target location for the Callout drawing, automatically placing a Titlemark under the Callout drawing and setting an anticipated print scale.

PLACE CALLOUT DIALOG
Callout Only - use this button to inset the Callout Mark without creating any Views or data. When you use this option you are basically treating the symbol as a common Block without using any of the special Field and Project Navigator features.

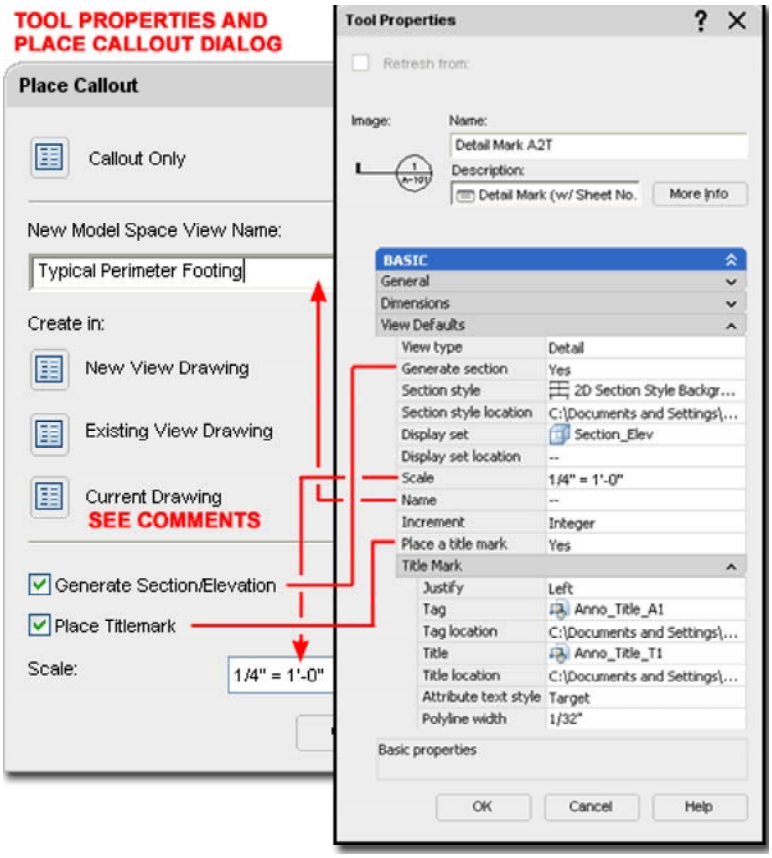
New Model Space View Name - use this character field to type in the name of the View as you would prefer to see it under the Views tab. The View Name is also used for the Titlemark title.

Create in:
New View Drawing - use this button to create a New drawing under the View tab that will acquire the Generated Section/Elevation as defined by the Callout Mark.

Existing View Drawing - use this button to add the Generated Section/Elevation to an existing drawing under the View tab.

Current Drawing - use this button to add the Generated Section/Elevation to the same drawing in which you have placed the Callout Mark. This option can be a bit deceiving because it may not produce the results you desire in all cases. If you use this option in a Sheet or Construct file, for example, no View drawing will be used to thread the Field data to a Sheet and consequentially the the Callout Mark will appear much like you used the Callout Only option; i.e., you'll have to input the Attribute values manually. This option does make sense if you are already working in a View file.

Generate Section/Elevation - this checkbox option can be used to take advantage of the Field data-linking in Callout Mark symbols without generating any linework. This might be useful in cases where you want the symbol and the data linking for detail and sheet numbers but you plan to draw the detail manually with regular AutoCAD-based linework. In such cases you are likely to use the Place Titlemark option or you won't have a clue where the detail needs to be drawn because there won't be any physical objects to define it.



Place Titlemark - this checkbox option can be used to associate another Callout Mark with the primary one. This Callout Mark becomes the Title under Saved View and typically uses the Name you specify under "New Model Space View Name". Titlemarks typically display a Number and Scale. The Scale value comes from the Scale value field on this dialog box but the Number comes from work done on the Sheets tab.

Scale - use this drop-down list to specify the anticipated Print and Viewport Scale for the linework and Titlemark created through this process.

Illustrated above I show how the **View Defaults** section of the **Tool Properties** dialog for any Callout Mark can be used to preset some of the options on the **Place Callout dialog.** Of the list, I think the **Scale** option is probably the one you are likely to encounter the most and if you use another scale than the default ones set on the default Callout Marks, you might as well run through the Tool icons and make this a little better.

The Structure of Documentation Content Symbols Symbol Anatomy

Links [Modiyfing Documentation Content to create your own](#) - for more on existing Content; how to modify and/or create your own from them.

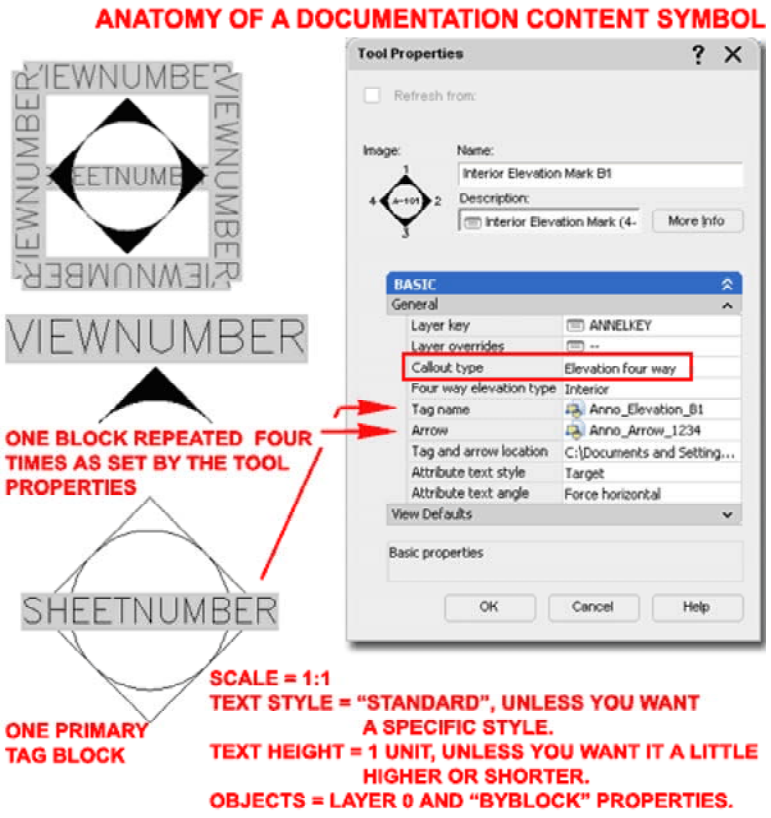
From the discussions above you should now be able to identify the different types of Documentation Content Symbols. Below, I will outline the parts that form the whole structure of the three primary Symbol types: **Blocks**, **Blocks with Attributes** and **Blocks with Fields**.

