ZWCAD MFG 2025 Release Notes

Overview

The mechanical module of ZWCAD MFG 2025 primarily includes improvements in 5 aspects: compatibility, accessibility, part library, drawing functionality and specialized toolset. The specific details are as follows:

New Features &Enhancements in the mechanical module	Description
AutoCAD® Mechanical Compatibility	It can accurately and completely read data in AutoCAD® Mechanical drawings, such as frame, title block, balloon, part reference, BOM, and mechanical symbols like surface texture, geometric tolerance, and welding symbol. Opened drawings can be correctly displayed and freely edited, so users can reuse historical drawings easily after switching to ZWCAD MFG.
Expanded Multi-Language Versions	Besides Simplified Chinese, Traditional Chinese, English, German, Japanese, and Korean versions, Polish and Turkish versions have been added, reducing the learning costs for corresponding regional users.
Expanded Part Library	The existing GB, ISO, and DIN standards have been expanded. Meanwhile, it has added standards including JIS, KS, PN, CSN, UNI, AFNOR, ANSI, BSI, CNS, EN, GOST, IS and TCVN, allowing mechanical engineers from more countries to enjoy the convenience brought by the availability of standardized part libraries.
2D Hide	For situations where there are assembly relationships between parts or graphical

	occlusions, it allows quick hiding of background graphics behind the outer contours of parts. This eliminates ambiguity in graphical representation and saves time in manually trimming background graphics.
Part Reference	It added a part reference object named Zwmpartref , providing a more concise way to label part graphics in the model space. After entering part attributes, they can be synchronously referenced in the BOMs, reducing the workload of data maintenance.
Scale Area	This function supports dividing the model space into regions with different scales. Users can plot appropriate engineering drawings in the model space or layout by setting suitable length scales or text scales.
Enhanced Moment of Inertia Calculation	It optimized the efficiency and accuracy of inertia moment calculations, and supports the calculation of graphic objects including closed shapes with holes, closed shapes with spline profiles, disconnected discrete shapes, and shapes with centerlines, allowing users to easily handle more complex engineering calculation scenarios.
Deflection Calculation	It provides a deflection calculation tool that allows engineers to quickly generate deflection lines and calculation result tables after inputting necessary parameters. This tool helps engineers predict the deformation of beams under loads and optimize structures.
Enhanced Design and Calculation of Sprocket/Pulley	It provides a sprocket/pulley design tool that helps users quickly complete the drawing of

	sprockets/pulleys, the drawing of chain/belt links, the length calculation of chain/belt, the dynamic adjustment of sprockets/pulleys and chain/belt. Additionally, national standards are embedded when selecting parameters to help users easily create drawings that comply with the required standards.

The platform part of ZWCAD MFG 2025 primarily includes improvements in 4 aspects: 3D function, UI/UX, API, and industry modules.The specific details are as follows:

New Features & Enhancements in platform part	Description
Improvement of Efficiency in Opening 3D Drawings	CPU capabilities were fully utilized to enhance the efficiency of opening 3D drawings.
3D Object Display Improvement	It added "Conceptual", "Realistic", "Shade of Grey", and "X-ray" visual styles to provide diverse visualization effects. The display efficiency of 3D models has been enhanced for a smoother viewing experience.
3D Gizmos	In the 3D visual style, objects can be conveniently panned, rotated, scaled and transformed through 3D gizmos.
STEP File Import	It supports the import of 3D files in STEP format (AP203 and AP214 versions).
Ribbon Redesign	A brand-new design of the ribbon, offering features such as slide-out panels, dragging panels, floating panels, and collapsed panels as icons, to provide users with a highly customizable interface.
Panel Redesign	Stacked and auto-hidden panels provide users with

	a bigger drawing space. A new navigator allows an easier interactive way of dragging and docking panels.
Floating Documents Window	Document windows can be dragged out of the main program as floating windows, so users can open one drawing on another monitor for reference.
FAS/VLX File Support	Compatible with AutoLISP files created with Visual LISP. supports direct loading FAS/VLX files.
Point Cloud Improvement	It added 3 visual styles including "Intensity", "Elevation", and "Classification" and support configuration to meet different scenario needs.
GIS Improvement	It supports the import of commonly used map sources such as Bing Maps, and the import of OGC standard map services. It also supports setting markers in the map and setting insertion points in the drawing, so the map can the drawing can be quickly matched according to geographical location.
Raster to Vector Conversion	Convert raster images to vector data to meet users' needs for converting paper drawings into DWG files.
Help Document Redesign	It supports filtering in the offline help document. It added online help documents (Supported languages: including Simplified Chinese, Traditional Chinese, English, Russian, German, Spanish, French, Japanese, Korean).
Revcloud Improvement	"Revcloud" has become the new CAD entity type. Revcloud shapes can be edited quickly by dragging grips.

Command Matching Method Improvement	It supports non-initial string matching, and sorting commands by frequency of use, providing users with a more intelligent and convenient interaction method.

Next, we have a detailed introduction to the new features and enhancements.

New Features & Enhancements in the mechanical module

1. AutoCAD® Mechanical Compatibility

It now supports the conversion for various custom entities in AutoCAD® Mechanical. It can accurately and completely read data in AutoCAD® Mechanical drawings, such as frame, title block, balloons, part reference, BOM, and mechanical symbols like surface texture, geometric tolerance, and welding symbols. Opened drawings can be correctly displayed and freely edited, so users can reuse historical drawings easily after switching to ZWCAD MFG.

Besides supporting the conversion of AM frame, BOM, title block, and balloons in the previous version, ZWCAD MFG 2025 added support for 10 types of custom entities: part reference, surface texture, geometric tolerance, welding symbol, datum target, datum identifier, taper and slope, feature identifier, leader note, and hole chart. It also covers 8 standards: GB, ISO, DIN, JIS, ANSI, BSI, CSN, and GOST.

Supporting AutoCAD® Mechanical drawing formats: 2012~2018.

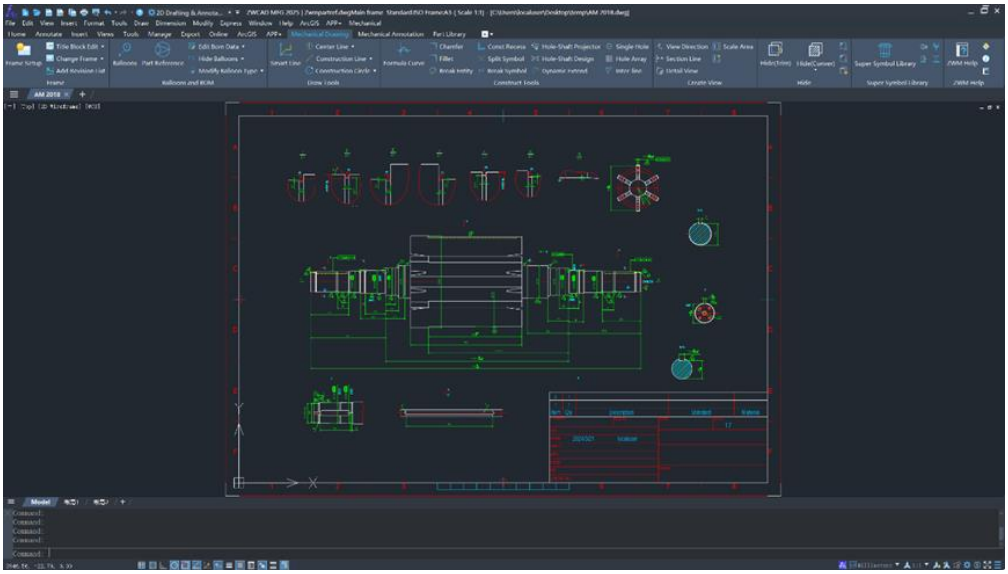


Figure 1. AutoCAD Mechanical drawing

2. Expanded Multi-Language Versions

Besides Simplified Chinese, Traditional Chinese, English, German, Japanese, and Korean versions, ZWCAD MFG 2025 added Polish and Turkish versions, reducing the learning costs for corresponding regional users and enhancing the competitiveness of the product in the international market.

Supported languages					New languages	
Simplified Chinese	Traditional Chinese	English	German	Japanese	Polish	Turkish
✓	✓	✓	✓	✓	✓	✓

Figure 2. New languages version

3. Expanded Part Library

The existing GB, ISO, and DIN standards have been expanded. Meanwhile, it has added standards including JIS, KS, PN, CSN, UNI, AFNOR, ANSI, BSI, CNS, EN, GOST, IS and TCVN, allowing mechanical engineers from more countries to enjoy the convenience brought by the availability of standardized part libraries.

In each standard, it added common standard parts including features and steel profiles.

In some standards, it added common standard parts including shaft parts, features and

flanges.

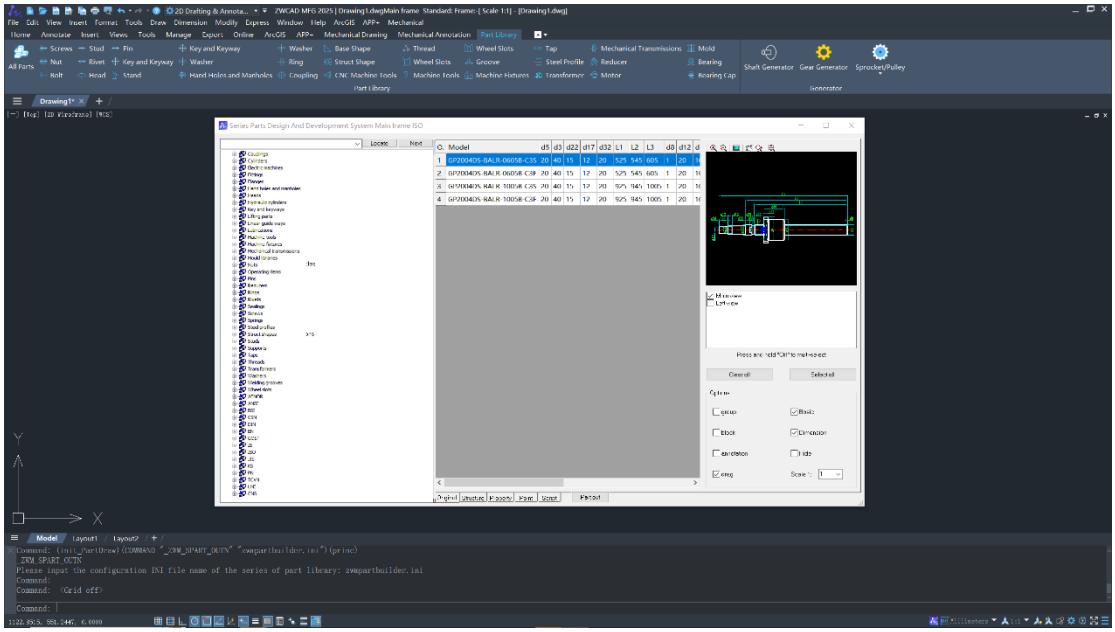


Figure 3. Part library

4. 2D Hide

For situations where there are assembly relationships between parts or graphical occlusions, it allows quick hiding of background graphics behind the outer contours of parts. This eliminates ambiguity in graphical representation and saves time in manually trimming background graphics.

