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1 INTRODUCTION

Layer Control is found in the **Entity Properties** toolbar in Carlson with IntelliCad or by typing 'Layer' in the command line, this brings up the **Explore-Layers** dialog box.

Layers are the primary method for organizing the objects in a drawing by function or purpose. Layers can reduce the visual complexity of a drawing and improve display performance by hiding information that you do not need to see at the moment.

You can add, delete, and rename layers, change their properties, set property overrides in layout viewports, and add layer descriptions.

2 Layer Toolbar

2.1 Items in Toolbar

New Item

Creates an item (layer) with a default name that you can immediately change. The new layer inherits the properties of the currently selected layer in the layer list.

Current

Makes the selected item current.

Cut

Removes the selected item and copies them to the Clipboard.

Copy

Copies the selected to the Clipboard.

Paste

Inserts the item you have copied or cut into the selected location.

Delete

Deletes the selected items. The following layers cannot be deleted:

- Layers 0 and Defpoints
- The current layer
- Layers used in a block definition
- Layers used in an external reference
- Layers in a partially opened drawing

Note: The command 'LAYDEL' will delete any layer apart from 0 and current layer but be careful about deleting layers if you are working on a drawing in a shared project or one based on a set of layer standards.

Purge 

Removes unused items from the drawing and the list.

Regen 

Recalculates display coordinates for the current window.

On/Off Regen 

Turns On and Off recalculating display coordinates on changes

New Property Filter 

Display the Layer Properties Filter dialog, where you can create a layer filter.

New Group Filter 

Creates a layer filter that contains layers that you select and add to the filter.

Invert Filter 

Display all layers that do not meet the criteria in the selected layer property filter.

Layer States Manager 

Load Layer States Manager.

Export Layer Filter 

Export layer filter to file.

Import Layer Filter 

Import layer filter from file.

Show As Palette 

Switch view between a dialog and a palette.

Help 

Opens the help file for current Explorer section.

2.2 Layer List

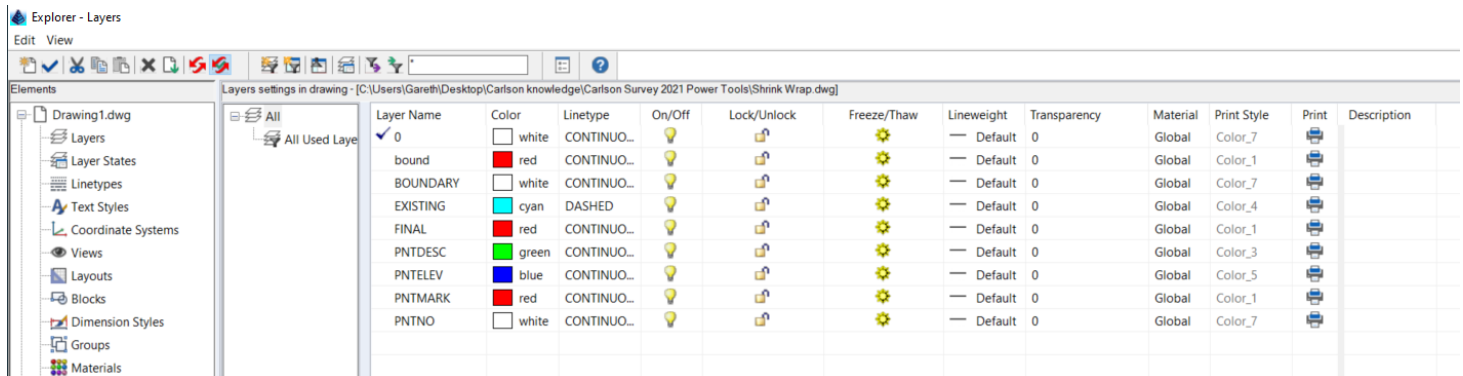
Modify the layer properties using the layer list. Click the current setting to change the layer property for the selected layer or group of layers.

Note: The layer list can be filtered and sorted to make it easier to find and select the layers that you want to change.

Sort

Click a column label to sort by that column.

3 Layer Settings In Drawing



3.1 Layer Name

Displays the name of the layer or filter.

3.2 Colour

Displays the Select Colour dialog box, where you can specify a colour for the selected layers. This colour setting is for onscreen, for colour printing you need to set the CTB in the **Print Style Table** where you have 255 index colours and almost unlimited index colours to choose from.

3.3 Linetype

Displays the Select Linetype dialog box, where you can specify a linetype for the selected layers.

3.4 On/Off

Turns the selected layers on and off. When a layer is on, it is visible and available for plotting. When a layer is off, it is invisible and not plotted, even if the setting in the Plot column is turned on.

3.5 Lock/Unlock

Locks and unlocks the selected layers. Objects on a locked layer cannot be modified. Objects on locked layers appear faded and a small lock icon is displayed when you hover over the object.