To create your own Documentation Content Symbols you can either start from scratch in a blank drawing file or start by using an existing Symbol and modify it accordingly. Below I will provide an overview of the three primary Symbol types and how they are constructed. In Section 6, below, I will discuss how to use existing Symbols to create your own.

Most, but not all, of the default Documentation Content uses Blocks. Leaders, for example, use Mtext but you can easily change the **Content Type** setting to Block and be on your way to creating a Keynote Leader. Some Documentation Content, like Callout Marks, can use two Blocks and be associated with other Callout Marks that also use Blocks (like Title Marks for Views).

The Blocks themselves may vary in complexity and type. Break Marks, for example, use a common Block, Callout Marks use Blocks with Attributes and Fields and Column Bubbles use MvBlocks (a Block inside a Multi-View Block Definition).

All symbols are drawn at a ratio of one-to-one and rely on other settings within the Documentation Content to provide the scale values.



Symbols with fixed or no Text

Links [Aec Content Wizard](#) - for more information on the Create AEC Content Wizard and the settings within it.

Most of the default Documentation Content symbols employ some form of adjustable text but there are a few like the **North Arrows**, **Break Marks** and **Datum Mark** that either have static text or none at all.

Illustrated to the right I use a Break Mark as an example of a symbol with no text. As simple as this object may appear, it is actually a good example to learn from.

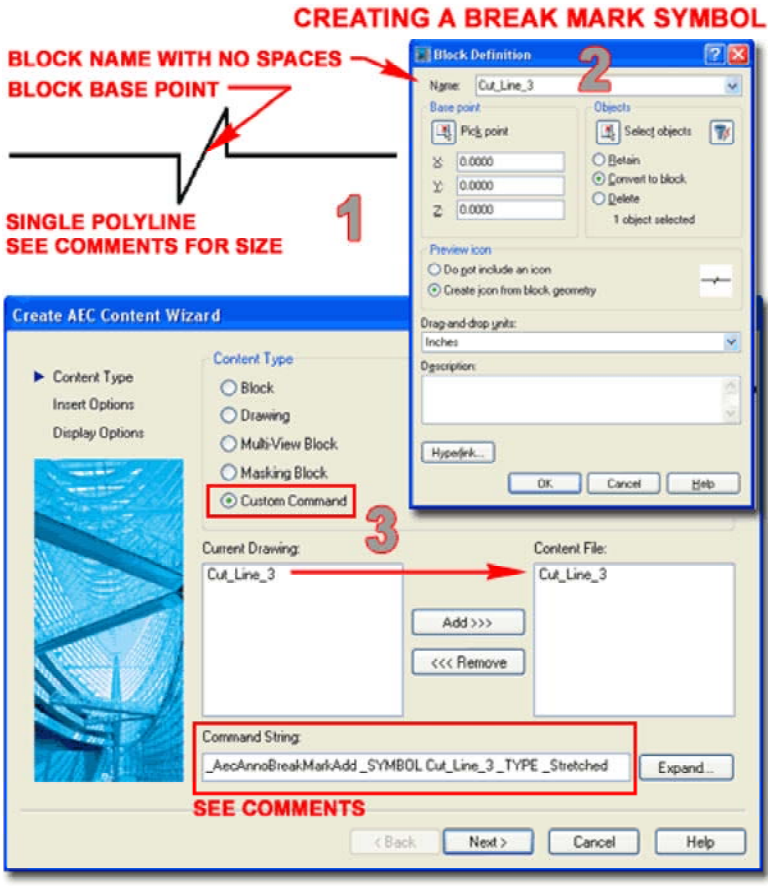
To create your own Break Mark, use a blank drawing such as the **Acad.dwt** and draw a break mark as you prefer it. Draw it at a scale of one-to-one but consider that you have three primary **scaling options**: **None**, by **Drawing Scale** and by **Annotation Plot Size**. To keep from introducing unwanted Layer Names, you should put this object on **Layer 0**; other properties can be ByLayer or ByBlock as you prefer (for this, I use ByBlock).

When done, make sure it is a **single Polyline**. Then, place the midpoint of the zig-zag at 0,0,0 and make a **Block** of this Object. Do not use spaces in the Block Name as those will be interpreted as keyboard "Enter" strokes by the Aec Content Wizard.

Activate the **Create AEC Content Wizard** (type **CreateContent**), set the **Content Type** to "**Custom Command**", use the **Add>>>** button to include your **Block Name** and proceed down to the **Command String** where this Block becomes more than a common Block.

Command String:
_AecAnnoBreakMarkAdd _SYMBOL Cut_Line_3 _TYPE _Stretched

You can copy and paste the command string listed above but another and likely safer way to get this string, is to use the Edit... button on an existing Break Mark symbol in the DesignCenter and simply Copy its Command String. After Pasting the Command String for your custom Symbol, be sure to make the "SYMBOL" name match your Block Name and be very



To complete this example exercise, skip down to "[AEC Content Wizard - Insert Options](#)" and continue by finishing the work in the Create AEC Content Wizard.

careful about the Spaces between command line options; e.g., between "SYMBOL" and "Cut_Line_3", there is a single Space.

Symbols with Attribute Text

Links Aec Content Wizard - for more information on the Create AEC Content Wizard and the settings within it.

All Documentation Content that offers adjustable text uses **Attribute Text** and all Attribute Text must be embedded in a **Block** in order to work as they do. Working with these symbols is very similar to the work discussed above but because these types of symbols are generally attached to something else, like a Leader, Cut line or Cloud, the Command String tends to be more complex.

Revision Clouds are an example of Documentation Content that uses a Block with Attribute Text. For symbols such as this, all you have to do is draw the form, add one or more Attributes, make a Block of it and use the **AEC Content Wizard** to combine this Block with the Command String you want.

