

Test Drive nanoCAD Platform



Introduction

The Test Drive document contains illustrative examples of the nanoCAD Platform capabilities.

This guide is divided into two parts. The first part is designed for beginners. It allows users to get acquainted with the nanoCAD Platform without any prior training. The second part is designed for advanced users, as it explains the functionality 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 switch easily to independent work in nanoCAD.

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Part 1. For Beginners

This part explains the basic CAD functionality: drawing, editing, dimensioning, and working in paper space.

1. Standard Drawing

Open the **Steel Bar.dwg** file from **nanoCAD Platform Test-Drive / 1 Standard drawing** folder.

Press **F8** or type **ORTHO** in the **Status** bar to turn on the orthogonalization mode.

Press **F12** or type **DYN** in the **Status** bar to turn on the dynamic mode.

1.1. Run the **Polyline** command (fig. 1):

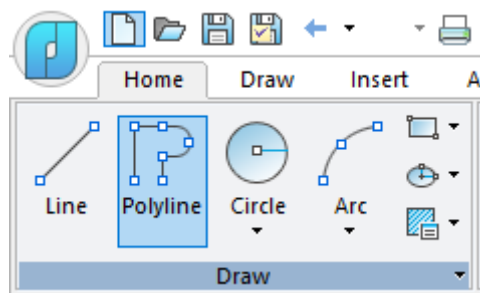


Fig. 1. The **Polyline** command

1.2. Use the red X as the base point.

1.3. Start drawing the polyline from the base point. Type the distance **16** (fig. 2):

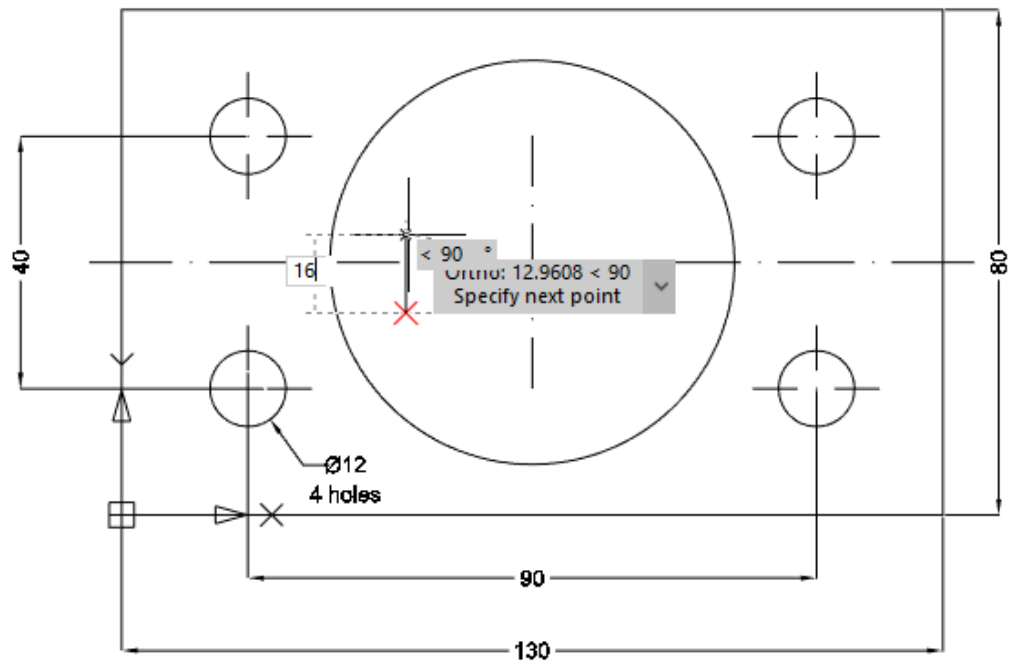


Fig. 2. Dynamic input

1.4. Move the cursor to the right to draw the next point, and type the distance **40** (fig. 3):

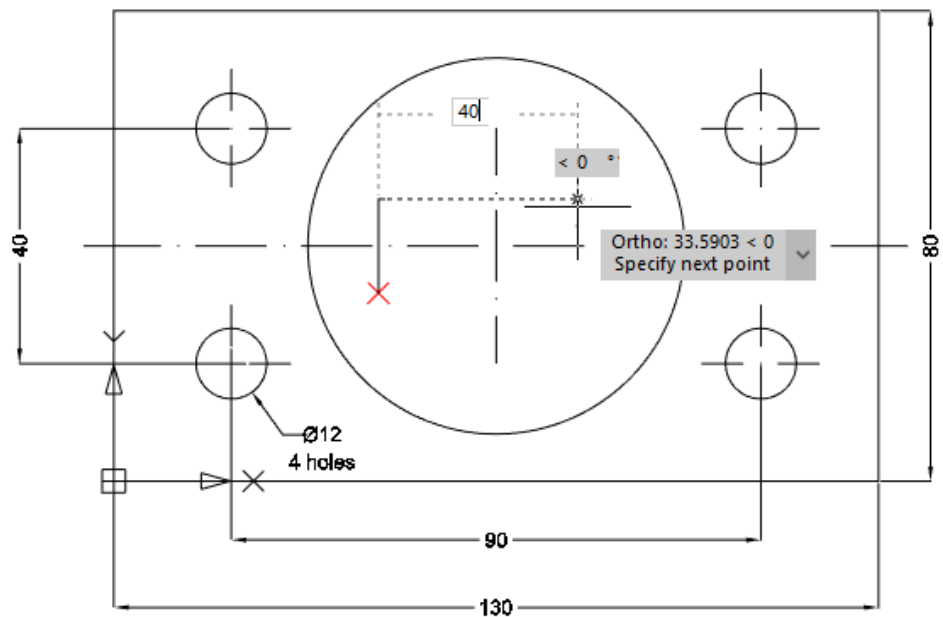


Fig. 3. Dynamic input

1.5. Continue drawing.

As a result, you should get a rectangle (see the fig. 4).

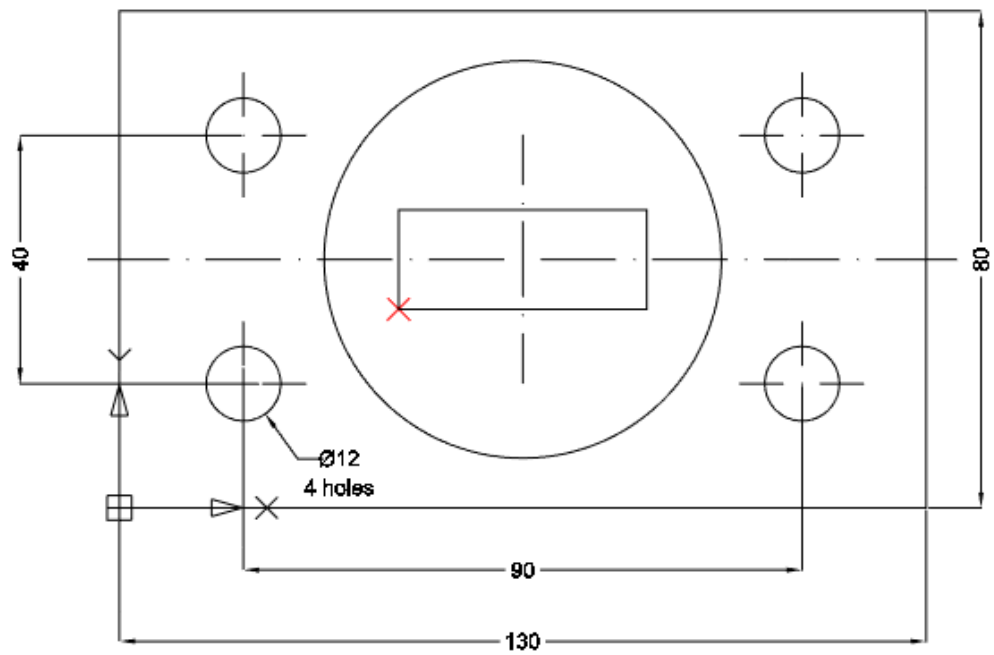


Fig. 4. The result

1.6. Turn off the **Auxiliary** Layer (fig. 5):

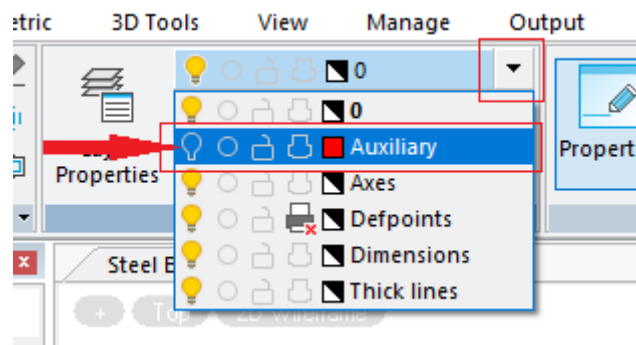


Fig. 5. Turn off the Auxiliary layer

1.7. Click on the **Circle – Center, Radius** (fig. 6):

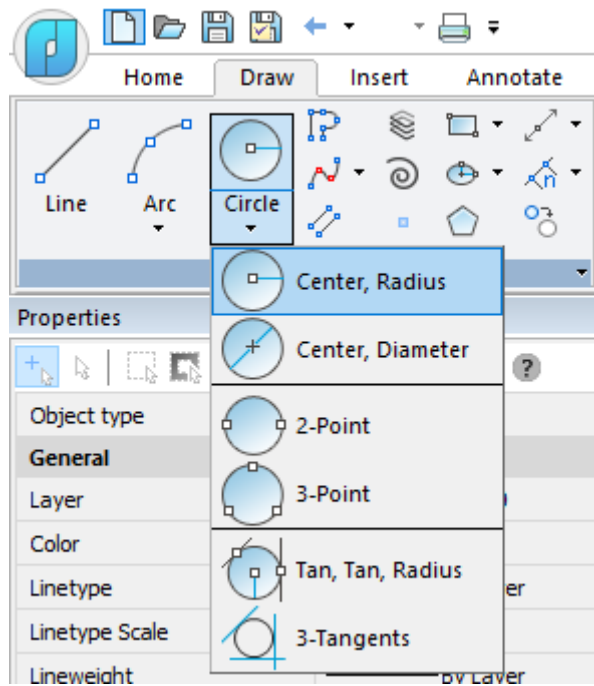


Fig. 6. Circle by Center and Radius

1.8. Draw a circle with a radius of **14** (fig. 7):

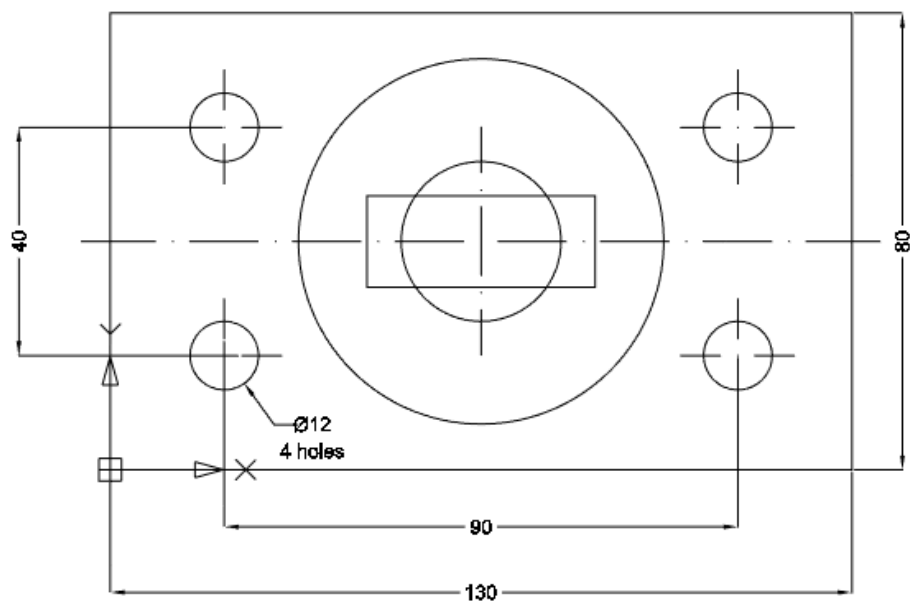


Fig. 7. Draw a circle

1.9. Use the **Smart Trim** command to remove unnecessary lines (fig. 9 and 10):

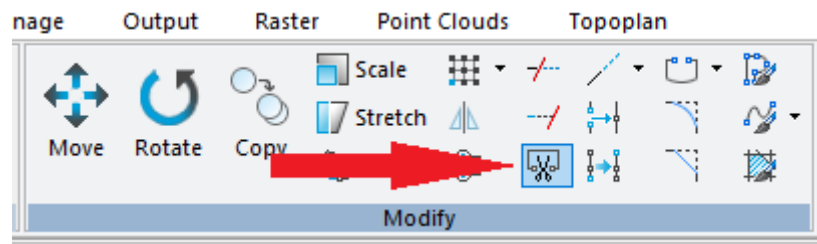


Fig. 8. The **Smart Trim** command

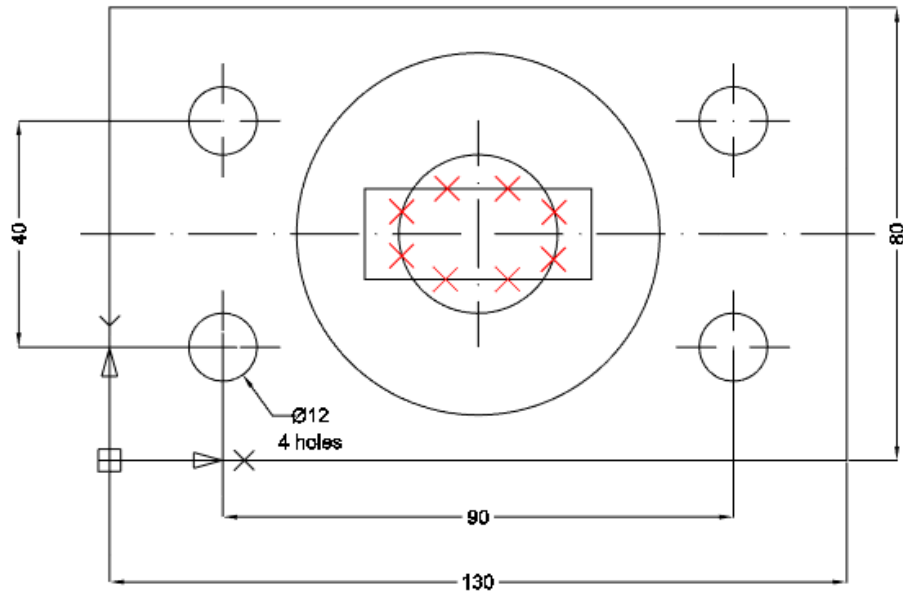


Fig. 9. Use the **Smart Trim** command

1.10. Change the radius of the big circle: select the circle and click on the vertices (fig. 10).
In the dynamic field type **30**:

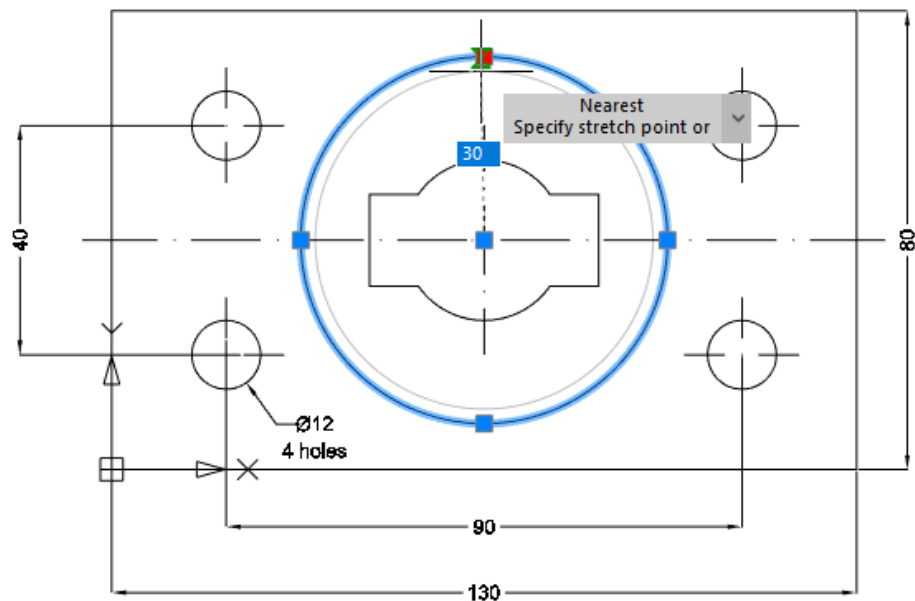


Fig. 10. Change the circle radius

1.11. Set the **Dimensions** layer as current.

2. Editing

Open the **Facade.dwg** file from the **nanoCAD Platform Test-Drive / 2 Editing** folder.

