

Test-Drive nanoCAD 21. Platform

Introduction

This Test Drive contains illustrative examples of the basic possibilities in the nanoCAD 21 Platform. The document is divided into two parts.

The first part of this guide is designed for beginners, it allows users to get acquainted with nanoCAD Plus without prior training.

The second part of this guide is designed for more advanced users, it explains the work of unique CAD instruments.

We have prepared special exercises and step-by-step instructions for their implementation. The practical skills gained through these exercises will allow users to easily switch to independent work in nanoCAD.

Table of contents

Standard drawing 5

Editing 10

Design 19

Work with Layout..... 23

Create Transmittal Package 27

Unique Functionality of nanoCAD..... 30

Comfortable Printing..... 30

Drawing Explorer..... 34

File Explorer 36

Preparation for work

Before starting the study, we recommend to prepare nanoCAD.

Run nanoCAD.

Change the background color: in the Options dialog find the Color Settings – Model Space Color – set the white color.

Part 1. For beginners

This part explains the basic CAD functionality: drawing, editing, dimensioning, work in the Paper space.

Standard drawing

Open the Steel Bar.dwg drawing file from Test-Drive/Platform/1 Standard drawing folder.
Turn on the orthogonalization mode by F8 button or ORTHO in the Status bar.
Turn on the dynamic mode by F12 button or DYN in the Status bar.
Call the Polyline command (fig. 2):

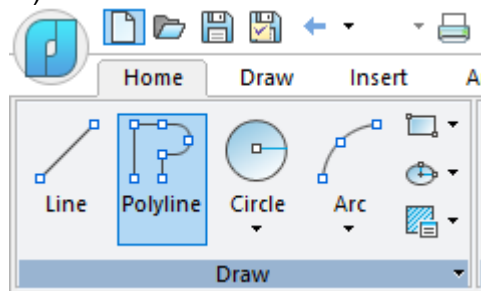


Fig. 2. Polyline command

1. Use the red X as the base point.
2. Start drawing the polyline from the base point. Type the distance 16 (fig. 3):

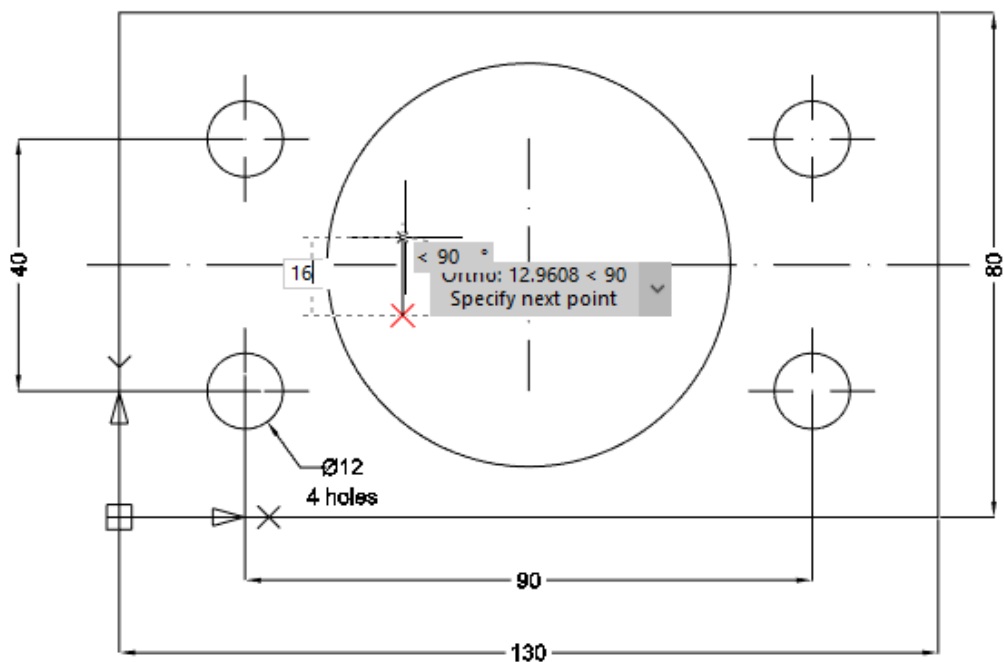


Fig. 3. Dynamic input

3. To draw the next point, move cursor to the right and type the distance 40 (fig. 4):

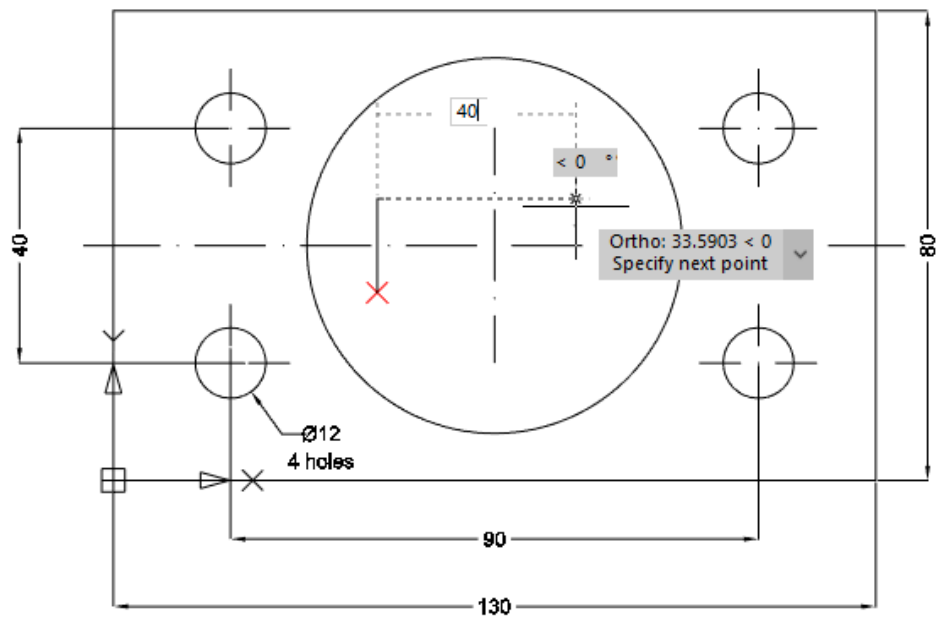


Fig. 4. Dynamic input

4. Continue drawing.

As a result you should receive a rectangle, see the fig. 5:

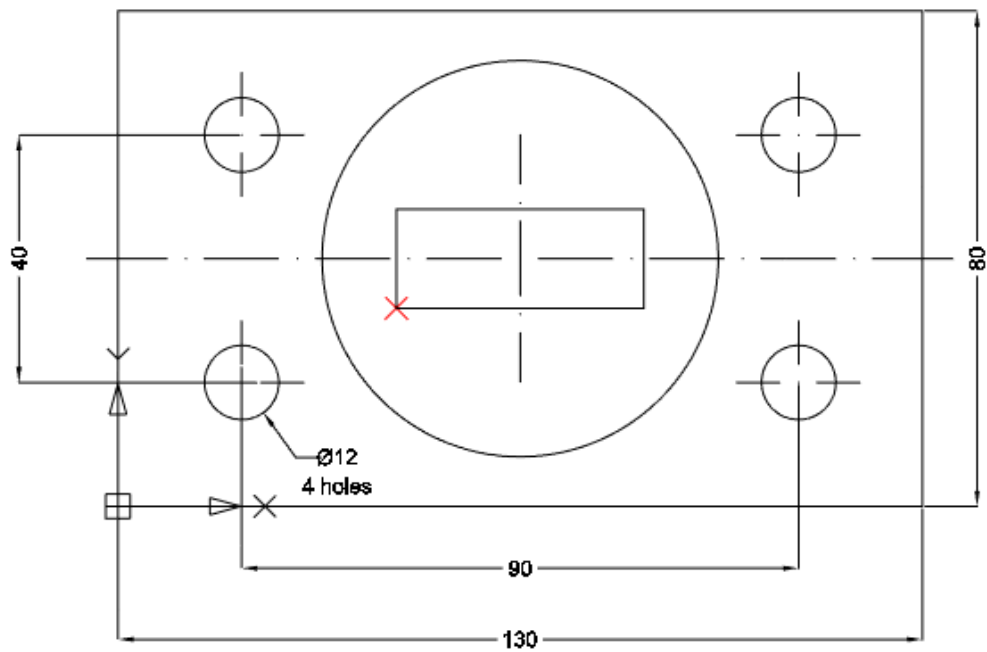


Fig. 5. The result

5. Turn off the Auxiliary layer (fig. 6):

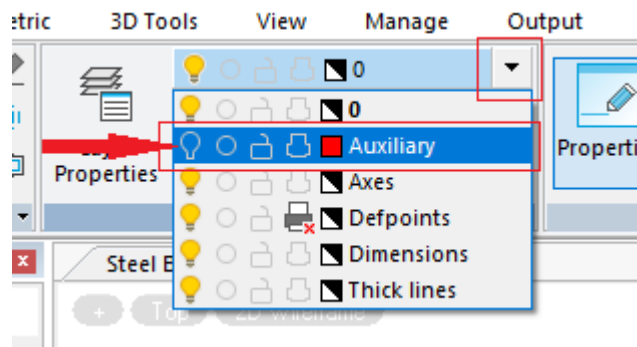


Fig. 6. Turn off the Auxiliary layer

6. Call the Circle – Center, Radius tool (fig. 7):

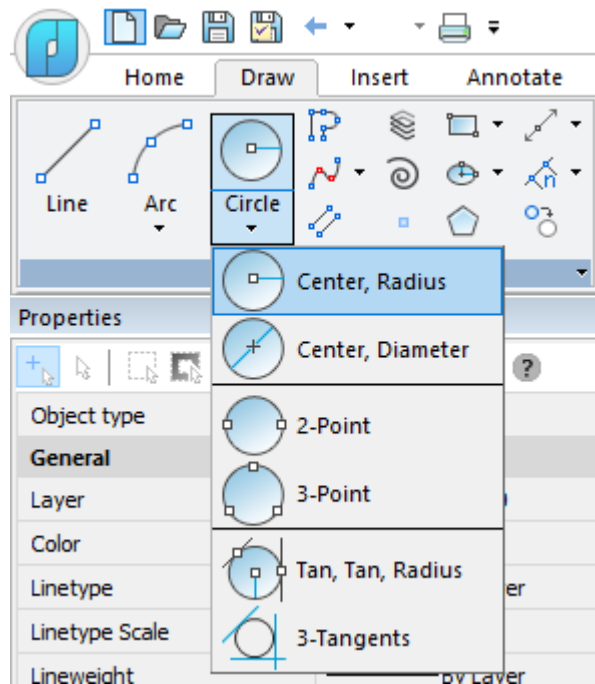


Fig. 7. Circle by Center and Radius

6.1. Draw a circle with radius 14 (fig. 8):

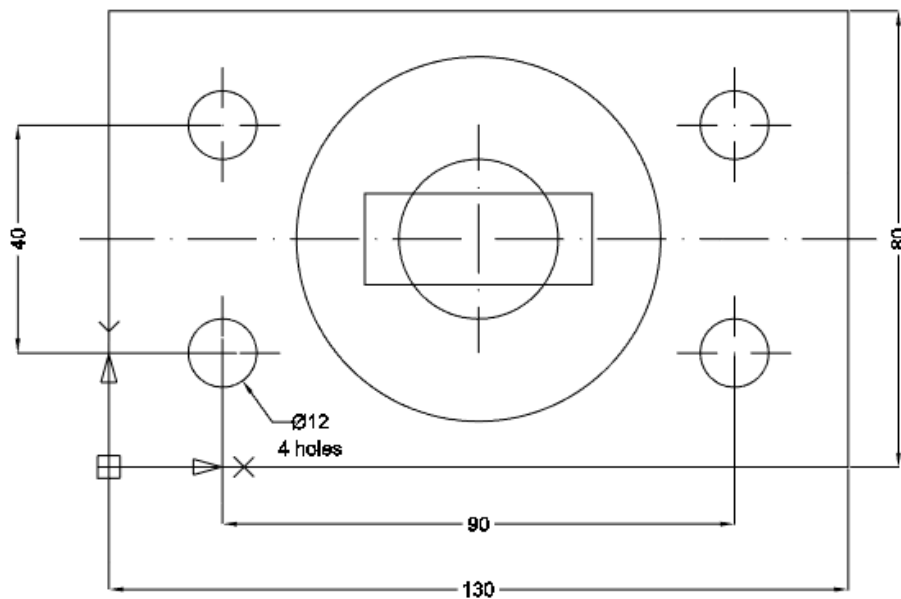


Fig. 8. Draw a circle

7. Use the Smart Trim command to remove the excess lines (fig. 9 and 10):

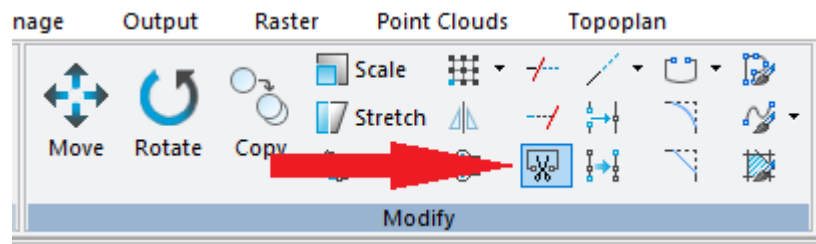


Fig. 9. Smart Trim tool

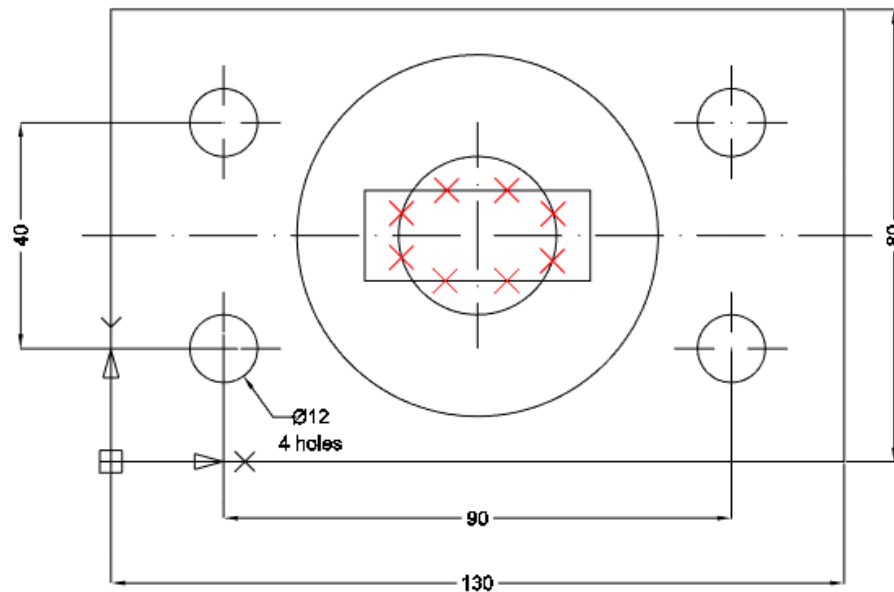


Fig.10. Use the Smart Trim

8. Change the radius of the big circle. To do so, select the circle, press on vertices (fig. 11). In the dynamic field type 30:

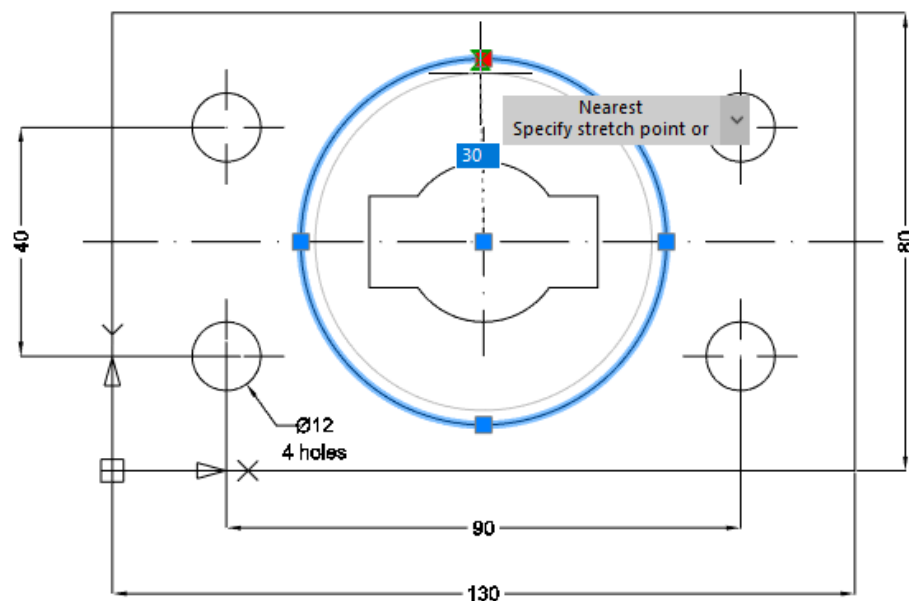


Fig. 11. Change the circle radius.