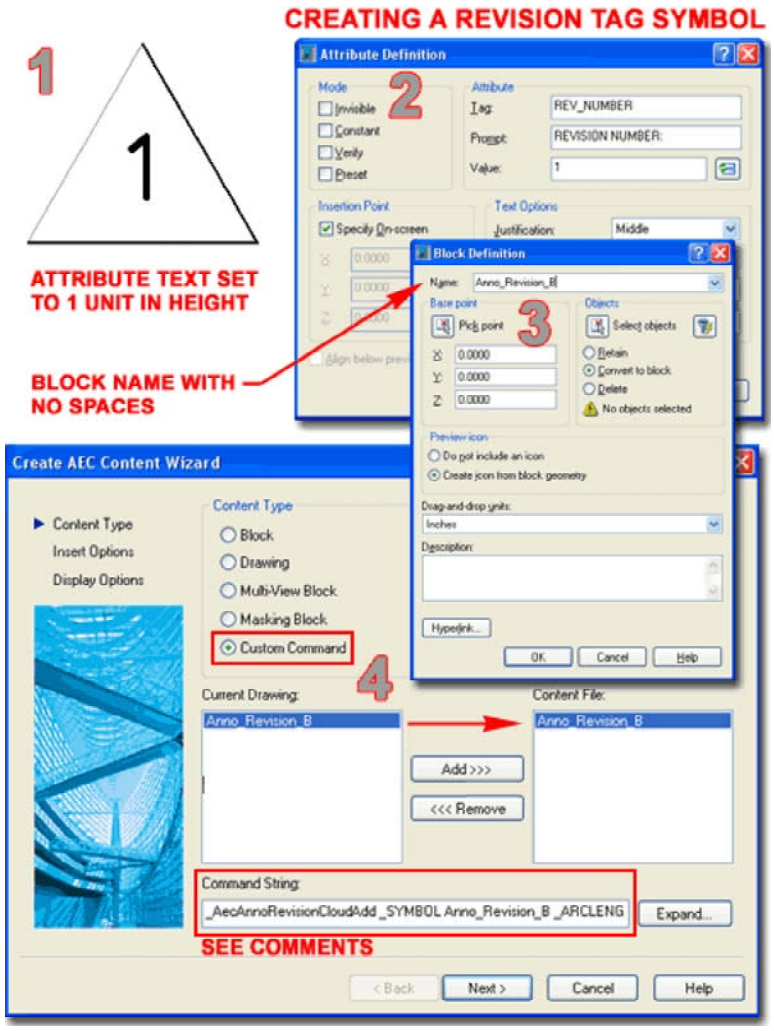
To create your own Revision Cloud Tag, use a blank drawing such as the Acad.dwt and draw a revision cloud mark as you like it. For the scale of this symbol use the Attribute Text as a guide by making it one unit in height. Since text is a key component in this symbol, we will rely on the AEC Content Wizard's option to scale according to Annotation Plot Size. This will make the symbol larger than you are likely to use for one-to-one but that is okay since it will automatically be scaled when inserted.

As with other symbols, use logical Object Properties, such as Layer 0 and By Block.

Use the "**AttDef**" command to create the Attribute Definition and make a Block of the entire drawing using a Name that has no Spaces in it. The insertion point should be something logical. I found the tip or apex to work well for me; better than the default center. Active the Create AEC Conetent Wizard and follow the instructions outlined for the symbol discussed above.

Command String:
_AecAnnoRevisionCloudAdd _SYMBOL Anno_Revision_B _ARCLENGTH .75 _WIDTH .03125 _COLOR _ByLayer

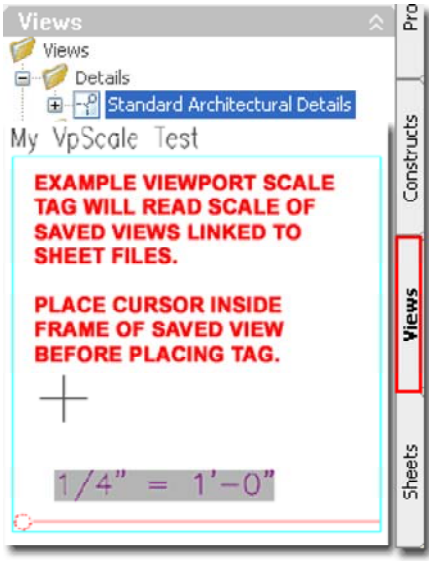
To complete this example exercise, skip down to "AEC Content Wizard - Insert Options" and continue by finishing the work in the Create AEC Content Wizard.



Symbols with Fields

Links Aec Content Wizard - for more information on the Create AEC Content Wizard and the settings within it.

The most sophisticated Documentation Symbols utilize **Fields** that are embedded as **Attribute Text in Blocks**. Because these symbols use Attribute Text, you always have the option to override the Field functionality by filling them in as you would normal Attributed Blocks but this action will actually remove the Field. Fields can always be reestablished, however, by right-clicking on the Value field of the Attribute Editor dialog; the only problem is that you really need to understand how Fields work in order to do this.



The two primary Documentation Content Symbols that use Fields are **Keynotes** and **Callout Marks** but you are free to employ them in as many creative ways as you can come up with. Illustrated to the right I show a very basic example of a Viewport Scale symbol that you can create to learn about how Marks, Blocks and Fields interact with the Project Navigator.

In a blank drawing file, create an Attribute Definition with a Text Height of one unit. For the Value field, use the Insert Field button or right-click on your mouse to acquire the same option off the Context menu. Once you have activated the Field dialog, use the Field category drop-down list and set it to "SheetSet". This action simply filters the list to a shorter length. On the **Field names** list, Select "**SheetSetPlaceholder**" so you can specify "ViewportScale" on the **Placeholder type** list. Set the Format as you prefer your scales to be read. Make a Block of the Attribute Text using the "**Convert to block**" option and a logical **Insertion Base Point** (like lower left). Make sure not to use any Spaces in the Block Name (use underscores instead if spaces are desired). Save the current drawing with this Block in it using a Name other than the Block Name (something like "Viewport_Scale_Mark.dwg").

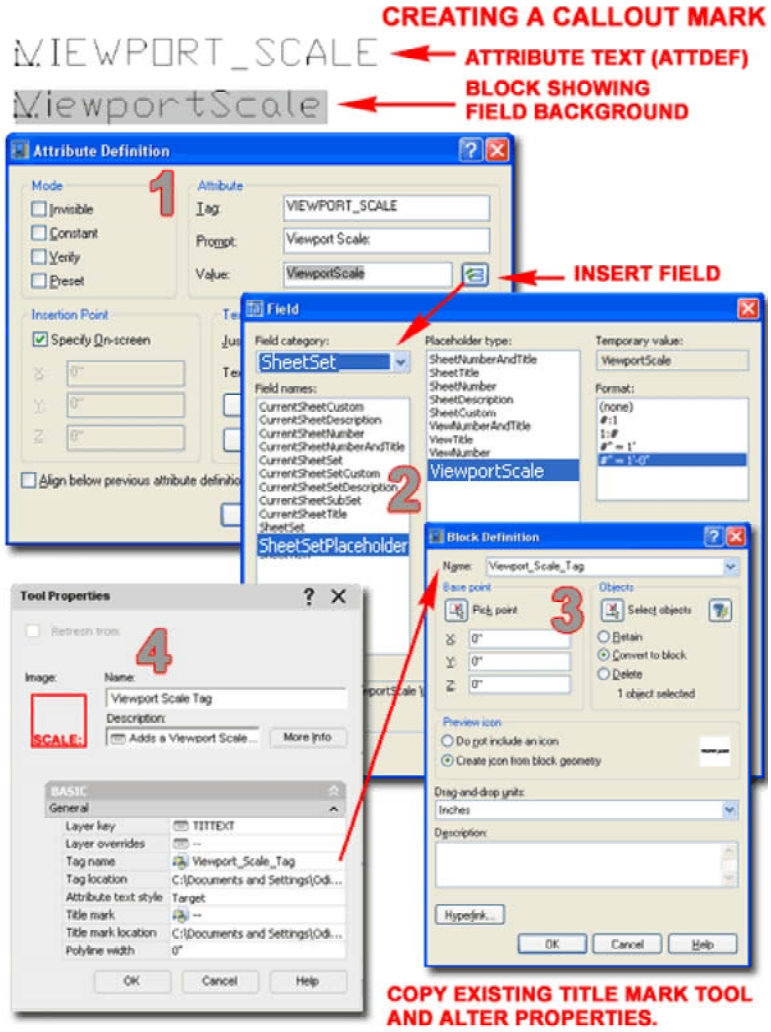
On the default Callouts tab of the Tool Palette, copy an existing Title Mark and change the Tool Properties as illustrated to the right:
Tag name - set this to the name of the Block you just created but in order to do this you will first need to set the **Tag Location** to the drawing file you just saved (Viewport_Scale_Mark.dwg).

