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Architectural Desktop 4 - Development Guide

PART 18

SCHEDULES

You may want to save your paper since I will be adding more information periodically on this topic



1-18 SCHEDULES

Contents:

Schedule - Access --- Loading Schedule Table Styles --- Adding Tags --- Modifying Tags --- Schedule Data --- Loading Property Set Definition Styles --- Property Set Definition Styles --- Property Set Definition Styles --- Schedule Tables ---- Schedule Tables --- Schedule Tables --- Schedule Tables --- Sch

Schedule - Access

Schedule Toolbar

How do I get this toolbar?

You can also acquire access to some of these commands from the Alternate **Document pull-down menu**. From the **Document pull-down menu**, pick **Scheduling >** and cascade to the various Schedule related commands. This toolbar is an optional tool and is not needed to use this guide but may help.

For the tagging symbols, see the Tools Palette illustrated below.

Schedule - Imperial



<u>Schedule pull-down menu</u> and Tool Palette Alt.Menu **Document> Scheduling>**

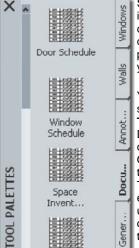




Keyboard Table

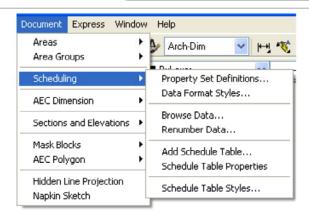
Links

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



Room Finish Sc.. Scheduling is a topic that could be a book in itself and it is definitely a subject that I continue to learn about. Therefore, I consider this chapter or "part" a work in progress that I hope to add to over the next year or so.

You can basically break the scheduling system down into three primary categories: Tags, Data and Tables. Tables require Data and Data is often, but not always, controlled by Tags. When you tag an Object, data is usually Attached at the same time. You don't always need Tags to create Tables but you definitely need Data. An example of this can be demonstrated by using the AddAllPropSets command to fill out a Door or Window Schedule without tagging any of these Objects.



Note:

The default Tool Palette has a rather scant list of Scheduling tools available for this type of work. You can easily populate the Documentation tab of your Tool Palette with many more Scheduling tools by using the **Content Browser**.

2 Loading Schedule Table Styles

Opening Schedule Table Styles in the Style Manager

Menu

固

Documentation> Schedule Tables> Schedule Table Styles...

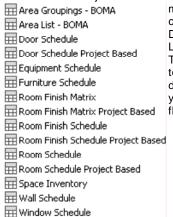
2-18 SCHEDULES



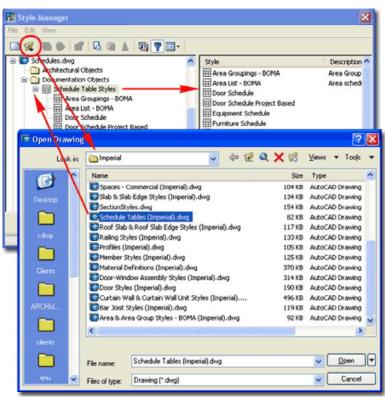
the same Styles folder where all other Object Styles are stored. See illustrations right and left.

Plot Styles

Illustrated to the left I show a full list of the Schedule Table Styles that come with ADT in the **Schedule Tables (Imperial).dwg** file. Table Styles that have the term "Project Based" in their Names were designed to work with the Project Browser and Navigation System. What that



means is basically just another way to collect more automatic data such as Door Tag numbers tied to Floor Levels using Project Based Tags. The whole Project File System is new to ADT 2004 and in its infancy so don't feel compelled to use it unless you find it beneficial for managing floor levels.



For local installations of ADT, you are likely to find the **Imperial** or **Metric Schedule Table 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.

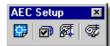
Schedule Tables (Imperial).dwg

Schedule Tables (Metric).dwg

Setting the Drawing Scale for Annotation Symbols and Schedule Tables

Menu Format> Drawing Setup...





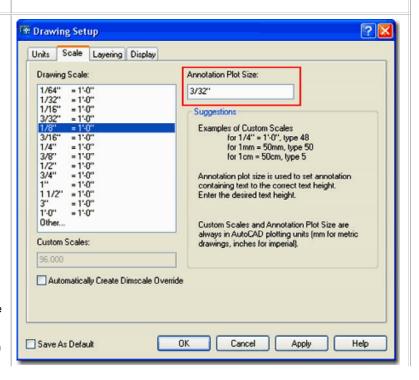
Keyboard AecDwgSetup

Links

<u>Drawing Setup Dialog Boxes</u> - for how to access this dialog and for more informaiton on the various settings.

Before you start using Tags and Schedules, setting the **Drawing Scale** to the desired printing output is extremely important because you can't change your mind at a later date and hope to have all of the Tags and Schedules update automatically; in fact, they don't update at all. Some Tags have been designed to change size based on the current Display Configuration. Since Schedules are basically unbound by scales they may not be a problem but having tens, if not hundreds, of Door and Window Tags to fix is a nasty task best avoided.

Set your preferred **Drawing Scale** or go to **Other...** at the bottom of the Scale tab on the Drawing Setup dialog box and create your own ratio. If you are new to the scale concept in AutoCAD, this is really just a way of telling the program what scale you plan to print at. This number is then used to multiply against symbols, text and dimensions so they print



correctly for your specific scale. In other words, a scale of 1/4" = 1"-0" equates to a ratio of 1:48. The number 48 is now multiplied against a dimension arrow, for example, that is set to be 1/8" long when printed; but, on the screen it will measure out as ($48 \times 1/8$ ") 6".

It has almost become a defacto standard in CAD to use 1/8" for **Annotation Plot Size** but if you think in terms of Points, 10pts = 1/12 inch. This equates to 15.875mm for the Metric people but I would use 15mm myself since I've always liked text a bit smaller than 1/8". In both cases, office standards really determine what you need to use so make sure to check existing plans.

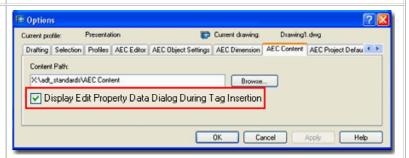
Originally the Annotation Plot Size was set to 1/8" for the Imperial users but most designers found that this produced Symbols with Text that were too large. In ADT 2004 the number was changed to 3/32" as a new default and it seems to work rather well for most. I, of course, recommend that you run some tests before accepting this value. Typically it does not need to be changed when you change the Drawing Scale.

Display Edit Schedule Data Dialog During Tag Insertion

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

Illustrated to the right is the **Options** (type "OP") dialog box with the **AEC Content** tab active.

Content Path - this is where you can set your ADT to see a common folder on an office's network server. By keeping all of the Content in one place, it's growth and change can be managed much better (just like a block library). Once changed, the icons will automatically look for this Path.



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

Schedule Anatomy

Illustrated to the right are all of the various dialog boxes and architectural objects required to make one single Door Schedule Table item.

Though you can successfully produce a Schedule Table with ADT's default configurations, once you want something different you will need to know where to go to make that change. And though it may look terribly complicated, once you see all of the various pieces, it becomes rather simple.

Tagging Objects:

The first thing we need to look at is the object you want to put in your Schedule. If you notice my example Schedule, right, there is one Door Marked "?" and that is because it was not Assigned Schedule Data. A Door Schedule, will read Doors without Door Tags but the best way to get a proper Schedule Table it to begin Tagging your objects (of course not all objects will have tags and thus you don't tag them but you still Assign or Attach Schedule Data).

Attaching Schedule Data:

When you **Anchor** a **Tag** to an **Object**, **Schedule Data** is usually **Associated** with the Object by default. In some cases, particularly custom cases, you will have to use the Edit Schedule Data dialogue box to Associate other Schedule Data which comes from the **Property Set Definition Styles**.

Property Set Definition Styles:

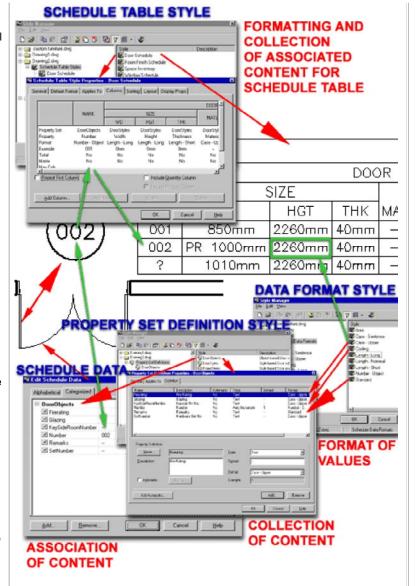
The information or **Content** that goes into Schedule Data come from the Property Set Definition Styles where the individual bits of information about a particular object is Named, Described, Formatted and otherwise organized. Since the Data or Content of what we want about architectural objects varies so much, from numbers, to currency, to sentences and so on, the Formatting of this Content is controlled by yet another Style called the **Data Format Style**.

Data Format Styles: (the very bottom of Schedules)

The way measurements are written in the Schedule Table as 3'-0" or 1000mm is entirely controlled by the Data Format Style. These Styles are much like the Dimension Styles in AutoCAD where you make decisions about Leading and Trailing zeros, Prefixes and Suffixes and so on.

Schedule Table Styles: (the very top of Schedules)

At the very top of all this controlling, collecting and formatting stuff is the **Schedule Table Style** which allows you to gather Schedule Data and line it up in columns and rows according to your needs. In many cases, the Schedule Data comes in blank from the Property Set Definitions and simply act as Attributes for you to fill out as you create your project. These Data items are things like Make, Manufacturer, Cost, Color and so forth. Once these items have been filled out, they can appear in your Physical Schedule automatically or upon a Schedule Update. The Schedule can also act as a filter where not all information associated with an object is reported on one Schedule but perhaps two or more.



 ${f 3}_{ ext{Adding Tags}}$

3-18 SCHEDULES



Door Tag

METRIC

Door Tag -

Project Bas...

Scale Depe...

Adding Door and Window tags is fairly easy when you have just a few to deal with but when you have 50 or more it becomes rather tedious. There is no automatic way to tag a whole series of openings in some logical order: you actually have to Select each Object and tag them one at a time in the order you want the numbers to ascend. Should the order change, ADT offers a Renumbering tool.

The default Tool Palette

offers a few of the Door and Window Tags but you can use the **DesignCenter** to access the whole set illustrated to the left. The process of Tagging any Object involves dragging the Tag Symbol to the screen and then Selecting the Object to be Tagged. The Final step involves responding to the command line options for locating the Symbol; hitting Enter will automatically Center the Symbol.

Window Tag

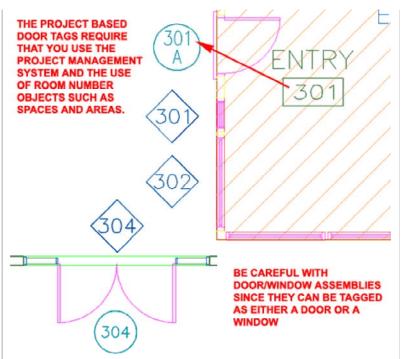
10

Window Tag · Scale Depe...

Once you have completed the step for locating your Symbol, you may find that the "Edit Property Set Data" dialog pops up on your screen. This dialog provides the option to fill in information for your Schedule Table or other Exporting of Data but you can deactivate this feature if it becomes irritating.

