

Space Planner macro v1.0.1

(for DataCAD)

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Whilst it is free (or because of this) I would like and expect that if you can think of any improvements or spot any bugs (or even spelling or formatting errors in the documentation) that you would let me know. Your feedback will help with future development of the macro.

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Acknowledgement

Acknowledgement is made that much of the functionality in this macro is based on the Blocker macro created by Bill D'Amico almost 30 years ago. I undertook to develop this macro after Bill advised me that he had no intention of any further development of his macro.

Although this Space Planner macro can report on spaces created by Bill's Blocker macro, it is all original code and has no connection with Bill whatsoever.

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1 General Description

This macro will allow you to create room spaces defined by a polyline. Each room space is assigned a user configurable label which can display information such as the room number, name, dimensions, area, perimeter length, perimeter area, volume etc (contained in up to 5 lines of text as configured by the user).

The label can be updated automatically by the macro if the size or shape of the room space is changed (e.g. by stretching, enlarging etc.).

The polyline outline of the room space can be hidden or visible, and a fill colour can also be assigned to it if desired.

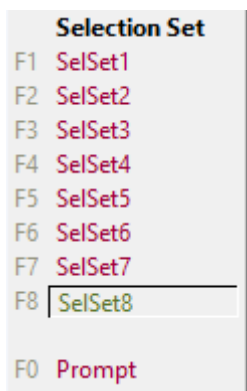
Either a Totals or Detailed report of the room spaces can be produced and placed in the drawing and/or copied to the Windows Clipboard. Limited changes can be made to the format of the Totals Report, but the Detailed Report is highly user configurable.

Some functionality in this macro will not work with DataCAD versions prior to 15¹, and the macro is not at all compatible with Spirit at this stage.

2 Quick Start Guide

2.1 Initial Settings

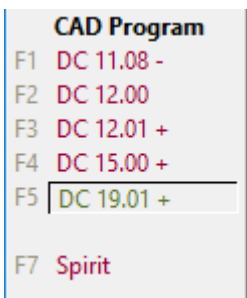
2.1.1 Launch the macro.



The first time you use the macro you will be prompted to choose a selection set that the macro can use. Select a set that you do not normally use for anything else (leave the default value if you do not normally use selection sets).

You will notice a 'Prompt' button on the menu. If enabled then you will be prompted to make this selection each time you use the macro in a new drawing. Disable the 'Prompt' option if you are happy to use the same selection set number in every drawing (if this option is enabled then you will get this prompt each time you open the macro for the first time in a new drawing).

Press **S0** to proceed to the next menu once you have made your selections.



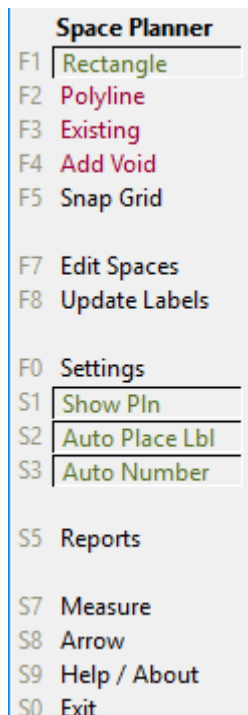
The first time you use the macro you will also be asked to tell the macro what version of DataCAD you are using. Press OK on the message dialog and the menu shown at left will be displayed. Select the appropriate option (DataCAD versions 11.08 and prior, 12.0, 12.01 to 14.03, 15.00 to 19.00, or 19.01 and later). Spirit is not currently supported by this macro.

Press **S0** to proceed to the next menu once you have made your selections.

¹ The macro has not been tested with versions of DataCAD prior to version 19. I believe it to be fully compatible with versions back to 15, and largely compatible with Windows versions prior to that (with some functionality limited depending on the version).

2.2 Settings

2.2.1 The Main Menu



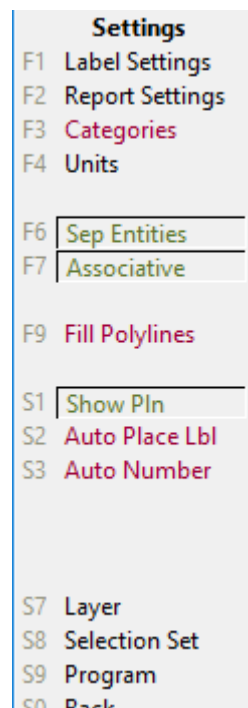
Before creating any room spaces, take a look at the options on the macro's main menu shown at left.

The various options are detailed in Section 3 of this document.

Ensure that **F1 Rectangle** is enabled, but do not change any other settings on this menu at this stage.

Select **F0 Settings**.

2.2.2 Select Settings.



Having selected **F0 Settings** from the main, the Settings Menu shown at left will be displayed.

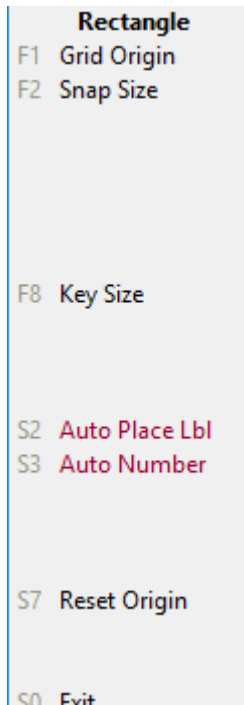
The various settings options are detailed in section 5 of this document.

Ensure that the settings match those illustrated at right for the purpose of this exercise (i.e. Categories, Fill Polylines, Auto Place Lbl, and Auto Number should be toggled OFF).

2.3 Creating Spaces

2.3.1 Return to the Main Menu and create a rectangular Room Space

Right click or press S0 to exit out of the Settings menu back to the macro's Main Menu. Ensure that **F1 Rectangle** is enabled and then **select a point to define one corner of a rectangle.**



The menu will change to that shown at left. Leave the **S2 Auto Place Lbl** and **F3 Auto Number** options disabled for this exercise.

You can select **F1 Snap Origin** and/or **F2 Snap Size** to change the snap grid if that will be helpful in selecting the second point.

Select the 2nd point using one of the following options:

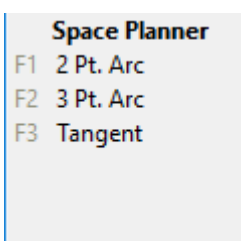
- use the cursor to select the diagonally opposite point of the space (use **F1 Grid Origin** and **F2 Snap Size** to adjust the snap grid if that is helpful)
- OR
- press the **Space Bar** to enter the room size from the keyboard (where positive distances will place the room to the right and above the first selected point)
- OR
- press **F8 Key Size** to key the room sizes and specify the direction from the first point (see a description of this option in Section 3.1.1 of this document).

Once you have selected the 2nd point the space is defined. **Enter a room number and name when prompted².**

Note that room numbers do not need to be totally numeric (e.g. you could enter 'B01'), in which case the number at the end of the entered value will be incremented with each new room.

Once the number and name are entered, the macro will construct a label which you can position. **Position the label with the cursor and left click to place it, or right click to place it at the centre of the space.**

2.3.2 Create an irregular Space



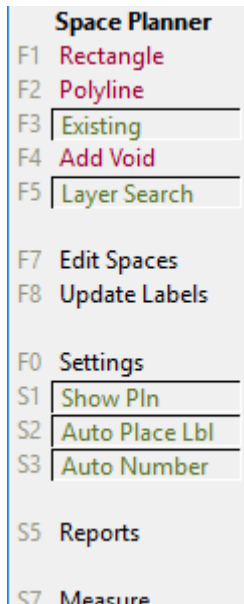
Exit back to the main menu if you are not already in it. **Select F2 Polyline** and then **select a point on your drawing.** You can now **complete the room space outline using the standard polyline interface** (using F1 & F2 & F3 to enter curves as you would in the standard polyline interface).

After completing the polyline you will be prompted to enter a number and name as in the previous step. Notice that the default number has been incremented from the number you gave the rectangular room, and the name you entered for that room is displayed on the **F1** key. Recently used names will always be displayed on the function keys so that you can use them without the need to type the name again (you can also define names that you wish to always display on the function keys – see Section 7.1.1 for details on how to do that).

² If either name or number is not included in the layout for either the Room Labels or the Detail Report, then you will not be prompted to enter it. It is assumed in this exercise that you have not changed the default label or report layout (or at least that if you have then you still have still included the tags for the name and number!)

Enter the required number and name, and position the label as for the Rectangular Room.

2.3.3 Create a Space from an Existing Polyline



Exit the macro and create a closed polyline using the normal DataCAD functionality.

Invoke the macro again and enable **F3 Existing**.

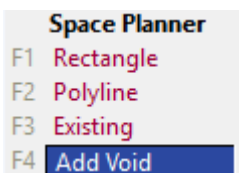
Enable **S2 Auto Place Lbl**.

Enable **S3 Auto Number**. You will be prompted to Enter next Room Number, with the default entry being set to the number you entered for the irregular room incremented by 1. **Either accept the default or enter a new room number.**

Click on the polyline that you created. Enter a name for the space when prompted and the label will be created and automatically placed at the centre of the space.

Note that the macro will *not* recognise any voids that are in an existing polyline (you can select an existing polyline with voids, but the area, perimeter and volume calculations performed by the macro will not take the voids into account).