Tag location - use the Browse option to set a path to the drawing file you just saved.

Title mark and Title mark location - I set these values to blanks because for this example we won't need more Blocks.

Polyline width - We can't remove this option because of how the Title Mark Tool was written but I set this value to 0 and use the Esc key when it pops up while inserting the symbol - that keeps the Polyline from being drawn.

To complete this example exercise, skip down to "AEC Content Wizard - Insert Options" and continue by finishing the work in the Create AEC Content Wizard.



Note:
The use of "**placeholders**" for **Fields** is pervasive with the default Architectural Desktop Documentation Content. As the name implies, a "placeholder" allows you to set a link to data that has yet to be established. This is exactly how and why **Sheet Keynotes**, for example, don't receive numbers until the Sheet Keynote Legend has been inserted.

If you find this subject confusing, hopefully you will find solace in the knowledge that there are very few placeholder types at this time and I found myself desperate for more as soon as started making my own symbols. If you look at the list of placeholders for **SheetSetPlaceholder**, there are only nine; five are for Sheet information and four are for View information. When I attempted to create an Interior Elevation symbol like those I tend to use, I found that I couldn't because there is no "placeholder" for Interior Elevation Number. You have the option to work with the **ViewTitle** (like Room Name), **ViewNumber** (direction), **ViewportScale** (print scale) and an option that combines **ViewNumberAndTitle**. As you may notice, there is no ViewCustom option to allow you to create your own "placeholder".

A lot of Architectural Desktop users start the process of creating their own custom Content by working with the default Content. Many users are also perplexed by the results of their efforts when it doesn't work properly. In the following discussion I will use the "customcolbub" from the **Miscellaneous folder** as my example of how you can use existing content to create new content; of course, you can use this information for most of the Content found in the **DesignCenter**

Illustrated to the right I show that I have used the **Open** Context menu option on the "**customcolbub**" symbol in the DesignCenter. One of the more interesting things about this symbol is that the drawing you see when you open this file has little to do with the tool it serves as. The first clue is the fact that the symbol is not in the form of a Block and the second clue is that the Scale is enormous. As it turns out, this drawing is basically just there to create a preview picture in the DesignCenter; you can actually erase it and still have the tool.

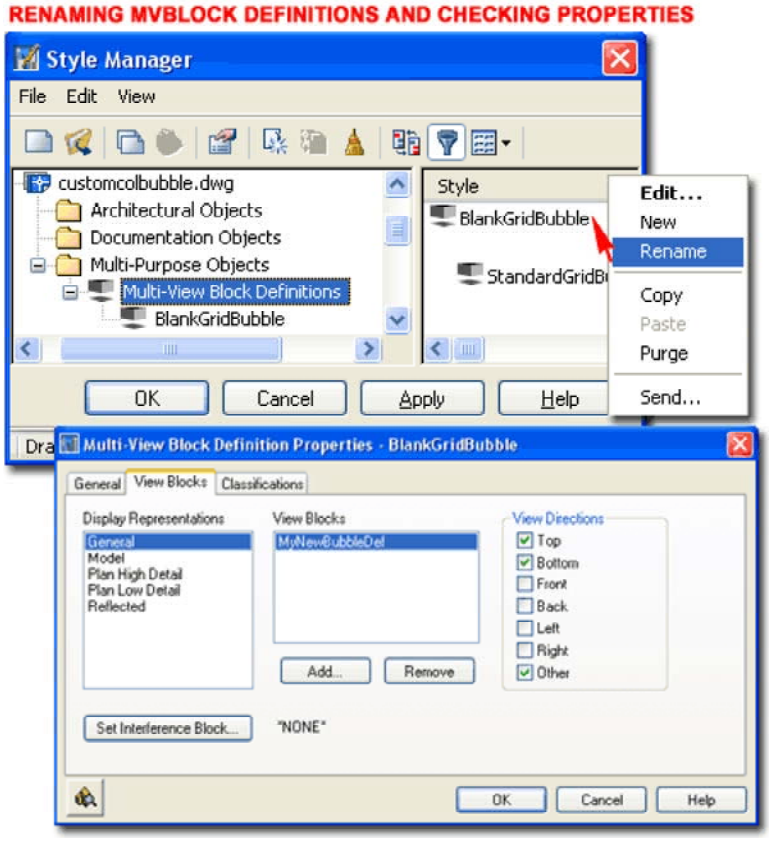
To find the real components of any Content, you need to look for Blocks. By using the **Insert dialog** I show that I have located the only **Block** in this drawing file and it is Named "**BubbleDef**". If you Insert this Block and use "**Refedit**" to modify it, Saving the Changes Back to the Block, you will have succeeded in changing this default symbol. A better method of working with existing Content is to use it as a basis for your own custom versions.

Users skilled in using AutoCAD are often very capable of modifying things like Blocks and Saving the File with a new name but forget that there are other Names to consider. Illustrated to the right I show the **Rename dialog** which should always be used if you want to keep the original Block, however modified it may be. Even if you use the Save As... option to save your new Content with a different Name, you need to change the names of internal Blocks to avoid conflicts with Blocks from existing Content.

Some Content uses **Multi-View Blocks**, particularly Design Content, as a means to change according to the current Display Configuration. In the case of Documentation Content, MvBlocks can be used to create results like changing Scale or turning Off under the Reflected Display Configuration (as is the case with this example Column Grid Bubble symbol).

Illustrated to the right I show that you can use the **Rename** context menu option to Rename existing **MvBlock Definition Names**. This is also necessary when creating your own Content because of possible conflicts similar to those for Blocks.

In [Part 12 - Grids] I discussed the need for a grid extension that has no bubble attached to it; a common preference in architectural drafting - especially for dimensioning. If you create a New MvBlock Definition Style from Scratch and don't assign any View Blocks to it, you can use this discussion to create a custom grid extension symbol. If you wish to do this, **Delete** the existing "StandardGridBubble" MvBlock Definition. Then, **Purge** the "BubbleDef" Block discussed above because you won't need it and you certainly don't want it floating around in this new file.



