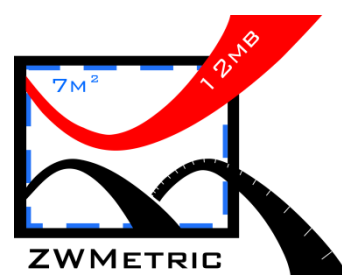


# ZWMetric 2018



Krzysztof Ruszyński  
Izabela Cholewa

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# ZWMetric 2018

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## 1 Description

ZWMetric is used to create cost calculations by the means of preparing data for bill of quantities, areal, linear and quantity occurrence. The application is made for designers, architects and calculation engineers.

ZWMetric works with ZWCAD 2018 Professional.

## 2 Installation

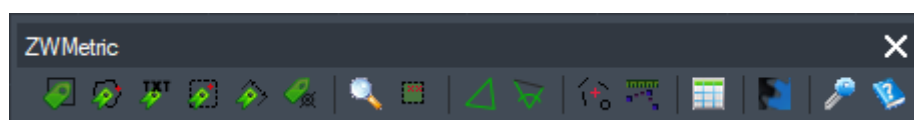
Installation must be completed on an account with administrative privileges.

Application installs automatically after running the downloaded installation package.

The Default installation path is C:\Szansa\ZWMetric\2018. It is possible to choose a different installation path, however it is not recommended. Installing the program in the folder Program Files on the operating systems such as Windows Vista, Windows 7, Windows 8 and Windows 10 can cause major implications because of the built in User Account Control in the given operating systems. The User Account Control can block numerous functions of the program.

After correct installation of ZWCAD, the application ZWMetric should load automatically.

ZWCAD should display a toolbar similar to the one below:



If for some reason the application menu does not appear, it can be loaded manually. You can load it manually by following the instructions listed in the chapter 7.

### 3 Technical support

Technical support is available from 8am to 4pm from Monday to Friday, we are more than happy to answer any questions by phone or e-mail.


E-mail: [pomoc@zwcad.pl](mailto:pomoc@zwcad.pl)

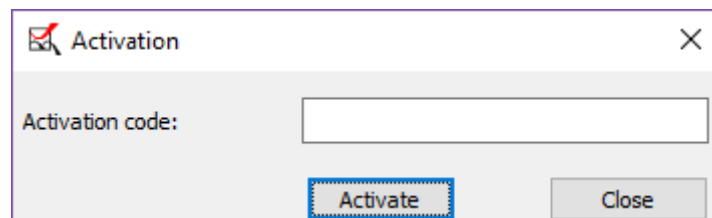
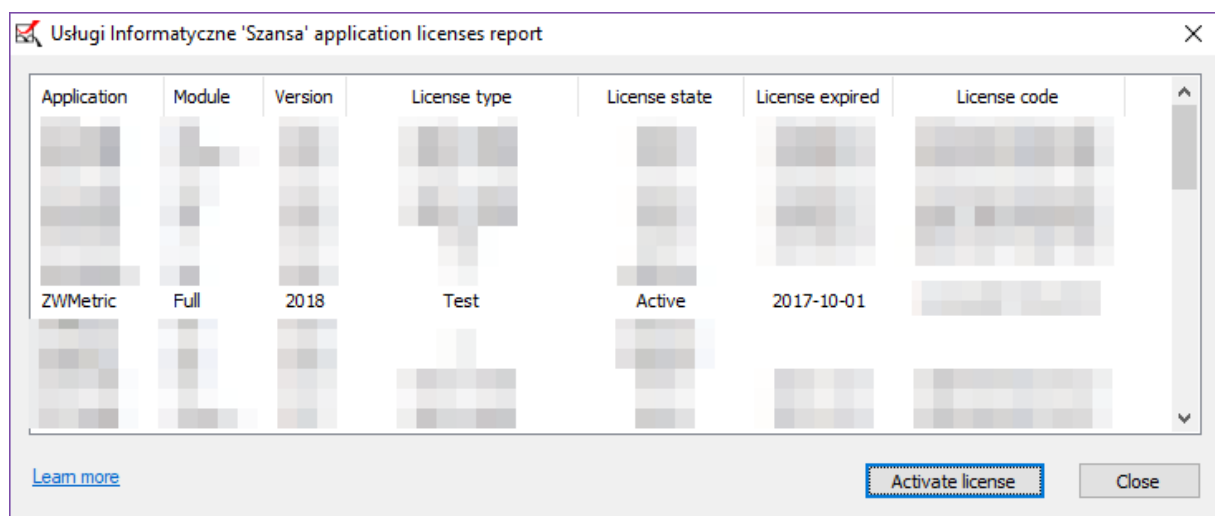
Phone: 33 474 04 03

## 4 Activating ZWMetric

Activation must be completed on an account with administrative privileges.

