



PART 10

SLABS & SLAB TOOLS

Contents:

[Slabs and Slab Tools - Access](#) ---- [Loading Slab Styles](#) ---- [Adding Slabs](#) ---- [Modifying Slabs](#) ---- [Slab Style Properties](#) ---- [Slab Display Properties](#) ---- [Slab Edge Styles](#) ---- [Slab Edit - Trim, Extend, Miter and Cut](#) ---- [Slabs Edit - Add and Remove Vertices](#) ---- [Slabs Edit - Holes, Add and Subtract](#) ---- [Customizing and Tricks](#)

1

Slabs & Slab Tools - Access

Slabs and Slab Tools toolbars

How do I get this toolbar?

You can also acquire access to some of these commands from the Alternate **Design** pull-down menu. From the **Design** pull-down menu, pick **Slabs >** and cascade to their respective command options - see image below, right.



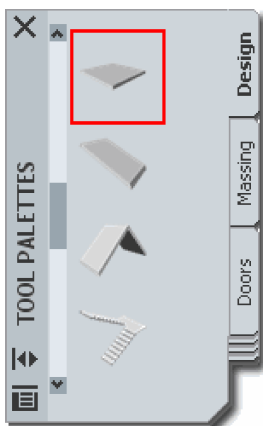
Slabs and Slab Tools pull-down menu

Alt.Menu **Design> Slabs**



Keyboard **Slab**

Links [Adjusting to the New Interface for AutoCAD and ADT Users](#) - for how to activate the Design pull-down menu



The Slab Object is basically little more than a copy of the Roof Slab Object and thus you will find a lot of similarities. At times you may find the jargon for Roof Slabs a bit confusing since they are based on Roof Slabs; terms like Soffit and Fascia but if you think in terms of a flat or low pitched Roof then you should have no problems working with this Object.

For some designers the Slab may not be a necessary Object in your Construction Documents since Foundation work and Framing work is often handled by Structural Engineering and their Construction Documents.

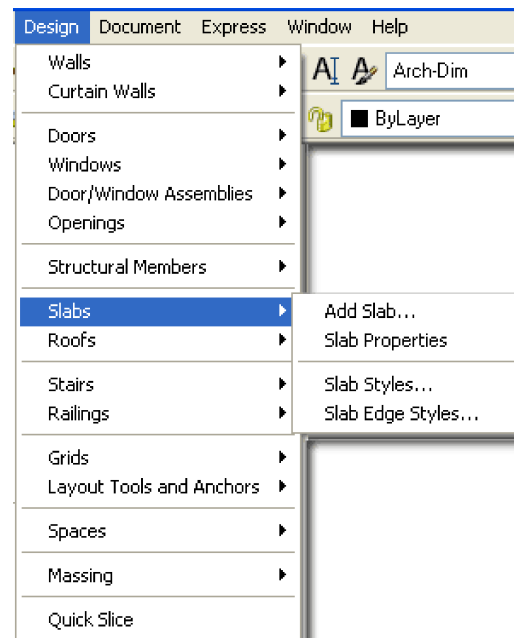
Though I might rely on separate structural information to be included with my final construction documents, I still use the Slab Object to help create footing outlines, patio, sidewalk and street edges, floor framing envelopes and so on. Slab Objects are great in Sections and provide ceiling and floor surfaces for presentation renderings.

On the command line, you can type "**Slab**" when you want access to many of the Slab creation options. For direct access to an option within the Slab command-line menu, you can type the primary command plus the option you want direct access to. For example, if you want to Add a Slab, you can type "**SlabAdd**" or if you want to Modify a Slab, you can type "**SlabProps**" or "**SlabModify**".

Below is the command line read-out for "**Slab**":

Command: SLAB
Roof slab [Add/Convert/Modify/Properties/Styles/Edit/edGes/Hole]:

1-10 SLABS & SLAB TOOLS



On the command line, you can now type "**SlabEdit**" when you want access to many of the Slab Editing options. For direct access to an option within the Slab Edit command-line menu, you can type the primary command plus the option you want direct access to. For example, if you want to Trim a Slab, you can type "**SlabTrim**".

Below is the command line read-out for "**Slab Edit**":

Command: SlabEdit
Edit [Add vertex/ Remove vertex/ Miter/ Trim/ Extend/ Cut/ Xcut/ Boolean]:

Spaces toolbar

Links [Space Planing](#) - for how to create Spaces as Slabs

Illustrated to the right is the **Spaces** toolbar and I show this because Spaces can also be used for Slabs and in many cases appear to be a better solution for this object type. Space objects come with a **Ceiling** option, have **Space Tags** for Area Calculations and can be created from existing Wall objects.

They can also be set to automatically read Stair objects and create an appropriately sized hole by using the Space Interference tool. What Spaces do not have, is the option for Edge Styles but if this is not something you need, I suggest you try working with Space objects before settling for Slab Objects.



Personally, I don't use Space but that is because I typically use Slabs as Concrete Foundations and take advantage of the ability to attach a Perimeter Footing detail.

2 Loading Slab Styles

Opening Slab Style templates in the Style Manager

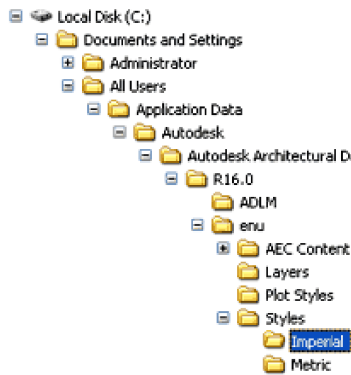
Alt.Menu **Design> Slabs> Slab Styles...**



Keyboard **SlabStyle**

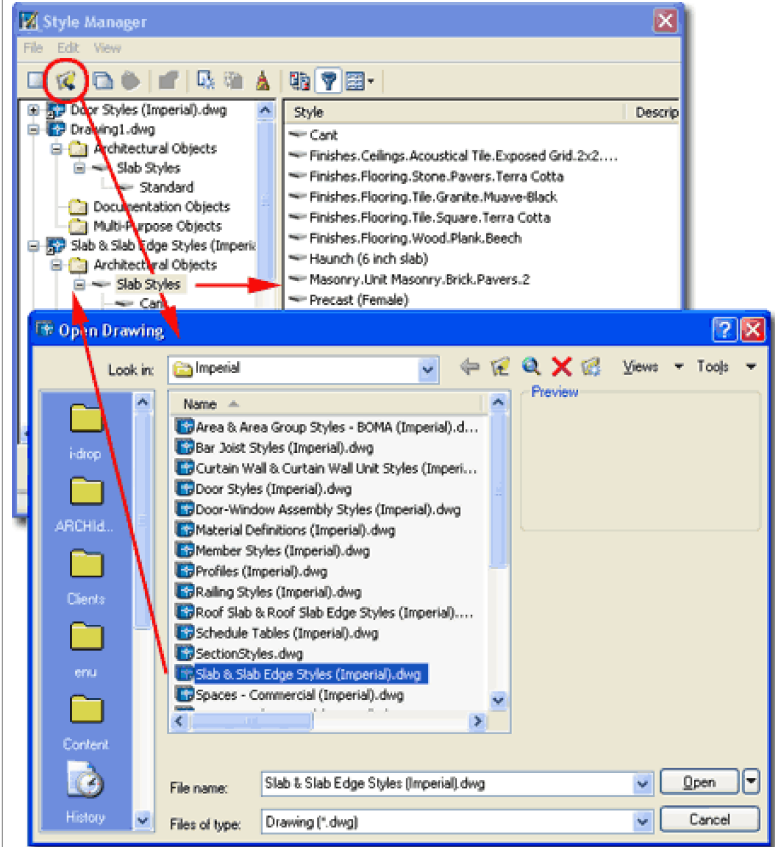
Links [Slab Styles](#) - for how to create a Slab Style
[Object Style Management](#) - for information on how to work with the Style Manager to load Styles.
[Copying Wall Styles in the Style Manager](#) - for example of copying a Style to the Tool Palette.

ADT comes with a short list of predefined **Slab Styles** that you can access through the Style Manager or by using the [Content Browser Window](#) (Architectural Desktop Design Tool Catalog... Roof Slabs and Slabs). Since Slabs are often rectangular shapes with a bit of thickness, you may not even need any of these predefined Styles but you will certainly want to learn how to create your own so you can, at least, name them.



The **Slab Object** is often used by designers as a generic all-purpose 3D Massing Object for things like table tops, ceilings, streets, sidewalks and so on. This practice may or may not be a good approach to solving problems in ADT but as long as you are aware of how this object functions and

displays, you should feel comfortable using it as creatively as you can. For some design problems, however, I find using other Object Styles a bit superior; such as using Wall Styles for countertops and full cabinetry. The biggest attribute the Slab Object offers is the option to create custom Slab Edges - discussed below.



For local installations of ADT, you are likely to find the **Imperial** or **Metric Slab Styles** in the **Styles Folder** as illustrated to the left. The full path to this location may vary but typically it is as illustrated. On a Network based installation of ADT, these Styles should be on a captured drive (like "G:\offices standards") or similar location with a folder name that indicates Styles. Consult your CAD or IT manager if you cannot locate the Styles Folder.

Slab & Slab Edge Styles (Imperial).dwg

Slab & Slab Edge Styles (Metric) .dwg

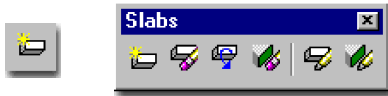
3 Adding Slabs

Add Slab - Properties Palette

Alt.Menu **Design> Slabs> Add Slab...**

2-10 SLABS & SLAB TOOLS

3-10 SLABS & SLAB TOOLS



Keyboard SlabAdd

The **Slab Properties Palette** offers a fairly simple list of options that should be self-explanatory if you think in terms of a 3D planar object. The primary settings you need to be concerned about are the **Style**, the **Mode**, **Thickness**, **Justification** and **Perimeter edge**. The steps for creating a Slab involve tracing the perimeter shape you expect to use as a Slab form and this means that you can draw a Slab Object much as you would a Polyline. Another great way to create a Slab is to use the [SlabConvert](#) command to convert a Closed Polyline shape into a Slab.

The Direction setting is of little consequence unless you are planning on providing a [Slope Value](#) at later point in time.

Style - a drop-down list offering a list of currently loaded Slab Styles. See [Loading Slab Styles](#) for how to Load predefined Styles. Though you can easily make due with the "Standard" Slab Style, I highly recommend creating a new Slab Style with a unique name, even if it's as simple as the "Standard" Style. I also recommend using different Slab Styles wherever Slabs could potentially be different because this will allow you to accommodate such design differences at a later date should changes come about.

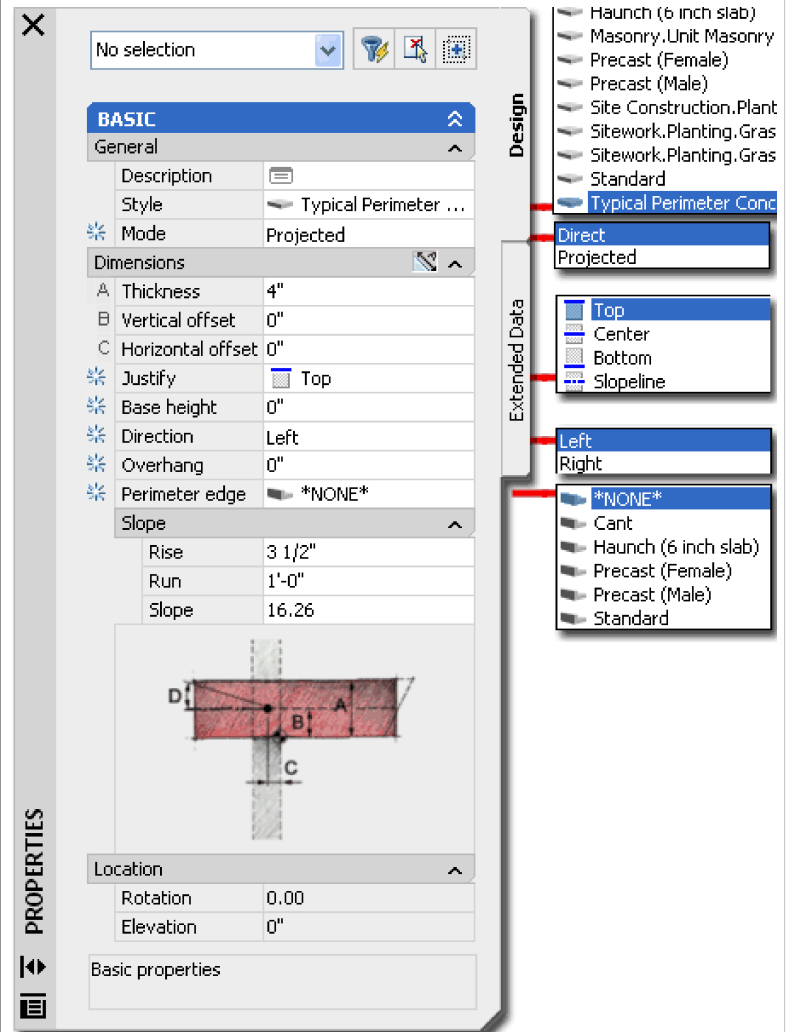
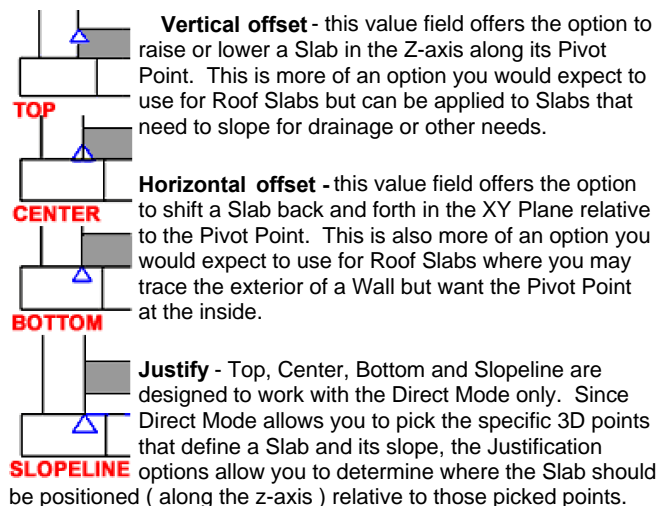
Mode:

Direct - this method allows you to pick the perimeter points for your Slab at the exact 3D points in space where you want your Slab to sit. This means that if you pick points along the base of a set of Walls that have the same plate height, you will get a perfectly flat Slab. If you want a Slab at a slope, you will have to pick points that define the slope; this is why the Slope options are not accessible.