After having completed any and all modifications to existing Content, use the **Save As...** menu option to Save the file with a New Name. The best

location for this new Content is next to the existing Content. If you wish to put your new Content somewhere else, just make sure that you place it within the "**..\AEC Content**" folder for Architectural Desktop. If you don't place your custom Content with this folder structure, it won't read under the **Custom tab** of the **DesignCenter** and thus won't exhibit the proper functionality designed into it with the Aec Content Wizard. You can create new sub-folders within the existing system if you wish.

Illustrated to the right I show that I have activated the Save Drawing As dialog to Save my example grid extension line as "**Grid Extension Line.dwg**" to the same "**Miscellaneous**" **folder** that the existing "**customcolbub"** came from. As soon as you Close the current drawing file, the DesignCenter will be able to show your new Content item. I find that I usually need to go to another Content folder and then back in order to force a full Refresh. Though there is a Refresh Context menu option, it never seems to do the trick but jumping out and back to the Content folder always works.

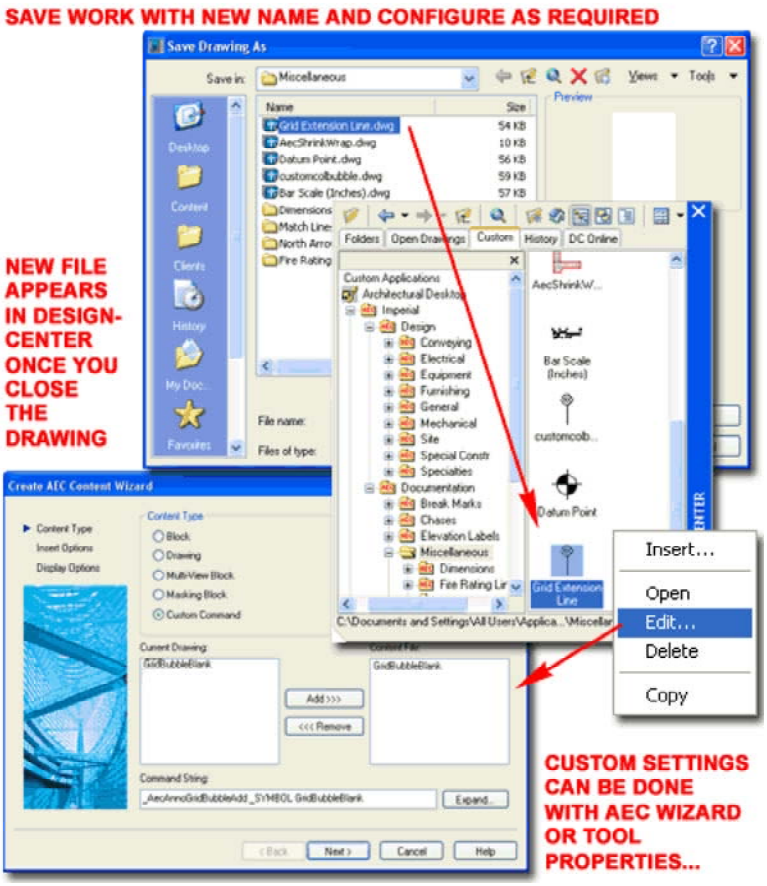
Once you have added New Content to the DesignCenter, you can use the **Edit... Context menu option**, as illustrated in the lower right, to activate the "**Create AEC Content Wizard**" where you will need to make changes to accommodate any Block and/or MvBlock name changes you may have made earlier.

In the case of this example Grid Extension Line, I will need to keep the **Custom Command** Content Type, **Add>>>** the new MvBlock Name (BlankGridBubble) and change the "_SYMBOL" **Command String** to use this new MvBlock Name. The new Command String would read as follows:

_AecAnnoGridBubbleAdd _SYMBOL GridBubbleBlank

- Note the spaces between letters.

After these changes you may or may not need to make other changes on the remaining two pages of the Create AEC Content Wizard dialog box. In the case of this example, no changes are needed for the second page but you may want to create a new Image on the last page. To learn more about the Create AEC Content Wizard and all of its options, read the discussion below.



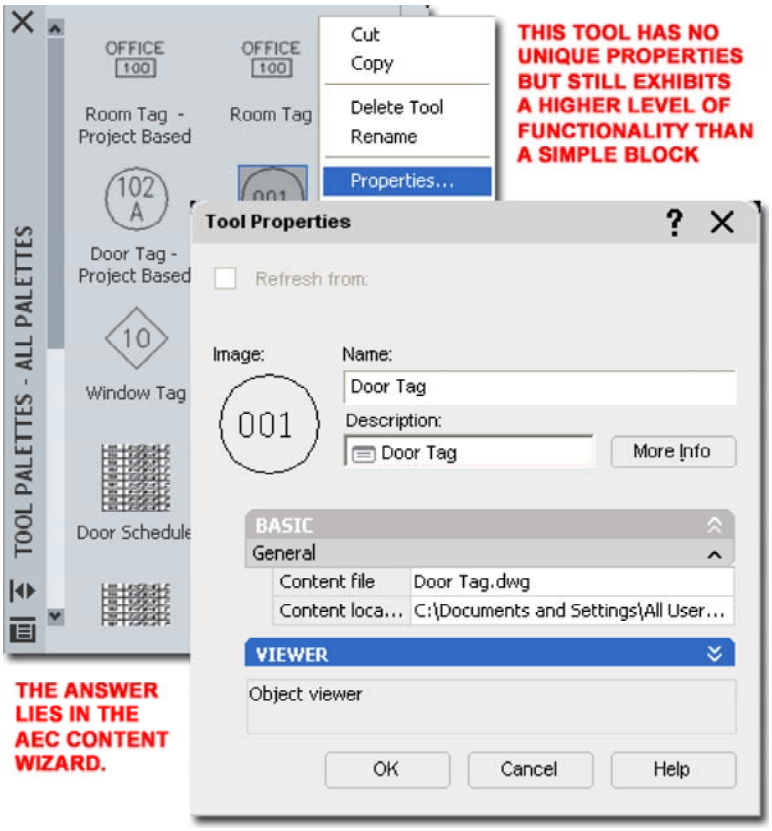
Note:
If the Content you created is not DesignCenter driven, then all you have to do after you have Saved it with a New Name, is Add it to your New Tool Palette tool as discussed under **Symbols with Fields**.

AEC Content Wizard Overview

The **Create AEC Content Wizard** is a tool designed specifically for use with the **DesignCenter**. As it stands, Tool Palettes are slowly replacing the special functionality the DesignCenter offers Architectural Desktop users and with each new release, more and more of the Command String macros tied to Documentation Content is being integrated into unique Tool Palette icons.

Upon my last inspection I found that there are still numerous DesignCenter Content items that only function properly when using the encoded **Command String**. This explains why you will still find ADT Content in the DesignCenter and though most of these items have been "copied" to Palettes, they still defer functionality to the original Command String. In the illustration to the right I show how the Door Tag **icon Properties** offer no unique options; but if you compare this to the Callout Symbols, you will see the type of options we should and eventually will find here.