It provides many methods for 2D Hide: Hide (Trim), Hide(Cover), Reference Clip and Hide(Part Out), and can be applied to various object types: basic graphic elements, block references & external references, text, annotations. It also supports configuration of hidden layers and dashed lines, catering to different scenarios.

Hide(Trim)

It added the ZwmTrimHide command, which realizes 2D hide by trimming. Based on the selected entity with closed outer contours, it can hide the obscured background entity by solid trimming. In cases where the background entity has inner contours, you can choose to filter the inner contour region.

Hide(Cover)

It added the ZwmCoverHide command, which realizes 2D hide by covering. Based on the selected entity with closed outer contours, it can hide the obscured background entity by generating regional coverage. 2D hide can be turned off by executing the ZwmUnCoverHide command.

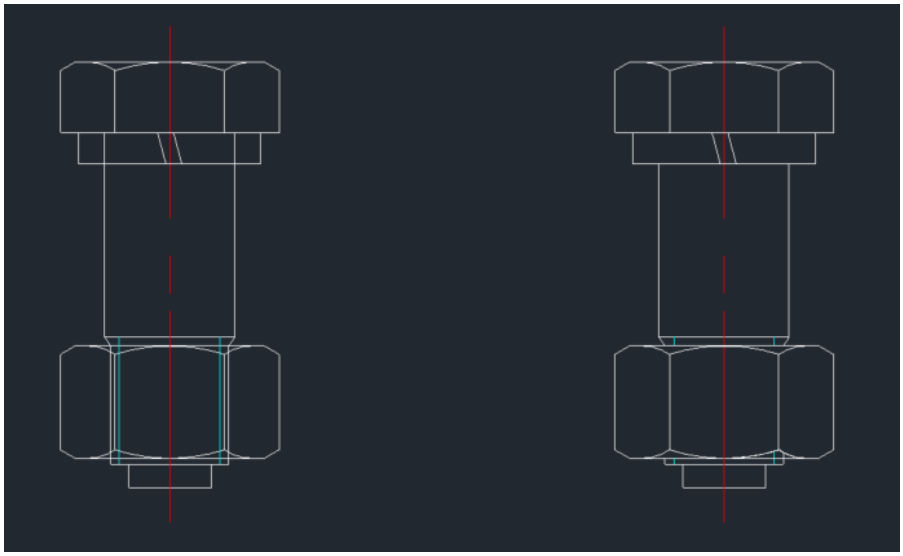


Figure 4.2D Hide

Reference Clip

It added the ZwmBlockRefClip command. It can clip block references/external references by specifying polyline/circle/arc/ellipse/spline objects as clipping boundaries. After clipping, it can flip the clipped region. 2D hide can be turned off by executing the ZwmUnBlockRefClip command.

Hide(Part Out)

When parting out parts, you can choose the exported part as a foreground entity to perform 2D hide on the background entity.

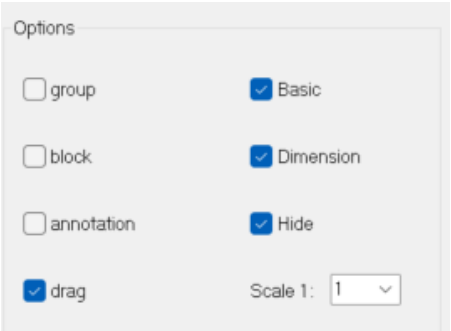


Figure 5. Hide (Part Out)

2D Hide Configuration:

It added the ZwmHClipConfig command. It allows setting the outer contour layers for foreground entities and the non-hidden layers for background entities, so users can control the hidden scope from the aspect of layers. Additionally, it enables setting the generation of dashed lines and the search accuracy of contour extraction.

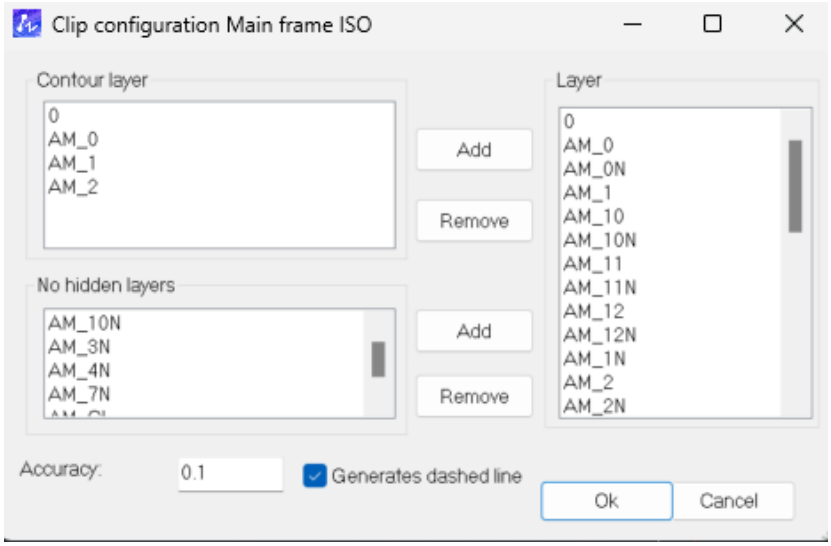


Figure 6. 2D Hide Configuration

5. Part Reference

It added the Zwmpartref command, providing a more concise way to label part graphics in the model space. After entering part attributes, they can be synchronously referenced in the BOMs, reducing the workload of data maintenance. Additionally, balloon numbers based on the part reference can realize association among BOMs, balloons, and part references.

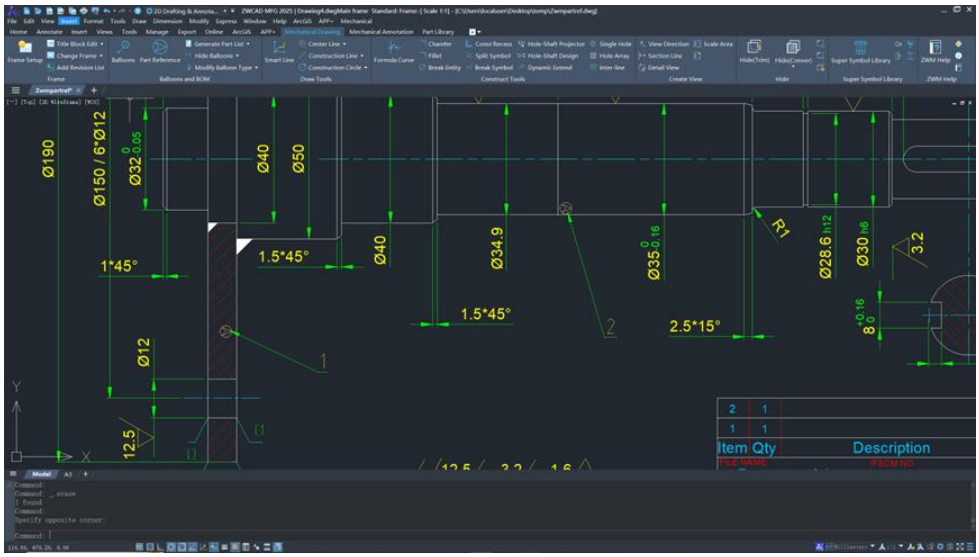


Figure 7. Part Reference

6. Scale Area

This function supports dividing the model space into regions with different scales. Users can plot appropriate engineering drawings in the model space or layout by setting suitable length scales or text scales.

The new command ZwmScArea allows users to specify a specific area as the scale area. It supports two types of scaling: length scaling and text scaling.

Length Scaling

Length scaling enlarges or shrinks geometry without touching the size of annotations.

Text Scaling

Text scaling enlarges or shrinks annotations without touching the size of geometry.

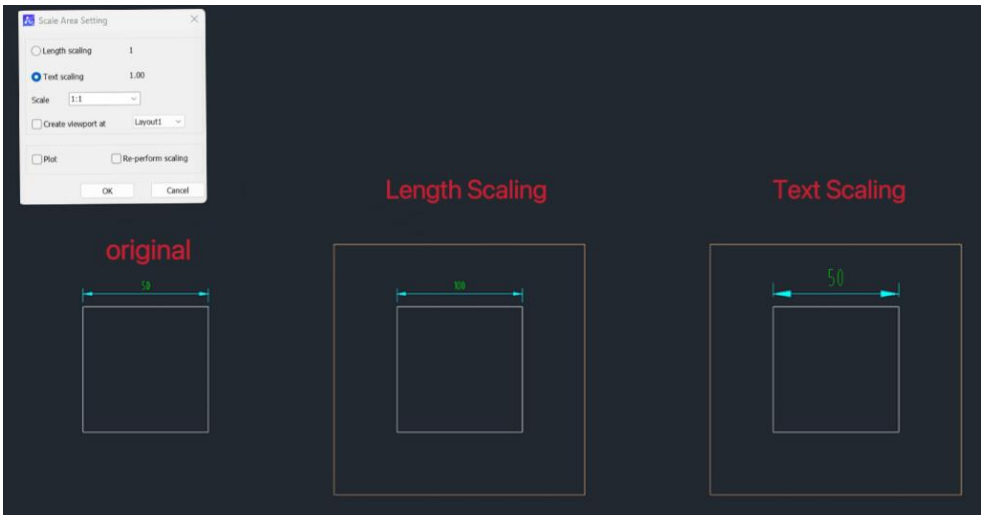


Figure 8. Scale Area

7. Enhanced Calculation of Moment of Inertia

It has optimized the efficiency and accuracy of inertia moment calculations, and now supports the calculation of graphic objects including closed shapes with holes, closed shapes with spline profiles, discrete shapes, and shapes with centerlines, allowing users to easily handle more complex engineering calculation scenarios.

	Simple closed shape	Closed shapes with holes	Closed shapes with spline curve profiles	Disconnected discrete shapes	Centerline filtering
					
ZWCAD MFG	✓	✓	✓	✓	✓
Autocad Mechanical	✓	✓	✗	✗	✗
BricsCAD Mechanical	✗	✗	✗	✗	✗

Figure 9. New scenarios supported by inertia moment.