Projected - this method projects the Slab from the points you select and is really more of an option that applies to Roof Slabs. However, given that you could accidentally OSNAP to some odd 3D Point in space when tracing the shape for a Perimeter Slab, I find this option the best because of you set the Slope to zero you will get a perfectly level slab regardless of the points you pick. Notice that when this option is active, there are more settings available on the Properties Palettes - see illustration, right.

In both the Direct and Projected Modes, the first two points picked establish the base or front of the slab much like how you get the fascia when you create a Roof Slab.

Thickness - Slab thickness.



Overhang - the distance from the insertion point (where you pick) out to the Slab's edge (not including any edge detailing, curbs, etc.).

Perimeter edge - this drop-down list provides access to Slab Edge Styles which can be used to create such things as curbs, footings or joints. In order to use these you must first create a SlabEdgeStyle.

Rise - change in Y-axis. Projected Mode Only

Run - change in X"-axis. Projected Mode Only

Slope - use this value field to specify a slope angle if you don't know the rise and run. If you specify the rise and run, the Slope Angle will be calculated for you. You can use the Properties Palette to set the Slope after creating a Slab as well. Projected Mode Only

Note:

Observe the options on the Command line.

Specify next point or [STyle/ MOde/ Height/ Thickness/ Slope/ Overhang/ Jusify/ MAth/ Undo/ **Ortho close/ Close**]:

Ortho Close - if used after picking a second point this button will create a rectangular Slab based upon the dimension of the first two points (basically a square with extra for soffit, etc. as per the Style). The **Direction** of the Slab

This is much like deciding to create a Slab based upon the Top, Bottom or Centerline along a Curb (for a Roof Slab, it's like measuring against a single Rafter). **Slopline** is determined by the **Offset Thickness** value on the Design Rules tab of a Slab's Style.

Base Height - the height from Z=0 along the Z-axis up to the bottom of your Slab. Projected Mode Only

Direction - this option affects the direction of your Slab when you use the **Ortho Close** button and only works if you use Ortho Close after having picked a second point. The second point establishes the front of your Slab thus allowing ADT to calculate a Left or Right direction of "closure". The size is based on the length of the first side.

Add Slab - Direct Mode & Projected Mode

When Adding Slabs, you may find the Mode and Direction options a little confusing so I have illustrated the difference to the right by using the Ortho Close technique after drawing the first two points for the two example Slabs.

The **Direct** Mode method of Adding a Slab assumes that you know the pitch by the virtue of the 3rd point you pick. If you don't pick a 3rd Point in Space that happens to be higher on the Z-axis than the 2nd point, there will be no slope change. When you use the Ortho close command line menu option you will always get a level slab as illustrated to the right. You can use the Ortho close option after picking the first two points for the front or pivot point of the slab.

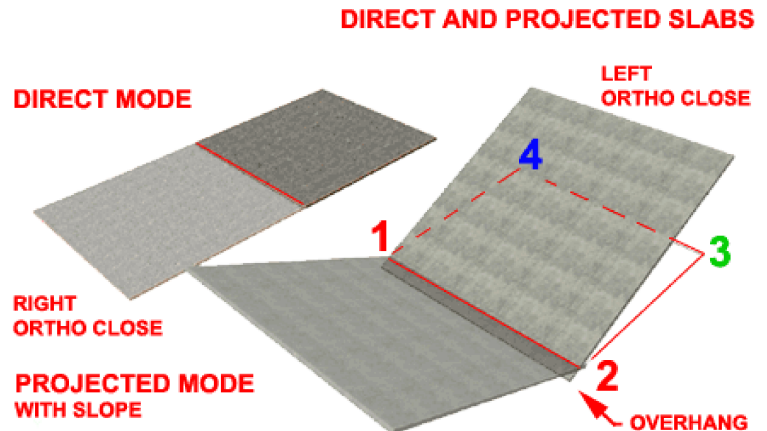
This method can also be very frustrating if you are attempting to create a flat Slab by **OSNAP**ping to points around existing objects in ADT. At times, one poorly **OSNAP**ped point can result in a sloping Slab and thus you may find the Projected Mode more desirable for non-sloping Slabs.

The **Projected** Mode method of Adding a Slab works much like the Roof routine and allows you to specify the Slope and Base Height before picking your points. This means that you can pick points along the base of existing Walls, Wall Footings, Columns and so forth and have the Slab begin at the height (Z-axis) you desire with a slope according to your rise and run or angle input. Just like the Direct Mode method, the first two points will establish the Fascia. The 3rd point will establish the direction in which you want the Slope. This method is easier to use than Direct Mode.

1 - this point establishes the **insertion point** of your Slab so if you want a Slab on top of your plate, you cannot pick at the bottom of your Walls. This is also where the Pivot icon will be established.

will be based upon the direction established by your second picked point and the Direction buttons (see Direction description). If used after picking three or more points this button simply calculates what it will take to create an orthogonal closure from the last point picked relative to the first point picked.

Close - only available if three or more points have been picked and simply closes a Slab shape to form a polyhedron much like Close on a Polyline.



2 - this point establishes the Fascia (yes, fascia) **length** and Slab orientation with respect to the Fascia. Once selected, you can use the **Direction** Arrows to flip the Slab to the **Right** or **Left** of these two points. In order to take advantage of the Direction Arrows, **you must use the Ortho Close button**; moving on to pick more points will disable the effect of using the Direction Arrows because a 3rd point will establish the final direction (as well as slope).

3 - once you have moved on to a 3rd point, the Direction Arrows are no longer valid but you can now use both **Ortho Close** and **Polyline Close** to quickly complete your Slab.

4 -> - once you have moved on to 4 or more points, **Polyline Close** should work rather well at any point to simply connect the last point picked with the first. **Ortho Close**, however, will not work unless it can create two additional edges; one from where you last picked and one to create an orthogonal edge off of the 1st point picked.

Convert to Slabs

Menu **N.A.**



Keyboard **SlabConvert**

Links [Slab Properties - Edges tab](#)

[FacetDev](#) - this variable can be set to control the faceting of curved slabs when Converted from curved Plines. Set before converting. Lower numbers = better curves.

The **Convert to Slab** tool can be used to convert **Plines** and **Walls** to Slabs. In my own use, I have found that converting Plines often produces a better result than using Walls or even Adding by picking points around a perimeter. Because the Pline object is a 2D object that conforms to the UCS and the first point picked, it can be a more reliable object to create Slabs from.

Tips on Converting:

The Convert to Slab routine was designed to convert one or more Wall objects into a Slabs. This means that you can Select one Wall object and derive a square Slab based upon the length of that Wall object or you can Select a whole set of Walls and derive either numerous individual Slabs or one Slab from the enclosure formed by those Walls. In order to derive a clean internal Slab surrounded by Walls, the Walls must form the enclosure perfectly and not extend beyond the enclosure.

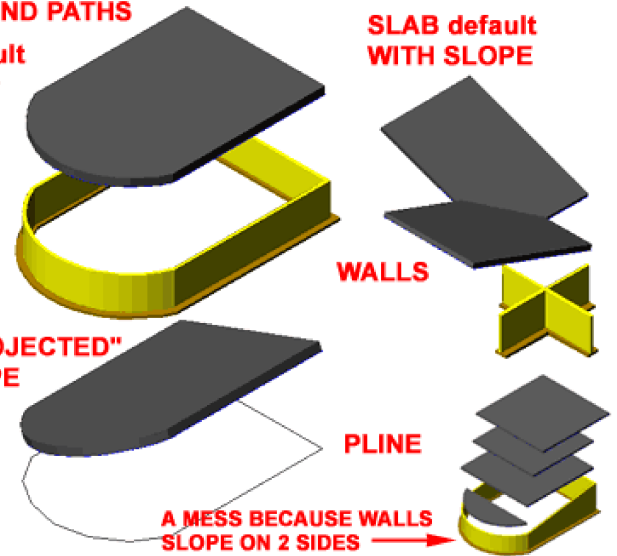
Inevitably, you will Convert a Pline or Walls into a Slab only to discover that it is positioned at the wrong elevation. I find that this is particularly true when converting Walls to Slabs but you can fix the problem by using the **Slab Properties...** tool and changing the **Z - insertion point** on the **Location tab** of the Slab Properties dialogue box.

CONVERT TO SLAB OPTIONS AND PATHS

SLAB default
NO OPTION FOR
DIRECT OR
PROJECTED

SLAB default
WITH SLOPE

SLAB "PROJECTED"
WITH SLOPE



The Pivot Point on closed Pline shapes occurs at the first point picked to create the Pline and the slope is established by the direction of the second point. If the second point is an Arc, the slope will be established by the direction of the Arc but won't slope off of the Arc.

4 Modifying Slabs

4-10 SLABS & SLAB TOOLS

Modify Slab - Properties Palette

Alt. Menu **Design> Slabs> Slab Properties**

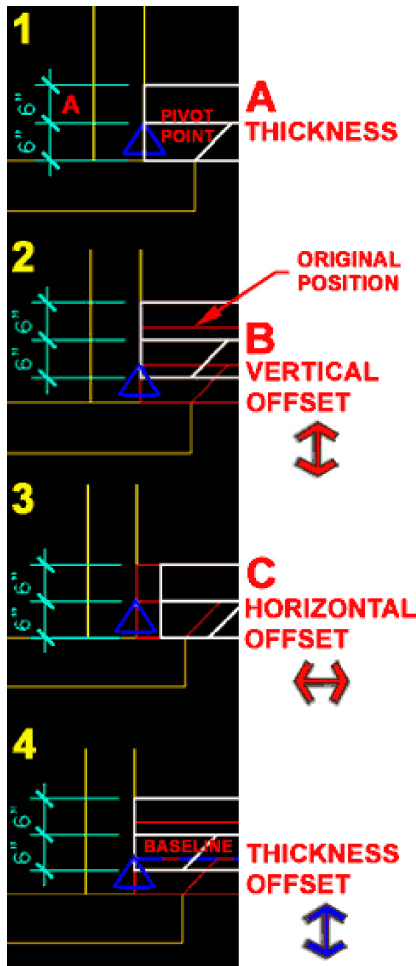


Keyboard **SlabProps** [-SlabModify]

Mouse Double pick on a Slab Object with the left mouse

Links [Tool Palettes](#) - for information on setting Defaults within the icon buttons for faster productivity

For **Modifying Slabs** you can use the ubiquitous **Properties Palette** which will offer most of the same options and settings found on this Palette when Adding Slabs. One of the more interesting and useful options you will find on the Properties Palette is the Edges dialog, illustrated right, which will allow you to work on each edge.



Style - allows you to change the selected Slab to any other Slab Style currently loaded in your drawing file.

Slope - you can input Rise and Run numbers that will automatically calculate an Angle for you or you can specify an Angle.

Rise - Run - Angle - see [Add Slab](#) dialogue box above.

Thickness - this option will not be available if it has been set as "Has Fixed Thickness" under the Design Rules tab of the Slab Style.

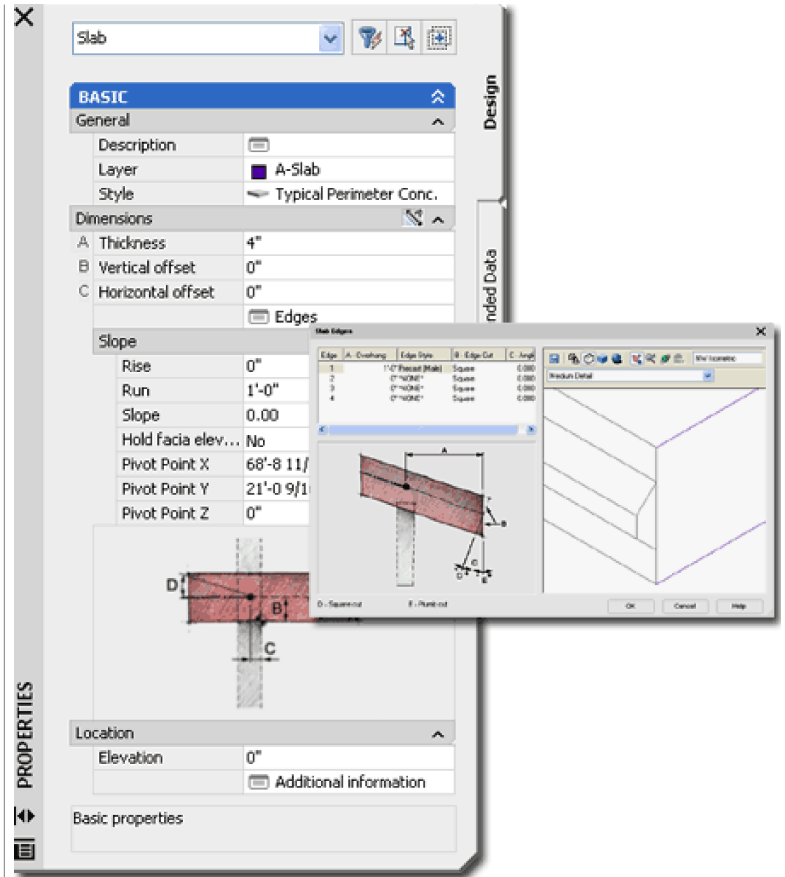
Pivot Points - if you are working with Sloped Slabs, you may need to adjust the Pivot Point to assist in better control. If you wish to set all three points with an OSNAP action, use the "-SlabModify" command instead.

Note:

Notice that there is no option to change the Justification here. And, you won't find this option on the Slab Properties dialog box either. This can prove to be a really irritating issue, especially when you are learning how to use this routine.

On the **Defaults** tab of the **Slab Styles** dialogue box, illustrated to the right, you will find a graphic that can be a little confusing when attempting to match the letter with the lettered check boxes and value fields.

A - Thickness - is the actual Slab mass thickness as illustrated by the letter "A". The question is, do you include finishing materials or set it just for the framing (lumber) dimension. I prefer



B - Vertical Offset - this value basically moves the Slab up and down parallel with the wall or perpendicular to the ground but can be confusing when mixed with the Thickness Offset value on the Design Rules tab.

C - Horizontal Offset - this should be an easy one to comprehend; you are just moving the Slab back and forth on the plate line.

D - Slope - this value becomes the default slope when using the Add Slab dialogue box and will be indicated by blue text fields.

E - Perimeter Edges - custom Edge Styles that are basically profiles attached to your Slab's edge. The graphic can be a bit confusing since you may often work directly off of the **F - Pivot Point** and not an adjusted **E - Baseline** that moves as a result of working with **B - Vertical Offset**.