Tagging Doors and Windows should prove to be straight forward and the Data you acquire from this work should also proved to be rather useful in your Schedule Tables. When it comes to other Objects such as the Door/Window Assemblies, Curtain Walls and custom solutions for things like Skylights, significant problems begin to appear. Illustrated to the right I show how both the default Door and Window Tags can be used on Door/Window Assemblies begging the question of how to Schedule this Object Type. In either case, you should find that the results are basically the same: you get a single report in your Schedule Table based upon the exterior Frame Dimensions with no identification of the Objects, such as Doors, within the Assembly. If you happen to have Doors and Windows within your Door/Window Assembly, you can actually Tag those Objects independently. Since ADT does not come with any unique solutions for solving this problem, you may want to consider creating an Assembly Schedule and not permit the Tagging of these Objects with the Door and Window Tags - see Property Set Definition Styles. Even if you do this, a user will always be able to accidentally use a Door or Window Tag on any Doors or Windows within a Door/Window Assembly so this can prove to be a frustrating problem if you work with these Objects and Schedule them.

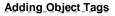
For **skylights**, using a Window Object has proven to be the easiest solution for me because you can Tag it as a Window and have it labeled as a skylight in your Schedule Table. Some "gurus" tout using Roofs and Roof Slabs but they prove to be much more difficult to Schedule. Curtain Walls can be use to create great skylights and can be included in a Window Schedule but the information may not prove to be very useful as in the case of curved or arched skylights. For situations like this, I simply turn to manual additions to my schedules. Again, using a standard Window in the place of a fancy skylight design can be used as a place-holder in your schedule - you can even put the window on the Defpoints layer so it won't print.



Illustrated above I show one of the **Project Based Door Tags** that should jump out at most users who have multiple floors to deal with. The only problem with these Tags is that you have to know a bit more about ADT and use that knowledge in order to take full advantage of these Tag types. In order for the Tag to automatically read the Room Number + the Floor Number (3 = Floor Number and 01 = Space Number), you need to use the Project Management System and some form of Room Number identifying Object like a Space, Area or Slab. The Space Object, illustrated above as diagonal lines, reads the Floor Number from the Project Data while the Project Based Door Tag reads the Space Property Set Data when Tagging the Door. Frankly, though this is an impressive feature, I am not a fan of this Tagging System since it requires some manual input of Data. What I do like is the addition of the Floor Level as a Prefix and I may attempt to create a custom Door Tag that takes advantage of that feature without other Text in the Symbol.

Comment: Add a link to this solution if I create one

To add or edit information on Door and Window tags, see -> <u>Edit Schedule Data dialog box</u>



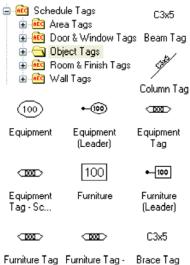
Menu N.A.





Keyboard AecDcSetImpObjectTags - imperial

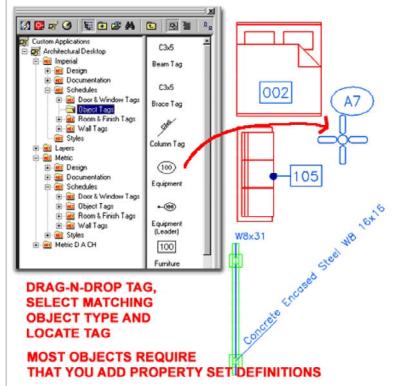
AecDcSetMetObjectTags - metric

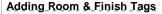


Adding Object tags is fairly easy but often disappointing because the values or information you get in the tag, automatically, usually are simple defaults unlike the automatic numbers for the Doors and Windows.Comment: discuss how to automate numbers for other objects

Illustrated to the right, I show a few common simple object types and their matching tag objects. If you want Numbers in your object tags, you have to make sure that your objects have a Property Set Definition Style Added to them. You can read about Adding Property Set Definitions below.

Scale Depe... Property Set Definitions below Property Set Definitions Property Set Definitions Below Property Set Definitions Property Set Definit





Menu N.A.





Keyboard AecDcSetImpRoomAndFinishTags - imperial

AecDcSetMetRoomAndFinishTags - metric

Links

Part 11 - Spaces - for information on Space Objects. See also Generate Spaces for how to create Spaces based on surrounding Walls.

Part 20 - Areas - for information on Area Objects

<u>Slabs and Room Tags</u> - for a trick to make these Tags work on Slabs.



Project Bas...

Room Tag

OFFICE

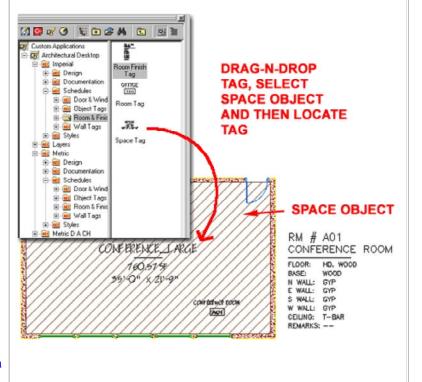
Room Tag

By reading the titles for the various Room and Finish Tags, you can probably guess at the Object Styles these Tags were designed for. By default then, Room, Space and Room Finish Tags only work on Area and Space Objects.

OFFICE 100 Room Tag -

Project Based

To add or edit information on Room and Finish tags, see -> Edit Schedule Data dialog box





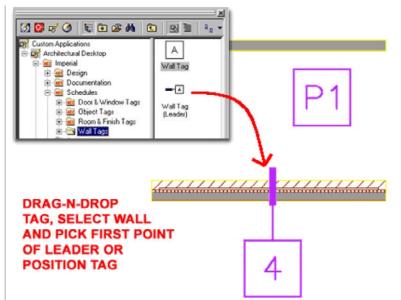
Adding Wall tags is a matter of choosing one of the two Wall tag types and dragging it into your drawing.

-- ∧ Wall Tag (Leader)

From the **DesignCenter**, you simply drag-n-drop one of these symbols into your drawing and then select a Wall for it to be associated with. You must

select a Wall because that is how the tag derives the information used to generate a schedule table.

When you have selected a Wall object, the tag will need to be positioned and you can either manually pick a position or hit enter to automatically Center the tag on your Wall. The simple Wall tag only has to be positioned while the Leader Wall tag needs to be placed by first picking the beginning point of your leader, the second point of your leader and the final position of your Wall tag.



Illustrated above are examples of both Wall tag types.

Imperial and Metric Wall tags are identical.

To add or edit information on Wall tags, see -> Edit Schedule Data dialog box

Adding Area Tags

🗓 🔄 Wall Tags

Keyboard AccAnnoScheduleTagAdd - but it is better to use the dragn-drop technique since it scripts several settings.

Part 20 - Areas - for more information on Area Objects Links



BOMA - Scale Dependent

Both the Imperial and the Metric Content Folders now contain Area tags and they are basically identical. For both Imperial and Metric use, the Area tag is based upon a BOMA standard indicating the Room Number, Room Name, Net Usable Area (NUA) and Net Rentable Area (NRA).

There are two versions of the same tag where the "Scale Dependent" one will automatically change size for Low, Medium and High Detail Display Configurations (rather handy for those presentation plans on Asize paper).

You can also use Room tags on Area Objects if you are looking for less information with the tag or a different structure to the area report.



In ADT 3.3, under the Metric D A CH folder there were many more tag options for Areas and even Area Groups that appear to have been discontinued. If you happen to have that release around you may want to migrate some of these tags if you need more options. You can also create your own from scratch or by modifying one of the BOMA Area Tags

You can learn more about these tags under the Customizing and Tips section of Part 20 - Areas.

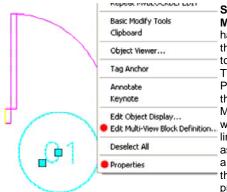
4-18 SCHEDULES

Modifying Tags

Modify Tags (Multi-View Blocks)

Select Tab Object and double left-pick or right-click to invoke Mouse object specific pop-up menu.

Part 25 - AEC Blocks - Profiles - for more information on Links Modifying Multi-View Blocks



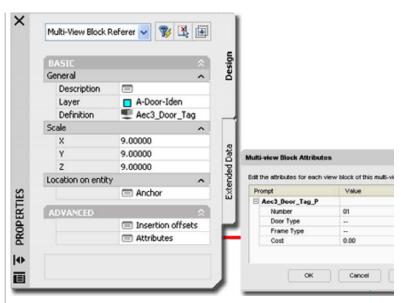
Schedule Tags are usually Multi-View Blocks that have been configured with the **AEC Content Wizard** to react with specific Object Types and introduce Property Data. This means that when you attempt to Modify the Tag Object, you will find that the options are limited to those of MvBlocks as illustrated to the right for a common Door Tag. In the discussion below I will provide an overview of what you can change by working

directly with the Tag Object; keep in mind that the real subject of Part -18, is the Data that the Tag helps to present and organize.

Illustrated to the left I show the object-specific pop-up menu as it appears when working with a common Door Tag. As you can see, this menu offers the same options as those found when working with regular MvBlocks and an extra set of options for Tag Anchor (see discussion below).

The Properties Palette, illustrated to the right offers the same options you typically find for all MvBlocks but since Tags use Attributes to display the Numbers or Letters as part of the Symbol, you should also find the option to Modify those Attributes directly.

Under the Scale section of the Properties Palette, you will find the Scale value fields that are automatically set when you drag-n-drop a MvBlock into your drawing. For many objects that are Print Scale dependant, such as Tags and Electrical Symbols, the Scale value is determined by the **Drawing Scale** as set on the Drawing Setup dialog box. If you need an object to be a different dimension in Width, Depth or Height, you can change these values to match what you want. In some cases, however, this will create odd results; such as if you attempt to make a Wall tag wider (the text will become elongated). X - width of object, Y - depth of object, Z - height of object.



The **Anchor dialog box** provides the option to position your MvBlock using X, Y and Z coordinate value fields - See Multi-View Block Reference Properties - Location dialog.

The Insertion Offsets dialog provides the option to control the insertion position of individual Blocks within an MvBlock but since most Tags only use one Block for Plan Display, you may not find other Blocks listed here.

Tag (Multi-View Block) Properties - Attributes dialog

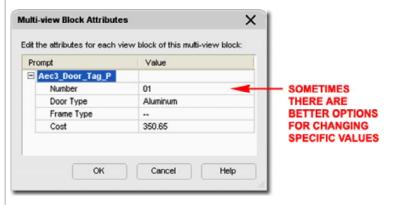
Links Edit Schedule Data - for information on how to add text to value fields.

On the Multi-view Block Attributes dialog box for a Tag Object, you should find a list of all the editable Attributes for that Tag. Do not confuse the Attributes with the Data though some Attribute information is often included in Schedules. Attribute information is usually for the text that you want to display within the Symbol as is the case with most AutoCAD Block Attributes. Some of the default Object Tags, such as the Door Tag discussed above and to the right, offer additional Attribute fields that can be included in the Schedule or other forms of extracted data. These extra fields provide the option to include information that is unique to each Object though it may be part of the same Object Style; i.e., two identical Doors but labeled with different Tag Numbers.

