PART 11

SPACES

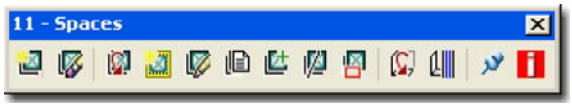
Contents:

1 Spaces - Access

Spaces Toolbar

How do I get this toolbar?

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



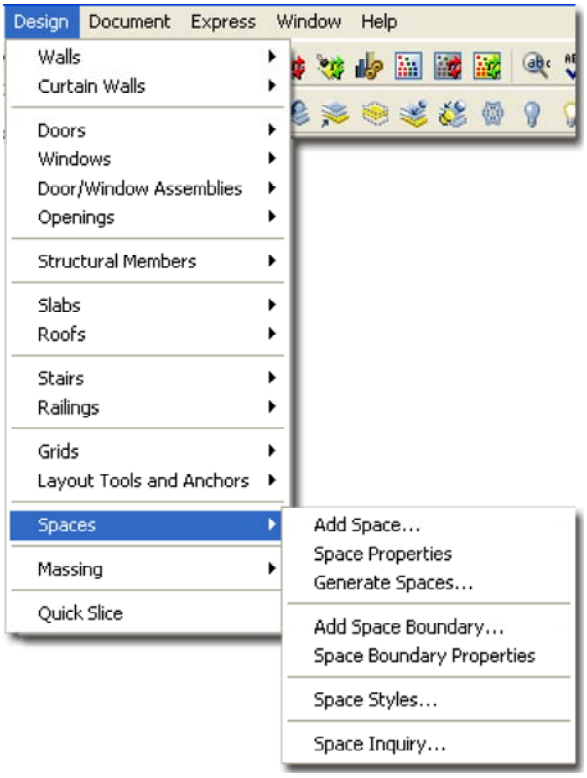
Spaces pull-down menu

Alt.Menu **Design> Spaces>**

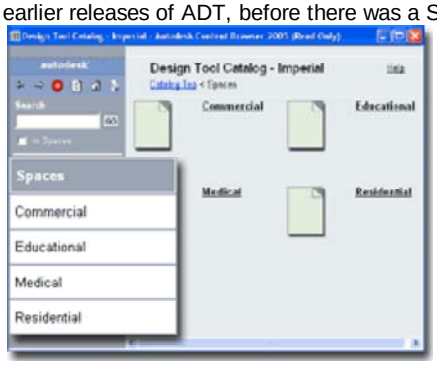
Keyboard **Space** or **SpaceAdd**

Browser Design Tool Catalog - Imperial or Metric > Spaces

Links Adjusting to the New Interface for AutoCAD and ADT Users- for how to activate the Design pull-down menu



From the beginning I have always found the Space Object enigmatic; serving a functioning somewhere between a Slab and an Area Object. In earlier releases of ADT, before there was a Slab Object or an Area Object, the Space Object had a very practical and necessary application but with the introduction of these other two Object Families, I now find that I rarely work with the Space Object. At present, I see this Object more as a pre-design tool that offers a path from controlled schematic diagrams to Walls but I have included it here in the Development eGuide because I can't predict how you might want to employ this Object in your work.



The Theoretical Process:

The general overview of how the Space Object plays into the bigger picture of Architectural Desktop runs along the following lines. **Mass Elements** are used in conjunction with **Mass Groups** to produce a massing study model. The **AecSlice** tool is used to cut a floor plate through the massing study model which produces a simple outline form. The Slice Object can be used to create a Polyline or **Space Boundary**. The Polyline can be used to create Space Objects but the Space Boundary not only contains **Space Objects** but also provides a direct path to Walls. Spaces can converted to Space Boundaries at any time.

In discussion below I will cover how Space Objects can be used on their own and how you can convert them to Space Boundaries with the intent to go straight to Walls as part of the Development design process.

Space Objects are 3D Objects comprised of a Floor and Ceiling Component that always have the same perimeter shape. They are managed by Styles that can be used to Constrain Areas, Lengths and Widths. ADT comes with default Tag Objects that you can use to Label Spaces and to report Areas and Dimensions.

Below is the main command line read-out for this tool:

Command: **Space**
Space [Add/Convert/Properties/STyles/Join/Divide/SWap/Query/Interference]:

You can also specify the option that you want; such as **SpaceAdd** or **SpaceStyle**

Space Boundaries Toolbar

Links Space Boundaries - the next step - for information on how Space Boundaries provide the means to go from Spaces to Walls.

Illustrated to the right is the toolbar that you would use if you were going to work with Spaces from a Pre-Design standpoint. In the Pre-Design Guide we look at Spaces as both tools in themselves for conceptual design study and as part of the process in converting Mass Elements into floor plans.

2 Loading Space Styles

Opening Space Styles in the Style Manager C

Alt.Menu **Design> Spaces> Space Styles...**

Keyboard **SpaceStyle**

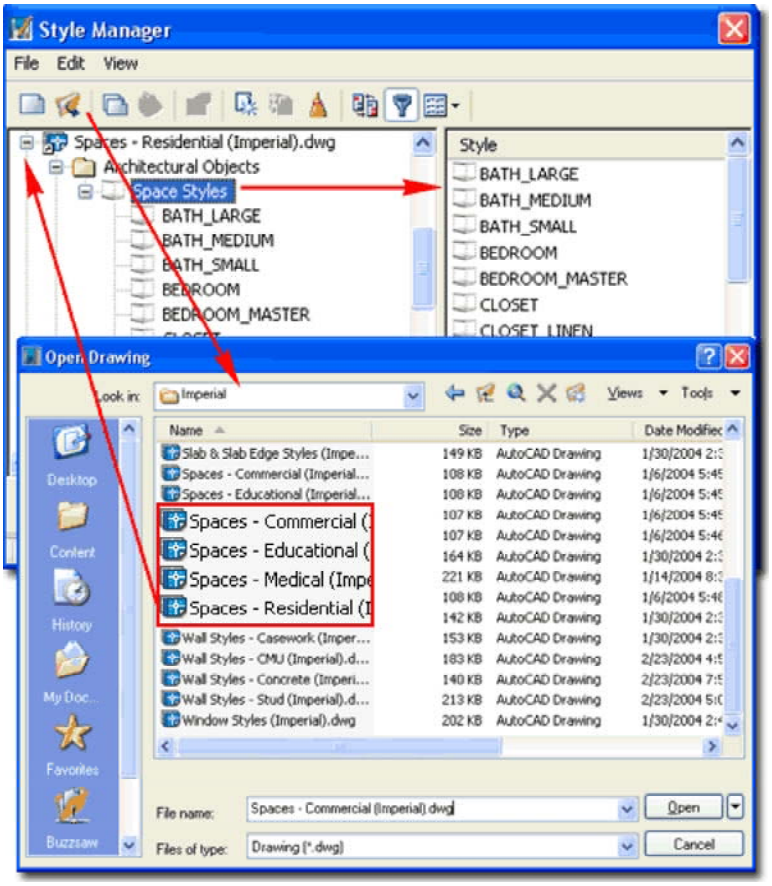
Links Copying Wall Styles in the Style Manager - for information on how to drag-n-drop styles

Space Styles - for how to create a Space Style

On a local installation of ADT you should find, within the ADT folder, the following sub-folder structure (see image below left).

Both the **Imperial** and **Metric** folders contain similar **Styles** folders within which you will find three Spaces Style template drawing files.

On a Network based installation of ADT, these Space Styles should be on a captured drive (like "G:\offices standards") or similar location with a similar folder structure to that illustrated left (Content >> Imperial >> Styles >> **Spaces - Commercial (Imperial).dwg**, **Spaces - Educational (Imperial).dwg**, **Spaces - Medical (Imperial).dwg** and **Spaces - Residential (Imperial).dwg** or (Content >> Metric >> Styles >> **Spaces - Commercial (Metric).dwg**, **Spaces - Educational (Metric).dwg** **Spaces - Medical (Metric).dwg** and **Spaces - Residential (Metric) .dwg**). In a very customized office scenario, these files may not even be present and others may have been designed for the Space Styles your office prefers (in this case, see your CAD manager).



ADT comes with **Commercial**, **Educational**, **Medical** and **Residential** Space Style Files that each contain numerous pre-configured Space Styles. On the list above you can see a few of the Space Styles that come with the "Spaces - Residential (Imperial).dwg" file

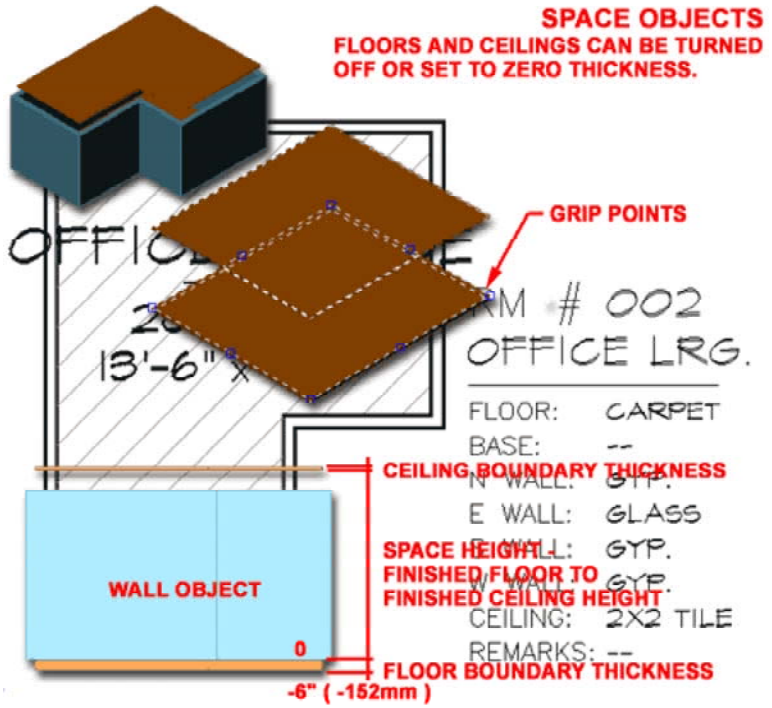
Spaces - Overview of Structure

Space objects were the first solution for creating floor plates or **slabs** but also come with **ceilings** and **database information** that make them one of the most useful objects for managing construction estimates.

Illustrated to the right are some of the basic components of a Space object. Space objects have a **Floor** and **Ceiling** that you can turn on or off or even assign a zero value for thickness. The height between the Floor and Ceiling can also be controlled before or after creation by working with an individual Space object or by working with a Space object's Style.

When you create a Space object, either by **Add**ing or by **Convert**ing, the Floor grows or extends from the ground plane down in the negative **Z-axis** direction making it ideally matched for use after **Walls** have already been added. Slabs, on the other hand, do not do this and must be moved down manually after creation.

In addition to their 3D geometric features, Space objects have been designed to work with several Annotation **Tags** and database **Property Sets** so you can easily attach such things as **Room Numbers**, **Areas** or **Finish Lists**. You can **Export** a huge amount of data into a common Microsoft Access MDB file format for use in other programs; even if you don't have Access.



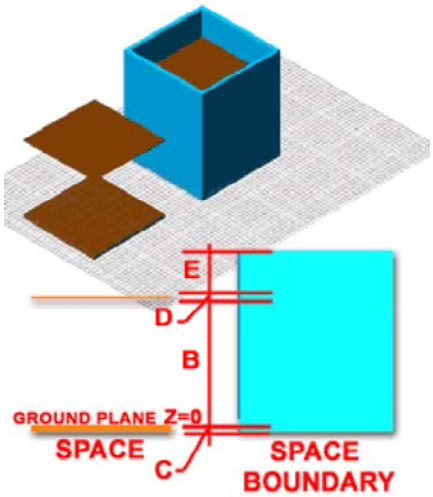
3 Adding Spaces

Add Space Properties Palette

Alt.Menu **Design> Spaces> Add Space...**

Keyboard **SpaceAdd**

Though you are not required to create or load Space Styles, chances are that if you intend to utilize this Object type to its fullest, you will be working with predefined Styles (for the Constraints and Style Names).

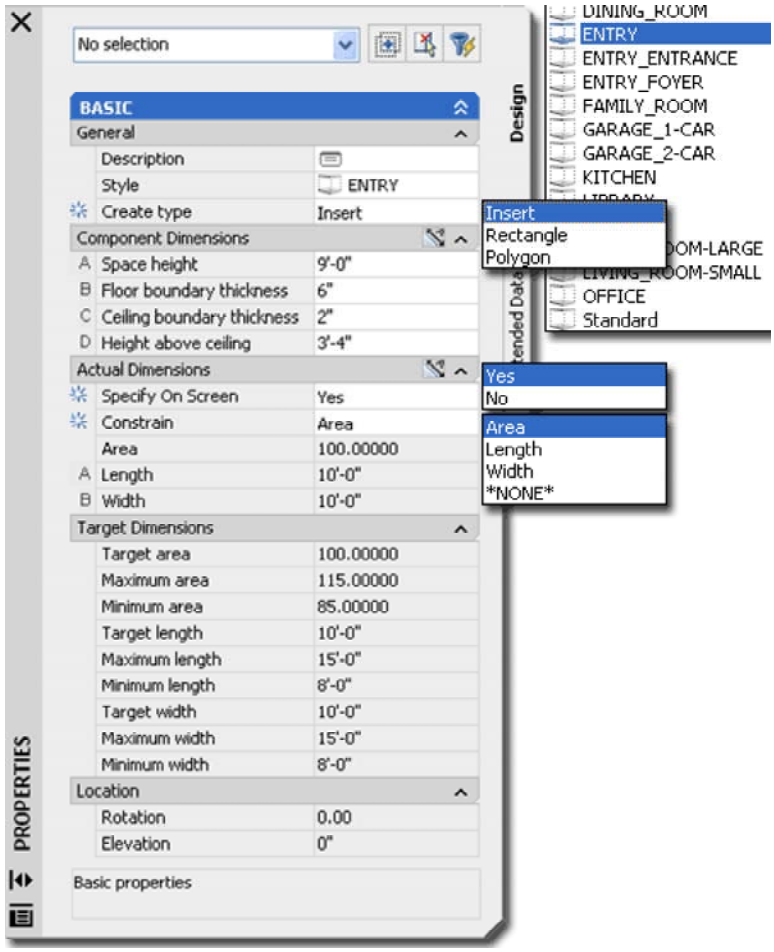


GENERAL
Style - a drop-down list offering access to any pre-defined **Space Style** loaded in your current drawing or the default "**Standard**".