The unfortunate aspect of this situation is that we are in the middle of a transition and if you intend to modify or create custom Content based on some of the features only offered through the use of the DesignCenter, then you will need to understand how the AEC Content Wizard works. In my opinion, however, don't bother learning this tool unless you really need to because I am quite confident that it and the DesignCenter will be phased out at some time in the future.



Command Strings and the DesignCenter

Menu **Format> AEC Content Wizard...**

Keyboard **CreateContent**

Links [Create Aec Content Wizard, Part 25 - 10] - for other information on the Aec Content Wizard as it applies to custom commands, Blocks and so forth.

If you look under the Documentation Content Folder in the DesignCenter you should find a list of Folders categorizing the type of Content within them. For each of these categories you can type commands that will access the items within and provide special options for how they will work in your drawing. I have never seen a list of these commands nor are they as neatly organized as you might think; in fact, they are somewhat sporadic and at times appear to have been created at the time of need (**AecAnnoBarScaleAdd**, for example).

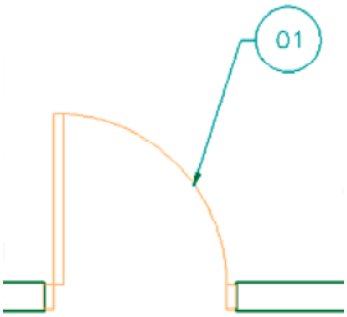
You can uncover these commands by using the **Edit..** Context menu option over any Documentation Content item to read the Command String text. Below I list a few of the ones I know: For each of these commands, you will find a set of command-line options as they apply to the type of Object or Symbol they work with.

AecAnnoBreakMarkAdd
AecAnnoMvblockInterferenceAdd
AecAnnoElevationLabelAdd
AecAnnoRatingLineAdd
AecAnnoSymbolAdd
AecAnnoRevisionCloudAdd
AecAnnoScheduleTagAdd

Among the list, the "**AecAnnoSymbolAdd**" is probably the easiest to understand because it really doesn't do anything at all. In fact, I ran several tests on the default Content that comes with ADT and it all works perfectly without the use of this command. In other words, it is just a fancy way of Adding a Block.

For a more complex command, you might want to explore how the "**AecAnnoScheduleTagAdd**" command works. If you type this command on the command-line, it will produce the following output:

Command: AecAnnoScheduleTagAdd
Property set definitions drawing <PropertySetDefs.Dwg>:
Select object to tag [Symbol/Leader/Dimstyle/Edit/Constrain/Rotation]:

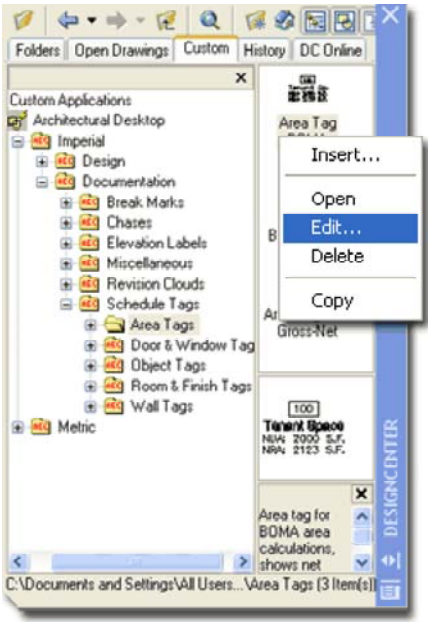


To make this command behave as it would if you activated it via the DesignCenter or a Tool Palette icon, you will need to manually input all of the text typically done as a "**Command String**". First, you need to provide the path and/or name (see note below) of the **PropertySetDefs.dwg** where this Tag will extract the data to associate with the Object it was designed for. Second, you will need to specify the **Symbol name** and then you can move on to unique options such as Leader, Constrain and so on. If you explore each option, such as using a Leader set to a specific Dimstyle, turn Edit Off but leave Constrain and Rotation in default mode, you will soon figure out how simple this system is. If you like some of these option combinations, you can create new Symbols that employ them and I will discuss how to do that below.

Note:
You are likely to have trouble getting past the "Property set definitions drawing <PropertySetDefs.Dwg>:" question because ADT may not understand where to look for this file. The quick fix is to add the full path to this file on the **File Search Path** in the **Options dialog**. The Statement may look something like this: C:\Documents and Settings\All Users\Application Data\Autodesk\ADT 2005\enu\AEC Content\Imperial\Documentation\Schedule Tags\

AEC Content Wizard - Content Type - Custom Command

You can use the **Edit...** Context menu option over any items in the DesignCenter to activate the **Create AEC Content Wizard dialog** and see how it has been configured to work in ADT. Illustrated to the right I show how a custom Block Tag was created using the AEC Content Wizard.

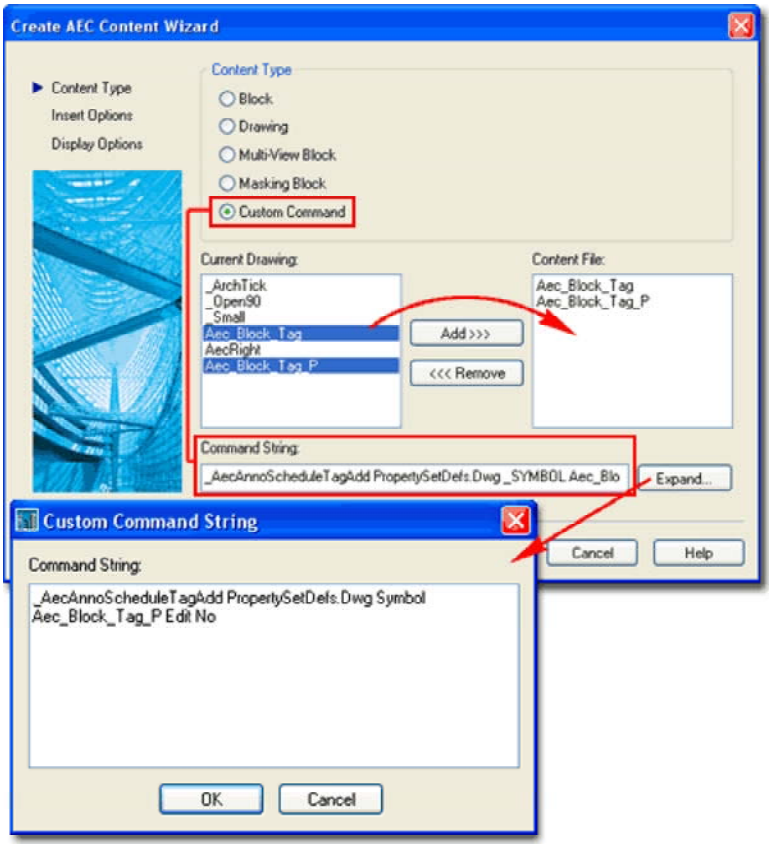


On the Create AEC Content Wizard dialog, only the **Custom Command** Content Type provides the option to use a custom **Command String**. By using the **Expand... button** you can read the Command String a little better than you can on the single line. You may also notice the Current Drawing and Content File list fields with the Add>> and <<Remove buttons. These fields are used to select the Blocks and MvBlocks that you want to insert when the DesignCenter or Tool Palette icon is Selected.