2.3.4 Add a Void



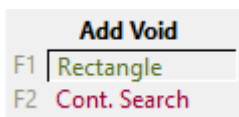
Enable **F4 Add Void**.

Use the cursor to select one of the spaces you have created in previous steps. The selected space will be highlighted (displayed with a dashed line).

Select **F1 Rectangle**.

Use the cursor to select 2 points to define a rectangular void. Make sure that the rectangle is completely within the space that you are adding it to (if not then area and perimeter etc will not be calculated correctly for the space).

The void will be added and the label updated to reflect the new area.



2.4 Create Reports

2.4.1 Create a Totals Summary Report

Reports	
F2	Report Settings
F4	Rpt Blocker
F6	Detail Report
F7	Total Summary
S2	Active Layer
S3	On Layers
S4	All Layers
S6	Select
S7	Prev Selection

Select **S5 Reports** from the Main Menu. The Reports Menu will be displayed.

Select **F7 Total Summary** if it is not already enabled,

Select **F2 Report Settings** to display the Report Settings menu, and then **choose F1 Tot Sumry Style**. Select the font, size etc. to use for the text in the Totals Report. Once done, **exit back to the Report Menu**.

Assuming the 3 rooms you created above are on the same layer (and that this is still the active layer) **select S2 Active Layer** (or if your rooms are not on the active layer, select **S3** or **S4** as appropriate).

The spaces to be reported on will be highlighted. **Select S8 Create to generate the report**. There may be a small delay while the report is generated

If you wish to copy the report to the Windows Clipboard then press **F3 To Clipboard** before positioning the report on the drawing.

Position the report using the cursor and left click to place the text in the drawing.

2.4.2 Create a Detail Report

Reports	
F2	Report Settings
F4	Rpt Blocker
F6	Detail Report
F7	Total Summary
F1	Tot Sumry Style
F3	Dtl Rpt Layout
F4	Title Style
F5	Col Heading Sty
F6	SubHeading Styl
F7	Data Line Style
F8	SubTotals Style
F9	Totals Style

If you are not already in the Reports Menu then select **S7 Reports** from the Main Menu.

Enable F6 Detail Report.

Select F2 Report Settings so that you can specify the format and columns to be included in your report.

The Detail Report will have a Title (appears above the tabulated data), Col Headings, Data Line(s), and Totals Lines. Additionally, it may have Sub-Headings and Sub-Totals if you have selected to report by layer or category.

You can specify the text font and style for each part of the report using the **F4** through **F9** keys. Adjust these settings as required and then exit back to the Report Menu.

Select F3 Dtl Rpt Layout to specify layout of each part of the report. The form shown below will be displayed:

Report Layout

Enter required text for each entry. Leave a column blank if it is not required (blank columns will not be added to the output table). Tags (in curly braces) will be replaced by the appropriate data when the report is produced. Available tags for each field will have their corresponding buttons on the left of the form enabled (no tags should be used in Report Title or Col Headings).

Report Title:

Column 1	Column 2	Column 3	Column 4	Column 5	Column 6
Col Headings: Room #	Room Name	Dimensions	Area	Percent of Area	Perimeter
Sub-Headings: <input type="text"/>					
Data Lines: {nbr}	{name}	{ldim} x {sdim}	{area} {aunit}	{area%}	{perim}
Sub-Totals:		{lyr} Totals:	{area} {aunit}	{area%}	{perim}
Totals:		TOTALS:	{area} {aunit}	{area%}	{perim}

< >

Cancel Save

You can change the layout if you wish. The Report Title and Col Headings should contain text only, but the other items can all contain the tags shown on the buttons on the left of the form in addition to free text. The available buttons will be enabled as you enter each field (when the report is generated the tags will be replaced with the appropriate data).

Press the **Save button to return to DataCAD.** (Note: you cannot use DataCAD whilst the 'Report Layout' form is open - DataCAD will appear to have 'hung' until you exit the layout form).

You can change the style (colour, size, font etc.) for any part of the report using the **F4** through **F9** keys on the Report Settings menu.

You can select **S5 Col Space** to specify the minimum spacing between columns (noting that it is specified as a multiple of the text size that is specified for the Detail Lines).

If you wish to have columns and rows separated by lines then enable **S7 Do Lines**.

Exit back to the Reports Menu and press **S6 Select.** This will display the standard selection criteria (Entity, Group, Area etc.) where you can select the entities to be reported on. **Do not select anything, but right click to return to the Reports menu.**

Press **S4 All Layers.** This will select all Space Planner spaces in the drawing.

Press **S8 Create to generate the report** (there may be a small delay while the report is being generated).

Press **F1 To Clipboard before placing the report on the drawing** if you wish to copy the data to the Windows Clipboard.

Position the report on the drawing using the cursor and left click to place the text in the drawing.

2.5 Further Functionality

2.5.1 Measure a Room

Measure	
F1	Copy Area
F2	Copy Perim
F3	Copy Area/Peri
F5	Copy Volume
F6	Copy All

Select **S7 Measure** from the macro Main Menu.

Select one of the **Room Space Polyline**s that you have created with the macro.

A summary showing the area, perimeter and volume of the room space will be displayed in DataCAD's error line.

You can select one of the function keys (shown at left) to copy part or all of this information to the Windows Clipboard. Once copied to the Clipboard the text can be pasted into DataCAD or any other application that accepts text from the clipboard.

3 The Main Menu

3.1 Input Modes

Space Planner	
F1	Rectangle
F2	Polyline
F3	Existing
F4	Add Void

The first 4 options on the main menu are mutually exclusive and define the input mode. This setting also applies to many of the macros sub-menus, so you do not need to be in the main menu to create or add a void to a space (with the notable exception of the 'Edit Spaces' menu which has it's own input mode depending on the function(s) selected in that menu).

The available input modes shown below.

If **F1 Rectangle** or **F2 Polyline** are selected then **F5 Snap Grid** will be displayed. This allows you to set the grid origin or snap grid size to assist in the manual placement and sizing of rooms.

If **F3 Existing** or **F4 Add Void** are selected then **F5 Layer Search** will be displayed. This is the normal DataCAD Layer Search toggle.

3.1.1 Rectangle

F1 Rectangle allows you to define a rectangular space. Typically the sides will be parallel to the X & Y axis, but you can use the **F8 Key Size** option to create a space at an angle. This is defined by selecting 2 diagonally opposite points. The first point is selected with the cursor; the second point is selected using one of the following options

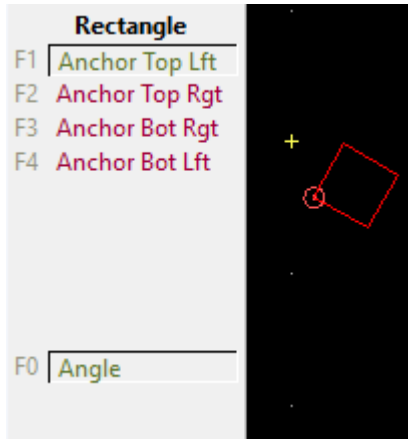
Rectangle	
F1	Grid Origin
F2	Snap Size
F8	Key Size

With the cursor: Use F1 and F2 to adjust the snap grid if that is helpful

Press the space bar to enter the X & Y dimensions (positive dimensions will result in the room being created above and to the right of the first point)

Press **F8 Key Size** and enter the X & Y dimensions from the keyboard. With this option you can select an angle for the space, as well as its direction from the first point (see section 3.1.1.1 below).

3.1.1.1 Angled Rectangular Spaces



If you select **F8 Key Size** after selecting the first point in Rectangle mode then the menu shown at left will be displayed.

Select the **F0 Angle** option to specify an angle for the X-axis, and the **F1 Anchor Top Lft** through **F4 Anchor Bot Lft** keys to specify which direction from the first point the space will be drawn.

Whilst in this menu, the first point will be marked by a small circle on the drawing surface and the direction and angle of the specified space will be indicated by a small square that is updated as you change the angle or anchor point of the space (In the illustration at left an X angle of 60° has been specified).

3.1.2 Polyline

F2 Polyline allows you to define a space using the normal polyline input methods (including arcs and tangents if you choose to use them).

3.1.3 Existing

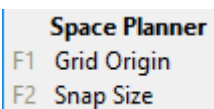
F3 Existing is used to convert an existing polyline to a room space polyline. Note that if the selected polyline contain voids then the voids will not be recognised by the macro (the polyline will still be converted to a room space, but the existing voids will not be measured or included in any calculations by the macro). Voids can be defined after conversion to a room space using the option below.

3.1.4 Add Void

F4 Add Void enables you to choose an existing room space and then use the normal polyline input to create a void. Note that the void created should be wholly within the room space outline (it will still be created if not, but the area calculations may not be what you expect as the whole area of the void will be subtracted from the room space even though they do not totally overlap).

3.2 Other Options

3.2.1 Snap Grid



The **F5 Snap Grid** option is only available if the Rectangle or Polyline input modes are selected. Selecting this option will display a menu where you can set the Grid origin by selecting **F1 Grid origin**, of the Snap Grid size by selecting **F2 Snap Size**.

Note that selecting a new grid origin effects all grids (not just the snap grid), but the grid display is not automatically updated.