2.1. In the **Properties**, choose **3D Wireframe** for the Visual Style (fig. 13):

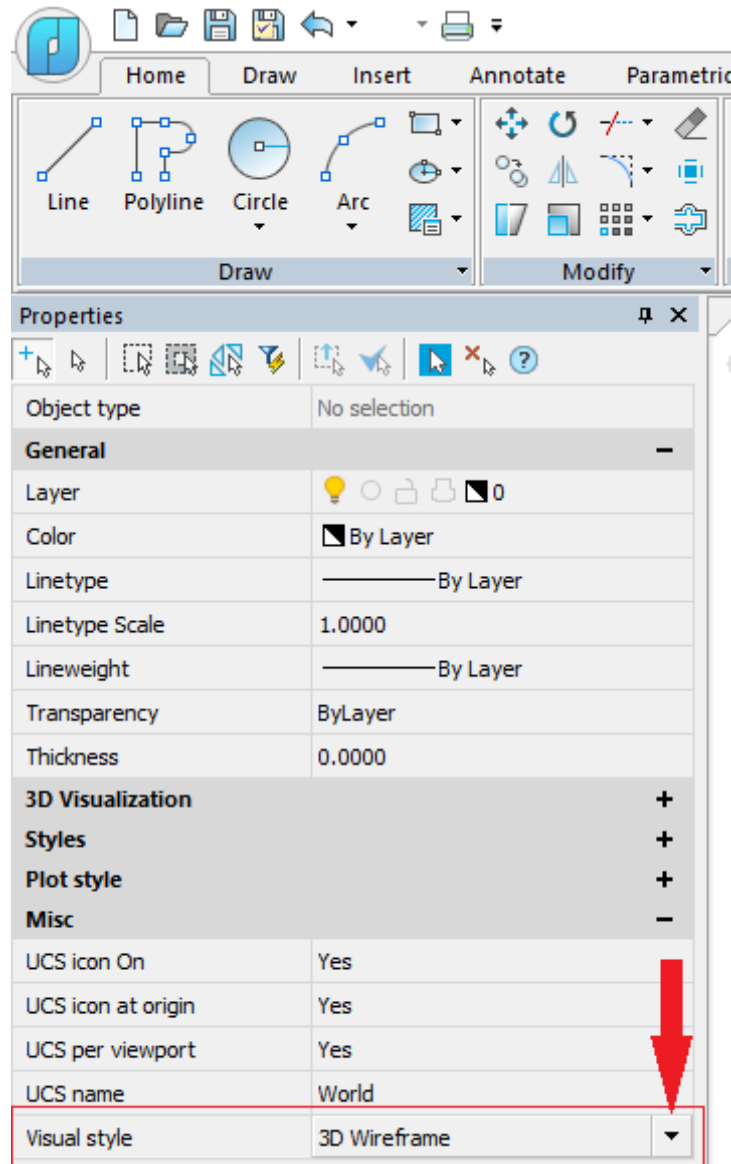


Fig.13. Change the visual style

2.2. Turn off the visibility of the **Shadow** and **Column** layers. The visibility of layers can be changed by the bulb icon next to the layer name.

2.3. Select all objects with a Fence. Then use the **Mirror** command located on the ribbon: **Draw – Modify – Mirror** (fig. 14).

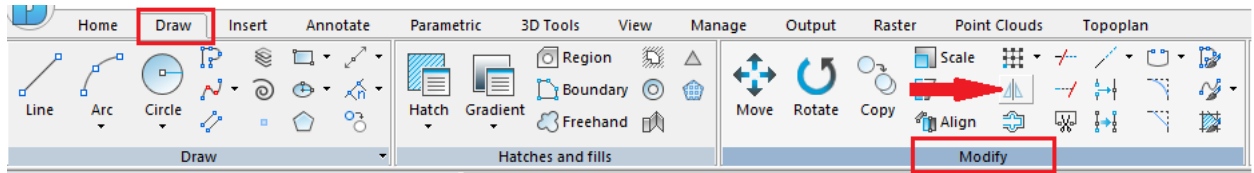


Fig. 14. The **Mirror** command

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.

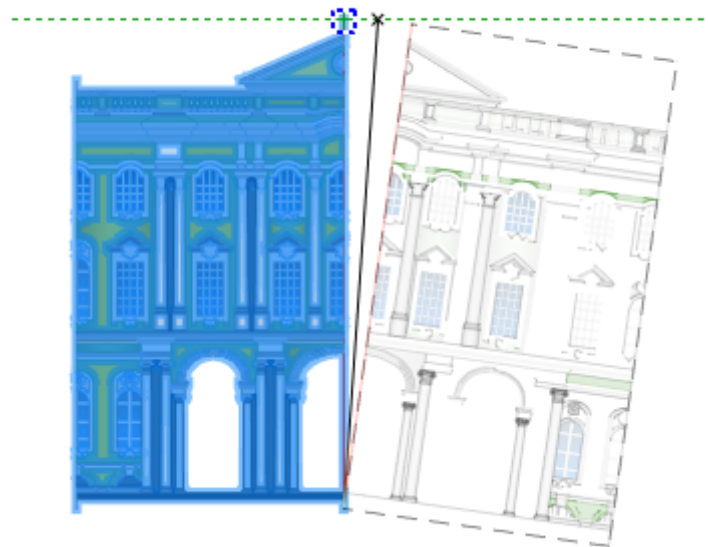


Fig.15. Mirroring

The result should be as shown in fig.16:

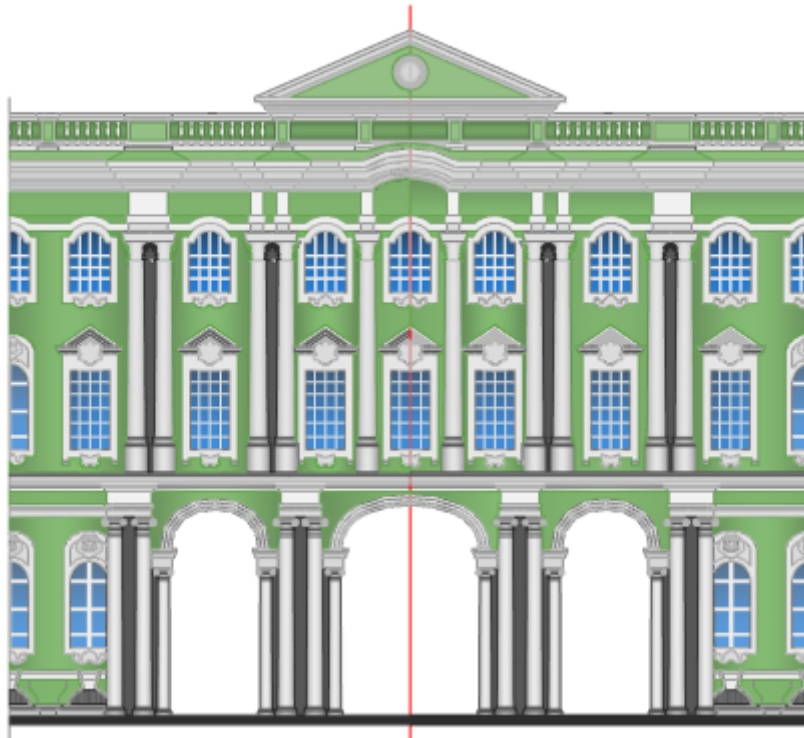


Fig. 16. The result of mirroring. General view of the façade

2.4. Turn on the visibility of the **Columns** layer and make it current. To make the layer current, just left-click on it.

2.5. Turn off the visibility of the **Solids** layer.

We use additional grey-green gradients for a more realistic view. We have created gradients on the right side of some columns to simulate shadows.

The result should be as shown in fig. 17.

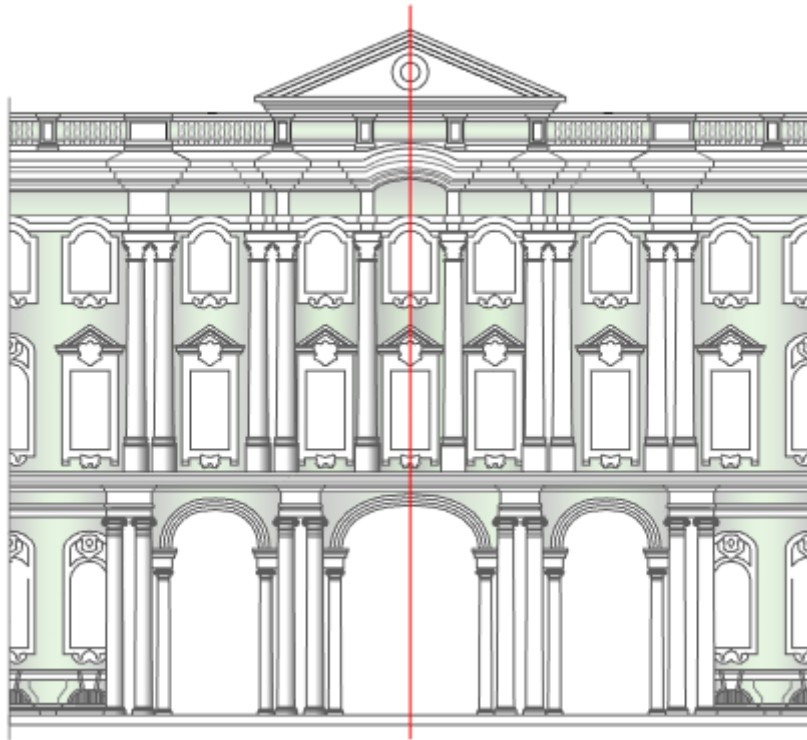


Fig. 17. Intermediate result

2.6. Create shadows for the columns in any convenient way. Below is one of them.

Turn on the visibility of the **Auxiliary** layer. Select the following gradient by a left-click (fig. 18):

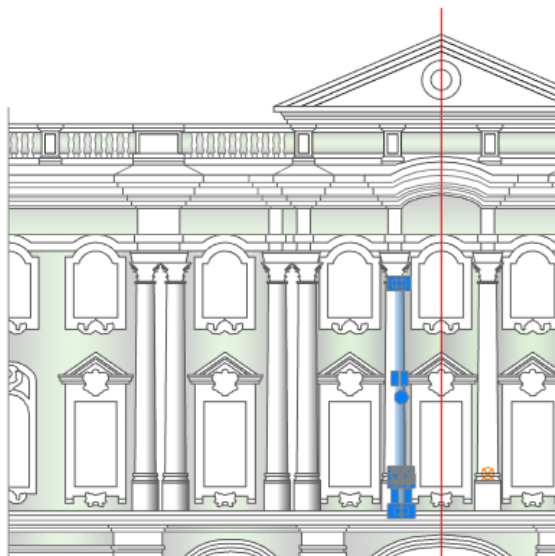


Fig.18. Gradient to copy

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

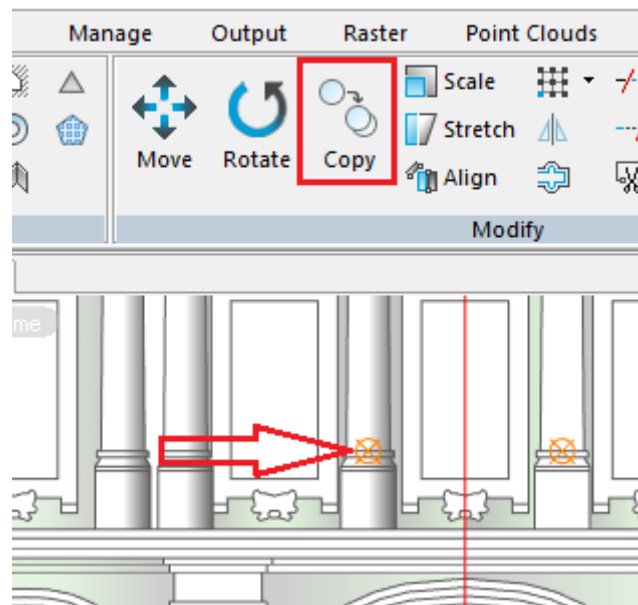


Fig. 19. Base point for copying

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

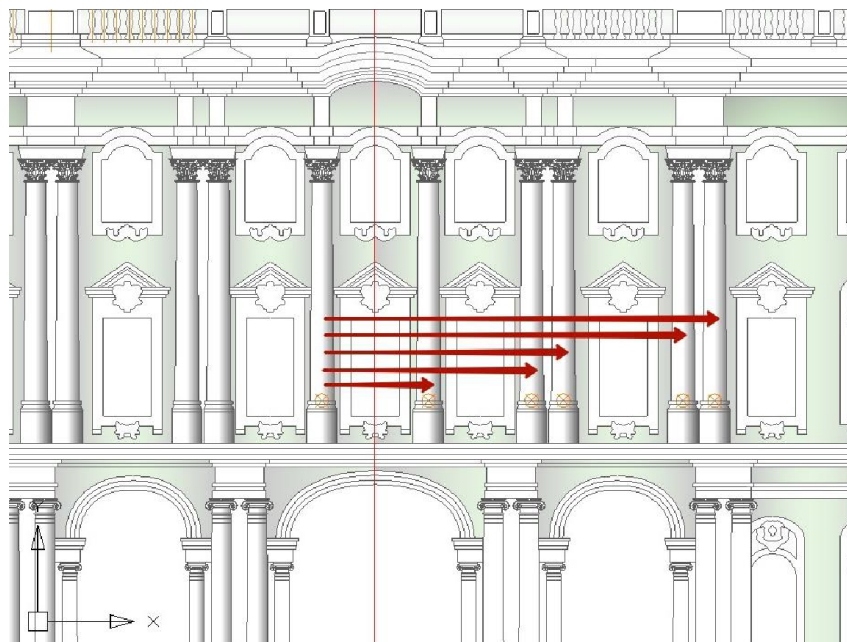


Fig. 20. Copy gradients for the top columns

Repeat the actions for the bottom columns (fig. 21):

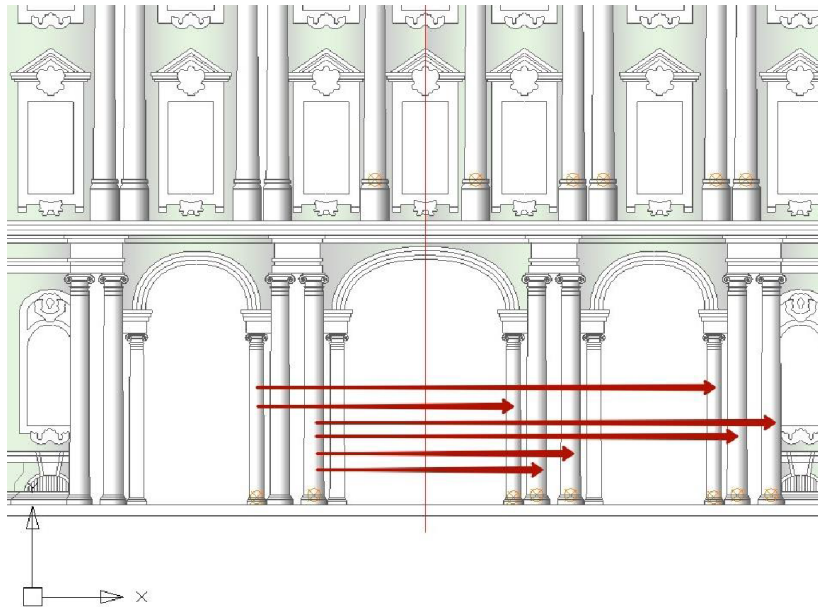


Fig.21. Copy gradients of the bottom columns

Turn off the visibility of the **Auxiliary** layer.