Create type - a drop-down list offering three choices: **Insert**, **Rectangle** and **Polygon**. If you expect to work with rule-based Space Styles you must use the Insert option because neither Rectangle nor Polygon allow you to "**Constrain**" your Space Object. Rectangle and Polygon allow you to draw shapes of any size even if a specific Style has been set.

COMPONENT DIMENSIONS
A - Space Height - usually the height from finished floor to finished ceiling

B - Floor Boundary Thickness - use this value field to set a massing thickness for your floor. By default, this "thickness" projects in the



Constrain - use this drop-down list to select one of four options: **Area, Length, Width** or ***None*.** If **Specify On Screen** has been set to "**No**", you will see the results of selecting any of these four options in the value fields directly below. If **Specify On Screen** has been set to "**Yes**", you will notice

negative Z-axis direction. Negative values are allowed but appear to produce the same results as setting this value to zero. Think of this as a Floor Slab.

C- Ceiling Boundary Thickness - use this value field to set a ceiling massing thickness much like you may have done for the Floor Boundary. In commercial projects you might use this value to define a suspended ceiling (T-bar). Think of this as the finished ceiling (suspended or other) , but not as a Roof Slab.

D - Height Above Ceiling - use this value field to set the Space Boundary Height (can also be thought of as Wall Height) if it is higher than the Ceiling Boundary Height. You won't see any physical evidence of this value but if you convert a Space to a Space Boundary (type "SpaceBoundary" and use Convert) that acts as a "Solid Type", the Boundary will extend up to this value. Solid Space Boundaries are practically Walls and can be Converted to Walls as part of a multi-phased pre-design process.

ACTUAL DIMENSIONS
This section of the Properties Palette is **not available** when using the **Rectangle** or **Polygon** "Create Type" options.

Specify On Screen - use this drop-down list to select between a "**Yes**" or "**No**" option. Selecting "Yes" will lock the Area, Length and Width value fields.

directly below. If **Specify On Screen** has been set to **Yes**, you will notice the type of Constraint when drawing the Space Object on Screen. Using the Area Constraint, for example, allows you to draw numerous different Space Sizes as long as they result in the same Area total.

Area, **A - Length** and **B- Width** are controlled by the Specify On Screen and Constrain settings. If you have Specify On Screen set, you will not be able to input values for any of these fields. If Specify On Screen is set to "No" then the Constrain setting can be used to Constrain one or *None* of these value fields; i.e., no constraint thus allowing any size and area.

TARGET DIMENSIONS
This section of the Properties Palette is **not available** when using the **Rectangle** or **Polygon** "Create Type" options. The information displayed under this section is controlled by the Space Style and cannot be modified here. It is just for reference purposes.

LOCATION
This section of the Properties Palette is only available for direct input when **Modifying** Space Objects.

Adding Spaces - Examples

Links: Style Properties - Dimensions tab - for information on how to use the Net to Gross Offset value and how it affects the creation of Space Objects.

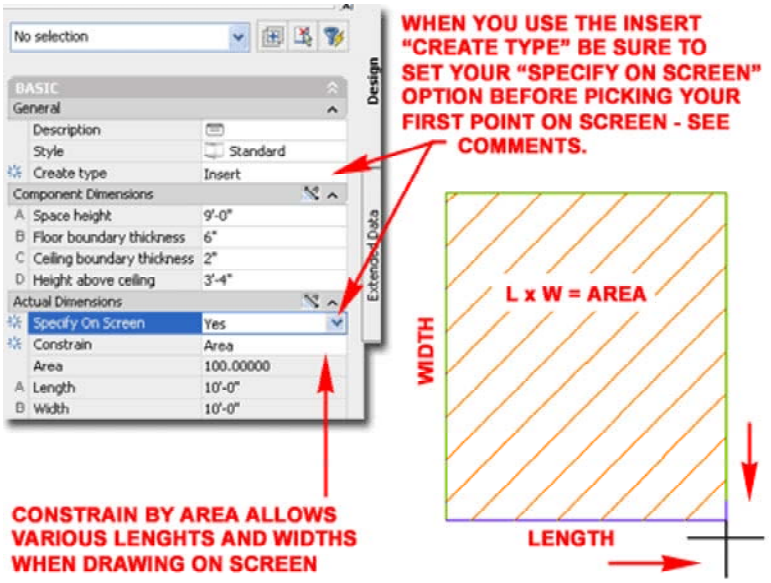
If you decide to create free-from Spaces by using the **Rectangle** or **Polygon** Create type options, there really isn't much to discuss with respect to Constraints. When you use the "Insert" Create Type option, you can utilize the Constrain options to help create Spaces that fall within logical ranges for Areas or Lengths and Widths.

SPECIFY ON SCREEN - YES:
Illustrated to the right I show that I have set the **Create type** option to "**Insert**". Be sure to set your "**Specify On Screen**" option before picking your first point on the screen because I found that if this option is set to "No" and you begin creating your Space, that mode is locked in even though you can change the option on the drop-down list.

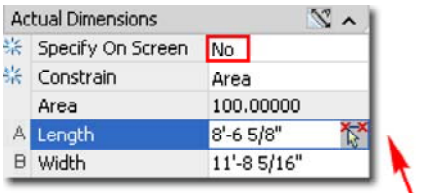
When working with the **Specify On Screen** option, you can **Constrain by Area** to allow more free-form **Length** and **Width** Dimensions while keeping the Area locked. Using the Length or Width Constrain option, you can draw your Space along the X-axis or Y-axis to see how your cursor position affects the final proportions of the Space.

Using the ***None*** Constrain option produces a Space that is square in dimensions but can vary between the Maximum or Minimum Areas depending upon length your second cursor point is from the base insertion point.

SPECIFY ON SCREEN - NO:
When you set the **Specify On Screen** option to "**No**", you are actually using the most liberal option for Inserted Space Styles. Despite the inability to draw the Space directly on Screen, you can actually pick points



This technique does not always produce Spaces that conform to the Space Style's Rules, as the *None* term implies but you can monitor this by comparing the values to those under the **Target Dimensions** section of the Properties Palette. The error that is most likely to occur is that you may specify a Width or Length that falls within the Range but produces an Area that is not within the Range. Notice that when you type in values, they will automatically round up or down the be with the Range specified by the Rules of the Space Style.



BY USING THE PICK POINTS BUTTON IN THE LENGTH OR WIDTH VALUE FIELD YOU CAN SPECIFY VALUES ON SCREEN. NOTICE THAT YOU CAN ALSO TYPE IN VALUES THAT FALL INTO THE SPACE STYLE'S MIN./MAX. RANGE.

on the Screen for Length and/or Width if you wish to. This is the only option that allows you to specify an Area other than the Target Area; i.e., as long as the current Space Style has a Minimum and Maximum Target Area that are not the same, you can specify any value within the Area Range. To have the greatest freedom within the Target Values of the Space Style, set the Constrain option to ***None*** and type the Area, Length and/or Width values that you prefer.

For even more fun with *None* option, try using a Length and Width that produces an Area that is not in the Range and then Constrain it by setting the Constrain to "Area"; now the Length and Width must produce the erroneous Area.

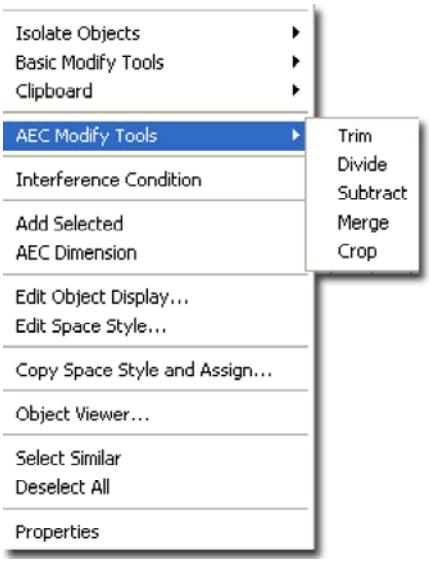
4 Modifying Spaces

Modify Space Properties Palette

Alt.Menu **Design> Spaces> Space Properties**

Keyboard **SpaceProps** or -SpaceModify

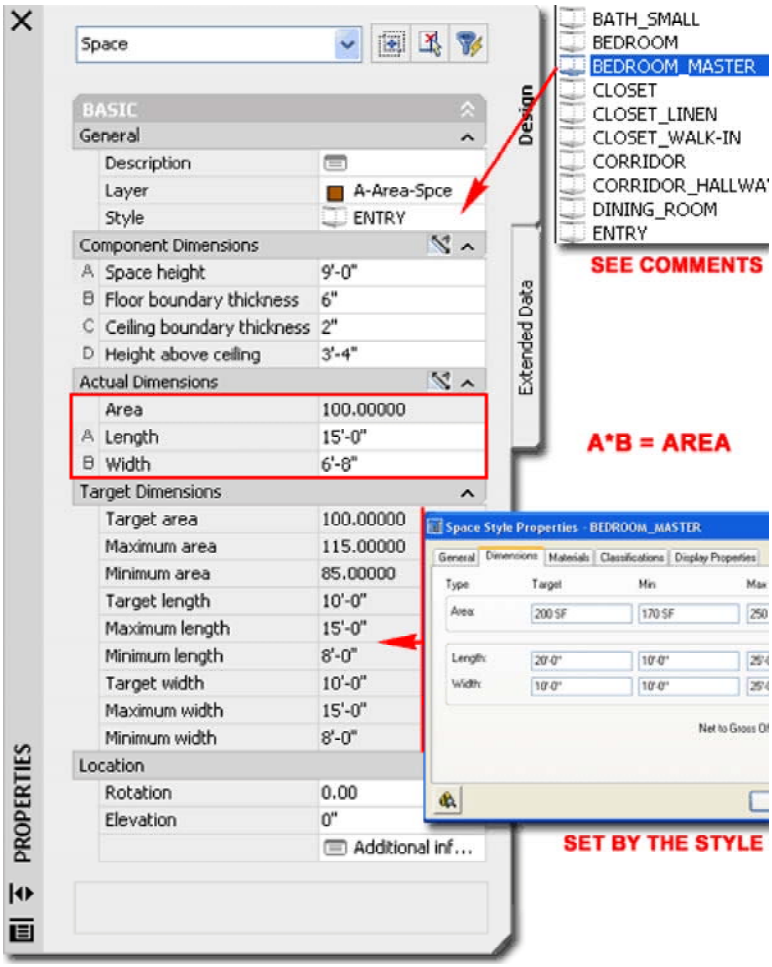
Links Add Space Properties Palette - for information on the settings and options available on this palette.



The **Modify Space Properties Palette** is almost identical to the Add Space Properties Palette with the main exception that you cannot change the Constrain options; Area is always locked but controlled by Length and Width.

Though you should find that the Length and Width value fields are Constrained by the Min./Max. Range when you type in new values, this is not the case when you use **Grips** to modify the Length and/or Width. Should you accidentally Modify the Length and/or Width by Grip Stretching, the Area is locked to the new value and there is no way to reset the original Constraints. I guess the moral of this observation is "don't use Grips on Spaces".

Illustrated above left I show the **Context menu** activated by Selecting one or more Space Objects and right-clicking on your mouse. For Space Objects, as with many other ADT Objects, you can use the **AEC Modify Tools>** cascading menu to Trim, Divide, Subtract, Merge and Crop Spaces. Though some of these terms, like "Trim", may sound familiar to AutoCAD users, they are not the same commands. To Trim a Space you must use the "**LineworkTrim**" command; the AutoCAD "Trim" command will destroy the integrity of a Space Object.



To learn about how the **AEC Modify Tools** work on Space Objects, read the sections below.

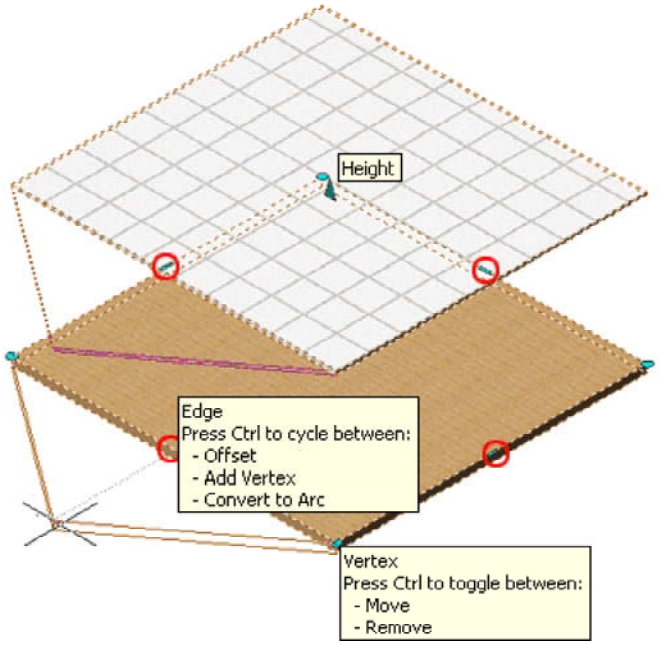
Using Grips to modify Spaces

Using **Grips** on Space Objects can be a very effective way to Modify Space Lengths, Widths, Heights and even Shapes but there are no Constraints to keep you tied to the Space Style's rules.

In the illustration to the right I show that Space Objects always have **Corner Grips**, Edge Grips and a Height Grip no matter what the shape, Style or size is. The Height Grip is not available in Plan so you may need to view your work in Isometric in order to take advantage of this option. The Corner Grips have two options: Stretch or Remove depending on how you have cycled with the Ctrl key.