3.2.2 Edit Spaces

Select **S1 Edit Spaces** to access the Edit Space menu, which allows you to move, copy, rotate, change label text etc. See the section 5 of this document for details of the Edit Space menu.

3.2.3 Update Labels

The **F8 Update Labels** option will recalculate the text of ALL labels in the drawing.

The measurements in labels are updated automatically if you have changed the size of a room, so you will not often need to use this option.

You may wish to use it if you have changed the Line Content of one or more of the label lines, or if you have changed the units settings for dimensions or areas etc. It will update the text only; it will not update the text style (font, colour, size etc) of existing labels (even if you have changed these settings for new labels).

3.2.4 Settings

Select **F0 Settings** to access the Settings menu. The following 3 settings appear on Settings menu as well as on the main menu:

S1 Show Polyline, **S2 Auto Place Lbl**, **S3 Auto Number**.

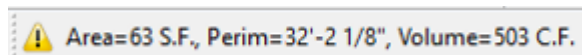
See the descriptions of these options under Settings (sections 5.8 thru 5.10 of this document).

3.2.5 Reports

Select **S5 Reports** to invoke the Reports menu. Either a Total Summary or a Detailed report can be produced. The reports menu contains options for formatting the reports and also for producing the reports. See the Reports (section 6.1 of this document) for further details.

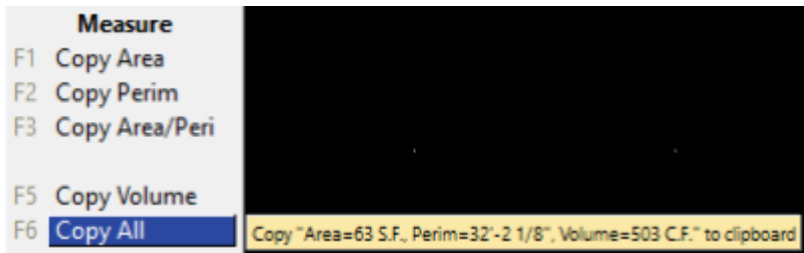
3.2.6 Measure

The **S8 Measure** option is used to measure the area, perimeter, volume, and perimeter area of a selected space. After selecting a space, it's measurements are displayed on the DataCAD Error line as shown below:



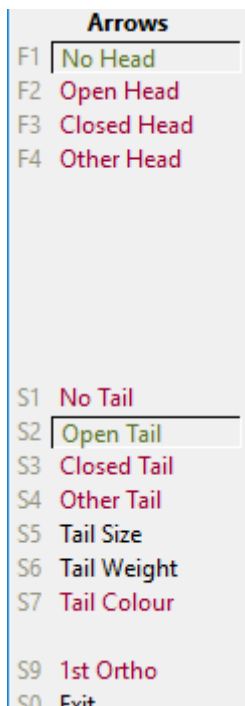
The units used will depend on the units settings in the macro (see Settings, section 5.4 of this document).

You also have the option to copy all or some of the measurements to the clipboard. Hover your cursor over the buttons to display a hint showing exactly what will be copied (as shown below).



Note that the normal DataCAD Measures functionality (Measures|Area/Perim|Select) may report an incorrect perimeter for Spaces created by this macro if they contain voids. It is therefore recommended to always use this macro function to obtain measurements of individual spaces.

3.2.7 Arrow



Select **S8 Arrow** from the main menu to display the Arrows menu shown at left.

The arrows drawn using this macro are similar in design to the arrows produced by the standard DataCAD arrow menu, but there are some extra options that are not available with the standard arrows. The main difference is the ability to draw double-headed arrows.

Disable/Enable **F1 No Head** and **S1 No Tail** to control which end (or both ends) the arrow head will be drawn. You can specify different arrow styles/size/weight/colour for the arrow at each end by using the options below these buttons.

Note that the Size specified will define a multiple of the text size used for the first line of the Space labels (as set in the Line1 Style in the Label Settings menu).

3.2.8 Help/About

Press the S9 Help/About button to display a panel showing version and copyright information about the macro. This panel also has a **Show Instruction Manual** button which will display this document.

4 Edit Spaces Menu

Edit Space	
F1	Move
F2	Copy
F3	Dynamic Rotate
F4	Rotate 90
F6	Move Label
F7	Chg Lbl Angle
F9	Change Size
F0	Fold Corner
S1	Move Side/Cnr
S2	Stretch
S4	Chg Name
S5	Chg Number
S6	ReNumber
S7	Chg Category
S9	UnAssociate
S0	Exit

Select **F7 Edit Spaces** from the main menu to invoke the Edit Space menu shown at left. Some options on this menu can be used in conjunction with each other (e.g. Chg Name, Chg Number, Chg Category shown enabled in the illustration), but most cannot be used in conjunction with other options (in which case other options will be disabled as soon as you select a new option).

The various options are described below.

4.1 Move

Choose the **F1 Move** option and then select an existing space to drag it to a new position using the cursor.

Edit Space	
F1	Grid Origin
F2	Snap Size
F4	Rotate 90
F7	Top Left
F8	Top Right
F9	Bottom Left
F0	Bottom Right
S7	Reset Origin

Whilst dragging the space the following options may be available:

F1 Grid Origin allows you to set a new point as the grid origin for the current layer. This can be useful using the snap grid to align a space with another space for example.

F2 Grid Size allows you to specify a new snap grid size.

F4 Rotate 90 will rotate the space that is being dragged by 90°.

F7 Top Left through **F0 Bottom Right** will relocate the dragging handle of the space to the corner of the space as indicated on the key label. When you select the space to move, the place you click to select it will be the handle it is dragged by. But it might be useful to move the handle to one of the positions on these keys to aid in aligning the space with other spaces.

S7 Reset Origin resets the coordinates of the grid origin to zero for the current layer.

4.2 Copy

Edit Space	
F1	Grid Origin
F2	Snap Size
F4	Rotate 90
F7	Top Left
F8	Top Right
F9	Bottom Left
F0	Bottom Right
S5	Update Number
S6	Update Name
S7	Reset Origin

Choose the **F2 Copy** option and then select an existing space to drag a copy of it to a new position using the cursor.

Whilst dragging the space the same options are available as described above for the Move functionality.

In addition the following 2 settings are available:

S5 Update Number

If this setting is enabled then you will be prompted to enter a new room number for the copy once you have placed it.

S6 Update Name

If this setting is enabled then you will be prompted to enter a new room name for the copy once you have placed it.

4.3 Dynamic Rotate

Choose the **F3 Dynamic Rotate** option and then select an existing space to rotate it to a new position by dragging with the cursor. The label of the rotated space is rotated together with the outline, but a text angle greater than -90° and less than or equal to $+90^\circ$ will be ensured at completion.

4.4 Rotate 90

Choose **F4 Rotate 90** to rotate spaces that you select by 90° . The label will be automatically rotated with the space and will also be automatically re-oriented if necessary to maintain a label angle greater than -90° and less than or equal to $+90^\circ$.

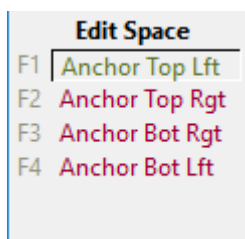
4.5 Move Label

Use the **F6 Move Label** option to drag the label of selected spaces to a new position. Once you have selected the label you have the option of selecting **F1 To Centroid** to place the label at the centre of the space.

4.6 Change Label Angle

Use the **F7 Chg Lbl Angle** option to specify a new angle for the label of selected spaces. The required angle is entered (rather than a rotation amount). The angle will be interpreted literally even if it results in text being the 'wrong way around'.

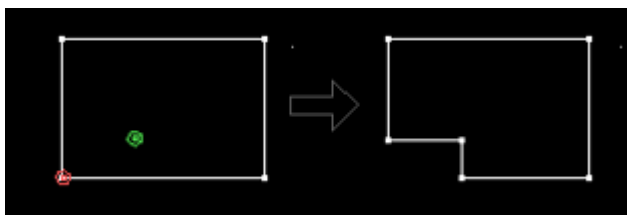
4.7 Change Size



The **F9 Change Size** option can only be used on rectangular spaces with sides parallel to the X & Y axis. When you select a suitable space with this option you will be prompted to key new X & Y dimensions for the space. One of the corners of the space will be anchored to its current position and the other corners moved relative to that one. Use the **F1** through **F4** options to select the corner to be anchored.

4.8 “Fold” a Corner

The **F0 Fold Corner** option allows you to move a corner into the existing space, connected to the adjacent sides by new lines that are perpendicular to those sides. For example, in the diagram below if you folded the corner marked with a red circle to the position marked with a green circle you would get the result shown on the right:



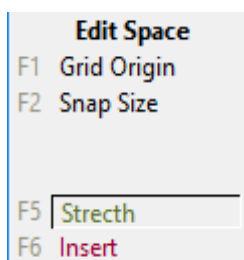
Note: When selecting the corner to fold, if the point you select is within the miss distance of the corner of more than 1 space then a series of dialog boxes will be displayed asking which space you want to select. Press the **Cancel** button on each dialog box that prompts for a space that you do *not* want to use, and **OK** button when it prompts about the space you *do* wish to use (once you press **OK** no further spaces will be prompted).