In some cases, such as the Tag Numbers on Doors and Windows, using the "AecPropertyRenumberData" command may prove to be a much better option for Modifying the numbers.

Tag (Multi-View Block) Properties - Extended Data tab

Keyboard PropertyDataEdit - for direct access to the Extended Data



When it comes to Modifying Object Tags, the serious topic begins on the **Extended Data tab** of the **Properties Palettes**. Though most Objects have Property Data Sets assigned at the Style Level, sometimes you may create one where you forgot to Add any Property Sets. In cases like this you may notice that information is missing in your Schedules (often expressed by a "?"). You will also find that the Data you are looking for will not be listed on the Extended Data tab of the Object Properties Palette. Property Data Sets can always be Added or Removed from Objects, as illustrated to the right, as long as Property Data Definition Styles exist in the current drawing and that they can be applied to the Selected Object; i.e., not all Property Data Definition Styles can be applied to all Objects.

One rather interesting and helpful feature in ADT regarding Property Data Sets is that the act of Tagging an Object usually results in the Attachment of one or more Data Sets as well so if you find that you have Doors, for example, that don't have their Property Data Sets Added on the Extended Data tab, you may want to Tag them before attempting to Add the Sets Manually.

Tags will Attach Property Data Sets to Objects but you may want more Data than what the Tag brings to the Object and in cases like that you may have to Add it manually. How you manage your Schedules, the Data you want in them and any other Data you may want to extract to Spread Sheets, will determine when and where you will Add the Property Data Sets. Obviously the most effective place to Attach this Data is at the Style Level but that also assumes you have the foresight to prepare your Property Set Definition Styles proper to starting your project.

Fields with a lightening bolt before them cannot be edited because the Data is extracted directly from the Object or Object Style.

Fields that have lightening bolts with other symbols such as



or indicate that not only does this data come from an automatic source but that special conditions are part of the data such as formulas, locations and Project Specifications>

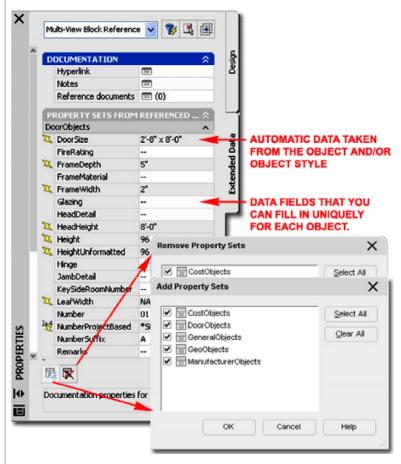
Fields that have the symbol "--" in them are open and can be filled in with text and or numbers.

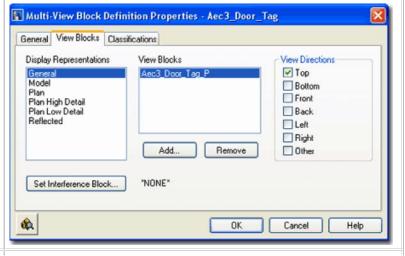
Multi-View Block Definition Properties dialog box

Links $\frac{\text{Multi-View Bock Styles}}{\text{View Blocks}}$ - for more information on creating Multi-

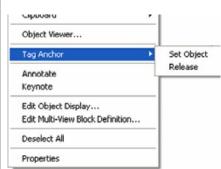
Another Modification option that is available from the object specific popup menu is "Edit Multi-view Block Definition..." You can read up on this subject under Multi-view Blocks but I included the topic here because you may find that some Tags don't appear when you want them to and this may be a quick fix that you will need to know about.

If you have one or more Tags that don't display for the Reflected Display Representation or vice-versa, for example, you can use the **Add...** button to Add the **Block Name** for the **Display Representation** you want and set the **View Directions** to **Top**. This Modification will affect all of the same Tags in the current drawing.





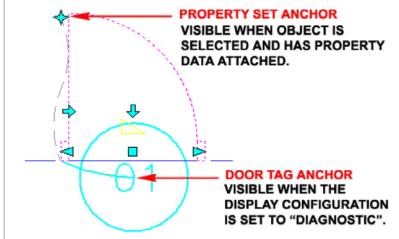
Tag (Multi-View Block) - Anchors



The Object specific popup menu for Tags will offer the option to Release the Tag or Set another Object as illustrated to the left. Generally, I have not found either of these option very helpful because if you desire to remove a Tag, you can just Delete it and if you wish to transfer a Tag to another Object, it is better to use the Tagging process

whereby Property Data is automatically attached to the Object. If you attempt, for example, to Set one Door tag to another Door that has no Data, that Tag will Anchor but it will not transfer any Data.

Illustrated to the right I show to interesting Anchor related Graphics that currently don't do much but may in the future. In the template files that come with ADT, you should find that there is a **Display Configuration** called "**Diagnostic**" and when this is set active, you should see arcs between Tags and their target Objects. This allows you to see which Tags are Anchored to which Objects but Tags still do not Move with Objects as they should. Once an Object has Property Data Attached to it, as the Door in the illustration to the right, you should find that there is a Property Data Location Anchor when the Door Object is Selected. At the time of this writing I have no explanation for what you can do with this Anchor but I suspect we will all know what we can do with it in a future release of ADT



5-18 SCHEDULES

5 Schedule Data

Edit Schedule Data dialog box

Menu N.A.





Keyboard PropertyDataEdit

Mouse

Double pick on Tag or Tagged Object to invoke the Properties Palette and then Select the Extended Data Tab

RM # A01 ROOM

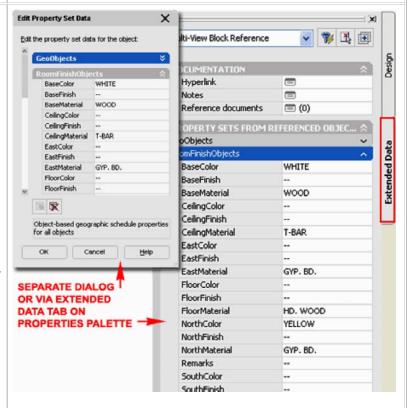
FLOOR: HD. WOOD
BASE: WOOD
N WALL: GYP
E WALL: GYP
W WALL: GYP
CEILING: T-BAR
REMARKS: --

Objects do not have to be Tagged in order to have Property Data Sets attached to them so when you wish to Modify Data Fields, you can either **Select** the **Object** or the **Tag** (if one exists). As discussed earlier, not all Data can be modified since it may be derived automatically from the Object and/or Object Style but there are numerous Data Fields that require manual input at some point in a project.

Illustrated to the left and right I show one of the default **Room Finish Tags** and some of

the **Data Fields** it offers when **Attached** to a common **Space Object**. One of the first things you may notice is that the Tag itself does not display all of the Data Fields seen under the RoomFinishObjects section of the Extended Data dialog. A Tag does not necessary have to display any of the Data Fields and if you want to Add or Remove Data displayed by the Tag, you will need to read up on creating your own Tags.

The full list in your Schedule Data comes from the **Property Set Definition Styles** and you add or remove these Styles with the **Add.** and **Remove...** buttons on the bottom of the Edit Property Set Data dialog box. This is how you could start with basic Window sizes and numbers, for example, and then later add another Property Set Definition for more detailed information like cost, manufacturer and so on.



Edit Schedule Data - Add Property Set

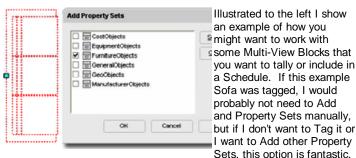


Links

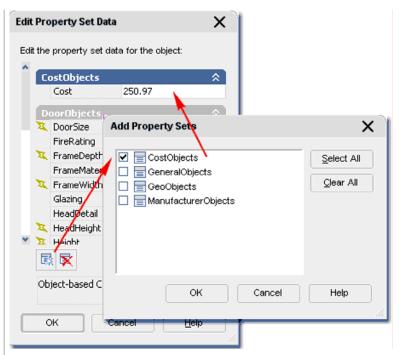
Edit Schedule Data dialogue box - for more basic information on the Edit Schedule Data dialogue box.

<u>Property Set Definition Properties - Applies To tab</u> - for more on the Applies To tab.

When you wish to Add Property Sets to an Object you can use the Add Property Set button on the Extended Data tab of the Properties Palette or on the Edit Property Set Data dialog, illustrated to right. What you need to understand is that for many Objects, the process of Tagging them also Adds or Attaches the Property Sets so you may not need to do it manually. In addition to that, some Property Sets are Style Based and not Object Based and it is fairly easy to misunderstand the difference or even add redundant Property Sets. When you work at the Object Level, as discussed here, you will only see Object Based Property Sets.



And, since MvBlocks are not Style Based, you can't Add the Property Sets at any other level anyway.



Now, for the Door example illustrated to the right, the process of tagging it should add most of the Property Sets you will want but there are times when you may want other information and you will need to decide on how that information should be Added. By using Cost as an example, we should be able to agree that the Cost of Door Objects will vary per Object; even within one Style Family. You may find that the Door Styles that come with ADT have Cost as part of the Style Based Property Set (already Added), but this assumes that all Doors of one Style Family have the same Cost. By Adding the "CostObjects" Property Set manually to a Door Object, you can now fill in the Cost of that single individual Door.

Ideally, if you decide that something like Cost should be Added at the Object Level, it would be added automatically as part of the tagging process but if you want that type of behavior, you'll have to make some customized changes to ADT's default tags, property sets and possibly even schedules. Comment: continue this discussion later in this material

Browse Property Data dialog box

Alt. Menu Document> Scheduling> Browse Data...

Keyboard PropertyDataBrowse

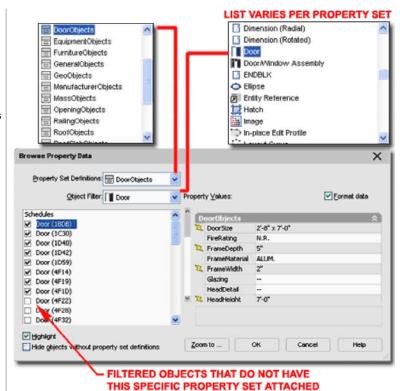
If managing data in your projects becomes a major task, one of the most impressive tools for filtering through Objects and their Property Data Sets is the **Browse Property Data dialog box** illustrated to the right. With this tool you can set a specific Property Data Set and either look for All Objects that this Set can be Applied (Attached) to or Filter the list of Objects to one Type. Once you have located Objects that require Modification, you have several options that will assist in making those changes easier.

Schedules

Under this section you may also see file names for Xref'd files which you can expand and search through much like searching through the Objects in the current drawing file. Object Names that do not have checkmarks in their boxes do no have the current Property Set Definition Attached. You can Attach Property Set Definitions simply by checking one of these boxes and once an Object has the Property Set Attached, you can use the right pane to edit the Data Fields directly.

Highlight - when this checkbox is checked, you will see the current Object highlighted on the screen as if Selected.

Hide objects without property set definitions - when this checkbox is checked, all Objects that do not have Property Set Definitions Attached, will not display in the Schedules list.



Zoom to... - use this button to Zoom and Pan to the Object that is highlighted under the Schedules list. Unfortunately this only allows you to see the Object; you cannot Edit it directly and then jump back to the Browse Property Data dialog box. If find this feature terribly disappointing since the primary reason I would want to jump to an Object is so I can edit it and then come back.