The **Edge Grips** offer several interesting options including Stretching, Adding a Vertex and Adding an Arc. As with other Objects in ADT, simply Select the Grip to make it Hot and then use the Ctrl key to cycle through the options. If you pull your cursor out and away from the Grip position, you should find that you can see the results of cycling through the options (such as the Arc option). Once you have used the "Convert to Arc" option, you will find two new Ctrl cycle options on the **Edge Grip** of the **Arc**: **Stretch** and **Convert to Line**. The Stretch option allows you to Stretch the Arc to a new shape while the Convert to Line will remove the Arc and replace it with a straight edge.

CAUTION!
See comments on how using Grips on Space Objects can be problematic when using Space Style rules (Dimensions tab) to Constrain Dimensions and Areas.



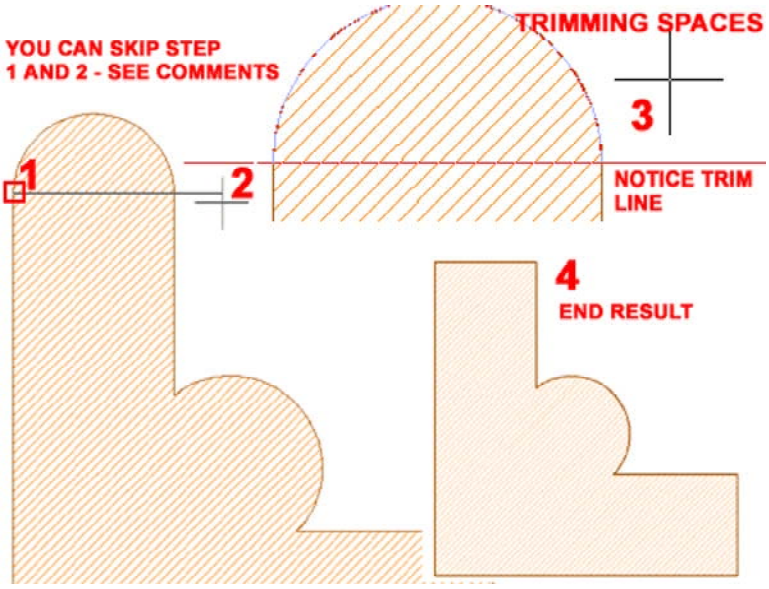
Trim Spaces

Keyboard	**LineworkTrim**
Mouse	Select a Space Object, right-click and Select AEC Modify Tools >

As with other ADT Objects that utilize the **AEC Modify Tools**, you can Trim Space Objects with the **LineworkTrim** command.

Illustrated to the right I show the default approach to Trimming a Space Object where you specify a **first point**, a **second point** for the trim line and a **third point** for the side to trim away.

If you hit the **Enter key** for the first part of this command you will find that an automatic Trim Line will appear whenever you hover your cursor near any linear Object. This feature can make short work of trimming as long as there is an object that will act as a direction vector for the Trim Line. You cannot use OSNAPS, like Midpoint, to split an Object nor can you change the direction of the Trim Line as it is generated from an Object.



Divide Spaces

Alt.Menu **N.A.**

Keyboard **SpaceDivide** - old ADT command

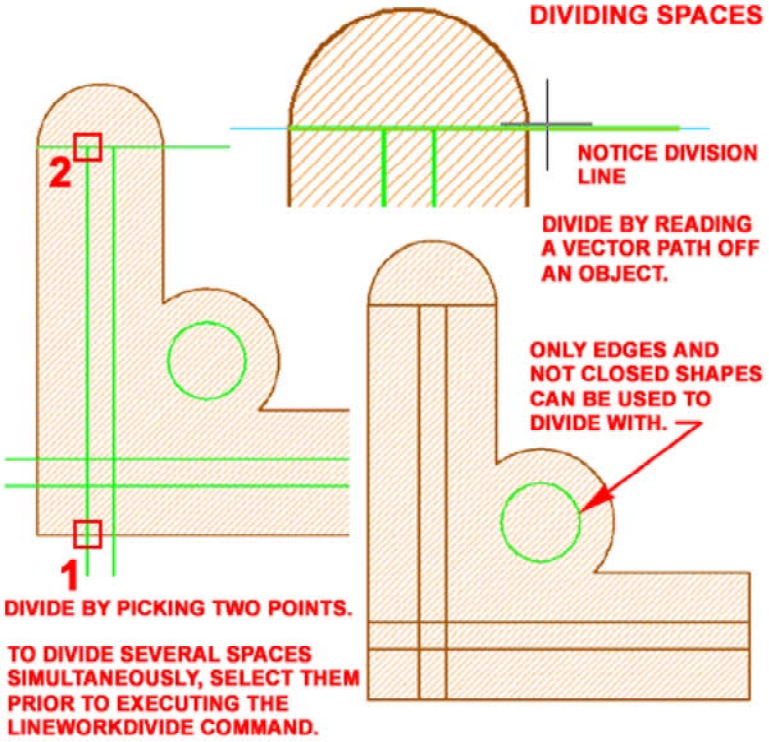
LineworkDivide - better choice.

Mouse Select a Space Object, right-click and Select AEC Modify Tools >

As with other ADT Objects that utilize the **AEC Modify Tools**, you can Divide Space Objects with the **LineworkDivide** command. You can also use the **SpaceDivide** command specifically designed for Spaces but I find that this older command is basically archaic because it offers fewer options. One major benefit of using the LineworkDivide command is that you can Divide multiple Spaces at one time; e.g., Select many Spaces, then activate the LineworkDivide command via the pop-up context menu.

Illustrated to the right I show the two methods you can employ to Divide one or more Space Objects. You can **Pick two Points** to define the Division Line or by hitting the **Enter key**, you can allow ADT to automatically project a Vector Path off of any Linear Object in your drawing.

To Divide several Space Objects by the same Patch, Select the Objects first and then use the Linework Divide command via the right-click pop-up menu.



Subtract from Spaces

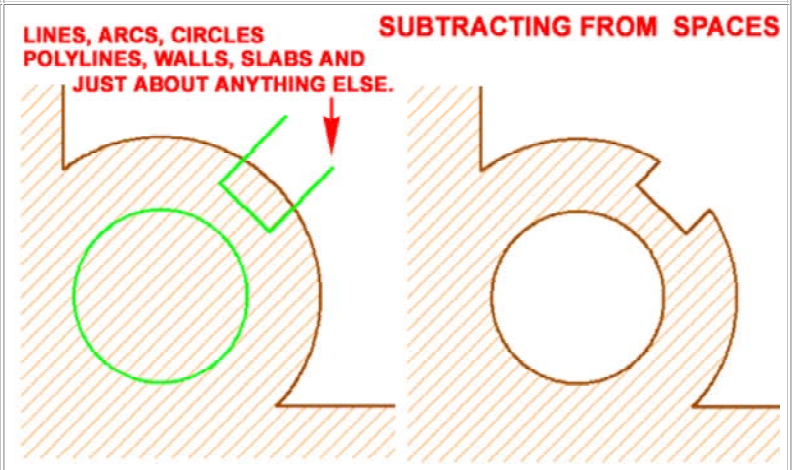
Keyboard **LineworkSubtract**

Mouse Select a Space Object, right-click and Select AEC Modify Tools >

As with other ADT Objects that utilize the **AEC Modify Tools**, you can Subtract from Space Objects with the **LineworkSubtract** command.

Illustrated to the right I show how a Circle and regular Lines can be used to form the perimeter shape of a Subtractive Operation on a Space Object. When Objects do not form a closed shape, the open ends will automatically be connected in the resultant form. The breadth of Objects that can be used to Subtract is amazing; even Xref's.

One drawback to using this tool is that there is no simple way to fill in a hole or negative space. See the **Merge** tool for a solution and be sure to consider using the **Interference** tool when you know there are going to be a lot of changes.



Join Spaces and Merge Spaces

Alt.Menu **N.A.**

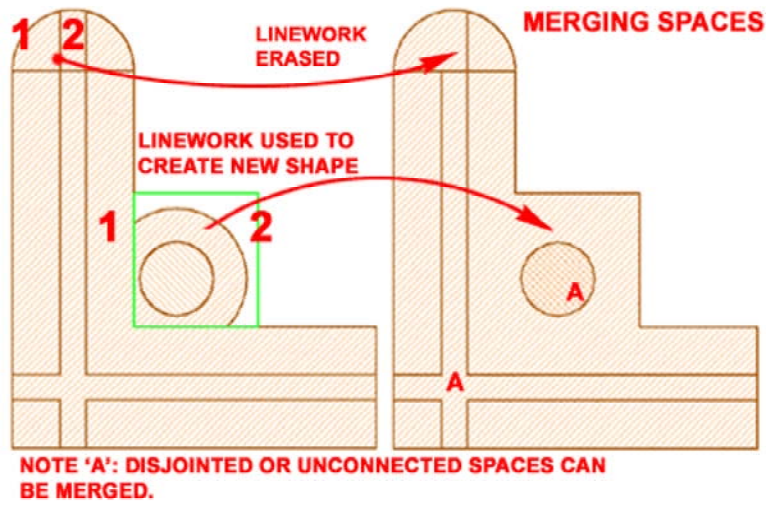
Keyboard **SpaceJoin**

LineworkMerge

Mouse Select a Space Object, right-click and Select AEC Modify Tools >

As with other ADT Objects that utilize the **AEC Modify Tools**, you can Merge Space Objects with the **LineworkMerge** command. You can also use the **SpaceJoin** command specifically designed for Spaces but I find that this older command is basically archaic because it offers fewer options.

Illustrated to the right I show a typical scenario where two adjoining Spaces are Merged to form one larger Space. I also show that you can use forms created with Lines, Arcs, Circles and other Objects to Merge with as an option to expand or alter the shape of a Space.



Also Illustrated above as item "**A**", I show that you can Merge Spaces that are not physically connected. This may happen by accident but you can use the

Be sure to reply with a "**Yes**" when queried to "**Erase selected linework? [Yes/No]**" or you will end up with redundant Spaces.

LineworkDivide to disconnect such cases.

Crop Spaces

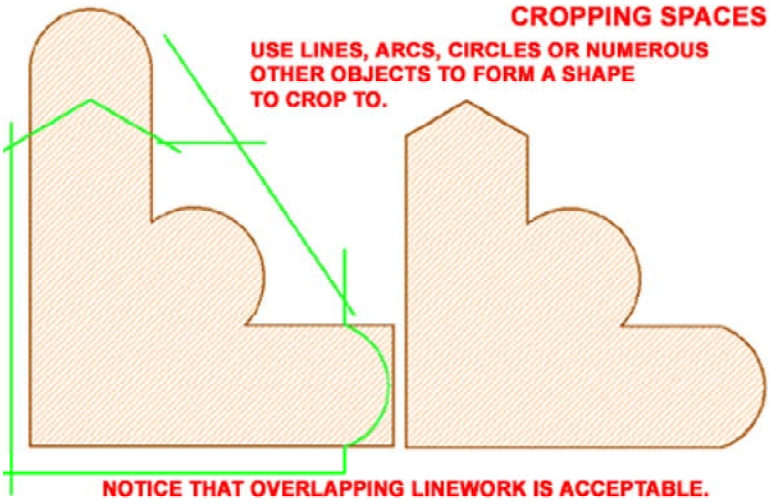
Keyboard **LineworkCrop**

Mouse Select a Space Object, right-click and Select AEC Modify Tools >

As with other ADT Objects that utilize the **AEC Modify Tools**, you can Crop Space Objects with the **LineworkCrop** command.

Illustrated to the right I show that you can use Lines, Arcs and almost any other Object to loosely form an enclosed shape that can be used as a Crop Boundary. The Crop tool is very similar to the Trim tool with some interesting differences. If you Trim to a Wall, for example, the Space will cut at the edge of a Wall but if you Crop to a Wall, the Space will literally use the Wall's Shrinkwrap outline as a boundary; I was really confused when I accidentally did this and lost my Space to a sliver inside a Wall.

Tip:
Since the Crop tool only Trims a Space you may want to combine this tool with the Merge tool to fully reshape a Space to a Boundary; i.e, first Crop then Merge.



Interference Condition

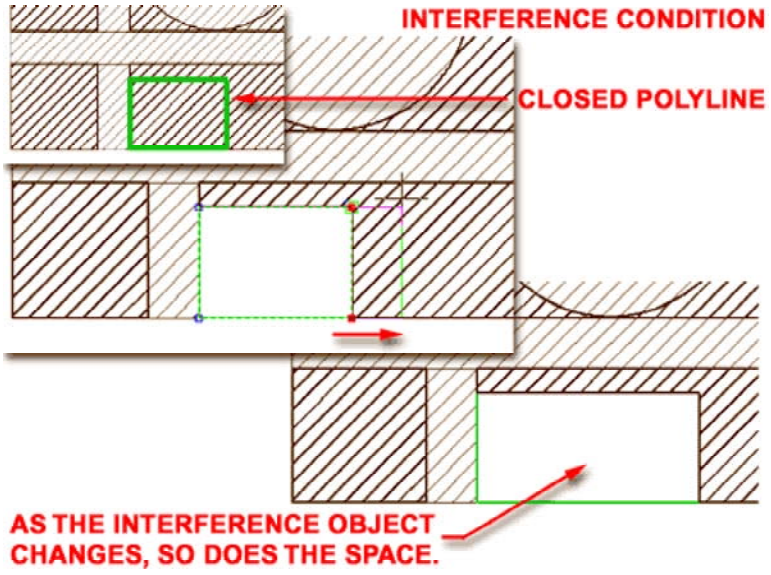
Alt.Menu **N.A.**

Keyboard **SpaceInterference**

With the Space **Interference Condition** tool, you can introduce objects whose final dimensions are inconclusive at the time that you are designing. Using something like a Rectangle for a Mechanical Space will allow you to change this object easily without having to be concerned about Space Styles or other related design issues. The Space that is the recipient of this Interference will automatically adjust as will the resulting Area calculations for schedules and Space Tags (you can actually see the Area on a Space Tag change in live mode as you adjust an Interference object.