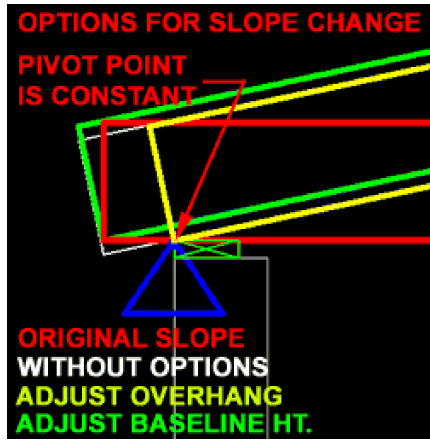
F - Pivot Point - is illustrated in the graphic on this tab but has no settings here.

New Edge Style button - use to create a new Slab Edge Style on-the-fly for complex or simple edge conditions. You may simply want an overhang of a given distance associated with this Slab Style. If you don't want a style for the overhang, then use the [SlabModify](#) command to add an overhang or use [SlabProperties](#). In both cases, go to the [Slab Properties - Edges tab](#) of the Slab Properties dialogue box.

to work with the framing sizes when not using the Slab as concrete.

Slab Properties - Dimensions tab

Links [Slab Styles - Defaults tab](#) - for more information.



On the **Dimensions** tab of the **Slab Properties** dialogue box you can override the Style settings by specifying unique values for the selected Slab.

A - Thickness - is the actual Slab mass thickness as illustrated by the letter "A". For Concrete it may be easy but for Wood Floors you may want to add Sub-Flooring

material to your Slab Thickness.

B - Vertical Offset - this value basically moves the Slab up and down parallel with the wall or perpendicular to the ground but can be confusing when mixed with the Thickness Offset value on the Design Rules tab.

C - Horizontal Offset - this should be an easy one to comprehend; you are just moving the Slab back and forth on the plate line (the fascia or 1st two points picked)

D - Slope - use to change the slope. Adjustment or change in slope occurs around the Pivot Point as established upon creation of the Slab or by adjustment on the Pivot Point value fields. The Pivot Point can also be modified directly on the Modify Slab dialogue box.

Slab Properties - Edges tab

Links [Slab Edge Styles](#) - for the whole story on Edge Styles and how to make them.
[Edit Slab Edges](#) - for another quick way to get to this option.

On the **Edges** tab of the **Slab Properties** dialogue box, you can assign overhang values, curbs, cants, footing haunches and positive or negative edge seams. If you are in a hurry to fix something on a Slab object, this may work well but for peace of mind you may want to manage this type of information through a Slab Edge Style instead - that's my recommendation. If you modify a Slab's Edges here, they will override the settings assigned through the Slab Edge Style; i.e., the two can co-exist even though they may contradict each other.

There are all sorts of nasty problems that you can get yourself into working with Edge Styles so I will attempt to save you some trouble by outlining as many of them as I can here.



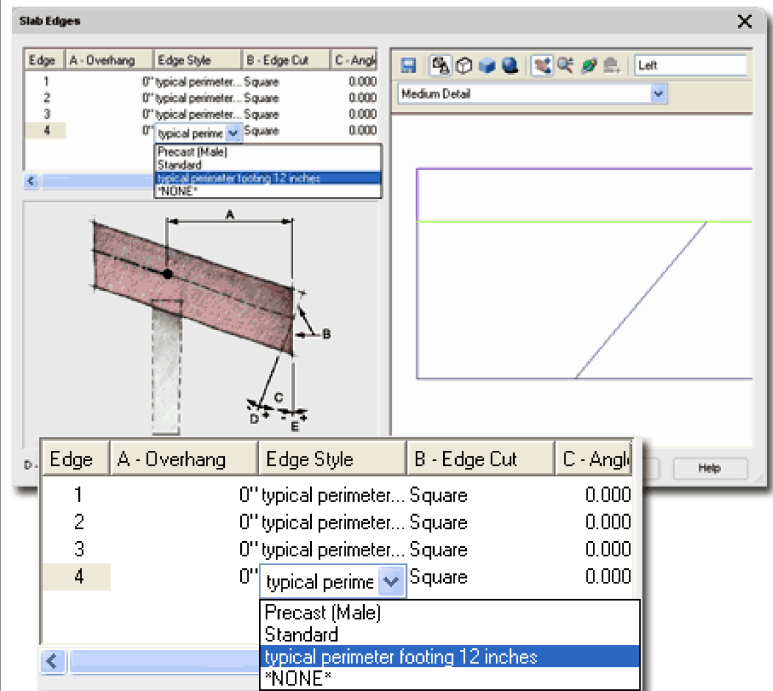
The easiest Edge Style to work with is the ***NONE*** option which

is just a line. Using ***NONE*** does not mean that you can't be creative though. You can still have an Overhang, Plumb or Square Orientation and an Angle of cut with respect to the Plumb

Hold Fascia Elevation When Changing Slope - a check box option for holding the Fascia Elevation fixed on the Vertical axis. Use "**By Adjusting Overhang**" when you are trying to keep the Slab fixed to the Pivot Point and the fascia aligned (the price is that the overhang distance will change). Use "**By Adjusting Baseline Height**" when you want to keep the same exact fascia and overhang but are willing to drop or raise the Slab down to achieve this result (the price is that the slab moves away from the pivot point).

Pivot Point - this is the strange blue triangle that constantly changes size when you zoom in and out. You can manually type in X, Y or Z values to reposition this slope control point but it might be easier to use the Pivot Point button on the Modify Slab dialogue box. The Z-axis value is a good place to look though, to verify that your Slab is sitting at the correct height.

E - Slab Baseline - you may notice this strange gray value that is in the graphic illustration but not accessible on either this tab box or its matching equivalent on the Slab Styles dialogue box. The Baseline is established by the original information used to generate the Slab; e.g., the point picked to make a Slab. When you Grip edit a Slab you get access to this component. It can be thought of as a reference point between the original Slab perimeter and consequent dialogue box changes, such as an overhang. When you Grip edit though, the Baseline also stretches.



or Square cut - see comments on [Slab Edge Styles - Defaults tab](#).

Using an **Overhang** value for all edges other than the Baseline (usually Edge 1 and the edge established by the first two points picked when creating a Slab) edge seems to be the only way to actually get an overhang. I have attempted it many times with a Slab Edge Style and the overhang never comes through so you may have the same experience. This means that you will have to use this technique for all overhangs except the Baseline one where the Slab Edge Style does work. If you find this commentary confusing, consider that when you grip stretch a Slab's Edge, you are not creating an "overhang" but simply making the Slab longer or shorter. An "overhang" has to do with a relationship between the Slab Edge and its fascia - look for distinctive Slab Edge line and this will become far more clear. Of course this subject has more relevance with Slabs and their relationship to plates than Slabs.

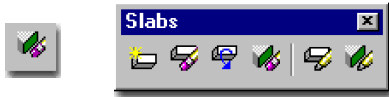
Orientation - there are two edge types to choose from, Plumb and Square. A square cut on a Slab is perpendicular to the slope and a plumb cut is perpendicular to a level plane (or level floor).

Angle - the angle off of the Orientation allows you to have a 30 degree slope off a Plumb cut ($90 - 30 = 60$ degrees), for example. You can also set an angle off of a Square cut and with the right number simply re-create a Plumb cut from a Square cut. This is also where any unusual Slab Cut angles are stored if you combine the UCS icon with the [Slab Cut](#) tool.

As mentioned above, any settings you make here will override those set for the Slab Style and you can actually do something as crazy as assign an Edge Style with an overhang value but change the overhang value here. Doing this type of editing may really cause confusion down the road. There is no control to avoid this from happening.

Edit Slab Edges

Menu **N.A.**

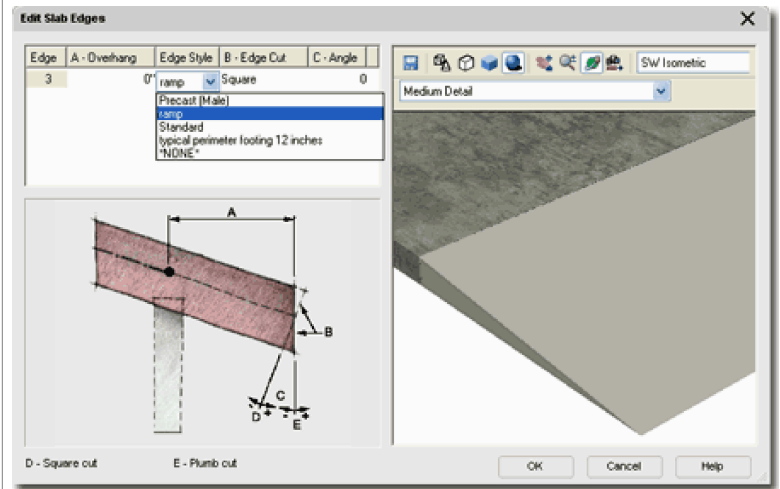


Keyboard **SlabEdgeEdit**

Mouse Select Slab, Right Click, Select Edit Edge/Faces... and Select the Edge(s) you want to Edit.

Links [Slab Properties - Edges tab](#)

The **Edit Slab Edges** offers you direct access to the Edges of any Slab Object so you can Modify or Assign new Edge conditions. Though you can Select more than one Edge before entering the Edit Slab Edges dialog, this tool is best suited for individual Edge Work where identifying a specific edge on the Slab Edges dialog (illustrated above) is too time consuming. See discussion on [Slab Edges](#) for more information about the options and settings offered on this dialog.



Illustrated above I show that I have selected one Edge of an example Slab so I could use the Edge Style drop-down list to pick a custom Slab Edge Style that I created earlier. This custom Slab Edge Style was set as a Fascia and based upon a triangular Profile to form a concrete ramp.

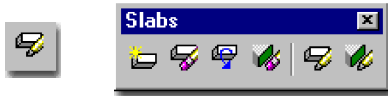
You cannot select edges of different Slabs.

5 Slab Style Properties

5-10 SLABS & SLAB TOOLS

[Style Manager - Slabs](#)

Alt. Menu **Design> Slabs> Slab Styles...**



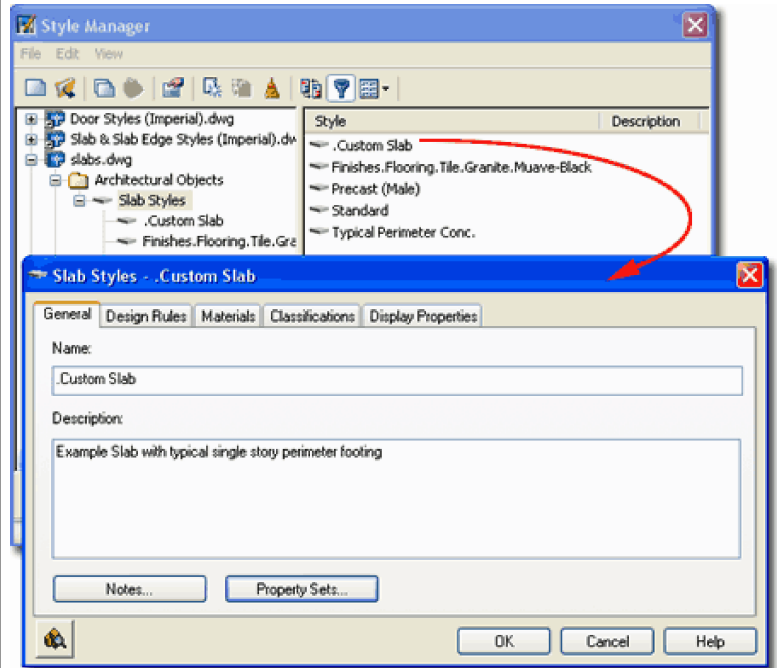
Keyboard **SlabStyle**

For Slab objects, you can use the **Style Manager** to load, modify, delete and create new Slab Styles.

Though you can easily create New Slab Styles from Scratch using the **New button**, you may want to use the **Copy/Paste** technique instead because it is far easier to Modify Settings of an existing Object Style than it is to create one from Scratch. In some cases, you may even miss specific settings that can come back to haunt you much farther down the road on a project - things like Display Representations or Data for Schedules.

Illustrated to the right I show the process of creating a **New Slab Style** that I have Named "**Custom Slab**". By **double-clicking** on this new style, I show that I have also activated the **Slab Styles Properties** dialog box where all of the custom settings can be made for the size, shape and look of this particular object style.

The **General** tab provides access to the **Name** and **Description** fields for a Style; plus access to the attachment of **Notes** and **Property Sets**.



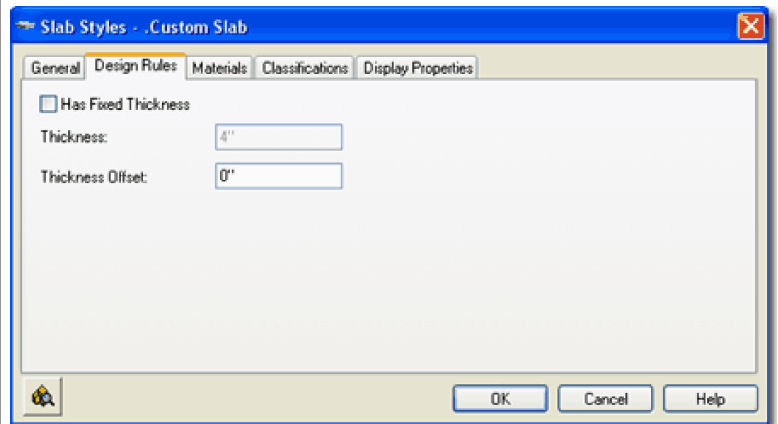
Slab Styles - Design Rules tab

Links [Roof Slab Styles - Design Rules tab](#) - for other information relative to slopes.

On the **Design Rules** tab of the **Slab Styles** dialog box, illustrated to the right, you will find a checkbox that locks the **A - Thickness** value field on the Properties Palette and two Thickness options.

Has Fixed Thickness - check this box to lock in a Slab Style's thickness value so that it can't be changed except through the Style. When you check this to fill in a value for Thickness, you will also be deactivating the A - Thickness value field on the Properties Palette.

Thickness - use this value field to set the Fixed Thickness value.



