

# ZWCAD 2024 Beta Release Notes

## Overview

ZWCAD 2024 Beta has the following new features and improvements:

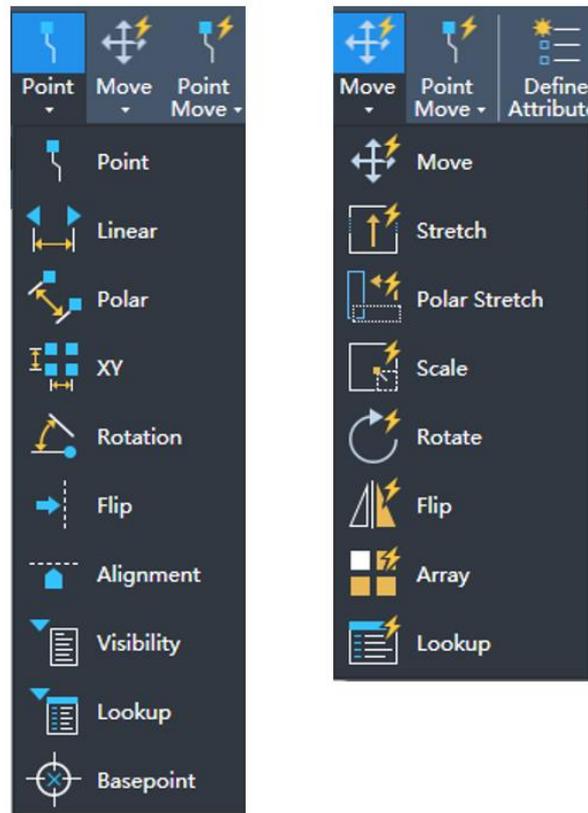
New Features	Description
<a href="#">Smart Block</a>	A special block reference object that is freely and flexibly "transformed" according to parameters and actions added by the user.
<a href="#">Point Cloud</a>	Point cloud files can be attached to the drawings and these attached files can be edited.
<a href="#">Hardware Acceleration</a>	Hardware acceleration is a technology that utilizes the graphics processor (GPU) in the user's computer to process graphics data to take full advantage of graphics memory configurations in high-performance computers.
<a href="#">Area Table</a>	Quickly calculate the area of closed areas and create dimensions and a table according to the calculation result.
<a href="#">Quick Properties Panel</a>	A "mini" properties panel will pop up when you select an object.

Improvements	Description
<a href="#">File Compare Optimization</a>	Add multiple file comparison options to improve the efficiency of drawing comparison.
<a href="#">Xref Module Optimization</a>	New file types can be attached to the drawing and xref can be compared as well.
<a href="#">3dorbit Mode Optimization</a>	Add 2 view modes and other observation modes.
<a href="#">MText Module Optimization</a>	Add a variety of text editing and arrangement methods.
<a href="#">Incremental Save</a>	A new save method is added to boost the drawing saving efficiency.
<a href="#">New View Widget</a>	A new widget is added in the model space to change view modes easier.

## New Features

### Smart Block

Smart block is a special block reference object. By adding specific parameters and actions to the block object, the block can be "transformed". Users can freely adjust the shape of the block according to the parameters set. Currently, the smart block supports actions such as "move", "stretch", "scale", and "rotate". The specific parameters and action types are shown in the following figure:



*Figure 1. Parameters and actions supported in smart block*

As an advanced function, smart blocks can meet more complex design needs of users. By taking full advantage of smart blocks, users can greatly save drawing time and improve efficiency. For example, users can create a smart block of a door, which can contain the size, style, and other parameters of the door. According to different scenarios, users can adjust the shape of the door and apply it to different drawings, which reduces the time of creating a large number of blocks and also reduces the cost of data management.

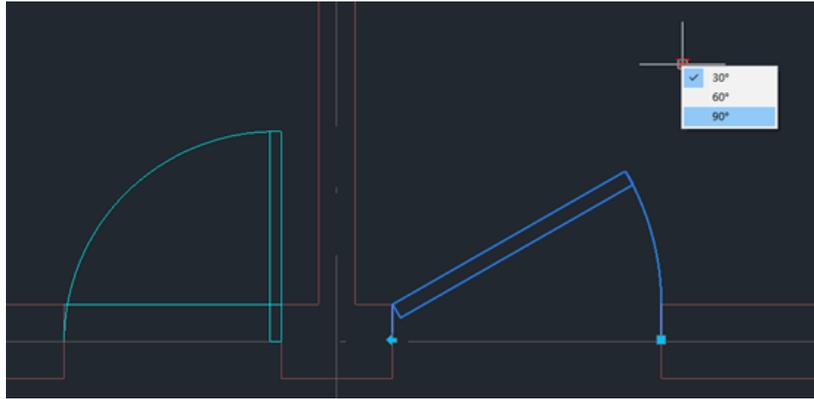


Figure 2. "Door" made by smart block

## Point Cloud

Point cloud data is a 3D data set consisting of a large number of points, which can be obtained from 3D laser scanners or in other ways. The point cloud function is mainly used in surveying and mapping, building renovation, archaeological relics and other industries. The point cloud function can import the 3D shape data of the real object to help users obtain information more quickly and accurately, reduce errors, and improve the accuracy and precision of the design.

Below are the highlights of Point Cloud :

- 1) Users can import point cloud files by attaching them. Currently, many file types are supported, including RCS, RCP, E57, LAS, LAZ, and PTS.

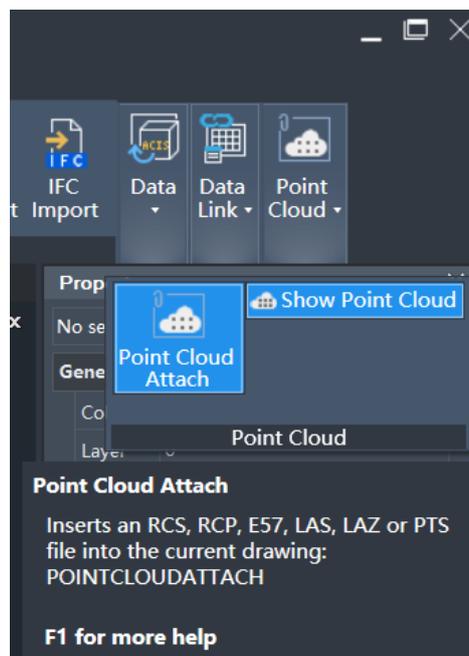


Figure 3. Point cloud file can be attached to the drawing form.

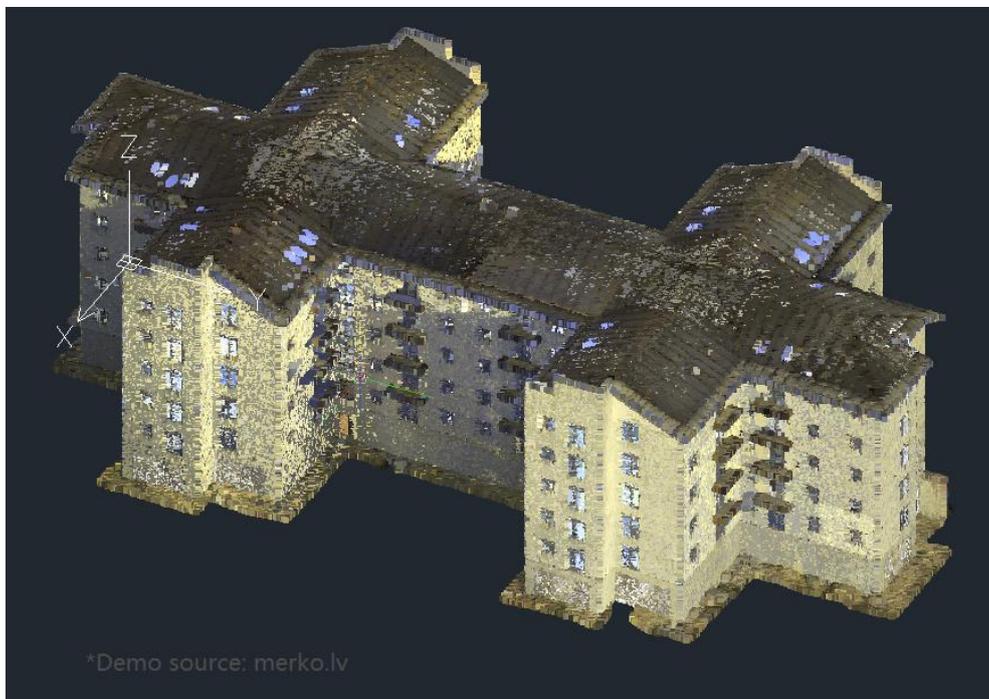
- 2) By setting the level of detail and point size, the visual noise can be adjusted to

present different display effects.