Once the trial period of 30 days runs out, a license will be needed in order to use the program. After receiving the payment, an e-mail with an activation code will be sent.

To activate application you need to run the command AktywacjaZWMetric, you can do this by clicking the following icon:  or running “**License**” from the Start Menu: **Szansa -> ZWMetric**.



In the field *Activation code* you should write the code which was sent to you in the e-mail. Afterwards, click the button *Activate*. When you open ZWCAD, application commands should be available and ready to use.

If the application does not run, or activation will fail, please go to the path C:\Szansa\ZWMetric\2018, or to a path in which you have installed the program, find the file called Aktywator\_2018.exe. Right click on its icon and choose “Run As Administrator”.

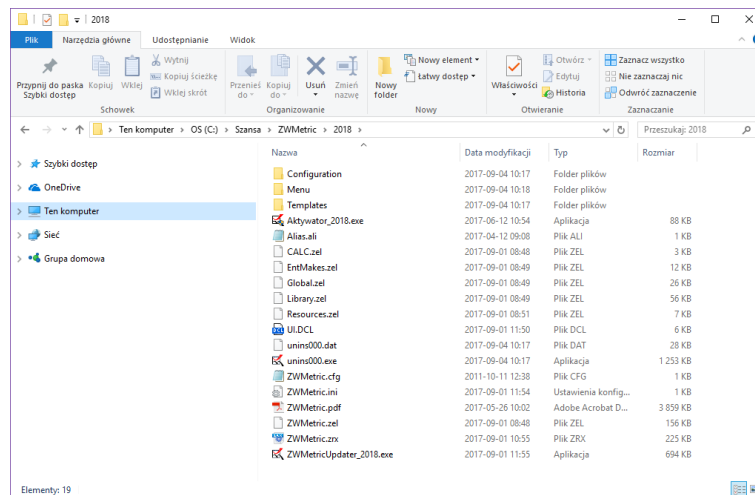
## 5 Defined commands

### User-defined function shortcuts:

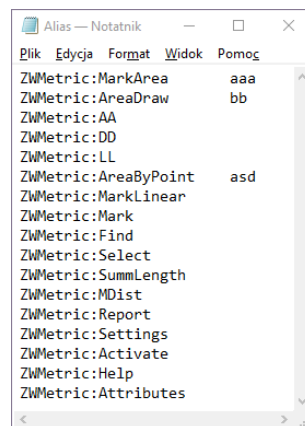
ZWMetric lets you input your own shortcuts of ZWMetrics' commands.

The file Alias.ali can be edited according to your own needs. It can be found here:

C:\Szansa\ZWMetric\2018



The file can be run via notepad and you can enter your own command shortcuts:

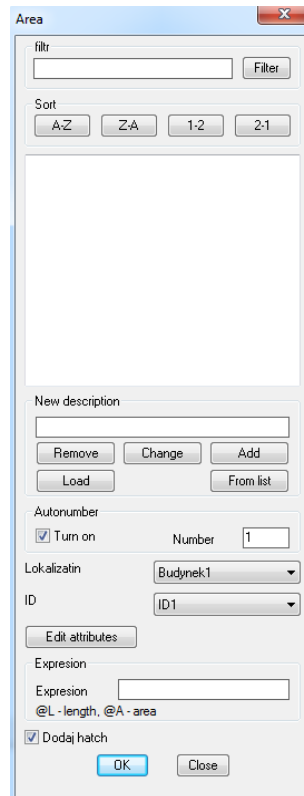


Once finished, close and save the file. All the created shortcuts will be accessible within ZWCAD.