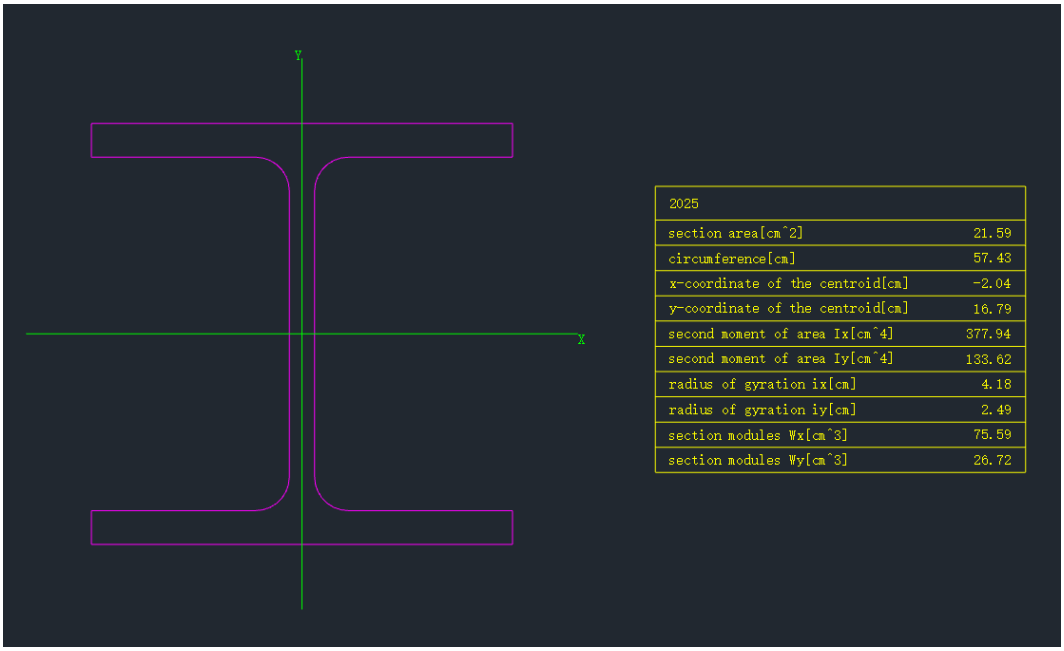


Figure 10 . Results of inertia moment calculation.

8. Deflection Calculation

It provides a deflection calculation tool that allows engineers to quickly generate deflection lines and calculation result tables after inputting necessary parameters. This tool helps engineers predict the deformation of beams under loads and optimize structures.

In bridge design, users can calculate the deflection of the bridge under loads based on parameters such as spans, loading conditions, and material properties, to assess the bridge's load-bearing capacity and its safety. In mechanical design, users can calculate the deformation of mechanical components to optimize structures and verify strength.

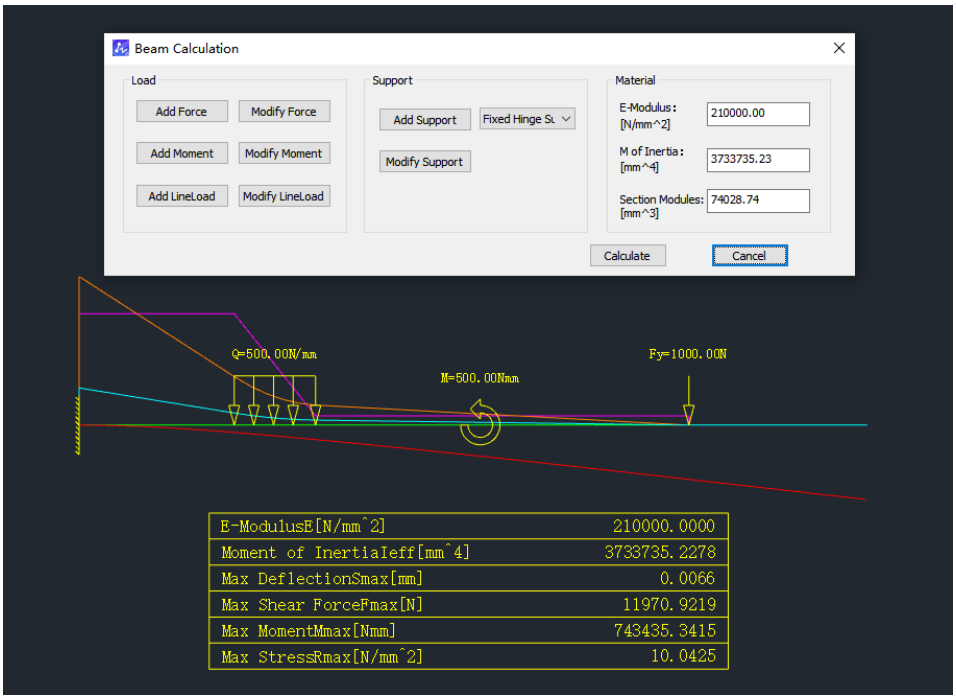


Figure 11. Results of deflection calculation.

9. Enhanced Design and Calculation of Sprockets/Pulleys

It provides a sprocket/pulley design tool that helps users quickly complete the drawing of sprockets/pulleys, the drawing of chain/belt links, the length calculation of chain/belt, the dynamic adjustment of sprockets/pulleys and chain/belt.Additionally, national standards are embedded when selecting parameters to help users easily create drawings that comply with the required standards.

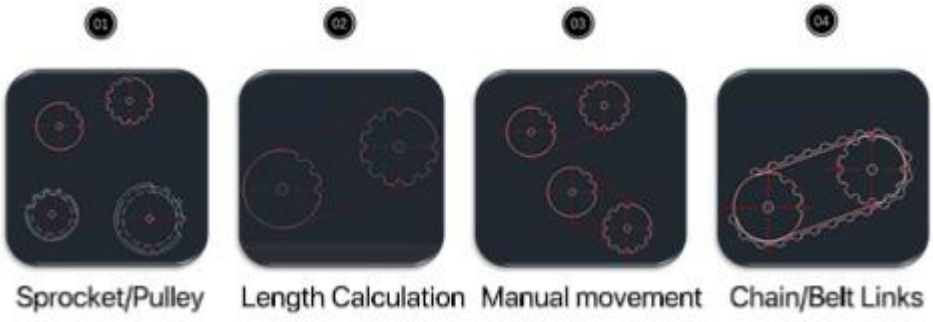


Figure 12. sprocket/pulley design tool

Drawing of Sprockets/Pulleys

It added the ZwmSprocket command. After specifying the inserting point, standard,

dimension parameter, and some geometric features (such as number of teeth and shaft diameter), it can quickly generate the required sprocket/pulley, and it can be directly edited by double-clicking.

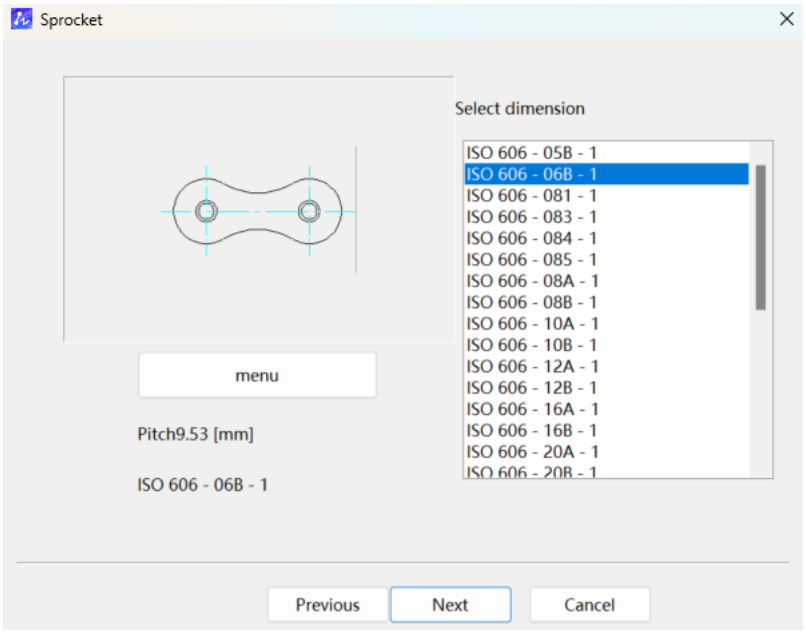


Figure 13. Sprockets/Pulleys design

Length Calculation of Chain/Belt Links

It added the ZwmChainLengthCal command. Select length calculation, specify the standard and dimension parameter, select the tangent outer circle of the hub, then it can quickly generate the required chain/belt polyline.

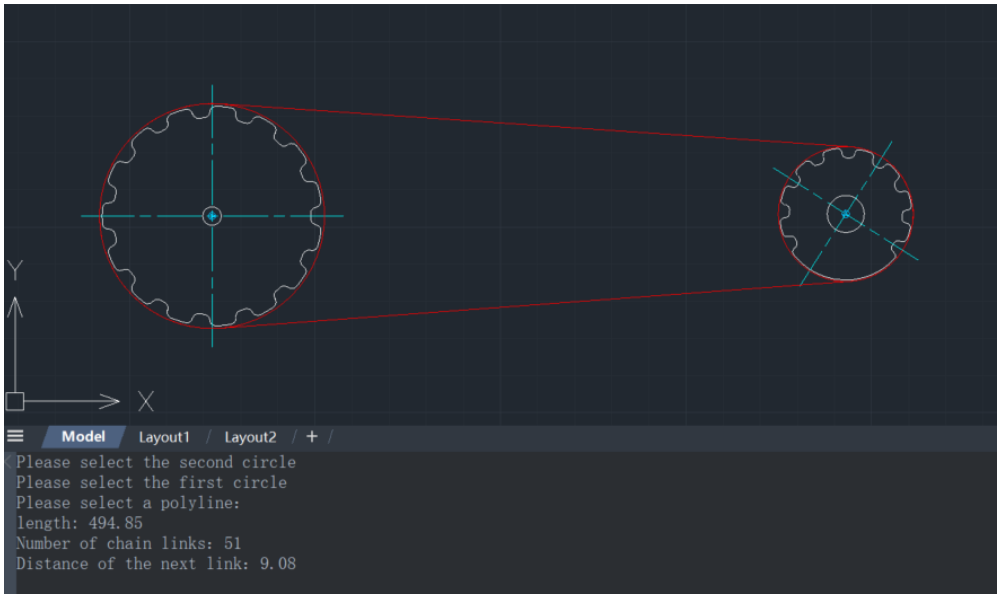


Figure 14. Length Calculation of Chain/Belt Links

Manual Movement of Sprockets/Pulleys

Execute the ZwmChainLengthCal command, select manual movement, move the specified sprocket/pulley to any other position, and the chain/belt will dynamically adjust accordingly. This function provides convenience for users in scenarios where adjustment is needed after they complete the design of sprocket/pulley.

Drawing of Chain/Belt Links

It added the ZwmChainDraw command. Select the starting point, standard, and direction of the chain/belt link, and it can quickly generate the required belt/chain links.