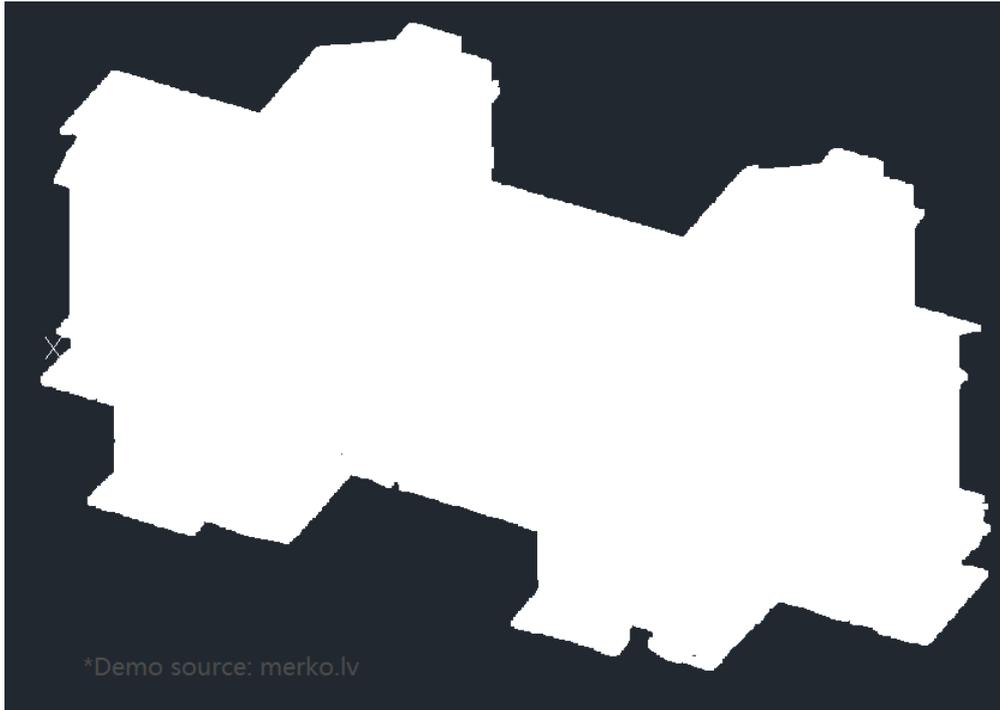


*Figure 4. Adjust the level of detail and point size to present different display effects.*

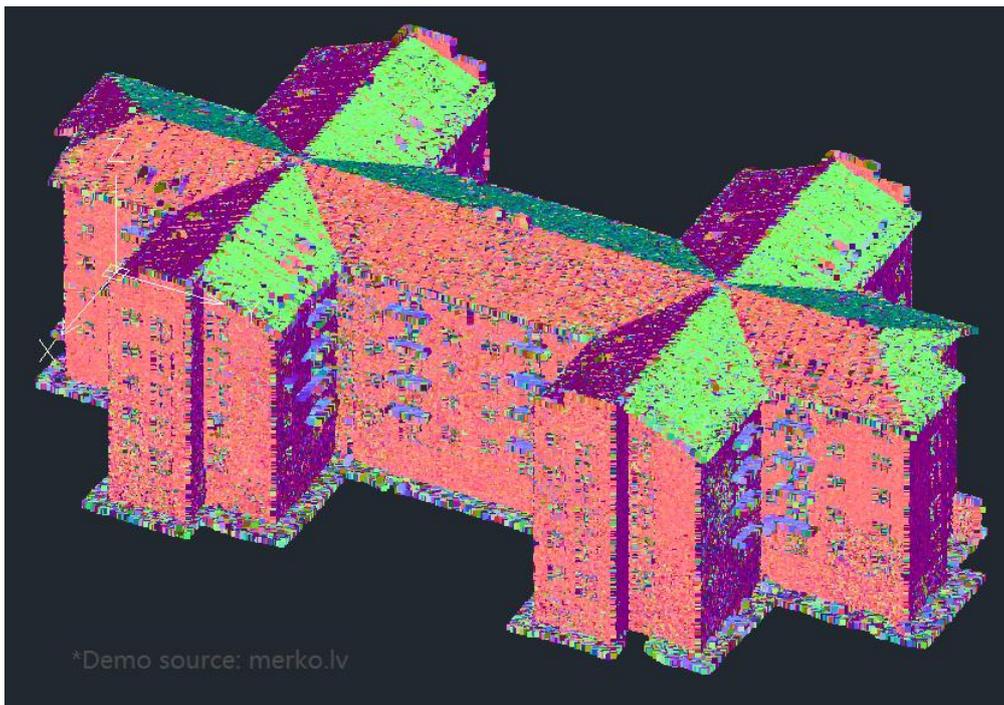
- 3) Each point can be stylized by changing the point color style. The adjustment of transparency can show different degrees of visualization. The setting of these attributes can express the characteristics of point cloud data.



*Figure 5. RGB style*



*Figure 6. Object Color style*



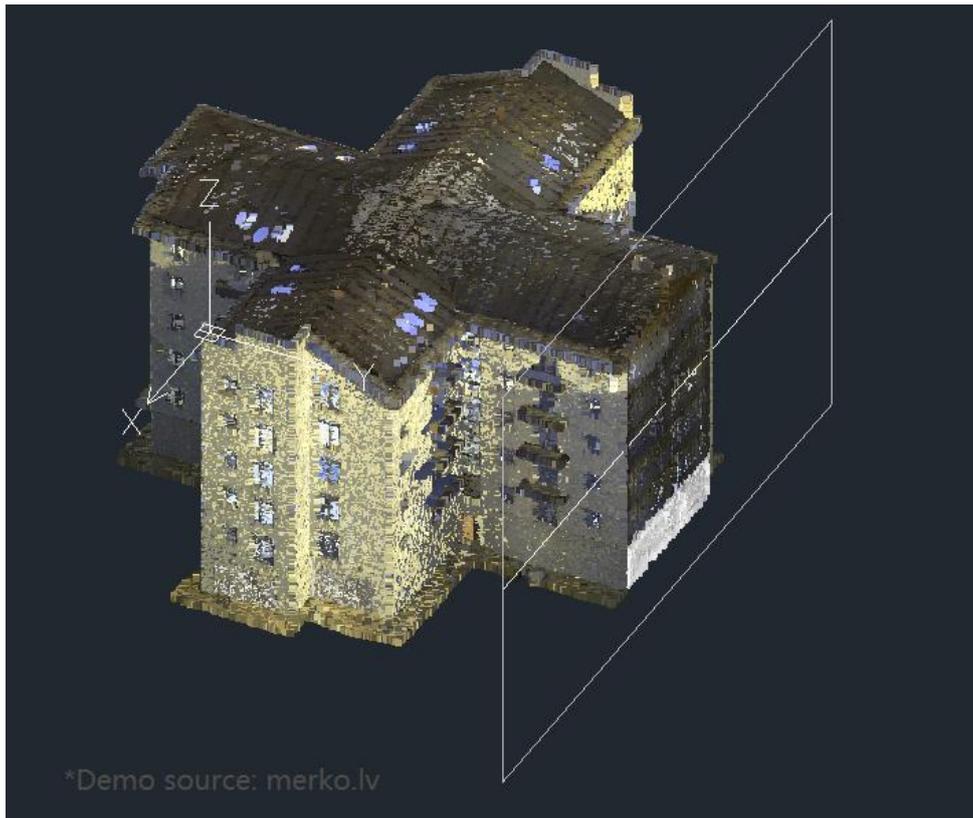
*Figure 7. Normal style*

- 4) Crop the selected point cloud through a polygonal, rectangular, or circular boundary so users can remove unnecessary data or extract wanted data for more efficient processing and analysis of point cloud.



*Figure 8. Point cloud cropping*

- 5) The Section Plane function can be applied to obtain the projection or section of the plane or curved surface. And then, one or more intersection lines can be extracted from the section plane to represent the outline or boundary of the section, which can help users analyze the internal structure or shape of 3D objects.



*Figure 9. Point cloud section plane*

- 6) The point cloud manager lists the point cloud items in the current drawing, and users can hide or display one or some items.

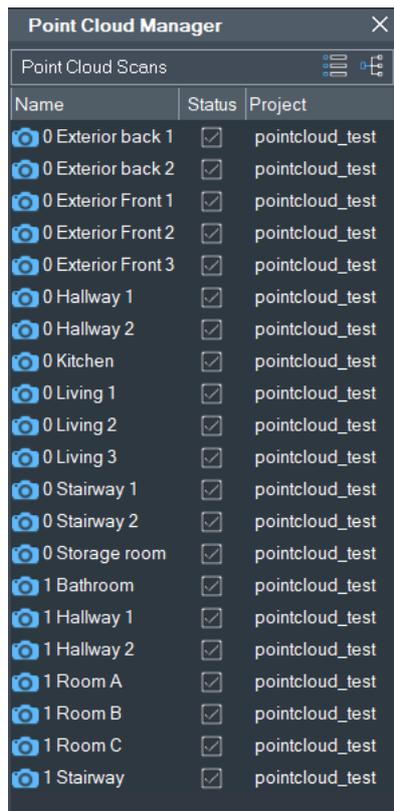


Figure 10. Point cloud manager

## Hardware Acceleration

Hardware acceleration is a technology that uses the graphics processor (GPU) of user's computer to process graphics data. Taking full advantage of high-performance computer configurations can greatly improve the performance and speed of the software, thus improving the user's efficiency and drawing accuracy. For some users with computers of high standard configurations, hardware acceleration can be a good way to improve the user experience of using ZWCAD.