9. Set the Dimensions layer as current.

10. Use the Dimensions command (fig. 12) to enter missed dimensions. The result of dimensioning should correspond to fig. 13.

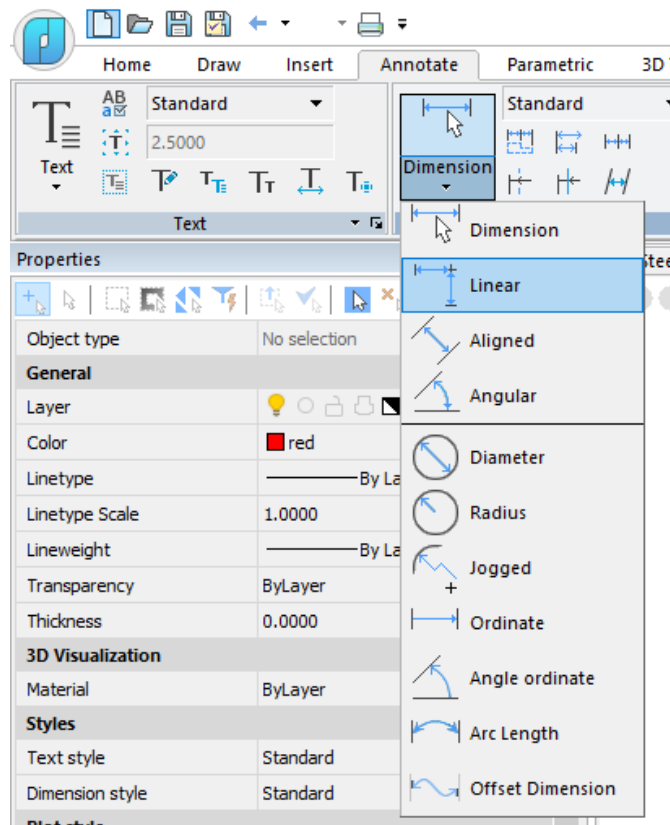


Fig. 12. Position of the Dimensions commands on the Ribbon

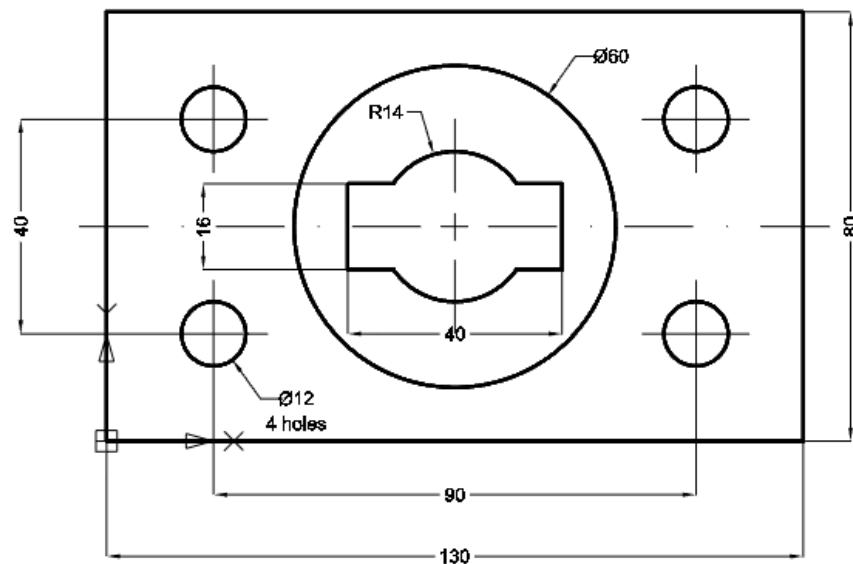


Fig. 13. The final result

That's all, the fig. 13 displays the final result of the work

Editing

Open the Façade.dwg drawing file from Test-Drive/Platform/2 Editing folder.

1. In the Properties bar set the 3D Wireframe visual style (fig. 14):

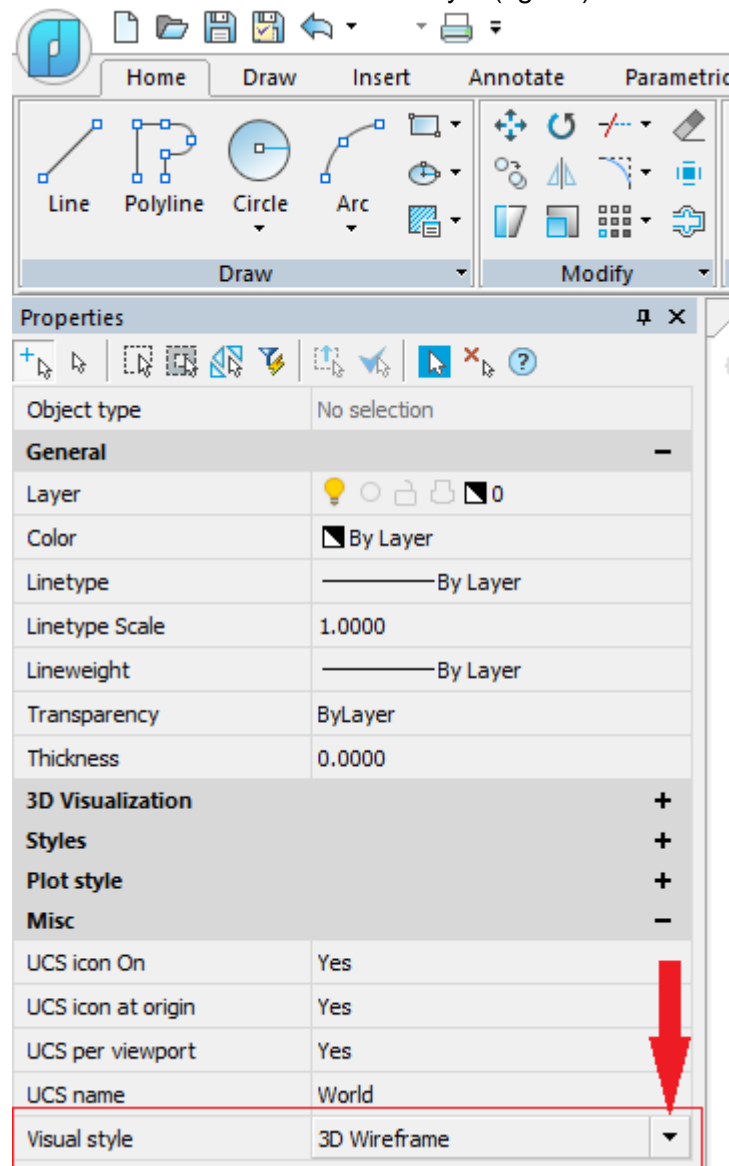


Fig.14. Change the visual style

2. Turn off the visibility of the Shadow and Column layers. Visibility of layers can be changed by bulb icon near the layer name.
3. Select all objects by fence. Then use the Mirror command (fig. 15), it is located on the ribbon tab Draw – Modify – Mirror

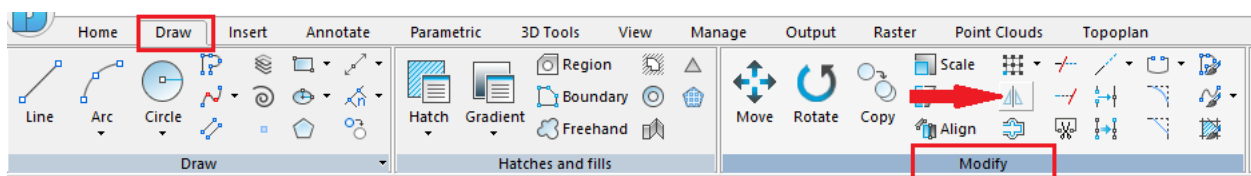


Fig. 15. Mirror

Use the red line as the axis of the mirror. Do not erase source objects. We do not mirror shadows and columns because they look different on the left and the right sides of the facade.

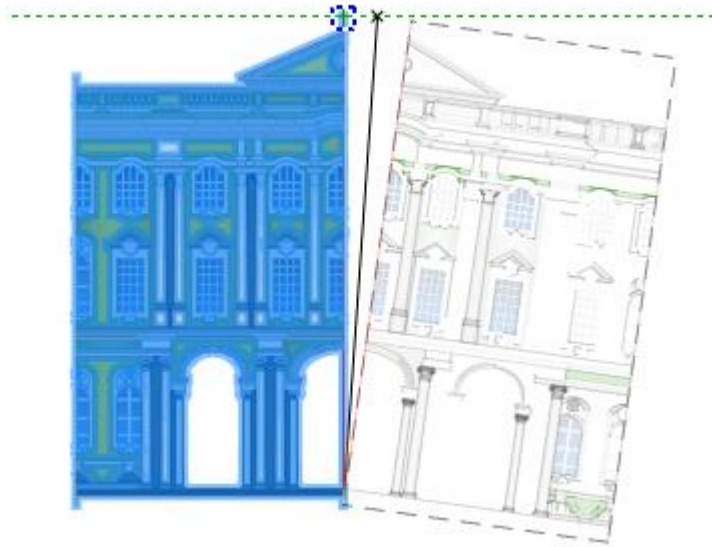


Fig.15.1. Process of mirroring

The result should be as shown on the fig.16:

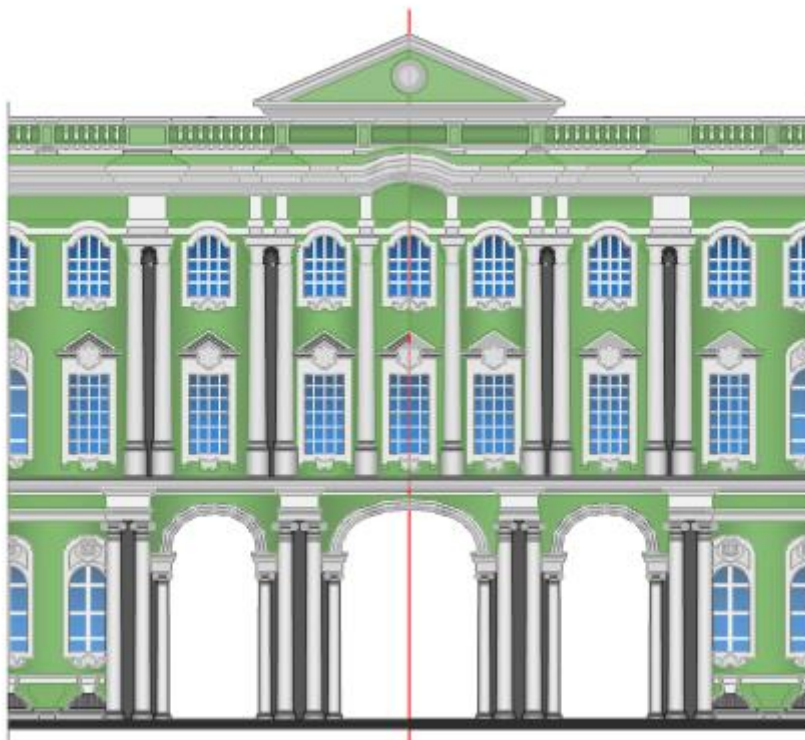


Fig. 16. The result of mirroring. General view of the façade

4. Turn on visibility of the Columns layer and make it current. To make the layer current, just click on it by the left mouse button.
5. Turn off visibility of the Solids layer.
We use additional grey-green gradients for more realistic view. On the right side of some of the columns, gradients have been created to simulate shadows.
You should get the following result (fig. 17):

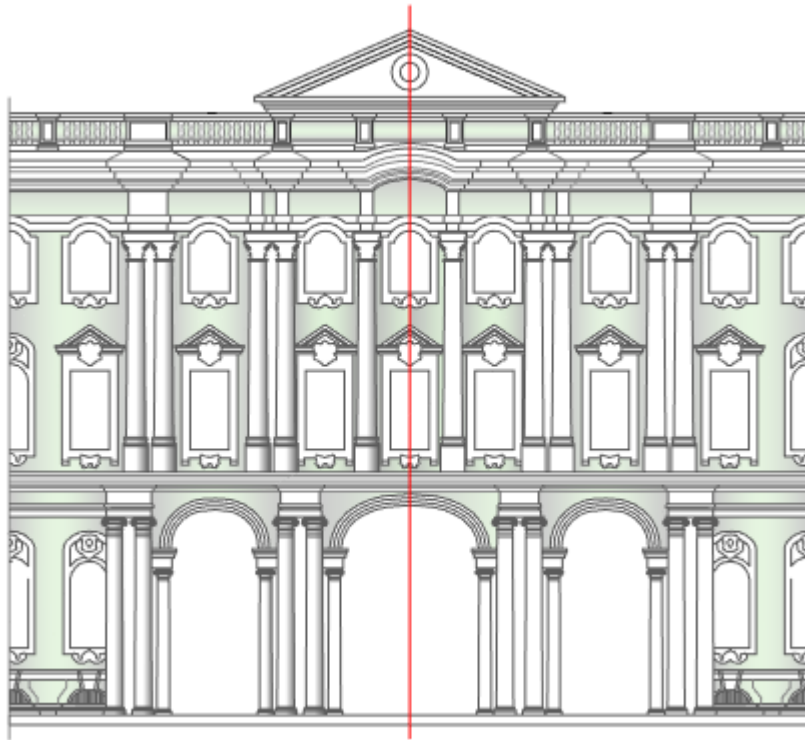


Fig. 17. Intermediate result of work

6. Create shadows for the columns in any convenient way. Below there is one of the ways.

Turn on visibility of the Auxiliary layer. Select the following gradient by click on it by left mouse button (fig. 18):

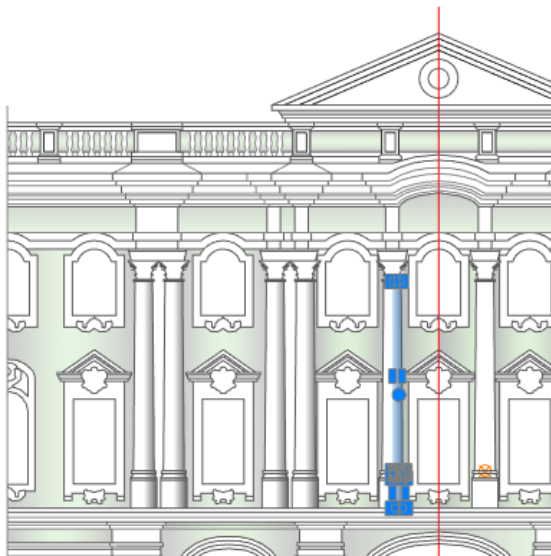


Fig.18. Gradient to copy

Run the Copy command. Specify base point on the column, see the fig. 19:

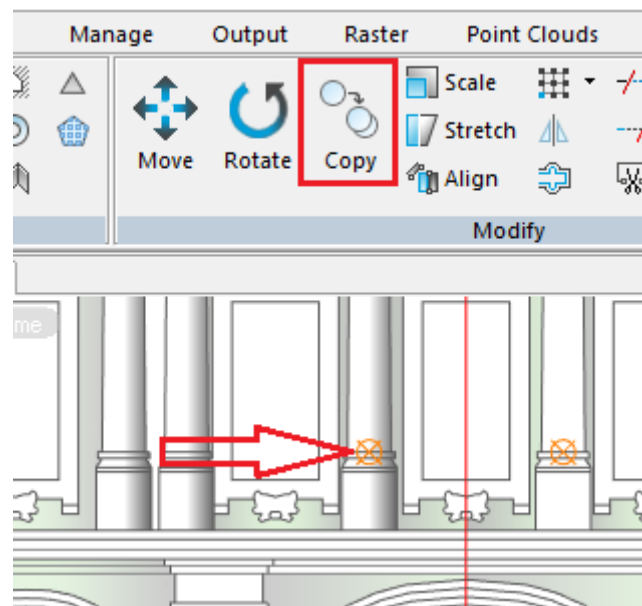


Fig. 19. Base point for copy

Paste this gradient on all top columns at the right side of the drawing (fig. 20):