For the example Block Tag that I show to the right you will see that I have two items listed under the Conent File list; one is a Block with Attributes and the other is the MvBlock containing the Block. In order for custom content to work properly with ADT commands and features, it must be turned into an ADT Object and the MvBlock is the logical option for most Symbols.

Under the **Command String** which, if you recall, uses one of those unique commands discussed above, the name of the MvBlock is always specified with the **Symbol option**. In other words, when an icon is used to activate the Content, one or more Objects are inserted while a macro, the Command String, is triggered and it specifies which Object to use as a "Symbol".

Illustrated above, right, under the Command String, notice that I have used a **Tag** as my example. With Tags, you will need to use the "**AecAnnoScheduleTagAdd**" **command**. If you type this command on the command-line, the first thing you will need to do is hit the **Enter key** and thus I show that I have used a Space created with the Space Bar. The next prompt for this command refers to the path and name of the Property Data Set Definition used to attach and/or extract data from the Object to be tagged. Unless you are using a unique file, the default "**PropertySetDefs.dwg**" file will suffice and all you have to do is put this into the Command String as: "**_AecAnnoScheduleTagAdd PropertySetDefs.dwg**".



For the third set within the "AecAnnoScheduleTagAdd" command, there are several **options** that relate specifically to the process of tagging and the most important option is the specification of the **Symbol Name**. To continue with the logic and structure of the Command String, notice that it take another Space to get to this part and then each option can be specified followed by a Space and the response. In other words, for the Symbol specification I show the following: "**_AecAnnoScheduleTagAdd PropertySetDefs.dwg Symbol Aec_Block_Tag_P**"

Maybe now you start to see why underscores are used in most long filenames in ADT. After specifying the Symbol name you may not need to add more to the Command String but I show that I have added one of my favorite options: the deactivation of the Property Set Data dialog. You can use this option to avoid having to fill in information or even see any dialog when tagging objects. My example Command String now looks like this: "**_AecAnnoScheduleTagAdd PropertySetDefs.dwg Symbol Aec_Block_Tag_P Edit No**"

Note:
The use of the **underscore** character (_) before commands and options is for **language-independence** and is actually not required if you only plan to use your custom work on ADT in one language. The use of the underscore character in Symbol Names is required to avoid having the Space interpreted as an "Enter".

AEC Content Wizard - Insert Options

On the **second page** of the **Create AEC Content Wizard dialog**, you will find the same set of options that you have for all Content created with this Wizard.

When Editing or Creating new Documentation Content, you will need to focus on the options that relate to **Annotation**.

INSERT OPTIONS
Explode On Insert - this checkbox option is only available for Blocks, Drawings and MvBlocks. This option is identical to that for Blocks where you can have them Explode upon insertion; thus becoming primitive Object types. This is rarely a good option.

Preset Elevation - this value field can be used to specify a Z-axis height for insertion relative to the absolute World Coordinate System. A better choice is to use the X,Y,Z Offset values available on Tool Palette icons.

Anchor Type - this drop-down list offers numerous Anchor options for what you want your Symbol to Anchor to when inserted; i.e., a Wall Anchor declares that you only want to connect your Symbol to Wall Objects. Fluorescent Light Fixtures, for example (which are Mask Blocks), Anchor to Nodes because Ceiling Grids have Nodes to Anchor to and this keeps the Symbols hooked to the Grid. Generally, I find little reason to specify Anchors for Documentation Symbols but perhaps you will see things differently. You can easily experiment by Editing a Symbol and then resetting it if the results are undesirable.

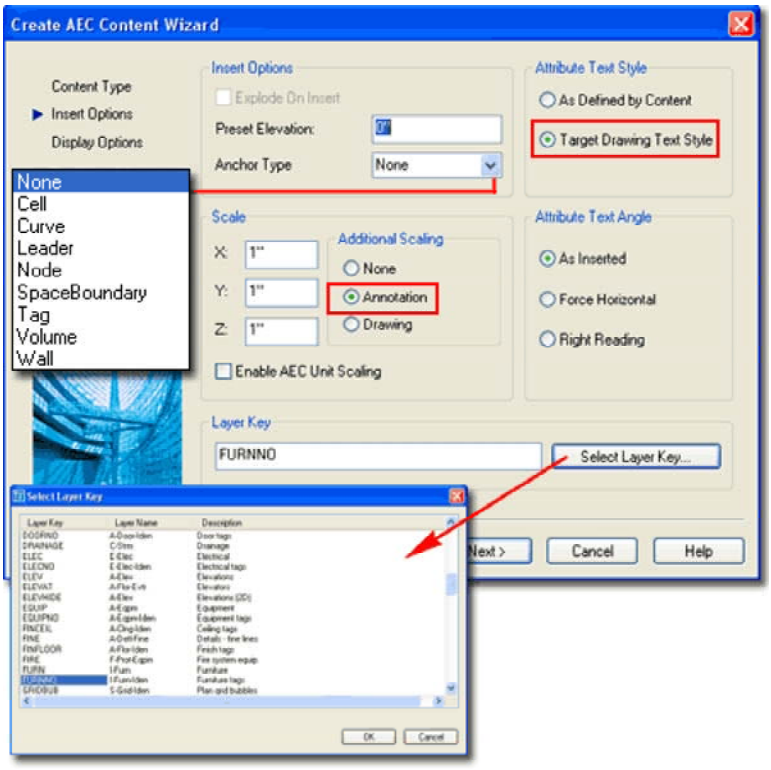
ATTRIBUTE TEXT STYLE
As Defined by Content - this radio button forces the text to remain in the Style of origin. When creating Content for many offices this is a tough one to use but in a single office you may find this option quite useful because users often forget to preset the Text Style when Inserting Documentation Content.

Target Drawing Text Style - this radio button changes the Text Style in the Tag to match the current Text Style in the drawing when inserted. For this option you will find that using the Standard Text Style is best because that prevents the introduction of any other Text Styles when the Content is inserted.

SCALE
X,Y and **Z -** these three value fields can be used to define unique scalar proportions and can be used as multipliers of the Annotation or Drawing Scale as set under the "Additional Scaling" section. If, for example, you find that a Symbol is coming in a little too large you may want to set the Scale of X,Y and Z to .75 while leaving the Annotation Scale set. This will allow the Symbol to scale as required to match the drawing and annotation scale but be 3/4 the original size.

Additional Scaling - this section offers three options: None, Annotation and Drawing. "**None**" would typically be used for Symbols such as Furniture and Appliances that may be drawn at true size. "**Annotation**" reads the "Annotation Plot Size" value back on the Drawing Setup dialog and matches that against the drawing Scale to produce the desired size. "**Drawing**" reads the drawing Scale and scales directly according to that value; i.e., a drawing scale of 1:48 would scale the Symbol by a factor of 48.