With hardware acceleration, improvements are shown in two ways:

1. Operation efficiency in the 2D wireframe style is greatly improved, especially in large drawings as users can still smoothly use Zoom, Scale and other commands.
2. Design accuracy is improved: the use of hardware acceleration technology can ensure that performance will not be reduced even turning on smooth line or anti-aliasing option, thus guaranteeing the graphic display accuracy.

You can open the panel from the "Options" dialog → "Display" tab or through the shortcut button in the Model Space. The software will automatically check whether the graphics card model and OpenGL version of your computer support hardware acceleration.

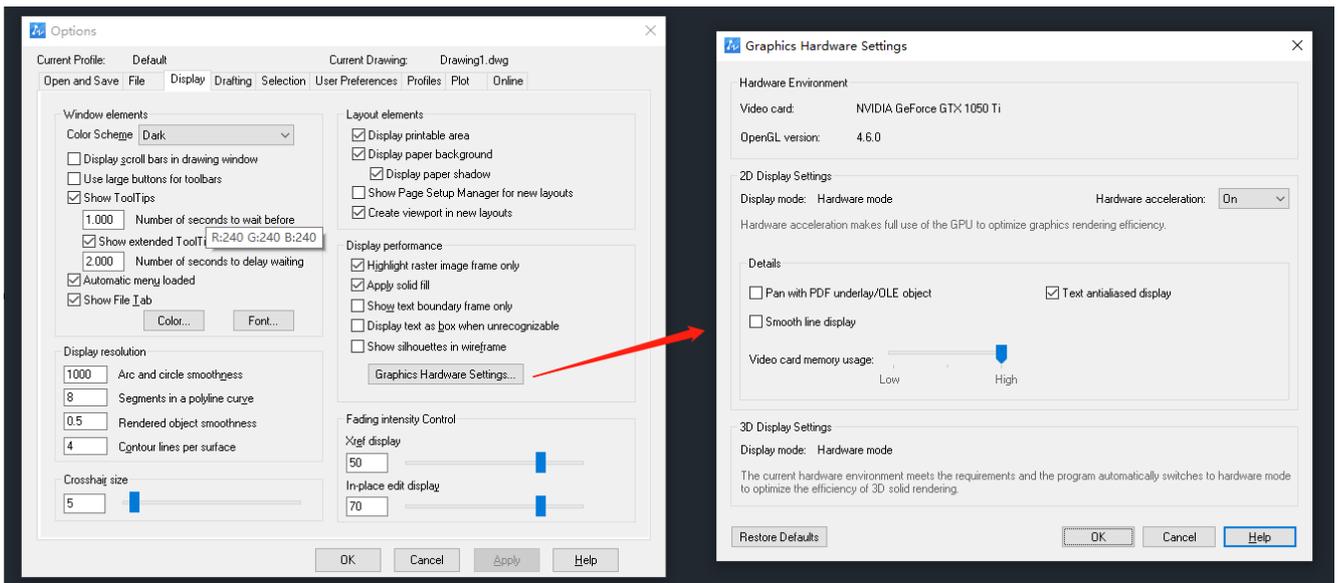


Figure 11. Open the hardware accelerate panel from the "Option" dialog.

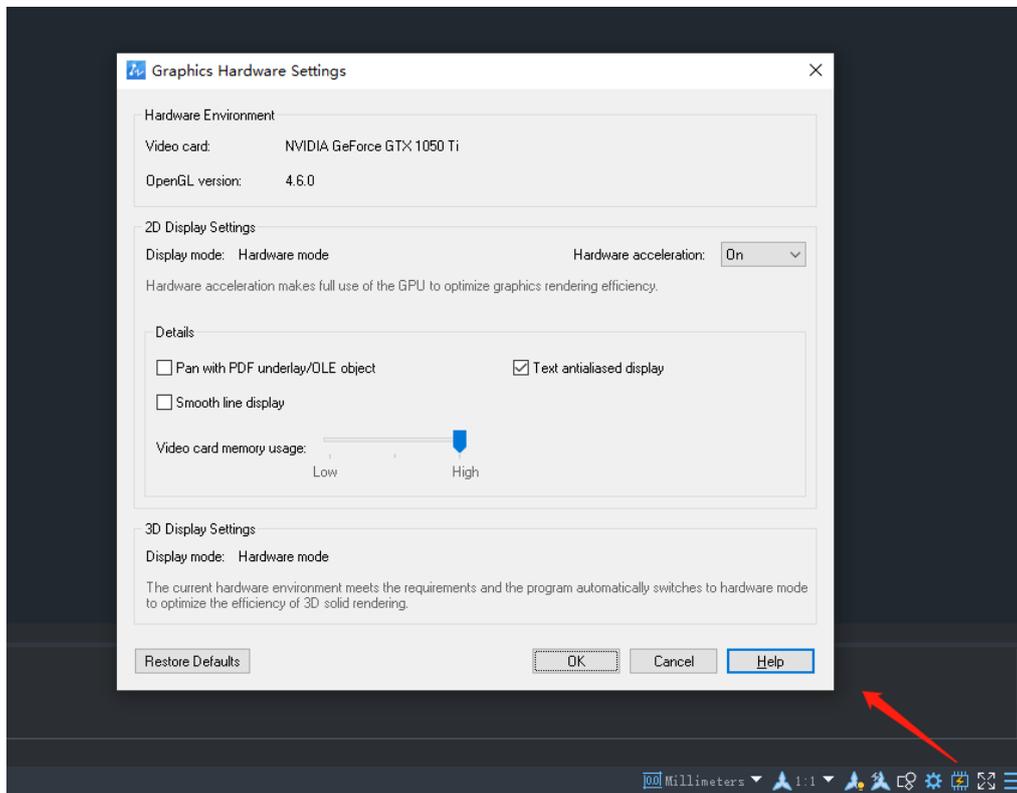


Figure 12. Open the hardware accelerate panel by the shortcut button.

## Area Table

The area table function can perform area calculations and dimensions on the selected object area, generate an area table, and can also export external files. This can help users organize, calculate and manage the areas of graphic objects faster and more conveniently, and visually display the data to improve the accuracy and

efficiency of drawing.

The main functions of the area table are as follows:

1. Click the Area Table command in the Annotate to open the Area Table dialog box. Users can set the area name, dimension, table, boundary set and more to better satisfy their requirements.