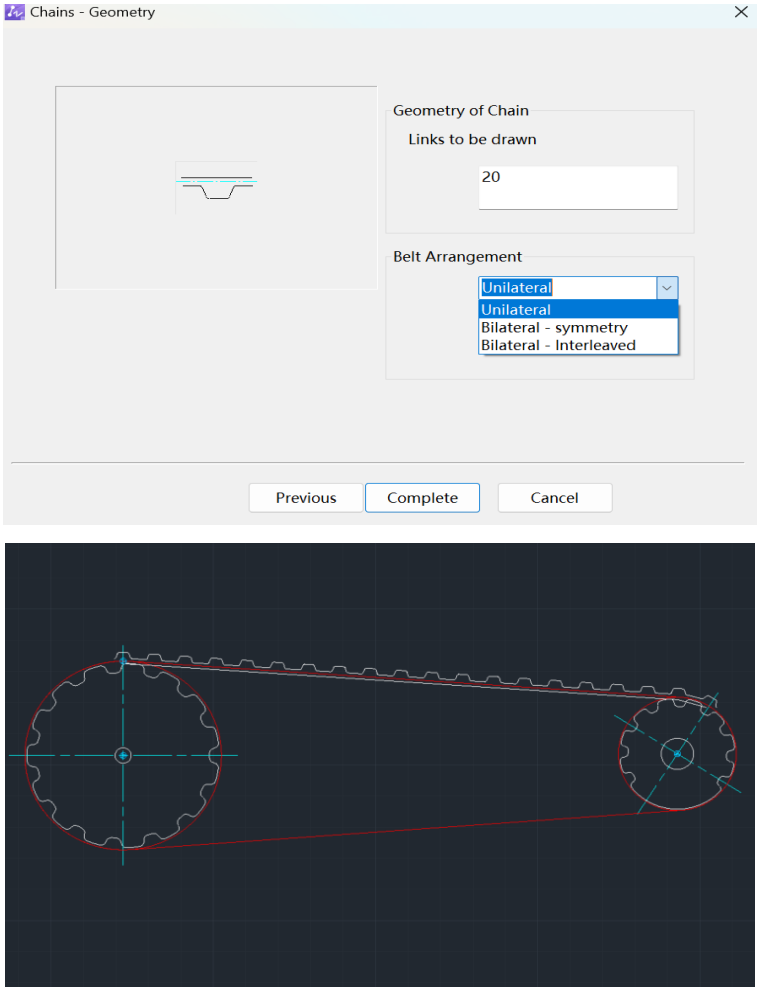


Figure 15. Drawing of Chain/Belt Links

New Features & Enhancements in platform part

1. Improvement of Efficiency in Opening 3D Drawings

By fully utilizing CPU capabilities and leveraging multi-threading parallel technology, we significantly enhanced the efficiency of opening 3D drawings in ZWCAD. The efficiency of opening 3D drawings has been improved by approximately 60% compared to the previous version.

2. 3D Object Display Improvement

More visual styles have been added to meet viewing or modeling needs in different scenarios. The display quality and display efficiency of 3D models have been improved.

New Visualization Styles

We added "Conceptual", "Realistic", "Shade of Grey", and "X-ray" visual styles and optimized the display quality of visual styles including wireframe, hidden, shaded, and shaded with edges.

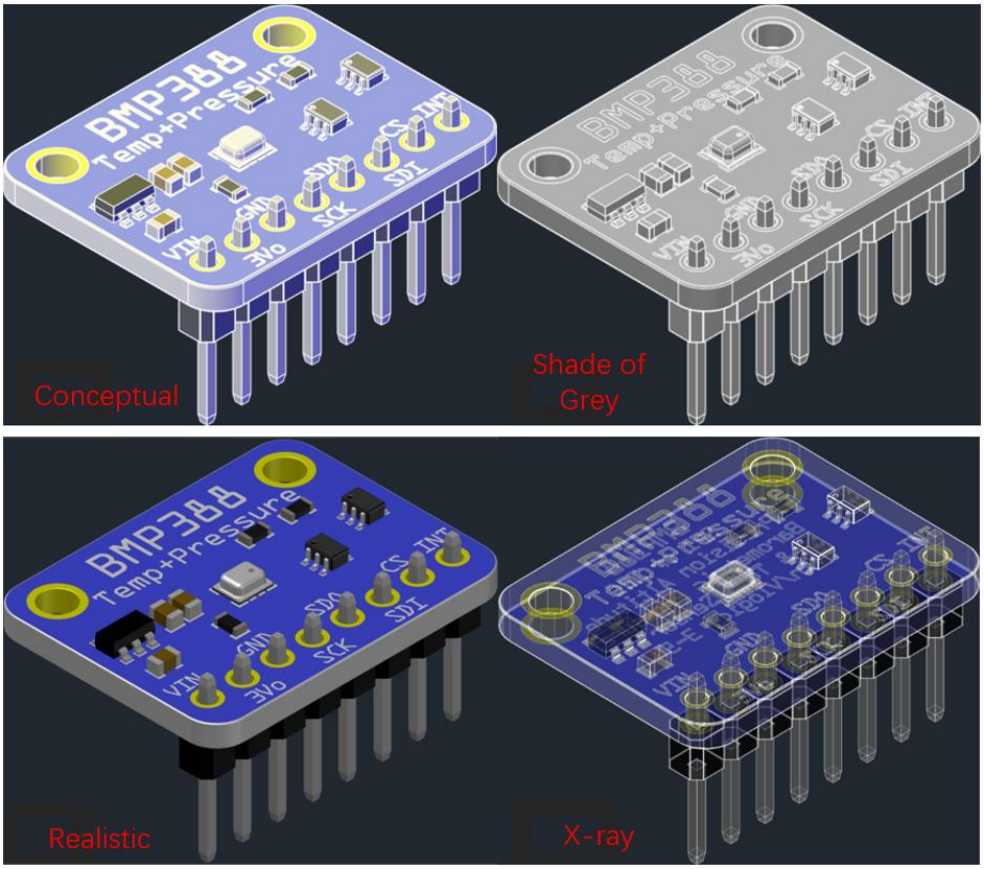


Figure 2. New 3D visual styles

Display Efficiency Improvement

We systematically improved the efficiency of viewing 3D drawings, including panning, scaling, and 3D orbit.

3. 3D Gizmos

In the 3D visual style, objects can be efficiently and conveniently moved, rotated, scaled. When the gizmo is selected, you can switch between moving, rotating, and scaling by pressing the spacebar.

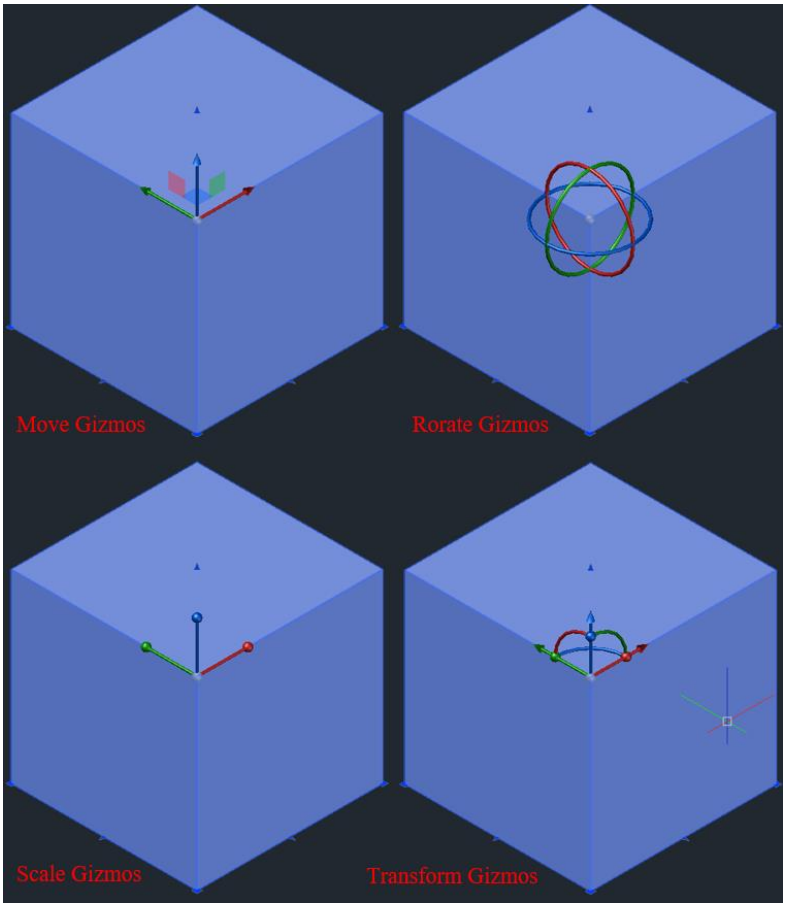


Figure 3. 3D gizmos help users edit 3D entities more easily.

4. STEP File Import

STEP is an international file format in the mechanical industry. By supporting STEP files import, the cost of file transfer from the design department to manufacturers can be reduced.

Supported STEP Versions

It supports the import AP203 and AP214 versions of STEP files.

STEP Import Settings

It supports configuration of the import of STEP files, including destination location, import method, and display settings.

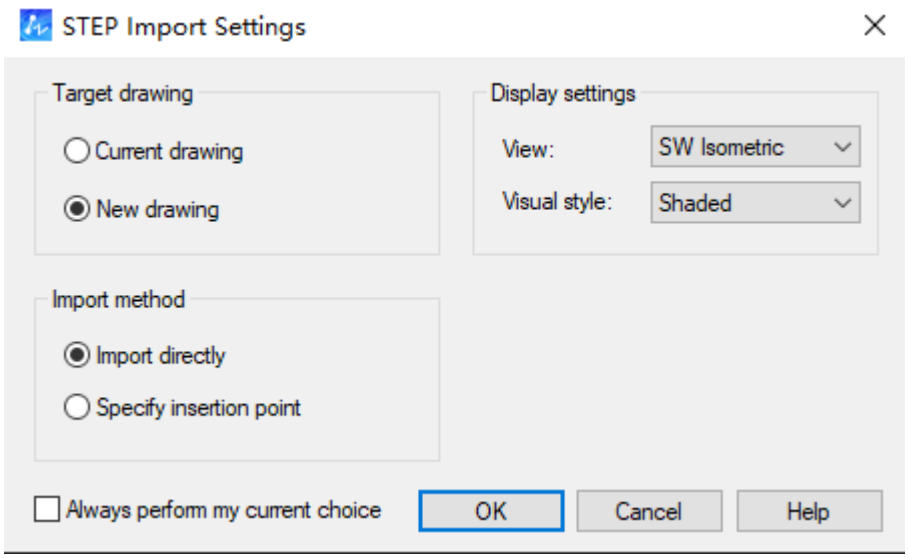


Figure 4. STEP Import Settings dialog.

5.Ribbon Redesign

The ribbon now includes new features such as slide-out panels, dragging panels, and floating panels. Combined with CUI, it enhances the customization level of interface.

Slide-out Panel.

The panel can be expanded when you click on it and collapsed when you move the mouse away from the slide-out area. You can also fix the panel by clicking the "Pin" button on the left side to make it stay expanded or collapsed.

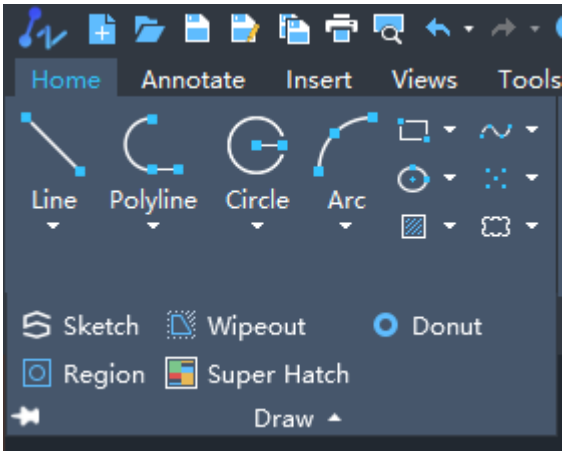


Figure 5. Slide-out ribbon panel.