Many different ADT objects, such as Mass Elements, can be used as interference objects, so you are not limited to Closed Polylines.

If an Interference object is **Deleted**, the Space restores to its original dimensions.



Swap Spaces

Alt.Menu **N.A.**

Keyboard **SpaceSwap**

The **SpaceSwap** tool provides an option for swapping the Properties of one Space with another but unfortunatelyl only works with Space Objects that are confined within Space Boundaries. I make reference to this command just for your information though Part 11 is not about Space Boundaries.

5 Convert to Spaces

Converting Polylines to Spaces

Alt.Menu **N.A.**

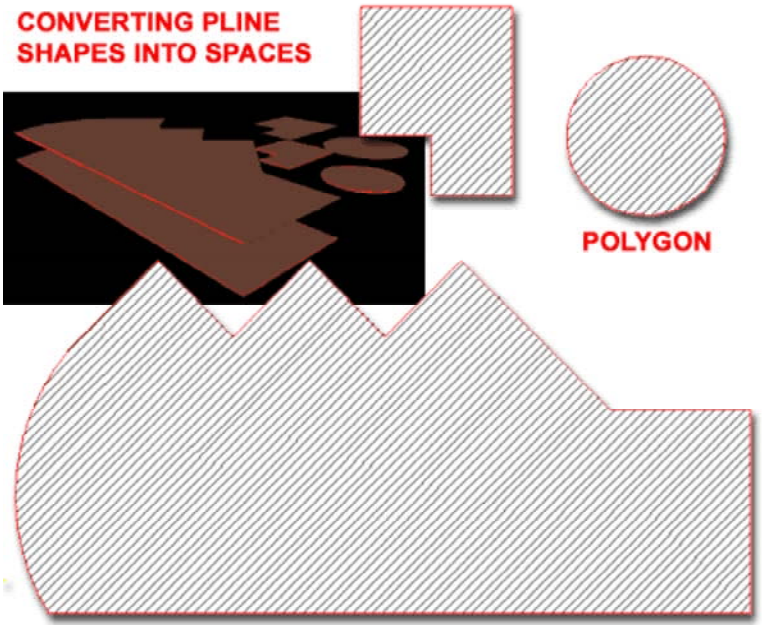
Keyboard **SpaceConvert**

Palette Select Space Style on Palette, right-click to Select Apply Tool Properties To and cascade over to Polyline.

Links Generate Spaces - to learn about a method that may prove to be faster and easier.

The **SpaceConvert** command only works on closed **Polylines**, including **Rectangles**, **Polygons** and **AEC Polygons**. You can type this command or use the Apply Tool Properties To option via the Tool Palette.

One of the most significant problems with Converting Objects to Spaces is that this operation does not apply any Constraints; making is rather easy to use a Space Style designed for a Closet on a Rectangle as large as a Stadium. There are no warnings nor any tools to force a Space, created by this method, to adhere to the rules set by the Dimensions tab. You will see erroneous numbers on the Properties Palette but that's all you will have to let you know something is off.



For some, Space Styles may not very important but for others the Styles are the key to producing analysis. For such cases you may wish to avoid using the SpaceConvert command or use it to create a single large form that is then Divided and otherwise modified to create smaller Spaces that you assign as specific Styles while monitoring the Areas, Lengths and Widths.

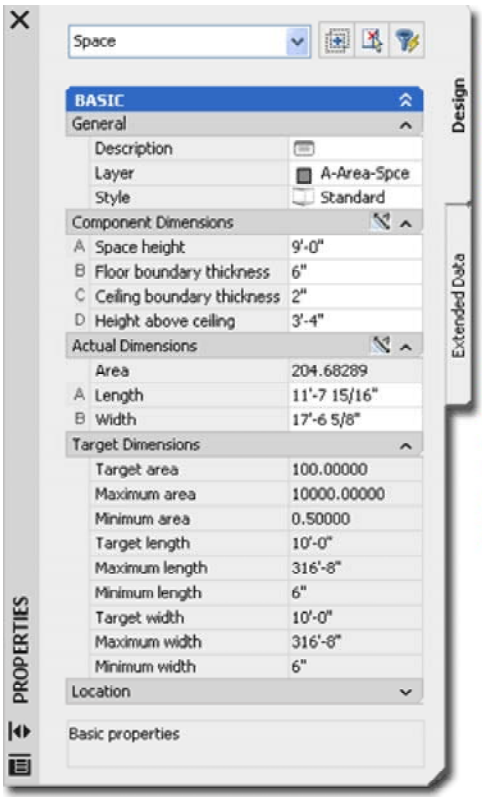
Converting Polylines to Spaces - Space Properties Palette

Links Add Space Properties Palette - for information on the settings and options available on this palette.

When you select a Polyline to Convert into a Space Object, you will be prompted to "**Erase layout geometry? [Yes/No] <N>:**" and then you will see the Space Properties Palette as illustrated to the right.

If you choose to "Erase layout geometry", it simply means that the Polyline will be erased. In the case of using Slices (used on Mass Elements and Mass Groups to cut Floors), this is probably a good idea since the Slice can be used to generate a new Polyline at any time you want.

As illustrated to the right, the default Space Style is always "Standard" and though you can Select any Space Style you may have loaded, it will not change any of the Dimension values.



WHEN USING THE SPACECONVERT TOOL, THE SPACE CREATED IS ALWAYS BASED ON THE "STANDARD" STYLE EVEN IF YOU HAVE OTHERS TO CHOOSE FROM.

NOTICE THAT A SPACE CREATED BY CONVERTING IS NOT CONSTRAINED IN ANY WAY AND ONCE CREATED YOU CAN'T APPLY THE STYLE'S DIMENSIONAL CONSTRAINTS.

Generate Spaces dialogue box

Alt.Menu **Design> Spaces> Generate Spaces...**

Keyboard **SpaceAutoGenerate**

Links Adding Room & Finish Tags - for manually adding Tags to Spaces after creation.

Bug The **Max. Gap Size** field did not work on any of my tests. If you experience similar problems, set the HpGapTol system variable and ignore this field.

If you tend to design by first using simple Linework or the more definitive Wall Objects and then start to focus on Areas, Spaces and proportions, you are likely to find the **Generate Spaces** tool the most useful in this suite. It functions much like the Hatch tool where you specify a point within a Boundary to define a closed perimeter.

Style - this drop-down list is the same as that for Adding Spaces and allows you to access any predefines Space Styles.

PROPERTY DATA
Property 1 - this is a text field where you can manually write information for one or more Space Objects. The Name of the Field and the function it has in Tags and/or Schedules is determined by what you set on the **Tag Setting dialog** under the **Property 1** and **Property 2** drop-down lists.

Property 2 - see comments above.

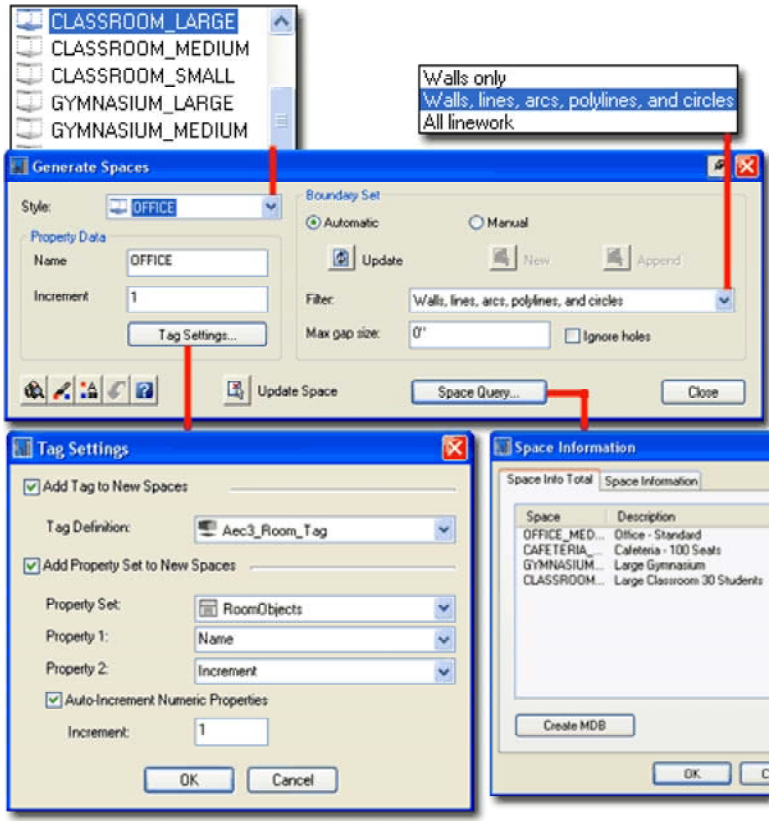
Tag Settings... - this button brings you to the **Tag Settings dialog** box where you can specify which tag you want to have automatically Added to your Space Objects as you create them. You can use the DesignCenter to import any of the predefined Tags that come with ADT - see **Adding Room and Finish Tags** in Part 18 Schedules for more. Though the action of Adding a Tag usually attaches Property Data Sets to Objects, you can specify the same or other **Property Sets.** The primary reason to specify the Property Data Set is to gain access to any of the fields that allow Manual input so you can use the **Property 1** and **2** fields back on the main Generate Spaces dialog.

Auto-Increment Numeric Properties - use this checkbox and corresponding value field to set the numeric increment for your Spaces. Typically this increment is used for Space Numbers but you could create other custom Properties to take advantage of this feature.

BOUNDARY SET
Automatic - by using this option you basically declare that all Objects currently visible on your screen are candidates for Boundaries. If you Pan or Zoom to include more Objects, for example, you will need to use the **Update button** to refresh the potential Boundary Set.

Manual - by using this option you can filter the Boundary or Selection Set used to create Spaces. The **New** and **Append** buttons can be used to create a Selection Set and then Add to it.

Filter - use this drop-down list with three options to further refine the filtering of the Boundary or Selection Set. You can use this filter with Automatic or Manual Selection Sets - see comments right.



Walls only - filters out all objects except Walls and Curtain Walls, though I have been able to select objects within Curtain Walls (which you need to do to get a proper read on Curtain Walls with nested entities).
Walls, lines, arcs, polylines, and circles - works like the Wall only filter but includes the objects listed.
All linework - this finds just about everything and the problem with that is that the resultant Spaces often don't make a lot of sense because you get Spaces out of things like Mullions - use it as a last resort.

Max gap size - this value field is supposed to work just like the Gap Tolerance under Hatch and Polyline Join but I found no cases where it actually worked. I played with the **HpGapTol** setting for the Hatch tool and found that it actually affected Spaces so try that if you experience similar problems.

Ignore Holes - using this checkbox allows you to control whether shapes within shapes are read as Space Boundaries. This is identical to the Island Detection option found under the Hatch tool.

Update Space - use this button to redefine the Boundary of an Existing Space Object; i.e. update it's Boundary. After Selecting this button, Select a Space Object to Update and then Specify a point inside the New Boundary. You can also use this as a means of Moving Spaces around.

Space Query... - this button brings you to the **Space Information dialog box**, where you can can acquire a basic tally of all the Spaces already created in the current drawing. You can also acquire access to this dialog box via the Space Inquiry button or type "SpaceQuery".

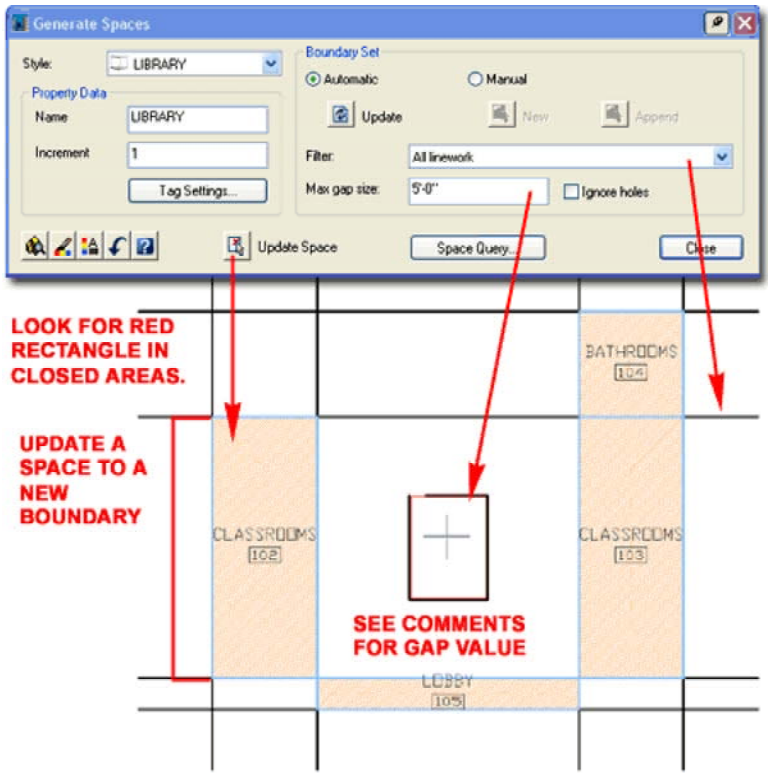
Generate Spaces - examples

Illustrated to the right I show an example of how the **Generate Spaces** tool can be employed to create Spaces from a series of simple **Lines**. You can use **Automatic Boundary Set** option to automatically read Closed or partially Closed shapes as illustrated by the red rectangle in the center square to the right. If you have a variety of different Objects on your screen you may want to use the **Filter** drop-down list to help the Automatic Boundary Set option read the shapes on your screen.

In my tests I found that the **Max. gap size** did not work so I used the **HpGapTol** system variable instead and that seemed to do the trick. This setting will assist in reading non-closed shapes as closed much like the same setting assists with Hatch Patterns.

You can use the Update Space button to force existing Space Objects to adjust to a new Boundary simply by Selecting the Space and then the area within which the changed Boundary occurs.