Keep three columns without gradient (fig. 22):

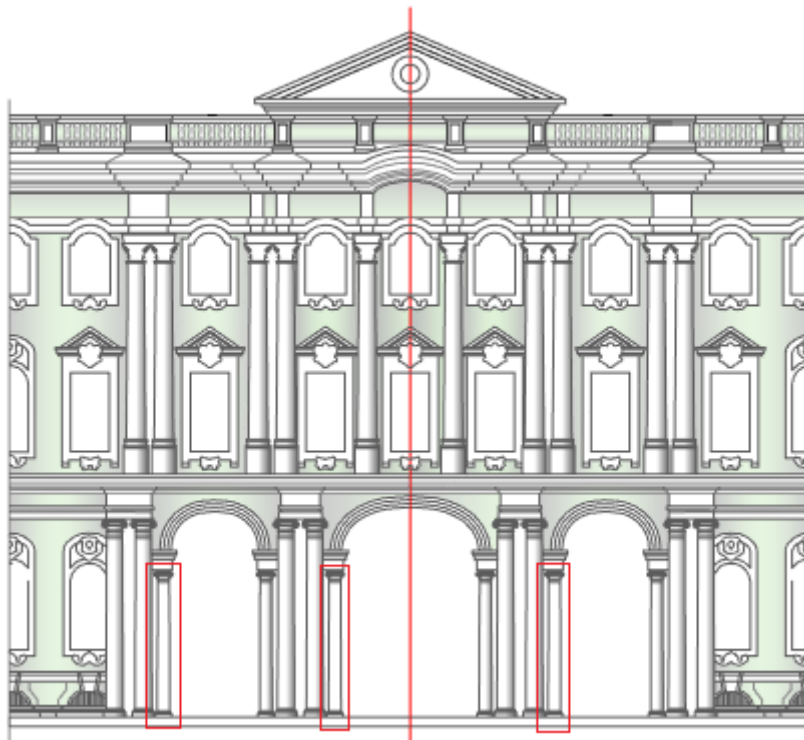


Fig. 22. Columns without gradient

2.7. Working with gradients.

Please note that the center of the building has incorrect gradients due to the **Mirroring** (fig. 23):

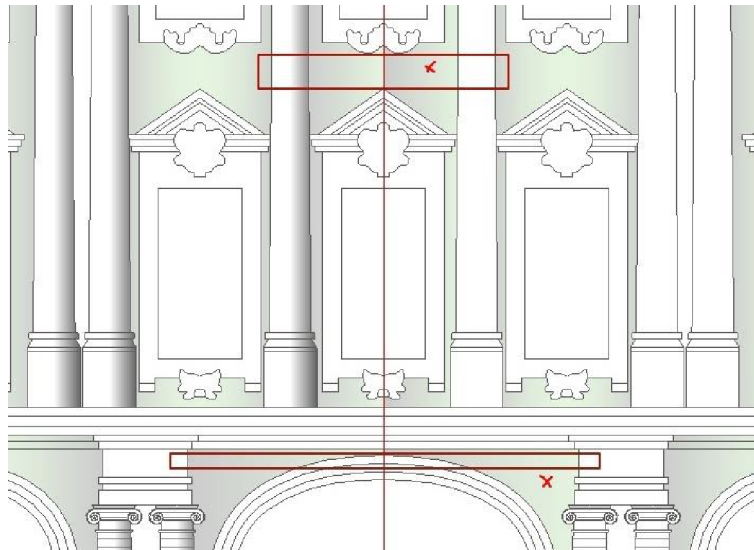


Fig. 23. Incorrect gradients

2.8. Edit these gradients. Double click on one of them, then swap two colors in the **Gradient** tab of the **Hatch** dialog box (fig. 24):

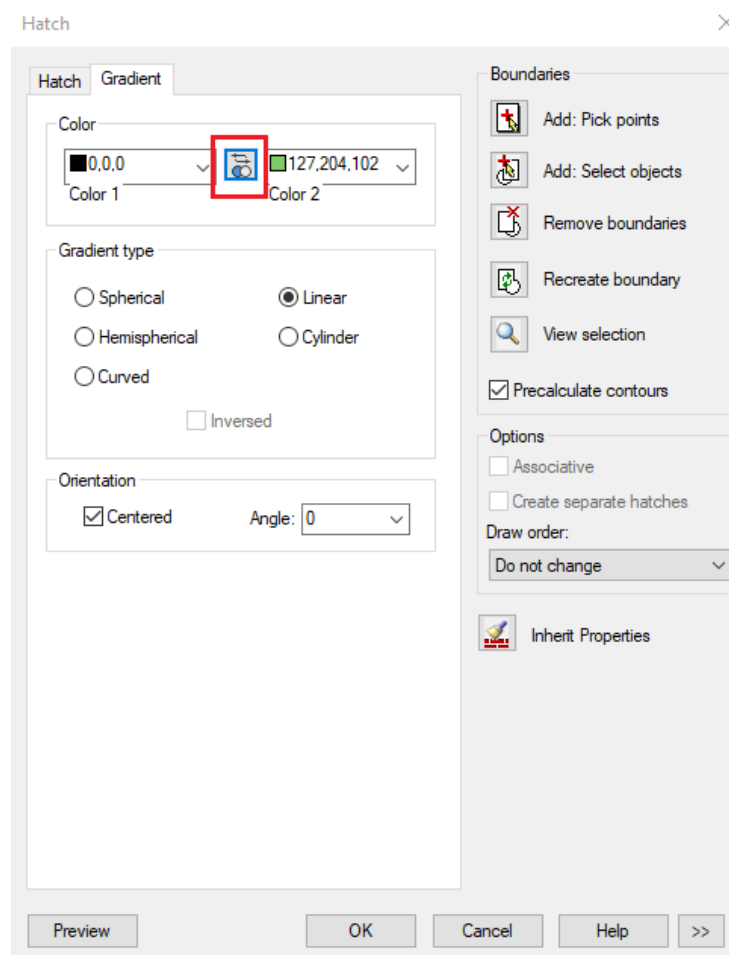


Fig. 24. Swap colors in the gradient

Do the same with the second incorrect gradient.

2.9. Add a new gradient to the building's top and bottom.

First, you set the **Additional** gradients layer current. Next, call the **Gradient** command on the **Annotate** tab (fig. 25):

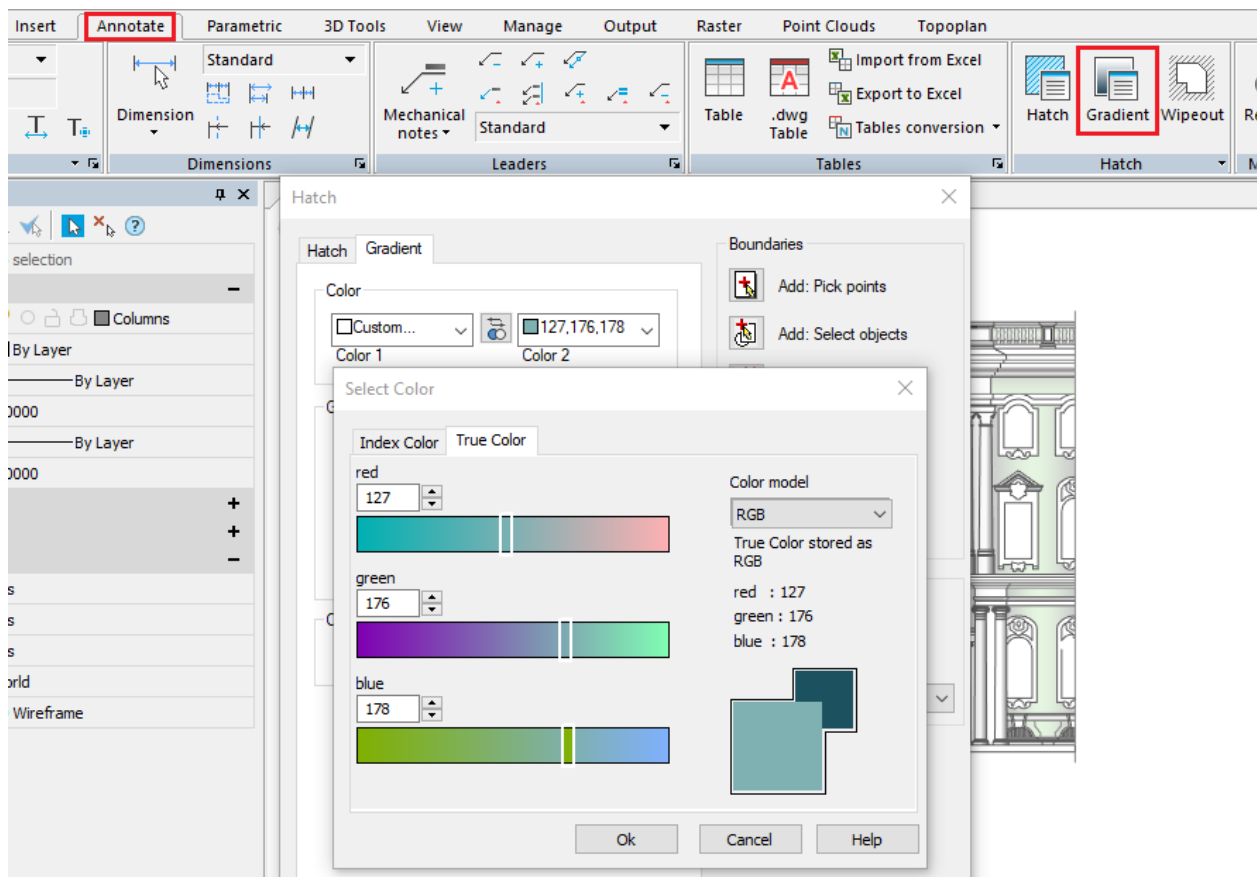


Fig. 25. Choose gradient colors.

Set the following values: Color 1 = 83, Color 2 = 127,176,178.

Choose the **Cylinder + Inversed** gradient type.

Add two pick points (fig. 26):

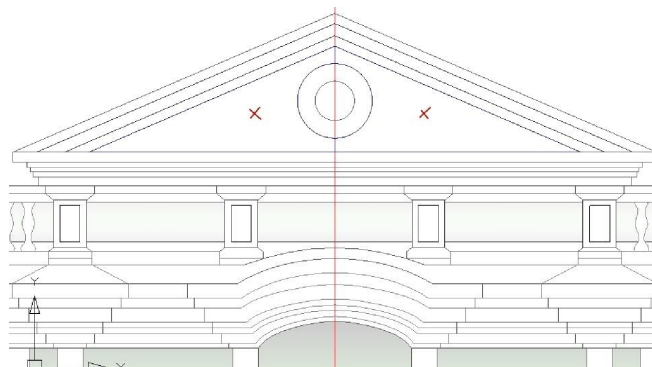


Fig. 26. Gradient pick points

To speed up the gradient outline, select as close as possible, but make sure that the borders fit the screen.

As a result, you get 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** (fig. 27):

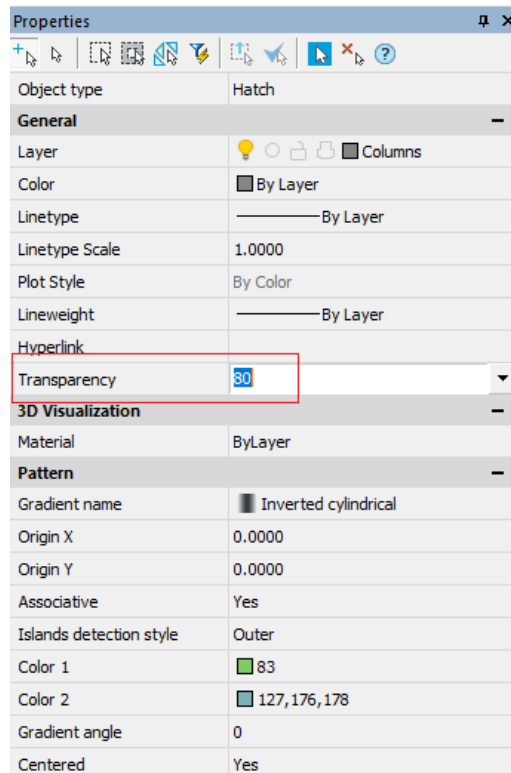


Fig. 27. Change transparency of the gradient

2.10. Set the correct gradient display.

2.10.1. Set the **Main** layer current.

2.10.2. Turn off the visibility of the **Additional gradients** layer, and select all objects with a Fence.

2.10.3. In the **Properties**, choose **Hatch** in the **Object type** field (fig. 28):

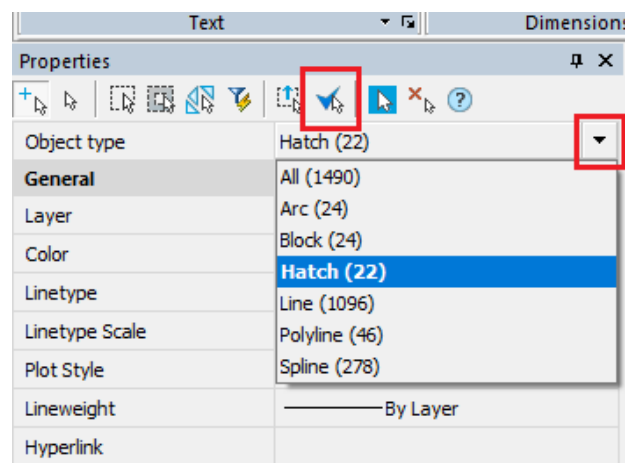


Fig. 28. Select only hatch

Move the selected hatches to the background: right-click on the workspace – **Display order – Send to back**.