Format Data - this checkbox applies the formatting as per the Data Format Styles. I can't actually come up with a good reason why you would want this unchecked but there it is as an option.

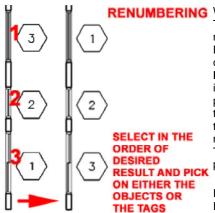
The feature that really blows me away is the option to go inside Xref'd Files and work on Property Set Definitions of Xref'd Objects.



Alt.Menu Document> Scheduling> Renumber Data...



Keyboard PropertyRenumberData



RENUMBERING
When you need to reorder
Tags that use sequential
numbers such as those for
Doors and Windows, you
can use the Data
Renumber dialog box
illustrated to the right. The
primary problem I have with
this tool is that the user has
to do all of the hard work by
not only selecting all of the
Tags but doing it in the
proper order.

In the Illustration to the left I show that in order to reverse the order of the

three Window Tags, you have to Select each Tag or Window Object in the order that you want the new increment.



Property - this drop-down list will probably only offer one default option, "Number", until you really dig into custom settings for your Schedule Data. This option is tied to the Property Set Definition Styles and the Name used for Numbered items.

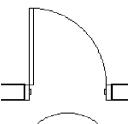
Attach New Property Set - this checkbox will attach the Property Set selected on the Property Set drop-down list to the objects that you select for Renumbering. This means that if you know that you want to Add another more elaborate list of information to the basic set, you can now do it while Renumbering. In other words, since you are manually selecting your objects, one-by-one, you might as well take advantage of anything else you can do with Schedule Data.

Property Set - use this drop-down list to select the Property Set Definition Style that you either expect to find already Attached to your objects or that you expect to Attach while Renumbering. If you don't select the correct Property Set and don't want to Attach a New Property Set, you will get an alert message on the command line stating that "The selected object does not already have the property set" and you will not be able to renumber that object.

Property Data Format Styles

Alt.Menu Document> Scheduling> Data Format Styles...

Keyboard PropertyFormatDefine



At the heart of all the Schedule Data is the Property Set Definition Styles but within those Styles are **sub-styles for Formatting** and these Style are located under the Documentation Objects folder in the Style Manager. These Formatting Styles are listed under the **|ab Property Data Formats**, section as illustrated to the right.



The **Property Data Format Styles** control how you want the data or text in your Schedule tags displayed and formatted. One of these Styles, for example, is responsible for the way your Door tags start with the number "01". Given that we not only have preferences for how we like to number our Doors and Windows but what

information we wanted included, you can use the **Formatting** tab of the Property Data Format Properties dialog box to Add **Prefixes** or **Suffixes**, control the number of characters, unit type and round off values.

On a Door or Window tag, for example, this is where you can use a Prefix to specify which floor your tags refer to (note: you can also use the Project Based Tags but that requires that you use the Project Management System). In the illustration to the right and left I show that I have Copied the default <code>|ab Number - Object Property Data Format Style and used it to create a new one that I called <code>|ab Letter_Number - Object and set the Prefix value to "B"</code>. To recreate this type of result, you will need to modify the Property Set Definition Style as well and set the Format field of the affected Property Definition Name to any new one you have created. I will elaborate on this process under the Property Set Definition Styles discussion below.</code>

GENERAL

Prefix - a letter, number or combination of both that will precede your tag field. On Doors and Window tags, this could be a letter or number to designate floor level.

Suffix - a letter, number or combination of both that will proceed your tag field. On Area tags, this would be something like SF (Square Feet) or M2 (Square Meters). This is also where you will take care of AutoCAD and ADT's inability to produce decent metric output; you can use a suffix of "mm" for millimeters on normal measured values.

SUFFIX = mm

				Ur yo
		(SIZE	wh — de the
MARK		WD	HGT	T the
001		850mm	2260mm	4(No
002	PR	1000mm	2260mm	4(w

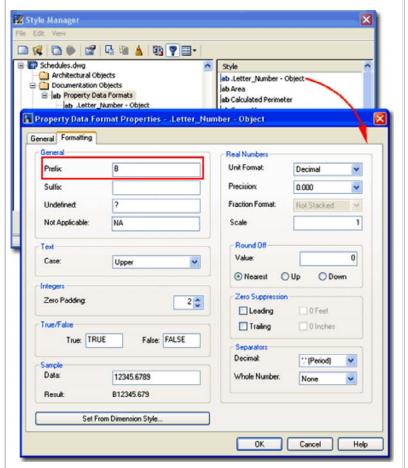
Undefined - this is what you want stated in a case where the value is not defined or does not match the parameters set forth by the Style.

Not Applicable - this is what you want stated in a case where the value does

not apply to the specific object.

TEXT

Case - using this drop-down list, you can control the how you want your text information displayed with respect to upper and lower case



REAL NUMBERS

Unit Format - this is how you can specify what form you want your numbers in and is just like how you specify dimension unit formatting; you can choose Scientific, Decimal, Engineering, Architectural or Fractional.

Precision - this is a round off value.

Fraction Format - this is only available for architectural and if you plan to export to something like an Excel Spread Sheet, fancy formatting will not be accepted. Don't worry about it though, you will be prompted for how to convert them.

Scale - this is a simple concept with a confusing term so think of this as a Multiplier (as in Scale Factor) that can be used to affect the actual data collected. You could, for example, set this to 25.4 to report Imperial measurements in Metric form. Use the Sample area to see how this value works.

ROUND OFF

Value - this is for floating point values like .001 and so on.

ZERO SUPPRESSION

Leading - if checked, you won't get 0.5 but simply .5 - not preferred

Trailing - if checked, you won't get 5.0 but simply 5 - varies on tolerance

Peet - if checked, you won't get 0.2" but simply 3" - preferred

characters; As is (as it was written), Upper (all upper case letters), Lower (all lower case letters), Sentence (first letter begins with an upper case and the rest is in lower case letters) and Title (first letter of every word in a sentence is upper case).

INTEGERS

Zero Padding - this controls the number of integers that can be used for the value field of a tag. On Door and Window tags, for example, this is where you can limit the numbers to two digits instead of the three on the default tag.

TRUE/FALSE

True - this is where you can specify what will be written when the tag refers to a True statement; you can, for example, use the single "T", "Yes", "On", "Active", etc.

False - see comments for True.

vice in onconea, you won't got o o but onlipiy o

0 Inches - if checked, you won't get 3'-0" but simply 3' - not preferred

SEPARATORS

Decimal - to use you must have Unit Format set to anything other than Architectural or Fractional. This value controls the decimal separator as opposed to the whole number separator discussed below. In some European cases, a comma is used where imperial units would use a period.

Whole Number - use this set of options to control how whole numbers express every fourth unit position as in "100,000,000".

Set From Dimension Style... - here's a novel idea since all of this stuff comes from the Dim Styles anyway. Use this button to select a loaded Dim Style as the source of these settings.

6-18 SCHEDULES

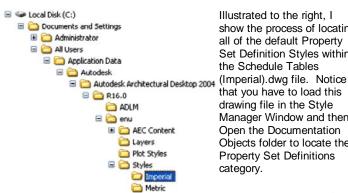
Loading Property Set Definition Styles

Opening Property Set Definition Styles in the Style Manager Alt.Menu Document> Scheduling> Property Set Definitions...

Keyboard PropertySetDefine

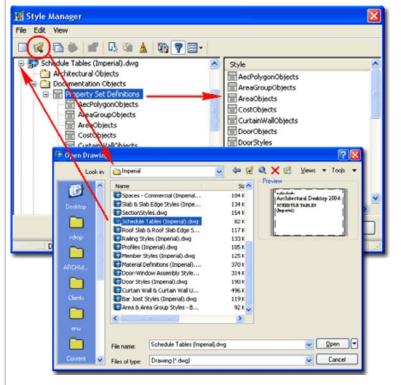
Links Space Styles - for how to create a Space Style

For Property Set Definition Styles, you can use the Style Manager to load, modify, delete and create new Property Set Definition Styles. The Confusing aspect of Loading Predefined Property Set Definition Styles is that they are not in a drawing file of their own but rather part of the Schedule Tables (Imperial).dwg and Schedule Tables (Metric).dwg files. After you realize where these Styles are, it becomes logical that they are located together with the Schedule Styles but they were in a separate file in the past - called "PropertySetDefs.dwg"



Illustrated to the right, I show the process of locating all of the default Property Set Definition Styles within the Schedule Tables that you have to load this drawing file in the Style Manager Window and then Open the Documentation Objects folder to locate the Property Set Definitions category.

For local installations of ADT, you are likely to find the Imperial or Metric Schedule Tables 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.



ADT comes with a fairly extensive list of Property Set Definition Styles covering everything from basic Blocks to Railing Styles. Many of these Styles are great starting points for custom versions with your own information added.

Adding Property Set Definitions to Objects

Alt.Menu Document> Scheduling> Property Set Definitions...

Keyboard PropertySetDefine

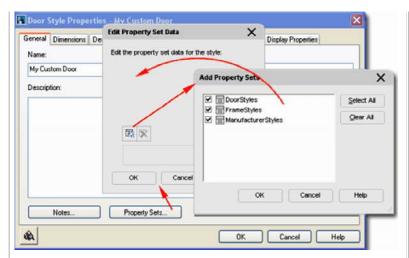
Links

Edit Schedule Data - Add Property Set - for information on how to Add Data to Objects on an individual basis

There are basically two types of Property Set Definition Styles; those designed to work with a whole Object Style and those designed to work with each Object on an individual basis. In the simple case of a Door Object, for example, there are some forms of Data that you might want to track based on the Style while there will be numerous forms of Data that must be tracked uniquely for each Door Object; such as Height, Width, Location and so forth.

When you create a Door Style, for example, you might create one that will represent all low cost interior hollow core wood veneer doors (Home Depot Specials, you might say). Now, it would make sense to use the Property Data to indicate that all Doors of this Style are Hollow Core Wood Veneer but it may not make sense to include a Cost since the sizes will most likely vary. Cost, therefore, is an example of Data that is better tracked at the Object Level. You could, however, have an average Cost at the Style Level just to assist in early estimates.

Illustrated to the right, I show how and where you can **Add Property Sets...** at the **Style Level** of an example Door Style. Since this Style was created from scratch and not by copying an existing Style, no Property Sets appear on the **Edit Property Set Data dialog** but by using the **Add Property Sets button** any Property Set that Applies to Door Styles can be Added. This means that you can not only Add the default Property Sets but any new ones that you might want to include for your own Schedules or Spread Sheets.



The good news about accidentally forgetting to add Property Data Sets at the Style Level is that you can always go back an Add it.

For information on Adding Property Sets at the **Object Level**, read **Edit Schedule Data - Add Property Set**.

7-18 SCHEDULES

Property Set Definition Styles

Style Manager - Property Set Definitions

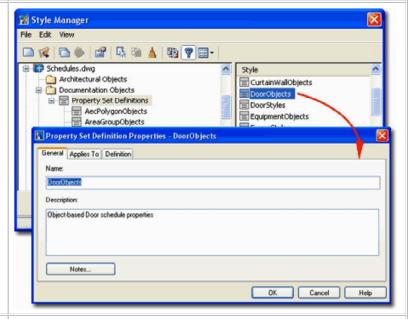
For **Property Set Definition Styles** you can use the **Style Manager** to load, modify, delete and create new Property Set Definition Styles.