3.6 Freeze/Thaw

Freezes the selected layers. You can freeze layers to improve performance and reduce regeneration time in complex drawings. Objects on frozen layers are not displayed, plotted, or regenerated.

In drawings that support 3D modelling, frozen layers are not rendered.

Tip: Freeze the layers that you want to remain invisible for long periods. If you plan to switch visibility settings frequently, use the On/Off setting to avoid regenerating the drawing.

3.7 Lineweight

Displays the Lineweight dialog box, where you can specify a lineweight for the selected layers.

3.8 Transparency

Displays the Transparency dialog box, where you can specify a transparency for the selected layers. Valid values are from 0 to 90. The higher the value, the more transparent the objects appear. This can be especially useful for hatch, images & text.

3.9 Material

Assigns materials and settings to selected entities, layers, or colours. Materials are images or textures that enhance the visual appearance, including reflective and transparency properties, of the model when it is rendered using the Full Render command (not Render).

A different set of materials can be rendered with visual styles in IntelliCAD and in third-party software. Use the Explorer materials command for working with this other set of materials.

3.10 Print Style

Displays the Select Print Style dialog box where you can change the print style for the selected layers. For colour-dependent print styles (the PSTYLEPOLICY system variable is set to 1), you cannot change the print style associated with a layer.

3.11 Print

You can determine whether entities on a layer print or not.

3.12 Description

(Optional) Describes the layer or the layer filter.

3.13 Current Viewport (available only from Layout tab)

Freezes selected layers only in the current layout viewport. If a layer is already frozen or turned off in the drawing, you can't thaw the layer in the current layout viewport.

3.14 VP Colour (available only from Layout tab)

Sets an override for the colour associated with the selected layer for the current layout viewport.

3.15 VP Linetype (available only from Layout tab)

Sets an override for the linetype associated with the selected layer for the current layout viewport.

3.16 VP Lineweight (available only from Layout tab)

Sets an override for the lineweight associated with the selected layer for the current layout viewport.

3.17 VP Transparency (available only from Layout tab)

Sets an override for transparency associated with the selected layer for the current layout viewport.

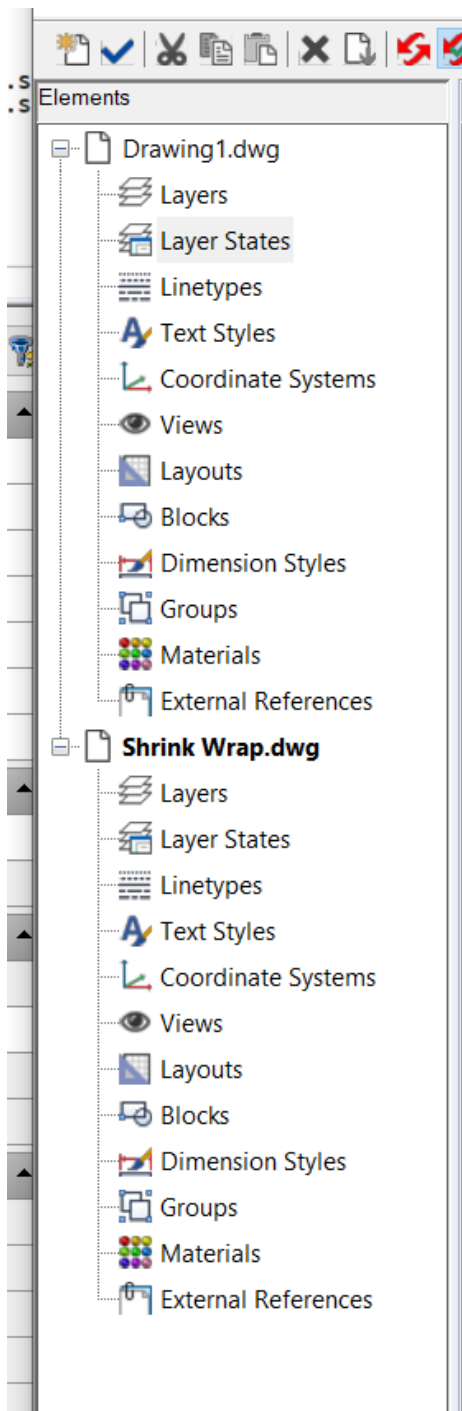
3.18 VP Print Style (available only from Layout tab)

Sets an override for the print style associated with the selected layer for the current layout viewport. Override settings are not visible in the viewport or plotted when the visual style in the

drawing is set to Conceptual or Realistic. For colour-dependent print styles (the PSTYLEPOLICY system variable is set to 1), you cannot set a print style override.

4 Elements

Displays the current open drawings elements. Elements can easily be copied from one drawing into another.



4.1 Layers

As previously stated, **Layers** allows you to select an entity to control the current layer, freeze/thaw, on/off, lock/unlock, or viewport layer settings.

4.2 Layer States

Displays the **Layer States Manager** dialog box so that you can view, create, copy, or edit layer states in the **Explorer**. You can also import and export layer states.