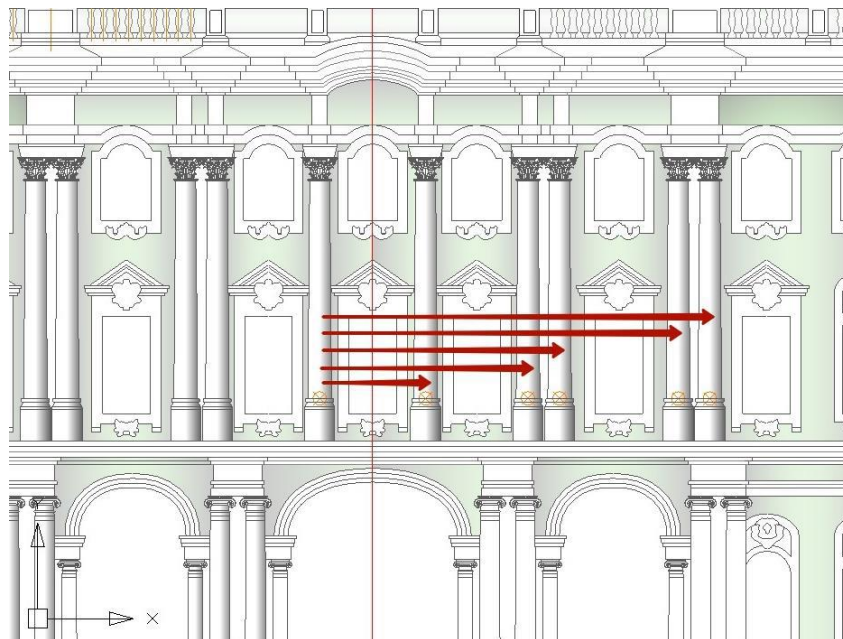


Fig. 20. Copy gradients for the top columns

Then repeat the same actions for the bottom columns (fig. 21):



Fig.21. Copy gradients of the bottom columns

Turn off visibility of the Auxiliary layer.
 Remain three columns without gradients (fig. 22):

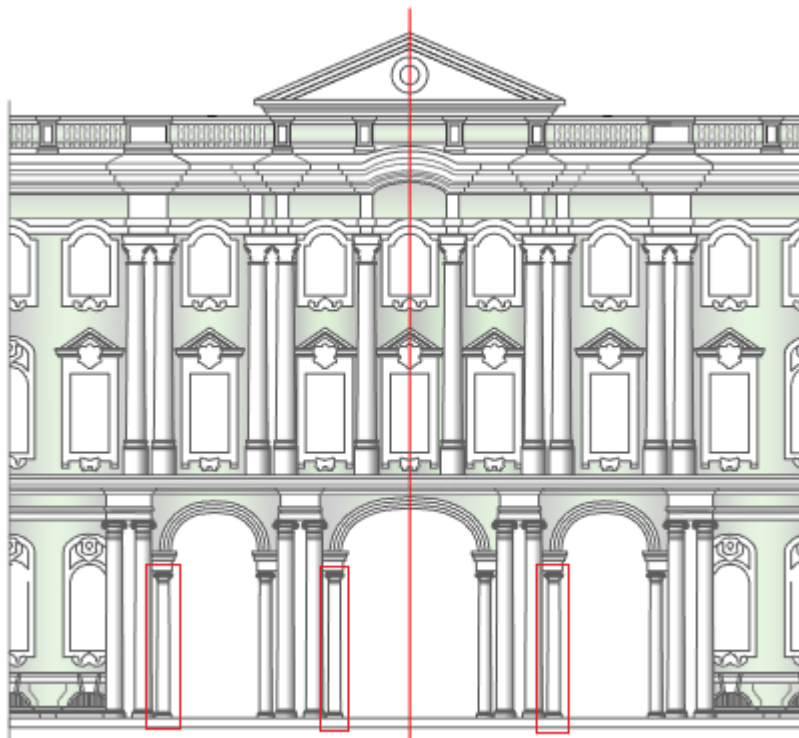


Fig. 22. Columns without gradient

7. Working with gradient

Note the incorrect gradients in the center of the building obtained with the Mirror operation (fig. 23):

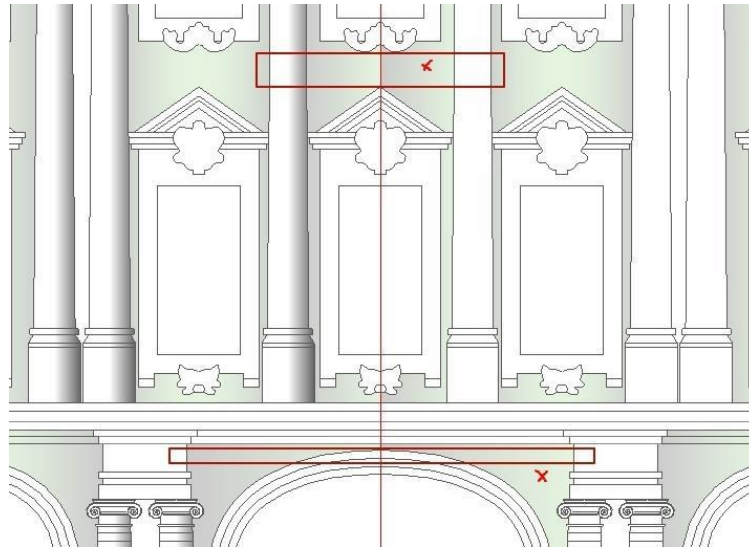


Fig. 23. Incorrect gradients

8. Edit these gradients. Double click on one of them, then in the Hatch dialog that opens swap two colors (fig. 24):

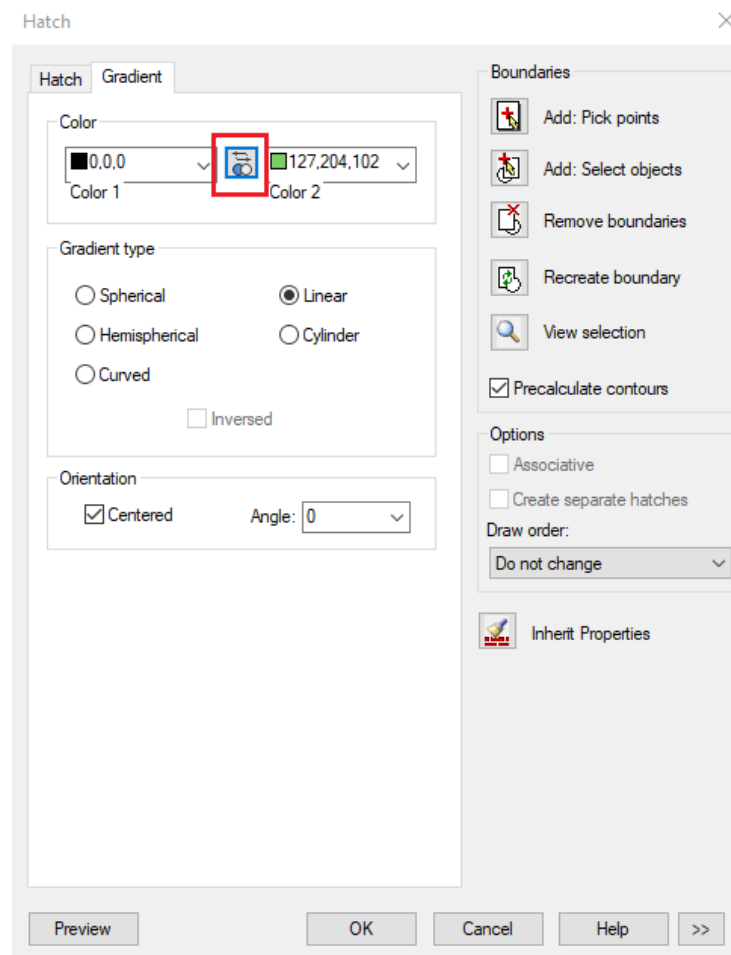


Fig. 24. Swap colors in gradient

Do the same with the second incorrect gradient.

9. Add a new gradient in the top and bottom of the building.
To do this, first you should set the Additional gradients layer current. Then call the Gradient command from the Annotate ribbon tab (fig. 25):

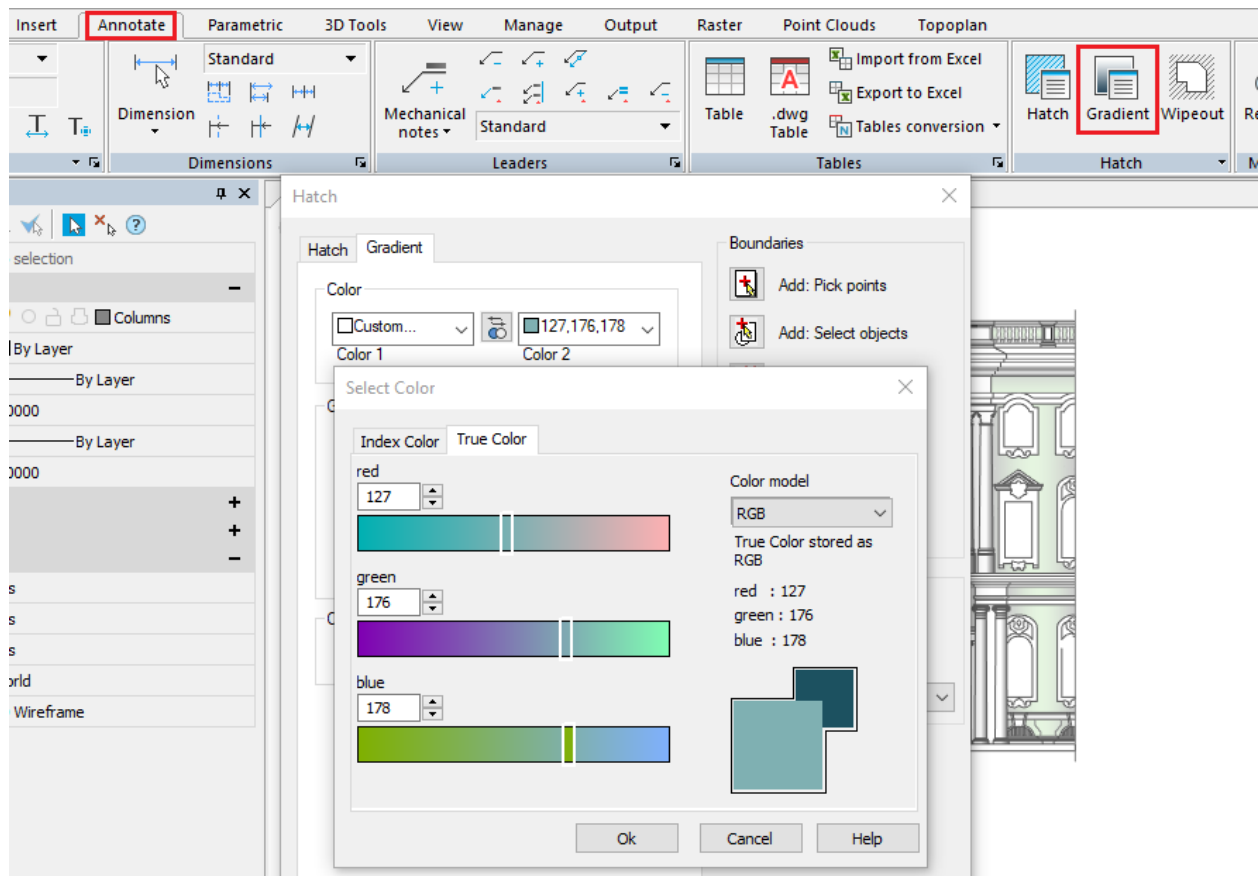


Fig. 25. Choose gradient colors.

Set the following values: Color 1 = 83, Color 2 = 127,176,178. Choose the Cylinder + Inversed gradient type.

Add two pick points (fig. 26):

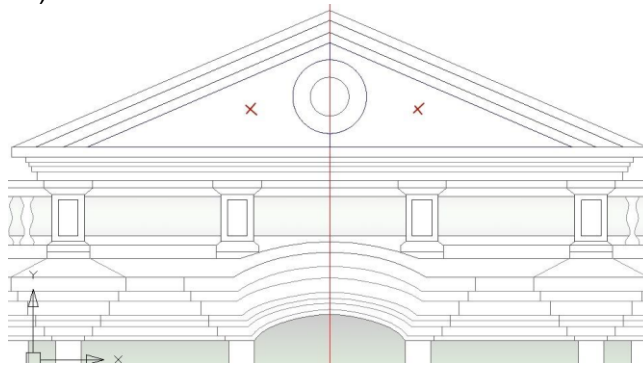


Fig. 26. Gradient pick points

To speed up the definition of the gradient outline, bring the selection as close as possible, but so that their borders fit on the screen.

The result is a bright saturated color of the gradient. To make it the same as other gradients, select this gradient and set Transparency = 80 in the Properties bar (fig. 27):

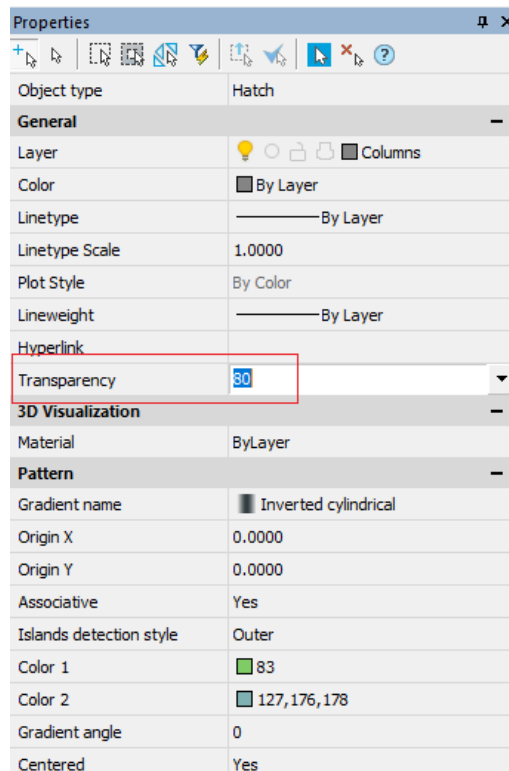


Fig. 27. Change transparency of the gradient

10. Set the correct gradient display.

- Set current the Main layer.
- Turn off visibility of the Additional gradients layer, then select all objects by fence.
- In the Properties bar, in the Object type field choose Hatch (fig. 28), then click the Leave in selection button (fig. 28):

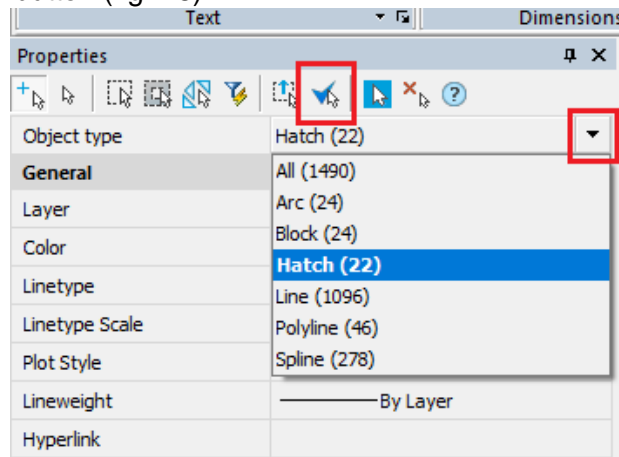


Fig. 28. Select only hatch

Move the selected hatches to the background: click by the right mouse button on the work space – Display order – Send to back.