Illustrated to the right, I show the process of **Modifying** an **Existing** Property Set Definition Style: DoorObjects. By **double-click**ing on this or any style, you will invoke the **Property Set Definition Properties** dialog box - as illustrated. In the steps below I will discuss how to make changes to this Style as a basis for helping you modify other Styles or create your own from Scratch.

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

What Are They?

Property Set Definitions are actually the key to the Schedule Data in Schedule Tables. This is where you get the Schedule Data from when you use the Edit Schedule Data dialog box to edit existing fields or use the Add... button to find another Property Set to associate with your selected object. These Styles Collect Data from known objects and provide fields for user input values to be associated with specific objects.

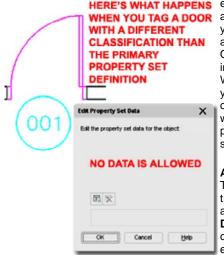


Property Set Definition Properties - Applies To tab

Links Edit Schedule Data - Add Property Set - for a map of how this ties to the object and how you use it on the object.

<u>Object Style Properties - Classifications Overview</u> - for an overview of how to create and apply Object Classifications

If you have already worked with other Definition Styles in ADT, then you should be familiar with the concept of **Applying** a **Definition Style** to one or more **Objects**. Basically this is a filter mechanism that keeps users from doing odd things like tagging Furniture with Door Tags, for



HERE'S WHAT HAPPENS
WHEN YOU TAG A DOOR
WITH A DIFFERENT
CLASSIFICATION THAN
THE PRIMARY
PROPERTY SET
DEFINITION

LProperty Set Data

X

The property set data for the object

With the property set data for the object

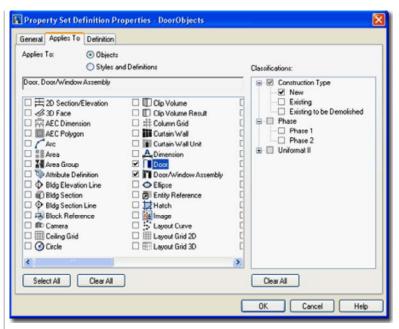
With Door Tags, for example. The fascinating aspect of this feature is that you can expand the list of affected or "taggable"
Objects so you could include a Roof in your
Window Schedule should you ever need to do such an odd thing - Actually I have when faced with a skylight problem but that's another story.

APPLIES TO:

There are two options for this declaration, "Objects" and "Styles and Definitions", and you must choose carefully. In the example illustrated to the right I am showing the

DoorObjects Property Set Definition Style which was designed for Door Objects and thus Applies To Objects and not Styles. For a discussion on the differences, read my comments for **Cost** under **Edit Schedule Data - Add Property Set.** Style Based Data is good for automatic data collection and common information but not good for data that is unique for each object within a Style Family. It could easily be argued that the DoorObjects Property Set Definition Style is a poor example of how some Data should be managed - see the default WindowStyles and WindowObjects for the opposite example.

By checking Object or Object Style Names in the left-hand pane of the Property Set Definition Properties dialog box, you set the Filter for those Objects and prevent accidental use of this Data for other Objects or Object Styles.



CLASSIFICATIONS:

The list of Classifications will vary depending on the Object or Object Style Names selected in the left pane and on the Classification Definition Styles currently available in your drawing file. If you use Classifications as part of your Applies To settings, you are creating another level of **Filtering** that will prevent users from Attaching Data to some Objects within an Object Style Family.

As an example, you might think of a set of Doors that have been Classified as "New", "Existing" or "To Be Demolished". By using the Classification Filter for only one of those categories, a user will not be able to Apply or Attach this Property Set Definition to Doors that are not Classified to match the selected (checked) Filter. This appears like a fantastic feature and in essence it is but I found that despite the filter, Door and Windows can still be Tagged; the Property Set Definition cannot be Attached but the Tag will still hook on to the Door. I would, of course, prefer that you could not Tag the Door but then this would prevent simultaneous Schedules: one for New Doors and one for Doors to be Demolished, for example. If you are interested in exploring this further, make sure to look into using this Classification system on your Schedules as well because I have found that option often produces more of what I want than using the filter here. In other words, I don't use the Classifications Filter as illustrated to the above, I only show it to demonstrate how it could be used.

Property Set Definition Properties - Definitions tab Button Function



Add **Manual** Property Definition - use this option to create a field for virtually any sort of typed input like Manufacturer, Color, Cost and so forth.



Add **Automatic** Property Definition - this option extracts data from the Object but can only extract from a predefined list hard-coded into the Objects such as Dimensions, Layer or other items that may have been filled in by the user at the Object or Style Level such as Color and Style Name.

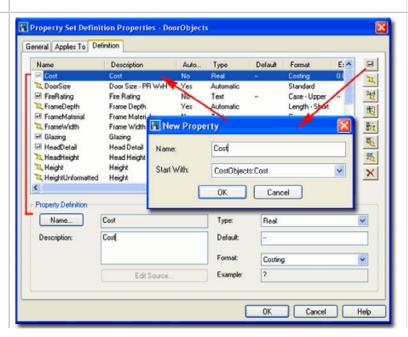


Add **Formula** Property Definition - this option combines the features of the Automatic Property Definition with mathematical formulas



Add **Location** Property Definition - this option combines the features of the Automatic Property Definition with a proximity or location detection aperture that finds additional data from specific Objects that relate to the primary source of data. An example of this feature is a Door Tag that reads the Room Number of a Space Object that runs up to the edge of the Door. The way this works is that you are actually just making a call to the Property Definition of another Property Set.

Add Classification Property Definition - this option combines





the features of the Automatic Property Definition with Classification Definition Style Property Sets so you can extract data from a Classification as it relates to an Object. This means, for example, that two Identical Doors Classified differently could produce different data based on that Classification.

Add **Material** Property Definition - this option combines the features of the Automatic Property Definition with Material Definition Style Property Sets so you can extract data from a Material as it relates to an Object. Like Classifications, this provides you with the option to extract, for example, that the Glazing Material is Tempered on a particular Door or Window. This assumes you go through the trouble of making different

Glass Materials which I just haven't gotten around to yet.



Add **Project** Property Definition - this option combines the features of the Automatic Property Definition with the Project Management System which has tens if not hundreds of fields for data on everything from Project Number to Contact Numbers for team members. See the Project Navigator for access to the Project Details dialog.

The **Definition tab** of the **Property Set Definition Properties dialog box**, illustrated to the right, is where all of the magic for data collection and management occurs. This subject can get a little overwhelming at first but once you see the correlation between Property Names, Data Sources, Formatting, Objects and Schedules it gets a little easier to comprehend.

Illustrated to the right I show how you can use the **New Property Button** to **Add** a **Cost Property** by using the CostObjects Property Set Definition Style as a source to **Start With**. You don't actually need the CostObjects Property Set as a source to Start With but it can be useful to save time in setting the Property Definition Settings such as Type, Default and Format. In my example to the right, I set the **Type** to Real numbers, the **Default** value to "--" since I don't have a default Cost and the **Format** to "Costing" (if you don't have this Format, create one - Property Data Format Styles).

The subject of Adding Property Definitions obviously requires a bit more of a discussion with some examples and I intend to get to that as soon as I can. Hopefully you get the general idea from what I have outlined above.

Adding a Property Definition does not guarantee that you will find this new field in your Schedule Table. If you want to include a new Property Definition's data in your Schedule Table, then you will have to Modify the Schedule Table Style that acquires or extracts it's data from the current Property Set Definition Style - in this case that would be the default Door Schedule. See Style Properties - Columns tab below for an example of how I added this Cost example to the default Door Schedule Table Style.

8-18 SCHEDULES

8 Adding Schedule Tables

Add Schedule Table dialog box

Alt.Menu Document> Scheduling> Add Schedule Table...





Keyboard TableAdd or -TableAdd

Links

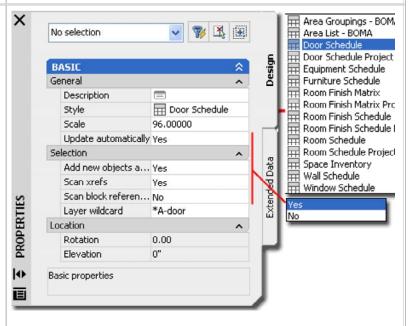
<u>Loading Schedule Table Styles</u> - for how to load and where to find them.

Setting the Drawing Scale for Annotation Symbols and Schedule Tables - for information on how to set the Schedule Table Scale.

When **adding Schedule Tables**, the **Properties Palette** offers a fairly limited list of options but you don't really need that many. Be aware that the options do change on the Properties Palette when Modifying an existing Schedule Table.

GENERAL

Style - a drop-down list offering a list of currently loaded Schedule Styles. Type **TableStyle** or use the Content Browser to load other Styles. Illustrated to the right I show the full list of Schedule Table Styles that come with ADT in the Imperial Folder.



Scan Xrefs - this is an obvious option of you are creating your Schedule

Scale - this value is derived directly from the Drawing Scale and should not be changed unless you have a full understanding of how this value affects the Schedule Table and Printing output. It may be unfortunate that you cannot simply add your Schedule Tables in a Layout at 1:1 scale but then it might be more difficult to jump between Cells and Objects. Therefore, you typically must Add your Schedule Tables in Model Space (unless you have data in a Layout) at a Scale equivalent to the intended Printing Scale and use a Viewport to arrange the Schedule Table in a Layout.

Automatic Updates - the automatic features may be a system problem for large drawings with hundreds of symbols. One example of this would be when you make changes to the size or type of Door or Window; the schedule will reflect this change automatically. I don't use this feature but simply update the schedule when I want it updated.

SELECTION

Add New Objects Automatically - the automatic features may be a system problem for large drawings with hundreds of symbols. One example of this would be when you Add a Window Symbol to a new Window; the schedule will reflect this addition automatically in live mode. I don't use this feature but simply update the schedule when I want it updated.

Tables in a separate file for Schedules and you have Xref'd your drawing files with the Objects that need to be in the Schedule Table. This is obviously not a good option of you are creating your Schedule Table in the same file as your the Objects you are Scheduling and have Xref's for reference purposes only (such as other Floor Levels).

Scan Block References - This option will read Objects within Blocks such as Doors in Lavatory Layouts that come in the ADT Library. This option could add Objects to your Schedule Table that you don't want included so exercise caution when exploring it.

Layer Wildcard - this option allows you to specify Objects by layer. You can, for example, build a Door Schedule for Door Objects placed on the layer, "A-Door-exterior" or for Doors on the 2nd Floor (for those crazy enough to work on multiple floors in one file).