Dragging Panel

You can change the location of panels under the current tab on the Ribbon by clicking

on the panel (skipping function icons) and dragging it to the desired location.

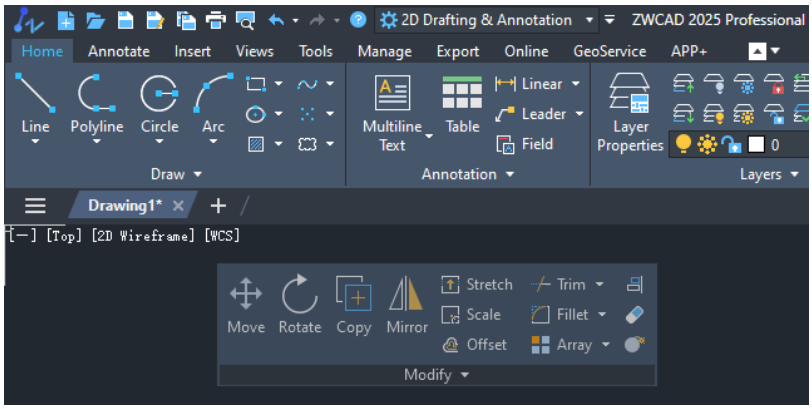


Figure 6. Dragging ribbon panel

Floating Panel

You can drag the panel outside the Ribbon by clicking on the panel (avoiding function icons) and dragging it to the desired location. The floated panel can be grouped with others or collapsed.

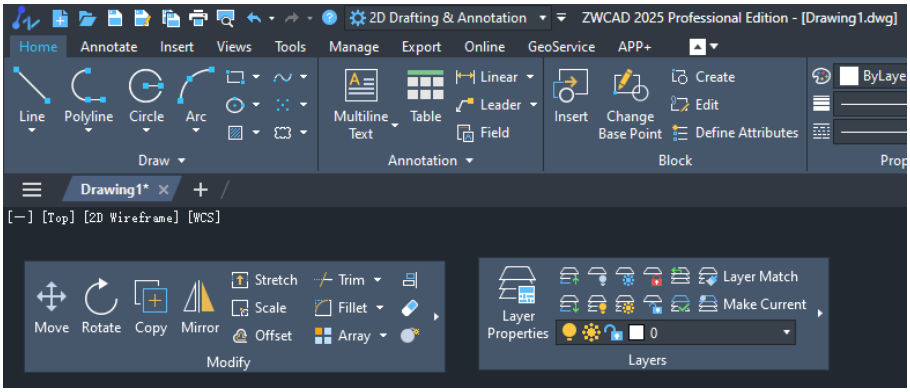


Figure 7. Floating ribbon panel

6. Panel Redesign

Panels can be stacked and hidden automatically, including Properties Panel, Layer Properties Manager, External Reference panel, Design Centre, Tool Palette, Calculator, helping users expand the drawing area.

Panel Stacking

When you drag one panel onto another, these panels can be stacked together. Whether the panel is floated or docked, it can be combined with another panel in four

directions: top, bottom, left, and right.

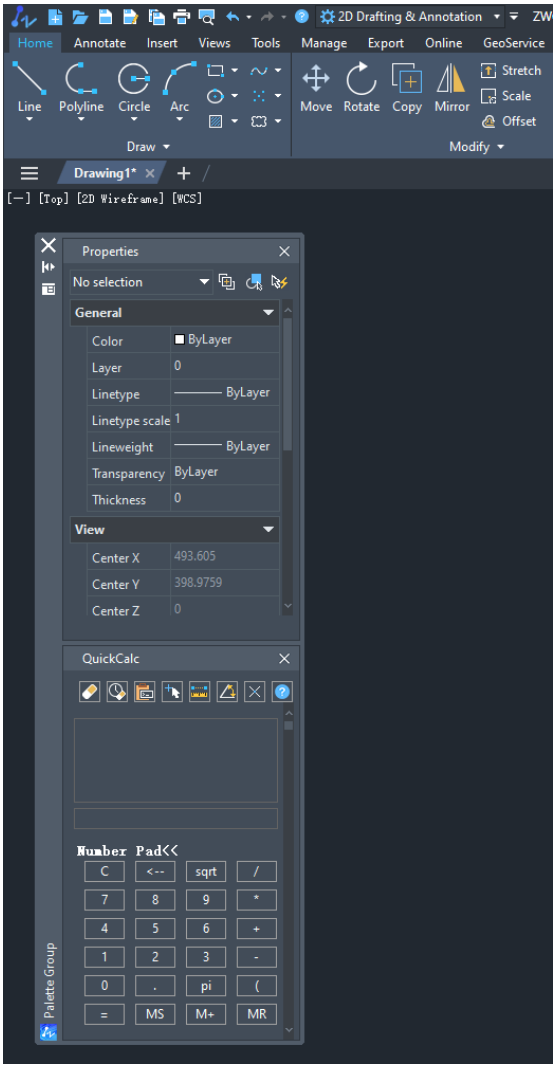
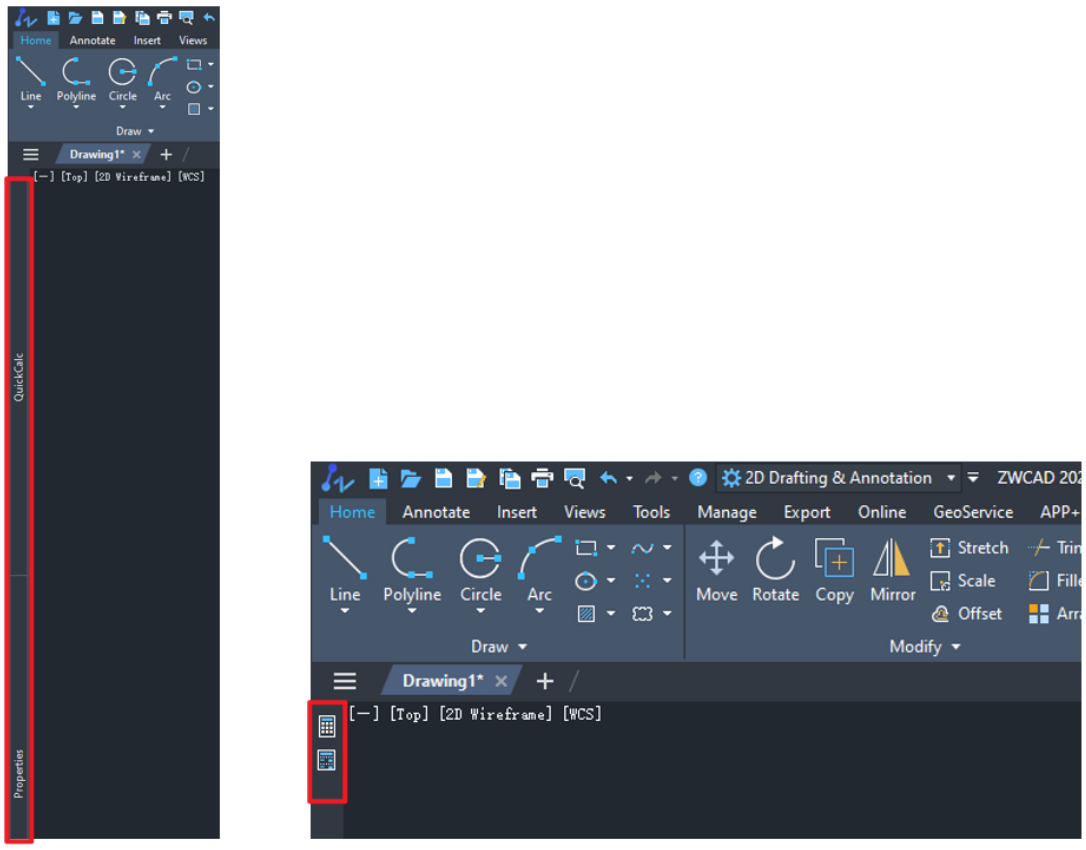


Figure 8. panels stack together.

Panel Auto-Hide

When the panel is docked on the side of ZWCAD, click the "Auto-Hide" button in the top right corner of the panel, and the panel will be hidden. You can choose to hide it as text or icon.



Hide as text Hide as icon

Figure 9. Different hiding methods

Navigator

When you drag the title bar of a panel, it will trigger the navigator between the panel and the ZWCAD program. When you drag the panel to another panel, it will trigger the navigator between them. The navigator can provide you with a more intuitive preview effect.

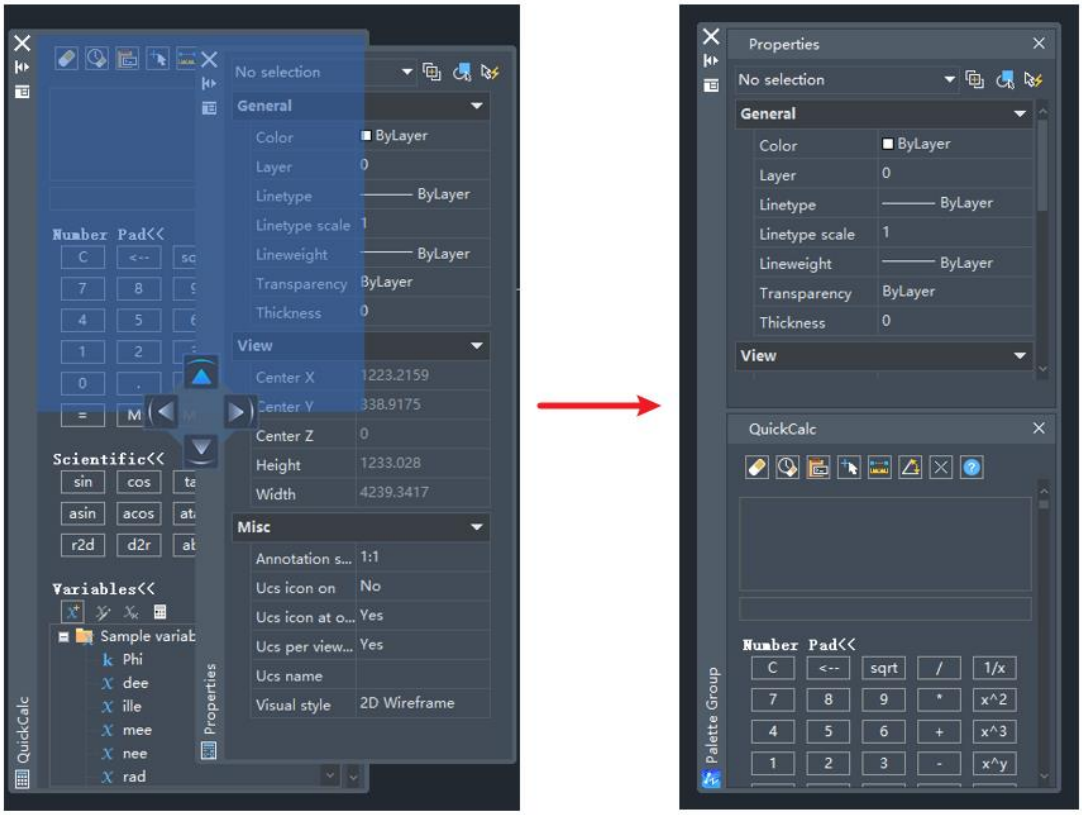


Figure 10. Stacking Navigator

7. Floating Document Window

Document windows can be dragged out of the program, so users can open one drawing on another monitor as a reference drawing. When opening two or more drawings in ZWCAD, users can drag any document out of the program by clicking on the document tab and dragging it to the desired location.