11. Turn off visibility of the Columns layer.

12. Work with shadows. Turn on visibility of the Shadows layer and make it current.

13. Turn on visibility of the Right shadows layer. We finished the rest of the shadows for you 😊. The result should be as shown in fig. 29:

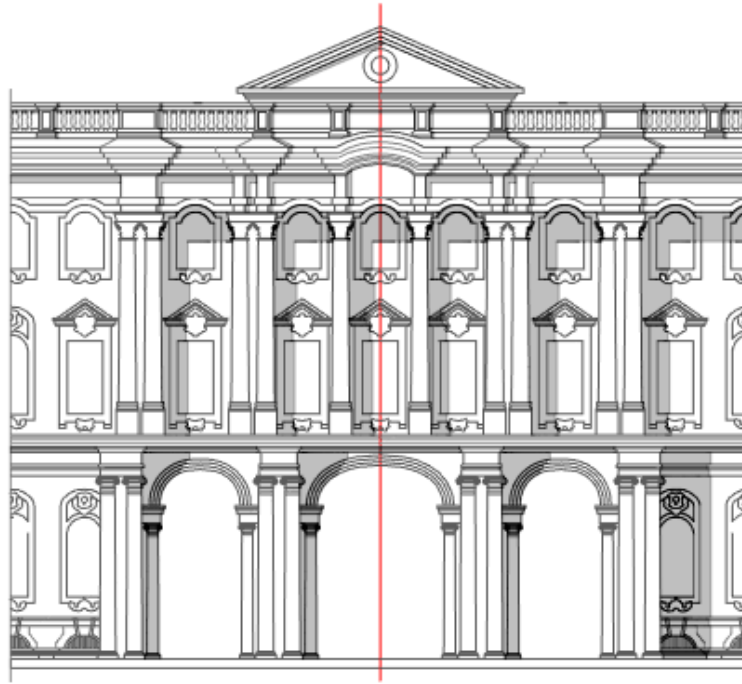


Fig. 29. Final display of shadows on façade

14. Finish working with the drawing.

Delete the middle red line. Turn on visibility of the following layers:

- Solids,
- Additional gradients,
- Columns,
- Final.

15. The facade is finished. Its final appearance should be as shown in fig. 30:



Fig.30. Finish

Design

In this part we will add benchmarks and dimensions on the drawing.
Open the Façade Desing.dwg file from TestDrive/Platform/3 Design folder (fig.31):

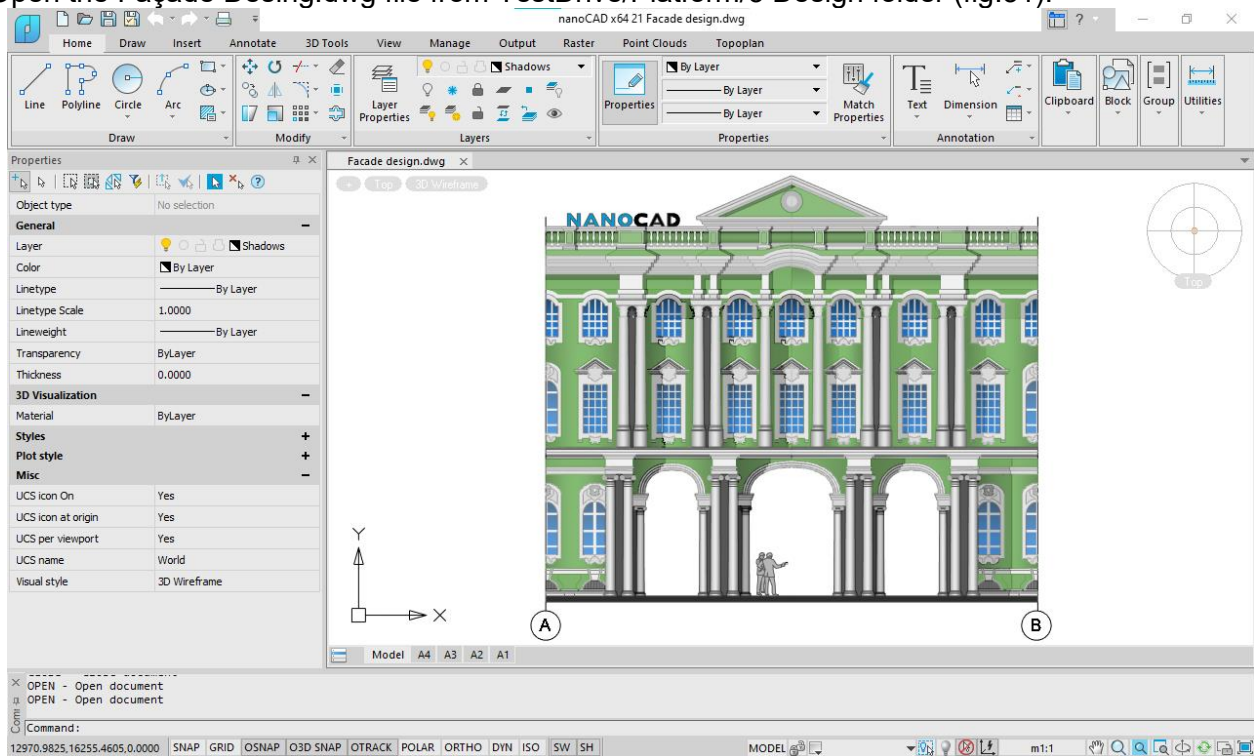


Fig. 31. Façade Design.dwg drawing file in nanoCAD

1. Make the Design layer current.
2. Add a dimension between axes. To do this, choose the Annotate ribbon tab – Dimension – Aligned, then enter dimension between two axes on the drawing (fig. 32):

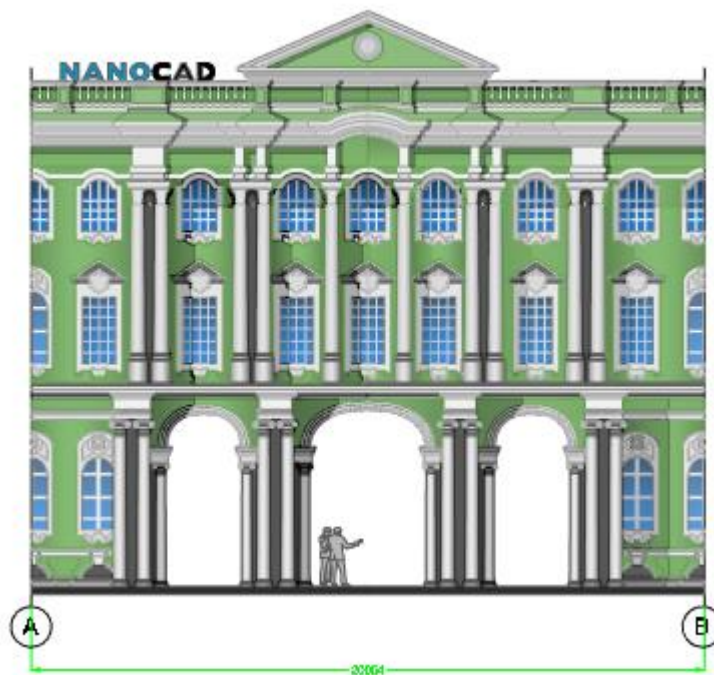


Fig. 32. Dimension

3. Set the dimension style. Open the Design ribbon tab and call the Dimension style dialog box (fig. 33):

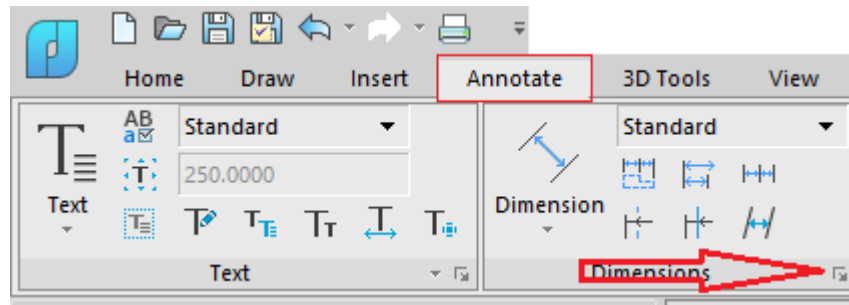


Fig. 33. Call the Dimension Style Manager

Select the current dimension style, then click Modify (fig. 34.1):

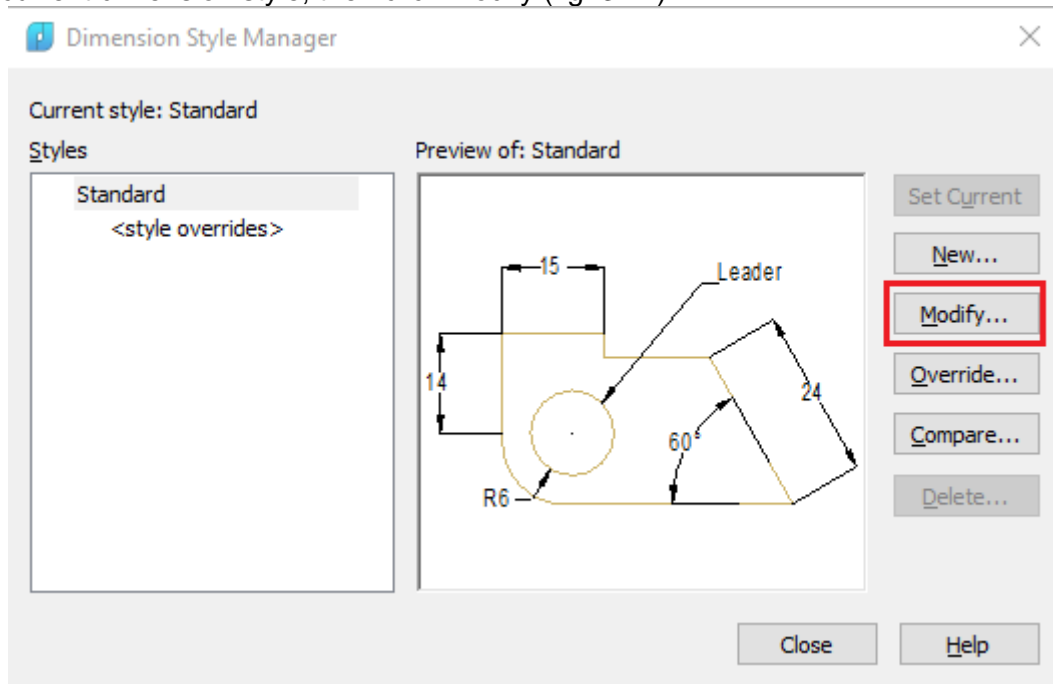


Fig. 34.1 Dimension Style Manager

In the Lines tab configure the following settings: color of dimensions line – white, color of extension lines – white. In the Text tab set the text color - white (fig. 34.2):

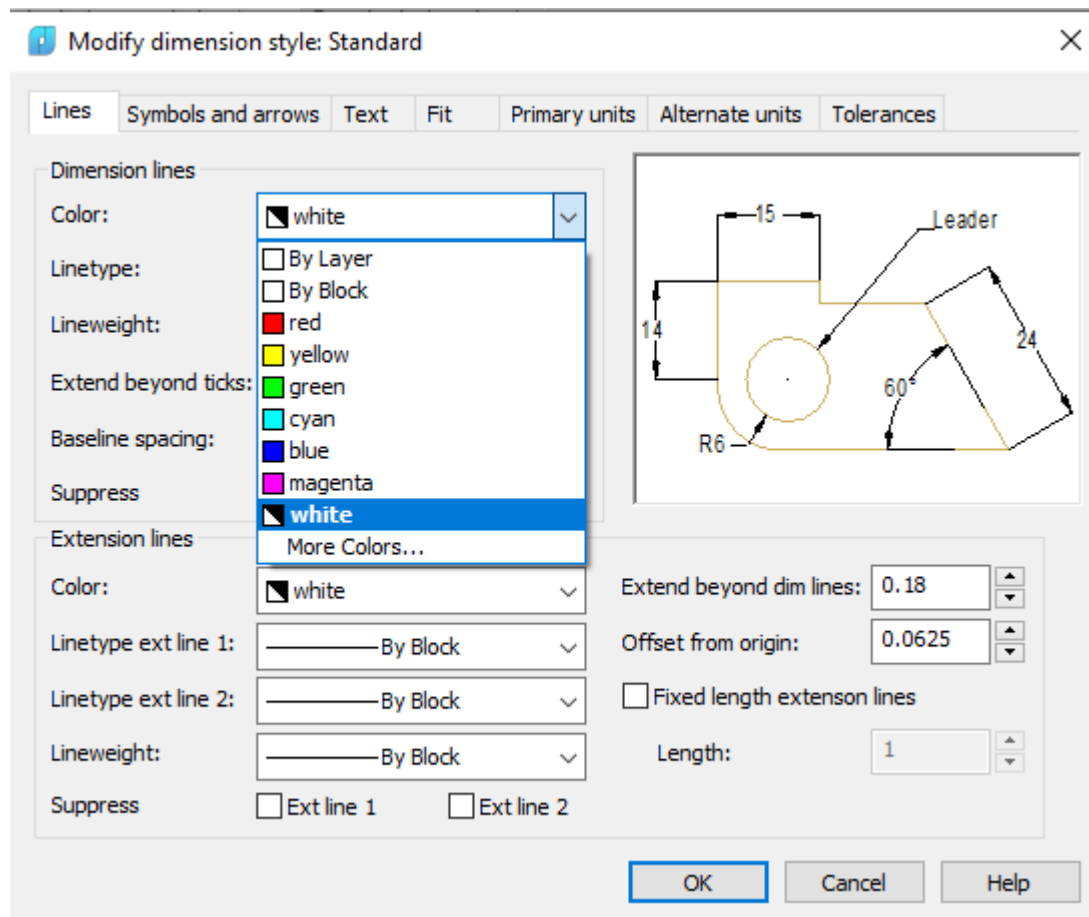


Fig. 34.2. Edit the dimension style

Click OK, then close the Dimension Style Manager.

4. Insert the block with the benchmark.
Call the Insert Block command from the Insert ribbon tab. Click Browse button and select Bechmark.dwg file from TestDrive – Design folder(fig.35):

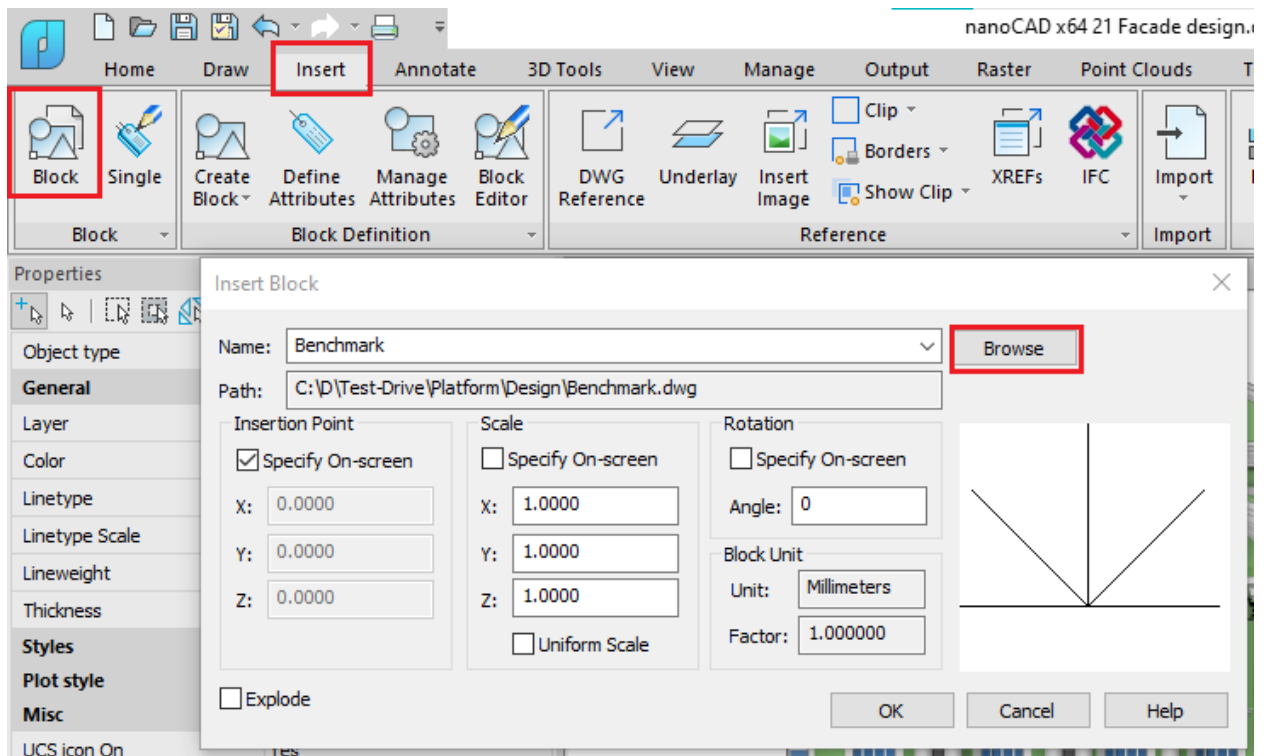


Fig. 35. Insert block from the file

Click OK. Insert the block three times and add the value of the attribute like in fig. 36:

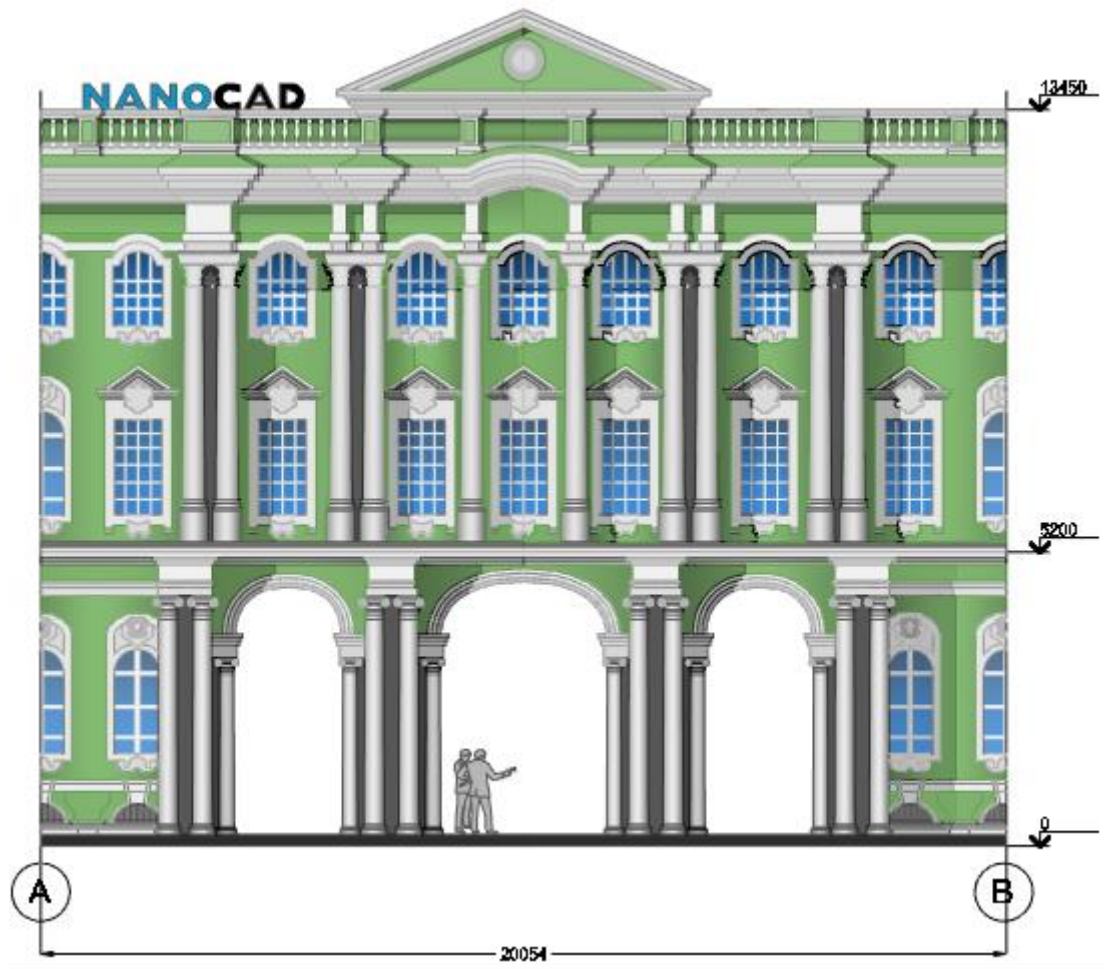


Fig. 36. Designed drawing.

Work with Layout

Continue working with Façade Desing.dwg file from Test-Drive/Platform/3 Design folder or open the Facade Work with Layout.dwg file from Test-Drive/Platform/4 Work with layout folder.

1. Open A3 layout and add a title block there.

We will insert an external reference with the title block. Select the Insert ribbon tab – DWG Reference. Choose Title Block.dwg file, click Open – then OK. You can snap the title block to the bottom left point of the layout (fig. 37):

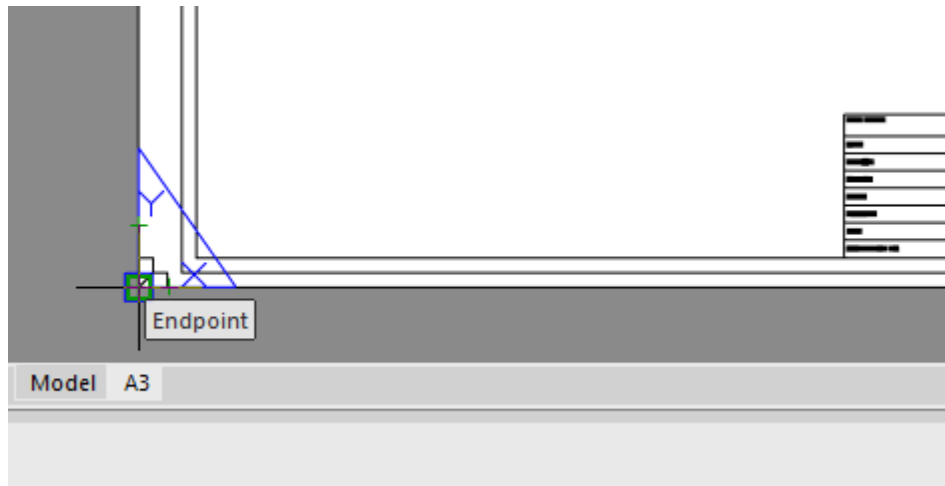


Fig. 37. Insert external reference

2. Create a view on layout.

To do this, create a rectangular viewport (fig. 38):

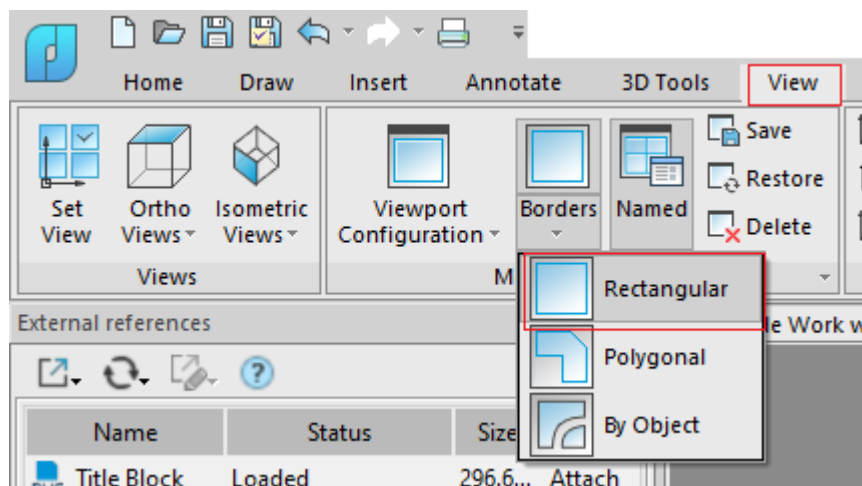


Fig. 38. Add viewport

Specify the viewport borders by the left mouse button. Input the view scale 0.01. Select the viewport, then specify the 3D Wireframe visual style in the Properties bar (fig. 39):

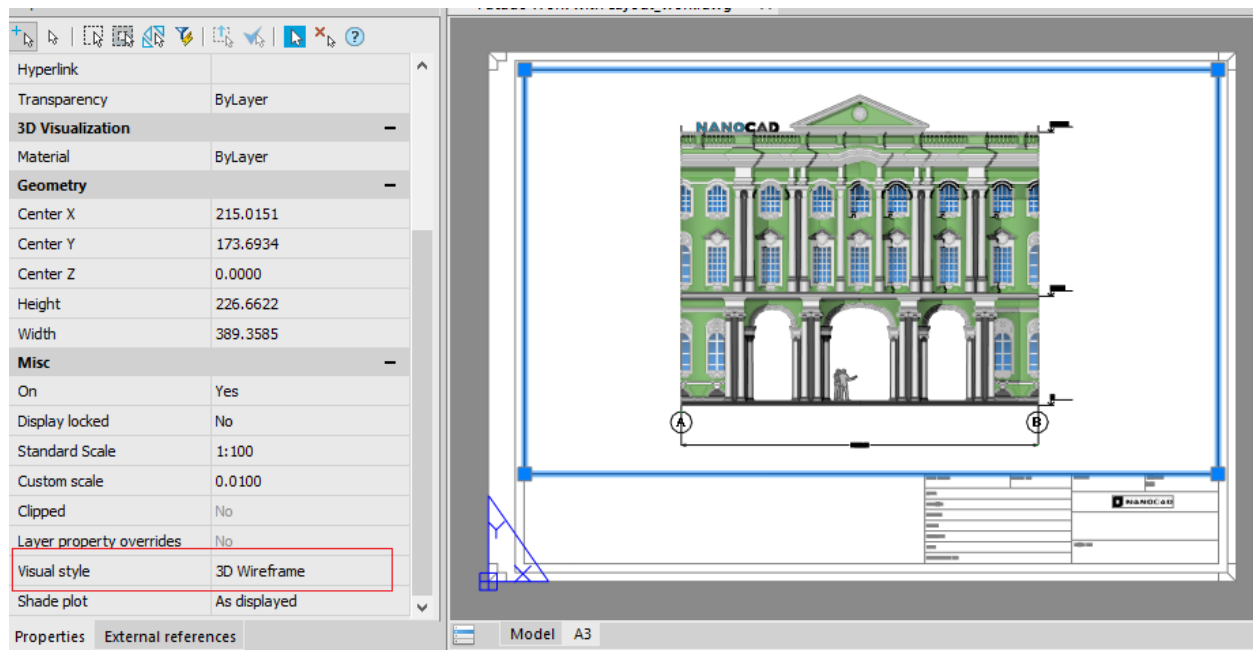


Fig. 39. Viewport on layout

3. Work with fields.

Set the author's name. To do this, click the nanoCAD Button – Utilities – Drawing properties (fig. 40). Open the Summary tab, then type any name to the Autor field. Click OK.

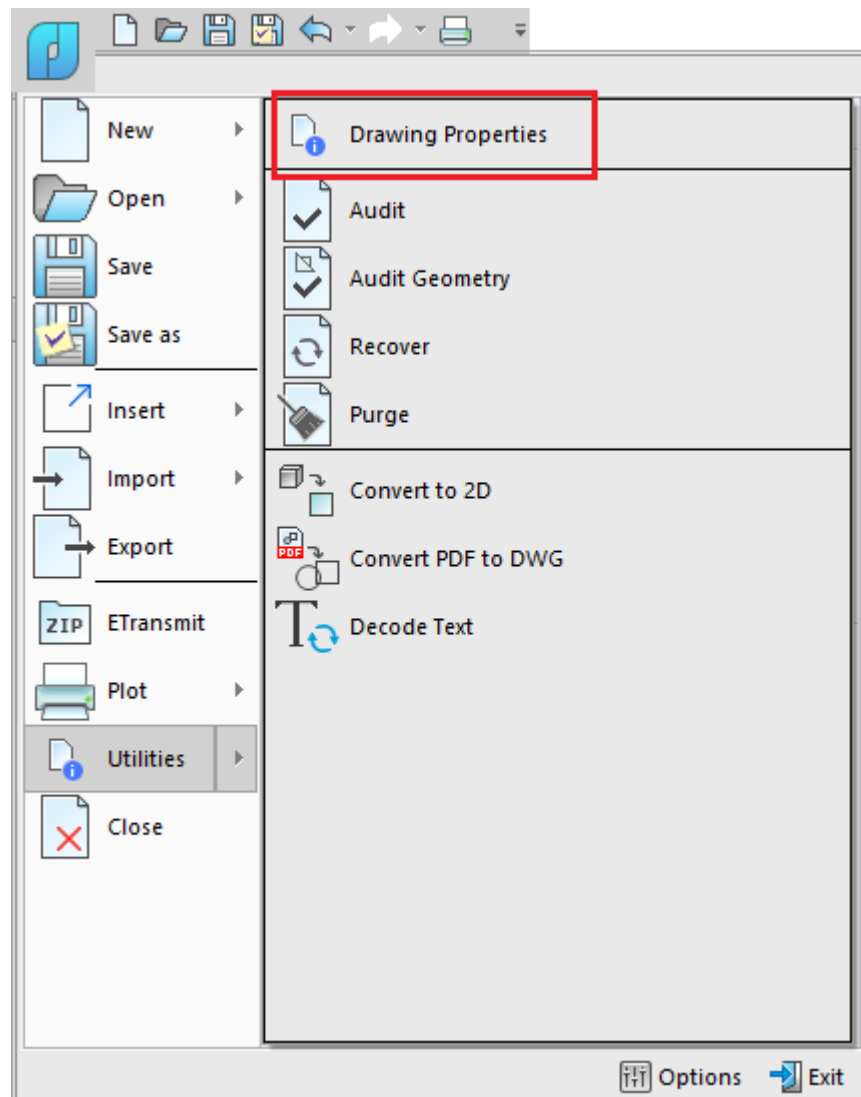
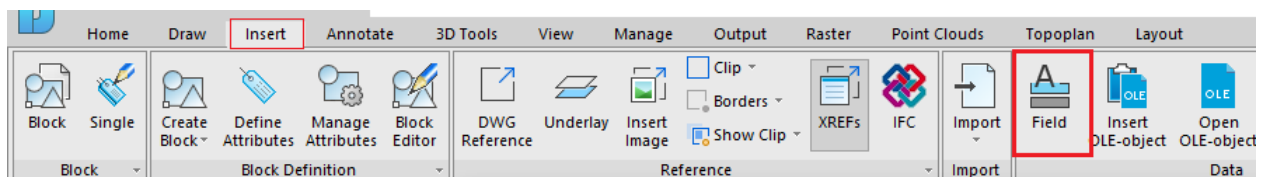
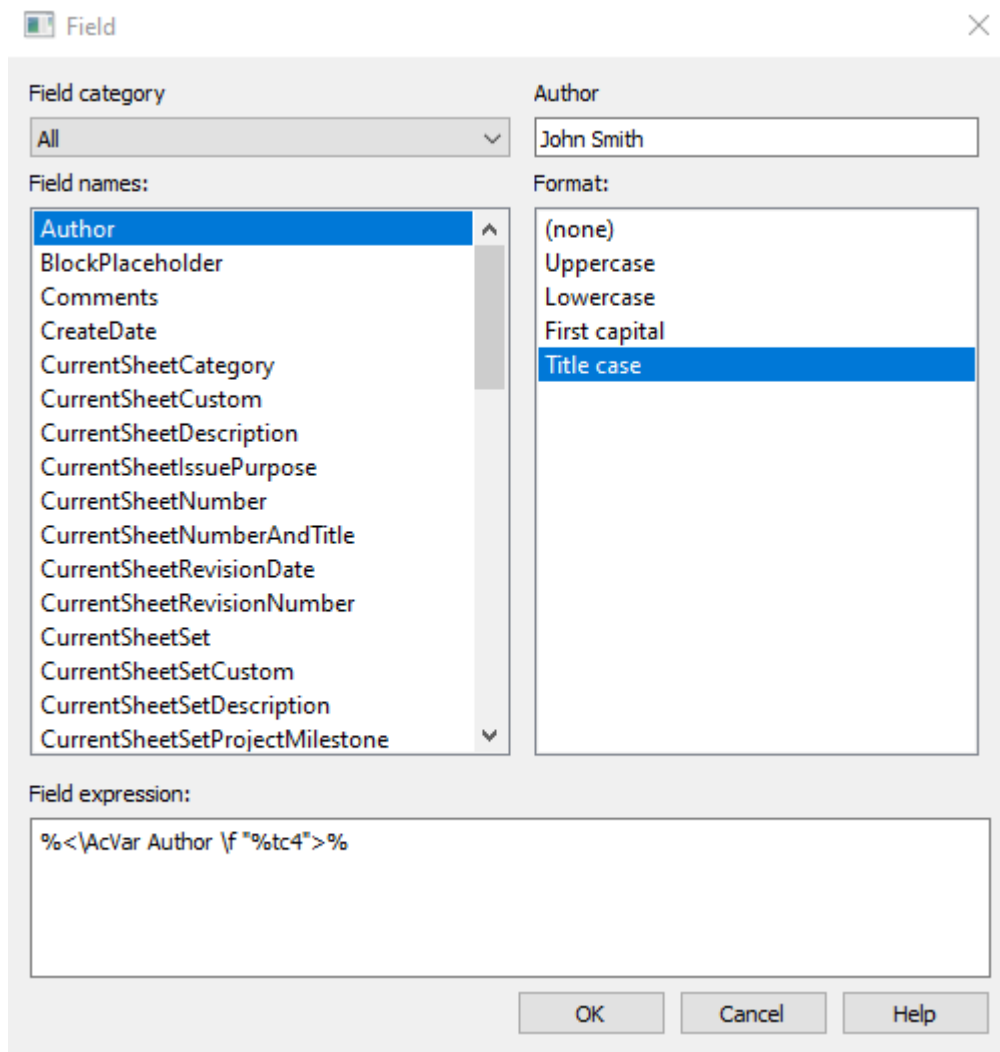