Thickness Offset - use this value field to control the Baseline position of a Slab relative to the Pivot Point and measured perpendicular to the slab plane (i.e., same as thickness). This does not affect the Pivot Point like **B - Vertical Offset** does; i.e., the pivot point remains fixed at the original insertion point unless otherwise modified. When you modify this value you also reposition the vertical origin of the Thickness Value (somewhat pointless), Horizontal Offset and Vertical Offset allowing you to make adjustments in a triangular fashion; e.g., move a Slab from 3 units up perpendicular to the slope (Thickness Offset), over 2 units (Horizontal Offset) and down 2 units (Vertical Offset).

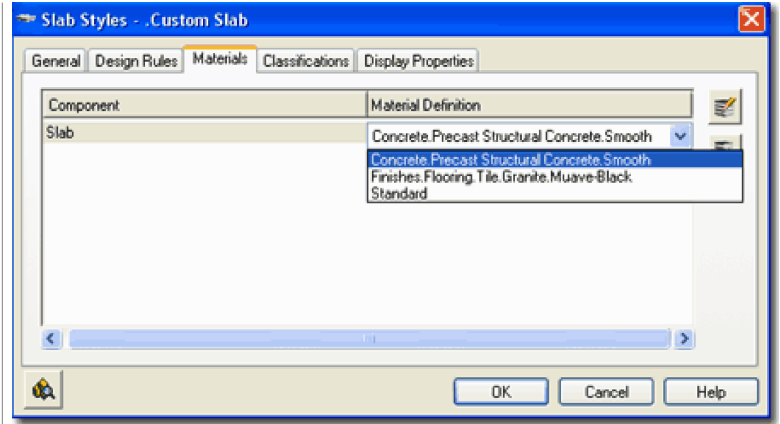
Slab Styles - Materials tab

Links [Object Style Properties - Materials Overview](#) - for an expanded step-by-step explanation of Materials

The subject of **Materials** is one of the most expansive and confusing topics in Architectural Desktop because it requires a complete comprehension of the product in order to take full advantage of this feature; from object styles to display representations. This subject will be discussed under [Part 1 - Display](#) and in the Presentation eGuide.

Illustrated to the right I show that Slabs will offer one predefined **Component** (Slab) and that the **Material Definition** Name will be set to "Standard" when you create a Style from scratch. If you have imported any of the Architectural Desktop Slab Styles from the Object Style Library, you should find that you will be able to use the Material Definitions that come with those objects - as illustrated to the right where I am selecting Precast Smooth Concrete.

Though you are not required to use Material Definitions in Architectural Desktop, you are likely to find it difficult to avoid using them since most of the predefined Styles use them. Materials have thrown a monkey wrench into the whole Display System because they can actually take over control of how your linework appears in Plan View for Construction Documents (discussed below under Display Properties). The best thing to do when learning about Material Definitions is to match how most of the predefined Slab Styles have been configured; i.e., reverse engineer the ADT Styles.



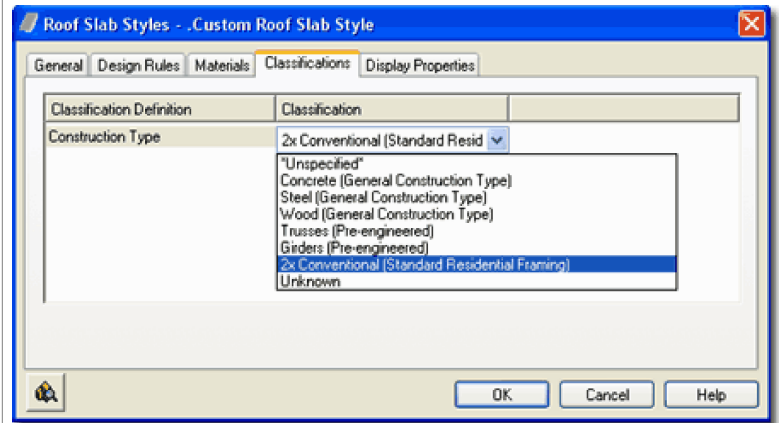
Though you are not required to use Material Definitions in Architectural Desktop, you are likely to find it difficult to avoid using them since most of the predefined Styles use them. Materials have thrown a monkey wrench into the whole Display System because they can actually take over control of how your linework appears in Plan View for Construction Documents (discussed below under Display Properties). The best thing to do when learning about Material Definitions is to match how most of the predefined Slab Styles have been configured; i.e., reverse engineer the ADT Styles.

Slab Styles - Classifications tab

Links [Object Style Properties - Classifications Overview](#) - for an expanded step-by-step explanation of Classifications

The subject of **Classifications** is thankfully no where near as complicated as that of Materials so the only real question you will need to consider is if you need to use them. Classifications offer another way to separate Object Styles into categories that can be used in **Schedules** and even in **Display Representation Sets** (as "**Show**" or "**Hide**").

Illustrated to the right I show that I have one **Classification Definition** (see **Format** pull-down menu) with a list of **Classification Names** or Types. Generally you will not have any options on this Tab but if you have created at least one Classification Style that has been set to "Apply To" Slab Styles, you will be able to use it here. The range of use is really up to your imagination but it is fairly obvious that Classifications can be quite handy in Schedules. This topic will be discussed further under Part 18 - Schedules. You can also read a bit more about how to create Classification Definitions in [Part 1 - Display](#).



Slab Styles - Display Props tab

Links [Object Style Display Properties Overview](#) - for the full story on Display Properties for Style
[Object Display Property Overrides - Object and Style](#)

[Based](#) - for an explanation of the differences between using Display Properties via the Styles versus the Edit Object Display... option.

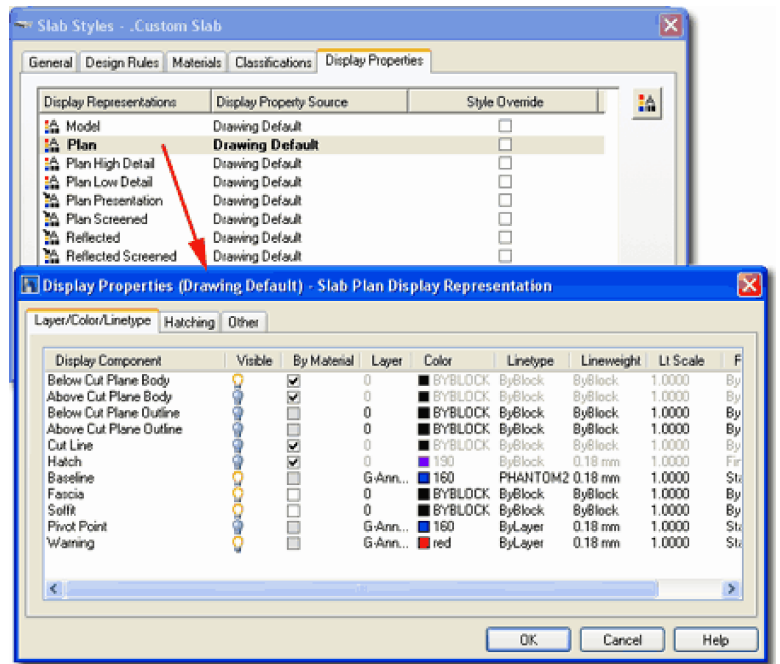
The **Display Properties** tab of the **Slab Styles** dialog box, illustrated right, provides access to the display characteristics of the components of your Roof Slab objects; from Visibility to Cut Plane Height overrides. This is also where you would go to have Slabs change color or Materials, for example, when you switch from one Display Configuration to another. See the discussion on Slab Display Properties below for more information on this subject.

YOU CAN ALSO ACCESS DISPLAY PROPERTIES BY SELECTING AN OBJECT, RIGHT-CLICKING ON YOUR MOUSE AND USE THIS POP-UP MENU OPTION

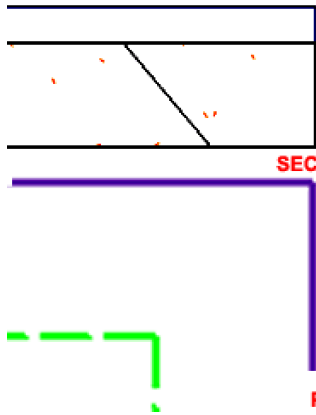


Illustrated to the left, is another way to access the **Display Properties** tab; select the specific **object**, **right click** on your mouse to invoke the object-specific pop-up menu and select **Edit Object Display...** Just be aware that when you use this approach, you

can actually set an Object Override as opposed to a Style Override. Object Overrides can be extremely useful because they allow you to add hatch patterns or change colors of any single object within a Style Family but they can also be problematic because they lock you out from more centralized, Style level, controls.



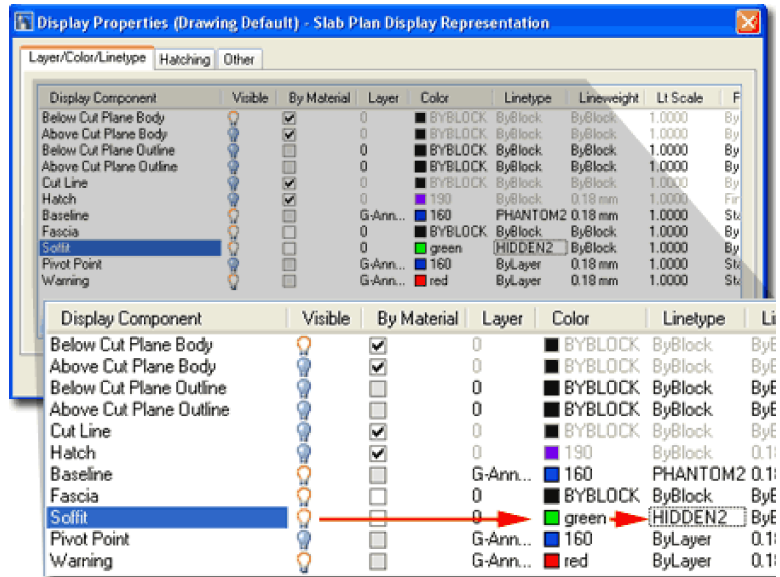
Slab - Display Properties - Component Layers



Illustrated to the right I show how you can do some minor changes to the **Plan Display Representation** of a Slab Style to achieve a more "AutoCAD-like" level of control over the **Color, Linetype, Lineweight** and so on of certain Components. By removing the **By Material** checkmarks from the Below and Above Cut Plane Body Display Components,

you can use the ByBlock setting to acquire the freedom to set the Color by Layer or by manual override.

Illustrated to the left and right I show that I have attached a Soffit Profile to my Slab example and altered how it appears in Plan View by setting the Soffit Display Component to a unique Color and Linetype (Hidden2). Read below under [Slab Edge Styles](#) to learn how to attach Profiles.

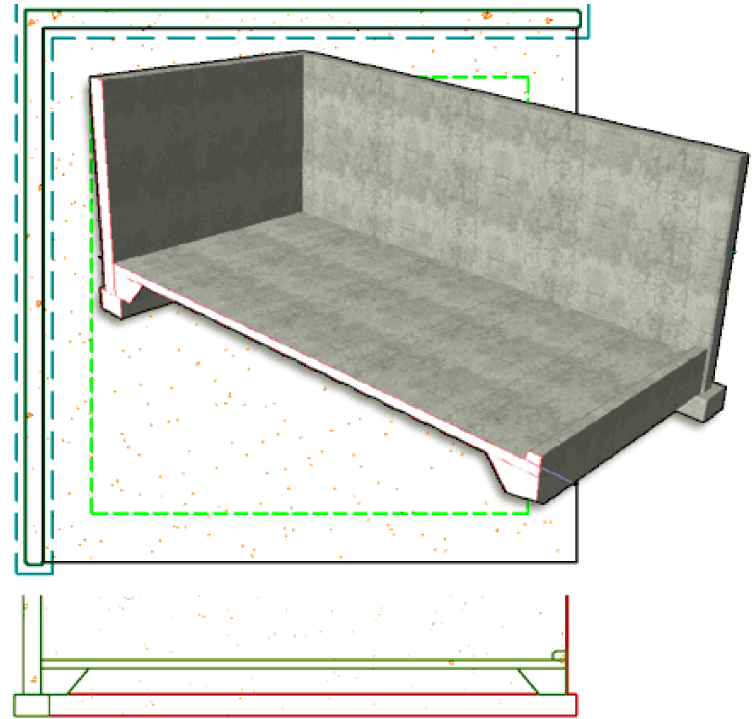


6 Slab Display Properties

When working with the Display Properties of Slab Objects, you may soon discover that most of them are more appropriate for Roof Slab Objects than Floor Slabs. The Slab Object is basically a derivative of the Roof Slab instead of a completely new Object Type and thus you may find that it does not really deliver on the features you would expect for something like a concrete slab. One of the more frustrating aspects of working with the Display Properties of this object is that you often cannot get the Slab Edge Styles to display as you typically would for Construction Documents; Fascias, for example, often don't display at all in Plan View when they are used as a Curb.

Illustrated to the right I show a few mixed design options for a Slab and a Wall Style with a "T" base footing. Though you can add a "T" footing to a Slab as an Edge Style, using a Wall Style should prove to be far more appropriate. What I do show as a viable footing option is a typical perimeter slab edge using the Soffit option. I also show a curb condition that can either be part of a Soffit Profile or as a separate Fascia option.

For me, getting a Slab to look correct in Plan View for Construction Documents is the most important task and then I worry about the Section View. From the Section View, I typically use the 2D Linework as a rough sketch that I detail manually using AutoCAD tools and commands.



Slabs in Plan

Menu **Format> Display Manager...**



Keyboard **DisplayManager**

Keyboard **DisplayProps [Attach]**

Mouse Select Object, right-click, select Edit Door Style... or Edit Window Style... or Edit Object Display...

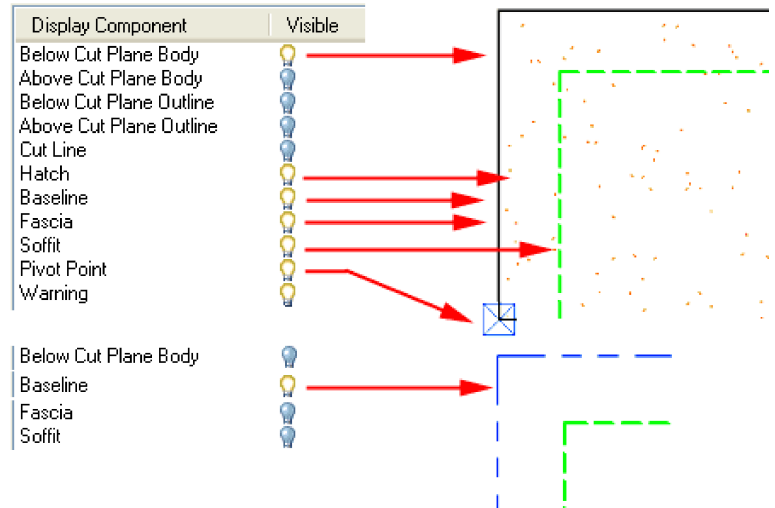
Links [Part 1 - Display - Object Display Properties Overview](#) - for more information on how to access the Display Properties of this Object.