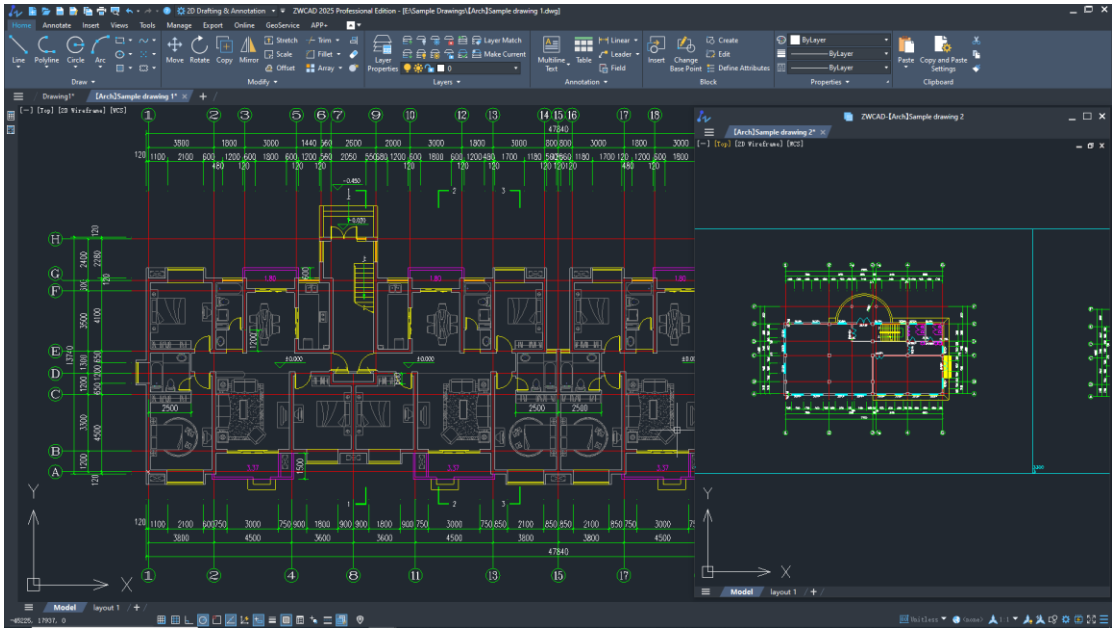


Figure 11. Drag a drawing out as a new window.

8. FAS/VLX File Support

It supports the direct loading of standard LISP binary files in FAS and VLX formats. It improves LISP compatibility, eliminates format conversion and enhances development efficiency.

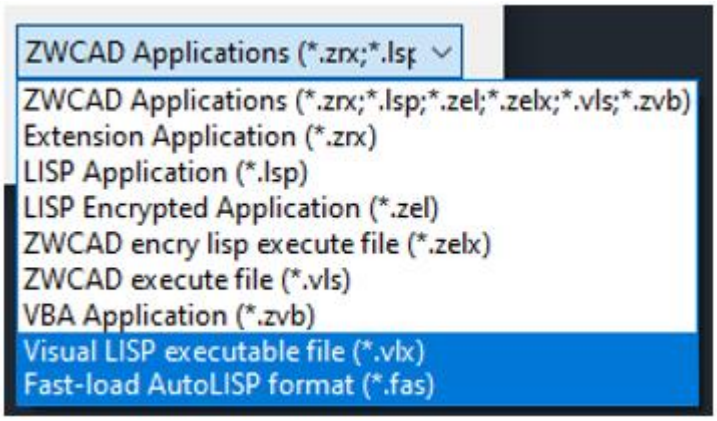


Figure 12. Directly load FAS/VLX applications

9. Point Cloud Improvement

New Visualization Styles

It added 3 new visualization styles including "Intensity", "Elevation", and "Classification". Also, users can configure point cloud colors.

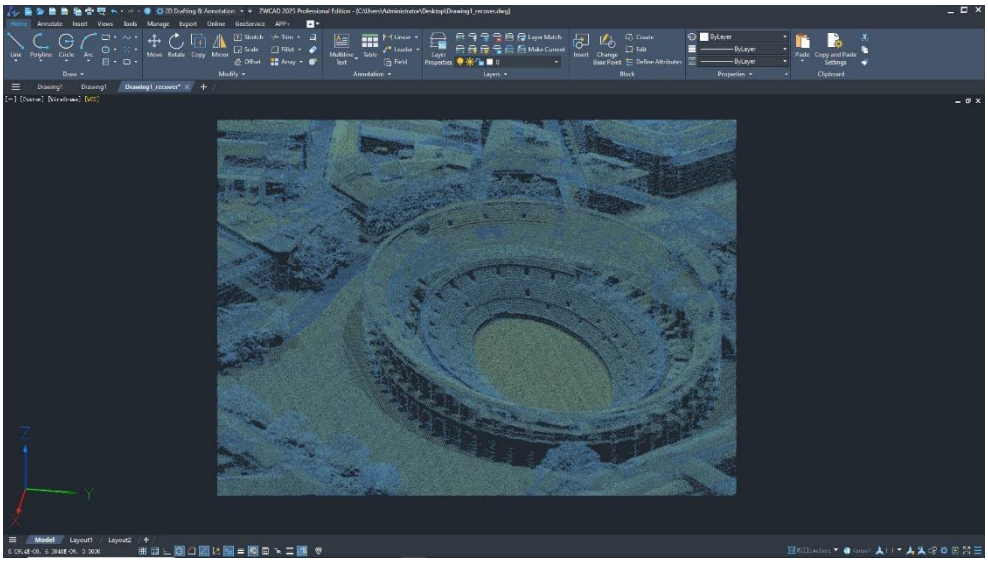


Figure 13. Intensity visualization style

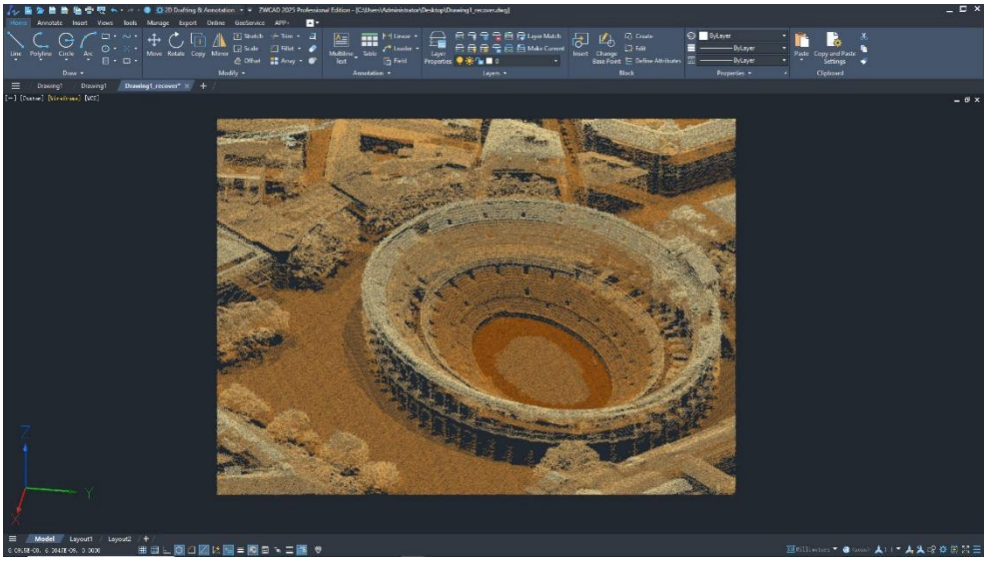


Figure 14. Elevation visualization style

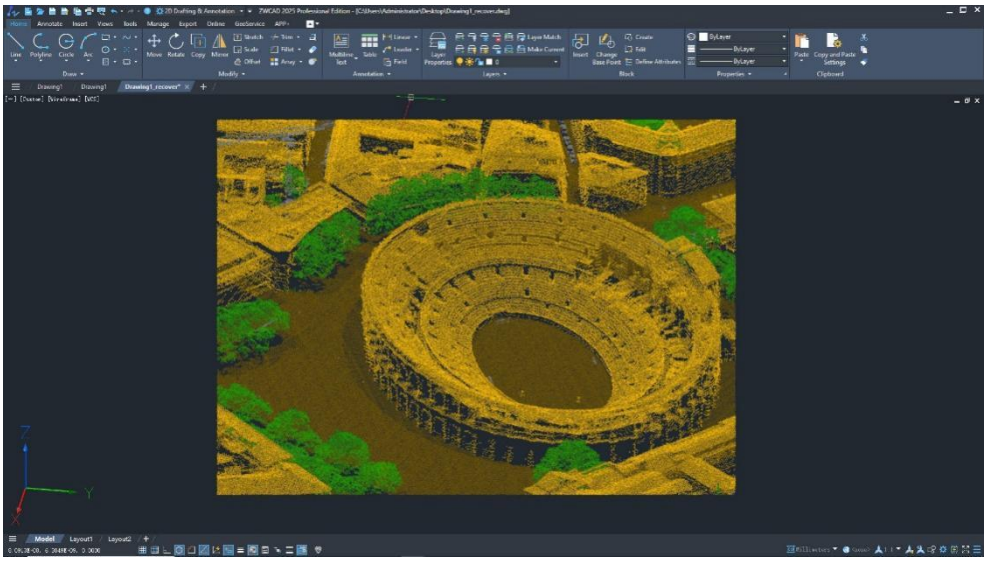


Figure 15. Classification visualization style

Navigate to Scan View

In the Point Cloud Manager, right clicking a subset will trigger a context menu. Through the "Navigate to Scan View" function, and users can quickly locate the corresponding view.