Fig. 40. Drawing Properties

Click the Field button on the Insert tab of the ribbon.
In the new Field dialog find the Author field, select it (fig. 41):





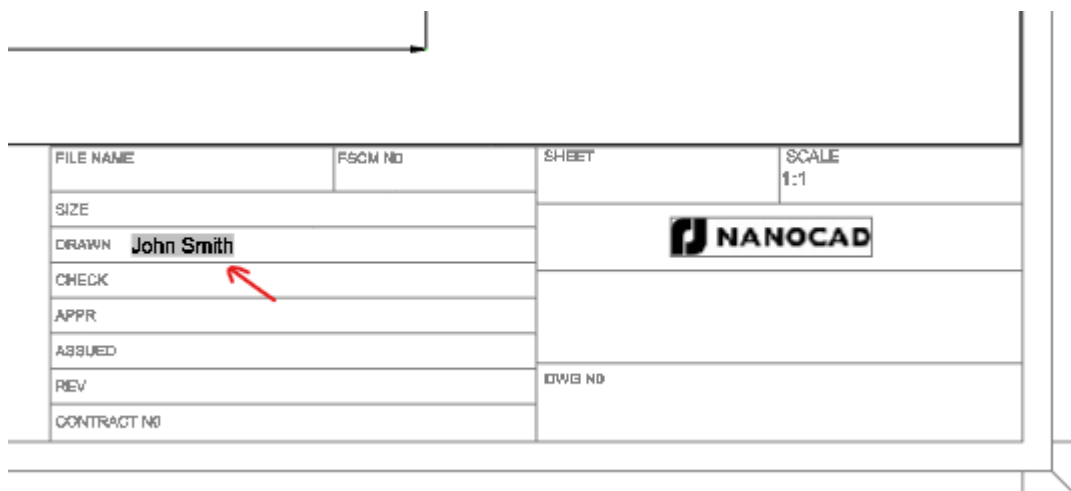
The 'Field' dialog box is shown with the following settings:

- Field category:** All
- Field names:** A list of fields is shown, with 'Author' selected at the top.
- Author:** John Smith
- Format:** A list of formatting options is shown, with 'Title case' selected.
- Field expression:** The expression is `%<\AcVar Author \f "%tc4">%`.


Buttons at the bottom: OK, Cancel, Help.

Fig. 41. Field dialog

After you have clicked OK, specify an insertion point (fig. 41.1):



The figure shows a table with the following structure:

FILE NAME	FSOM NO	SHEET	SCALE 1:1
SIZE			
DRAWN John Smith			
CHECK			
APPR			
ASSUED			
REV			
CONTRACT NO	IDWG NO		

A red arrow points to the 'John Smith' text in the 'DRAWN' field.

Fig. 41.1. Inserted field

The value of the field is mutable. If you change the name of the document author or insert this field into another document, the value will be changed.

Create Transmittal Package

The eTransmit command allows you to collect all the data related to the current drawing (shx fonts, external references, underlays, etc.), save it to .zip archive. Then this archive can be sent to colleagues or clients, another computer will open it without problems.

Continue your work with the drawing file from the Work with Layout topic or open the Façade eTransmit.dwg file from Test-Drive/Platform/5 eTransmit folder.

1. Open the External References toolbar (fig. 42):

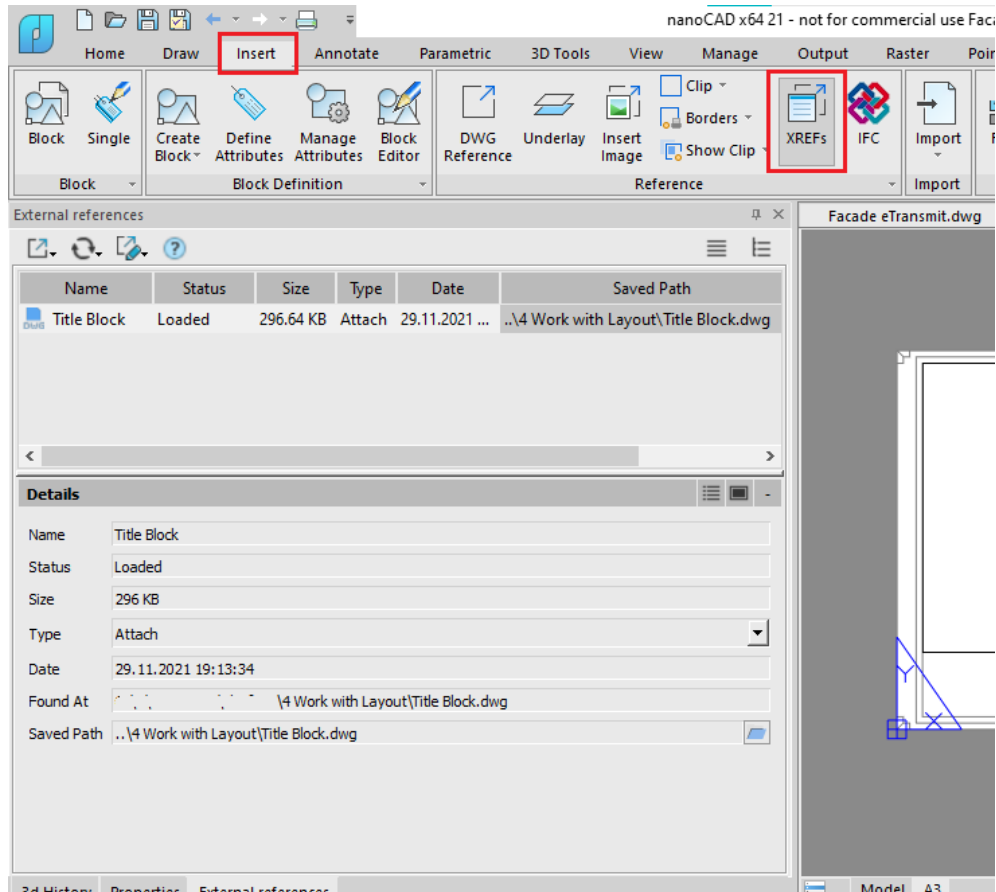


Fig. 42. External references

Now the current drawing file includes one external reference. If you send someone only the current drawing file, they will not be able to see an external reference.

2. Click on the nanoCAD button – ETransmit (fig. 43):



Fig. 43. Call the Etransmit command

A new window will display the list of transmittal elements including current drawing, external reference, font, ect. (fig. 44). You can uncheck files which you don't want to transmit:

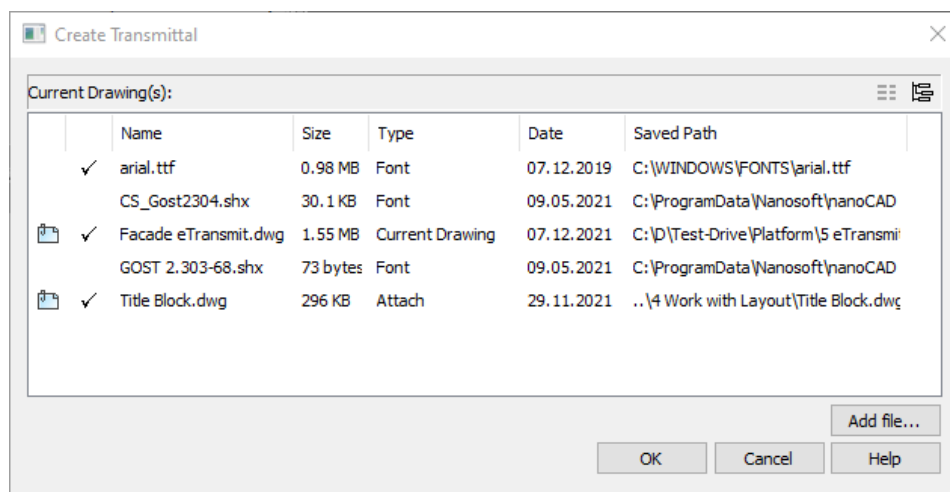


Fig. 44. Create Transmittal

Click OK and specify the path for saving. Save the file.

3. Close the drawing file in nanoCAD.
4. Unzip the transmittal archive, open the drawing file (fig. 45 – 46):

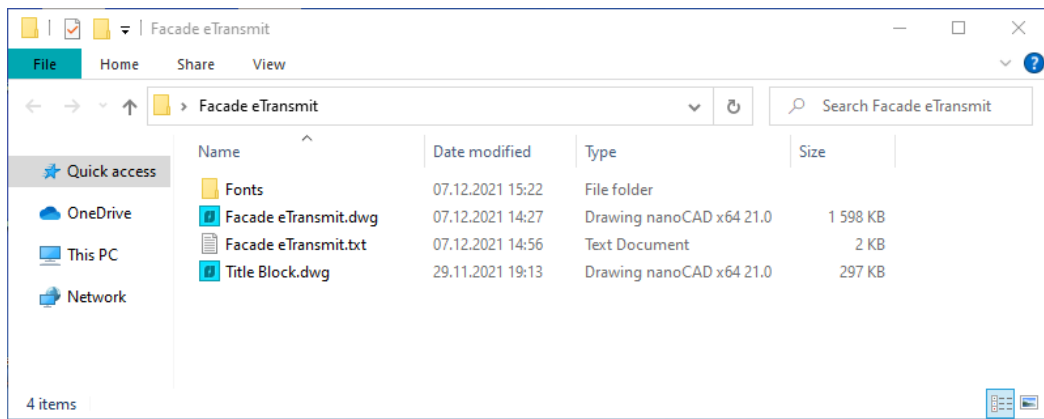


Fig. 45. Unzipped archive

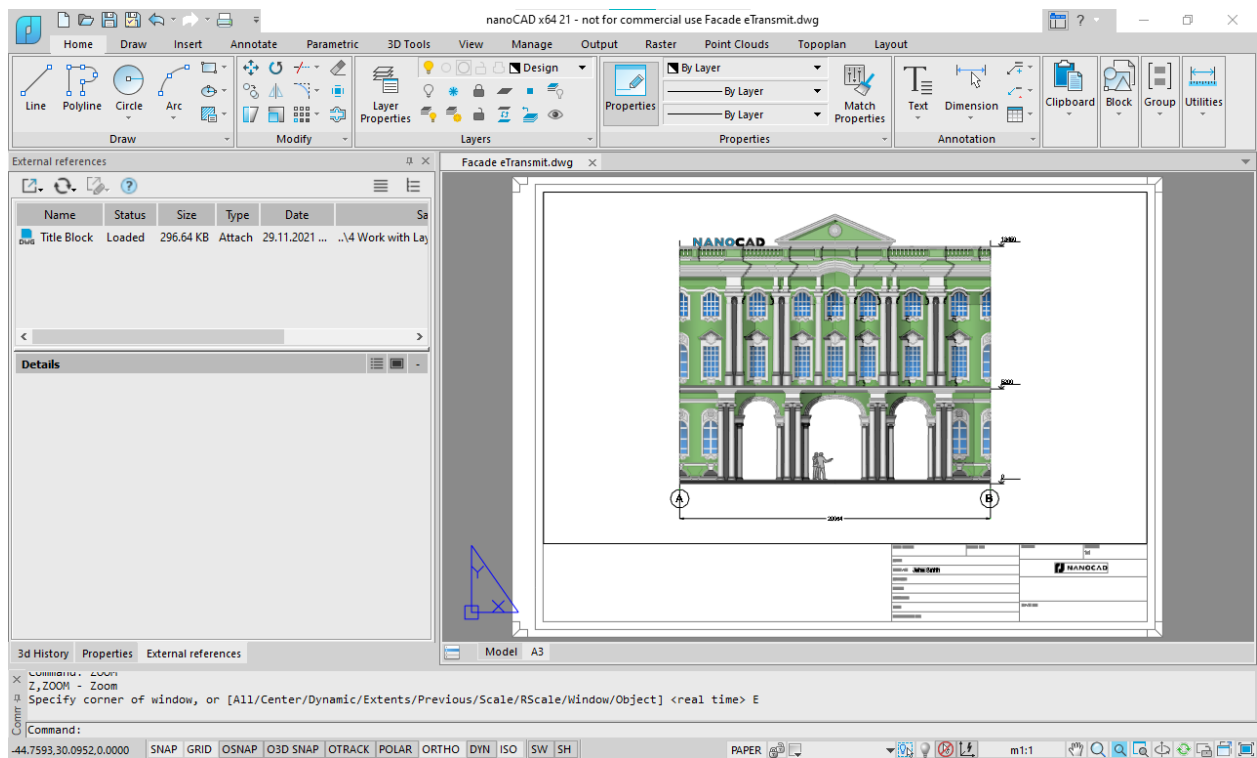


Fig. 46. Drawing file from the unzipped archive

The drawing file is displayed correctly, no elements were lost.

Unique Functionality of nanoCAD

We develop the nanoCAD platform taking into account the wishes coming from our users. Thanks to this, the new versions include unique functionality that you will not find in any other CAD system.

Comfortable Printing

It is difficult to make the CAD printing process simple and intuitive, as there are many different settings and characteristics to consider, such as rotation rules, alignment rules, print margins and many others. Nevertheless, we made the plotting the most convenient. Having chosen the paper size and plotter, we can accurately align the image, having a physical sheet of paper with dimensions, orientation, and print margins in front of your eyes. In addition, you can fit a drawing to paper and thus reduce paper consumption if the drawing is output on rolls. A visual icon in the upper corner will show how the paper will come out of the plotter. It is also possible to switch to preview screen to see how plot styles will be applied to the drawing.

Open the Plot.dwg drawing file from Test-Drive/Platform/6 Plot folder.