2.11. Turn off the visibility of the **Columns** layer.

2.12. Turn on the visibility of the **Shadows** layer and set it current.

2.13. Turn on the visibility of the **Right shadows** layer. We finished the rest of the shadows.
The result should be as shown in fig. 29:

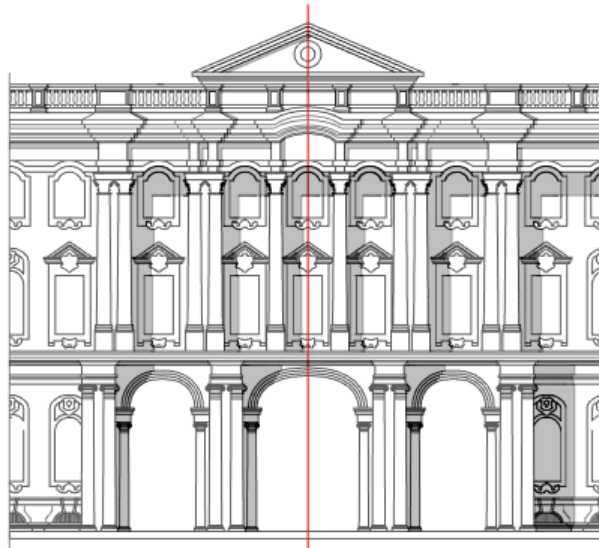


Fig. 29. The final display of shadows on facade

2.14. Complete the drawing.

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

- solids
- additional gradients
- columns
- final

2.15. The facade is finished. The final result should be as shown in fig. 30:

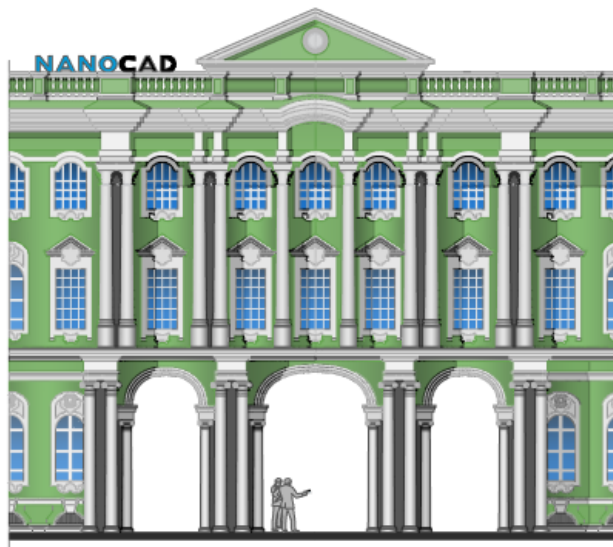


Fig.30. Final view of the Facade

3. Design

In this part, we will add benchmarks and dimensions to the drawing.

Open the **Facade Desing.dwg** file from **nanoCAD Platform Test-Drive / 3 Design** folder (fig.31):

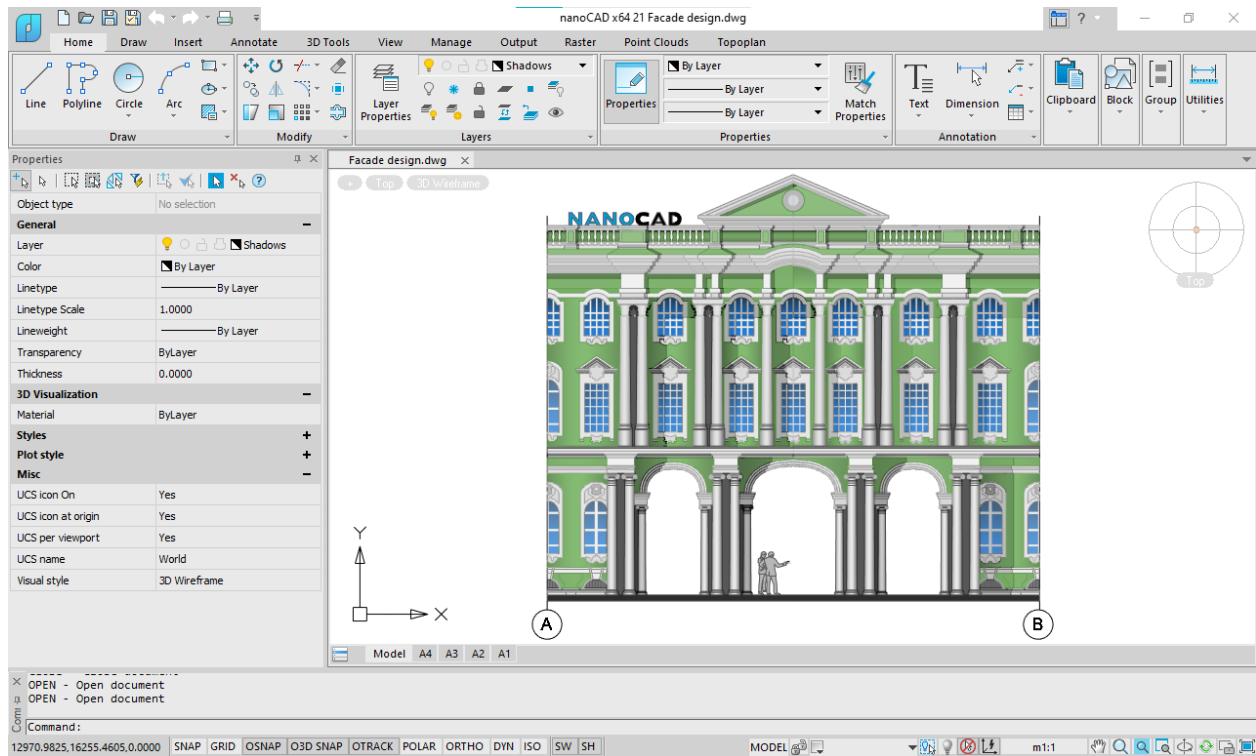


Fig. 31. The **Facade Design.dwg** drawing file in nanoCAD

3.1. Make the **Design** layer current.

3.2. Add a dimension between axes: **Annotate – Dimension – Aligned** – enter dimension between two axes on the drawing (fig. 32):

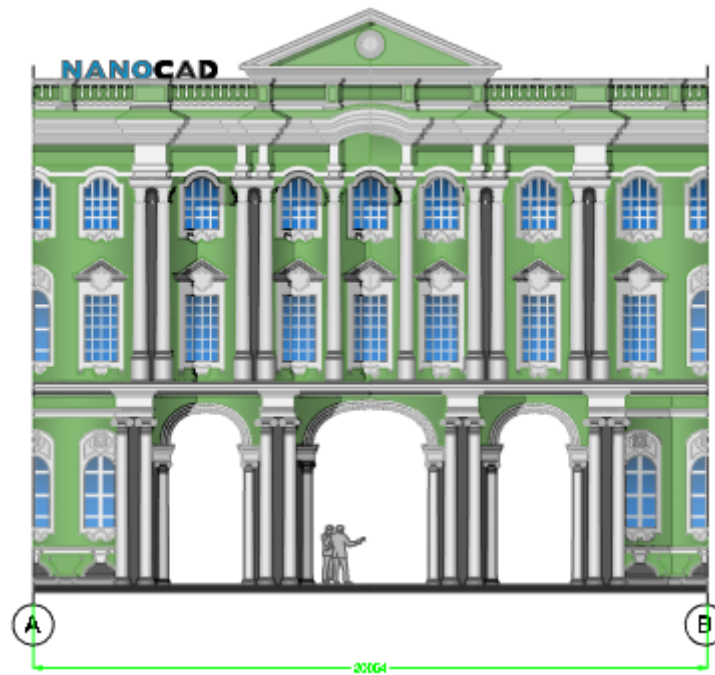


Fig. 32. Dimension

3.3. Set the dimension style. Click on the **Design** tab and open the **Dimension Style** dialog box (fig. 33):

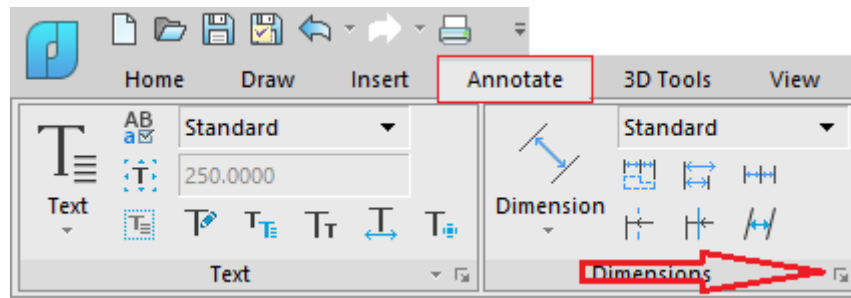


Fig. 33. Run the **Dimension Style Manager**

Select the current dimension style and click **Modify** (fig. 34):

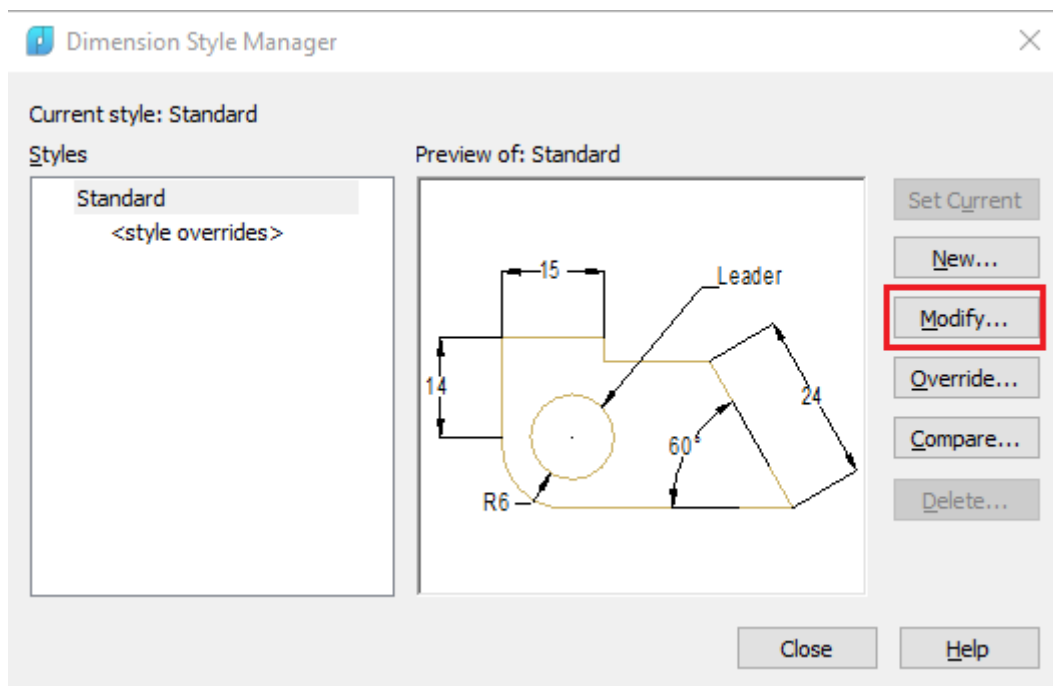


Fig. 34 Dimension Style Manager

In the **Lines** tab, configure the following settings:

- Color of Dimensions lines – white
- Color of Extension lines – white

In the **Text** tab set the text color as white (fig. 35):

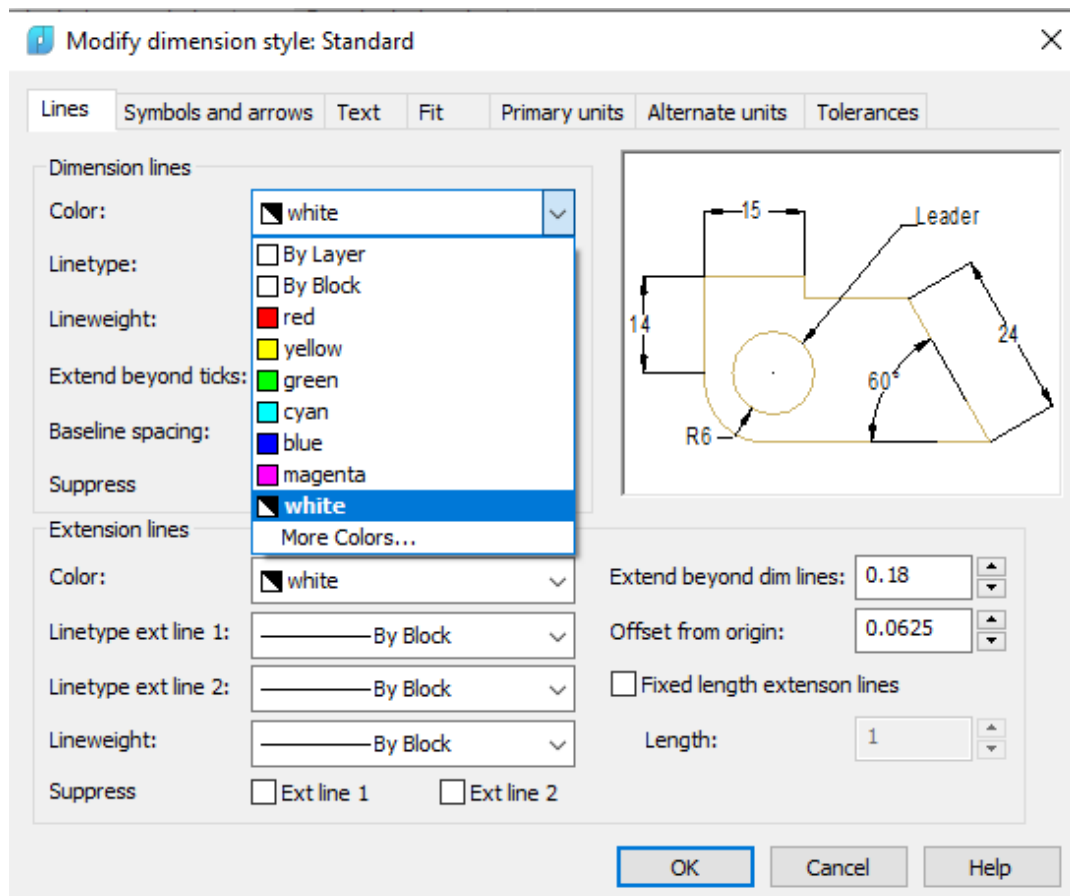


Fig. 35. Edit the dimension style

Click **OK**, then close the **Dimension Style Manager**.

3.4. Insert a block with a benchmark.

Run the **Insert Block** command in the **Insert** tab. Press the **Browse** button and select **Benchmark.dwg** file from **nanoCAD Platform Test-Drive / 3 Design** folder (fig.36):

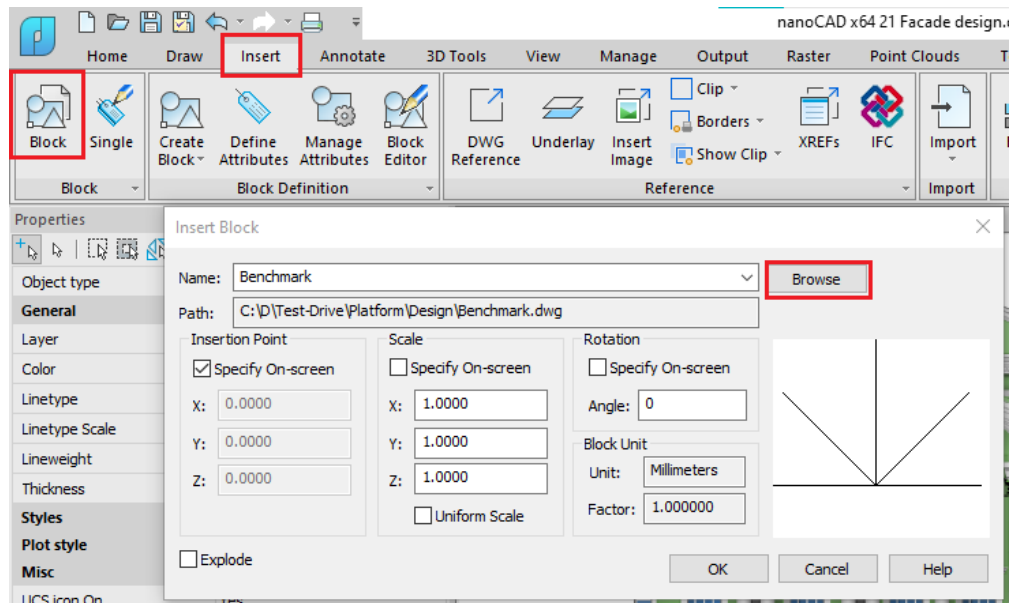


Fig. 36. Insert block from the file

Click **OK**. Insert the block three times and add attribute values as shown in fig. 37:

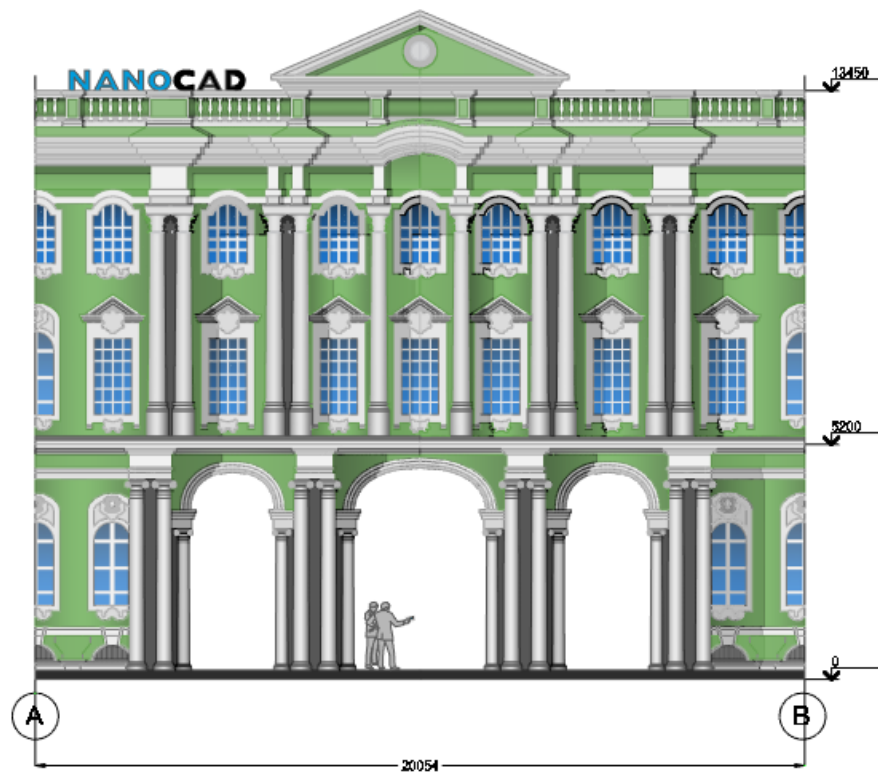


Fig. 37. Final drawing.