Continuing the focus on the **Plan View** for **Slabs**, you may find some of the Display Components a bit misleading. The Below and Above Cut Plane Display Components were designed to work with sloping slabs such as those used for Roofs and thus may not apply to your floor Slab designs at all. You may need to read up on the Roof Slabs Part in this guide to see some example but the principle of Above and Below Cut Planes is basically tied to how a sloped slab passes through a cut plane in space leaving some portions below and others above.

At the most elementary level, you can affect the display of Slabs through at least one **Layer**; like **A-Slab**, for example. At the **Style** level you can affect the physical dimension of a Slabs thickness and the vertical offset of the that thickness but nothing more. This leaves the majority of options for display with the Display Properties (accessed either through the Object, Object Style or the Display Manager).

Illustrated to the right I show a slightly modified version of the default "**Medium Detail**" Display Configuration which uses the "**Plan**" **Display Representation** for most Objects. In order to illustrate how a slab perimeter footing might look in Plan, I used a **Slab Edge Style** as a **Soffit** condition which I show in a dashed green line. I also show the Pivot Point Object just in case you come across this horrible little square that used to drive me crazy in earlier releases of ADT (notice that it is turned off by default now).

PLAN



In the second illustration, I show what the **Baseline Display Component** looks like and what other Display Components you may need to turn Off in order to see it. It's not that I think you may use this Display Component as much as you may want to know which one produces the odd linetype. You see, the odd thing here about these Display Components is that they can all be On at the same time so you may see some of them through the linetypes of others.

One of the more confusing aspects of working with the Slab Object is how the Materials affect the Display Representations. In the example above, for example, the "Below Cut Plane Body" Display Component does not really need to be on since the Cut Line or Fascia could produce the same results but only the "Below Cut Plane Body" has a Material assignment that produces the stipple effect for the Slab surface. See section below for information on how to work with the Hatch Display Component.

Slab Below the Cutting Plane

Links [Part 1 - Display - Object Display Properties Overview](#) - for more information on how to access the Display Properties of this Object.
[Roof Slab Above and Below the Cutting Plane](#) - for information relating to sloped Slabs.

Layer/Color/Linetype Hatching Other

Override Display Configuration Cut Plane

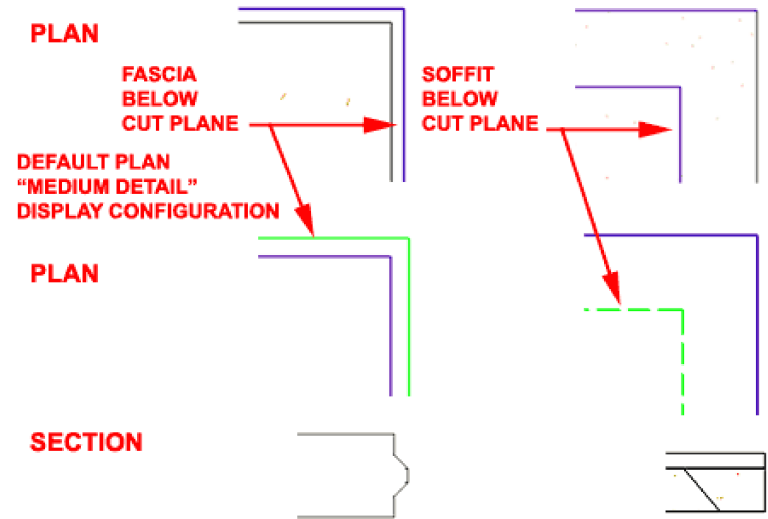
Cut Plane Height:

If you have read the Roof Slab Above and Below the Cutting Plane discussion in Part 8, you should comprehend how the Cutting Plane Height relates to Roof Slabs but

Slabs or Floor Slabs, as one might call them, is another matter with its own Cut Plane issues. Since the default **Global Cut Plane Height** (3'-6" Imperial or 1400mm Metric) was designed for Walls, Doors, Windows and so forth, it may not be the ideal height for your Slabs and thus this may be one of the first settings you will need to look into to get better display results.

The default Slab Styles that come with ADT defer to the default Global Cut Plane Height and thus use the Below Cut Plane Body Display Component for the Plan View display. For the most part this solution works rather well, especially since it can be controlled "By Material" which allows for easier control over Hatch Patterns. However, if you prefer to think in terms of an actual cut through your Slab Object, you can set a manual Cut Plane Height and not use the Above or Below Cut Plane Display Components.

Illustrated to the right I show two example Slab Styles and what they look like with the default Display Properties and how some changes in those Display Properties can create better results. Be aware that what I show is not necessarily the best solution for your work but more of an example of how different settings produce different results. If you do not wish to deviate far from the default settings, you don't have to. You may never need to set a Cut Plane Override, for example but it is good to know that you can.



Display Component	Visible	By Material	Layer	Color	Linetype
Below Cut Plane Body	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	0	BYBLOCK	ByBlock
Above Cut Plane Body	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	0	BYBLOCK	ByBlock
Below Cut Plane Outline	<input type="checkbox"/>	<input type="checkbox"/>	0	BYBLOCK	ByBlock
Above Cut Plane Outline	<input type="checkbox"/>	<input type="checkbox"/>	0	BYBLOCK	ByBlock
Cut Line	<input type="checkbox"/>	<input type="checkbox"/>	0	BYBLOCK	ByBlock
Hatch	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	0	190	ByBlock
Baseline	<input type="checkbox"/>	<input type="checkbox"/>	G-Anno-Nplt	160	PHANTOM2
Fascia	<input type="checkbox"/>	<input type="checkbox"/>	0	green	ByLayer
Soffit	<input type="checkbox"/>	<input type="checkbox"/>	0	green	HIDDEN2
Pivot Point	<input type="checkbox"/>	<input type="checkbox"/>	G-Anno-Nplt	160	ByLayer
Warning	<input type="checkbox"/>	<input type="checkbox"/>	G-Anno-Nplt	red	ByLayer

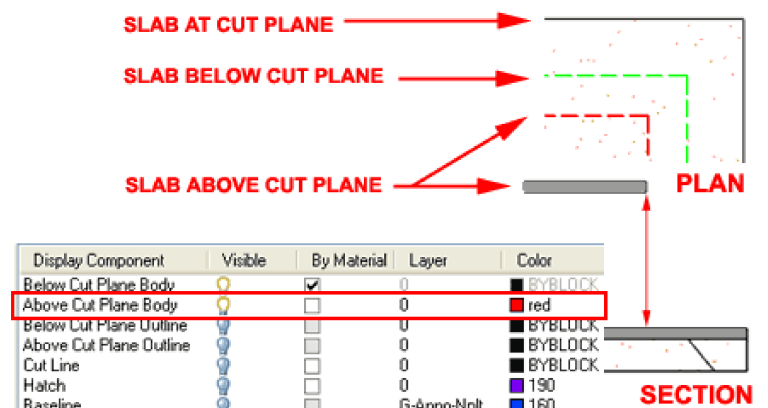
For both examples to the right I have set the **Cut Plane Height to zero** and turned the Visibility of all the **Above and Below Cut Plane Display Components Off**. Because the protruding "male" edge on the precast slab example was attached as a Fascia Profile, it is controlled by the **Fascia Display Component**. Because the perimeter footing haunch was attached as a Soffit Profile, it is controlled by the **Soffit Display Component**. By cutting the Slab with an adjusted Cut Plane Height, the **Cut Line** now becomes an active Display Component controlling the portion of the Slab that is actually cut (much like with Wall Objects). The Baseline Display Component is probably something that you would want to turn Off, especially if it affects the printing of your Slabs.

Slab Above the Cutting Plane

Sometimes you may have a mixture of Slab Objects at ground level (at the Cut Plane) and above ground level (above the Cut Plane) for such things as mezzanines or walkways. At times like this, it becomes desirable to have the slabs that are above indicated by a dashed linetype.

Illustrated to the right I show one of many solutions that you might wish to employ to have Slab Objects **above the Global Cut Plane** display differently than those at or **below the Global Cut Plane**. For my example, I simply took advantage of the "Above Cut Plane Body" Display Component by making it Visible, removing the By Material setting so I could set the Color and the Linetype (not shown) to meet my personal preferences (red and dashed). Notice that I have turned the Visibility Off for many of the Display Components that I do not want to interfere or overlap my primary Display Components.

Note:
Remember that you don't need to be a rocket scientist to overcome some of the obstacles in ADT's Display System so if you can't figure things like this out or just don't have the time to work on it, you can always work with AutoCAD options to solve the problem. You can, for example, create a "A-Slab-Abov" Layer Name, set it to Dashed and Change Slab Properties to this new Layer.



Display Component	Visible	By Material	Layer	Color
Below Cut Plane Body	<input type="checkbox"/>	<input checked="" type="checkbox"/>	0	BYBLOCK
Above Cut Plane Body	<input checked="" type="checkbox"/>	<input type="checkbox"/>	0	red
Below Cut Plane Outline	<input type="checkbox"/>	<input type="checkbox"/>	0	BYBLOCK
Above Cut Plane Outline	<input type="checkbox"/>	<input type="checkbox"/>	0	BYBLOCK
Cut Line	<input type="checkbox"/>	<input type="checkbox"/>	0	BYBLOCK
Hatch	<input type="checkbox"/>	<input type="checkbox"/>	0	190
Baseline	<input type="checkbox"/>	<input type="checkbox"/>	G-Anno-Nplt	160
Fascia	<input type="checkbox"/>	<input type="checkbox"/>	0	green
Soffit	<input type="checkbox"/>	<input type="checkbox"/>	0	green
Pivot Point	<input type="checkbox"/>	<input type="checkbox"/>	G-Anno-Nplt	160
Warning	<input type="checkbox"/>	<input type="checkbox"/>	G-Anno-Nplt	red

Slab Hatch in Plan

Links [Part 1 - Object Style Properties - Materials Overview](#) - for more information on working with Material Definition Styles and their Display Properties.

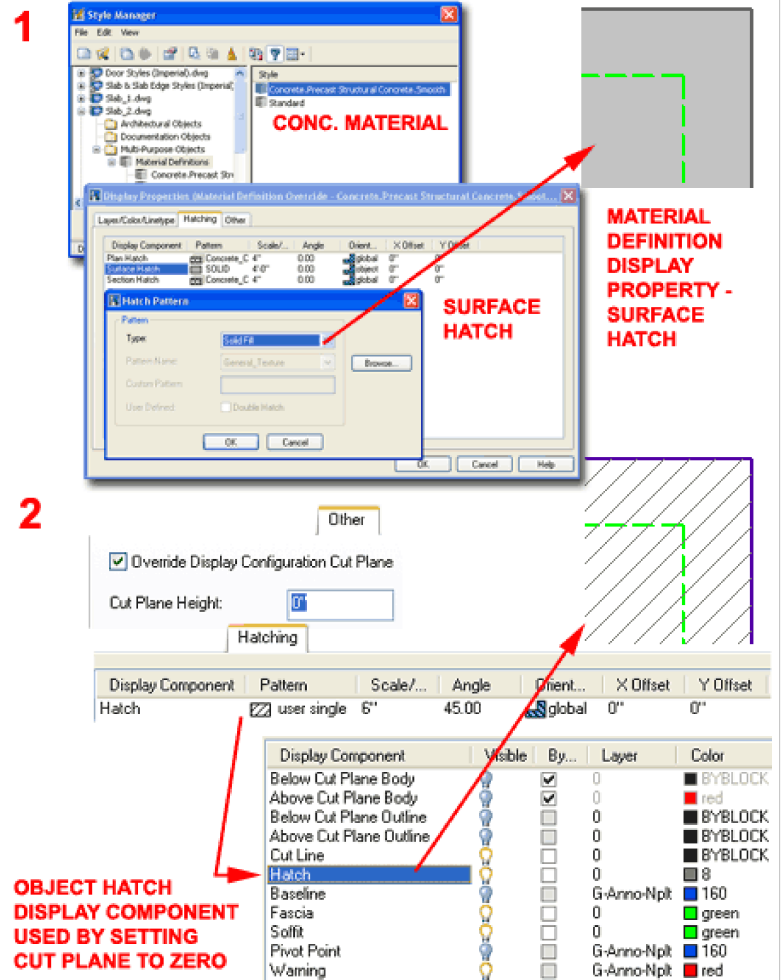
As with most other objects in ADT, you can control the Hatch Component for one or more Display Representations by working with the Material Definition's Display Properties. Using this technique can be one of the most powerful methods for manipulating the Display of Objects since you typically only need to make one change to one Material to affect many objects. However, working with Materials can also be quite confusing so you may just want to use the more traditional method of working directly with the Hatch Display Component.

1
In the illustration upper right, I show that I have used the Style Manager to locate the "Concrete.Precast Structural Concrete.Smooth" or equivalent Material Definition and activated one of several Display Representations to change the "Surface Hatch" Display Component on the Hatching Tab to "Solid". Using this technique for one or more Display Representations, like "General Presentation" will allow you to quickly change all Slab Surface Hatching.

2
In order to use the Hatch Display Component for Slab Objects, you must first understand that Hatch Display Components only appear when the Cut Plane actually cuts through the object you want Hatch across. This means that the Global Cut Plane typically will not produce a Hatch Pattern and you must use the Other Tab to "Override Display Configuration Cut Plane" and set the "Cut Plane Height" to zero (plus or minus depending on your slab thickness and offsets). Once you have reset the Cut Plane, you can turn Off the Visibility for the Above and Below Display Components but turn On the Visibility for the Cut Line and the Hatch Display Components. In addition to this, you can now use the Hatching Tab to set and control your Pattern.

Note:

This trick does not work well with the Above Cut Plane Slabs since it overrides the Global Cut Plane. You could still use this trick but as an Object Display Override - best to avoid these whenever possible.



Slab Hatch in Section

Links [Display Properties - 2D Section/Elevation Styles - Component Layers](#) - for information on working with the 2D Section Display Properties for controlling Hatch Patterns on Sections.

For 2D Sections of Slab Objects, you can use the **Material Definition Style's Display Representation Properties** to work on the **Section Hatch Display Component**. For this Display Component, you can use just about any Hatch Pattern and Scale but I did find one pattern that did not work: Solid. This appears to be a bug in the software but you can work around this problem by using the 2D Section/Elevation Styles to control how you want the **Shrinkwrap Hatch** (turned Off by default) - see Part 15 - Sections for more information on this topic.