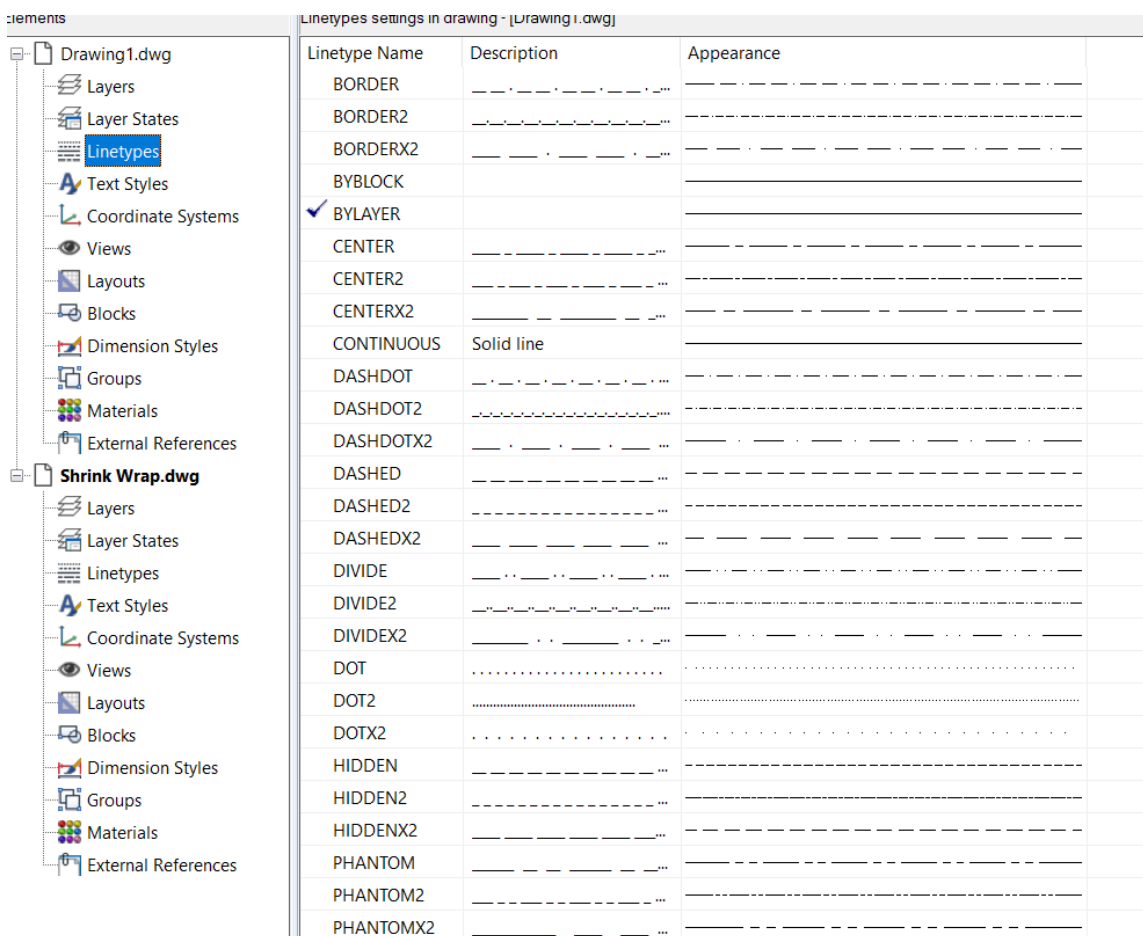
Layer states are collections of individual layers and their properties. You can restore layer states at any time, which makes it easy to switch between layer configurations according to your tasks.

Layer states can also be imported and exported. For example, to quickly create all the layers you need in a new drawing, create and export a layer state from an existing drawing that has the layers you need, and then import the layer state to the new drawing. Layer states are saved in the drawing, including drawing templates and exported or imported drawings.

For each layer included in a layer state, you can set the following properties: Colour, Linetype, On/Off, Lock/Unlock, Freeze/Thaw, Lineweight, Transparency, Print, New Viewports.

4.3 Linetypes

Opens the Linetype Manager dialog box to select a linetype or load other linetypes from libraries. The list contains all linetypes that are loaded and available in the current drawing.