4. Working with Layout

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

4.1. Open A3 layout and add a title block.

We will insert an external reference with the title block.

Insert – 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. 38):

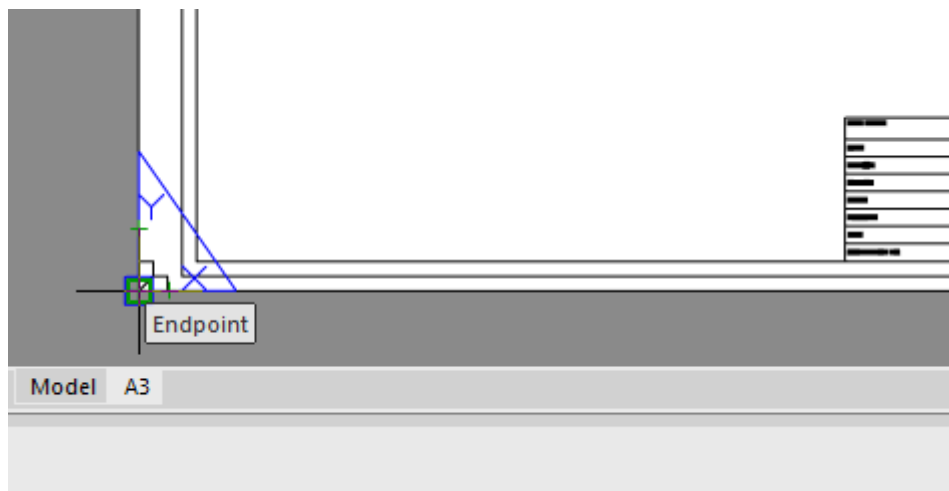


Fig. 38. Insert external reference

4.2. Create a view of the layout.

Let's choose a rectangular viewport (fig. 39):

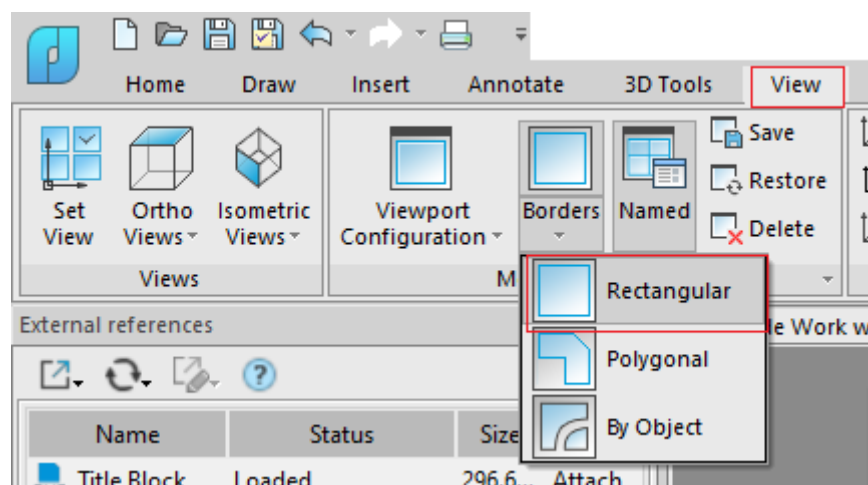


Fig. 39. Add viewport

Specify the viewport borders with the left-click. Input the view scale 0.01. Select the viewport and specify the **3D Wireframe** visual style in the **Properties** bar (fig. 40):

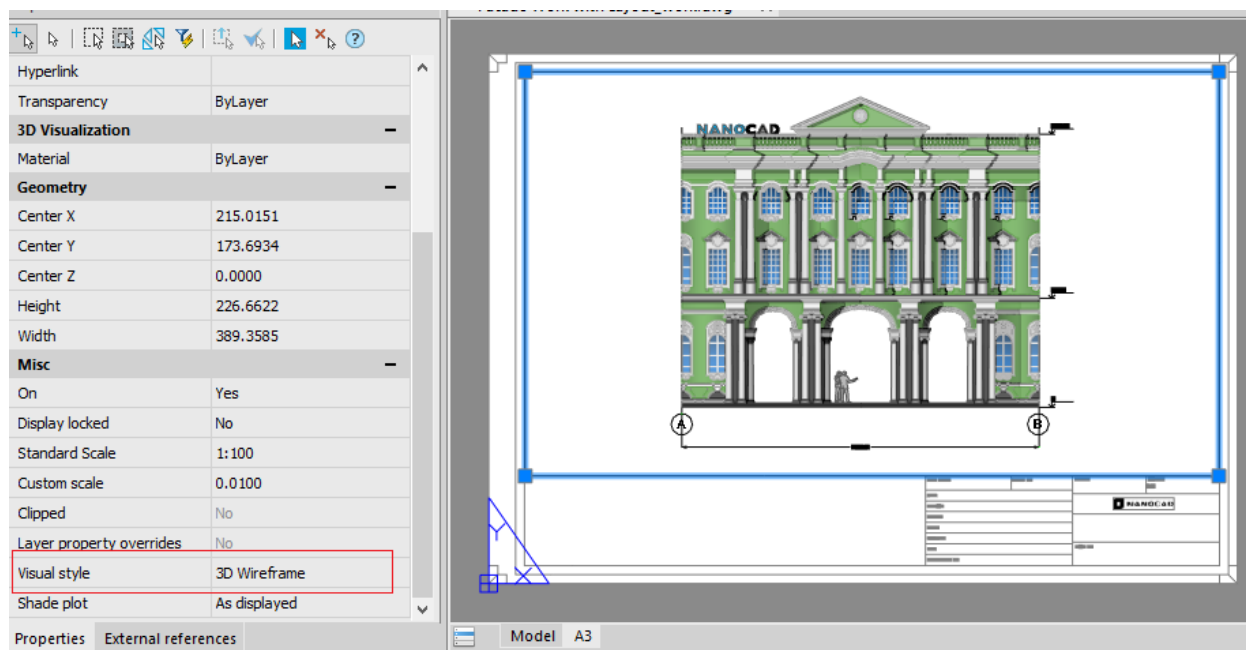


Fig. 40. Viewport on layout

4.3. Work with fields.

Set the author's name: click **nanoCAD – Utilities – Drawing Properties** (fig. 41). Open the **Summary** tab and type any name into the **Autor** field. Click **OK**.

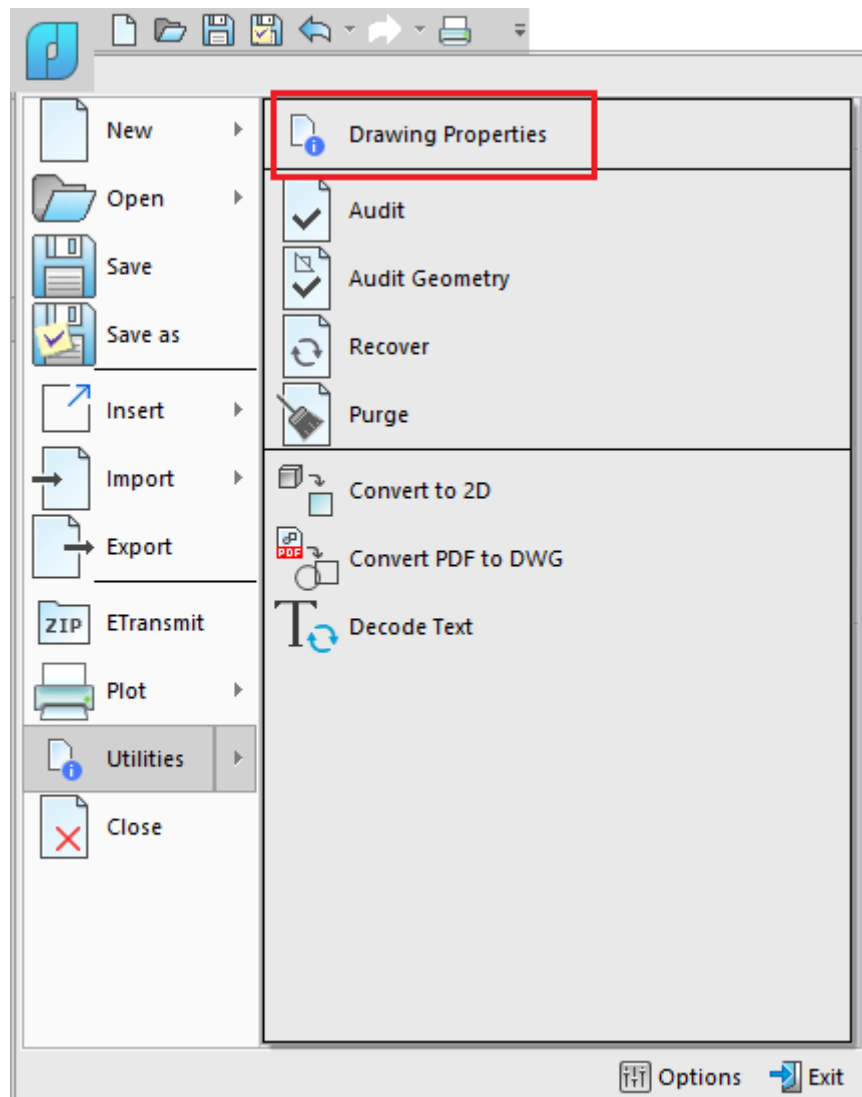
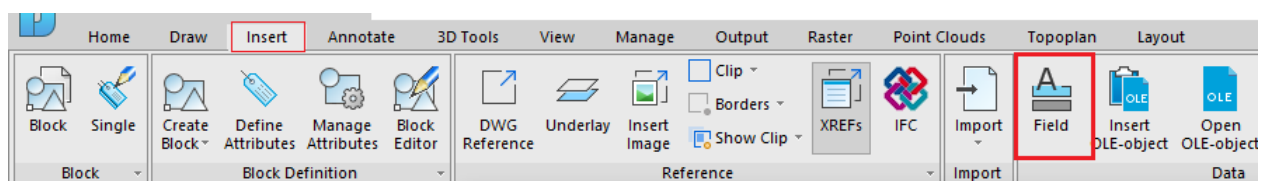
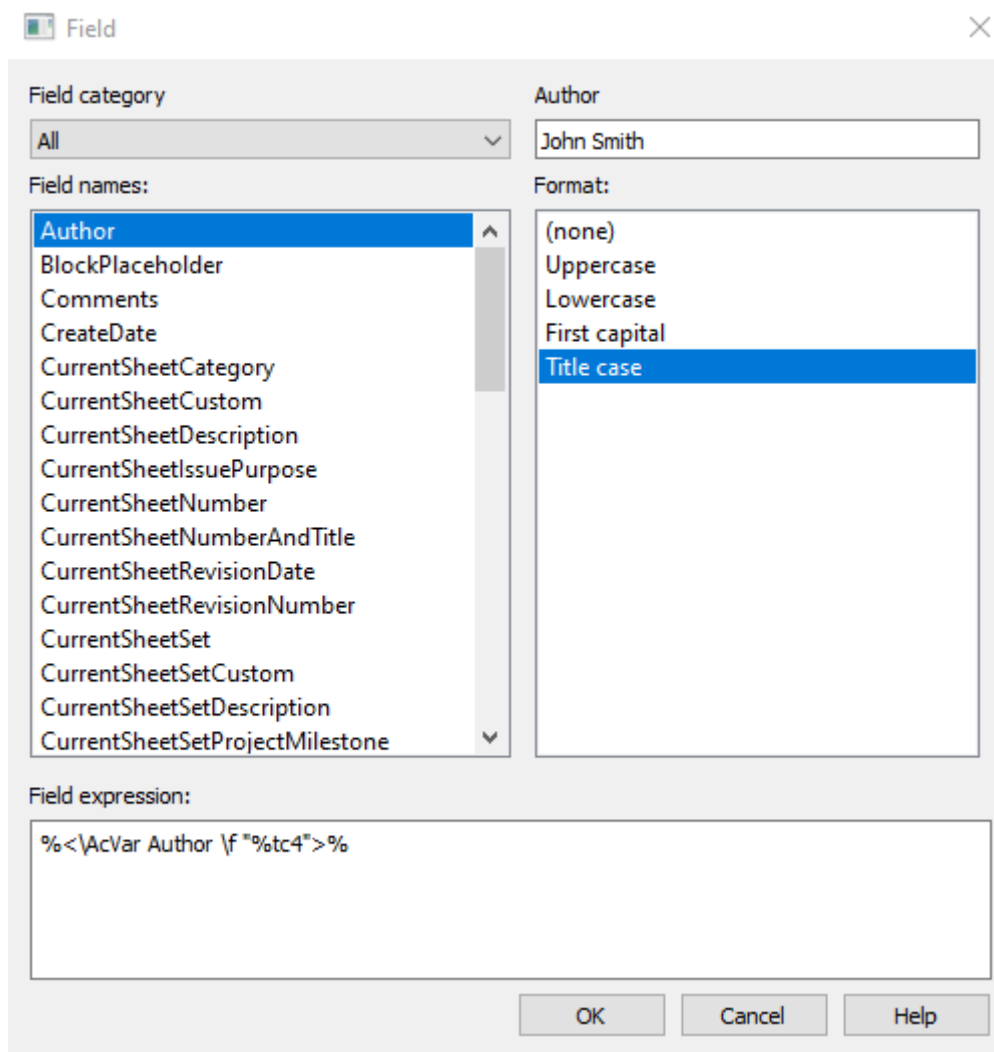


Fig. 41. Drawing Properties

4.4. Press the **Field** button on the **Insert** tab of the ribbon.

In the new **Field** dialog box select the **Author** field (fig. 42):



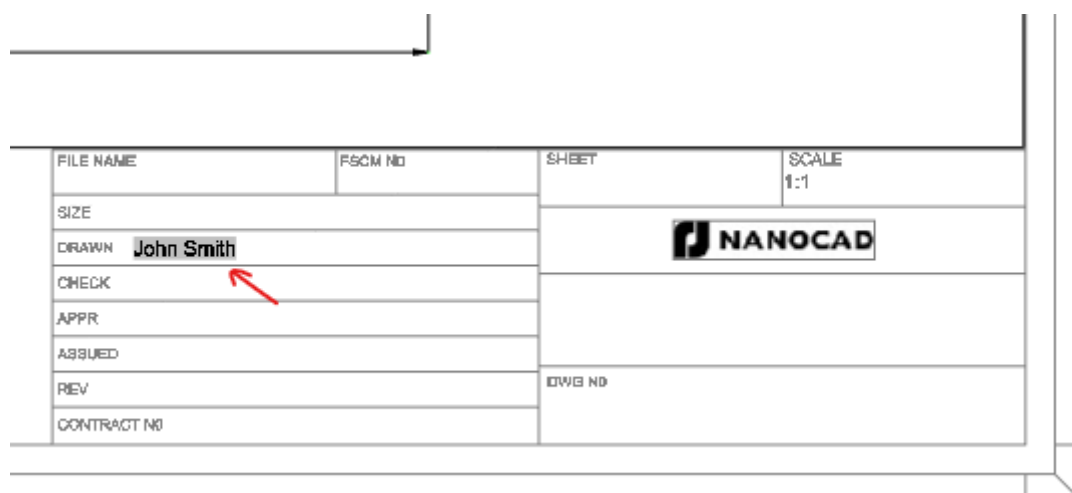


The **Field** dialog box is shown with the following settings:

- Field category:** All
- Field names:** A list of fields is shown, with **Author** selected.
- Author:** John Smith
- Format:** A list of formats is shown, with **Title case** selected.
- Field expression:** The expression `%<\AcVar Author \f "%tc4">%` is displayed.
- Buttons:** OK, Cancel, and Help.