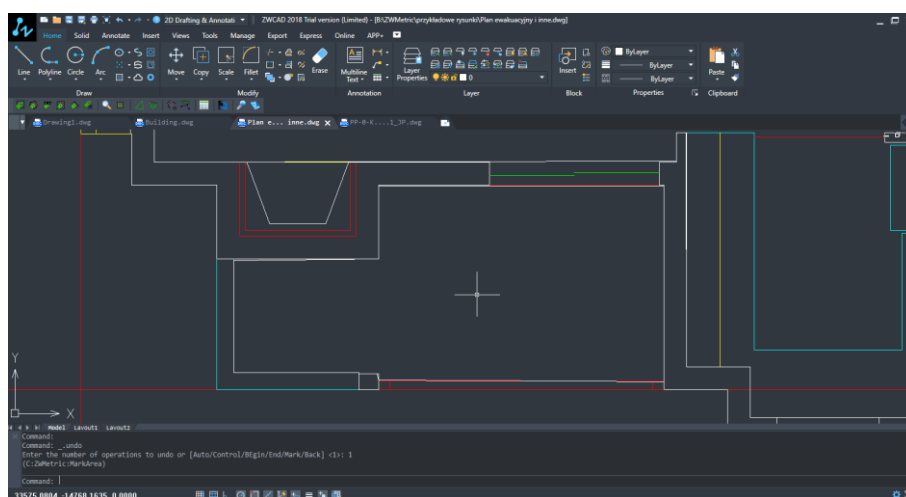
## 5.1 Area measurement

Command: ZWMetric:MarkArea

This command lets you mark an area in a drawing. In the window below, it is possible to add a description as well as additional settings.



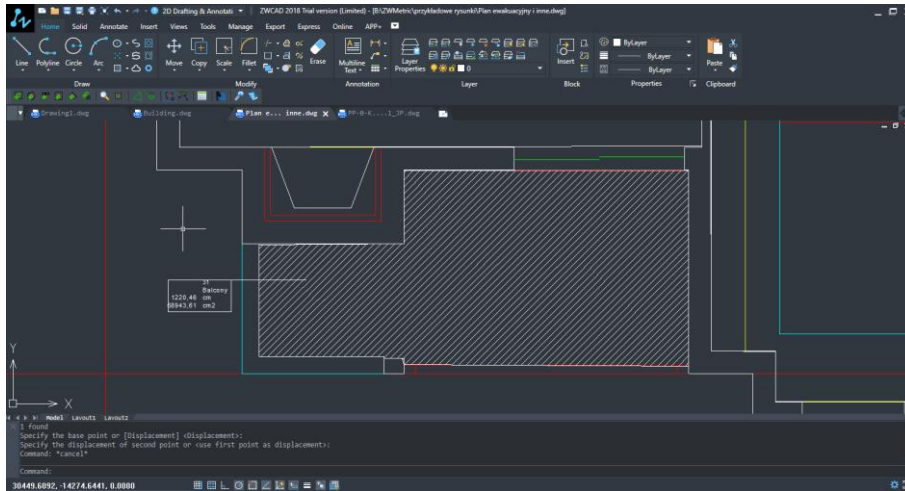
Next, application will ask User to select external loop of area, and then internal loops (islands) which area will be excluded from calculations. Loops have to be polyline objects.



Next user will be asked to draw description line. On the end of description line, inserted will be description block containing selected description text and numeric data: Area of selected objects, its circumference and optionally automatically added number, ID, localization,



expression. If marked is field Add Hatch. There will be also add hatch inside external loop or selected area.