4.9 Move a Side or Corner

The **S1 Move Side/Cnr** option allows you to move a corner (vertex) or a side of the space. When you select this option you will be prompted to select a side or corner to move. If you select a point that is close to the corner of a space then just the corner will be moved, but if you select a point on a side (not near a corner) then that side will be moved (i.e. the 2 corners at either end of that side will be moved).

When selecting a side or corner, if the point you select is within the miss distance of more than 1 space then a series of dialog boxes will be displayed asking which space you want to select. Press the **Cancel** button on each dialog box that prompts for a space that you do *not* want to use, and **OK** button when it prompts about the space you *do* wish to use (once you press **OK** no further spaces will be prompted).

If you are moving a corner then once you select a new point the sides that connect to it will be stretched to the new position (i.e. you are simply moving the polyline vertex).



If you are moving a side, then the default behaviour is to stretch the sides connecting to each end of it. But before choosing the new position you will see the 2 options shown at left (with **F5 Stretch** selected by default). If you select **F6 Insert** then new sides will be inserted between the old location and the new location of the ends of the side being moved.

4.10 Stretch

The **S2 Stretch** option in the Edit Space menu simply links to the standard DataCAD Stretch menu.

4.11 Changing Text Fields

The **S4 Chg Name**, **S5 Chg Number**, and **S7 Chg Category** buttons all allow you to change text fields associated with a space. These options can be selected together if required, and once you select a space you will be prompted to enter new values for each of the selected items in turn.

4.12 Renumbering

When you select the **S6 ReNumber** option you will be prompted to enter the Next Room Number followed by the increment. Once you have entered these values you can select spaces in turn and they will be renumbered according to the parameters you entered (with the increment being added after you select each space).

Space numbers are text, and although they should end in a numeric value, they do not need to be totally numeric (although of course they can be). For example 'B01' is a valid space number, and will be incremented until it gets to 'B99' (the increment logic will not lengthen the text if it is not totally numeric, so incrementing 'B99' by 1 will produce 'B00'). Space Numbers that are totally numeric will be increased in length as required (e.g. incrementing '99' by 1 will produce '100').

4.13 UnAssociating

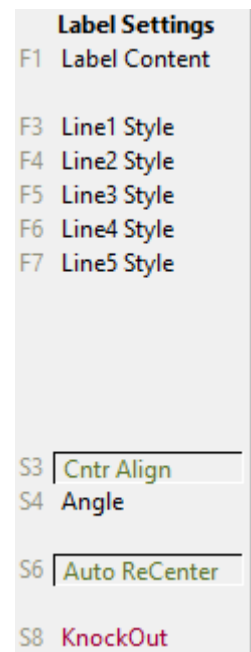
If you unassociate a Space that has separate entities then the linkage between the entities will be removed and the macro will no longer recognise the polyline and label as being Space Planner entities (it will longer be included in any reporting, and the label will not be updated if you change the size of the polyline).

If you unassociate a Space that is all one entity, separate text entities will be created to replace the text that was previously part of the polyline entity, and the macro will no longer recognise the polyline or text as Space Planner entities (it will longer be included in any reporting, and the label will not be updated if you change the size of the polyline).

Select **S9 UnAssociate** from the Edit Space menu and then select the space(s) you wish to unassociate.

5 The Settings Menu

The Settings Menu contains options to control how the entities and their labels are drawn and reported. The various options are described in detail below.



5.1 Label Settings

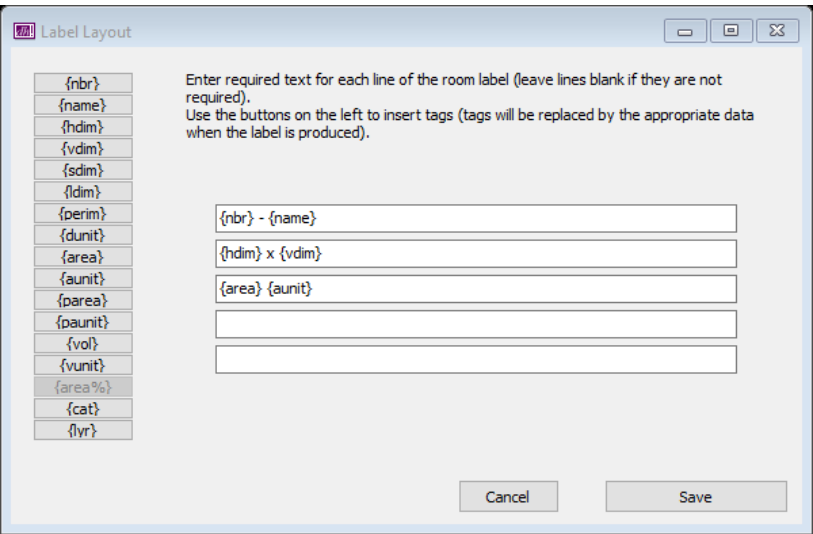
Press **F1 Label Settings** from the Settings Menu to invoke the Label Settings menu.

Space Labels can have up to 5 lines of text. The Label Settings menu contains options to specify the content and text style of each individual line, as well as some options which apply to all lines.

5.1.1 Label Content

Select **F1 Label Content** to define the content of each line of the label. The content is specified using tags which get replaced with the actual data when the label is created. The specification and also contain free text which will be included unchanged in the final label.

The input form for label content is illustrated below. Hover your cursor over the tag buttons on the left to display a description of the data it represents. You can press these buttons to insert the tag into the field.

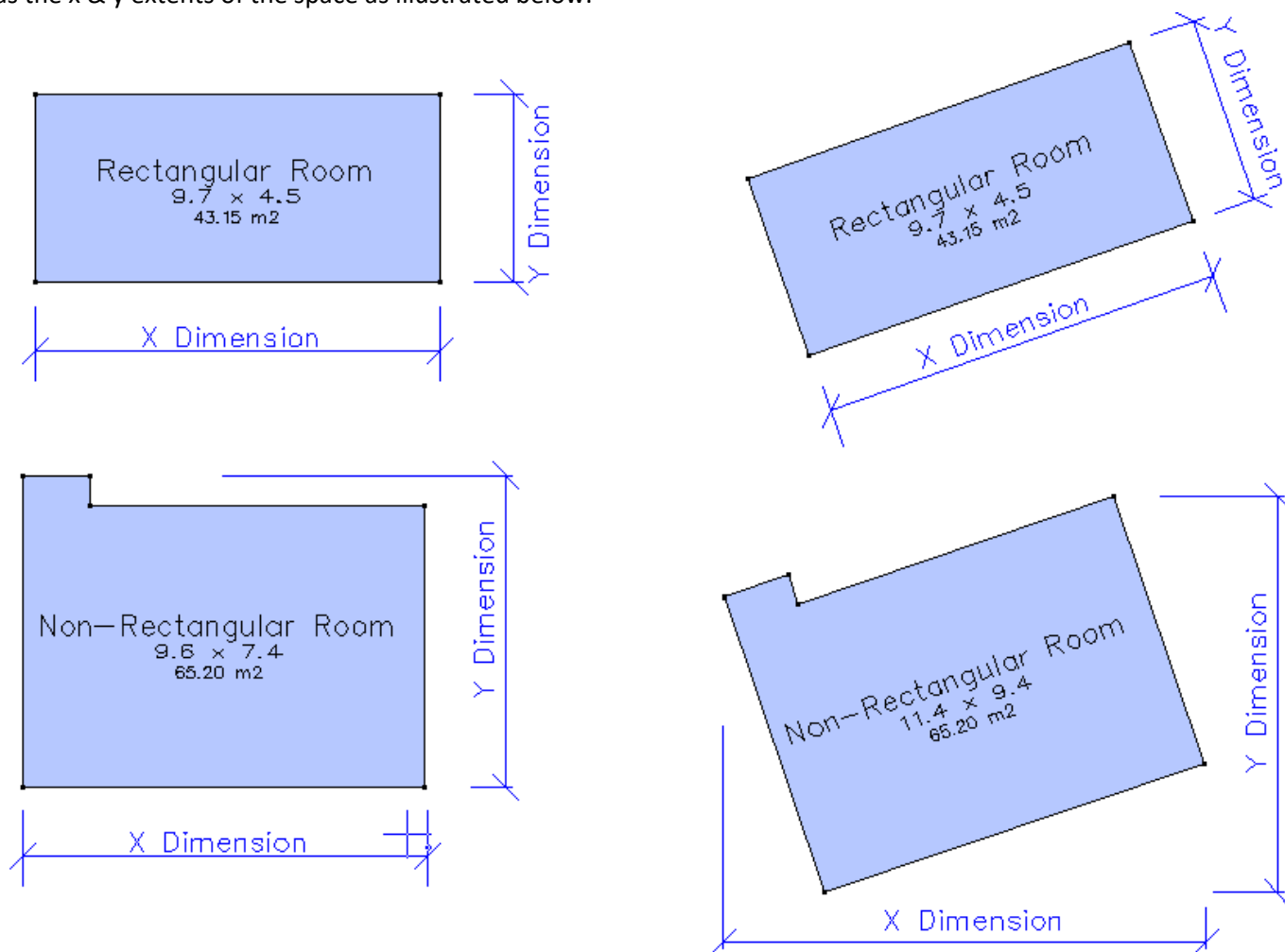


The tags are also listed below:

{nbr}	Space Number	{name}	Space Name
{hdim}	Horizontal dimension of the space	{vdim}	Vertical dimension of the space
{sdim}	Smaller of the 2 dimensions	{ldim}	Larger of the 2 dimensions
{perim}	The perimeter of the space	{dunit}	The dimension unit
{area}	The area of the space	{aunit}	The units used for the area
{parea}	The area of the space perimeter (i.e, perimeter multiplied by z height)		
{paunit}	The units used for the perimeter area		
{vol}	The volume of the space (i.e. area multiplied by z height)		
{vunit}	The units used for volume	{lyr}	layer that the space is on (1 st 8 characters only)
{cat}	Category (if one is assigned to space)	{grp}	Category (if assigned), else 8 character layer name

Any group of tags can be used together with plain text if required. As an example, the default entry for line 1 is '{nbr} {name}' which contains 2 tags separated by a space: the tags will be replaced by the appropriate values whilst the space will be retained. Other text could also be included (except that curly brace characters should not be used other than as part of the defined tags).