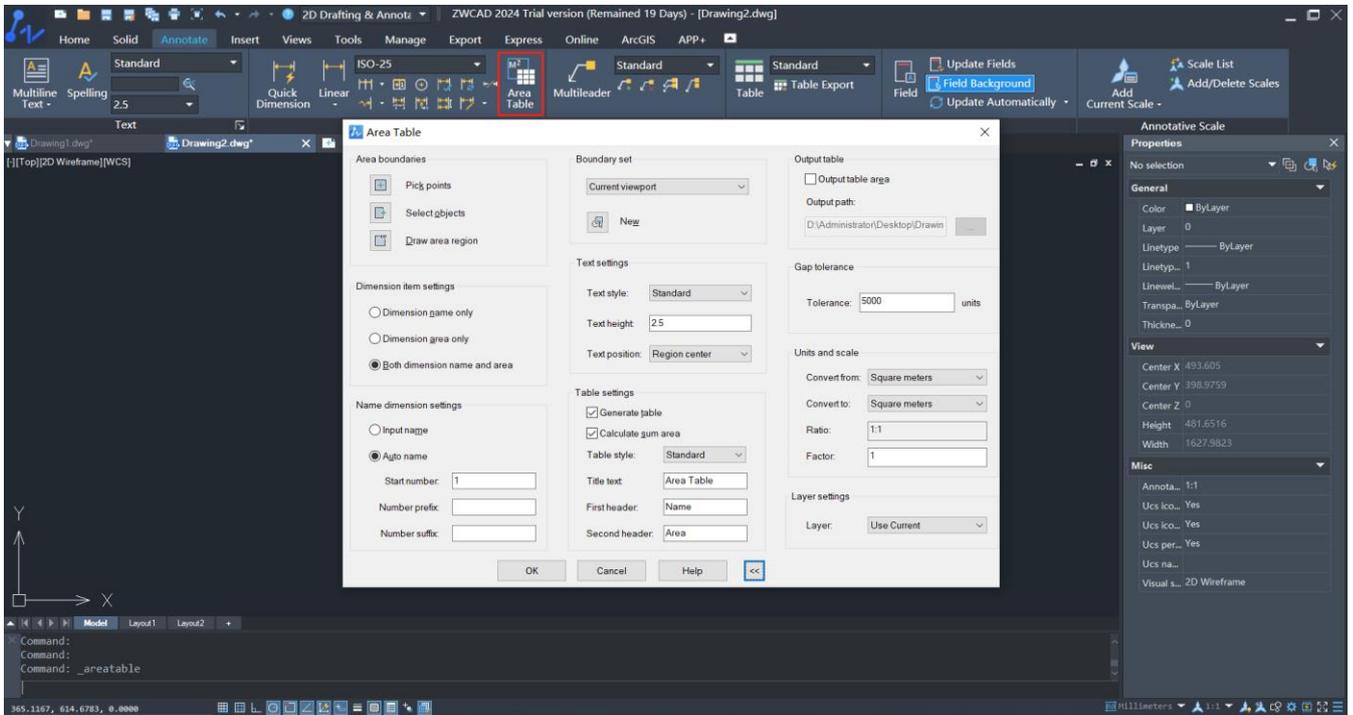


Figure 13. Area Table dialog box

2. The areas can be automatically measured and dimensioned after selecting objects so that users can avoid the tedious process of manual calculation and dimension marking. It can also automatically calculate the total area of the selected objects and summarize it into a table or export an external file for easy viewing. What's more, users can also further edit and analyze the table to improve efficiency.

1 2736.5511m <sup>2</sup>	2 7929.4767m <sup>2</sup>
3 4420.1500m <sup>2</sup>	4 12807.9015m <sup>2</sup>

Area Table	
Name	Area
1	2736.5511m <sup>2</sup>
2	7929.4767m <sup>2</sup>
3	4420.1500m <sup>2</sup>
4	12807.9015m <sup>2</sup>
Sum Area	27894.0793m <sup>2</sup>

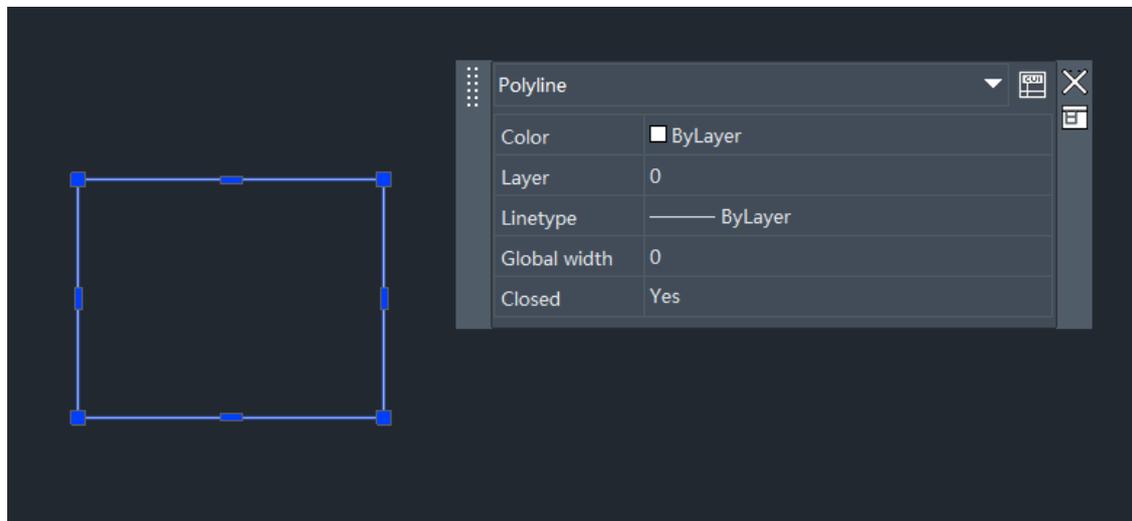
Figure 14. The area table is created automatically after selecting objects.

## Quick Properties Panel

When this function is enabled, the quick properties panel pops up automatically when you click an object. Users can customize the properties displayed on the panel. In the process of design, users often need to view or modify object properties. With the quick properties panel, the efficiency of viewing and modifying object properties is improved

The main functions of the quick properties are as follows:

1. When the system variable QPMODE is set to 1 or 2, users can open the Quick Properties Panel by selecting an object in the model space, where the properties of the selected object are displayed. Users can quickly view the properties of the selected object and make direct editing changes without entering the property editor.



*Figure 15. Users can select the object to display the Quick Properties palette and directly edit them.*

2. Users can customize and set general object types and properties according to their requirements in the Customize User Interface, which can help users view and edit their most commonly used properties more quickly and conveniently.

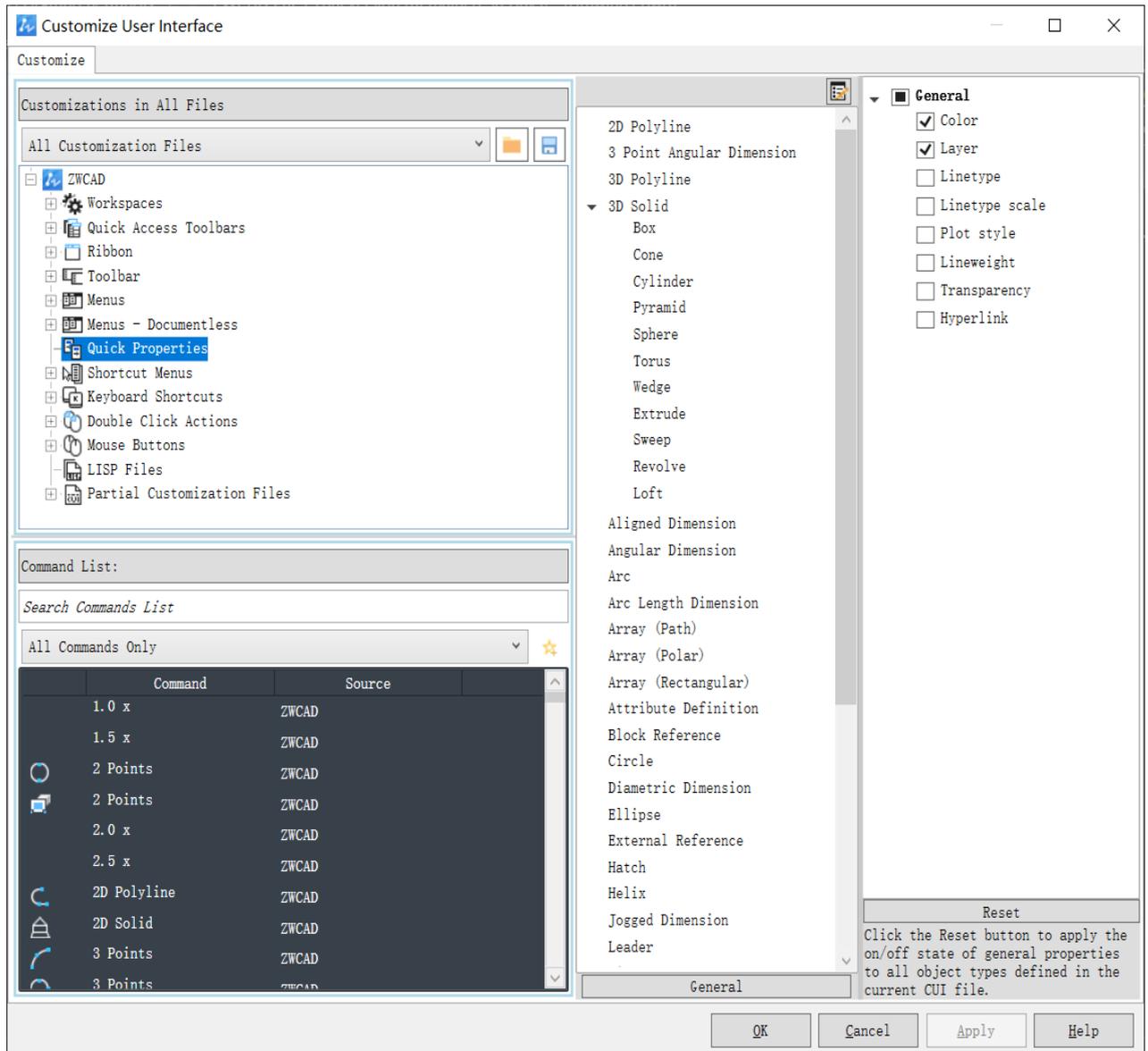


Figure 16. Set the general object types and properties in the Customize User Interface.

## Improvement

### File Compare Optimization

We are constantly improving the file compare function to help users improve the efficiency and accuracy of drawing comparison. There are 4 improvements in this version:

- Add "Hide Differences" function

Users can choose to hide the differences in the datum file in the comparison result and only display the differences in the reference drawing. This feature

allows users to pay more attention to the details of the revised drawings and avoid being affected by other information.