As useful as the Property Data options may be, I found them less than ideal for providing Names and Numbers to Space Objects. The default Room Tags need to have Room Names specified manually so you would need to fill this information out as part of the two Property Data fields (set by the Tag Settings dialog). In addition, when you use this technique to Tag the Spaces, the Tags don't apply the current font as they do when you Tag Spaces with this Tag after creation. If you use Space Styles defined as Rooms you might as well label them by the Style Name and the only default Tag that does that is the Space Tag. What you might want to consider is to create a custom Tag that works like the Room Tag but reads the Space Style Name as the Room Name.

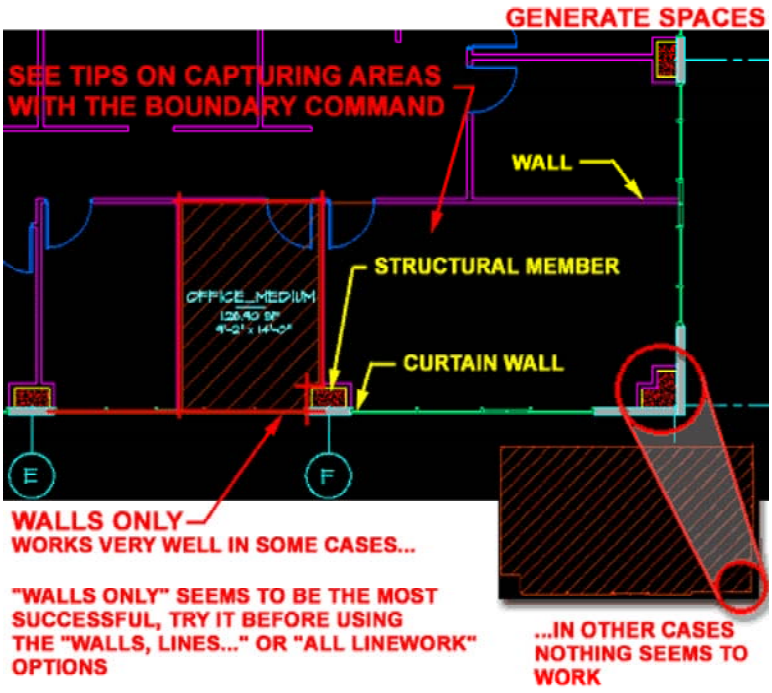


Generate Spaces - Wall Only examples

Illustrated to the right is an example of a commercial office space in a high-rise or multi-floor building. This is the type of scenario that really tests the usefulness of a tool like **Generate Spaces**. The primary problem you are likely to face has to do with a **mixture of Object types** and how they "close" the shape you are attempting to turn into a Space. Doors, for example, may have their arc swing read unless you set the Filter to Walls Only. Gaps between Object types may prove to be problematic as well and in some cases insurmountable. If a Column Object, for example, does not sit directly up against a Wall Object the gap will not be filled regardless of the Max. gap size (or HpGapTol).

If you are working with something similar to that illustrated to the right, experiment with different Display Configurations to see if those will help. Sometimes the **Reflected Display Configuration** is far better as a source for Generating Spaces than Plan Low, for example.

Note:
For **BOMA** standards on **Area calculations** you typically calculate Areas based on Wall Centerlines. Though the **Net to Gross Offset** value on the Dimensions Tab of the Space Style Properties dialog can be used to produce an offset Gross Boundary line (see Spaces in Plan) that runs through the centerline of adjacent Walls, the resultant Area report does not include the Gross Area; i.e, the only data you can extract is the Net Area.



Style Manager - Spaces

Alt.Menu **Design> Spaces> Space Styles...**

Keyboard **SpaceStyle**

Links Loading Space Styles - for information on how to load predefined Styles that come with ADT.

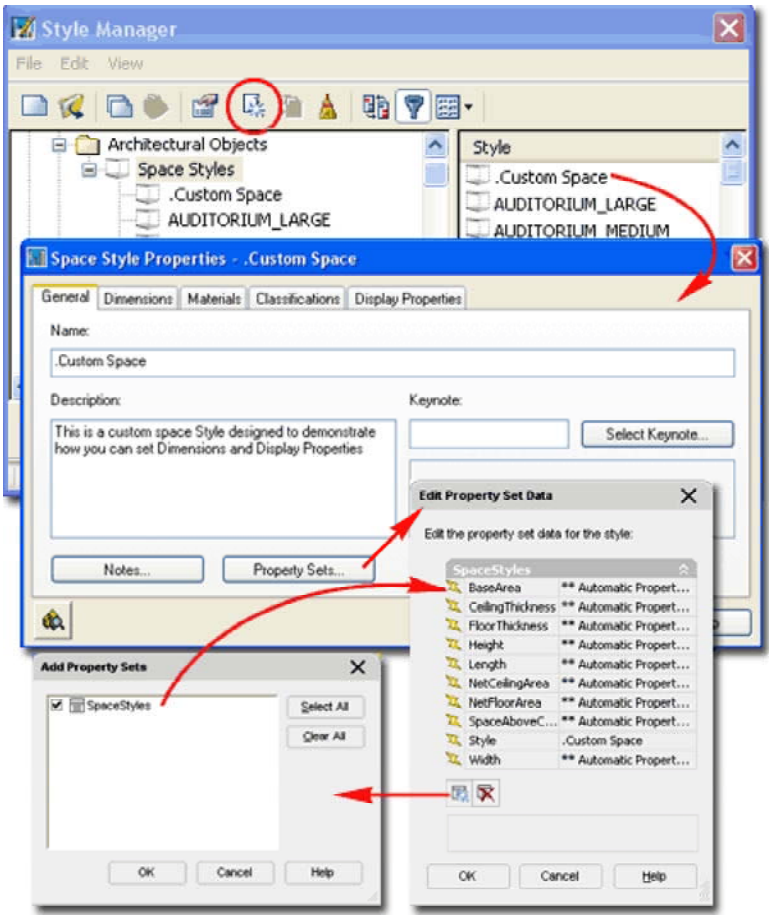
For Space Objects, you can use the **Style Manager** to load, modify, delete and create new Space Styles.

Illustrated to the right, I show the process of creating a **New** Space Style that I have Named "**Custom Space**". By **double-click**ing on this new style, you will invoke the **Space 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, Property Sets and a Keynote.

If you plan to use some form of a Schedule to manage Spaces, you may want to Add a Property Set(s) at the Style level. In cases where you plan to Tag the Spaces, this data can be added as part of the tagging process and thus may not be necessary at the Style Level.

Select Keynote - you can use this button to Select a Keynote Category but I can't think of any examples that would apply to Spaces since they aren't really architectural Objects as much as mathematical data containers.

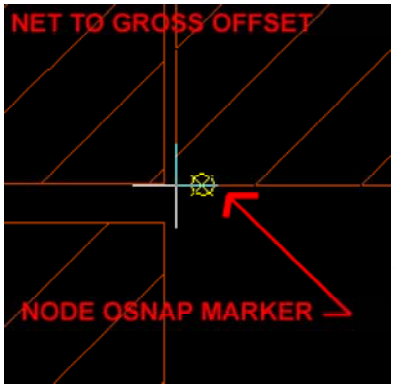


Style Properties - Dimensions tab

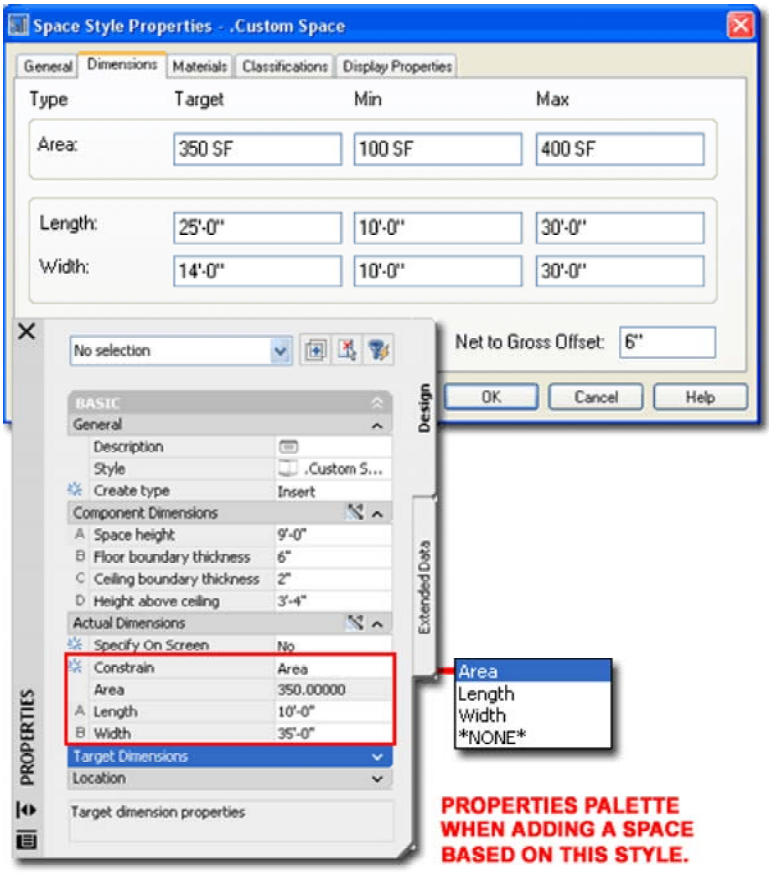
Links Drawing Setup Dialogue Boxes - for where to change the Metric units of measure to Meters, Millimeters, Square Meters, etc.

On the **Dimensions** tab of the Space Style Properties dialog box, you define the rules by setting value ranges for the **Area**, **Length** and **Width**. Each of these value "Types" have a **Target**, **Minimum** and **Maximum** setting where the Target is usually what you see, by default, on the Properties Palette.

The optimum or **Target Area** must equate to the formula **Target Length** x **Target Width** and the **Minimum Area** must equate to no less than the **Min. Length** x **Min. Width.** The **Maximum Area** cannot be less than either the **Target Area** or the **Min. Area**, but can be as large as you want it to be regardless of the Max. Length and Max. Width. In the illustration to the right, the Max. Area is set to 400 SF which prevents the the Max. Length x Max. Width from creating anything larger; though they could conceivably create a 900 SF Area. Along the same line of thinking, if the Max. Area was set to 1000000 SF, you would not be able to reach this value because the Max. achievable Area is still held by the 900 SF as set by the Max Length and Width.



The ranges that you set on the Dimensions tab of the Space Style Properties dialog box, have a direct impact on many of the options you will find on the **Properties Palette** when **Adding Spaces**. As discussed earlier, these "Dimensions" only apply when using the **"Insert"** Create type. Regardless of how you have the **Specify On Screen** option set, some form of Constraint will be applied. You can be specific about which one, by locking it on the **Constrain**



The reason I bring this point up is that the Offset can be used with the Generate Spaces tool on designs where Walls have already been placed to run the Spaces out to the centerline of the Walls. That part is great but if the Area

drop-down list.

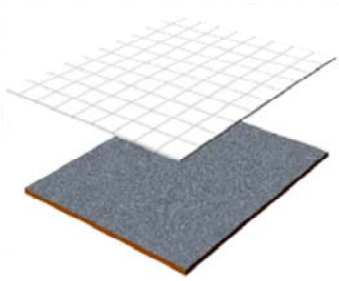
Net to Gross Offset - use this value field to specify how much you want the Gross Boundary Display Component (see **Spaces in Plan**) to extend beyond the physical perimeter of the Space Object. This value field also affects the placement of the Node OSNAP as illustrated above left. When converting Spaces to Solid type Space Boundaries, Justification is relative to the Offset position. Beyond these basic effects, the Net to Gross Offset really does little and I find that rather disappointing considering how it could have offered so much more to help calculate Areas. For Property Data you will only find the BaseArea Definition which calculates the actual Space Area. There is no Property Data for calculating the Gross Area unless you create your own based on a formula.

report can't measure the Gross Area this capability has little value.

Constrain Comments:
If you spend a few minutes playing with the Constrain options you should soon find that they really don't work that well. In ADT 3 - 3.3 this feature actually worked better and literally sounded a warning beep when you attempted to go beyond the rules. Now, you can easily use the Length, Width or *None* options to input Maximum Values that push the Area Value beyond its Maximum. Then, you can actually lock the new Area Value and work the Length and Width Values so that all numbers are completely beyond the rules. This means that though the Constraints can work for you, you will need to keep a careful eye on the Target Dimensions section of the Properties Palette to remain true to the rules.

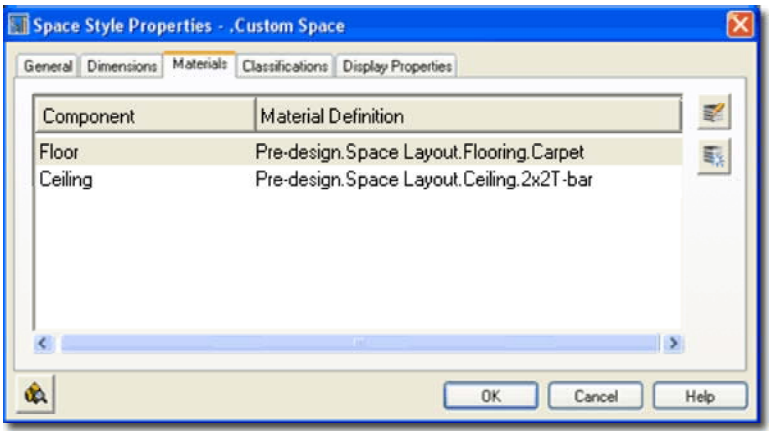
Style Properties - Materials tab

Links Object Style Properties - Materials Overview - for an expanded step-by-step explanation of Materials



Illustrated to the right I show that all Space Styles offer two default Components under the **Materials tab**: **Floor** and **Ceiling**. None of the Space Styles that come with ADT have pre-assigned Material Definitions so you are likely to see "Standard" as the Material. The Standard Material may prove to be okay for the work you do with Spaces but you can also create your own Material Definition Styles to take advantage of this feature that can be particularly appealing for 3D presentation images.