7 Slab Edge Styles

7-10 SLABS & SLAB TOOLS

Style Manager - Slab Edges

Alt.Menu **Design> Slabs> Slab Edge Styles...**



Keyboard **SlabEdgeStyle**

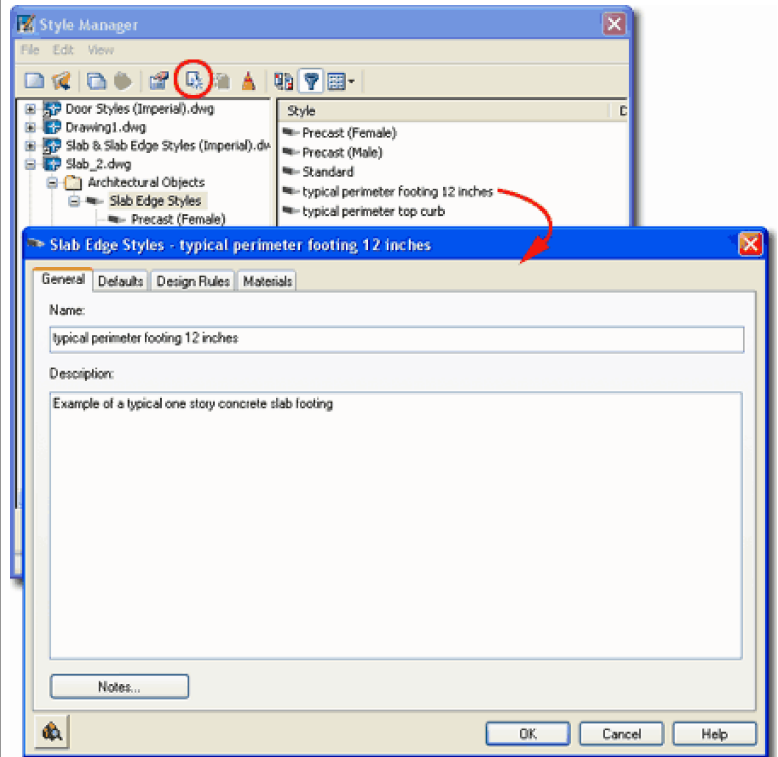
Links [Slab Properties Palette](#) - where they are set on the Slab Properties Palette.

For **Slab Edges Styles**, you can use the **Style Manager** to load, modify, delete and create new Slab Edge Styles.

Since Slab Edge Styles are rather simple and don't have Display Property settings, starting from Scratch when making a new one is as viable as using the Copy/Paste option that I recommend for most other Object Styles. Assigning Materials is probably the biggest obstacle you will have to deal with when working with the Slab Edge Styles dialog box.

Illustrated to the right, I show the process of creating a **New Slab Edge Style** that I have Named "**typical perimeter footing 12 inches**". By **double-clicking** on this new style, you will invoke the **Slab Edge Styles** dialog box - as illustrated.

The **General** tab provides access to the **Name** and **Description** fields for a Style; plus access to the attachment of Notes but no Property Sets since these will be attached to Roof Slabs.



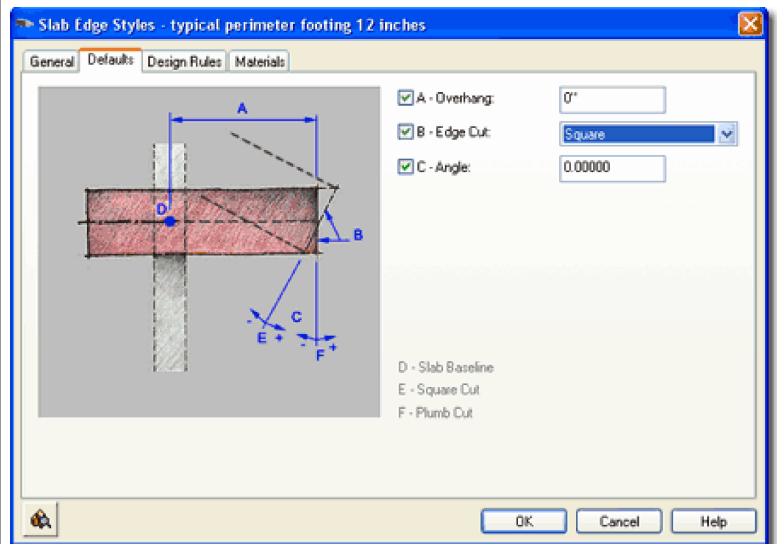
Slab Edge Styles - Defaults tab

On the **Defaults** tab of the **Slab Edge Styles** dialog box, you can set an overhang distance, a plumb or square cut and any angle for the cut. **Be aware** that these settings only apply to Fascias and only when you pre-assign a Slab Edge Style to a Slab Style; this can only be done as an **Icon Property on the Tool Palettes**. When Adding Slab Edge Styles to a Slab that has already been created, these settings will be ignored but can be set as part of the Slab's Edge Settings. If this sounds like gibberish, it does have an element of that since this is more of a legacy option that made more sense in earlier releases of ADT.

A - Overhang - this will set an Edge Slab Style overhang distance measured from the pivot point out. If you specify the actual Overhang value you want on a particular Slab Style here, you can use it to control the Overhang of a Slab Style by pre-assigning this Edge Slab Style as a Property on the Tool Palette.

B - Orientation - a drop-down list offering a Plumb or Square joint cut on the tail ends. Plumb will give you a cut perpendicular to the ground (or parallel to the wall). Square will give you a cut perpendicular to the joist slope. See comments for Overhang.

C - Angle - use this value to create any angle cut you want. These angles work in conjunction with the Orientation so you can create a 45 degree cut off of a Plumb cut. You can also use positive or negative degrees where negative degrees cut the rafters back on the bottom. Positive degrees cut the rafters back at the top. See comments for Overhang.

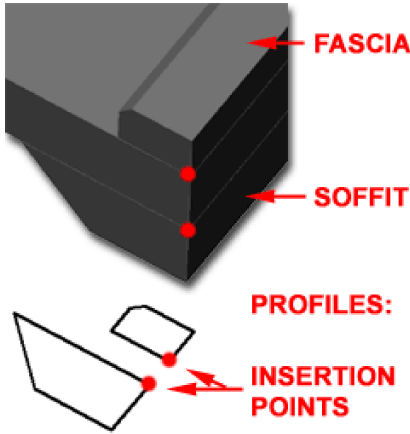


Note:

A word of caution - be really careful about working with the C - Angle value on the Defaults tab and also working with the Angle value on the Edges tab of the Slab Properties Palette. You can spend hours trying to fix a cut angle on the Slab Edge Style when the angle is actually being controlled on the [Slab Properties](#) Palette..

Slab Edge Styles - Design Rules tab

Links [Profiles](#) - for how to create Profiles



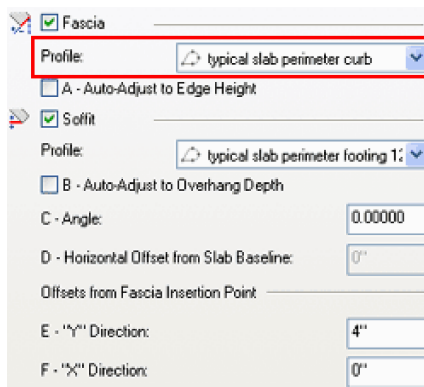
The **Design Rules tab** of the **Slab Edge Styles dialog box** holds all of the settings that create the amazing Fascia and Soffit results. Since Soffit and Fascia are not the normal terms applied to Slabs but rather Roofs, you should feel free to be creative about the terms Fascia and Soffit and how they actually apply to your Slab Edges.

Fascia - on/off. This term can be a little confusing when relating to Slabs instead of Roofs. I typically think of Fascias with respect to Slabs as something to be used on top or on the outer edge. There are two problems with the Fascias on Slabs: you don't have Y and X position controls and they don't show up in Plan Views (for flat non-sloping Slabs) unless you display Model information. If you want a Fascia to serve as an Edge component, use an upper left or right corner as the insertion point on your Profile. Fascias can also be turned on or off on the [Display Properties Layer/Color/Linetype tab](#).

Profile - drop-down list for selection of any currently loaded Profiles. Though you can use any profile you will want one designed for the right task. See discussion below.

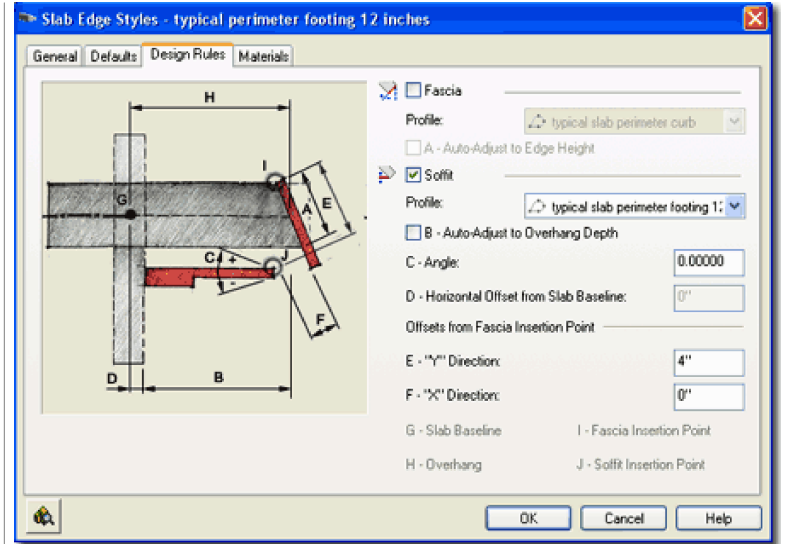
A - Auto-Adjust to Edge Height - check box (on/off). If checked the size of your Fascia Profile will automatically be determined by the Slab Thickness as determined by a Plumb or Square cut. The scale maintains aspect ratio so your fascia profile grows or shrinks in both X and Y directions simultaneously.

Soffit - on/off. Though a soffit typically implies something below a Roof or Slab, you can use it as something on top of a Slab. I mention this because I have found that Soffits display with no problems in Plan View and thus this technique may be your solution for curbs (such as shower curbs discussed under Customizing and Tricks). Use the E - "Y" Direction to control vertical placement of Profile. Soffits can also be turned on or off on the [Display Properties Layer/Color/Linetype tab](#).



Profile - drop-down list for selection of any currently loaded Profiles. Though you can use any profile you will want one designed for the right task. See discussion below.

Slab Edge Styles - Materials tab



B - Auto-Adjust to Edge Overhang Depth - check box (on/off). If checked the size of your Soffit Profile will automatically be determined by a number of various controls; primarily the distance from the Slab Baseline to the Fascia. You can make changes to the size and position of the Soffit Profile by working with **D - Horizontal Offset from Slab Baseline** and **F - "X" Direction**. The scale maintains aspect ratio so your Soffit profile grows or shrinks in both X and Y directions simultaneously.

C - Angle - pivots the Soffit Profile or line (if you use "Standard") up or down from the outer bottom corner of the Slab. This is an interesting option for a simple chamfer cut, try something like -15 degrees with a "Standard" Soffit Profile.

D - Horizontal Offset from Slab Baseline - this will move the Soffit Profile out and away from the Slab Baseline or in (by using a negative number). You can use this to compensate for a Baseline that isn't on the outside edge of a Wall, for example. This will affect the Soffit Profile scalar size if Auto-Adjust is on.

E - "Y" Direction - this value allows you to position a Soffit Profile vertically based on a distance from the outer top corner of a Slab.

F - "X" Direction - this value allows you to move the Soffit Profile horizontally with respect to the outer bottom corner of the Slab.

Links [Object Style Properties - Materials Overview](#) - for an expanded step-by-step explanation of Materials

As with the Material subject under other Object Styles, I leave this massive subject to a different part of this and other guides but what is a bit unusual about the Materials for Slab Edge Styles is that these are essentially sub-materials that are actually applied inside the Display Properties of Slabs Styles. To make matters worse, my tests on the use of Materials for Linework in Plan found that the Materials don't work to control this Property so if you want to change the Plan Linework Color set it directly as a Fascia or Soffit Property on the Slab Style Display Properties dialog instead of the Slab Edge Style's Material.

Illustrated to the right I show that Slab Edge Styles will offer two predefined **Components** (Fascia and Soffit) and that the **Material Definition** Name will be set to "Standard" when you create a Style from scratch. If you have imported any of the Architectural Desktop Slab Styles from the Object Style Library, you should find that you will be able to use the Material Definitions that come with those objects.



8 Slab Edit - Trim, Extend, Miter and Cut

8-10 SLABS & SLAB TOOLS

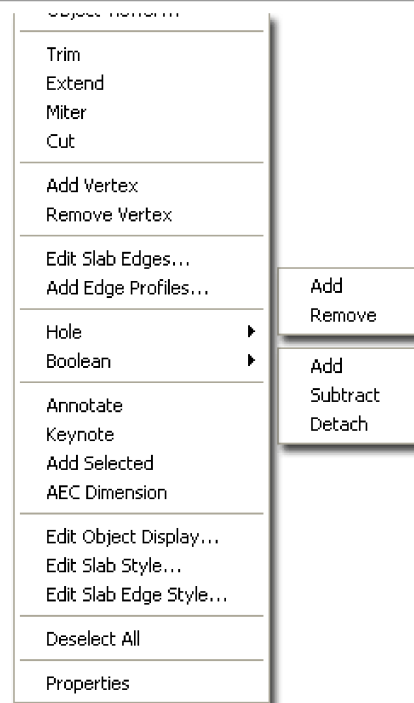
Slab Pop-up Menu

Mouse Select Slab, right-click and select applicable pop-up menu option

When it comes to Editing or Modifying Slab Objects, you won't find much in the way of toolbars, palette icons or pull-down menu items. The full set, as far as I can tell thus far, is only available via the object-specific pop-up menu illustrated to the right.

If you are a savvy AutoCAD user familiar with all of the quick and dirty routines that get the job done in seconds, you will probably find the Slab Editing Tools a bit lacking and basically intolerable. The Trim and Extend tools, for example, are not only different from the regular Trim and Extend (which, by the way, Explode your Slabs) but are nowhere near as powerful. I find the SlabExtend routine so poor that I often Grip Stretch my Slabs through the Edge and then Trim back. You may notice that you can Trim to a Polyline but you cannot Extend to one (huh?).