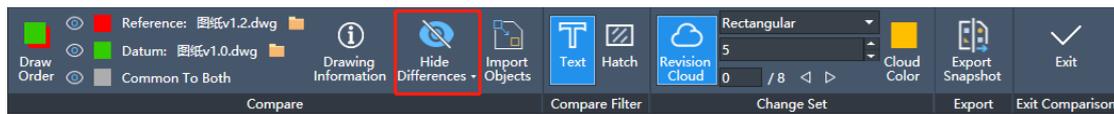


Figure 17. Hide Differences function can be used to hide the difference comparison objects in the datum drawing.

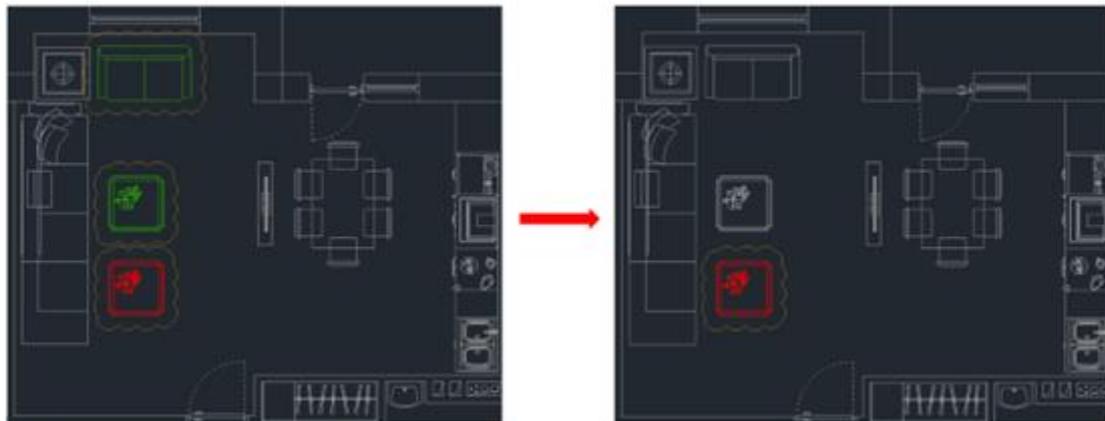


Figure 18. After the different object is hidden, you can view the modified content of the drawing more easily.

- Add "Import Objects" function

Users could insert different objects to the current drawing. In some cases, the user may delete the original correct content by mistake when modifying the drawing. By using this function, the user can restore some correct parts of the drawing without redrawing or copying and pasting the mistakenly deleted data from the original drawing to the new drawing, which improves the efficiency of correcting drawings.

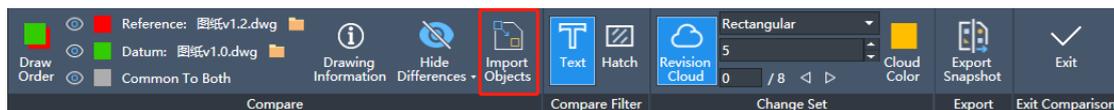


Figure 19. Different objects in drawing comparison can be inserted to datum drawing

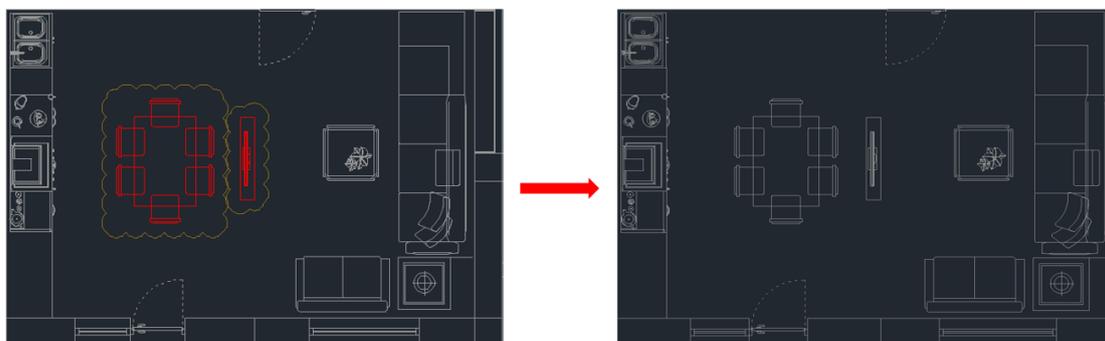
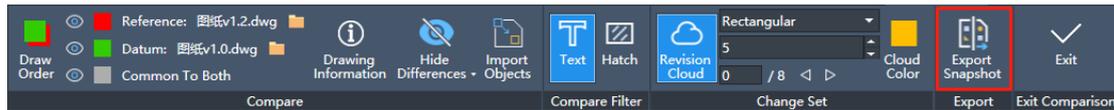


Figure 20. Through this function, you can directly restore the mistakenly deleted data on the

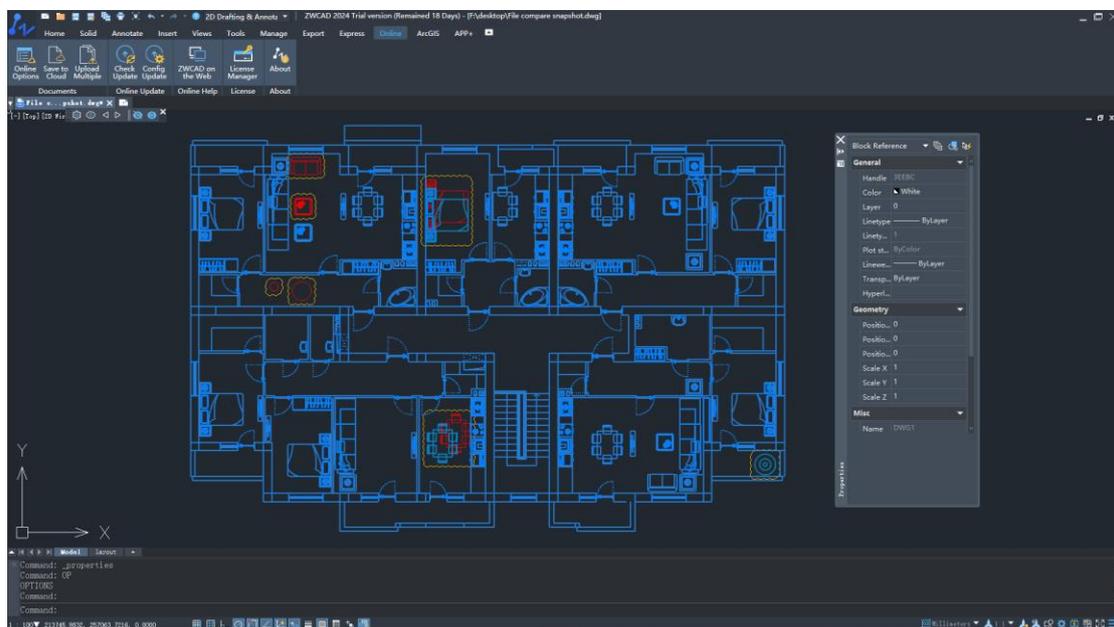
*drawing.*

- Add "Export Snapshot" function

Users can generate snapshot files of the comparison results of drawings so that the comparison results can be better saved. The file compare function of our previous version can only be performed on the current drawing, and the comparison result cannot be saved well. You can use the snapshot file to archive the comparison result so that you can quickly view the comparison content in anytime.



*Figure 21. Comparison result can be saved as a snapshot file.*



*Figure 22. Comparison result saved as block reference in snapshot file.*

- Add "External Reference Comparison" function

In addition to general drawings, this version also supports xref comparison. In some projects, the designers need to refer to external drawings as the basis for project design, and the contents of external drawings change according to different project stages. Therefore, the xref comparison function can be used to directly view the modification of external drawings on the original drawing. For users, there is no need to open additional drawings for comparison, which improves the user experience.