Illustrated to the right I show the I have created two **Material Definition Styles** that I assigned for my Floor and Ceiling Components. One quick way to create



Material Definition Styles for your Spaces is to Load a Slab and Roof Slab Style that has the Materials you need, Copy the Material Definition Styles, Rename them and then Assign them on the tab illustrated to the right.

Style Properties - Classifications tab

Links Object Style Properties - Classifications Overview - for an expanded step-by-step explanation of Classifications

Space Styles have a Classifications tab that is identical to that for most Object Styles. See discussion under Doors and Windows for more on this subject.

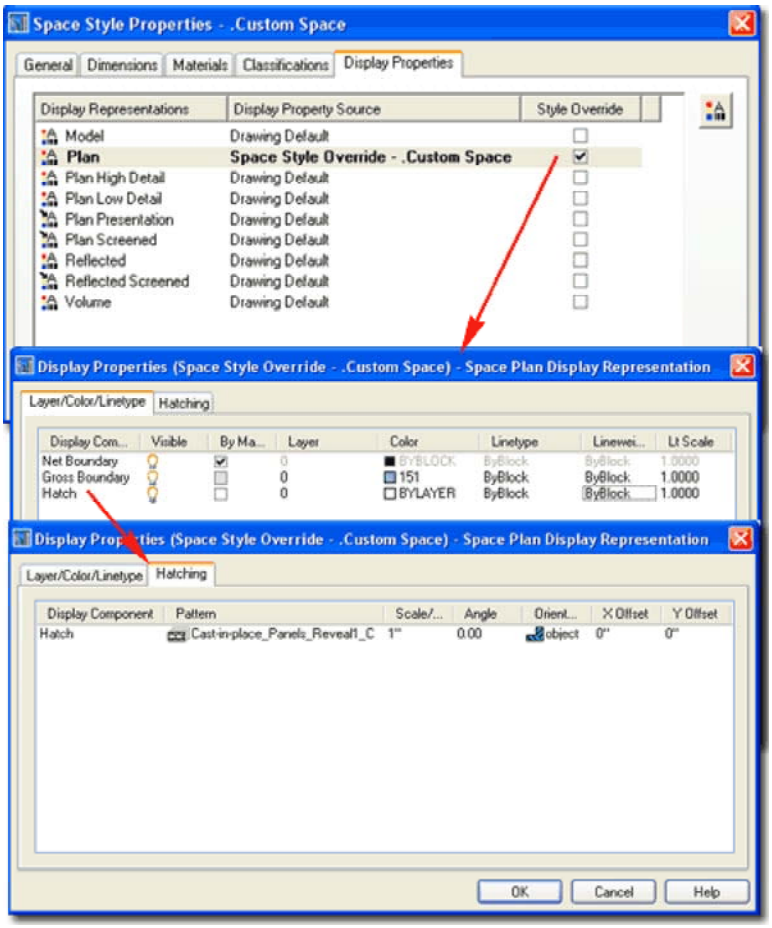
Style Properties - Display Properties tab

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

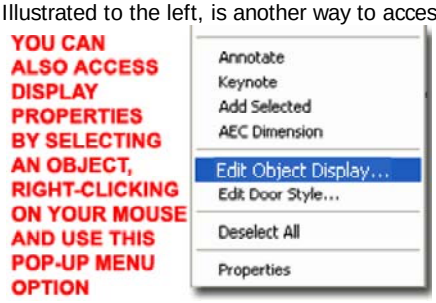
[Object Display Property Overrides - Object and Style Based](#) - for an explanation of the differences between using Display Properties via the Styles versus the Edit Object Display... option.

The **Display Properties** tab of the Space Style Properties dialog box, illustrated right, provides access to a set of Display Representations similar to those found for most Object Styles. Since Spaces tend to be Objects used in Plan and Reflected Plan Views, you may find that the Model and Volume Display Representations are not a major concern. You may also find that since you can use the Material Definition Styles to control the appearance of Space Styles, you may never need to use Display Overrides as I show to the right.

Illustrated to the right I show how you can use a Display **Override** on the **Plan Display Representation** of my example "Custom Space" Style to set a custom **Hatch** Pattern that is not set by the Material Definition Style.



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 change Hatch Patterns, for example, 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.

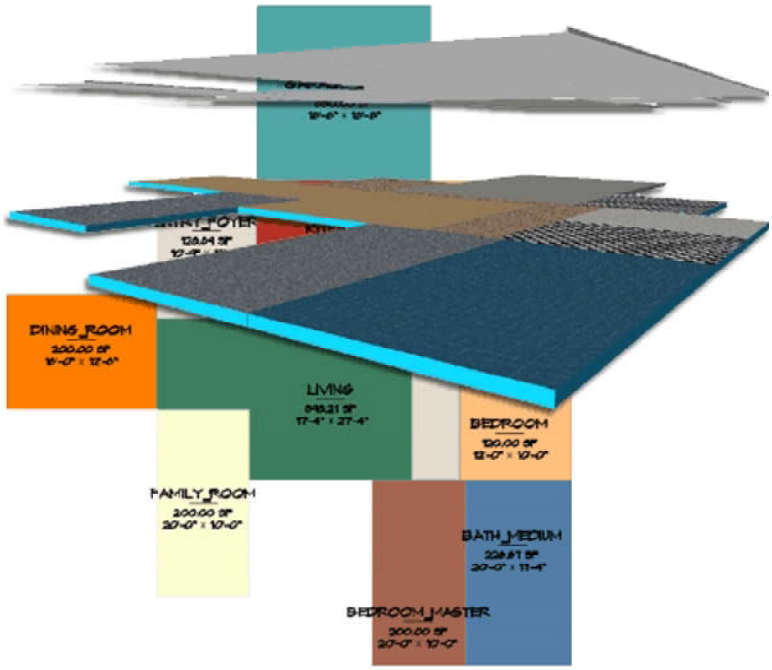


6 Spaces - Display Properties

Space Display Property Overview

The **Display Properties** of Space Objects is fairly limited due to the simplicity of the Objects themselves. There are only two components, the Floor and the Ceiling, but you can employ Material Definition Styles to expand on the display options.

In the illustration to the right I show how you can work with the Solid Hatch Pattern and Colors to create more attractive schematic design plans. I also show how you can use Materials to produce more attractive 3D presentation images. Below I discuss how to produce these results and more.

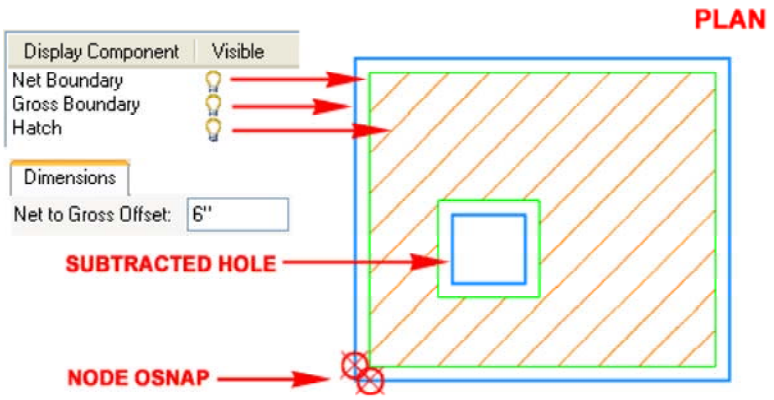


Spaces in Plan

Spaces do not have a Cutting Plane so as far as Plan View goes, you can basically think of them as two dimensional forms much like Area Objects. This means that when you switch between **Plan** and **Reflected Display Representations**, you are simply changing how you want the same two dimensional polygon to appear in Plan View.

If you Subtract an Object, like a Rectangle from a Space Object it will affect both the Plan and Reflected Display Representations because it reads the whole Space as one Object (you will see a full hole in Model). If, on the other hand, you Add an Interference Object so that it only penetrates either the Floor or Ceiling Components, the display will be correct in Plan and Reflected.

In the illustration to the right I show the three **Plan Display Components** you will find for any of the **Plan Display Representations**. I also show how the **Gross Boundary** Display Component can be turned **On** to assist in working with the Net to Gross Offset value on the Space Style's **Dimensions tab**.



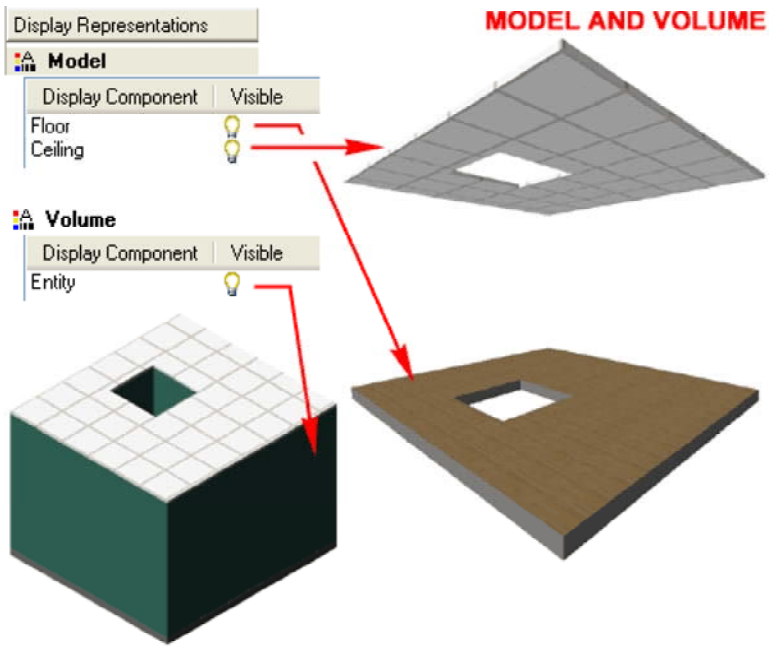
Unfortunately the Net to Gross Offset value is all-inclusive affecting Subtracted Objects and Interference Objects that may lie within the perimeter of the Space Object. In addition, there is no Property Data to extract the Gross Boundary Area so though this line can be offset, you cannot directly acquire its Area.

Spaces in Model

For **Model Display** you have two Display Components to work with: **Floor** and **Ceiling**. Should you wish to see your Spaces as Solid Forms you can also work with the **Volume Display Representation**.

Illustrated to the right I show the Floor and Ceiling Display Components with Materials as they would appear in in 3D under a Shaded Mode. By working with the Material Definition Style's Display Properties, you can control how the Material is applied to the Space; such at Top only, for example.

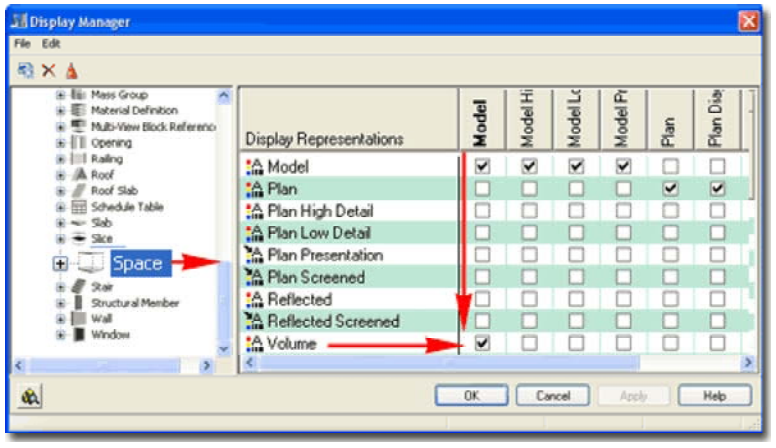
By default the **Entity Display Component** for the **Volume Display Representation** is turned **Off** but can be useful in Volumetric Studies as illustrated to the right. The Solid form fills the volume between the top of the Floor and the bottom of the Ceiling. See comments directly below for information on how to activate the display of this Component.



Spaces - Volume Display Representation

In case you find yourself interested in the **Volume Display Representation** of Spaces, as illustrated above, you may find it a bit tricky to see.

Illustrated to the right I show the **Display Manager Window** with the Space Representation by Object Selected. By default the Volume Display Representation is not used for any Display Set or Configuration so you will need to activate it as illustrated.

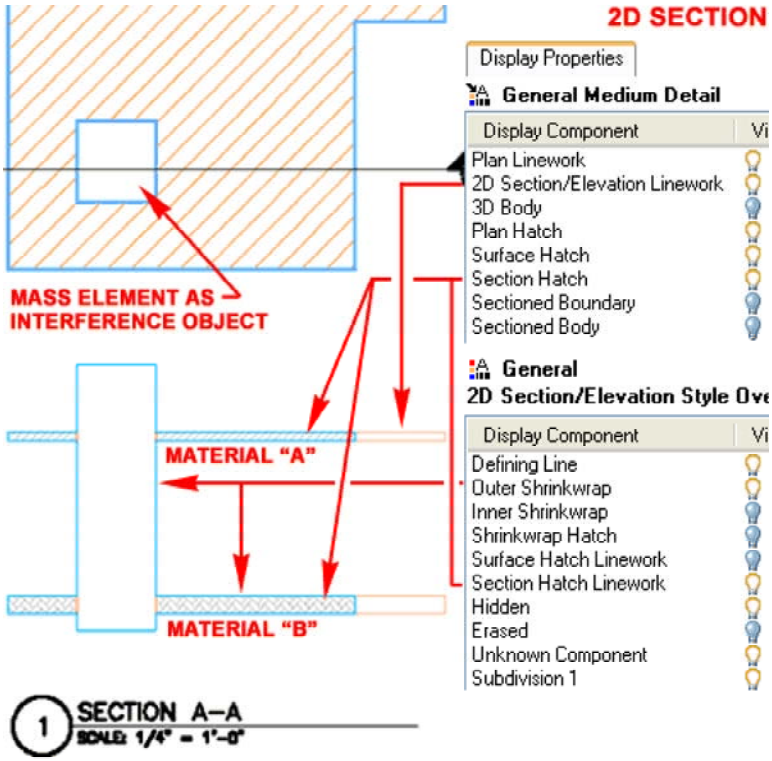


Spaces in 2D Section

Because Space Objects don't have a specific Display Representation for Sections and Elevations they generally use the **Model Display Representation** to project or cut 2D Sections. If you look at the Display Components available on the **Layer/ Color/ Linetype tab** under the **Model Display Representation** (see above) for any Space Style, you will find that there are only two, Floor and Ceiling, with no options to control linework or hatch for Sections. This means that if you want more options at the Style level, you will need to work with **Material Definition Styles** where you will find Display Components for **2D Section/Elevation Linework**, **3D Body**, **Section Hatch** and more - see illustration right.