1. Plot from the paper space to Internal PDF Printer (fig. 47).
Open an A3 layout.

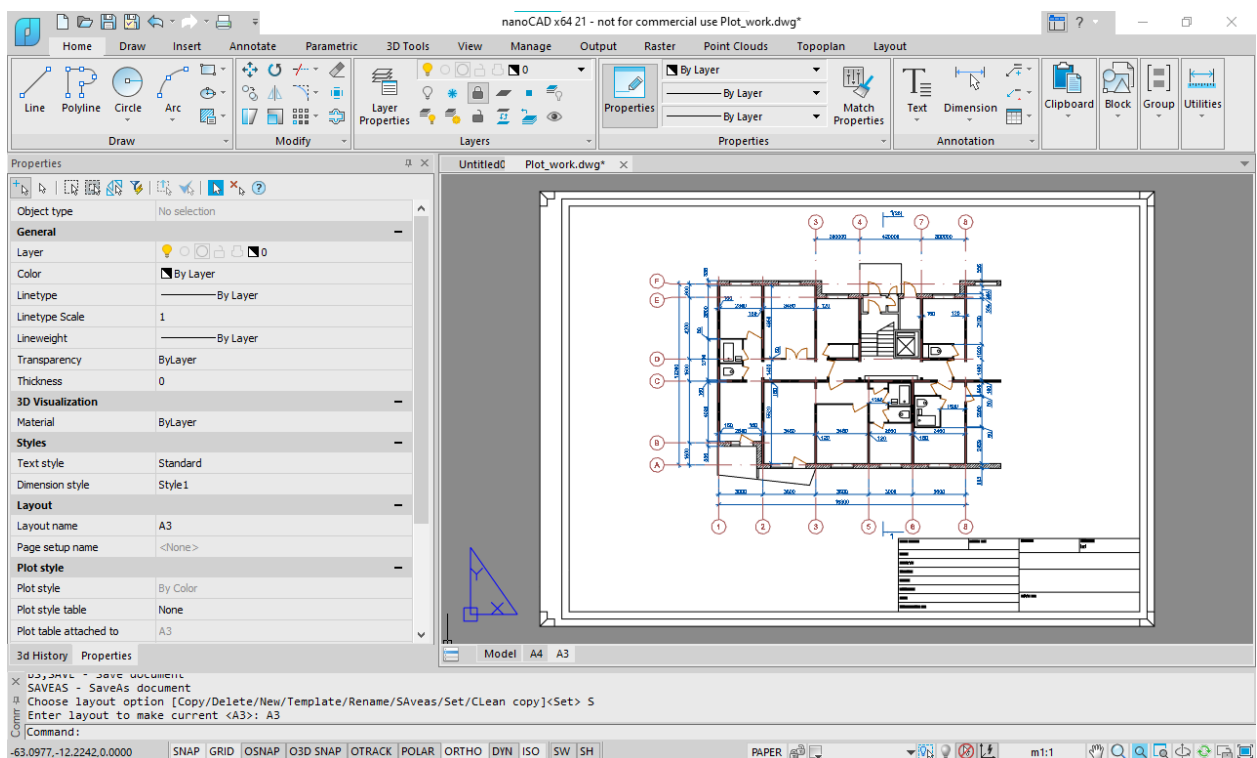


Fig. 47. Paper space

2. Click the Plot button in the Quick Access bar (fig. 48):

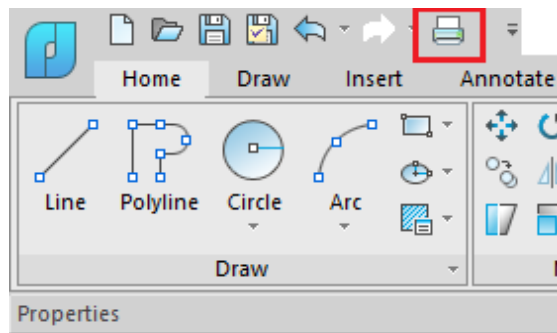


Fig. 48. The Plot command

3. Use the Internal PDF Printer. Set A3 paper size, 1:1 scale. Select the Show Print Preview option. Specify the Plot Style table – monochrome.ctb (fig. 49):

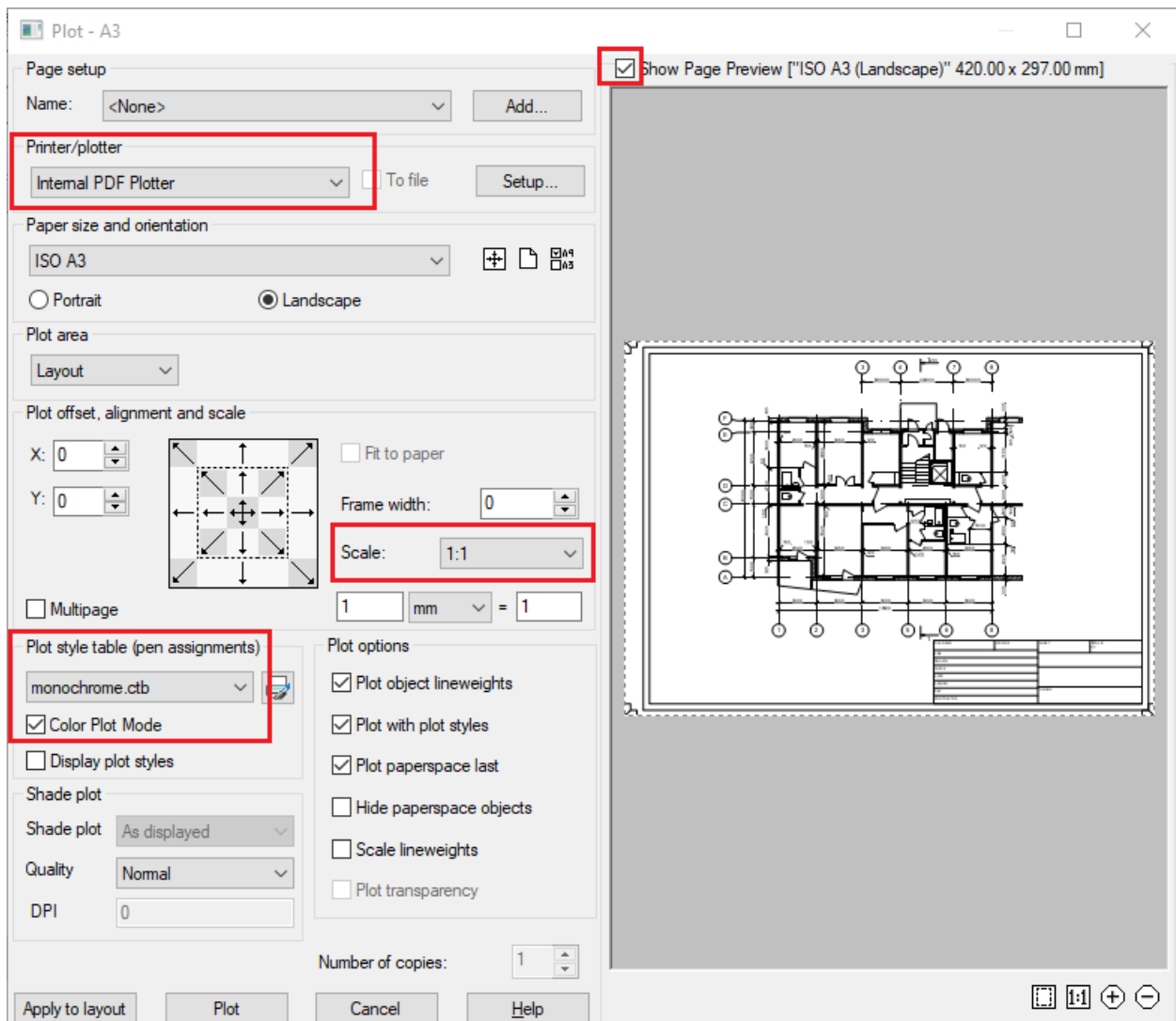


Fig. 49. The Plot manager

4. Click the Plot button. Choose the folder and then click Save.
As a result you will get a document in the .pdf file format (fig. 50):

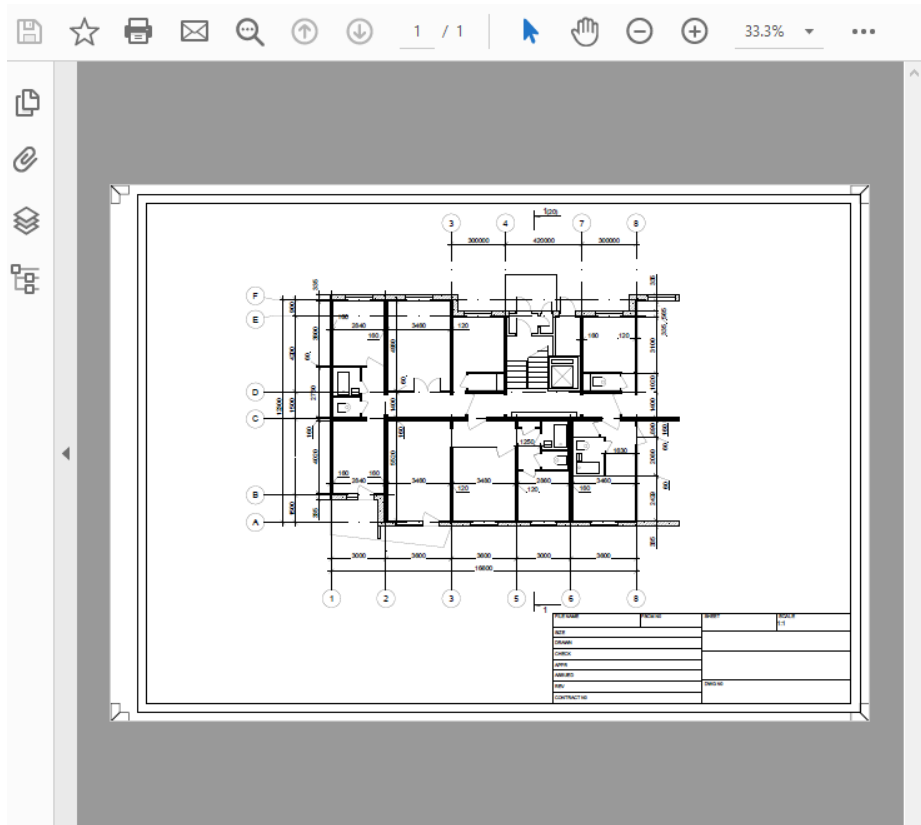


Fig. 50. Drawing in PDF

5. Align layout

Now we will plot the drawing on the physical printer. Go to the Model space, choose the printer. Select the Paper Size: A2, the Plot area – Window. Click the New window print area button, then specify the print area on the drawing (fig. 51):

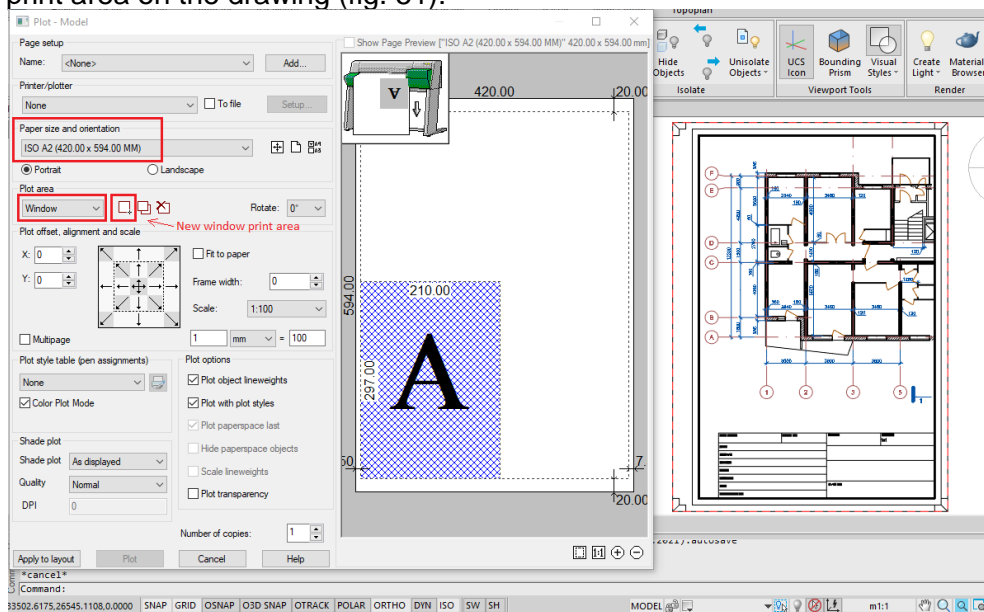


Fig. 51. Plot settings

Then choose the printer and select the Show Page Preview option. You will see that the drawing includes margins. Select the Fit to paper option: it allows you to adjust the plot area scale so that it perfectly fits the page of the current format (fig. 52):

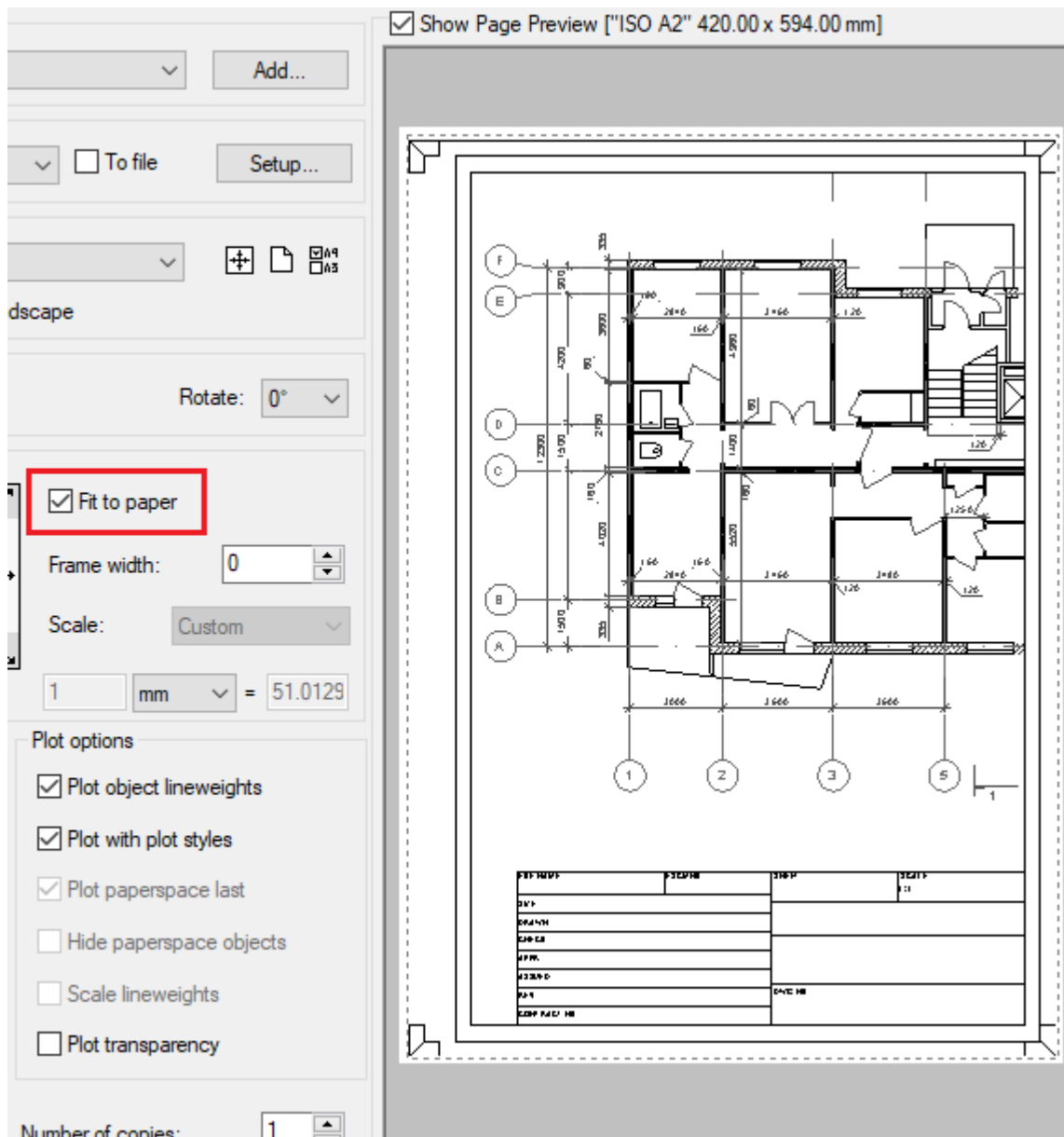


Fig. 52. Fit to paper option

Click the Plot button: you will get the same result as it was on the preview.

Drawing Explorer

The Drawing Explorer provides full information about all objects in the drawing: graphic objects; block references, external references, raster images; parameters of the drawing settings. The Drawing Explorer allows you not only to understand what objects the file contains, but also to quickly find them in the drawing, select, zoom in and, for example, delete them. All proxy objects of the drawing are collected separately, and, when selected, they indicate in which CAD systems they were created. Blocks, xrefs, raster underlays collected in the current document, layers, text and dimension styles, named views, layouts are clearly displayed.

Open the Drawing Explorer.dwg file from Test-Drive/Platform/Drawing Explorer folder.