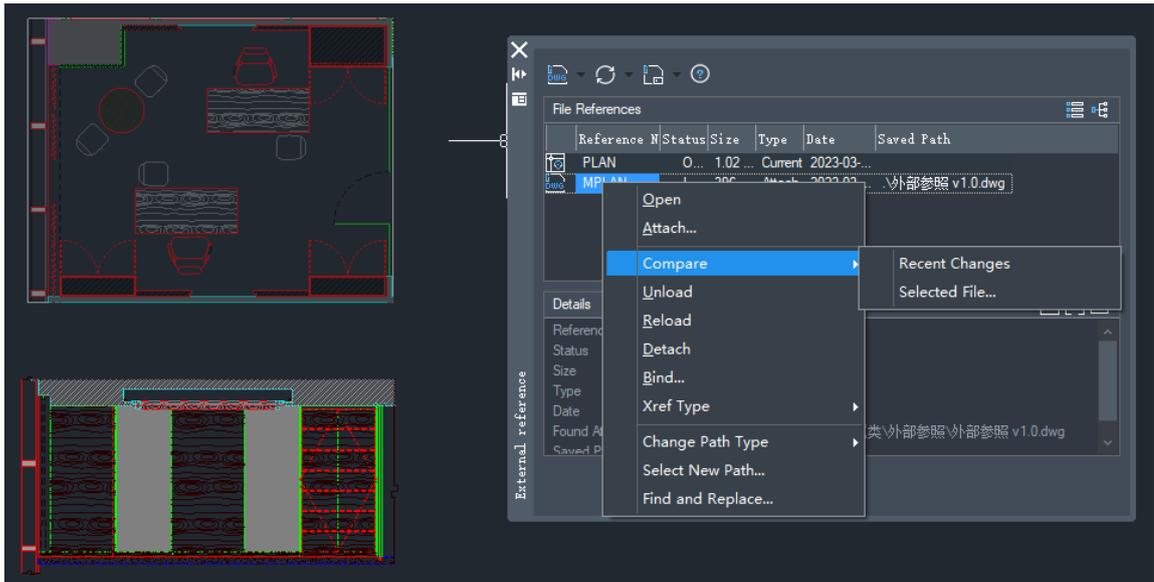


Figure 23. Xref can be compared to the previous version now.

## Xref Module Optimization

It supports attaching point cloud and DGN files to drawings in the form of external references, and cropping them as well, which solves the problem that users cannot process DGN and point cloud files in ZWCAD for a long time.

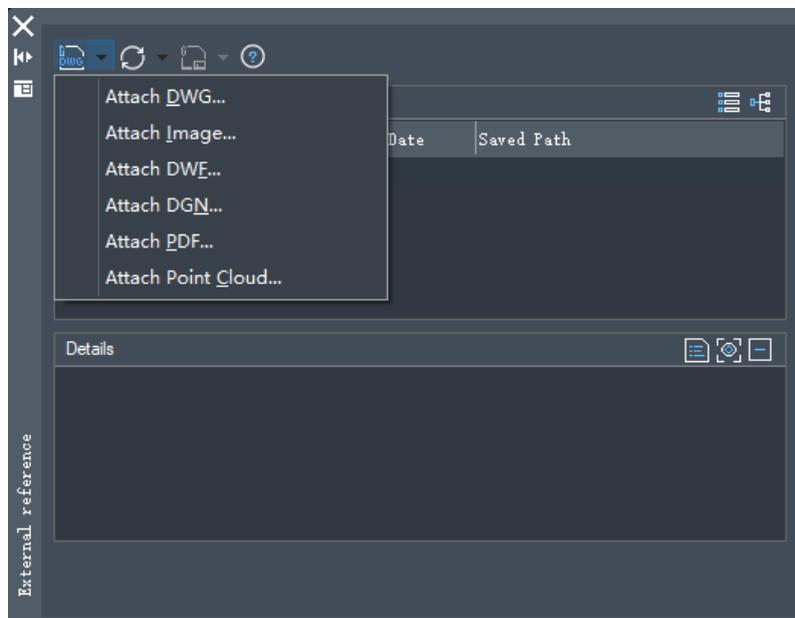


Figure 24. DGN and point cloud files can be attached to drawing

In addition to supporting new file types as an external reference, xref layer properties override feature is also implemented in this version. With this function, you can adjust the properties of xref drawings in the current drawing without changing the features of the original drawing. Generally, the modified features take effect only in the current drawing.

For example, when using an xref file, users only need to know the dimension to process to the next step of design and do not want to be affected by other properties (such as color, line type, line width, etc.). In this case, users can set all the objects to grey as override color so you can only focus on the dimension. After that, if you want to restore all this properties, you can use the reset button to restore the properties.

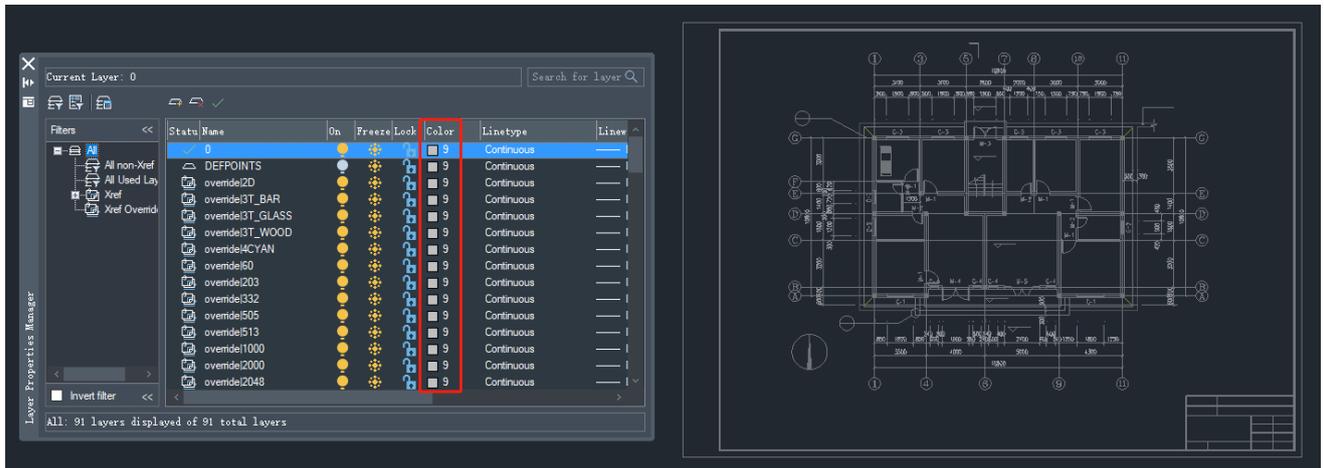


Figure 25. Set all layer to grey as override color.

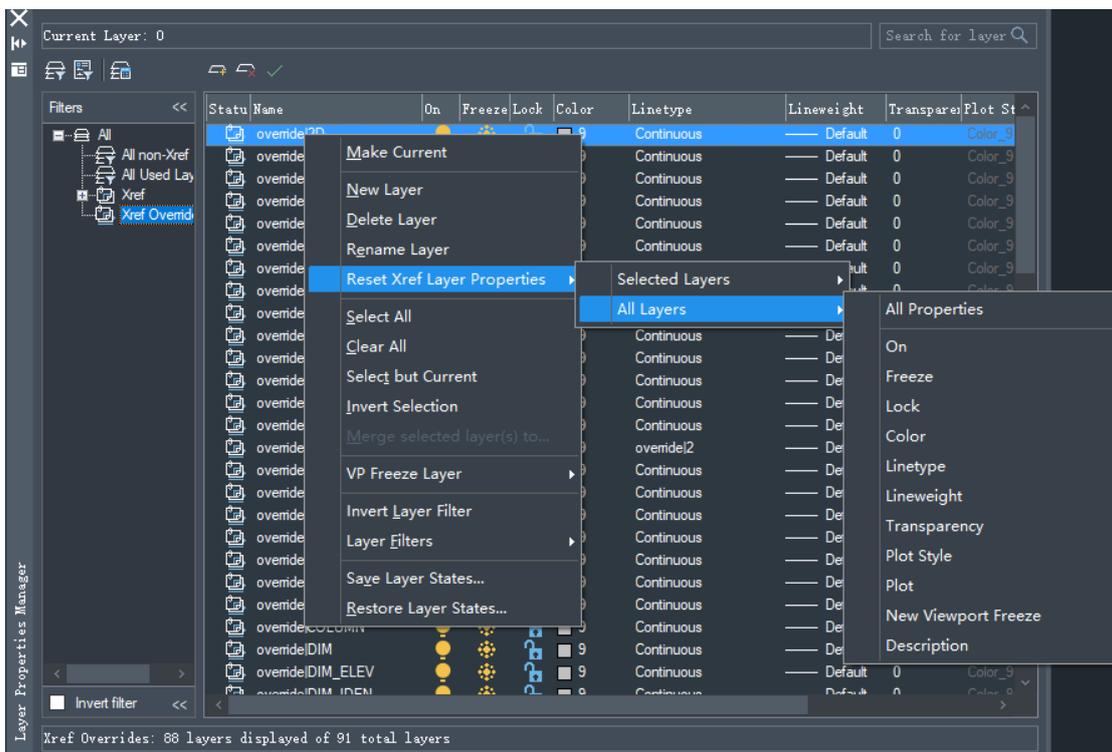


Figure 26. Use the reset button to restore selected or all override properties.

### 3Dorbit Mode Optimization

When viewing 3D entities using 3orbit, you can set the parallel view or the

perspective view now. The parallel view or perspective view of the model can be obtained by parallel projection or perspective projection. Different view modes present different visual effects. A perspective view can produce a more realistic view. In addition, three new observation modes have been added.