Fig. 42. The **Field** dialog box

Click **OK** and specify an insertion point (fig. 43):



The figure shows a table with the following data:

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

A red arrow points to the **John Smith** text in the **DRAWN** column.

Fig. 43. Inserted field

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

5. Creating Transmittal Package

The **eTransmit** command allows you to collect all the data related to the current drawing (shx fonts, external references, underlays, etc.), and save it to the **.zip** archive. The archive can be sent to colleagues or clients. It can reopen on another computer with no problem.

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

5.1. Open the **External References** toolbar (fig. 44):

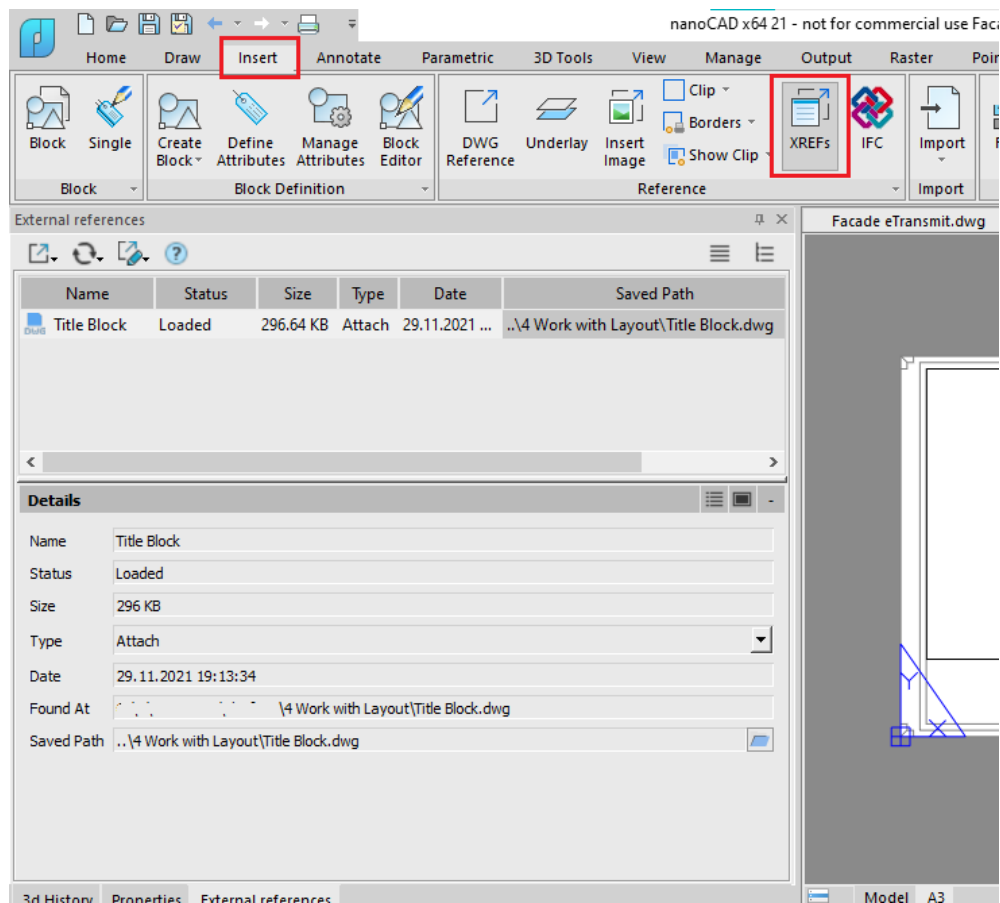


Fig. 44. The External references toolbar

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

5.2. Click on the **nanoCAD** button – **eTransmit** (fig. 45):

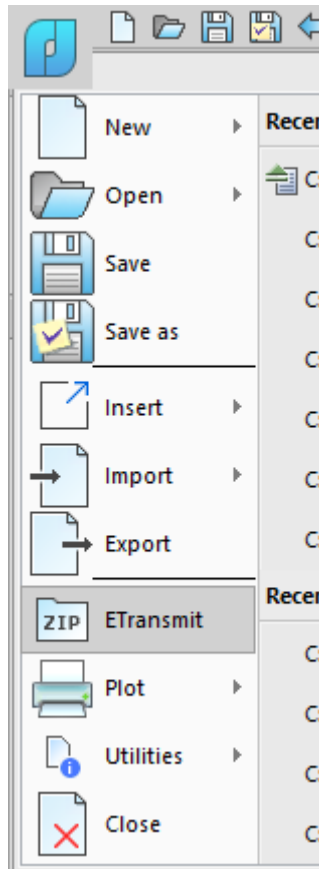


Fig. 45. The **ETransmit** command

A new window will display a list of transmittal elements including the current drawing, external reference, font, etc. (fig. 46). You can uncheck files you don't want to transmit:

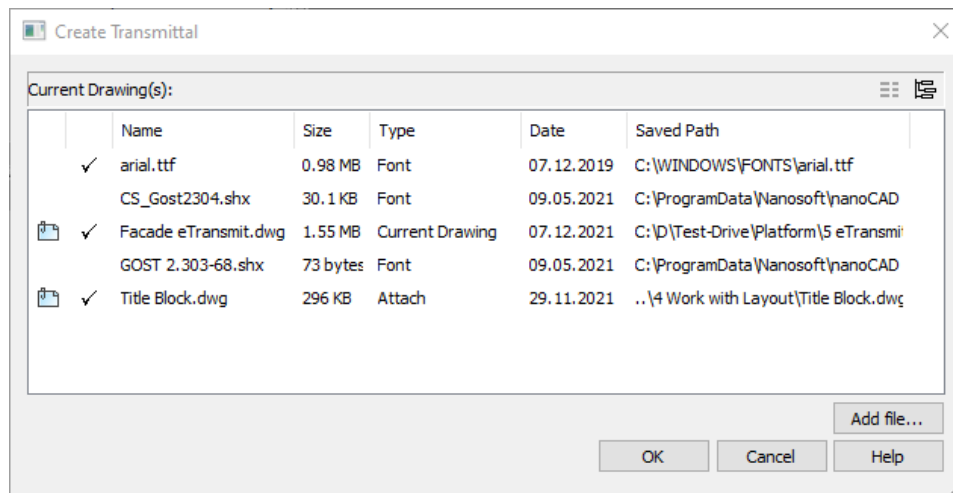


Fig. 46. The **Create Transmittal** window

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

5.3. Close the drawing file in nanoCAD.

5.4. Unzip the transmittal archive and open the drawing file (fig. 47 – 48):

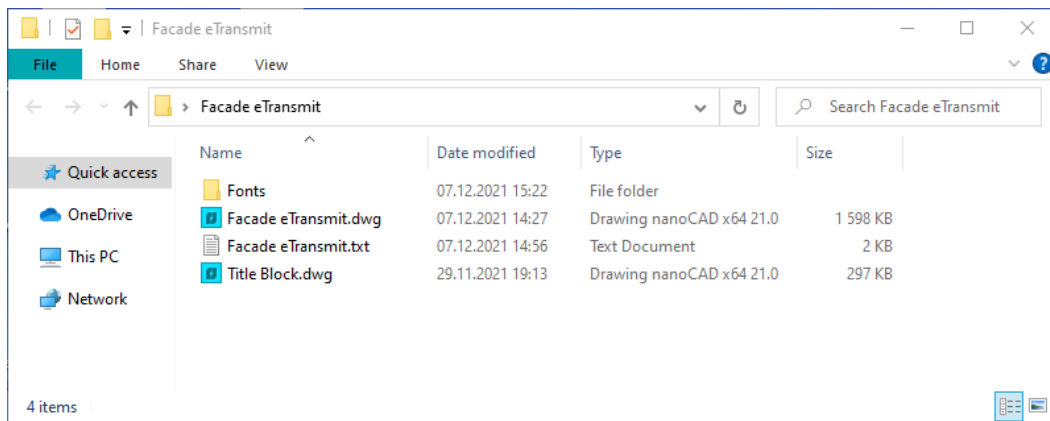


Fig. 47. Unzipped archive

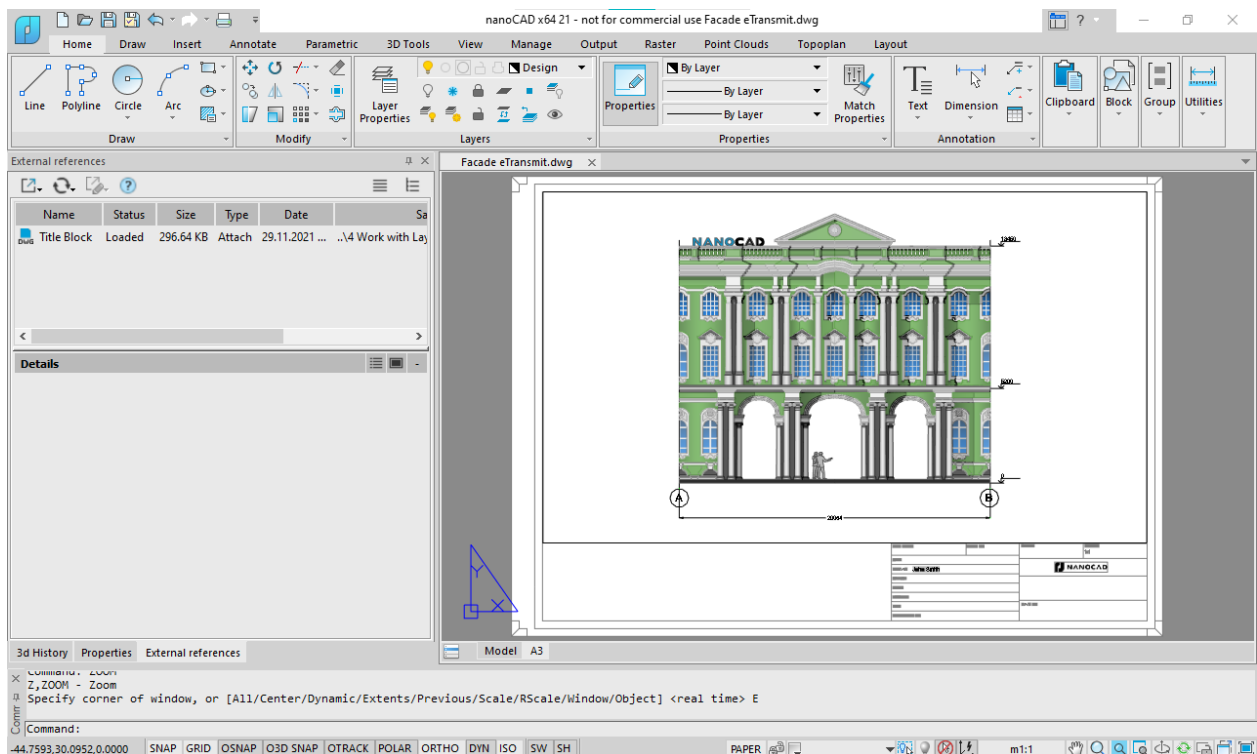


Fig. 48. Drawing file from the unzipped archive

The drawing file is displayed correctly with no elements lost.

Part 2. Unique Functionality of nanoCAD

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

6. 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 as convenient as possible.

By choosing the paper size and plotter, we can accurately align the image, while having a physical sheet of paper with dimensions, orientation, and print margins in front of our eyes. In addition, we can fit a drawing to the 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 the preview mode to see how plot styles are applied to the drawing.

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

6.1. Plot from the paper space to Internal PDF Printer (fig. 49).

Open an **A3** layout.

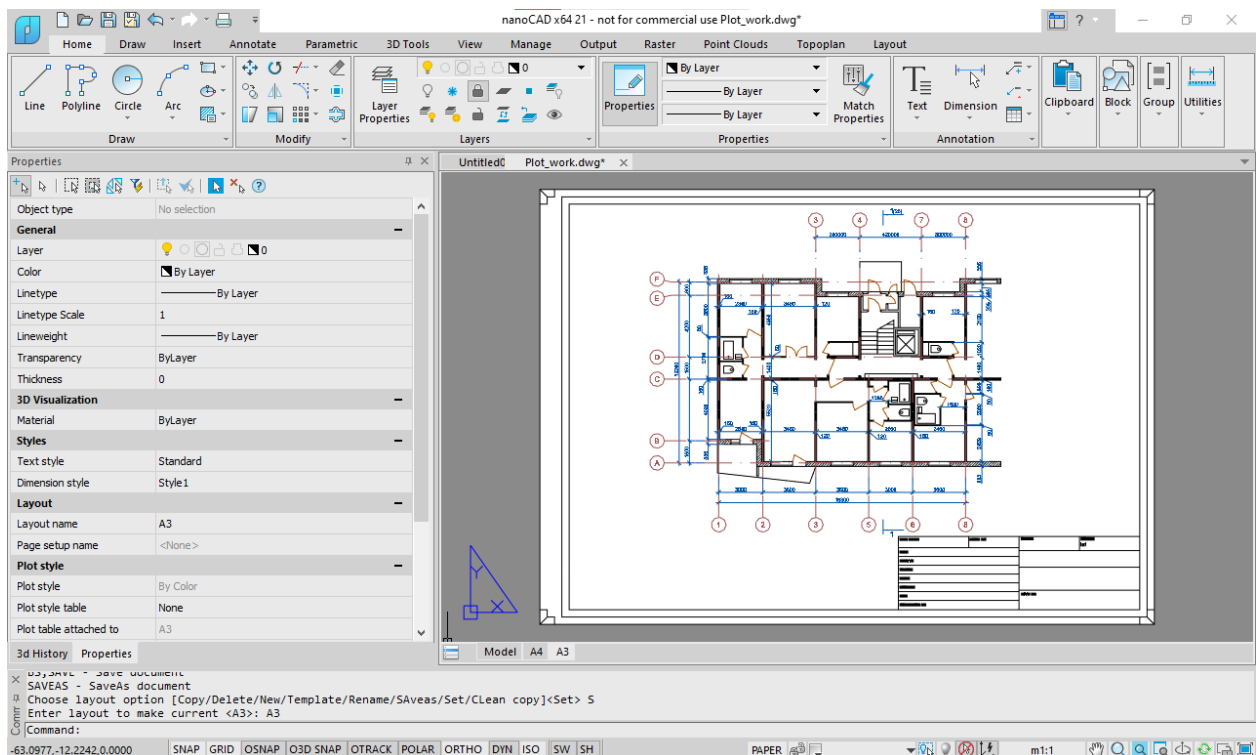


Fig. 49. Paper space

6.3. Click the **Plot** button in the **Quick Access** bar (fig. 50):

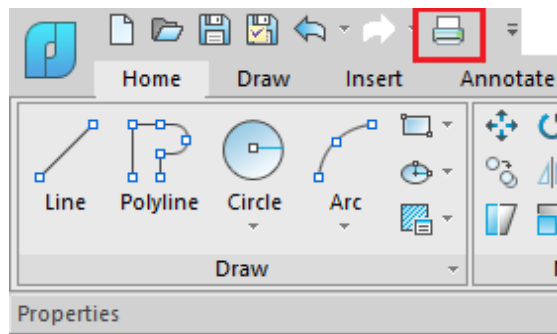


Fig. 50. The **Plot** command

6.3. Use the **Internal PDF Plotter**. Set **A3** paper size, 1:1 scale. Select the **Show Page Preview** option. Specify the **Plot Style table – monochrome.ctb** (fig. 51):