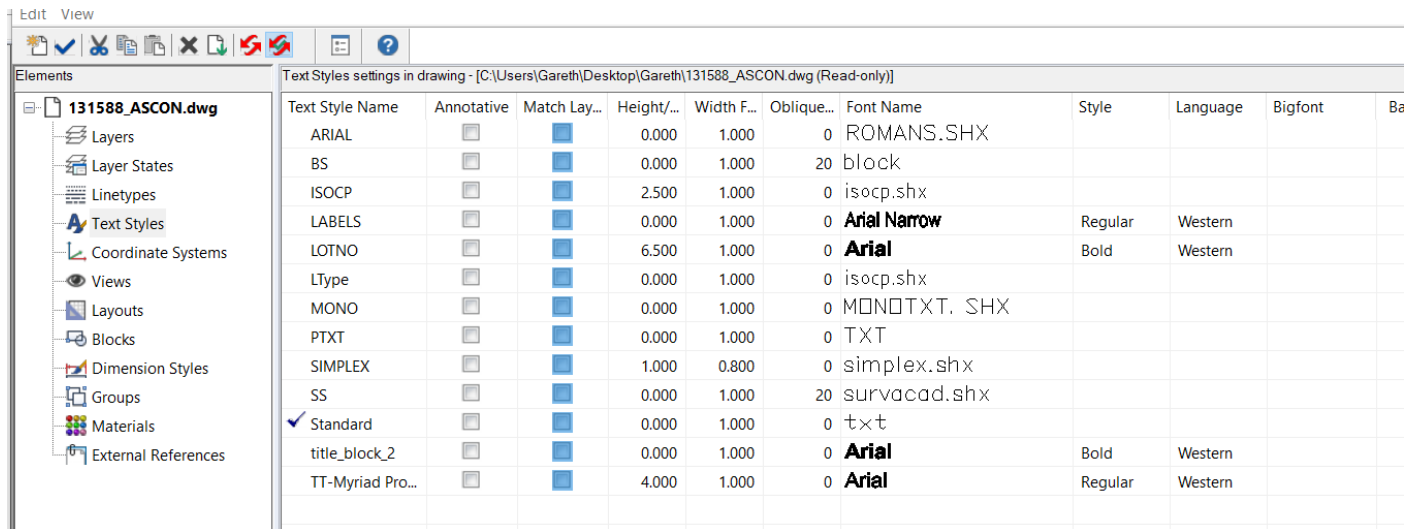


The screenshot shows the 'Linetypes settings in drawing - [Drawing1.dwg]' dialog box. On the left is a tree view of the software's interface elements, with 'Linetypes' selected under 'Drawing1.dwg'. The main area is a table listing various linetypes.

Linetype Name	Description	Appearance
BORDER		---
BORDER2		---
BORDERX2		---
BYBLOCK		---
<input checked="" type="checkbox"/> BYLAYER		---
CENTER		---
CENTER2		---
CENTERX2		---
CONTINUOUS	Solid line	---
DASHDOT		---
DASHDOT2		---
DASHDOTX2		---
DASHED		---
DASHED2		---
DASHEDX2		---
DIVIDE		---
DIVIDE2		---
DIVIDEX2		---
DOT		---
DOT2		---
DOTX2		---
HIDDEN		---
HIDDEN2		---
HIDDENX2		---
PHANTOM		---
PHANTOM2		---
PHANTOMX2		---

4.4 Text Styles

Creates or changes current text fonts (styles). You can also create named **text styles** by selecting combinations of font, mirroring, obliquing, and horizontal scaling.



4.5 Coordinate Systems

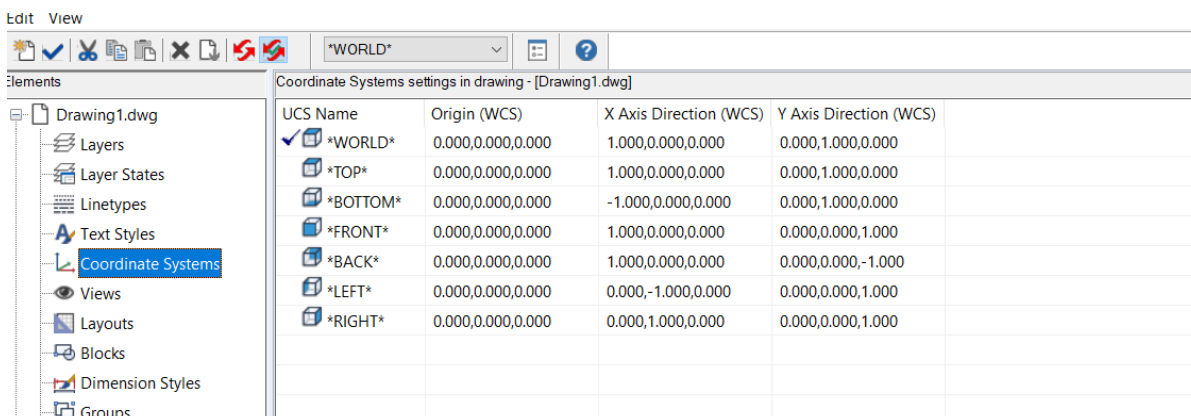
Displays the UCS Name list. You can view, create, or copy UCS definitions in the **Explorer**.

When you create entities in a drawing, they are located in relation to the drawing's underlying Cartesian coordinate system. Every drawing has a fixed coordinate system called the World Coordinate System (WCS). You cannot delete or modify the WCS.