2 improvements are as follows:

1. The "Parallel View" and "Perspective View" options are added to the right-click menu of 3Dorbit.
2. In addition, the functions of "Swivel", "Walk" and "Fly" are added under the option of "Other Mode".

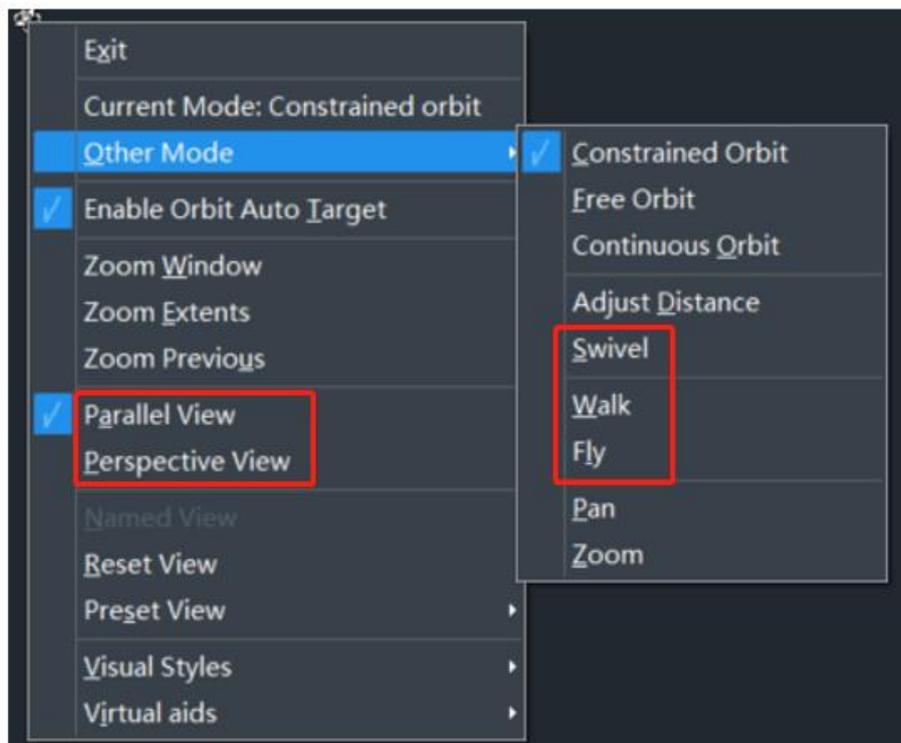


Figure 27. New options are added in the 3dordit menu

## MText Module Optimization

The multiline text function is optimized in this version, making it more practical, easy to use, enriched and complete, and thus helping users improve efficiency.

The main improvements are as follows:

1. Add numbering function to realize automatic text numbering in various forms, which greatly saves the time for sorting and numbering.



Figure 28. Numbering in multiline text

2. With the columns function, users can set the column type, column width, column height, etc. of the multiline text so that users can flexibly set multiple columns for text editing.

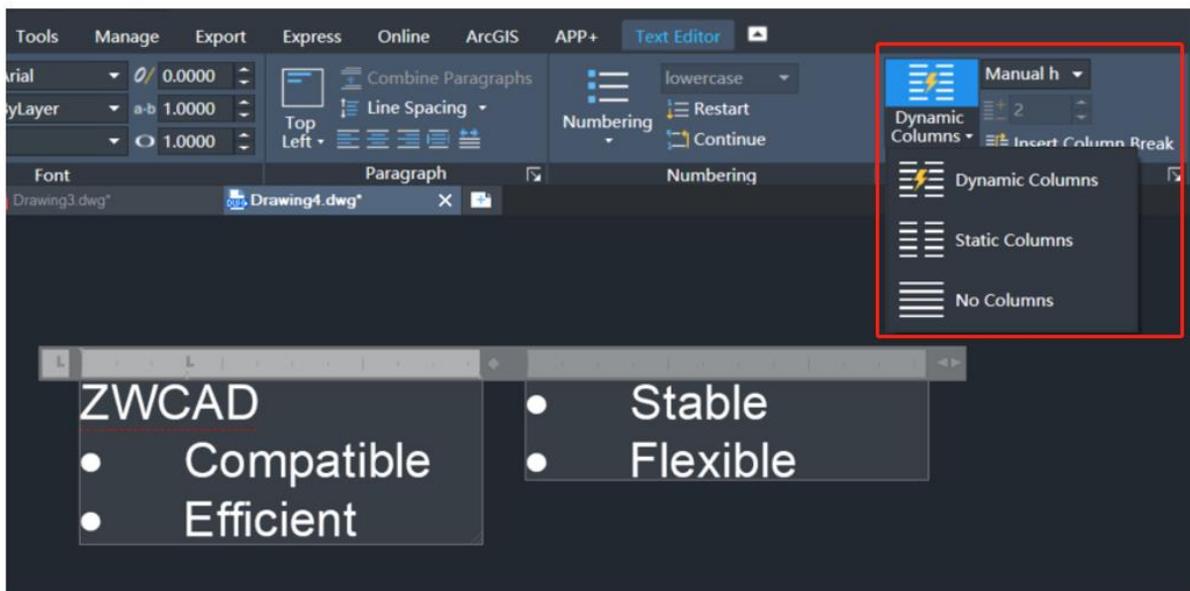


Figure 29. Columns in multiline text

3. Two alignment methods are added, containing justify and distribute. Justify means aligning paragraphs to the left and right while distribute means that distributes paragraphs and increases character spacing as needed.

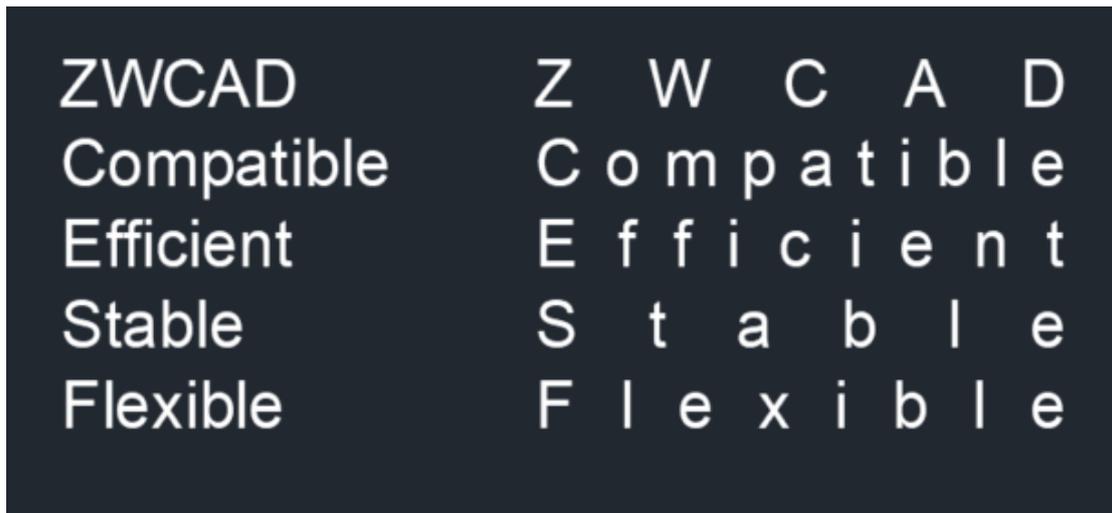


Figure 29. Justify and distribute in multiline text

4. Superscript and subscript are also supported in the text format of the font. Users can just select the text and then click the corresponding font format setting.

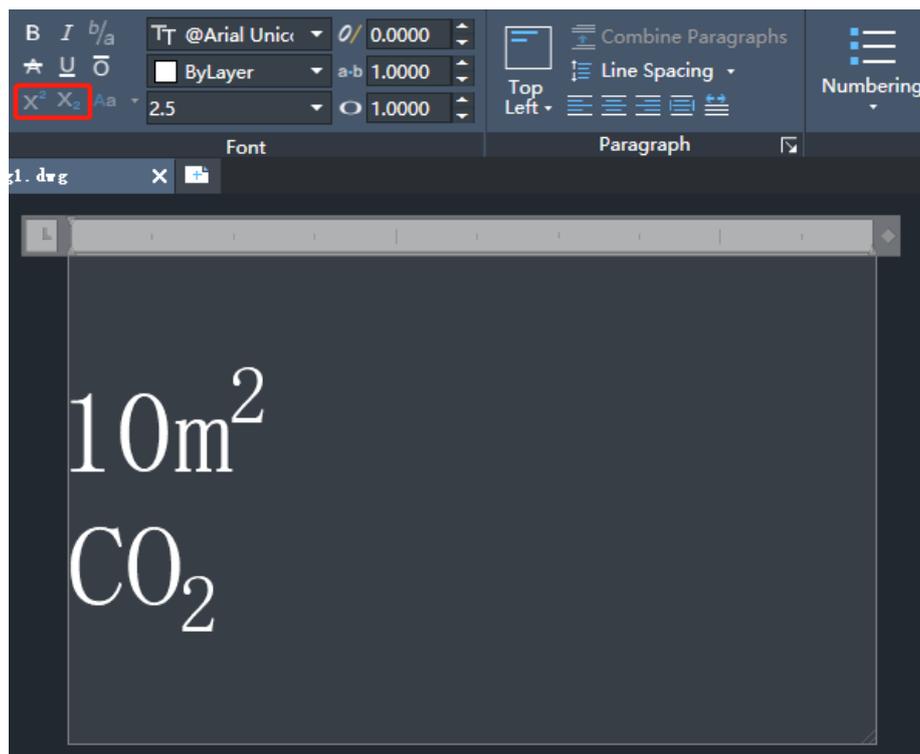


Figure 31. Superscript and subscript

5. The spelling check is optimized and an automatic spelling check function is supported, which can automatically check whether the spelling is correct in real-time. Additionally, users can customize the dictionary, which is easier, more convenient, and more accurate.