When you use the **Generate Section tool** to cut a Space Object, you should find that it defaults to the "**Section_Elev**" **Display Set**. I point to this fact because it is important to know which Display Representation the Section_Elev Display Set applies to for the Material Definition Styles you use on your Space Object Styles. In other words, you may be using a Tile Material Definition for the Floor Component of your Space Style and that Material's "**General Medium Detail Display Representation**" is the one you will want to work with in order to produce results under the "Section_Elev" Display Set. This may be a bit confusing but think of a 2D Section as a new Object with its own Display Representation that derives its information (linework) from the Material Definition that you attached to the Space Object.

SPACE OBJECT
Illustrated to the right, upper corner, I show the "**General Medium Detail**" Display Representation for one of the two Material Definition Styles attached to my example Space Object. The "**2D Section/Elevation Linework**" **Display Component** can be used to control the lines beyond the physical sectional cut (be aware that you can also use the 3D Body Display Component if this option is checked on the Other tab of the 2D Section/Elevation Style's Display Properties dialog). The "**Section Hatch**" **Display Component** can be used to set a unique Hatch Pattern wherever this Material Definition is cut but there is a corresponding Display Component on the 2D Section/Elevation Style's Display Properties (see comments below). Sectioned Boundary and Sectioned Body are Display Components for Live Sections so they do not apply to this particular discussion.



SECTION OBJECT
Illustrated above, lower right, I show the "**General**" **Display Representation** for the example **2D Section**. Because I could find no way to display the Body of the Space Object without the "**Outer Shrinkwrap**" Display Component, I show that as being used to display the cut body of the Space and the example Interference Object. The "**Section Hatch Linework**" Display Component can be used to turn On or Off any Section Hatch set on the Material Definition (discussed left) and that is how I have two different Hatch Patterns; one from **Material** "**A**" and one from **Material** "**B**". If you prefer to use the "Solid" Hatch Pattern, you will need to set it as the "**Shrinkwrap Hatch**" **Display Component** which will affect both the Ceiling and Floor Space Object Components. In my tests I attempted to use the Solid Hatch Pattern at the Material Level only to find that this does not work; so it appears that if you want to use the Solid Hatch Pattern it must be as part of the Section Style and over all of the Space Object's Section.

Space Inquiry

Alt.Menu **Design> Spaces> Space Inquiry...**

Keyboard **SpaceQuery**

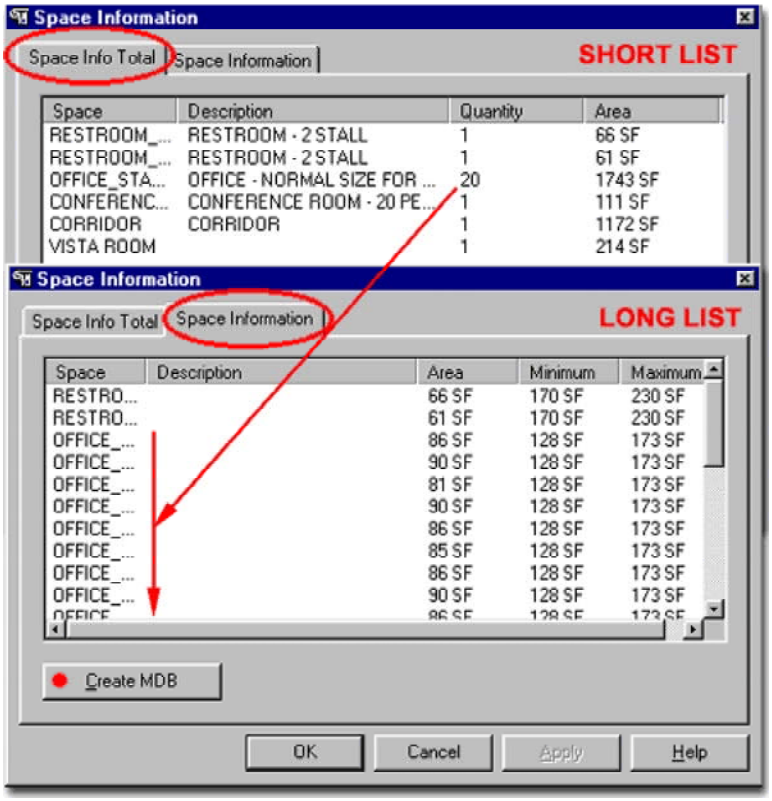
The **Space Information dialog box**, illustrated to the right, offers two tabs to view some rather basic information of all the Spaces in the current drawing file. You cannot control the number of Space Objects this tool will display because it always reads the entire list in the current drawing.

Space Info Total - this tab consolidates Spaces with the same Style Name and provides a Quantity column. This tab reports Area totals.

Space Information - this tab displays all Spaces separately and includes Minimum and Maximum Area ranges as set by their Styles. You can use this information to evaluate designs and check for possible errors.

You can find any Space Object(s) on your screen by Selecting the Space Style Name under either of these two Tabs. To use this feature make sure that the Spaces you want to find are on the current Screen and not off beyond the current Zoom range. Then, Select a Space Name and look for the Space or Spaces on your screen in a highlighted (dashed) mode much like when Selected for Editing.

Create MDB button - see comments directly below.



Space Data and Excel

As you may have noticed, there is a "**Create MDB**" **button** under both the **Space Info Total** and **Space Information** tabs of the Space Information dialog (illustrated above right). As you might expect, the type of data and the formatting of that data is different depending on which "Create MDB" button you use. Though both options produce completely accurate data, the spread sheet I acquired from the Space Info Total tab did not include a "Quantity" column and thus I had no indication of how many Spaces I had for the total Areas reported. Therefore, the example illustrated here is based on the **Space Information tab**.

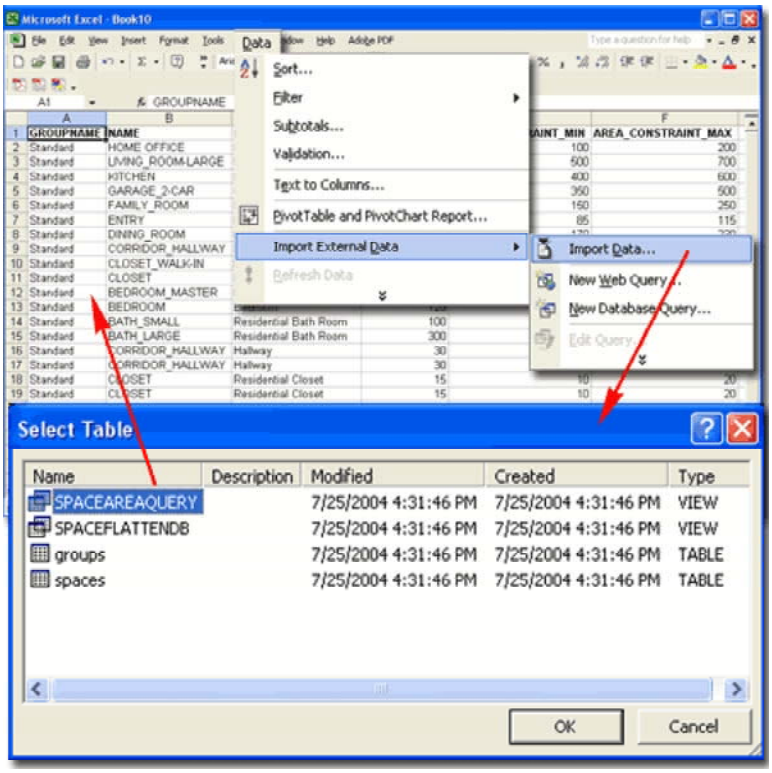
Illustrated to the right I show how you can use the **Data pull-down menu** in **Excel** to access the **Import External Data** cascading menu option to **import** a Space based **.mdb** (Microsoft Data Base) file.

The "**SPACEAREAQUERY**" table provides a list similar to the one found under the Space Information tab of the Space Information dialog.

The "**SPACEFLATTENDB**" table provides a large list of information similar to the SPACEAREAQUERY and including Lengths, Widths and all Constraint values.

The "**groups**" table provides a list of groups. I believe this refers to table groups and since those are not automatically created with the database you won't find anything under this category.

The "**spaces**" table provides a list similar to the "SPACEFLATTENDB" table but without the GROUPNAME category. This list includes the Space ID category which relates the handle name in Architectural Desktop and a number of other odd categories that I don't recognize.



In my tests of this approach to importing Space Information into Excel I did not find any simple way to organize the columns by any specific order.

8 Space Boundaries - the next step

Converting Spaces to Space Boundaries

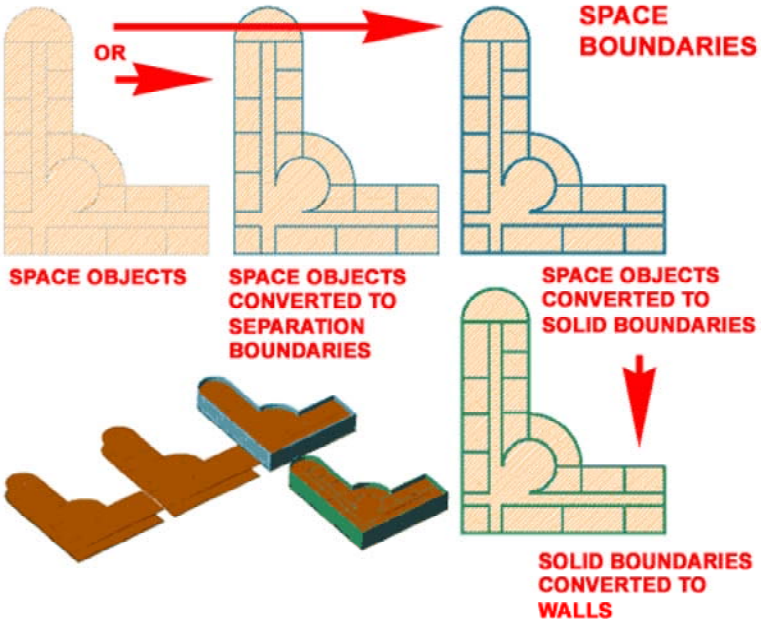
Depending on how you employ Space Objects in your pre-design or

Depending on how you employ Space Objects in your pre-design or development work, you may eventually find that you want to surround them with Walls. In the pre-design guide I discuss numerous phases and approaches you can take to go from diagrammatic sketch to Massing Model and on to Slices, Space Boundaries and Walls. For this discussion, as part of the development phase, I will provide a more abbreviated overview of how you can employ the Space Boundary Object to turn Spaces into Spaces with Walls around them.

Architectural Desktop does not provide a tool to convert or create Wall Objects directly from Space Objects so you must go through the Space Boundary Object in order to produce Walls. In my own experience I have not found this process very satisfactory and often riddled with annoying problems (like segments in Walls where Boundaries connect). Working with Spaces bound by Solid Space Boundaries, however, can prove to be a very useful option in refining designs so I recommend that you explore the possibilities discussed below.

Illustrated to the right I show the two Space Boundary Object Types that you can create from Space Objects: Separation and Solid Space Boundaries. The **Separation Space Boundary Type** cannot be used to create Walls despite what the context menu suggests and is only two-dimensional while the **Solid Space Boundary Type** is practically a Wall with Width and Height.

Read **Architectural Desktop 3 Pre-design eGuide** - Part 5 - Space Planning - Boundaries for more.

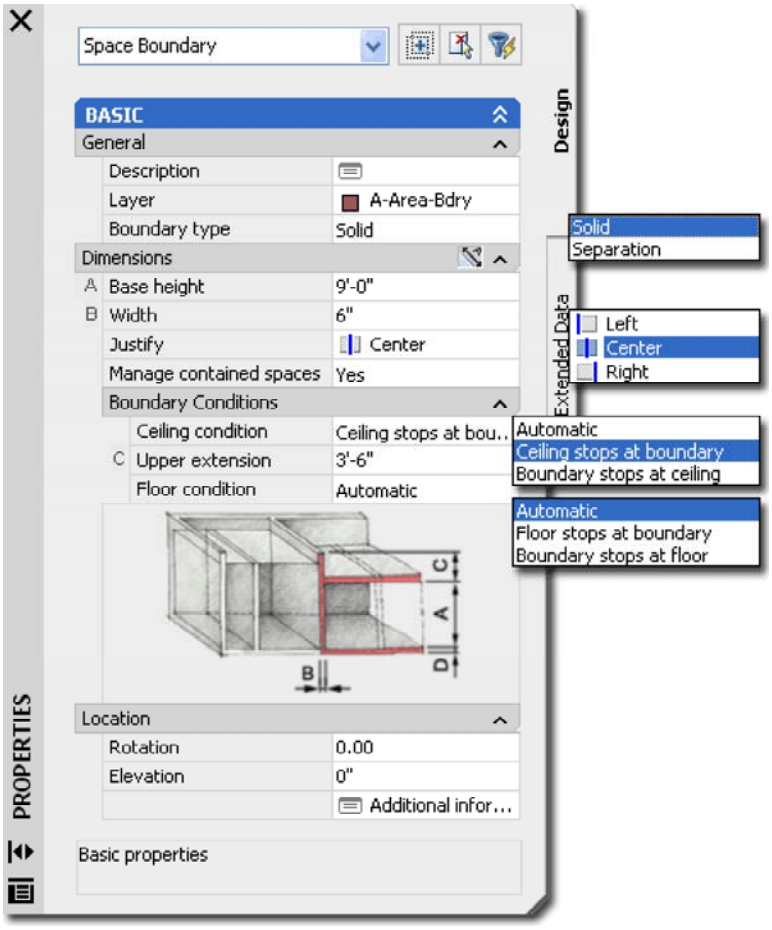


Space Boundary Properties Palette

Menu **N.A.**

Keyboard **SpaceBoundaryConvertSpace**

When converting Space Objects to Space Boundaries with the **SpaceBoundaryConvertSpace** command, you should find that the Space Boundary **Properties Palette** appears as illustrated to the right. By setting the Boundary Type to "**Solid**" you should find that the options that appear on the Properties Palette look suspiciously similar to those for Wall Objects and if you plan to Convert these Objects to Walls, you should think of them as Walls.