Note that room dimensions (the {hdim}, {vdim}, {sdim}, and {ldim} tags) for non-rectangular spaces are calculated as the x & y extents of the space as illustrated below:



5.1.2 Line Style

The options **F3** through **F7** allow you to define the text style for each line. The following options are available:

F1 Size

The size can be specified either as an absolute value, or in conjunction with the **F0 Text Scale** option if it is enabled. *Note that although the text scale setting is repeated on the menu for each line, it is a single setting* (changing it for one line will change the setting shown on all the other lines as well). The text scale setting is independent of the standard DataCAD setting, but works in the same way as the standard setting without the 'Lock Size' option.

F2 Colour

Specify the text line colour to use.

F3 Weight

You can specify the weight of the text only if the 'Sep Entities' option is enabled (see section 4.10). If 'Sep Entities' is not enabled when you select this option then you will be asked if you wish to enable it.

F4 Slant

Specify the slant of the text.

F5 Aspect

Specify the text aspect

F6 Space Below

Specify the space between this line of the label and the line below it as a multiple of the text size of this line (this setting is not available for Line 5 as there is no line below it).

The default value of zero will result in standard spacing, anything greater than zero will increase the spacing.

Whilst you may enter a negative value to decrease the spacing, it is not recommended as it will generally lead to the lines of text overlapping each other.

F7 Font You can specify the font only if the the 'Sep Entities' option is enabled (see section 4.10). If 'Sep Entities' is not enabled when you select this option then you will be asked if you wish to enable it.

The available fonts will be displayed on the function keys (use **S8** , **S9** to scroll back and forward if required). The macro only caters for DataCAD fonts (it does not allow you to select true type fonts).

F0 Text Scale This option is similar to the Text Scale option in the standard DataCAD text menu (although it is independent of that setting). When it is toggled on, labels are created relative to the current plot scale setting. Unlike the standard DataCAD setting, there is no 'Lock Size' option, so the text size of labels will not automatically change if you subsequently change the plot scale.

Note that although the text scale setting is repeated on the menu for each line, it is a single setting for all the labels and report lines created by the macro (changing it for one line will change the setting for all the other label and report lines as well).

S1 All Caps Enable this option to display this line in all upper case characters. Note that this applies to the display of this line only, and not the underlying data (e.g. if you have a space named 'Kitchen' then it will be displayed as 'KITCHEN' if it is included in a line that has this option enabled, but it would still be displayed as 'Kitchen' in the totals report unless you also enabled the All Caps option for the appropriate line of the report). Use the **S9 All Caps** option on the Room Name menu if you wish the room names to always be converted to upper case. There is an 'All Caps' option available when entering names that will cause the name to be displayed in all instances regardless of this setting (see Section 7.1 of this document).

5.1.3 Center Align

Enable the **S3 Cntr Align** button if you wish the space labels to be centre aligned. If this button is disabled then the labels will be left aligned.

5.1.4 Angle

Use the **S4 Angle** option to enter an angle that will be used by default for manually positioned labels. This setting is ignored if the 'Auto Place Label' setting is enabled (automatically paced labels are always either horizontal or vertical depending on how they fit in the space).

5.1.5 Auto Re-Center

Enable the **S6 Auto ReCenter** option if you wish labels to automatically be repositioned to the centre of the space after it is changed (by stretching, enlarging, moving a corner or side etc.). *The label will only be automatically repositioned if it was at the centre of the space prior to the space being changed.* If the space is changed outside of the macro (e.g. using the standard DataCAD polyline editing functionality) the label will be repositioned next time you use the macro.

5.1.6 KnockOut

Enabling the **S8 Knockout** option will apply the standard DataCAD knockout attribute (with no border, and with enlargement factors of 1) to each of the text entities in the label.

As it is applied to each entity individually, there is a possibility that one entity may 'knockout' part of one of the other entities in the label (this is most likely to happen if a label has lower case characters such as 'g' or 'j' which extend below the baseline). If this is a problem you may wish to convert to upper case or to slightly increase the spacing between the lines (see options F6 & S1 in the 5.1.2 Line Style section of this document).

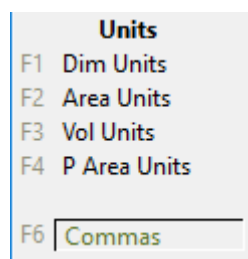
5.2 Report Settings

The Report Settings option shown on the Settings menu is the same as the Report Settings option on the Reports menu. Please refer to section 6.1 of this document for instructions.

5.3 Categories

The **F3 Categories** button is a toggle. If enabled then you will be prompted to select a Category each time you create a new space. The Detailed Report will also give you the option to report and sub-total by Category if this option is enabled. Disable this option if reporting by Category is not required.

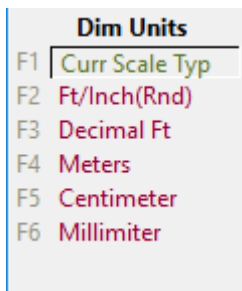
5.4 Units



Selecting **F4 Units** on the Setting menu will invoke the Units menu shown at left. This menu allows you to select the measurement units to be used for Dimensions, Floor Areas, Volumes and Perimeter Areas.

Select each appropriate option to select the units to be used in Space Labels and Reports, as well as by the Measure option on the Main Space Planner Menu.

5.4.1 Dimension Units



The Dim Units menu is displayed when you select **F1 Dim Units** on the Units menu.

You can select from 6 unit types as shown on **F1** thru **F6** at left and as detailed below. Other options are available depending on the unit type chosen.

F1 Curr Scale Typ tells the macro to use whatever Scale Type (and associated units) are currently selected in the Standard DataCAD Scale Type Settings. The unit, significant digits and rounding settings (on **F9**, **S2**, **S6** on the illustration at left) are *not available* with this setting.

F2 Ft/Inch(Rnd) tells the macro to use feet and inches (similar to DataCAD's Architect scale setting, but without any fractions of an inch). The **S6 Round Near** setting is used in association with this option (e.g. if the dimension is 20'-1 5/8" it will be rounded to 20'-2" if Round Near is enabled, or to 20'-1" if Round Near is disabled).

The **F3 Decimal Ft**, **F4 Meters**, **F5 Centimeter**, and **F6 Millimeter**, options specify the units as shown by their names. Further options are available with these units as outlined below:

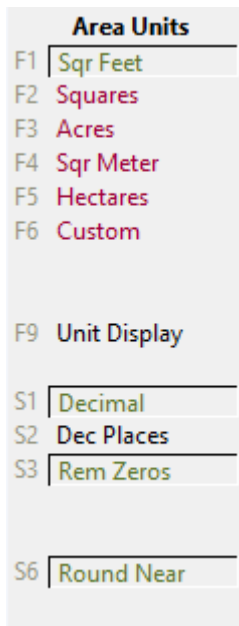
F9 Unit Display is used to specify the way you wish the units to display (e.g. for decimal feet you might specify 'ft' or 'feet' or just the normal single quote symbol used for feet). You can specify a string of up to 16 characters for the unit display. *Note that units will not be displayed in the label or report unless the {dunit} tag is included in the specified content* (see sections 5.1.1 and 6.1.2)

S2 Dec Places allows you to specify a number of decimal places between 0 and 9. This is the number of digits that will be calculated for dimensions (but not necessarily displayed – see the following option) following the decimal point. If you specify 0 decimal places then the decimal point will not be displayed.

S3 Rem Zeros option will only be displayed if a non-zero number of decimal places is specified. If enabled then any trailing zeros after the decimal point will be removed (e.g. if you specified 3 decimal places then the result without this option enabled might be '8.900' or '9.000' but enabling this option will cause the dimension to display as '8.9' or '9' respectively).

S6 Round Near is used to specify how rounding is performed. If enabled then dimensions will be rounded to the nearest number with the specified number of decimal places (e.g. if 3 decimal places are specified then '8.8996' would be displayed as '8.900' if Rem Zeros was disabled, or simply as '8.9' if Rem Zeros was enabled). If this option is disabled then dimensions will be rounded down (e.g. '8.8996' would be rounded to '8.899' if 3 decimal places were specified).

5.4.2 Area Units



The Area Units menu is displayed when you select **F2 Area Units** on the Units menu.

You can select from 6 unit types as shown on F1 thru F6 at left and as detailed below. Other options are available depending on the unit type chosen.