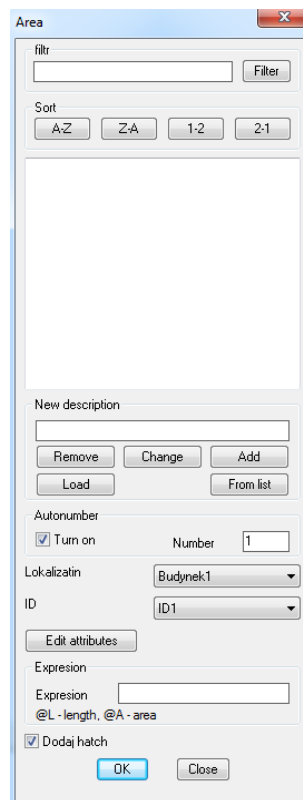


## 5.2 Area Outline

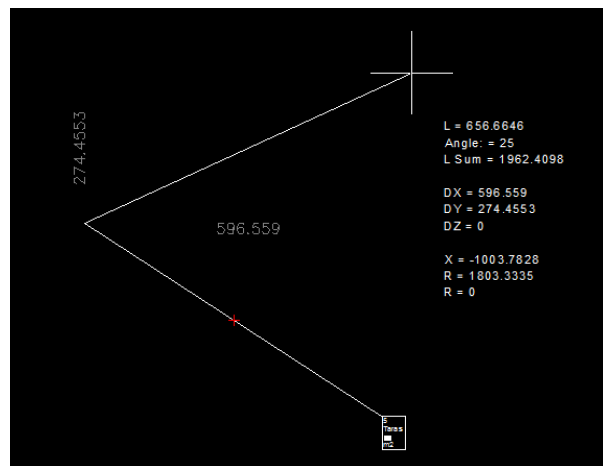
Polecenie: ZWMetric:AreaDraw

This command is used to draw an area by clicking on points of an object. Once completed, an area with hatching and a text block will appear.

Once turned on, the program will ask for the name of an area as well as localization and hatching parameters.



The parameters that were entered need to be confirmed by clicking OK. Afterwards specify the points.



Data will appear next to the cursor:

L – Length

Kαt – angle

Sum L – Length sum from starting

DY – raise in the Y axis

DX – raise in the X axis

DZ – raise in the Z axis

X - coordinate X

Y – coordinate Y

Z – coordinate Z

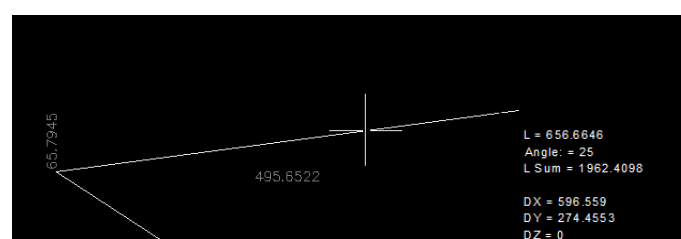
In the vertical and horizontal line, after X and Y axis, you can see the length.

In the command bar you can see the elements that can be selected by using an appropriate shortcut. A value can be added to each and every available setting.

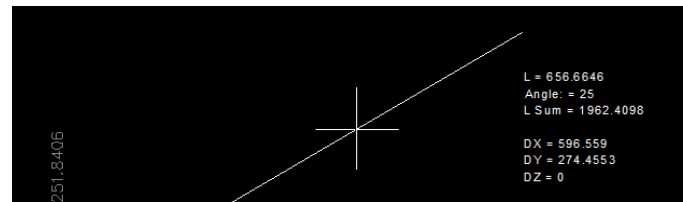
Specify the next point or

[Length/Angle/X/Y/MX/MY/Arc/Back/Type/Close/Settings]:<Length>

Length is set as the default parameter. It is possible to add more values by entering them afterwards.

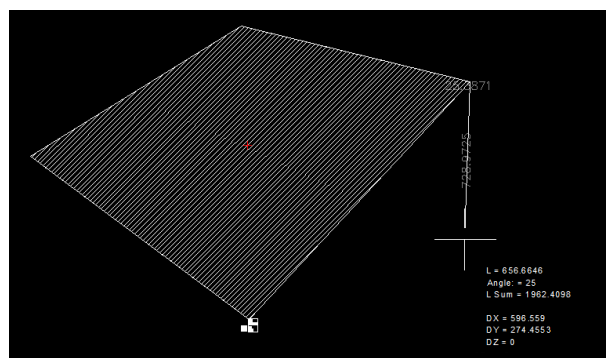


Until an angle has been added, the line with set length can be moved.



Once an angle has been added, the line will no longer follow the cursor.