Your drawing may contain additional coordinate systems, however, each with its own 0,0,0 origin and orientation. You can create as many user coordinate systems as you want, and then save and recall them as you need them. You can edit the origin of a coordinate system by single-clicking on the origin coordinates and then typing the new coordinates.

For example, you can create a separate user coordinate system (UCS) for each side of a building. Then, by switching to the UCS for the east side of the building, you can draw the windows on that side by specifying only their x and y coordinates.

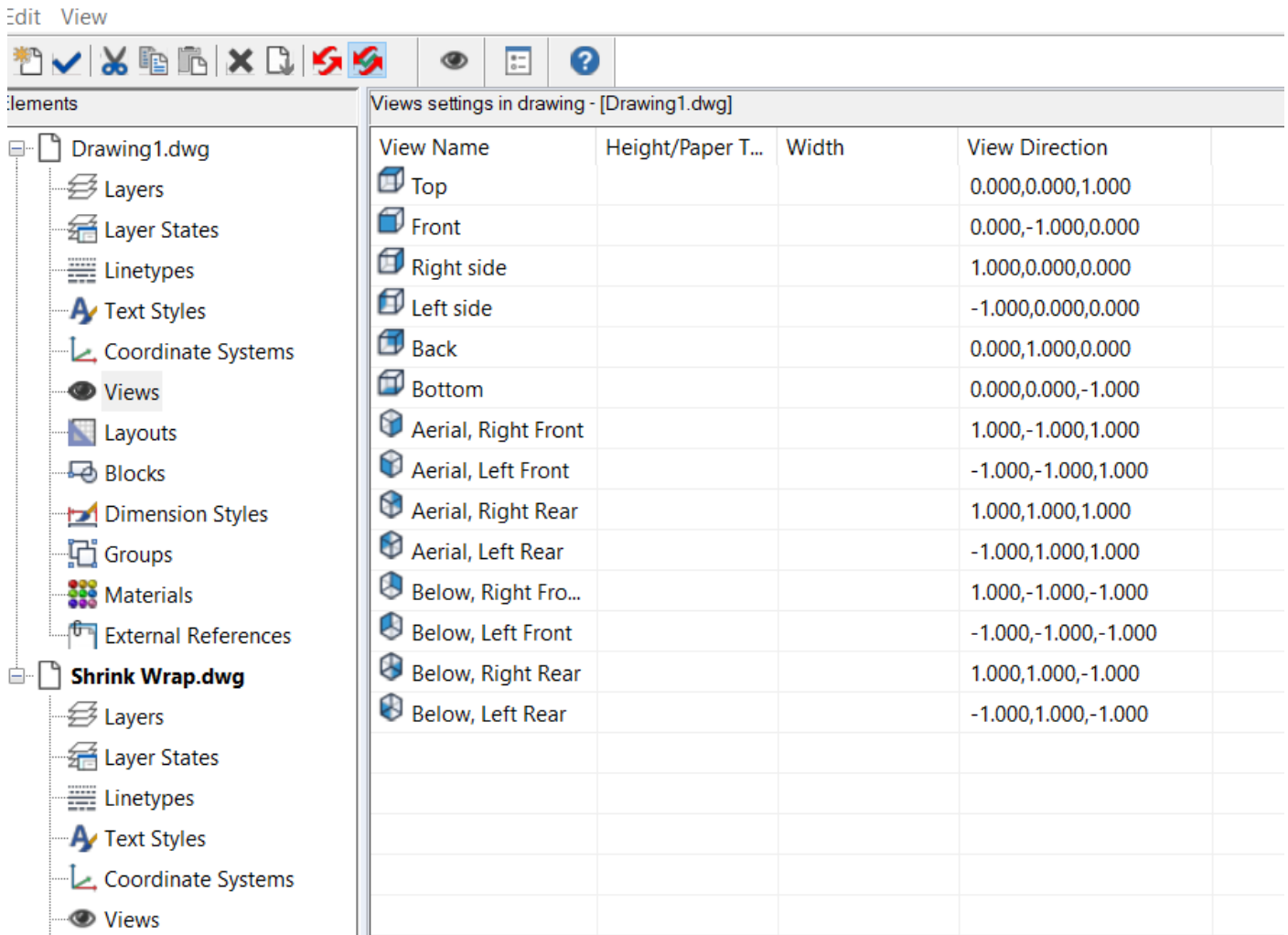
You can create and then switch between various user coordinate systems by selecting **Coordinate Systems** in the Explorer



4.6 Views

Dynamically defines parallel or visual perspective views. Cameras and targets are used to dynamically view your three-dimensional drawing. You can specify the viewing direction between the camera and the target. The centre point of the selected entities is considered the target.