F1 Sqr Feet , **F2 Squares** , **F3 Acres** , **F4 Sqr Meter** , **F5 Hectares** options allow you to specify the units as specified on the button label.

F6 Custom allows you to specify your own units. If you select this option then you will also be prompted to enter the area of your chosen unit in square feet.

For example if you wish to use tsubo (the area of 2 tatami mats, or approx 35.58 sq ft) for a Japanese client you would select 'Custom', enter 35.58 as the unit size and enter 'tsubo' (or a suitable abbreviation) as the Unit Display (using the **F9 Unit Display** option detailed below).

F9 Unit Display is used to specify the units displayed in labels or reports.
e.g. you might specify 'm2' or 'sq m' for square meters, or any value at all (up to 16 characters total length). Whatever value you enter will be used until you change it (it will not automatically change if you change the area units).

S1 Decimal tells the macro whether to use decimals or fractions.

If Decimal is enabled then decimal notation will be used and the **S2 Dec Places** (and **S3 Rem Zeros** if applicable) buttons will be displayed.

If Decimal is disabled then fractions will be used that the **S2 Smallest Frac** button will be displayed.

S2 Smallest Frac is used to specify the smallest denominator that will be used for fractional areas. Click on this button to choose the smallest fraction from a menu that includes values from 1/2 down to 1/128.

S2 Dec Places allows you to specify a number of decimal places between 0 and 9.

This is the number of digits that will be calculated for areas (but not necessarily displayed – see the following option) following the decimal point. If you specify 0 decimal places then the decimal point will not be displayed.

S3 Rem Zeros option will only be displayed if a non-zero number of decimal places is specified in the option above.

If enabled then any trailing zeros after the decimal point will be removed (e.g. if you specified 3 decimal places then the result without this option enabled might be '88.960' or '99.000' but enabling this option will cause the area to display as '88.96' or '99' respectively).

S6 Round Near is used to specify how rounding is performed on areas.

If enabled then areas will be rounded to the nearest number with the specified number of decimal places (e.g. if 1 decimal place was specified then '88.96' would be displayed as '89.00' if Rem Zeros was disabled or simply as '89' if Rem Zeros was enabled).

If this option is disabled then areas will be rounded down (e.g. '88.96' would be rounded to '88.9' if 1 decimal places was specified).

5.4.3 Volume Units

Pressing **F3 Vol Units** from the Units menu will display the Volume Units menu. The first 5 options on this menu allow you to specify the units to be used for displaying volumes
(**F1 Cubic Ft** , **F2 Cubic Yrds** , **F3 Litre** , **F4 Cubic Mtr** , and **F5 Custom**).

The various options on this menu work in the same way as the equivalent options on the Area Units menu. Refer to the notes on that menu above for an explanation of the items.

5.4.4 Perimeter Area Units

Pressing **F4 P Area Units** from the Units menu to display the P Area Units menu which allows you to specify the units used for the perimeter area.

F1 =Area Units is the first option on this menu. If you select this option then exactly the same settings will be used for perimeter area as for the floor area (and not other settings will be required on this menu).

If you choose one of the other settings (**F2 Sqr Feet** , **F3 Sqr Meter** , or **F4 Custom**) then other options will be available that are similar to the options on the Area Units Menu: Please refer to the notes on that menu in section 4.4.2 above for instructions on the various options.

5.4.5 Commas

If the **F6 Commas** option is enabled then comma separators will be included in numbers with more than 3 digits to the left of the decimal point (if disabled then no commas will be included). *This option is not applicable for dimension units where you have selected to use the current DataCAD Scale Type* (standard DataCAD formatting will be used in this case).

5.5 Separate Entities

The Space Planner macro can create associated space outlines and labels in 2 different ways, and the **F6 Sep Entities** setting lets you choose which will be used when creating new spaces.

If this setting is disabled:

The label will be created as part of the polyline outline entity.

The advantage of this is that the relationship between the outline and the text is absolute and cannot be broken.

The disadvantage is that it limits the text formatting options available for the label : You will not be able to specify a font for the label lines (default Roman font will be used) and you will not be able to specify a weight (default of 1 will be used). You will also not be able to move the label relative to the outline using the normal DataCAD functionality (but the macro's Edit menu has options to allow you to move and rotate the label if required)

*If you are comfortable with the limitations outlined above then it is recommended that you disable the **F6 Sep Entities** setting.*

If this setting is enabled:

The label will be created as separate discreet text entities. The advantage of this is that you can apply the full range of formatting options available to text entities (basic font, weight, and knockout options are available within the macro, but you could also format the text outside the macro without breaking the association between the outline and the label entities).

The macro uses a combination of linkage attributes, grouping and proximity to associate the text entities with the polyline outline entity. Under normal circumstances the association should be solid, but the macro cannot control changes that you make outside the macro (e.g. it would be possible for you to delete one line of the label but leave the outline and other label lines in place, and this can break the association). If the association is

broken in the current version then the label (or what is left of it) will not automatically update if you change the space (but reports should still show correct values even if they do not match the visible text on the label). I plan to introduce some repair functionality in a future version.

Care should also be taken if you copy a space which was created with separate label entities. The normal DataCAD copy function will duplicate the linkage attributes, and although the macro will use grouping and proximity to associate the correct label entities with the copied polyline there is a slight possibility of label lines being associated with the wrong outline if you break the default grouping. It is recommended that you use the copy functionality in the Edit menu of the macro if you wish to copy a space (the macro will then automatically update the linkage attributes of the copied entities).

The label and outline are always created on the same layer. You can move them to different layers if desired and this will *not* break the linkage (but as an alternative to separating them, you can also use the **S1 Show Pln** option to hide the outline whilst leaving the label visible).

5.6 Associative

In most cases the **F7 Associative** option should always be enabled.

Disable this option *only if you do not wish to report on the spaces* (e.g. if you are using the macro to place room labels only and are not interested in the reports). Labels will *not* be automatically updated, and nor will the spaces be included in any reports if this option is disabled.

5.7 Fill Polylines

Enable the **F9 Fill Polylines** option if you wish the macro to apply a solid fill to space outlines as they are created.

If this option is enabled then the **F0 Fill Colour** option will be visible. Select that option to specify the colour of the fill that will be applied to the space outlines as you create them.

You can use the Label Knockout option (see Section 5.1.6 of this document) in association with solid fill if you desire.

5.8 Showing and Hiding Room Outlines

The **S1 Show Pln** option allows you to show or hide the polyline space outlines produced by the macro. This is not a setting applying to any particular space(s): Toggling this setting will change the visibility of existing space outlines as well as those that are being newly created. You can toggle their visibility on and off as many times as you like.

As the macro creates labels on the same layer as the space outlines it may be more convenient to use this option than to move the outlines to a separate layer that can then be turned off.

5.9 Automatically Place Labels

If the **S2 Auto Place Lbl** option is enabled, then labels of newly created spaces will automatically be located at the centre of the space. Auto-placed labels will normally be oriented horizontally, but if they do not fit in the space

horizontally (but do fit vertically) then they will be oriented vertically. They will be oriented horizontally if they do not fit in either orientation (even though the horizontal label may then overlap the outline).

If this option is disabled then you will be prompted to place the label manually (but if you right-click before placing it then it will revert to being automatically located at the centre of the space).

5.10 Space Numbers

The macro can automatically number spaces as they are created. This is controlled by the **S3 Auto Number** option which is shown both on the Settings menu and on the main menu.

When you enable this option you will be prompted to select the next number to be allocated.

When this option is enabled the **S4 Next Auto Nbr** and **S5 Auto Increment** buttons will be displayed on the Settings menu and can be used to change the next number or to set the increment respectively.

Note that the Start Number need not be totally numeric, but should end with a numeric value (e.g. 'B01' would be suitable, but '01B' will not be incremented as it does not end in a number)

If Auto Number is not enabled then you will be prompted to enter a number if either the label or report content includes the number (i.e. if you have used the {nbr} tag in either the label or report content). If neither the label or report formats include the number then you will not be prompted to enter It when creating a new space (you can add a number later if required by using the Chg Number function on the macro's Edit menu – see section 4.11 of this Document).

5.11 Layer



Selecting **S4 Layer** from the Settings menu will display the Layer menu shown at left. The macro will always create the Space outline on the same layer as the label entities, but you can choose which layer they will be created on using the following options.

Select **F1 Active Lyr** from the Layer menu to always create the outline and label on the currently active layer.

Select **F3 New Layer** to create and name a new layer. The layer will be created and turned on and new spaces will be created on that layer, but it will not automatically be set as the active layer.

Select **F4 Exist Layer** to select an existing layer. The selected layer will *not* be automatically set as the active layer, but new spaces will be created on it regardless of the active layer at the time. If the selected layer is turned off then it will *not* be turned on by the process of selecting it on this menu, but it *will* be turned on as soon as you create a new space on it.

If you are creating a space on a layer other than the active layer then you may notice DataCAD's layer display change to indicated the layer you are creating on momentarily during the creation of the space, but it will change back to the active layer when the space creation is complete.

5.12 Configuration Options

You should not normally need to use the **S8 Selection Set** or **S9 Program** options as you were prompted for these values the first time you used the macro. But in case you have upgraded your version of DataCAD or wish to change your initial Selection Set configuration you can use these options.