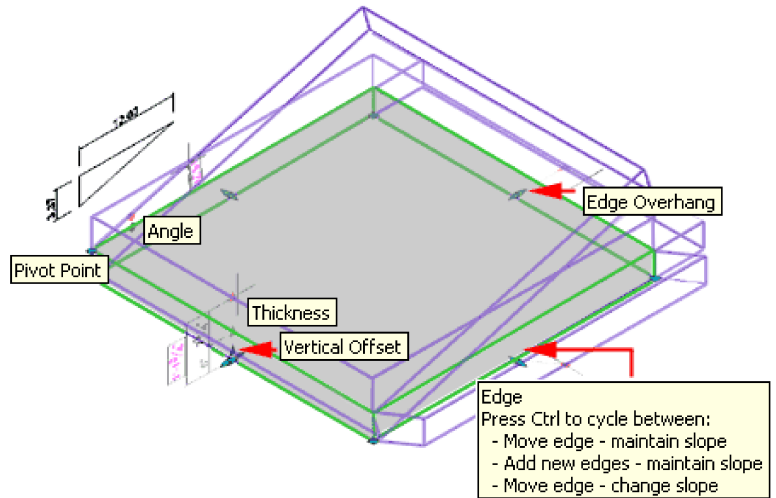
Cutting Holes in Slabs is a relatively painless operation that can be achieved with Rectangles that don't even share the same Z-axis coordinate so you should find that process quite fun.



Slab Grip Points

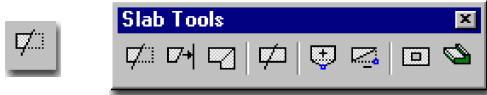
Slab Objects have several unique **Grip Points** that you can use to Edit with. Though many of these may apply more to Roof Slabs, you may find some of them quite powerful.

Illustrated to the right I show an Isometric View of a simple Slab Object where you can see all of the various Grip Points. **Angle** and **Pivot Point** typically apply to Roofs with Slopes but you can use them to Slope Slabs as well. For very slight slopes, use the Tab key to cycle through the Rise, Run and Angle settings and then type the number you wish to set. On Edges, even in Plan View, be careful not to use the **Edge Overhang** Grip Control unless you really wish to Stretch the Overhang Value (again, something more appropriate for Roof Slabs). For **Edges**, notice that you can use the Ctrl key to choose between three methods of Stretching the Edge. The method illustrated, "Add new edges - maintain slope" is a rather powerful way to Add new Slab surfaces at different Slopes (despite the words "maintain slope").



Slab Trim

Menu **N.A.**



Keyboard **SlabTrim**

Mouse Select Slab, right-click and select Trim

Links [Roof Slab Trim](#) - for other examples

The **Slab Trim** tool works much like AutoCAD's Trim command but not with the exact same set of steps. It also works just like the Roof Slab Trim tool. If you read the command line sequence you will avoid having trouble with this routine.

To Trim, first **select** the object that acts as the **cutting edge**, then **select** the **Slab** to be Trimmed and then **pick a point** on the Slab representing the side to be removed. Unlike AutoCAD's Trim command, you cannot skip any of these steps.

You can Trim a Slab to another **Slab**, **Wall** or **Pline**. The Slab Trim tool utilizes the slope and direction of the cutting object to trim with, so two objects do not need to pass through each other in 3D space. Since most Slabs are non-sloping (concrete slabs and floor slabs) you may find that you have some difficulty getting two non-sloping **Slabs to Trim each other**. I have no tricks for this problem but have found that a **Pline** does the job much faster and more reliably. Slabs then to Trim to each other much better when one has a slope.

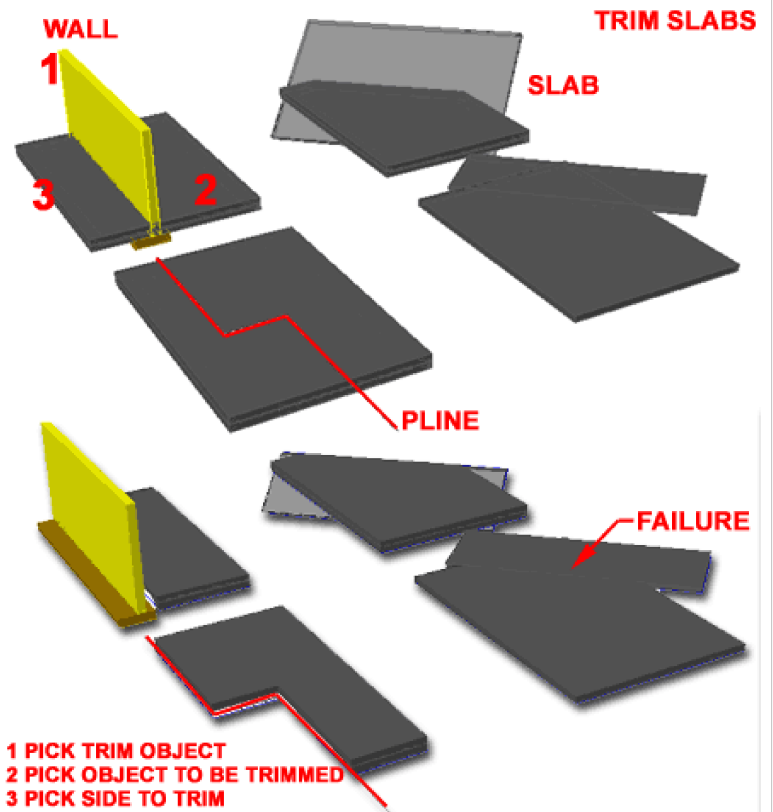
When **Trimming Slabs to Walls**, you may find that your Slab gets Trimmed back to odd places due to the fact that the Slab Trim tool will read the out extreme edge or component of a Wall object. This means, for example, that Trimming back to a Wall with a large footing will result in a Trim to the Footing and not the stemwall.

If you accidentally use AutoCAD's Trim command instead, the Slab seems to Explode with disastrous results. It's too bad the regular Trim command couldn't be use here.

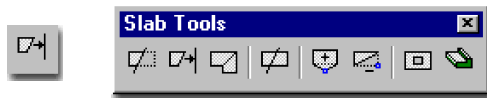
Tip:

Try using Slab Miter instead. Try using Plines instead of Walls or other Slabs.

Slab Extend



Menu **N.A.**



Keyboard **SlabExtend**

Mouse Select Slab, right-click and select Extend

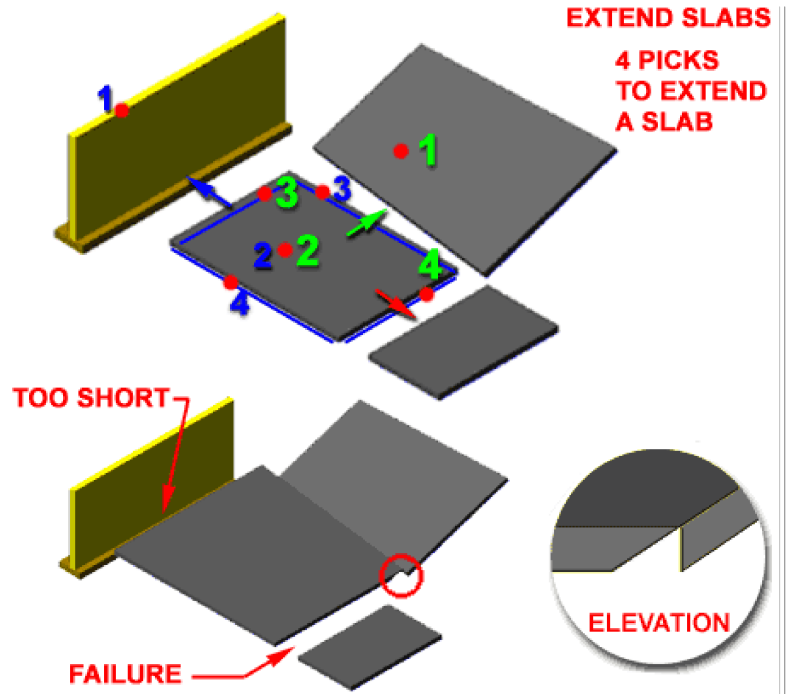
The **Slab Extend** tool works much like AutoCAD's Extend command but not exactly with the same set of steps. If you read the command line sequence you will avoid having trouble with this routine. See comments for Slab Trim above. Also, if you are having trouble getting this routine to work, make sure that the objects you are attempting to extend to actually cross the planar path of the Slab you want to Extend.

You can Extend a Slab to another **Slab** or **Wall** but not a Pline. Flat level Slabs do not Extend to other flat level Slabs. Extending to Wall objects will result in an extension to the greatest outer component.

Tip:

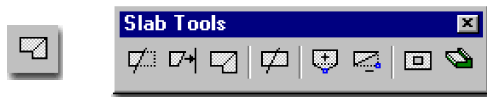
Try using Slab Miter instead.

Try Trim instead. Since Trim is easier to use and seems less picky about what you select, sometimes you can just stretch a slab through and trim it back rather than extend it.



Slab Miter

Menu **N.A.**



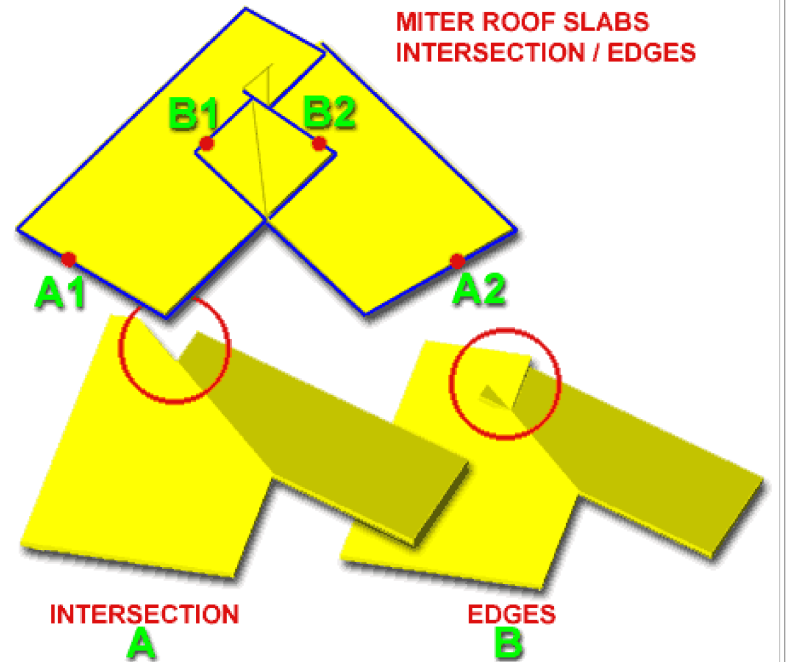
Keyboard **SlabMiter**

Mouse Select Slab, right-click and select Miter

The **Slab Miter** tool works much like AutoCAD's Fillet or Chamfer command with a radius or distance set to zero. Knowing this, you may want to use the Slab Miter tool instead of the Slab Trim and Extend tools since you can effectively get the same results and often faster.

There are two options when you use the Slab Miter tool: **Intersection** and **Edges**. In many cases, both will produce the exact same results and it all depends on which one you find easier to use. If you are working with Slabs that have many unique edges and you only want two different edges to miter, for example, then that's where the Edge option comes in handy. With the Edge option you can specify the edges that you want mitered.

Illustrated to the right, you can see that selecting **B1** and **B2 Edges** only Miters those two edges and leaves the rest of the Slabs alone. I have repeated the Roof Slab image to the right because the Miter routine only works if one or both Slabs are at slopes and this is just what a Roof Slab is so what's the point; this tool needs further development for use with typical slab situations and serves as another example of the sloppy nature of the Slab object and its tools.



Slab Cut

Menu N.A.



Keyboard **SlabCut**

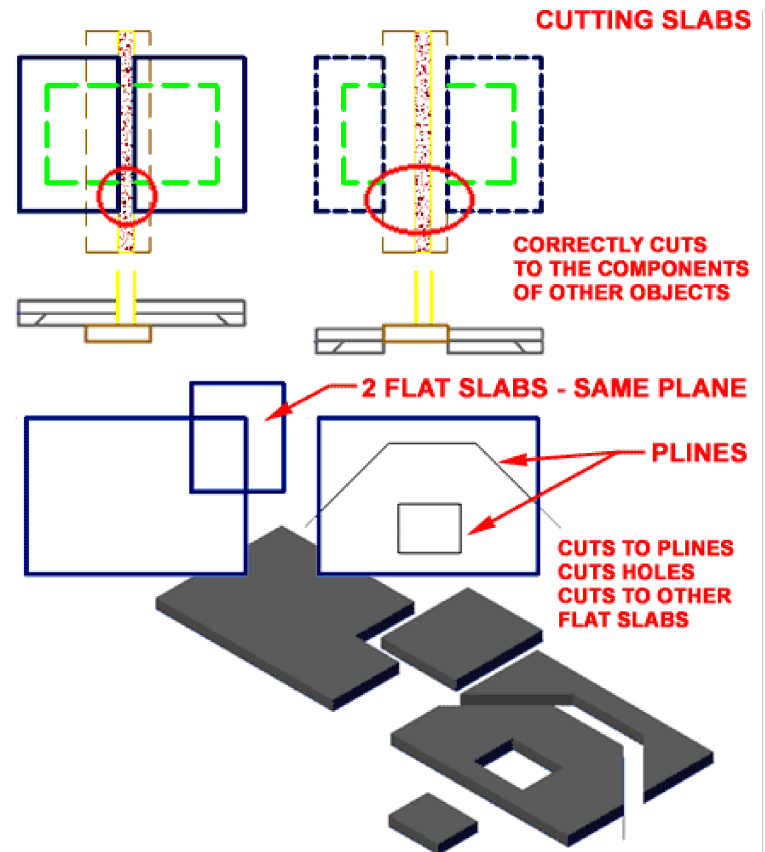
Mouse Select Slab, right-click and select Cut

Links [Roof Slab Cut](#) - for more examples

The **Slab Cut** tool works much like AutoCAD's Slice command (from the Solids toolbar). This is always an awesome tool to have when working with volumetric forms and thus is my favorite tool in the Modification set. If all else fails, try this tools.

The Slab Cut tool recognizes the objects that do the Cutting far better and more logically than the other Modification tools. As is illustrated to the right, it can actually read the footing or the stemwall of a common retaining wall correctly, unlike the **Slab Trim** and **Slab Extend** tools. Another fantastic feature is its ability to read other similar Slab objects for Cutting and can thus be used to Trim Slabs or introduce Vertices.