Adding a Door Schedule

Once you are ready to place your Schedule Table Object (typically in Model Space), notice that there is a prompt on the command line "Select objects or ENTER to schedule external drawing:"

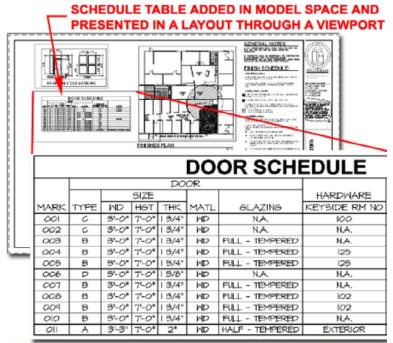
If you are adding your Schedule Table to the active drawing file and not an Xref of a Plan, simply Select the Specific Object that you want in your Schedule or Select the entire drawing. To Select every Object I typically type "AII". If there are specific Objects in the Selection Set that you don't want in your Schedule Table, such as existing Doors, you can use the Layer Wildcard filter on the Properties Palette, discussed above, to filter them out. If these Objects are on the same Layer, then you may need to deselect them or employ other filter mechanisms such as Classifications.

If you are adding your Schedule Table to a drawing where you are expecting to extract data from one or more Xref files, then simply follow the instructions by hitting the "Enter" key.

Based on the Drawing Scale, you Schedule Table should come out at an appropriate size so there should be no need to resize it; just hit the "Enter" key to get past the two Corner prompts. Should you need to manually size the Schedule Table, something I don't recommend, you can use the "Upper Left Corner" and "Lower Right Corner" command line prompts to size accordingly.

You can check the default text height on the <u>Scale</u> tab of the **Drawing Setup dialog**. If you don't manually resize your Schedule Table, the size will be based on the Annotation Plot Size x Drawing Scale. This will allow you to create a Layout Viewport and set a Viewport Scale equivalent to the Drawing Scale ratio and get a Print with an appropriate text hight.

Notice that some Doors do not have a **Mark** number but a question mark ("?") instead. Since I used the "All" method of selecting Doors for my Door Schedule, I got all of the Doors without tags too and they will not get Mark numbers or other information until I Tag them.



CUSTOM FONTS, LINEWEIGHTS AND COLUMN CATEGORIES

Schedule Table Fonts:

Illustrated above, I show that you can not only control the various lineweights within a Schedule Table but also the **Text Style**. By default, ADT will add the "**Schedule**" Text Style to your drawing. Using the Text Style dialog box, you can map the Schedule Text Style to any Font you want. The problem with fancy fonts is they slow down your machine so you may want to change them near the end of a project. You can also design Schedule Table Styles that always use the Text Styles and Heights that you want every time you use them in different projects - see discussion under <u>Schedule Styles</u> below.

Adding a Room Finish Schedule

Using a similar approach to Adding Door Schedule Tables, you can Add other Schedule Tables such as the Room Finish examples illustrated to the right.

Room Finish Schedule Tables are rather impressive if you happen to have all of the data filled out for all of the Space or Area Objects that define your rooms. This can proved to be a tedious task and one alternative to working on each Object is to Add the Schedule Table, Select the Objects and then fill in the missing Cells by using the TableCellEdit command.

The best solution for filling out Room Finish Schedule Tables is to design Space or Area Objects that already have most, if not all, of the data completed. For standardized commercial work this is easier to accomplish than with custom residential work.

DEFAULT ROOM FINISH SCHEDULE

ROOM FINISH SCHEDULE											
5001110	50014114145	E1 000		WA	LLS	3	CE	ILING	NOTES		
ROOM NO	ROOM NAME	FLOOR	N	s	E	W	MATL	HEIGHT	NOTES		
101	CONFERENCE ROOM	CARPET	CYP.	ÇYP.	GYP.	CYP.	T-EAR	9'-0"			
102	DEFICE	WDOD	CYP.	GYP.	GYP.	G/P.	GYP.	9'-0"			
103	MEN'S BATHROOM	TLE	TILE	TILE	SYP.	TILE	T-BAR	9,-0,	6"X5" cermcic tile		
104	DEFICE	WDOD	CYP.	GTP.	GYP.	CYP.	GYP.	9,-0,			
105	DEFICE	W000	CYP.	CYP.	SYP.	CYP.	GYP.	9,-0,			
106	DEDOE	MUVVD	CVD	CYP	CVP	CVD	CVP	9'-0"			

DOT SCHEDULE EQUIVALENT

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9-18 SCHEDULES

9 Modifying Schedule Tables

Schedule Table Properties Palette

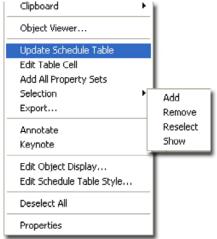
Alt.Menu Document> Scheduling> Schedule Properties

Keyboard TableProps or -TableModify

Mouse Double pick on Schedule Table Object

Links Schedule Tables Grips Points - for a Grips Points on

Schedule Tables with Breaks



For Modifying Schedule Tables you can use the Properties Palette which offers all of the same options as those found when Adding Schedule Tables plus a number of fantastic options you won't find anywhere else.

GENERAL

Scale - see comments for Adding Schedule Tables. If you change the printing Scale of your drawing, this is the place to change the scale of the Schedule Table

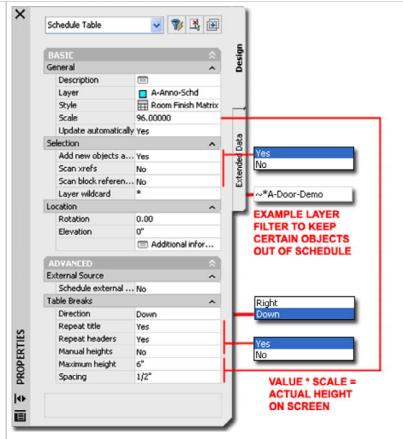
Update Automatically - see comments for Adding Schedule Tables. The option to turn this feature On and Off (Yes/No) can be used as a performance control for projects that make computers run slower.

SELECTION

See Comments for Adding Schedule Tables.

LOCATION

I have commented on these options for most other Objects in ADT and you should be familiar with them by now. Schedule Tables should be



Repeat Headers - use this Yes/No drop-down list option to include or exclude the headers or column categories on your Schedule Table. I highly recommend that you include these in most cases.

Manual Heights - use this Yes/No drop-down list option to allow for Manual

kept at an **Lievation** neight of zero unless you have a really good reason for some other value.

EXTERNAL SOURCE

Schedule External Drawing - since you already have the option to "Scan Xrefs" under the Selection Section, this option seems redundant and may become something different than an Xref control in the future but for now, you will need to set both to "Yes" to get Xref Objects in your Schedule Table.

TABLE BREAKS

Table Breaks provide the means to "break" a Schedule Table in cases where the schedule is longer than the page you are trying to print it on or where you want a different arrangement than one long vertical column.

Direction - use this drop-down list to chose between positioning schedule table segments vertically (**Down**) or horizontally (**Right**).

Repeat Title - use this Yes/No drop-down list option to include or exclude the main title on your Schedule Table.

Grip Controlled Break points and Spacing Heights or lock this option out for Automatic values set below. When setting to Yes, Grip Stretch the bottom of your Schedule Table up to a point where you want a Break and you should see the Schedule Table separate at that point.

Maximum Height - use this value field to indicate the maximum column height allowed before a Break is to occur. Since numerous other factors, such as Text Height, affect the total Schedule Table height, use this value as an approximation to be rounded down. The height must

DOM MENT COTS REGIST.

A SCHEDULE TABLE BROKEN

be entered in "real world" units that are automatically multiplied by the "Scale" value under the General Section.

Spacing - use this value field to indicate how far apart you want the broken Schedule Table segments. As with the Maximum Height value, enter this in "real world" units that will be multiplied by the Scale value.

Illustrated to the left I show the object-specific pop-up menu and the options you have for a Schedule Table Object. In addition to these options, you will find that you can also do some modifications by using Grips.

Update Schedule Table

Menu N.A.





Keyboard TableUpdateNow

Mouse Select Schedule Table, right-click and Select Update Schedule Table

The **Update Schedule Table** routine may be one that you will never use since Schedule Tables can be set to Updated Automatically but if this "automation" causes a drain on your computer's performance, you may want to deactivate the Automatic Update and use this tool instead. In other cases where strange graphic glitches have occurred for me, I have used this tool much like a **Refesh** or Regen on Schedule Tables.

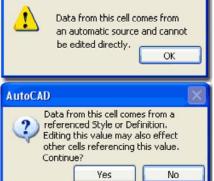
Edit Table Cell

Menu N.A.

AutoCAD

Keyboard TableCellEdit

Mouse Select Schedule Table, right-click and Select Edit Table Cell

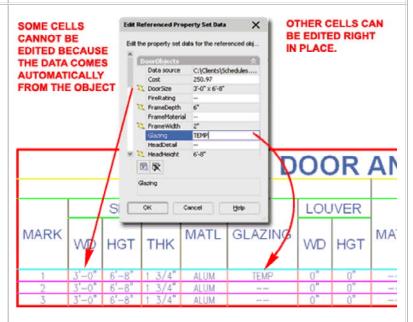


The Edit Cell tool provides the option to Select Schedule Table Cells and edit them directly. You can also Select the entire Schedule Table, by picking on the outer boarder and edit numerous items at once.

When you use this tool, notice the command line options: "Select schedule table item (or the border for all items), hover for information, or CTRL-select to zoom:" The Zoom option can be quite

useful when attempting to figure out which Object you are editing.

Some Cells cannot be edited because they acquire their data



If you want to **Edit an entire Column**, Select the Cell Header Text such as the "Glazing" Title illustrated above. When editing, you may see the words "*varies" in the field you want to edit and it may even change to a specific value when you pick in the field but I found that you have to type the value you want, even if it is already there, and then hit the Enter key to get a whole

automatically from the Object itself, such as sizes and you will need to Modify those Objects directly in order to make the change in the Schedule Table. Some Cells may produce a warning that Editing the Data will affect other cells and this simply means that you are editing Data from the Style Level rather than the Object Level. In other words, it is okay to proceed but you will probably see a lot of Cells change to match your single change - see Dialog Alerts to the left.

Column change.

TAGGED AND NUMBERED.

Add All Property Sets

Menu N.A.

Keyboard AecAddAllPropSets

Mouse

Select Schedule Table, right-click and Select Add All

Property Sets

The Add All Property Sets tool serves as a quick fix for resolving problems with Objects and Object Style that don't have Property Sets Added for proper Scheduling. You may occasionally find that there are Objects in your Schedule Tables that produce the question mark ("?") symbol and that is usually an indication that there is no data for that Object.

Illustrated to the right I show how an example Window Schedule has a Window Object that has not been Tagged and numbered. Because of this fact, the Numbers Data Field of the WindowObjects Property Set is missing and the Schedule displays a "?". Using the

AecAddAllPropSets command will fix the Data Problem but it will not automatically number all of the Windows so you would still need to do that part of the work.

Note:

This tool does not work with Objects inside Xref's.

Schedule Table Selection Options

Menu N.A.

Keyboard TableSelectionAdd

TableSelectionRemove

TableSelectionReselect

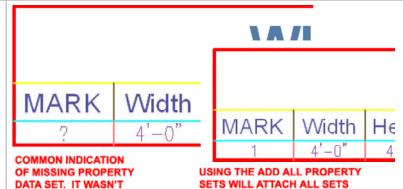
TableSelectionShow

Mouse

Select Schedule Table, right-click, Select Selection and

cascade to one of the options listed above

The Schedule Table Selection options provide the means to **Add**, **Remove** and **Reselect** (Add and Remove together) Objects to be included or excluded from your Schedule Table.