5.12.1 Selection Set

The macro makes use of one of the Selection Sets available in DataCAD. Many users do not use Selection Sets in their day to day use of DataCAD, but if you do then you may wish to change the one used by the macro to ensure it does not interfere with a Set that you use for something else.

The Selection Set menu is displayed when you select **S8 Selection Set** from the Settings menu. Select the set that you wish to allow the macro to use using the **F1** through **F8** options.

If you are happy to use the same set number in all drawings then disable the **F0 Prompt** option. If this option is enabled then you will be prompted to select a set the first time you use the macro in new drawings.

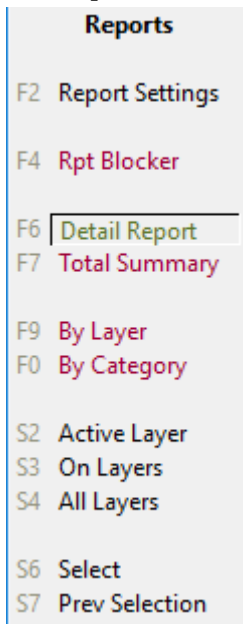
5.12.2 Program

Because the macro uses functionality that did not exist in some previous versions of DataCAD, it is necessary for you to tell it what version of DataCAD you are using. If you are using an old version then some of the macro functionality may be disabled. All functionality should be available in DataCAD 15 and later. Note that although I expect the macro to function in all of the Windows versions of DataCAD, I have not tested it in the older versions.

Select **S9 Program** from the Settings menu to display the CAD Program menu shown at left. Choose the appropriate range of version numbers depending on the version of DataCAD that you are using.

Spirit is not currently supported by Space Planner, and is unlikely to be supported in the future.

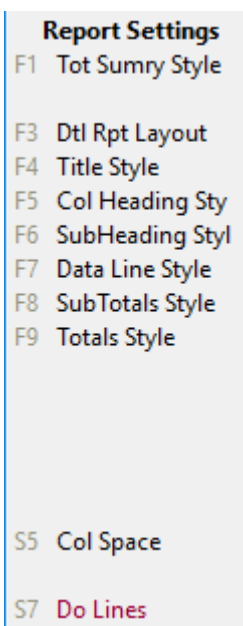
6 Reports Menu



The Reports Menu shown at left is accessed by selecting **S5 Reports** from the Main Menu. It contains options to allow you to create both Totals Summary and Detail Reports.

It also contains options to allow you to format the Reports (limited options are available to format the Totals Summary, but extensive customisation of the Detail Report is possible).

6.1 Report Settings



The Report Settings menu is accessed using the F2 Report Settings option on the Reports menu. It has settings allowing you to change the text style of the Totals Summary as well as of each individual line type in the Detail Report. It also includes functionality to specify the layout of the Detail Report.

6.1.1 Report Text Style

The **F1** and **F4** through **F9** buttons allow you to specify text style of the items as indicated on the button labels. See the illustration at the end of this section for detail regarding where each of these items (Title, Col Heading, SubHeading, DataLine, SubHeading, DataLines, SubTotals and Totals) are placed on the detail report.

As well as the normal options of Size, Colour, Weight, Slant, Aspect and Font, the Style Settings menu for each item contains the following options:

F0 Text Scale

The text scale setting is independent of the standard DataCAD setting, but works in the same way as the standard setting without the 'Lock Size' option.

S1 All Caps

If the All Caps option is enabled then everything on this report line will be converted to upper case. It does not effect how the individual items are stored (so the same data may be displayed without being converted to upper case if it occurs elsewhere. e.g. the Space Name will most likely be included in both the space Label and the Detail Report Line, but this setting will only effect how it is displayed in the applicable report line – there is a separate setting to control upper case in the label (see section 5.1.2 of this document). There is also an option that will cause room name to be always in upper case wherever it occurs (see section 7.1 of this document)

S4 Space Above and S5 Space Below

These 2 options do not appear on the Style menu for TotalSumry. The For the Detail Report they specify the space to leave above and below each line. The space is specified as a multiple of the text size for the appropriate line.

As an example, the space between the individual detail lines would be the sum of the 'Space Above' and 'Space Below' settings for these lines. The reason for 2 settings (rather than just a setting for the space between detail lines) is that if you specify to include lines in your report then they are placed at the distance from the text above and below as specified by these settings (e.g. if you specify a smaller space below than above then the horizontal rules will be placed closer to the bottom of the line above than they are to the top of the line above).

A simple report is illustrated at right with the various types of line labelled.

Room #	Room Name	Width	Length	Sq Ft
First Floor				
1	FOYER	8	8	64
2	LAUNDRY ROOM	9	6.5	58 1/2
3	MASTER BEDROOM	19	12	228
First Floor Totals:				350 1/2
Second Floor				
4	OFFICE (SHARON)	14	11	154
Second Floor Totals:				154
Unfinished Utility Space				
5	3-BAY GARAGE	36	28	1008
Unfinished Utility Space Totals:				1008
TOTALS:				1512 1/2

6.1.2 Detail Report Layout

Select **F3 Dtl Rpt Layout** from the Reports menu to display the Report Layout form which is illustrated below. It may take a few seconds for the form to display, and you will need to complete the form (and either Cancel or Save it) before you return to the main DataCAD window (The DataCAD window may appear to have 'hung' for the period that this form is displayed – this is normal behaviour).

The entries in this form correspond to the report illustrated at the end of the previous section. You should always specify fields for the Data Lines, but other lines can be left blank if you do not wish to include them in the report. Likewise, columns can be left blank (as are the first 3 columns in the Sub-Totals and Totals line in this example).

Report Layout

Enter required text for each entry. Leave a column blank if it is not required (blank columns will not be added to the output table). Tags (in curly braces) will be replaced by the appropriate data when the report is produced. Available tags for each field will have their corresponding buttons on the left of the form enabled (no tags should be used in Report Title or Col Headings).

Report Title: My Space Planner Report

Column 1	Column 2	Column 3	Column 4	Column 5	Column 6
Room #	Room Name	Width	Length	Sq Ft	

Col Headings: {cat}

Sub-Headings: {cat}

Data Lines: {nbr} {name} {ndim} {vdim} {area}

Sub-Totals: {cat} Totals: {area}

Totals: TOTALS: {area}

Buttons: Cancel, Save

Up to 10 columns are available, but you do not need to use them all (just leave the unwanted columns at the right hand side blank).

Tags (in curly braces) are used to include fields in the report. No tags should be used in the Report Title or Column Headings, but for other fields the available tags will be indicated by the appropriate buttons on the left side of the form being enabled (you can click the buttons to add the tags).

You can combine multiple tags as well as fixed text in the fields. For example the above illustration has separate columns for width and length (with {hdim} and {vdim} tags being used), but you could combine these into a single Room Dimensions column that also showed the units by using something like '{hdim}{dunit} x {vdim}{dunit}'.

The dimension tags for non-rectangular spaces indicate the X & Y extents of the space. For rectangular spaces they are the actual dimensions. See the illustration at the end of Section 5.1.1 for a fuller explanation.

Note that if you use the dimension tags ({hdim}, {vdim}, {ldim}, {sdim}) in the Sub-Totals or Totals line then the dimensions reported will be the horizontal and vertical dimensions of the *extent of the group of spaces* being totalled (which may be quite different to the sum of their individual dimensions).

6.2 Grouping Items on Detail Report

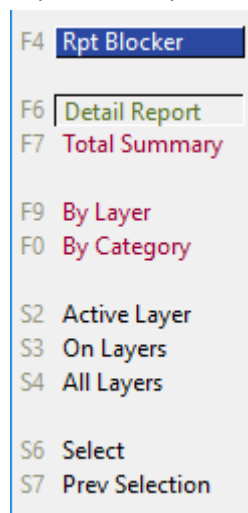
You can group spaces on the detail report by choosing either **F9 By Layer** or **F0 By Category** from the Reports Menu (the 'By Category' option is only available if the Categories option on the Settings menu is enabled).

If one of these options is enabled then a SubHeading line will be included above the appropriate items in the report (provided you have specified a non-blank SubHeading line in the Report Layout), and a SubTotal will be included below them (a blank line will be included below if a blank SubTotal line has been specified).

The simple example report illustrated at the end of section 6.1.1 shows both SubHeadings and SubTotals.

6.3 Selecting Spaces to Report On

After ensuring that you have selected the other appropriate options (including selecting either **F6 Detail Report** or **F7 Total Summary** to indicate which type of report you want), you can select the spaces to report on using one of the following options:



F4 Rpt Blocker can be enabled if you have spaces in your drawing that were created by the 'Blocker' macro and you wish to include them in your report. If this option is disabled then any 'Blocker' spaces in your drawing will not be included in the report. (Note that although Blocker spaces can be reported by Space Planner, they will not be recognised by other functions of the macro and cannot be edited using the macro)

S2 Active Layer will select all Spaces that have been defined on the currently active layer. When you select this option the selected spaces will be highlighted. Press **S8 Create** to create the report and then position it on the drawing when prompted.

S3 On Layers will select all Spaces that have been defined on all the layers that are currently turned on. When you select this option the selected spaces will be highlighted. Press **S8 Create** to create the report and then position it on the drawing when prompted.