Enable AEC Unit Scaling - this checkbox can be used to convert or scale objects based on the Drawing Units (as set on the Drawing Setup dialog) . An Imperial based Range, for example, will scale up by 25.4 when inserted into a Metric drawing configured for Millimeter Drawing Units. Generally, this option is used for Objects but not Documentation Symbols.



ATTRIBUTE TEXT ANGLE
These options only work with commands that were designed to take advantage of them; commands like those for section, elevation and interior bubbles (AecAnnoElevationMarkAdd). Though you can still work with the old commands, they have been migrated to the Tool Palettes for more effective and efficient use. For the remaining Content and corresponding commands, I have found no examples where these "Attribute Text Angle" options do anything at all.

As Inserted - this radio button can be set to keep attribute text oriented based on the angle of the Symbol it is associated with.

Force Horizontal - this radio button can be set to force attribute text to orient along the X-axis of the current UCS icon. Typically, this means horizontal along the X-axis of the WCS.

Right Reading - this radio button can be set to force attribute text to read from left to right preventing results like upside-down text. This option is particularly useful on Symbols using Leaders where you want the Symbol to match the angle of the leader but the text to read from left to right towards the center.

LAYER KEY
Select Layer Key... - this button can be used to Select a Layer Key from the current Layer Key Style and will thus place the Symbol on the matching layer when inserted. The Name and the Properties of this Layer Key can be read using the LayerKeyStyle command.

AEC Content Wizard - Display Options

Links Setting Block Name, Icon and Location, Part 25 - 10 - for other information on saving Content with the AEC Content Wizard.

For the last phase (**third page**) in creating custom Documentation Content with the **Create AEC Content Wizard dialog**, you simply specify the **File Name** and location, the Icon graphic and any Description you may want to add.

Illustrated to the right I show some of the connections between the AEC Content and ADT tools that you may want to think about when making custom Content.

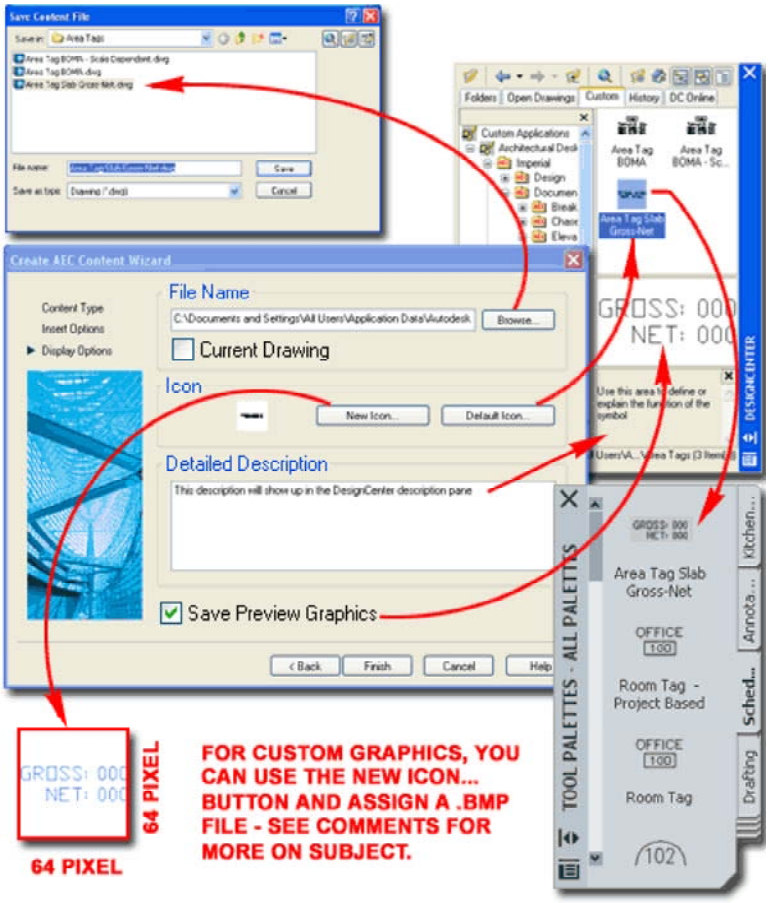
File Name - use the **Browse... button** if you are performing a Save As.. routine and wish to provide a new name and location for the Content. Remember that the location of the new content is critical if you expect it to work under the Custom tab of the DesignCenter.

Current Drawing - use this **checkbox** if you are converting the current drawing file into the custom Content. Typically I don't use this option because I see the current drawing as a scratch space where I created the solution to be Saved As...something else. When you save the current drawing file you may also include things that you don't want but if this option is what you wish to use, be sure that the location of the file is appropriate as discussed above.

New Icon... - use this **button** when you want to use a custom graphic image to be used in the DesignCenter and, if the Content is dragged over to a Tool Palette, the tool image. Though the DesignCenter uses a smaller pixel ratio for the image, I recommend using a 64 pixel x 64 pixel ratio. Though you can use numerous image formats as tool icons, you can only use .bmp's for the DesignCenter tools. If one of the DesignCenter tools is dragged over to a Tool Palette, the .bmp is automatically converted to a .png image.

Default Icon... - use this **button** when you want to use the Model Space Extents as the graphic image used in the DesignCenter. For best results, Zoom to the Extents of your Model Space drawing and change the background color to White using the Display tab of the Options dialog. Once complete, the image is embedded with the drawing file so you cannot Open it with a Photoshop-like program to modify. If you need a better image, consider creating it with a Photopshop-like program and use the New Icon... button - see discussion above.

Detailed Description - use this **text field** area to write a description of the custom Content. You will find this text in the Description tile of the DesignCenter and,, on the Description dialog and tool tip (when you hover over a tool).



Save Preview Graphics - use this **checkbox** if you want the Content saved with the standard Preview image typically associated with drawing files. This preview image can be viewed in the preview tile of the DesignCenter and is often helpful for Objects that are hard to read in the smaller graphic.

Note:
If uncertain or unfamiliar with how the Content Path Settings work with the Custom tab of the DesignCenter, be sure to read up on this subject under, Design Content - Path settings - Options dialog.

Command String for custom commands

The **Command String** option on the **Create AEC Content Wizard dialog** is not limited to Documentation Content Symbols and you can actually use it to create just about any macro-based routine you can think of. Consider something as simple as drawing a Line that Keys to a specific Layer.

Illustrated to the right I show that I have activated the **Create AEC Content Wizard dialog,** set the **Content Type** to **Custom Command** and simply written a common AutoCAD command, "**Line**". On the second page of the Wizard you can use the Layer Key option to set a specific Layer and finish the process of saving the work to a unique file to be read by the DesignCenter; i.e., in a location that the DesignCenter will read under the Custom tab.

If you expand on this capability you might find some interesting solutions for the work you do. Keep in mind, however, that Tool Properties are absorbing many of the options offered by the Wizard and thus you may want to look to them before investing too much time here.