Edit View



View Name	Height/Paper T...	Width	View Direction
Top			0.000,0.000,1.000
Front			0.000,-1.000,0.000
Right side			1.000,0.000,0.000
Left side			-1.000,0.000,0.000
Back			0.000,1.000,0.000
Bottom			0.000,0.000,-1.000
Aerial, Right Front			1.000,-1.000,1.000
Aerial, Left Front			-1.000,-1.000,1.000
Aerial, Right Rear			1.000,1.000,1.000
Aerial, Left Rear			-1.000,1.000,1.000
Below, Right Fro...			1.000,-1.000,-1.000
Below, Left Front			-1.000,-1.000,-1.000
Below, Right Rear			1.000,1.000,-1.000
Below, Left Rear			-1.000,1.000,-1.000

4.7 Layouts

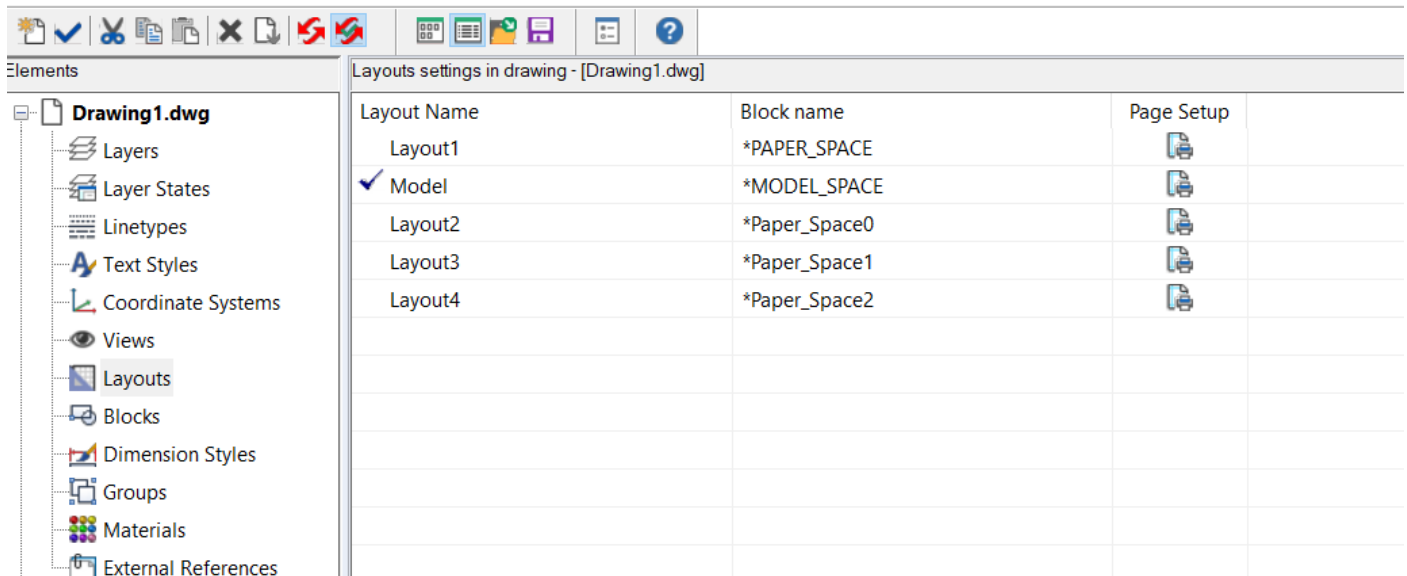
When you create a drawing, you do most of your work on the **Model** tab. Each drawing that you create can contain numerous layouts that simulate the paper on which you will print a copy of the drawing. Each of these layouts is created on a **Layout** tab.

You can prepare a separate layout for each way you want to print your drawing. The layout allows you to organize different views to control which portion of your drawing prints and at what scale.



Before you print, you can also include additional entities and layout settings that control how your drawing prints. Additional items only appear on the **Layout** tab, not on the **Model** tab. For example, a layout can contain dimensions, title blocks, legends, or keynotes that print with your model, but do not clutter the screen when you work with your model on the Model tab.

Using **Explorer**, you can manage the layouts in a drawing, assign a page setup, and you can also easily copy layouts to be reused in other drawings.

Making a layout active in **Explorer** is the equivalent of clicking its corresponding tab in the drawing window.



4.8 Blocks

Displays the Block Names in the current drawing. You can view, create, copy, or edit blocks in the **Explorer**. A small picture of each block in the drawing appears in the right pane. Click the Details tool () to see information about the number of block references, the insertion point, and externally referenced drawings. Click the Images tool () to return to the picture view.

Blocks represent a special type of entity that, once saved, can be inserted and manipulated in the drawing as a single entity. A block can consist of visible entities such as lines, arcs, and circles as well as visible or invisible data called attributes. You can use attributes to track things such as part numbers and prices and to export attribute information to an external database. You can also track the number of parts by counting the number of times a block has been inserted into the drawing. Blocks are stored as part of the drawing file.

External references have similar uses to blocks. Using external references, you can attach entire drawings to your current drawing. Unlike a block, however, an external reference does not become part of the current drawing (unless you first convert it to a regular block).