GENERAL
Boundary Type:
Solid - this option produces a 3D form around the edge of a Space that represents a boundary between adjacent Spaces much like a Wall Object. Solid Boundary types offer the only option to convert Spaces to Walls.
Separation - this option produces a 2D line around the edge of a Space that represents a Space's Edge. It can be changed into an Solid type later if desired.

DIMENSIONS
A - Base Height - this option is only available when the **Ceiling condition** is **not** set to "**Automatic**". When the Space Boundary Height is not determined by the Space Object's Properties, you can use this value to set the physical height of the Boundary but be aware that if you use the "Ceiling stops at boundary" the "**C - Upper Extension**" value adds to the physical height.

B- Width - use this option to specify how wide you want the Solid Boundary type. Think of this as the Width you are likely to want for your final Walls when you convert the Space Boundaries to Wall Objects.

Justify - this option is only available for the Solid Boundary type. When converting Spaces to Space Boundaries be careful to make the right choice for Left, Center, Right justification in order to produce the desired results. Right Justification typically shrinks the actual Space Area because it uses the outer edge as the outer edge of the Solid Boundary but for interior conditions you will need to confirm results by visual inspection.

Floor Condition:
Automatic - use this option to govern the Space Boundary Floor condition by the Space Properties Palette; i.e., use the Space Object to alter the Boundary Object. As with the Automatic Ceiling Condition, this option attempts to determine the difference between Exterior and Interior and projects Exterior Boundaries down to the bottom of the Space's **Floor Boundary Thickness** while stopping all Interior Boundaries at the top of the Space's Floor Boundary

Manage Contained Spaces - use this option to connect the Space Object with the Boundary Object in such a way that the Boundary Conditions work as expected. If you toggle this option On and Off on it will create new and possibly redundant Space Objects that you may need to delete. For best results, keep this setting on "Yes"; you can always come back and change it to "No".

BOUNDARY CONDITIONS
Though you can change the Ceiling Condition and Floor Condition under the Separation Boundary Type, these options really only apply to the Solid Boundary Type.
Ceiling Condition:
Automatic - use this option to govern the Space Boundary Ceiling condition by the Space Properties Palette; i.e., use the Space Object to alter the Boundary Object. This option also attempts to determine the difference between Exterior and Interior Boundary conditions by setting exterior Boundaries to match the Space's "**Height Above Ceiling**" value but the interior Boundaries to "stop at Ceiling". Use this option if you want interaction between the Space Object and Boundary Object.

Ceiling stops at Boundary - use this option to gain access to the "**C - Upper Extension**" value (see below) for manual control over the height of the Boundary relative to the Space's Ceiling Height. Setting **"C - Upper Extension"** zero is equivalent to using **"Boundary stops at Ceiling"** except in cases where a bug occurs - see comments above. Using this option prevents the Space Object from affecting the Boundary Object. If you ask me, the implication of the terminology used for this option is that the Space Boundary governs the Space's Ceiling Height but that's not what happens here making the option below redundant to some extent.

C - Upper Extension - this value field is only available if you use the "**Ceiling stops at Boundary**" option. The extension height is measured from the bottom of the Space's Ceiling boundary Thickness.

Boundary stops at Ceiling - use this option to set the Height of the Boundary to the bottom of the Space's Ceiling Height regardless of what the Boundary Height is set to. This option is similar to the Ceiling stops at Boundary option, above, but without the "**C - Upper Extension**" value. This option has a peculiar affect on Spaces that is only observable in 3D Views: the Space will adjust to the Boundary Justification (Left, Right and Center). Using this option prevents the Space Object from affecting the Boundary Object.

Thickness. Use this option if you want interaction between the Space Object and Boundary Object.

Floor Stops at Boundary - use this option to gain access to the "**D - Lower Extension**" value (see below) for manual control over the lower extension of the Boundary relative to the Space's Floor Boundary. This option has a peculiar affect on Spaces that is only observable in 3D Views: the Space will adjust to the Boundary Justification (Left, Right and Center). Using this option prevents the Space Object from affecting the Boundary Object.

D - Lower Extension - this value field is only available if you use the "**Floor stops at Boundary**" option. The extension value is measured from the top of the Space's Floor Boundary Thickness. Though this feature may be appealing at times, it can have dire consequences later on in a project. By extending a Boundary below a Floor, you end up with 3D geometry below your Doors. In the case of Converting Space Boundaries to Walls, you will end up will Walls that do not stop at the ground plane and this can often lead to some confusion regarding where the Finished Floor/Slab actually sits. Based on reality or not, it has been a long tradition among 2D AutoCAD drafters to see Z = 0 (UCS = World) as the base of all geometry. It is therefore my recommendation that you exercise extreme caution in working with this option. For Walls, like Footings or other Concrete work below a Stud Wall, simply use another Wall Style. Better yet, create such work in a different file altogether and use Xref's to combine the work for a proper model.

Wall Stops at Floor - This is my preferred option because of the reasons stated for "D - Lower Extension". If anything, it is preferable to have a Floor Slab extend out to support the Space Boundary (which will eventually become Walls). In the case of Curtain Walls, where the Slab does not extend out to support the Curtain Wall, you will probably remove/delete the exterior Space Boundaries and begin designing a true Curtain Wall. How the Curtain wall relates to the Finished Floor will be determined by how you want to assemble the entire project via Xref's.

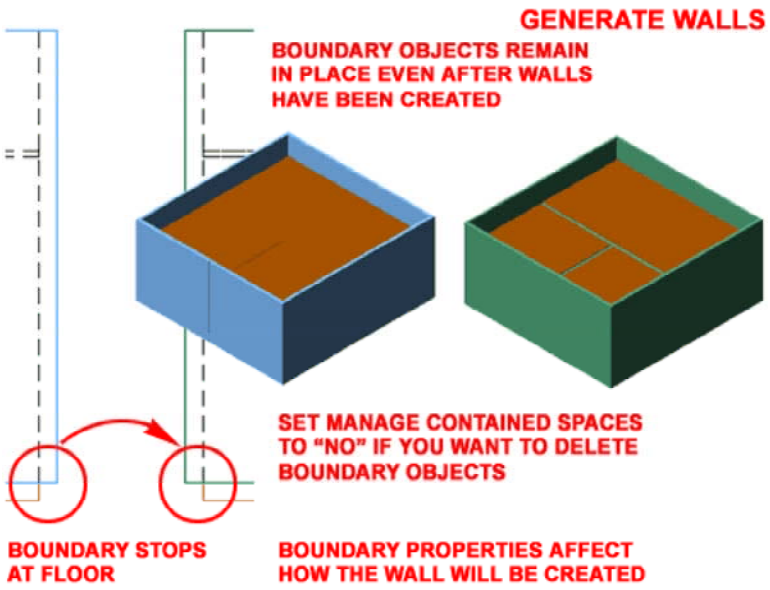
Converting Space Boundaries to Walls

Menu	**N.A.**
	
Keyboard	**SpaceBoundaryGenerateWalls**
Mouse	Select Space Boundary, right-click on mouse and Select Generate Walls

When you use a Space Boundary Object to **Generate Wall Objects**, you will find that the process does not activate the Properties Palette and thus you have no options about the Wall you receive. The process is referred to as "Generate" because it is not a conversion and thus you will find that the resultant Wall Objects are directly on top of the Boundary Objects.

If you wish to Delete the Boundary Objects you will need to change the "**Manage contained Spaces**" setting on the Properties Palette to "**No**" so the Space Objects are not Deleted as well. Another approach is to simply turn Off the Space Boundary **Layer** but I find keeping this Object around when working with Walls is rather cumbersome.

The primary reason to keep the Space Boundary Object is to keep the connection it has with the Space Objects. You see, the unfortunate aspect of going from Space Boundaries to Walls is that you cannot transfer the "Manage contained Spaces" feature over to Wall Objects.



Wall Objects never have any connection or control over Spaces unless you attempt to work with Anchors (such as the **ObjectAnchorAttach**) and those only offer very limited control.

Setting Space Style Display Properties

By working specifically with the **Presentation Display Configuration**, you can utilize each Space Style's **Plan Presentation Display Representation** to produce unique Colors for superior presentations.

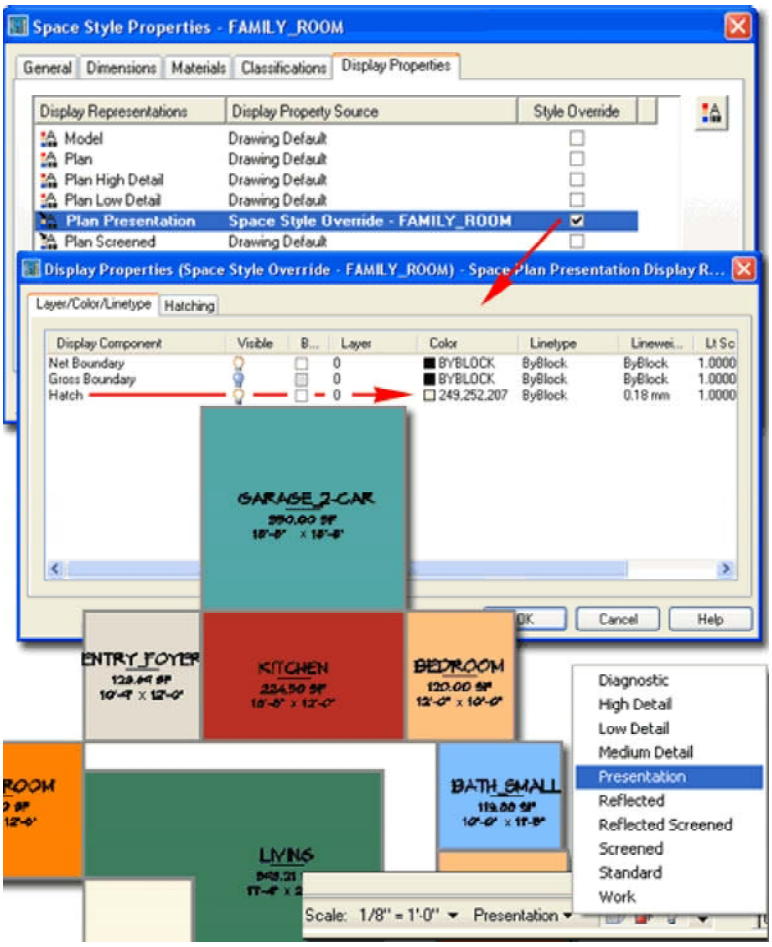
Illustrated to the right I show an example of how I have used a **Style Override** under the **Display Properties tab** on the **Space Style Properties dialog** to access the **Hatch Display Component** on the **Layer/ Color/ Linetype tab** on the **Display Properties dialog**. I used an Override to keep the Color setting unique for this particular Space Style.

By isolating this type of Override to the Plan Presentation Display Representation for each Space Style, I avoid creating display problems for the normal Plan Representations that may need to managed differently. Also, the Plan Presentation Display Property will only display when I set the Presentation Display Configuration active as illustrated below right. By default, you may find that all of your Space Style appear as Orange (Color 30). You can also use the Net or Gross Boundary Display Components to create uniquely colored borders.

By default the Hatch Pattern is set to Solid for Space Styles in Plan Presentation but you can obviously use different Patterns to create more exciting illustrations.

Tip:
You can set your Tags to a color very close to White to make it appear as if the labels were written in White but you will need to make sure that all labels remain within the Space shapes if printing on white paper (obviously).

You can also create lighter looking text by using the **TextFill** system variable in AutoCAD/ADT to remove the fill from fonts like Arial; leaving only an outline form when printed.



Space and Room Tags

If you have used Space and **Room Tags** to label Space Objects you may

have noticed that Room Tags don't read the Space Style for the Room Name. This may make sense in situations where Space Styles do not differentiate for Room Labels but in many design situations, such as residential architecture, the Space Style is the Room Name.

You can modify the default Room Tag to read the Space Style Name by changing the Attribute Tag.

Illustrated to the right I show a quick fix for this issue but you should go through the proper steps of creating a custom Tag Object for your Content Library if time permits. This example will only work in the current drawing.

From the DesignCenter or Tool Palette **Insert** the **Room Tag**. After you have brought this symbol into your current drawing file you should find that it also introduced a new Block. Use the **Insert command** to insert the "**Aec3_Room_Tag_P**" Block. Do not scale or otherwise modify this Block; simply insert it somewhere in your drawing. It should prove to be fairly small.

If your **Refedit** skills are up to snuff, set the Refedit dialog to include Attributes and use it to Modify the Attribute Definitions as outlined to the right.

If your Refedit skills are not good enough to understand what I just stated, use the **Explode** command to release the Attribute definitions for editing. Edit the Attribute Definitions as outlined to the right.

The key thing to edit for the **Attribute Definitions** is the **Tag** statement and what I am showing is a trick to make the Attribute Definition read the SpaceObject Property Data Set instead of the RoomObject Property Data Set (notice that I changed the word "Room..." to "Space..." and the word "..:Name" to "...:Style").

After you have completed the Attribute Definition modifications be sure to save the Refedit work or create the Block using the same Name and Insertion Point as a means of Redefining it. Look for the Redefine Block alert dialog to be sure you are on track.

For the final step, you should now find that if you insert the Room Tag from the DesignCenter or Tool Palette and Attach it to your Space Objects, it will report the Style Name instead of the Room Name.