SETS WILL ATTACH ALL SETS NEEDED TO FILL OUT THE SCHEDULE TABLE BUT THERE ARE LIMITS.

For some this is an easy way to manage Schedule Tables where there is little to differentiate Objects that are "Existing", "To be Demolished" and/or "Proposed", for example. Filters and Classifications can be used to manage Objects to be included and excluded from Schedule Tables but sometimes simply Selecting what you want is easier - especially for less advanced users. For more advanced users, this is a great tool to work-around mistakes in Object organization when there isn't time to run back and fix Layers or Classifications.

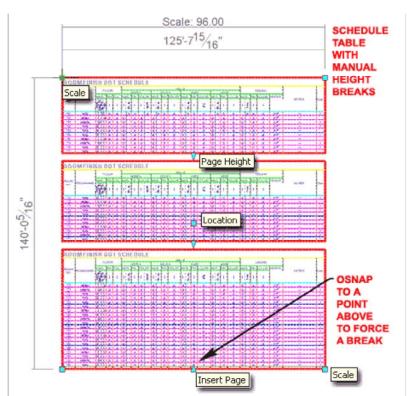
The **TableSelectionShow** command will highlight the source Object on your screen so you can determine which Object is feeding the Data to the Selected Cell.

Schedule Tables Grips Points

Links Schedule Table Properties Palette - for information on how to create and work with Schedule Table Breaks

Editing Schedule Tables with Grips is not only quite limiting but should rarely be done. For Sizes, Schedule Tables are set by a Scale factor and you can modify the Scale Value on the Properties Palette. Other Sizes, such as those for Cells, you will need to work with the Schedule Table Style and set a Fixed Width Cell Size Override.

Illustrated to the right I show an example Schedule Table with a Manual Height Table Break because this provides one extra Grip Point: Insert Page. In addition to the Insert Page Grip which can be used to create manual Table or Page Breaks, you can use the Page Height to adjust Breaks that have already been made.



10-18 SCHEDULES

10 Schedule Table Styles

Style Manager - Schedule Tables

Alt. Menu Document> Scheduling> Schedule Table Styles...





Keyboard TableStyle

Links

<u>Loading Schedule Table Styles</u> - for information on how and where to load the default Schedule Table Styles

For Schedule Table objects, you can use the **Style Manager** to load, modify, delete and create new Schedule Table Styles. Schedule Table Styles are found under the Documentation Objects folder of the Style Manager.

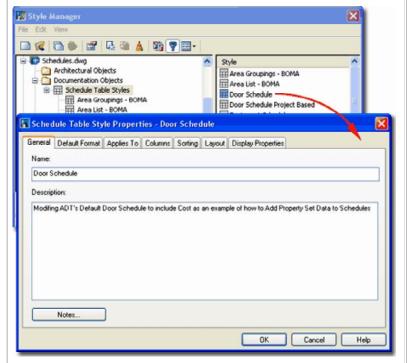
Illustrated to the right, I continue the discussion of adding a Cost Property to Doors by showing how to add the Cost Property as a Column to the default Door Schedule. Though you may never use this example, keep in mind that it exemplifies how to Add all sorts of Property Data to your Schedules.

As with all other Styles in ADT, you can create a New Schedule Table Style from scratch by using the New Style button. You can also use Copy and Paste to create a Copy of an existing Schedule Table Style and use that Style as the source for your new custom version.

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

Style Properties - Default Format tab

On the **Default Format** tab of the **Schedule Table Style Properties** dialog box, you set the primary values for the Text and Symbols in your



Schedule Table. Though this provides only one control for all the text in a whole Schedule Table, you can set Overrides on the Layout tab Title, Column Headers and Matrix Headers. Use this tab to set the desired values for the general body of text within the Schedule Table.

TEXT APPEARANCE

Style - these styles come from the Text Style dialog box so you may want to create a unique one for your Schedule Table or use the default Schedule-Data Text Style. Type "Style" on the command line to access the Text Style dialog box.

Alignment - this should be an obvious option to control where, in the cell, you want your annotation or numbers.

Height - this value is controlled by the Drawing Scale so you can type the finished print height and not worry about scaling for print scales.

Gap - this is the area around your text and is just another way of saying "distance between cell lines". Notice that it actually helps to control the Cell Size Height value.

Rotation - here you have two options; one for **Horizontal** Text and one for **Vertical** Text - a very useful option where you need long descriptions for simple cell values.

MATRIX SYMBOLS MATRIX SYMBOL

CHECK

Symbol - this drop-down list offers four symbol choices: Check, Dot, Cross, Slash. So far I have only been able to use them for True/False cases as controlled by the Property Set Definition Style (Property Definition Type) but there might be a way to use them at other times.



Use for True/False - this checkbox can be used to have the symbol, selected above, inserted for either True cases or False cases; ADT's default is to use the symbol for True and not for False. This can be changed on the Property Set Definition Style dialogue box. If left unchecked, the word **True** or **False** will show up for True and False cases. If you want something else written like On or Off, etc., go to **Schedule Data Format Styles** and change the default values for True and False.

CELL SIZE

Fixed Width - this value, if set to other than zero, will be fixed to that width. If left at zero, it will automatically be determined by the length of the value reported to the schedule from the Property Definition Set (probably a smarter choice).

Height - this value is not accessible because it is just a result of Text Appearance **Height** + **(2 * Gap)**. So, if you want it bigger or smaller, simply control the Gap value.

Style Properties - Applies To tab

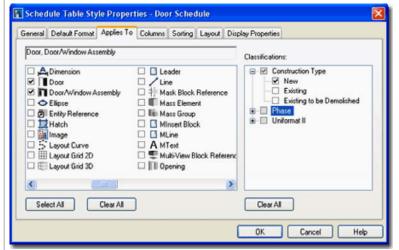
Links Object Style Properties - Classifications Overview - for an overview of how to create and apply Object Classifications

On the **Applies To** tab of the **Schedule Table Style Properties** dialog box, you set the Object Types your Schedule will be reporting on. You can select several objects or just one since the information put in your Schedule Table is filtered by the Columns tab.

If you don't know exactly what Object to Apply To, it's okay to select several. In fact, you can use the Select All button and just let it have the potential to read all objects but you may find this a mess with more complex Schedule Tables. You cannot leave it blank, if you Clear All and come back, you will see that everything gets checked, so you have to have at least one object checked. Notice that for the default Door and Window Schedule Table Styles, that Door/Window Assembly Objects have been included. This means that Door and Window Assemblies could potentially be list in either a Door or Window Schedule Table (or even both). If you Insert Doors or Windows in your Assemblies, you can actually Schedule them separately from the Door and Window Assembly.

CLASSIFICATIONS:

The list of Classifications will vary depending on the Object Names selected in the left pane and on the Classification Definition Styles currently available in your drawing file. If you use Classifications as part of your Schedule Table Style, you are setting yet another filter that may exclude Objects within the Type you have chosen in the left pane.



Illustrated above I show the default Door Schedule Table Style and how it is set to Apply To **Door** and **Door/Window Assembly** Objects but I also show that I have a custom **Classification Definition Style** that I used in my current drawing file to distinguish between "**New**", "**Existing**" and "**Existing to be Demolished**" Doors. By setting the Classifications to "New" in this example, my Door Schedule will not show any Doors that have been Classified as "Existing" or "Existing to be Demolished".

Keep in mind that this is just an example that I have chosen to demonstrate some of the capabilities of ADT. You do not have to go to such extensive lengths to create a Schedule Table that only displays new Doors; you can

achieve the same results by simply Selecting the Doors you want in your Schedule at the time that you create it. Making Schedules from Xref'd drawing files is another matter, however, since you cannot Select or Deselect Doors within an Xref - that's where this type of solution becomes invaluable.

Style Properties - Columns tab

Links Schedule Table Styles - for how to create and edit a Schedule Table Style

On the Columns tab of the Schedule Table Style Properties dialog box, you configure the Columns and Rows of your Schedule Table by linking Cells to Property Set Data. If you have ever worked with Excel, this is little more than linking one Cell to another Cell in another Book where some Product is derived.

Working with the Columns tab of the Schedule Table Style Properties dialog box can be fairly complex and I doubt that I can cover all of the possible options with a couple of screen captures but I can try to provide you with enough of an overview that you can venture into this realm on your own.

Illustrated to the right I show that I used the Add Column... button to access the Add Column dialog box illustrated to the lower right. Once on the Add Column dialog box, I show that I found the Cost Property Data that I Added to the DoorObjects Property Set earlier in this discussion. After Selecting the example "Cost" Property Data, I show that I have a few control options on how I want this Data presented in my Schedule Table and where I want the Column for this Data inserted. If you make a mistake on the Column Position or you simply want to move the Column, you can drag the Column Header to a new position on the Columns tab.

A SIMPLE CUSTOM SCHEDULE Illustrated to the left, I show

.Custom Block Counter									
Quantity	Description								
8	Auditorium Seats								
4	Director Chair								
1	Fat Lazy Couch								
,13									
QUANTITY TOTAL = YES									

a very simple but useful Schedule Table that counts furniture blocks and provides a **Description** for them. Under the Columns tab, illustrated to the right, you should find the "Include Quantity Column" checkbox which

can be used to tally such

things as the number of seats in an Auditorium.

More to come

Style Properties - Sorting tab

On the Sorting tab of the Schedule Table Style Properties dialog box, you can control the sorting order of the information in your Schedule Table based upon one or more Property Values.



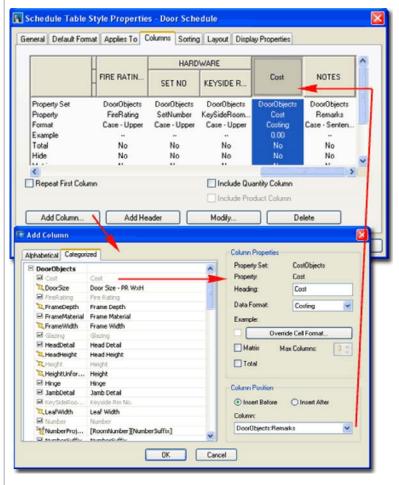
show the Property that the default Door Schedule Table Style uses to sort Doors by: Ascending order based on the Tag Number. I also show how using the Add... button provides access to the Select you can select one or more

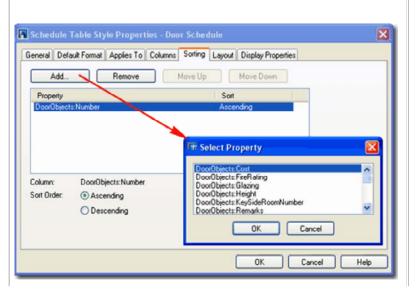
Properties as Sorting Tools; you could, for example, Sort by Cost.

Illustrated to the left I show how a simple custom Schedule Table has been changed from Descending to Ascending order based upon the Quantity Values.

Multiple Sort Properties:

For multiple sorting properties, the top Property takes precedence over





the lower properties. In the case of organizing things based on number values and alphabetical names, the higher Property will govern the lower. A more complex scenario involves sorting items based on quantity and cost. If the cost of two items is equal, then the sort order will fall upon the quantity count.