You can save blocks in the **Explorer**. You can also use the **Explorer** to manage and insert copies of blocks. The **Explorer** lists the names of all blocks contained in the current drawing, along with other information about each block or external reference.

See next page for examples of both **Picture** and **Details Views**.

Picture View

Picture View interface showing a grid of block symbols for the drawing '131588_ASCON.dwg'. The interface includes a top toolbar, a left-hand 'Elements' panel with a tree view (Layers, Layer States, Linetypes, Text Styles, Coordinate Systems, Views, Layouts, Blocks, Dimension Styles, Groups, Materials, External References), and a main grid of block symbols. The grid is titled 'Blocks settings in drawing - [C:\Users\Gareth\Desktop\Gareth\131588_ASCON.dwg (Read-only)]' and contains 10 columns and 10 rows of symbols, each with a label below it. The labels include: A\$C038F7812, A\$C30EF62FD, A\$C7c92c3dd, Carford_M, Carford_P, DRAIN-DF(6..., DRAIN-DF(9..., DRAIN-DF(9..., DRAIN-DG, DRAIN-DGM, DRAIN-MH, DRAIN-MH..., Railings highway..., Railings highwa..., RMAL, RMAMR, RMAR, RMAUL, RMCV, SEW-MH, SEW-MS, SEW-PE, SPT11, SPT13-flat-1, SPT17, SPT17-flat-1..., SPT17-flat-10, SPT17-flat-11, SPT17-flat-2, SPT17-flat-3, SPT17-flat-4, SPT17-flat-5, SPT17-flat-6, SPT17-flat-7, SPT17-flat-8, SPT17-flat-9, SPT18, SPT18-flat-1, SPT18-flat-2, SPT18-flat-3, SPT18-flat-4, SPT18-flat-5, SPT18-flat-6, SPT18-flat-7, SPT18-flat-8, SPT2, SPT39, SPT39-flat-1, SPT39-flat-2, SPT39-flat-3, SPT4, SPT47, SPT47-flat-1..., SPT47-flat-10, SPT47-flat-2, SPT47-flat-3, SPT47-flat-4, SPT47-flat-5, SPT47-flat-6, SPT47-flat-7, SPT47-flat-8, SPT47-flat-9, SPT8-flat-1, SPT8-flat-2, SPT8-flat-3, SPT8-flat-4, SPT8-flat-5, SPT8-flat-6, SPT8-flat-7, SPT8-flat-8, SPT9, SRVPNO1, SRVPNO2, WC, WC-flat-1-fl..., WC-flat-10, WC-flat-11, WC-flat-12, WC-flat-13, WC-flat-14.


Details View

Details View interface showing a table of block settings for the drawing '131588_ASCON.dwg'. The interface includes a top toolbar, a left-hand 'Elements' panel, and a main table titled 'Blocks settings in drawing - [C:\Users\Gareth\Desktop\Gareth\131588_ASCON.dwg (Read-only)]'. The table has columns for Block Name, References, Insertion Point, Annotative, Match Lay..., Uniform S..., Allow Exp..., and Description. The 'SPT17' row is highlighted in blue.