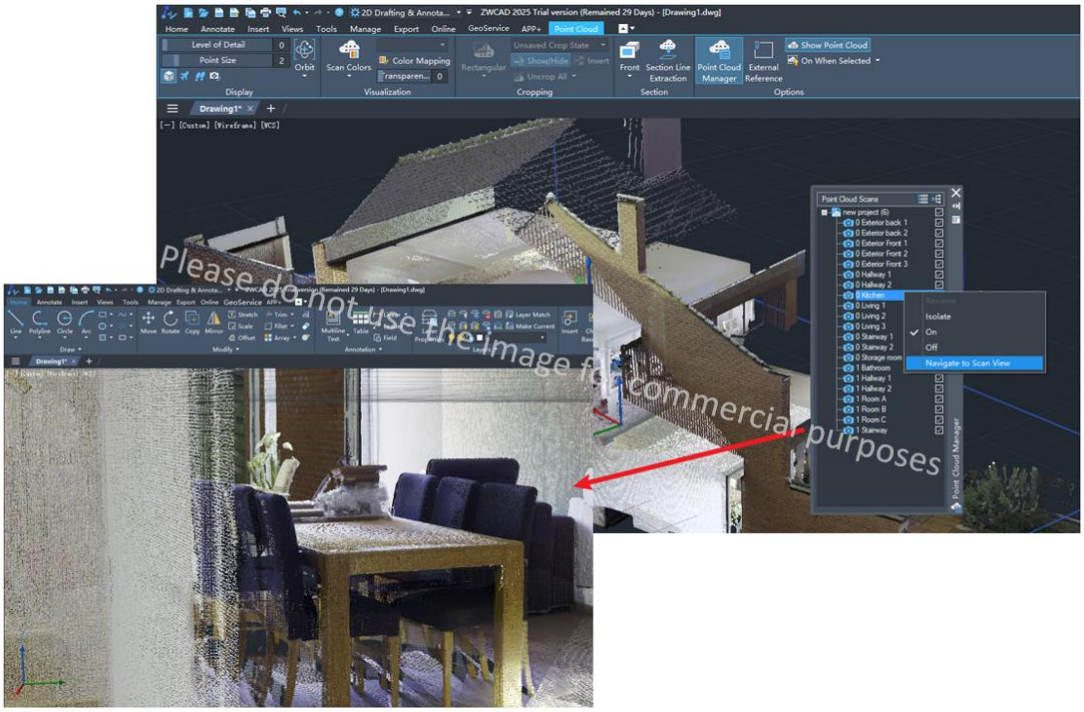


Figure 16. Navigate to the scan view to observe the interior of the building.

10.GIS Improvement

This module has replaced the original ArcGIS module to import maps and represent geographic features in ZWCAD.

Map Service Import

It provides multiple map services including Bing Maps. Users can add map services compliant with the OGC protocol.

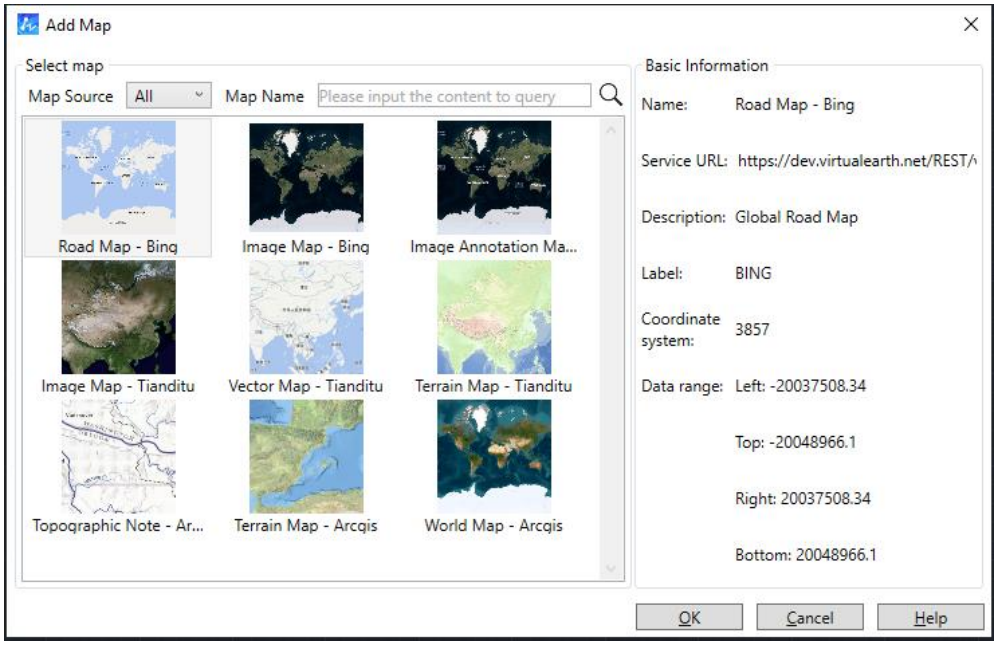


Figure 17. "Add Map" dialog box.

Locating Function

You can match the geographic marker with the insertion point specified in the drawing by specifying the latitude and longitude.

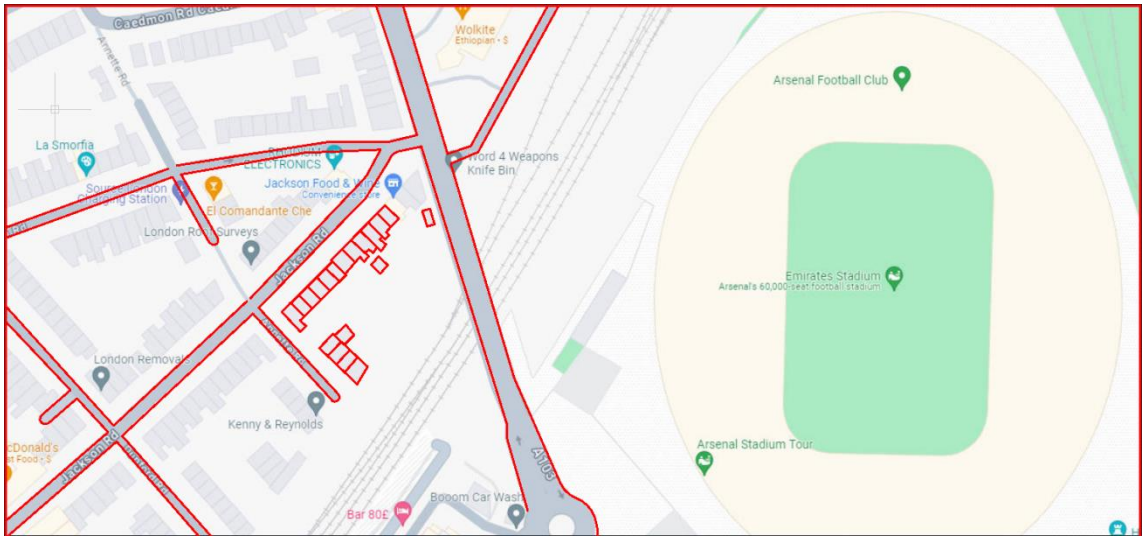


Figure 18. Visual representation of map and drawing matching

11.Raster to Vector Conversion

It supports converting raster images into CAD entities, allowing users to directly edit and modify the converted drawings. This feature helps users reuse historic hand-drawn drawings or scanned drawings, reducing the workload and cost of converting them to CAD drawings manually.

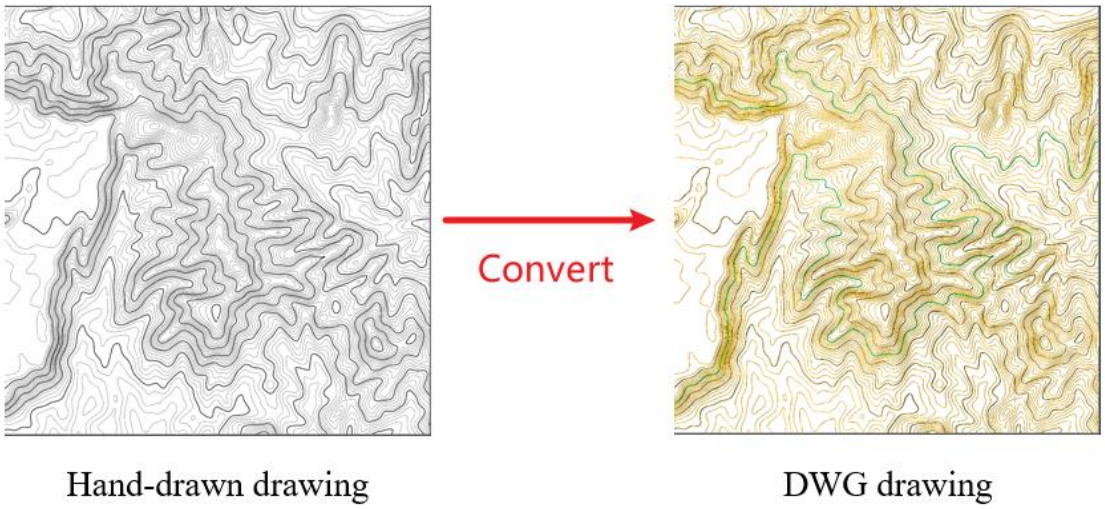


Figure 19. Convert raster image to DWG drawing.

12.Help Document Redesign

It added an online help document and optimized the search engine for the offline help document so users can access the help documentation service more conveniently.

New Online Help Document

Online help document enables users to access the help document anytime, anywhere, on any device, without the need to open the program (Supported languages: including Simplified Chinese, Traditional Chinese, English, Russian, German, Spanish, French, Japanese, Korean).

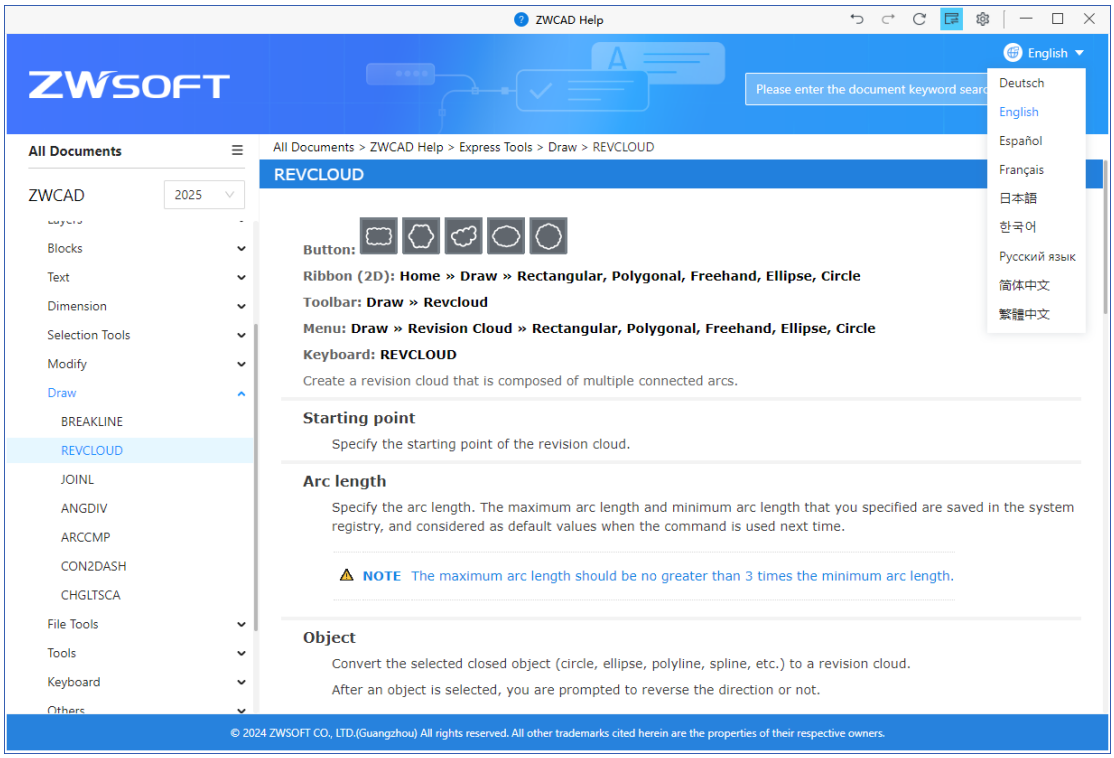


Figure 20. Online help document homepage

Offline Help Document Improvement

Offline help documentation supports filtering, enhancing the convenience and efficiency of searching.