When used with **Plines**, the Slab Cut tool acts as the perfect knife and can even be used to create Holes. When using Plines with Slabs for Cutting, be sure to remember that the Cutting tool only cuts and does not remove objects. Thus if you use it to make a Hole, the hole will still be there for you to manually **Erase** or **Move** - see illustration to the right.



9

Slabs Edit - Add and Remove Vertices

Slab Add Vertex

Menu N.A.



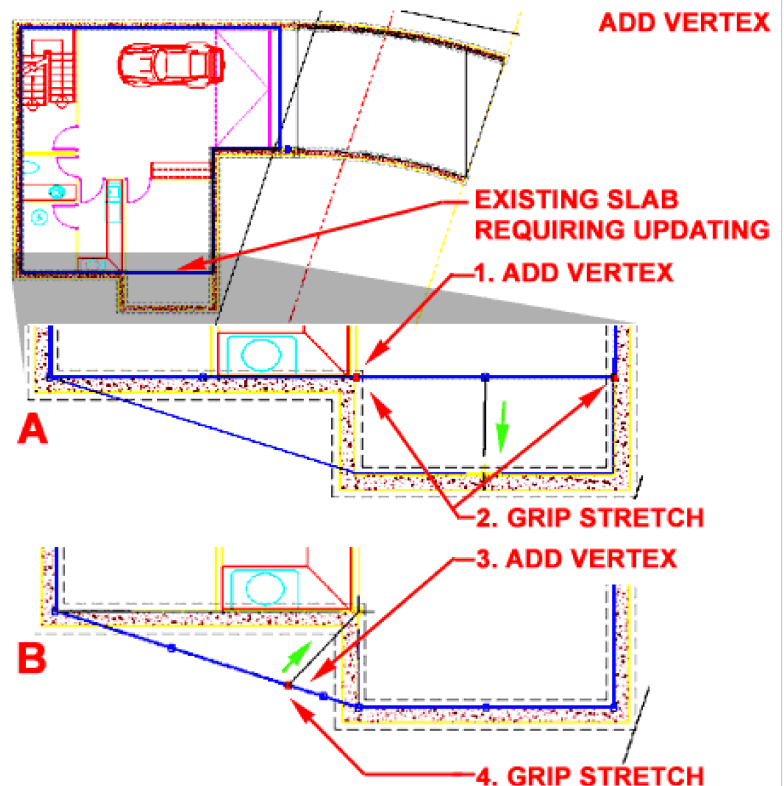
Keyboard **SlabAddVertex**

Mouse Select Slab, right-click and select Add Vertex

The **Add Vertex** routine is about as simple a routine as you can get, so I don't know what I should say about it. You should be aware that the control points or vertices are on the Slab Baseline and not the perimeter edge where you might really want it at times. Once you Add a Vertex, you can use Grips to stretch the vertex in, out, up, or down.

If you have used the PEDIT command in AutoCAD for Plines, you shouldn't have any difficulty with this routine.

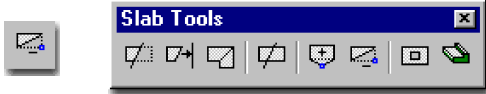
At time, such as with the example illustrated to the right, you can achieve the same results by using a Pline and Extending to it or by Boolean Adding another Slab drawing in the missing area of floor space.



Slab Remove Vertex

Menu N.A.

The routine will prompt you for the Slab that you want to Modify and then you are prompted to pick on or near the Vertex you want Removed.



Keyboard **SlabRemoveVertex**

Mouse Select Slab, right-click and select Remove Vertex

The **Remove Vertex** routine is about as simple a routine as you can get, so I don't know what I should say about it. See comments for Add Slab Vertex. Use this routine when you mess up on the Add Vertex routine <hah>

If you have trouble seeing the vertex, you can use the Endpoint OSNAP to find it.

10 Slabs Edit - Holes, Add and Subtract

10-10 SLABS & SLAB TOOLS

Slab Holes

Menu **N.A.**



Keyboard **SlabHole**

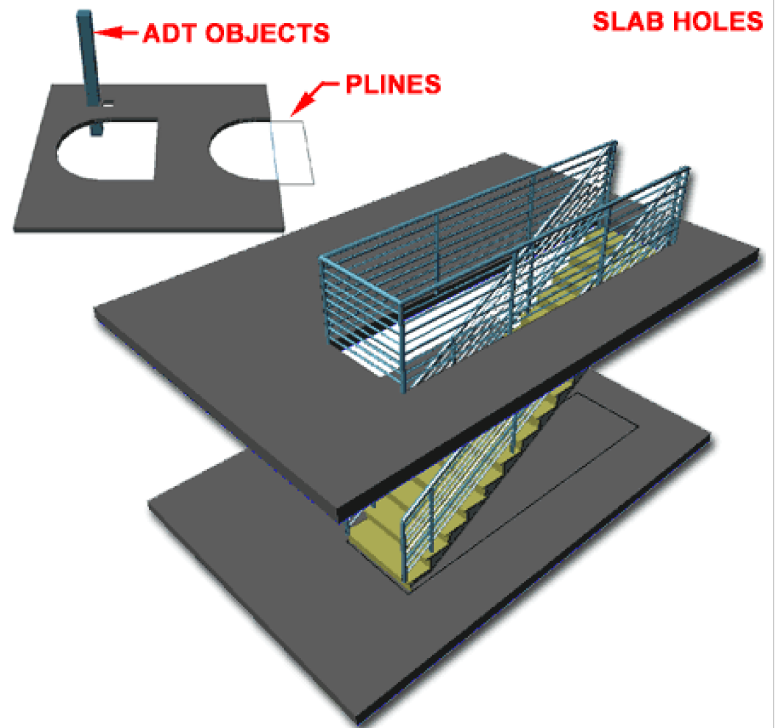
Mouse Select Slab, right-click, select Hole and cascade to Add or Remove

Links [Stairs in Model](#) - for information on what controls the cutting of holes by Stair Objects - see also customization and trick below for an improved method on this option.

The **Slab Hole** routine is really just a Boolean subtraction where the 2D or 3D objects can be used as subtraction tools. In the illustration to the right, I show one of the more common architectural needs, cutting a hole in a ; for a stair flight. To cut a stair flight hole draw a rectangle or other 3D object in the space of the stair. This procedure is actually far easier if you use Space objects but this serves as an alternative.

The **Slab Hole** routine will work on closed polylines and just about all other ADT object types. In some cases, like with polylines and Mass Elements, the cutting object and the Hole are not associative but in other cases, where there is already an association, like between Slabs and Walls, the Hole will move with the cutting object (in other words, as the Wall moves so does the Hole it cut). With more complex objects, like Mass Elements with holes inside them, the Slab Hole routine will make a query about Subtracting based on the **Inside** or **Outside** of your selected cutting object. **Outside** will use a complex object's outer perimeter to cut a hole, while **Inside** will look for the smallest opening internal to the cutting object. In simple layman's terms, think of a Chimney - do you want the chimney hole subtracted or the whole exterior mass of the chimney.

To **Remove Holes**, the Slab Hole routine is as simple as it can get; simply specify that you want to remove and pick on the edge (Face) of a hole.

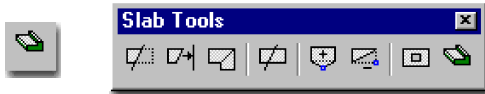


Grip Editing of Slab Holes is also quite impressive. You can stretch all of the corners of a Slab Hole simultaneously or independently by activating multiple "hot spots" or working with only one at a time.

Stretching in plan view is also a very practical way to adjust a Hole, especially if you simply want to move a hole - simply stretch the whole Hole.

Slab Boolean

Menu N.A.



Keyboard **SlabBoolean**

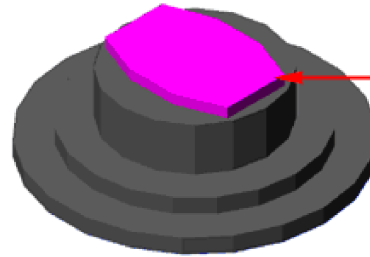
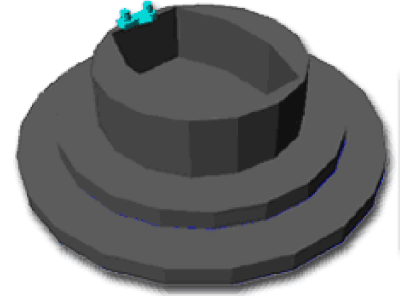
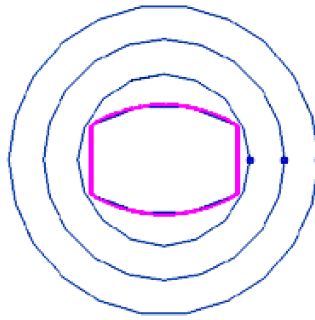
Mouse Select Slab, right-click, select Boolean and cascade to Add, Subtract or Detach

Links [Barrel Vaults](#) - for an example of a Boolean Add

The **Boolean Add**, **Subtract** and **Detach** options are all based on the same tools found in AutoCAD's **Solid Editing** tools and Architectural Desktop's **Mass Groups** tools. In Architectural Desktop, you will find that using a Boolean Add or Subtract achieves two things: it effectively Adds or Subtracts matter to/from the Slab and associates with the Boolean object so you have a reference object to work with. With **Mass Elements**, used as Boolean objects on a Slab for example, the Mass Element will not be removed, is associated with the Slab, can be used to modify the proportions of your Addition or Subtraction and is stored on the **A-Mass** layer (in default ADT).

Detach - will remove the association between the Boolean object and the Slab and its effects on the Slab; basically this is like an Undo for a Boolean operation.

BOOLEAN OPERATIONS SUBTRACTING A TUB



**MASS ELEMENT
WILL REMAIN ON A-MASS
LAYER. USE TO MAKE
ADJUSTMENTS AFTER
ADDITION OR SUBTRACTION**

11

Slabs - Customization and Tricks

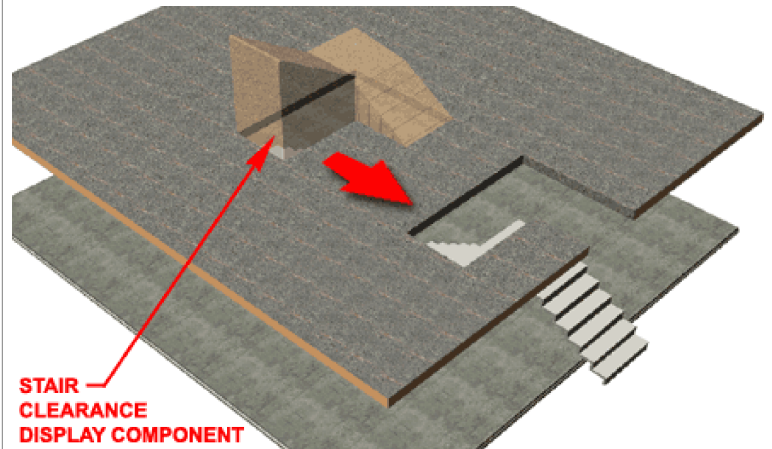
11-10 SLABS & SLAB TOOLS

Stairs as Boolean Subtractions

Links [Stairs in Model](#) - for more information on this display component.

Stairs have a built-in Display Component called "**Clearance**" and you can use this 3D Mass to act as a hole-making entity for Slabs. Though you can use the SlabHole command to cut a hole, I found that using a **SlabBoolean Subtract** works a lot better because the hole created by this routine follows the Stair Object as you move it or adjust its physical characteristics.

Illustrated to the right I show what the "Clearance" Display Component looks like when its Visibility is On and how the Subtracted space follows the Stairs as it was moved to the outer edge of the Slab.



Shower Bases

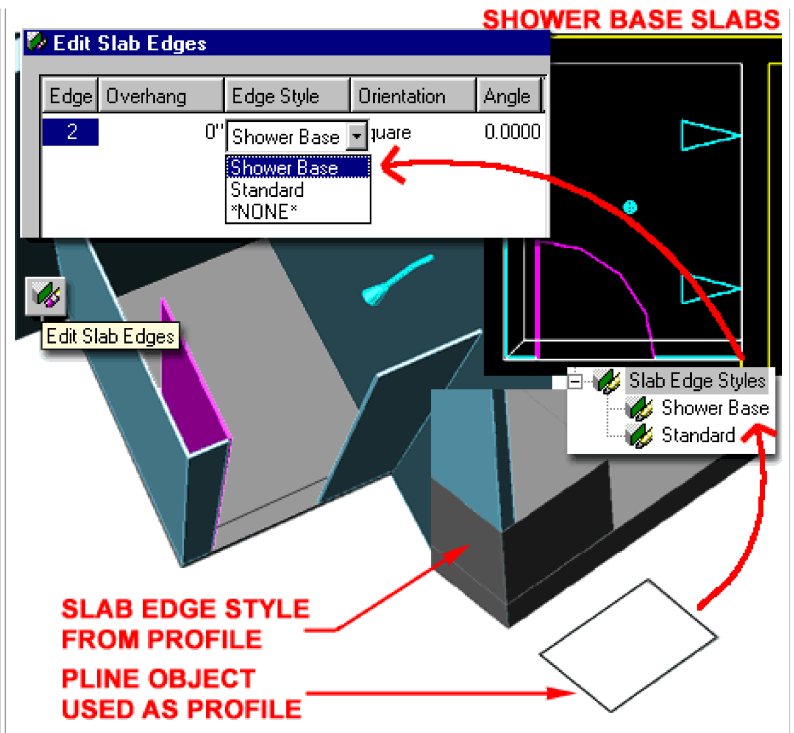
Links [Style Manager - Slab Edges](#) - for how to create a Slab Edge Style
[Profiles](#) - for how to create Profiles for use in Slab Edge Styles

Illustrated to the right is a quick solution I came up one day after trying to find a shower in ADT's library that suited my needs. There aren't any for most of my jobs so I decided to use a Slab which seems appropriate. Though there are some limitations to what you can do with the **Slab Edge Styles**, like the inability to fillet joints, creating a Shower Curb is very easy and can be used for a huge variety of Shower Base dimensions.

Illustrated to the right I show the use of the **Edit Slab Edges** tool as a means for taking any simple slab and adding this shower curb but you can also create a **Slab Style** with Slab Edges already set to go.

Tip:

Assign the the Profile as a Soffit if you want the edge line of the curb to show up in Plan View.



© Copyright 2001- 2003 ARCHIdigm. All rights reserved.