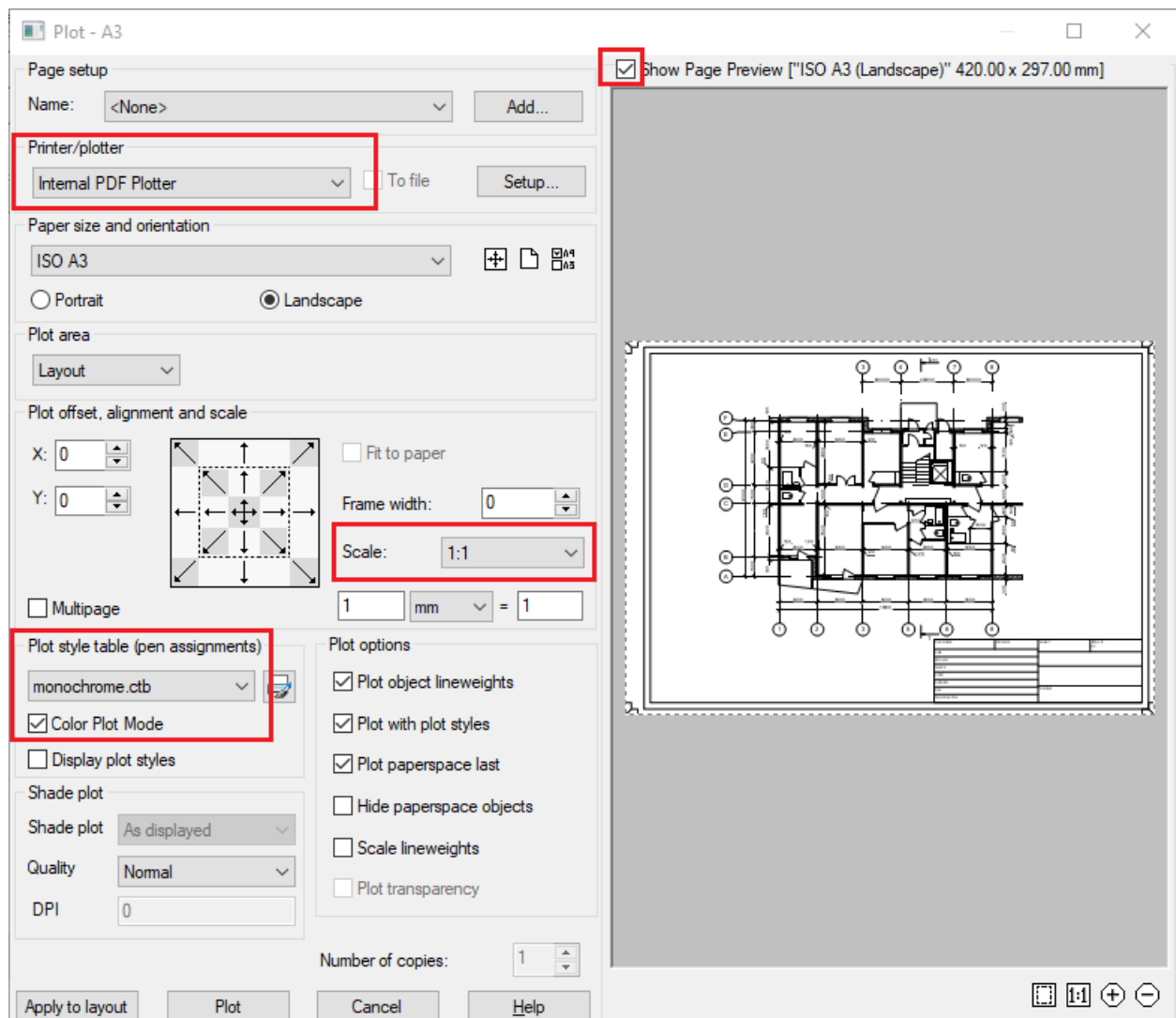


Fig. 51. The Plot manager

6.4. 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. 52):

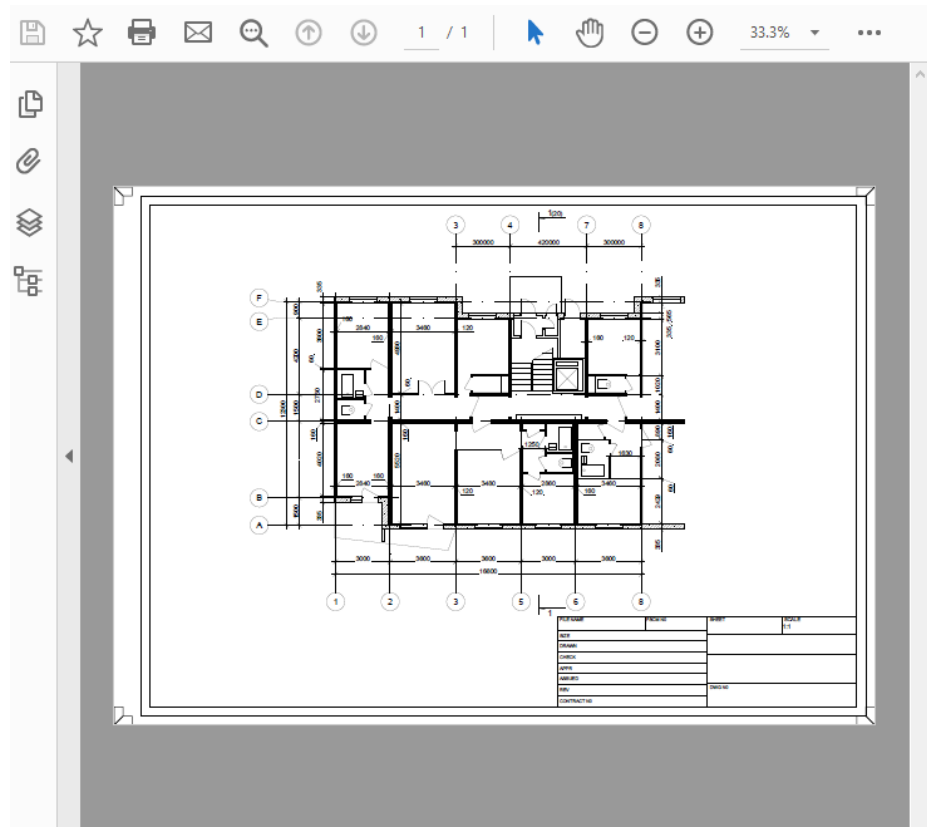


Fig. 52. Drawing in PDF

6.5. Align layout

Now we will plot the drawing on the physical printer. Go to the **Model space**, and choose a 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. 53):

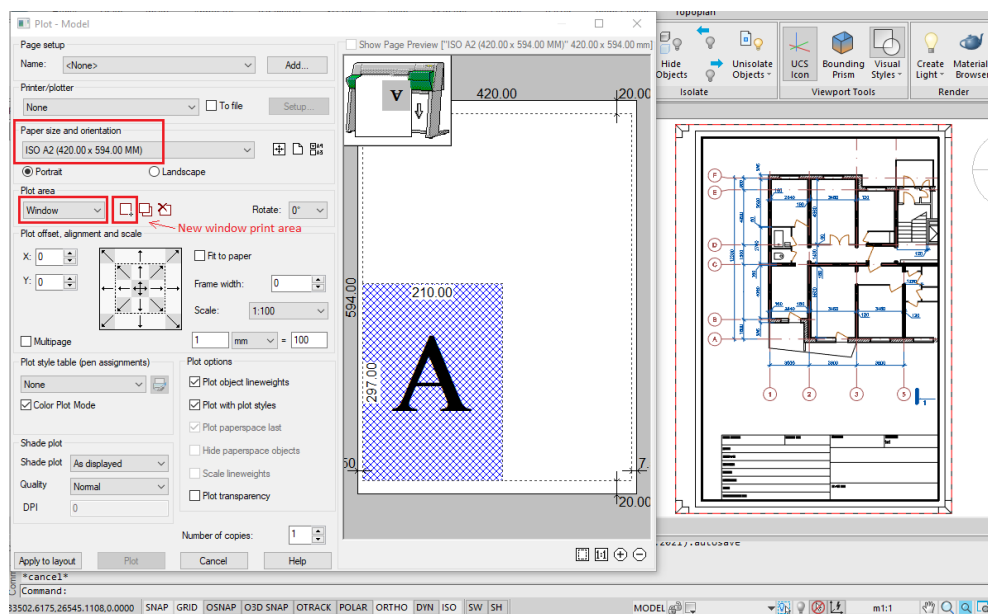


Fig. 53. Plot settings

Choose a 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. 54):

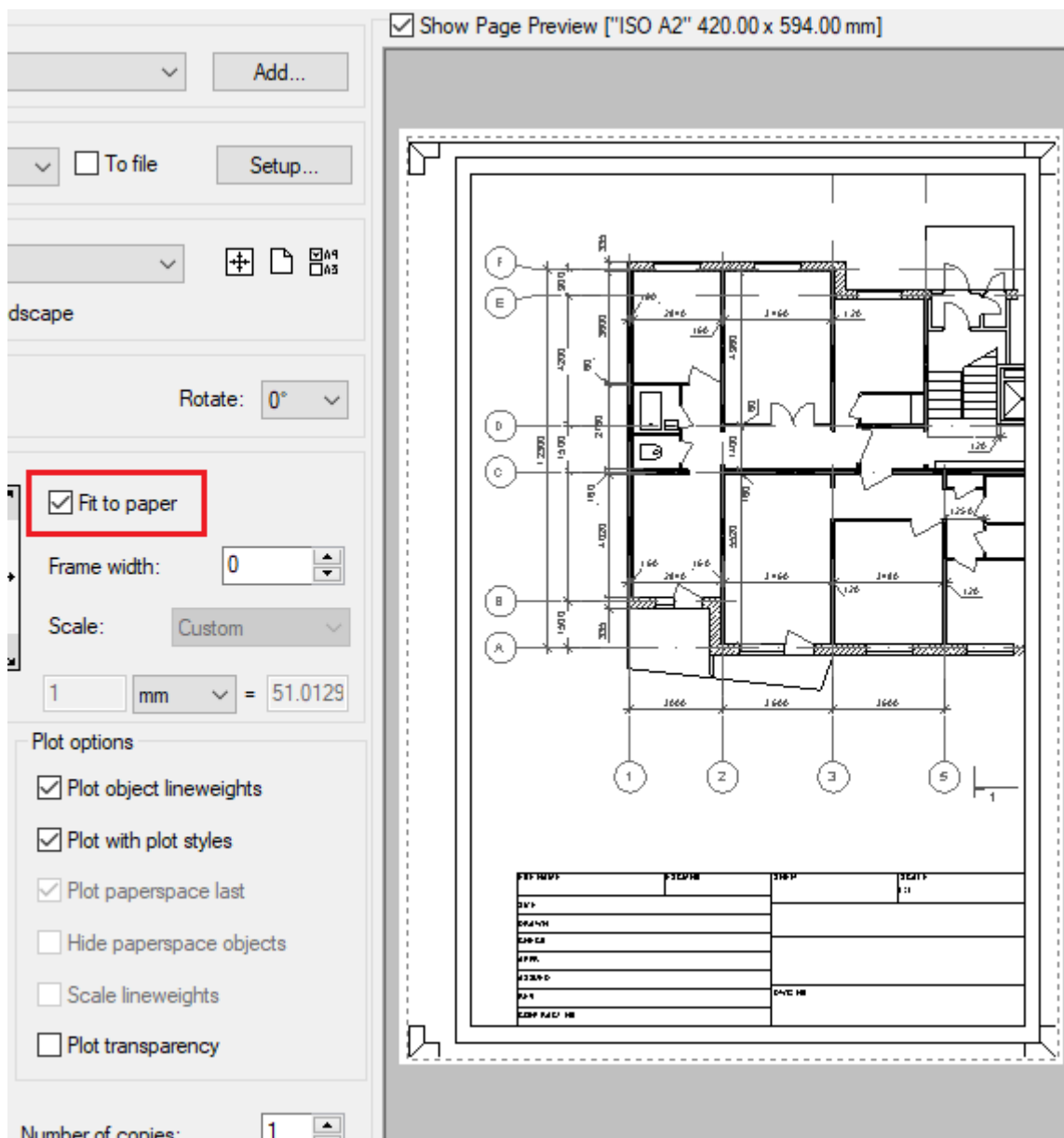


Fig. 54. The **Fit to paper** option

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

7. Drawing Explorer

The **Drawing Explorer** provides full information about all the drawing objects: graphic objects; block references, external references, raster images; as well as parameters of the drawing settings. The **Drawing Explorer** allows you to not only understand what objects the file contains, but also find them quickly in the drawing, select, zoom in, and delete them if needed. 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 the **nanoCAD Platform Test-Drive / 7 Drawing Explorer** folder.