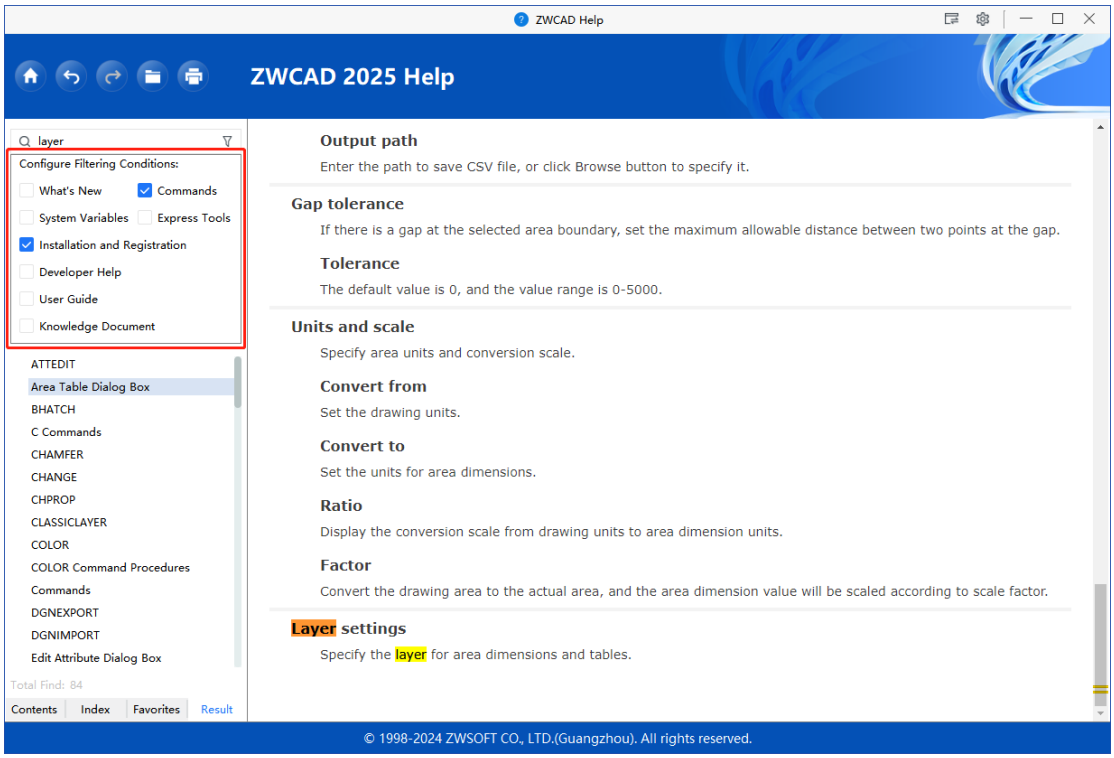


Figure 21. Search criteria help users more accuracy to find the content.

13.Revcloud Improvement

Users often use revclouds for drawing review. Revcloud has become a CAD object and command branches are expanded, facilitating the creation and editing of revclouds.

Revcloud as CAD Object Type

In the past, the CAD object type for revclouds was "polyline". In this version, it has been changed to "Revision Cloud". Users can directly edit the shape of revclouds by dragging its grips and can modify the arc length of revclouds through the properties panel.

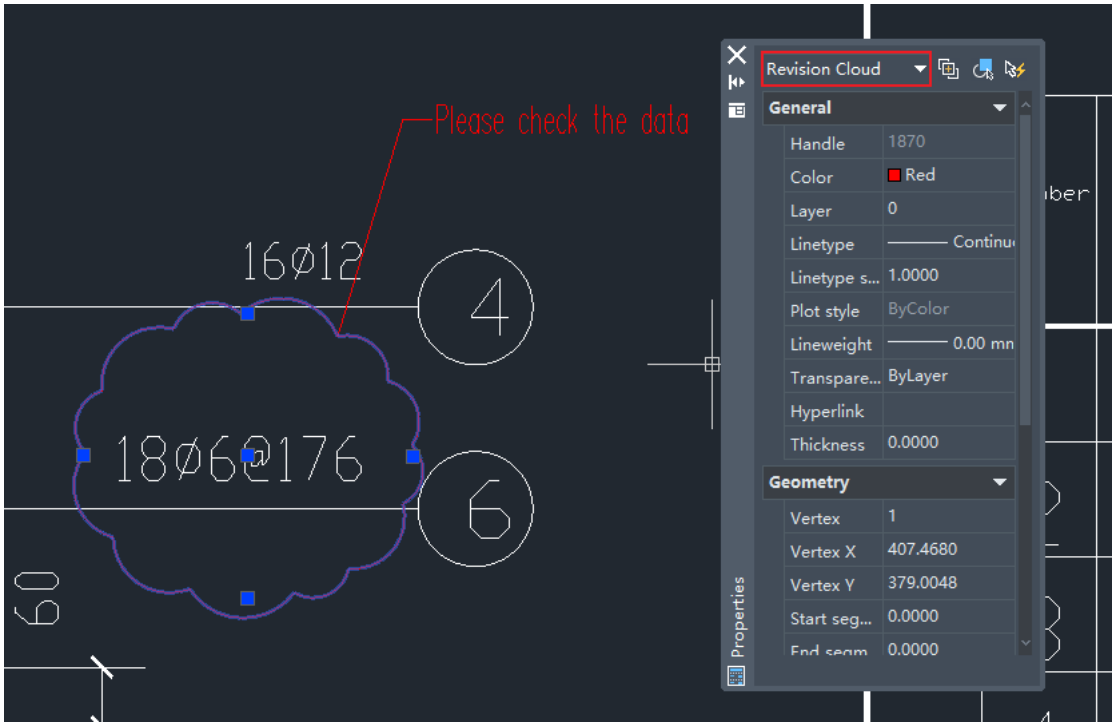


Figure 22. New CAD object called "Revision Cloud."

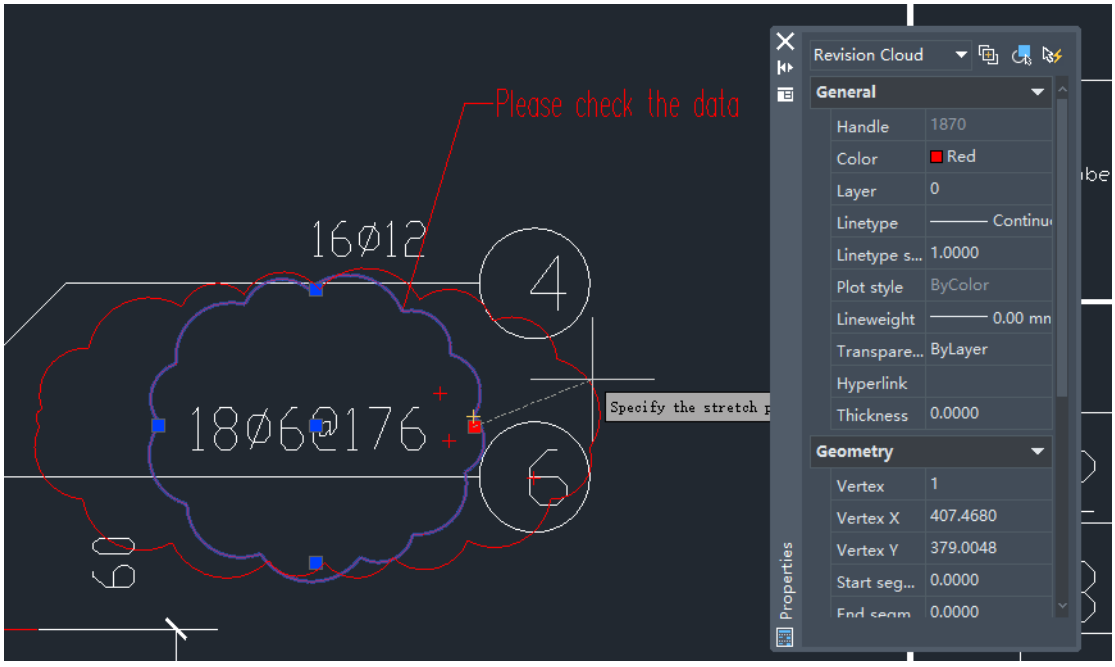


Figure 23. Users can change the shape of revcloud with grips.

New Branch Commands

"Circle", "Ellipse", "Modify" commands are added so you can create circular or elliptical revclouds. With the "Modify" command, you can edit the shape of existing

revclouds.

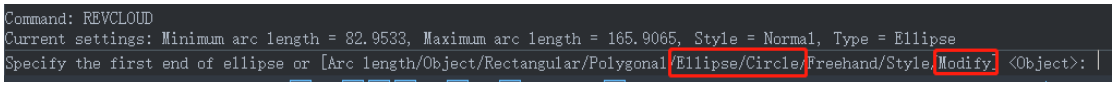


Figure 24. New revcloud types

14.Command Matching Method Improvement

The command matching mechanism has been improved to provide users with a more intelligent command interaction experience.

Command Match Improvement

In the previous version, it had prefix matching only. In this version, it added substring matching, wildcard matching and fuzzy matching. Users can quickly locate the required commands by entering certain characters or keywords of the command without having to enter the full name of the command accurately.

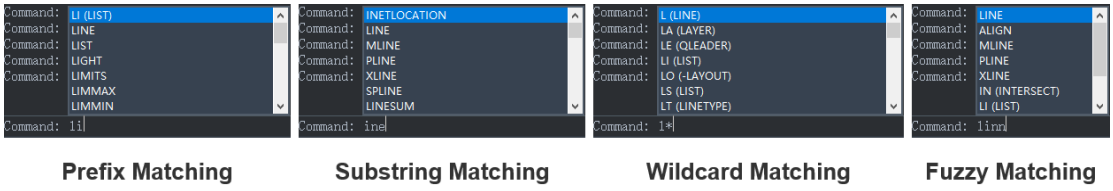


Figure 25. Four Match Types

Intelligent Sorting

When users input a string, the commands will be sorted by the frequency of usage.