S4 All Layers will select all Spaces that have been defined regardless of what layer they are on. When you select this option the selected spaces will be highlighted (including spaces on layers which are turned off - the layer will not be turned on, but the space outline will be temporarily displayed in a highlighted fashion). Press **S8 Create** to create the report and then position it on the drawing when prompted.

S6 Select will allow you to select spaces using the normal DataCAD selection criteria (Entity, Group, Area, Fence). Spaces will be highlighted as they are selected. Once you have selected all the required spaces, press **S8 Create** to create the report and then position it on the drawing when prompted.

S7 Prev Selection will select and highlight any spaces that were selected in the previous use of the **S6 Select** option. Press **S8 Create** to create the report and then position it on the drawing when prompted.

6.3.1 Copying Report to Clipboard

For all of the above selection options you can optionally press **F1 To Clipboard** after creating the report and before you position it on the drawing. This will copy the report text to the Windows Clipboard from where you can paste it into other applications.

7 Other Functionality

7.1 Room Names

You are prompted to enter a room name after creating a space or when you choose to change the name of an existing space from the Edit Menu.

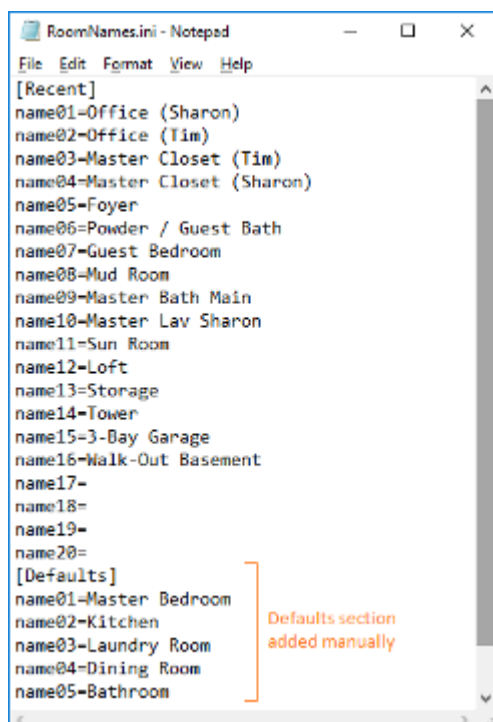
Whilst entering the name recently used names (and default names if set – see section 7.1.1 below) will be displayed on the function keys. An **S9 All Caps** option is also displayed whilst entering the name. If you enable this then names still display as mixed case as you type them, but will be stored as upper case and will be displayed as upper case in both labels and reports (regardless of the applicable 'All Caps' setting for the individual label or report line).

When you are creating new spaces and enter a room name that ends in a number (e.g. 'Bedroom 1'), the macro will offer an incremented default value for the next space you create (e.g. 'Bedroom 2'). No default will be offered if the previous room name does not end in a number.

The macro maintains a list of the most recently used Room Names which are displayed on the function keys whenever you are entering a Name. Up to 17 recent names are displayed: As you use new names they are added to the top of the list and the least recently used ones are dropped off the bottom.

7.1.1 Frequently used Names

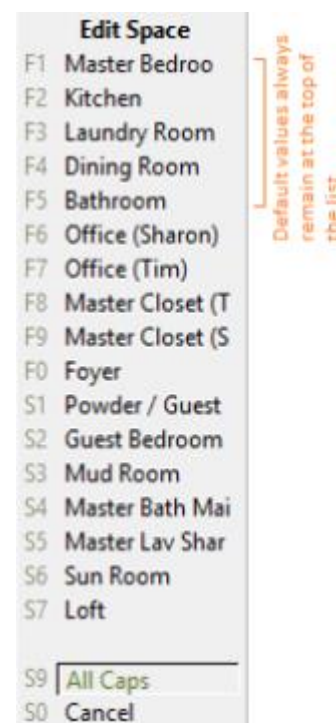
Room names are stored in a RoomName.ini file located in the dhSoftware folder in your DataCAD Support Files directory. If you have names that you would like to remain on the list permanently then you can add a [Defaults] section to this file with up to 10 default room names. These default names will then always display at the top of the list of room names (with recently used names below them).



Use a text editor such as Notepad to add default names, as per the example at left. *Note that room names will be displayed with a maximum of 25 characters.*

The names in the [Recent] section in this example will still be updated when you add a name that is not already listed. Only the top 12 recent names will display however, as the top 5 positions on the menu will always be taken up by the default values.

This file will result in the function key display shown at the right. Hover your cursor over the truncated names to display the full name (up to 25 characters) in the hint display.



7.2 Changing Totals Summary Layout

Although the layout of the Detailed Report can be extensively configured within the macro, there is no setting in the macro to change the layout of the Totals Report. You can however make limited changes to the Totals Report by editing the `SpacePlanner.msg` file found in the `dhSoftware` folder in your DataCAD Support Files directory.

Using a text editor such as Notepad, find the following entry on line 125 of this file:

```
$ Space Totals:|$ # $ x $ # $ Overall|$ $
```

The \$ symbols in this message are replaced with the following data when the Totals Summary is generated:

- 1st \$: Number of spaces being reported
- 2nd \$: Horizontal extent of the group of spaces (in units as specified for dimensions in the macro)
- 3rd \$: Dimension Units
- 4th \$: Vertical extent of the group of spaces (in units specified in the macro for dimensions)
- 5th \$: Dimension Units
- 6th \$: Total area of the spaces being reported (using units specified for areas in the macro)
- 7th \$: Area Units

Where a dollar sign is preceded by a #, it indicates to the macro to delete the preceeding space if the value signified by the \$ sign is blank (e.g. if you are using the Current DataCAD Architect Scale Type then the feet and inch symbols are included in the dimension string and the Dimension Units are blank – including the # in front of the 3rd \$ prevents there being a double space between the dimension and the 'x').

The vertical bars (pipe symbols) in the message indicate new lines.

If you are comfortable with understanding the above then you can edit the message file to change this line, but the dollar symbols in their relative positions will always be replaced by the data detailed above. *Take great care not to insert or delete any lines from this file* (doing so would cause all the following lines to be out of sync with the

macro).

7.3 Translating into Other Languages

Most of the messages and function key labels used by the macro are stored in the `SpacePlanner.lbl` and `SpacePlanner.msg` files which are located in the `dhSoftware` folder in your DataCAD Support Files directory.

You can edit these files to translate to another language if required, but please note the following:

- Do NOT insert or delete lines. The macro references the content of the files based on the line number, so adding or removing lines will result in the file being out of sync with the macro.
- The dollar character (\$) is reserved as a place-holder for data. You cannot include the \$ character for any other purpose, and should never include more \$ characters in a line than were in the original line in the default file (doing so may crash the macro with an array error when it attempts to display the entry).
- Where a hash character (#) is included immediately prior to a dollar character, the hash will not be displayed. It indicates that the space immediately preceding the hash is to be deleted if the data represented by the \$ character is blank.
- Each line in the .lbl file consists of 2 parts: the text before the pipe symbol (|) is used as the actual function key label, and the text after the pipe is used as the hint or message.
- Where lines in the .msg file contain the pipe character (|), it signifies a new line. This only effects messages that are used in dialog boxes or as report layouts etc.: messages that are displayed in DataCADs Message or Error area will not interpret the pipe character as a new line.
- The total length of each line in the .lbl file must not exceed 100 characters. Exceeding this size may cause the macro to crash.
- The total length of each line in the .msg files must not exceed 200 characters. There is one exception to this: Line 90 is used as instruction text in the Report Layout form and may be longer than 200 characters (and is longer in the default file). Exceeding the maximum line lengths may cause the macro to crash.

In the event that you translate these files to another language, I would be grateful to receive a copy of the new files so that I can make them available as installation options with the install files on my web site.

8 Frequently asked Questions

The Space Planner macro offers a great deal of flexibility in formatting and reporting, but the downside to so many options is in some cases complexity. I plan to include a 'Frequently Asked Questions' page about this macro on my web site (www.dhsoftware.com.au) once it is released. For now here are a couple of questions (and answers) that have cropped up during beta testing:

Q: I would like a space between the numerical and S.F. i.e 174 S.F. instead of 174S.F.

A: Include a space in the line format (e.g. use '{area} {aunit}' instead of '{area}{aunit}'). Same goes for the report format if you are using the area followed by units. You can include anything you want in the formats (only the tags in curly braces will be replaced with data). Alternatively you could change the units display setting (F6-Settings/F4-Units/F2-Area Units/F9-Unit Display) to include a space in front of the S.F. if you wanted (and then the {aunit} tag would be replaced with ' S.F.' when generating labels and reports).

Q: I have 'All Caps' enabled for the Line Style and the room name label is displaying correctly in upper case, but it is not displaying in upper case on the report.

A: There are multiple settings relating to 'All Caps'. If you want the room names to display in upper case everywhere then the simplest thing is to turn on the **S9 All Caps** option that displays on the Space Name menu when you are actually entering a name (it will stay turned on for all future name entry until you turn it off). Turning this option on causes the name to be stored in all upper case (whereas the 'All Caps' option in the line style settings causes it to be displayed in upper case on that line but does not change the underlying data to upper case). Alternatively you could turn on the **S1 All Caps** option for the Data Line Style in the Report Settings (which will cause everything on the data lines of the report to be converted to upper case).