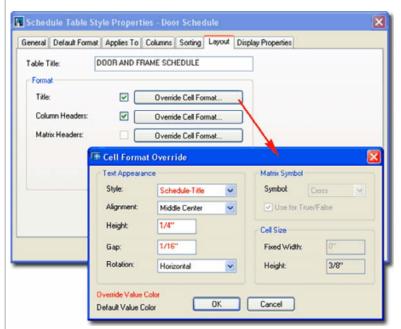
Style Properties - Layout tab

On the Layout tab of the Schedule Table Style Properties dialog box, you provide a Table Title and have the option to use Overrides on the Formatting of text and numbers in the Schedule Table. If you recall, the **Default Format tab**, discussed above, was used to set the general Font and Symbol Formatting but only allowed for one Format Setting. By using Overrides, you can control how you want other items Formatted.

.Custom Block Counter Quantity Description 8 Auditorium Seats 4 Director Chair 1 Fat Lazy Couch CELL TEXT FORMAT OVERRIDES

A SIMPLE CUSTOM SCHEDULE Illustrated to the left, I show that I have a custom Title for my example Schedule Table; ".Custom Block Counter" and provided an Override on the Text Formatting of the Table Title.

> If you combine these great options with the Display Properties for the Component Layers, you can create a rather attractive Schedule Table with great



fonts and lineweights.

Entity Display ... - Schedule Table

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 Schedule Table Style Properties dialog box, illustrated right, provides access to line and annotation display controls. Schedule Table objects are obviously quite different from other typical ADT object types and thus offer a set of options appropriate for a Schedule Table.

Illustrated to the right I show the Layer/Color/Linetype tab of the default "General" Display Representation for any Schedule Table Style in ADT. By default you may find all sorts of Color Settings on this tab but I changed my example to use more basic Colors to match how I work. Since you cannot use "By Material" to control how Schedule Tables appear, you will need to use Colors, Lineweights or Plot Style Tables Names.

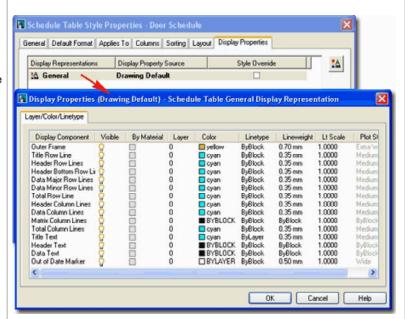




Illustrated to the left, is another way to access the Display Properties tab; select the specific object, right click on your mouse to invoke the object-specific pop-up menu and select Edit Object Display... Just be aware that when you use this approach, you can actually set an Object Override as opposed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

Style Override. Object Overrides can be extremely useful because they allow you to make one Schedule Table appear different from another but can also be problematic because you cannot control Objects with Display Overrides from one central source.

If your Schedule Table disappears under one or more Display Configurations, check the Display Representation Sets and look to see if



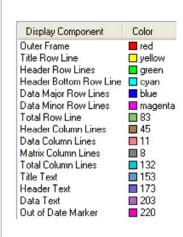
its Display Representation is Checked; by default this would be the "General" Display Representation but some offices have custom Display Representations for their Schedule Table Styles.

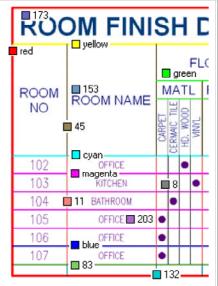
Entity Properties - Schedule Table - Component Layers

Illustrated to the right I show all but one of the Display Components that you will find on the Layer/ Color/ Linetype tab of the Display Properties dialog box discussed above.

Not all **Display Components** are used in all Schedule Tables. **Total Row Line** and **Total Column Lines** will only appear if you have added a Totals Column to your Schedule Table Style. Components like **Header Bottom Row Line** and **Data Major Row Lines** offer the option to control specific row lines uniquely but you don't have to set their Properties uniquely if you don't want them to appear any different from the Data Minor Row Lines. The **Data Major Row Lines** will appear at intervals of five rows and I could find no way to alter that setting (I believe it is hard-coded that way).

I still have not found an example of the **Out of Date Component** Display Component so that's why I don't have a graphic example for that Color.





11-18 SCHEDULES

11 Exporting Schedule Tables

Export Schedule Table dialogue box

Menu N.A.





Keyboard TableExport

Mouse Sel

Select a Schedule Table, right-click and Select the Export... pop-up menu option

Links

For **Exporting Schedule Table Data** to an external format, you can either Export a Table in the current drawing file or create a new one based on the Input settings on the Export Schedule Table dialog box illustrated to the right.

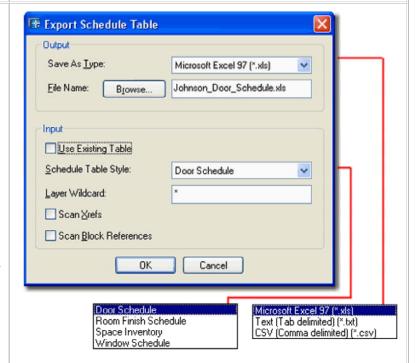
To Export an existing Schedule Table that is in the current drawing, simply Select it, right-click and Select the Export... option off the Object-specific pop-up menu. This method will no allow you to use the Input options should you decide to change your mind about what to Export.

To Export a new Schedule, use the TableExport command which will allow you to use the Input area of the Export Schedule Table dialog box. The options under Input are identical to those found on the Properties Palette when Adding a Schedule Table. If you use the "Use Existing Table" checkbox, you will be queried to "Select existing schedule to export" and the result is identical to Exporting a Selected Schedule Table as discussed above.

OUTPUT

Save As Type - you only have three choices here so pick one and go. I find that using Excel works rather well but if you have other programs that you want to import your data into, you may need to use the Tab or Comma delimited formats The three formats are: Excel (.xls), Tab delimited and Comma delimited.

File Name - this is just the common Save As... file name and location option so provide a name and a location on your system or Network and go.



Schedule Table Style - this and the options below are only available when you uncheck the Use Existing Table. If you do not plan to use an existing table, you can now Export one based on any loaded Schedule Table Styles. This means that you now have a way to export out to Excel information that you may not want a Schedule Table for but you do want a Spread Sheet for.

Layer Wildcard - see comments for Add Schedule Table dialog box.

Scan Xrefs - see comments for Add Schedule Table dialog box.

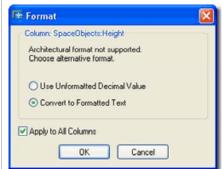
Scan Block References - see comments for Add Schedule Table dialog box.

INPUT

Use Existing Table - use this checkbox if you want the option to select your Schedule Table from any existing Schedule Tables on your screen; a common and logical approach.

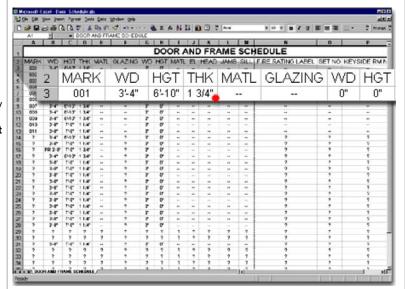
Export Schedule Table to Excel Example

When I did my first Export of a nicely formatted Schedule Table, I got the Format dialog box alert below and panicked. If you get this dialog box too, it is probably because of how you have Formatted your Fractions.



As illustrated to the right, by setting the Format to Convert to Formatted Text for All Columns, the resultant Spread Sheet was just fine. For Metric, you may find that you will need to use the Decimal Value option but it would be unusual to have this problem with metric or decimal numbers.

I'll leave the formatting in Excel up to you. As you can see, this Exported Door Schedule example will not fit on an A-size sheet of paper.



12-18 SCHEDULES

Schedules - Customizing and Tricks

Slabs and Room Tags

Links $\frac{Adding\ Room\ \&\ Finish\ Tags}{Finish\ Tags}$ - for information on Room and Finish Tags.

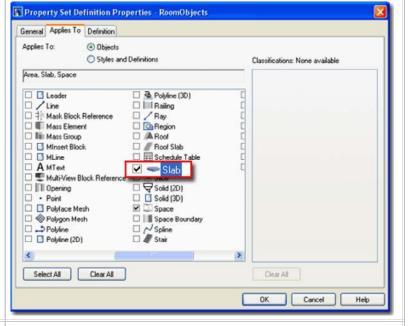
Opening Property Set Definition Styles in the Style Manager - for the bigger story on Property Set Definition Styles.

If you tend to use Slab Objects for floors, you may want to tag them with Room or Room Finish Tags but you may find that you can't since these Tags, by default, only apply to Space and Area Objects.

Illustrated to the right is a simple step that you can take to change these Tags so they will work on Slab Objects. By using the PropertySetDefine command you can access styles like

"RoomObjects" and "RoomFinish" and change their Applies To setting as illustrated to the right.

Once you have changed the Applies To setting to apply to Slab Objects, you will find that the Tag will now react to Slab Objects and function much like it does for Space and Area Objects.



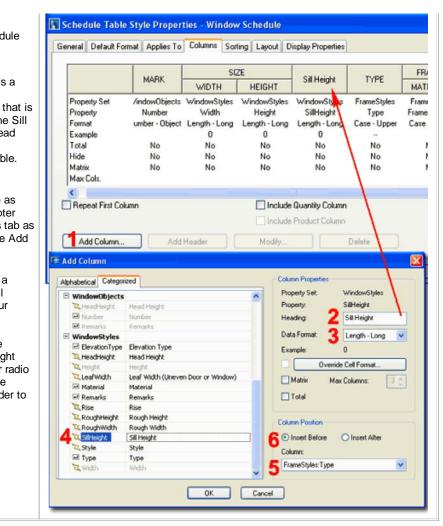
Adding Sill Height to Window Schedule Tables

 $\label{eq:Links} \mbox{$\frac{\mbox{Style Manager - Schedule Tables}}{\mbox{Table Styles}}$ - for information on Schedule}$

,	WIN	1DO	w sc	HE	Illustrated to the left is a simple solution to a
	Ş	IZE			FF common request and that is
MARK	WIDTH	HEIGHT	Sill Height	TYPE	MAT the need to include the Sill
001	6'-6"	8,-0,	1'-0"		Height (similar for Head
002	1'-4"	8'-0"	1'-0"		Height) in the default
003	3'-0"	1'-4"	7'-8"		Window Schedule Table.
004	3'-2"	3'-8"	1'-0"		
005	3'-2"	3'-8"	5'-4"		Modify the Window
006	3'-2"	3'-8"	1'-0"		,
007	3'-2"	3'-8"	5"-4"		Schedule Table Style as
008	3'-0"	3'-0"	4'-0"		discussed in this chapter
***	41 41				and find the Columns tab as

illustrated to the right. Use the Add Column... button to access the Add Column dialog box.

On the Add Column dialog box, illustrated to the lower right, Type a Heading title for your Schedule Table Column (something like "Sill Height"), set the Data Format for an appropriate way to display your heights (such as Length - Long). Find and Select the SillHeight Property Definition on the Categorized tab under WindowStyles as illustrated to the right. Use the Column pull-down list to Select the Name of the closest Column relative to where you want this Sill Hight Column to be placed and then use the Insert Before or Insert After radio button to set the side. If you make a mistake on the position of the Column in the Table, just use your cursor to drag the Column Header to the new position.



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