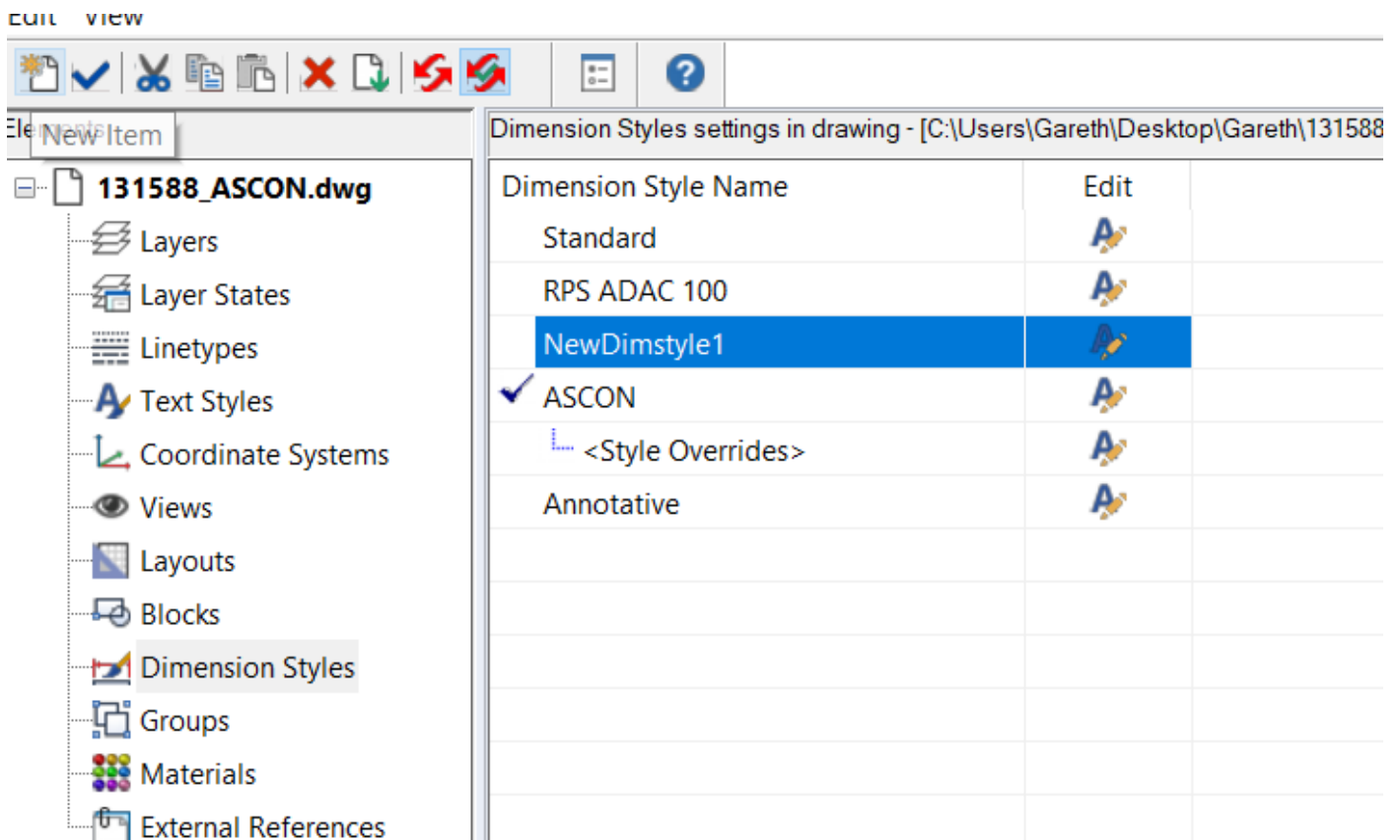
Block Name	References	Insertion Point	Annotative	Match Lay...	Uniform S...	Allow Exp...	Description
A\$C038F7812	1	0.000,0.000,0.000	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
A\$C30EF62FD	0	0.000,0.000,0.000	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
A\$C7c92c3dd	0	0.000,0.000,0.000	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Carford_M	0	0.000,0.000,0.000	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Carford_P	0	0.000,0.000,0.000	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
DRAIN-DF(6X6)	24	0.000,0.000,0.000	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
DRAIN-DF(9X6)	9	0.000,0.000,0.000	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
DRAIN-DF(9X6)...	12	0.000,0.000,0.000	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
DRAIN-DG	349	0.000,0.000,0.000	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
DRAIN-DGM	83	0.000,0.000,0.000	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
DRAIN-MH	102	0.000,0.000,0.000	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
DRAIN-MH-DOME	8	0.000,0.000,0.000	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Railings highway ...	0	0.000,0.000,0.000	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Railings highway ...	0	0.000,0.000,0.000	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
RMAL	2	0.000,0.000,0.000	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
RMAMR	8	0.000,0.000,0.000	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
RMAR	6	0.000,0.000,0.000	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
RMAUL	3	0.000,0.000,0.000	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
RMCV	7	0.000,0.000,0.000	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
SEW-MH	491	0.000,0.000,0.000	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
SEW-MS	1	0.000,0.000,0.000	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
SEW-PE	1	0.000,0.000,0.000	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
SPT11	29	0.000,0.000,0.000	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
SPT13-flat-1	1	0.000,0.000,0.000	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
SPT17	54	0.000,0.000,0.000	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
SPT17-flat-1-flat-1	1	0.000,0.000,0.000	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
SPT17-flat-10	1	0.000,0.000,0.000	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

4.9 Dimension Styles

Displays the **Dimension Style** in the current drawing. You can cut, copy, and paste dimension styles from one drawing to another. You can use the right-click method to select the dimension style and bring up a shortcut menu with the cut, copy, and paste commands. Or you can select the dimension style and use the Windows shortcut keys (Ctrl+X, Ctrl+C, Ctrl+V) to accomplish the same results.

In the **Explorer**, you can create new dimension style by clicking the **New Item** tool (). The program assigns the name, NewDimStyle1, to the new dimension style. To rename the dimension style, right-click the assigned style name and from the shortcut menu, select Rename.

To set dimension style characteristics, such as arrows, formatting, lines, text, and units, click the Edit button for the desired style to open the **Modify Dimension Style** dialog box.



4.10 Groups

Displays a list of all Groups in the current drawing. A group is a collection of entities saved together as one unit. After you select the entities that belong in the group, you can later add more entities, remove entities, and reorder the entities. If necessary, you can also ungroup the entities at any time to work with the entities separately.

4.11 Materials

Displays a list of all materials in the current drawing.

4.12 External References

Displays a list of all External References in the current drawing.