7.1. Open the **Manage** tab and click the **Drawing Explorer** (fig. 55):

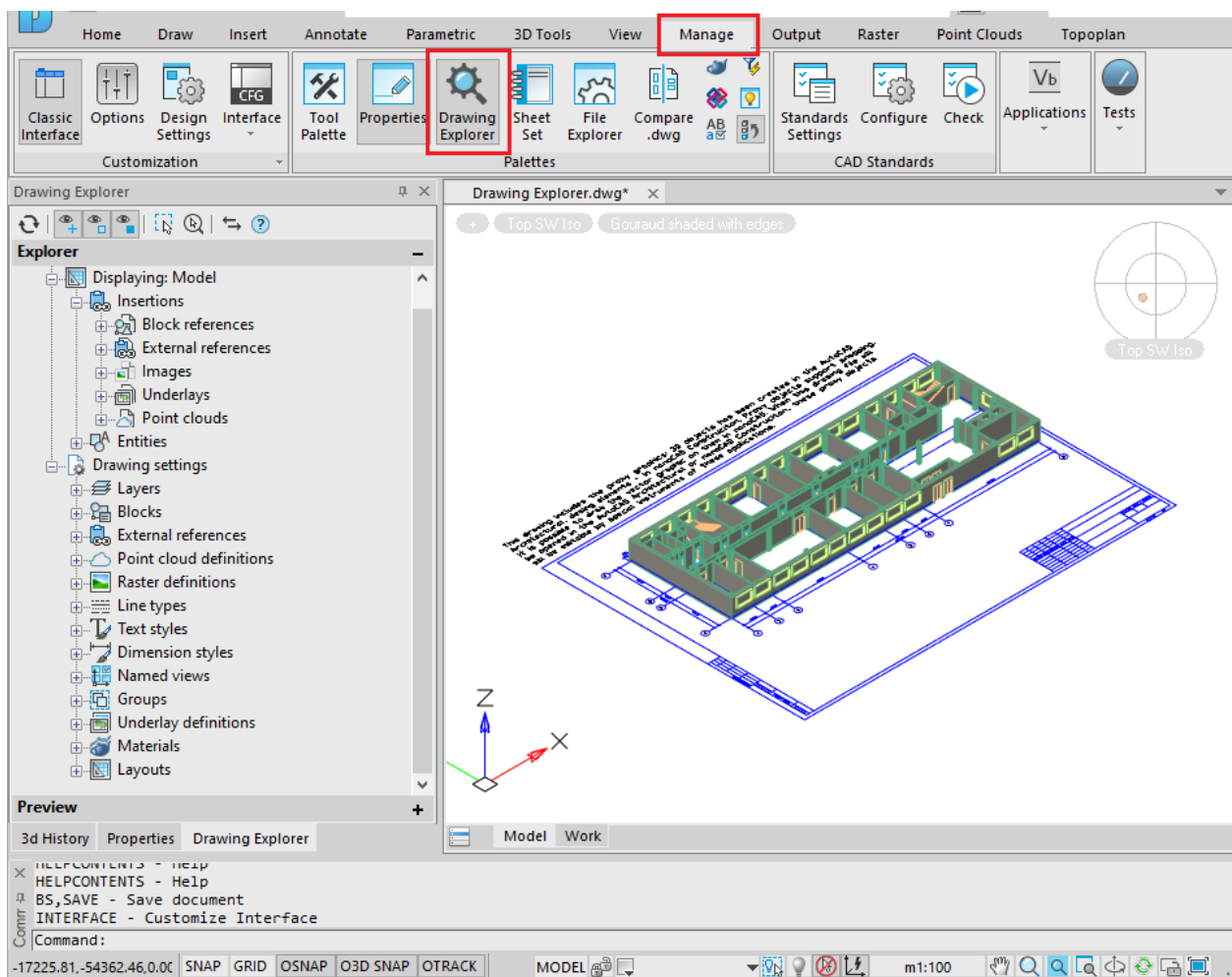


Fig. 55. Drawing Explorer

7.2. Specify the entities in the Drawing Explorer: **Displaying – Model – Entities**.

Open the **AecDbWall** list and select different objects from this list with a double-click. nanoCAD will display the selected objects (fig. 56).

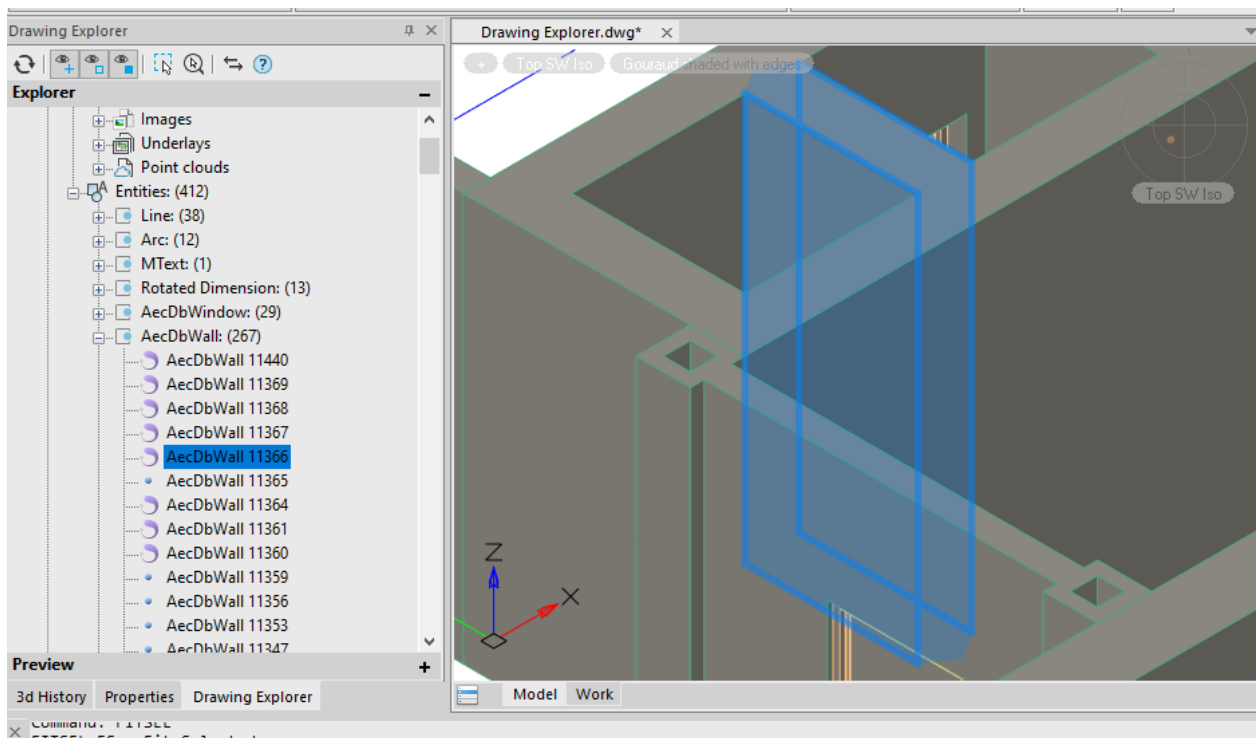


Fig. 56. Selected proxy object

nanoCAD provides the command set to work with proxy objects including their explode.

7.3. Open the **Drawing Settings** section in the **Drawing Explorer**. This section allows you to control the layers, blocks, styles, and layouts in the current drawing.

7.4. Open the **Displaying – Entities – Line** section, then draw a line anywhere in the drawing file. The line will appear in the **Drawing Explorer** (fig. 57):

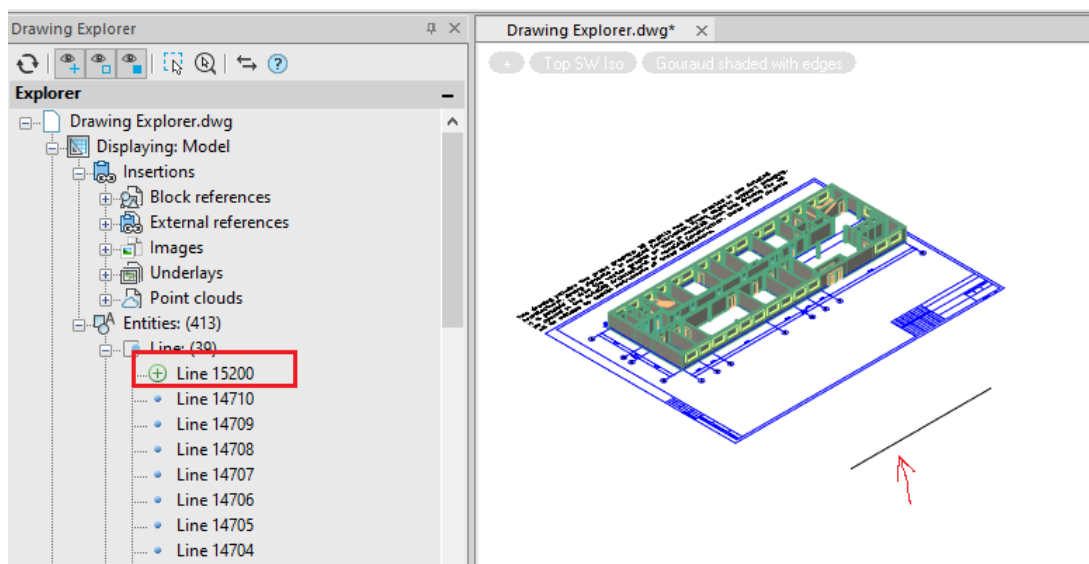


Fig. 57. A new line

Just like that, the **Drawing Explorer** allows you to control your drawing file.

8. File Explorer

The **File Explorer** allows customers to find elements of different drawing files and insert them into the current drawing without opening the file with elements.

8.1. Open nanoCAD and create a new drawing file.

8.2. **Manage – Palettes – File Explorer** (fig. 58):

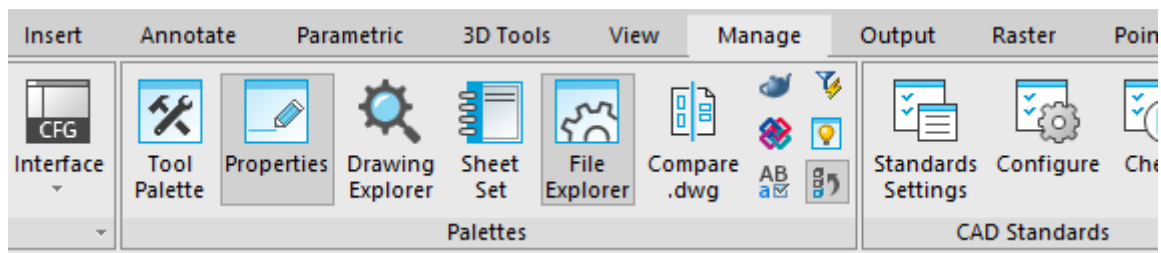


Fig. 58. File Explorer location in the Ribbon

Expand the **File Explorer** window as shown in fig. 59:

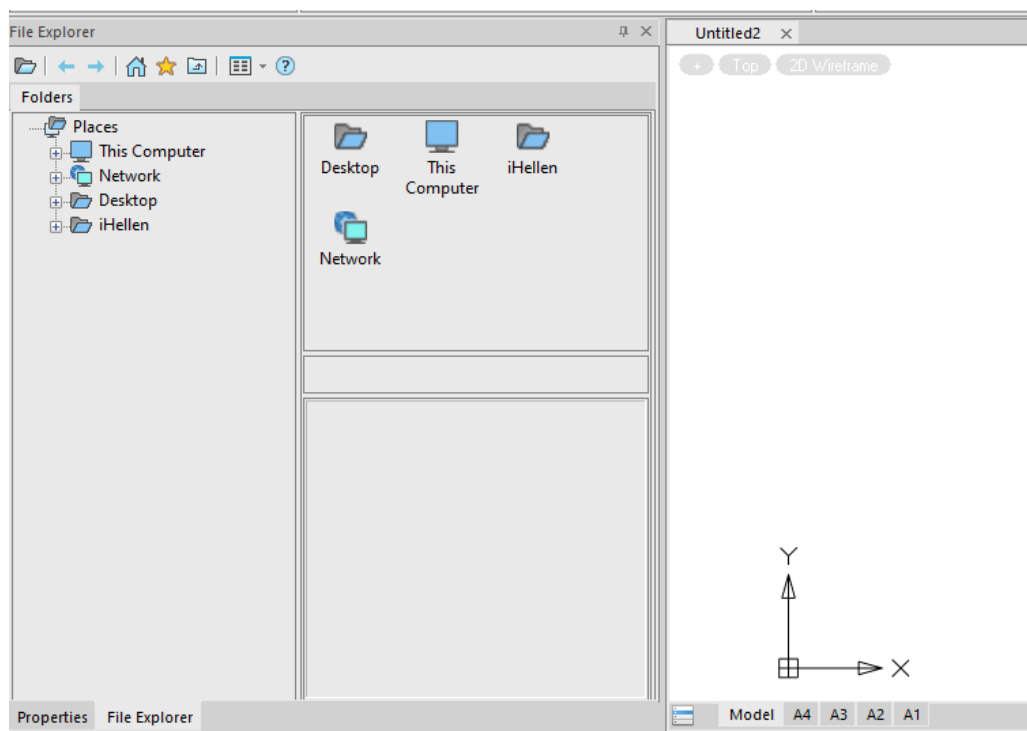


Fig. 59. Expand the File Explorer

8.3. Find the **Plot.dwg** file in the **nanoCAD Platform Test-Drive / 6 Plot** folder. Click **Blocks** (fig. 60):

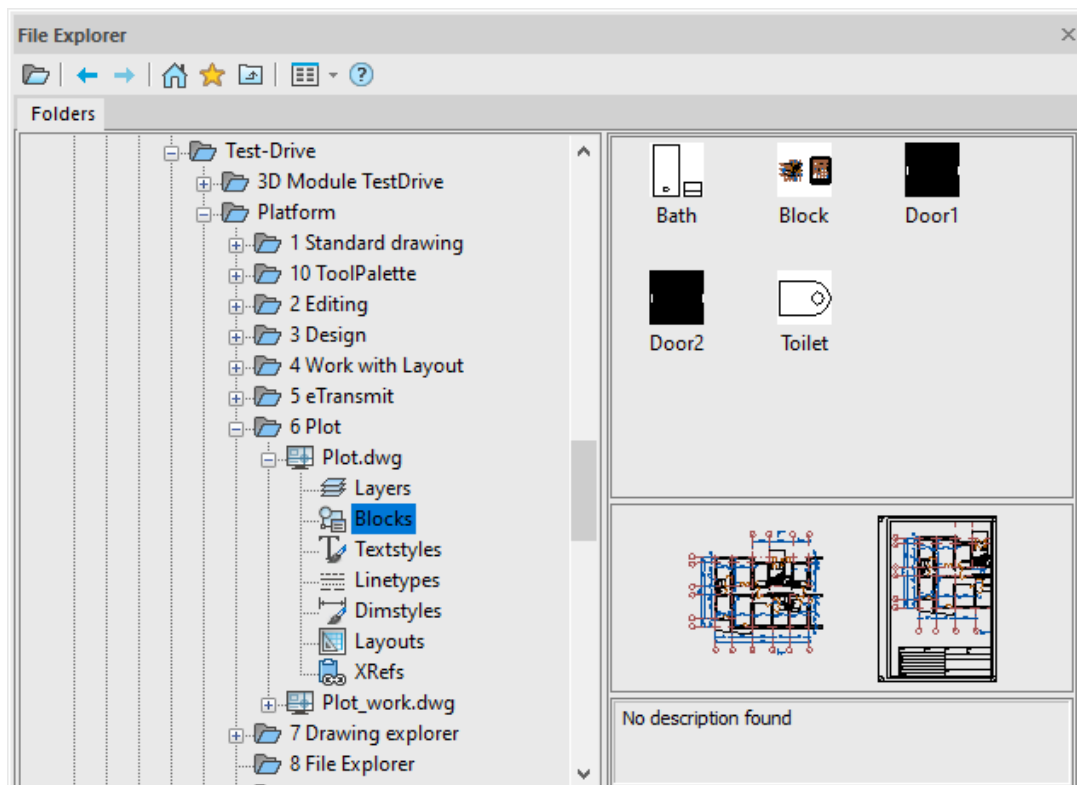


Fig. 60. Explore the Plot.dwg file

8.4. In the **Blocks** section select **Block**, right-click on it, and choose the **Insert block(s)** option (fig. 61):

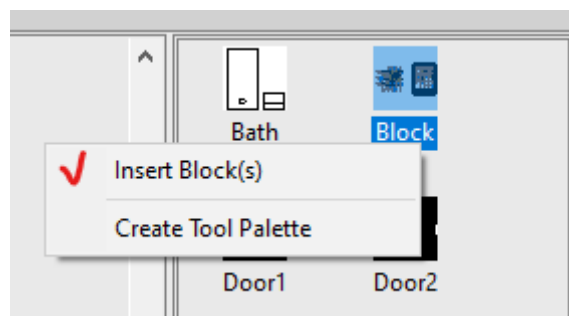


Fig. 61. Insert the block

8.5. Insert the block into the 0,0,0 location and click **OK**. After the insertion press the **Alt+0** combination or double click on the mouse wheel: it will show all the objects on the drawing.

8.6. Insert the A4 layout from the Plot.dwg file in the current drawing.

Now the **File Explorer** allows you to add blocks, layouts, external references, text styles, dimension styles, layers, and line types from other drawings to the current one.