1. Open the Manage ribbon tab, click the Drawing Explorer (fig. 53):

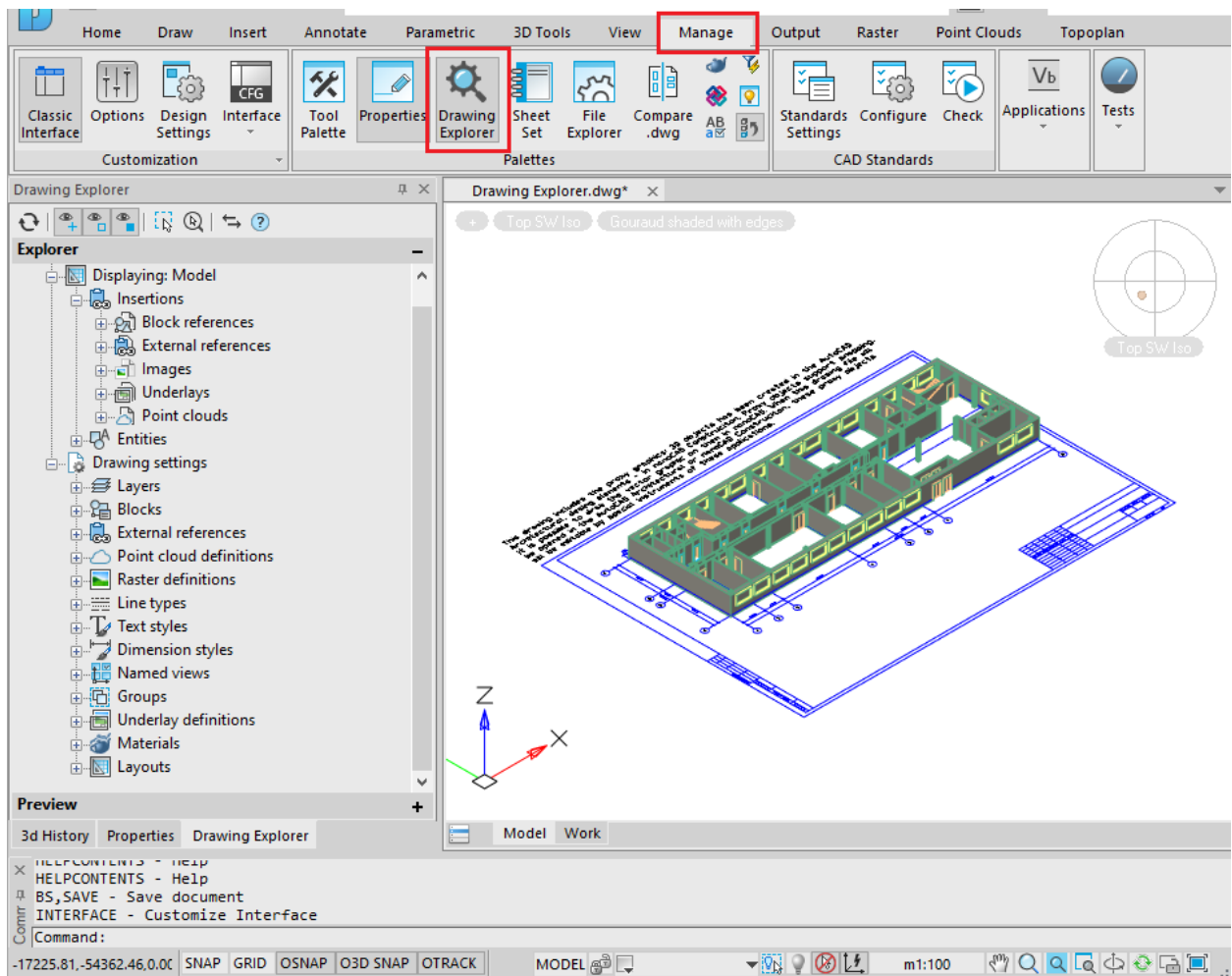


Fig. 53. Drawing Explorer

2. Specify in the Drawing Explorer: Displaying: Model – Entities.

Open the AecDbWall list, then select by double click on the different objects in this list. nanoCAD will display you the selected object (fig. 54).

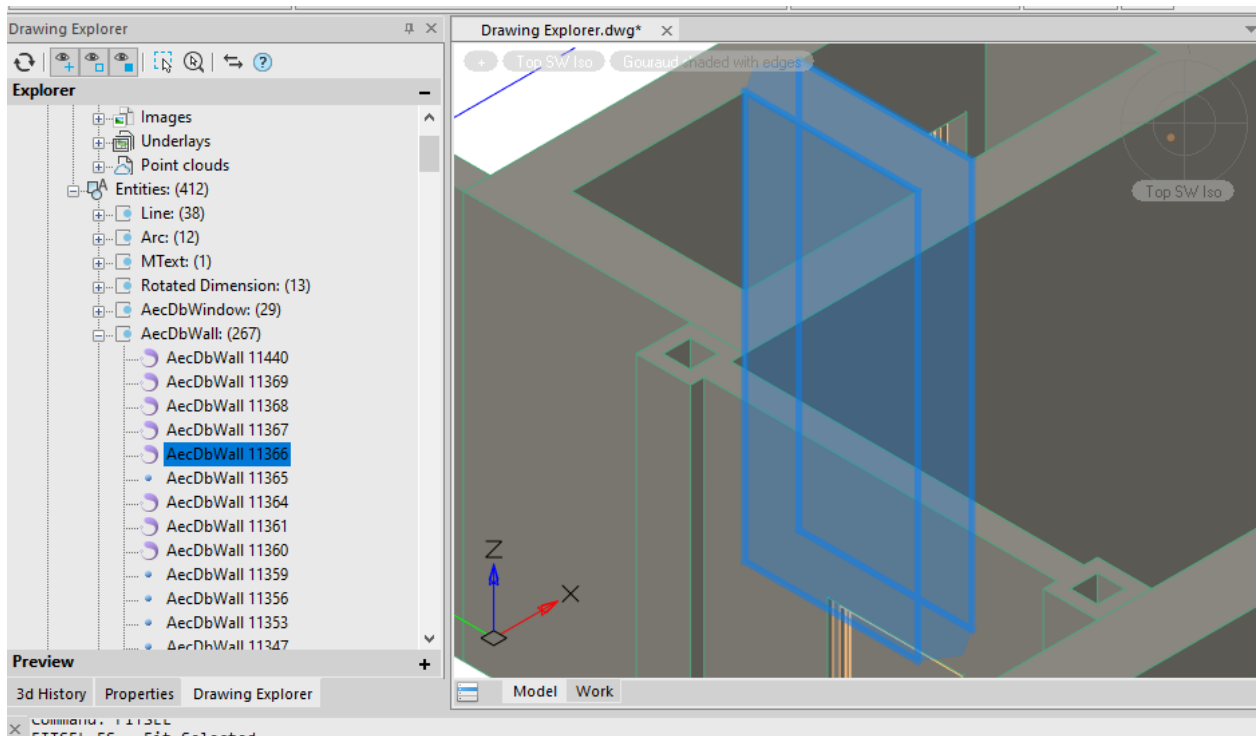


Fig. 54. Selected proxy object

nanoCAD provides the command set for working with proxy objects including their explode.

3. Open the Drawing Settings section in the Drawing Explorer. This section allows you to control the layers, blocks, styles, layouts in the current drawing.
4. Open the Displaying – Entities – Line section, then draw the line anywhere in the drawing file. A new line will appear in the Drawing Explorer (fig. 55):

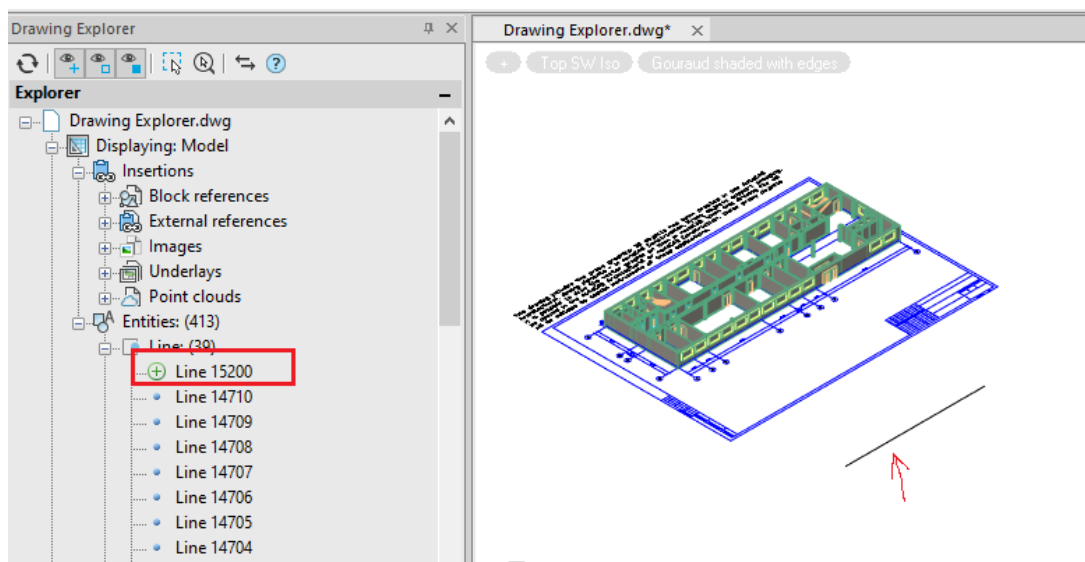


Fig. 55. New line

Like that, the Drawing Explorer allows you to control your drawing file.

File Explorer

The File Explorer allows customers to find the elements of different drawing files and insert them into the current drawing, where in the file with elements shouldn't be opened.

1. Open nanoCAD and create a new drawing file.
2. Open the Manage ribbon tab – Palettes – File Explorer (fig. 56):

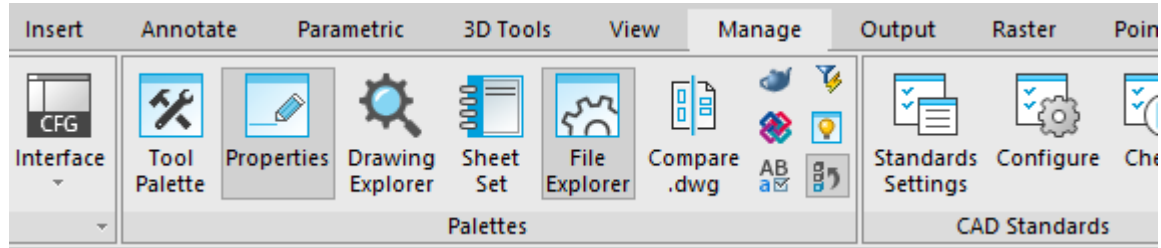


Fig. 56. File Explorer location in the Ribbon

Expand the File Explorer window like on the fig. 57:

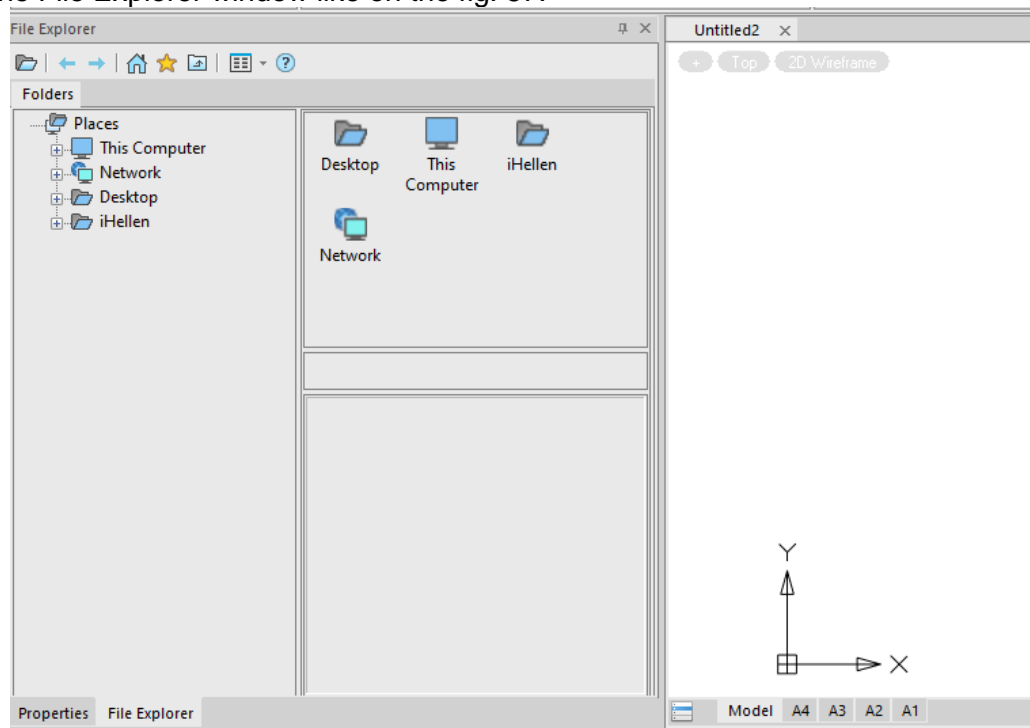


Fig. 57. Expand the File Explorer

3. Find the Plot.dwg drawing file in the TestDrive/Platform/Plot folder. Click on Blocks (fig. 58):

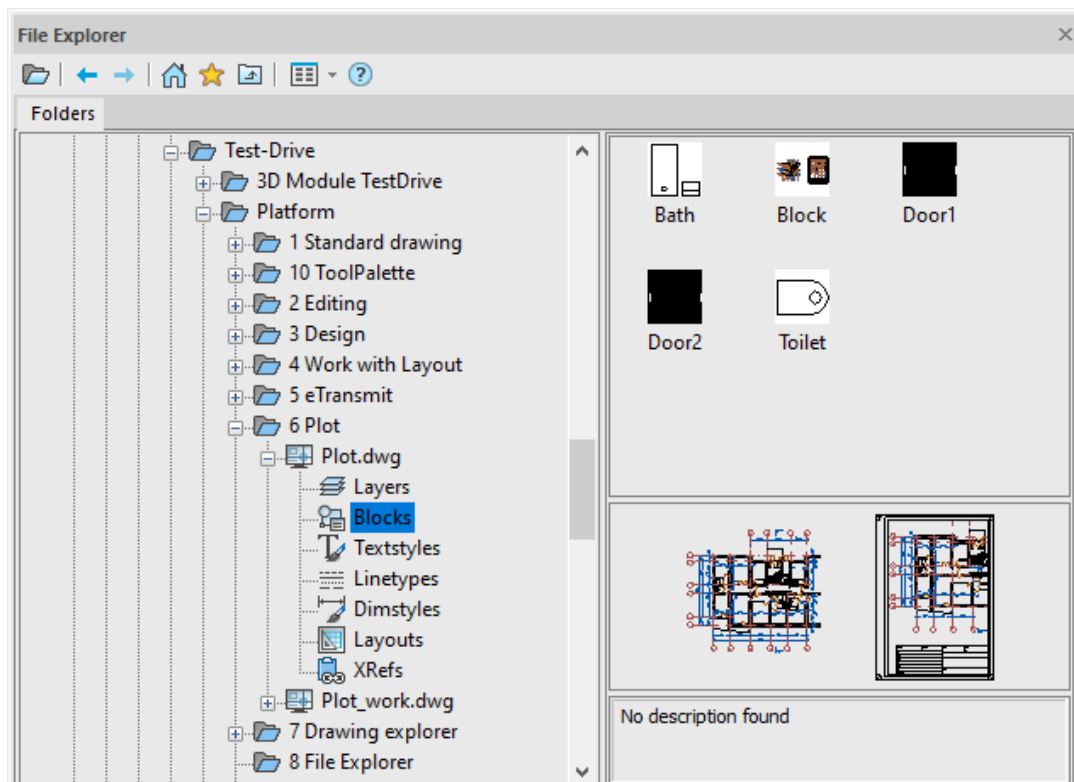


Fig. 58. Explore the Plot.dwg file

4. In the Blocks section select the block named Block, right click on it – choose the Insert block(s) option (fig. 59):

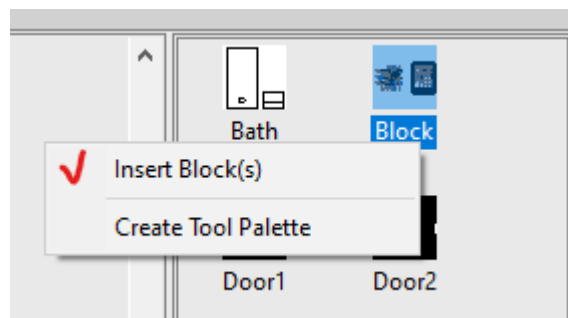


Fig. 59. Insert the block

5. Insert the block into the 0,0,0 location, click OK. After the insertion press the Alt+0 combination or double click on the mouse wheel: this option shows all the objects on the drawing.
6. Insert the A4 layout from the Plot.dwg file to the current drawing.

Thus, the File Explorer allows you to add blocks, layouts, external references, text styles, dimension styles, layers, linetypes from other drawing to the current one.