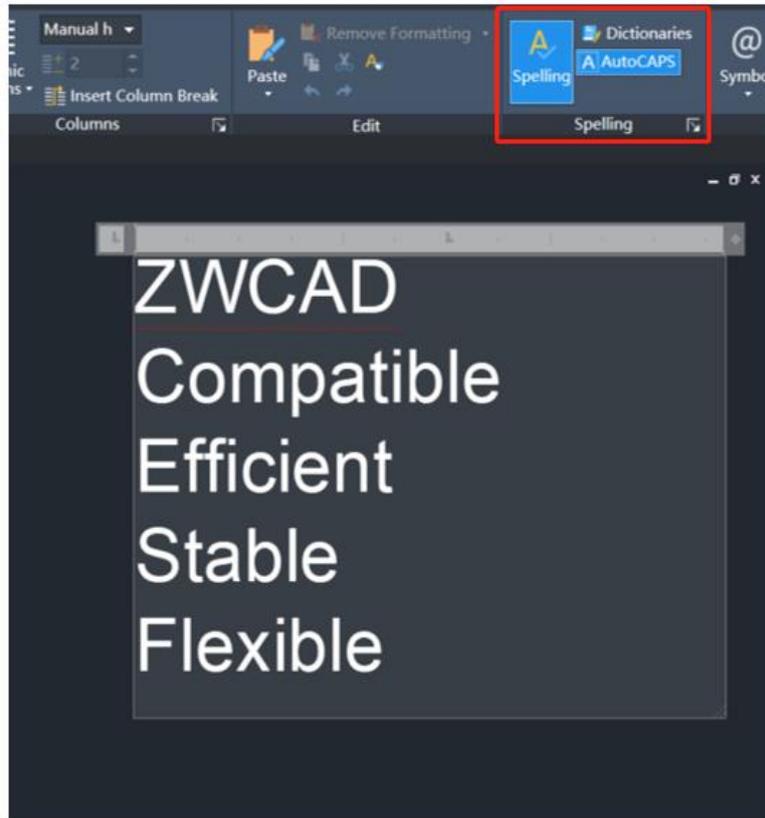


Figure 32. Spelling in multiline text

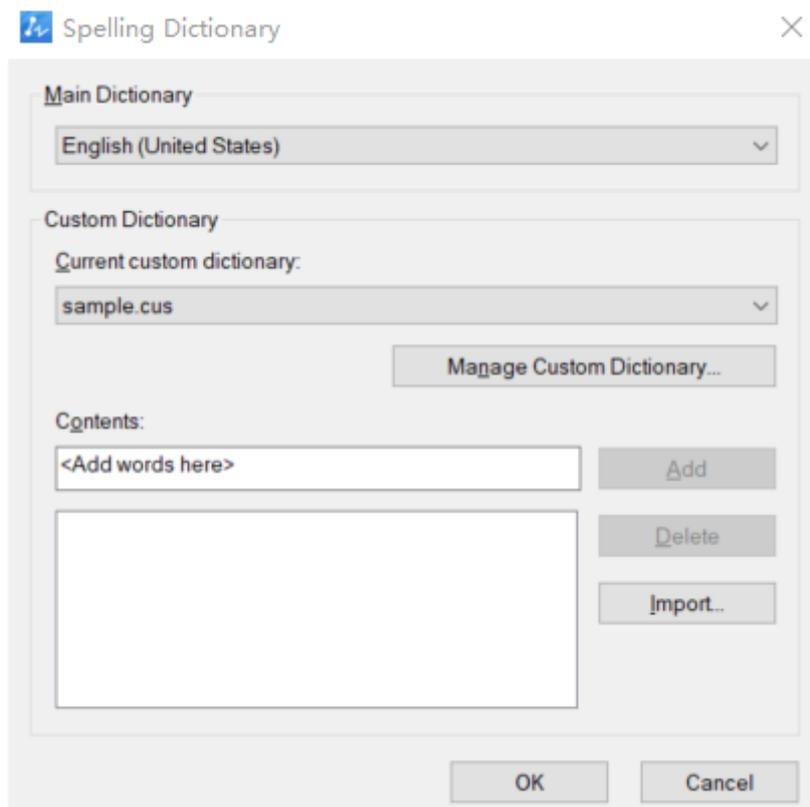


Figure 33. Spelling Dictionary

## Incremental Save

Incremental save is a mechanism for saving drawings, which only saves the parts that have changed since the last save, rather than the entire CAD file. This saves time and reduces the possibility of file damage.

## New View Widget

A new widget is added in the model space, by which user can easily set views, visual styles, or coordinates types in the model space.

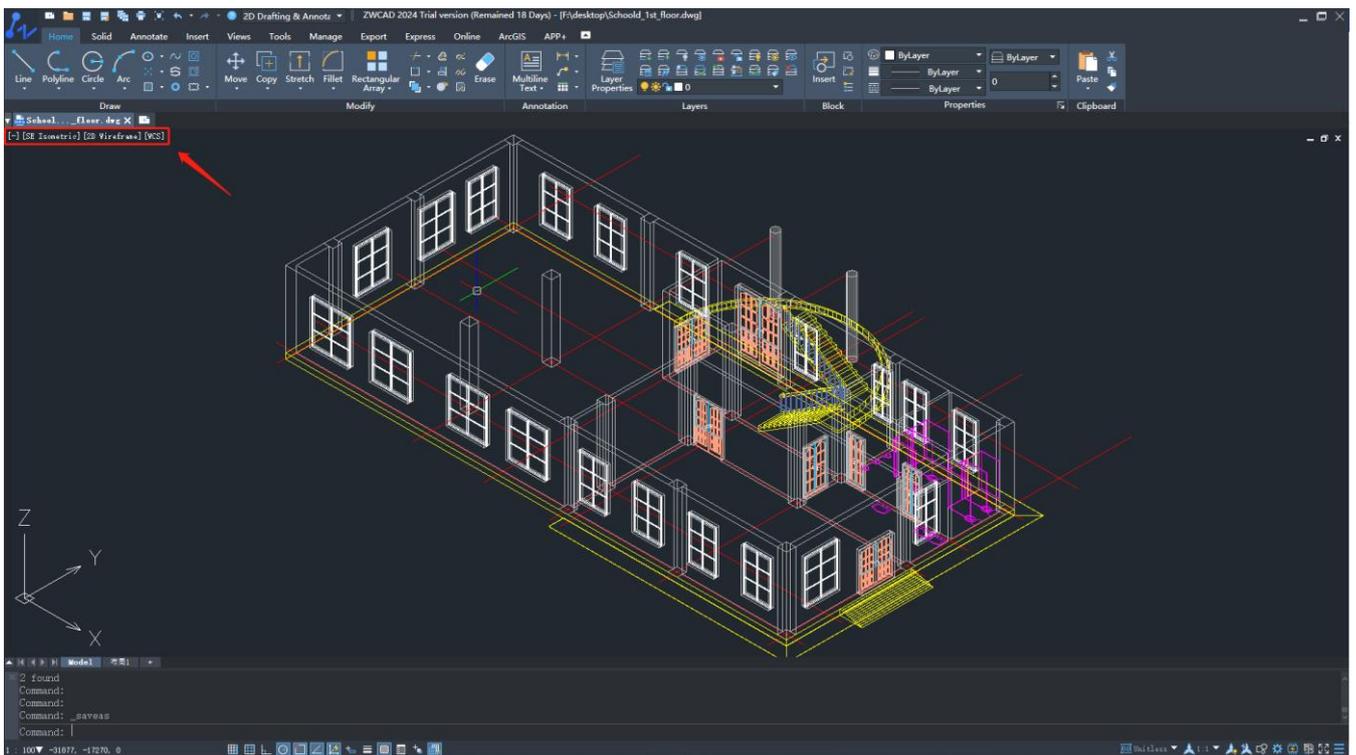


Figure 34. Views related settings can be adjusted directly on the model space.