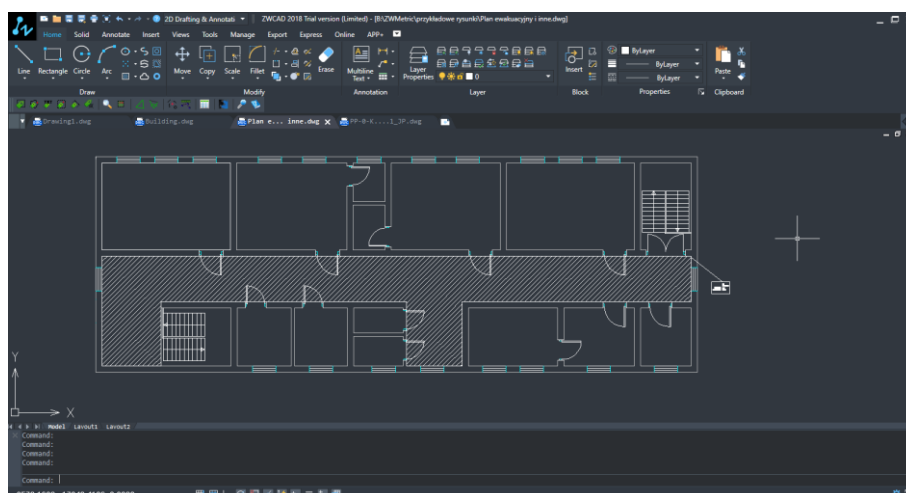
When hatching of an area is active, it will be displayed in following areas when clicked on.



The block will be visible in the starting point of an area.

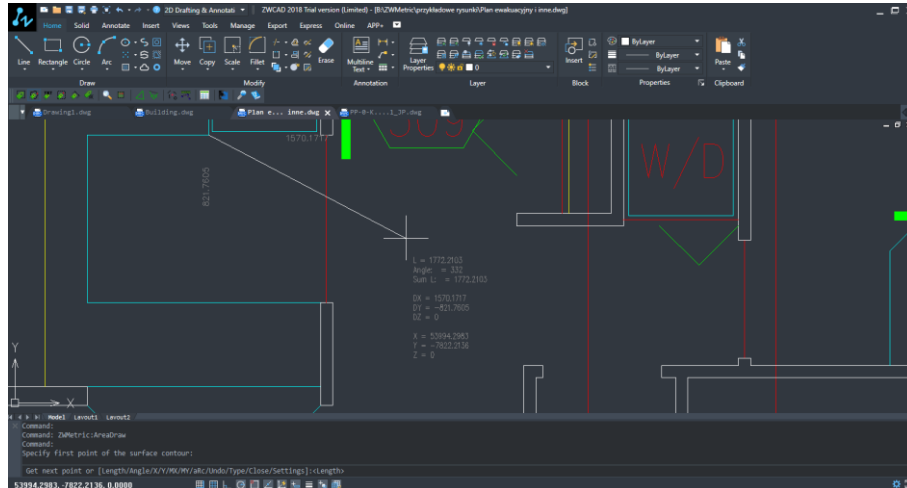
If the target area is selected, it is necessary to confirm by pressing Enter. Once confirmed, specify following points on the descirption line. Once finished press Escape.

By using this command we can check defined parameters of areas that are not regular shapes.

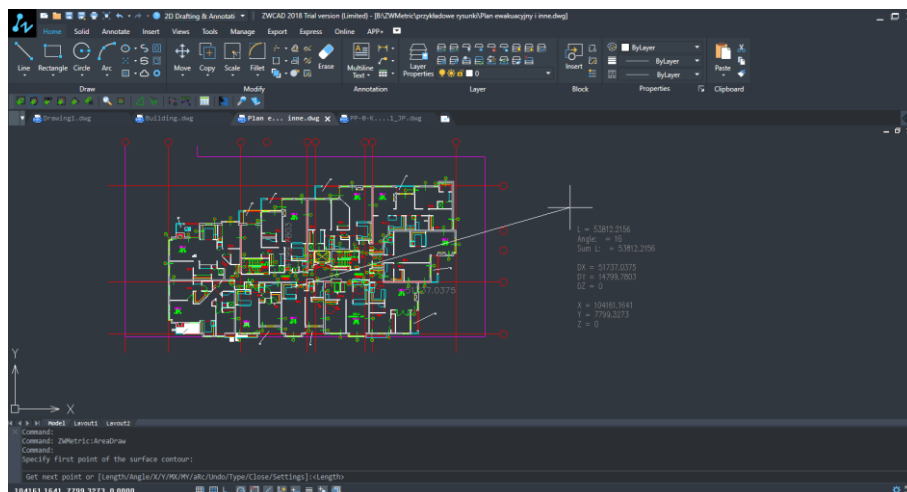


When using the function Area Outline parameters visible next to the cursor that can be used will adjust to the view that we are working on.

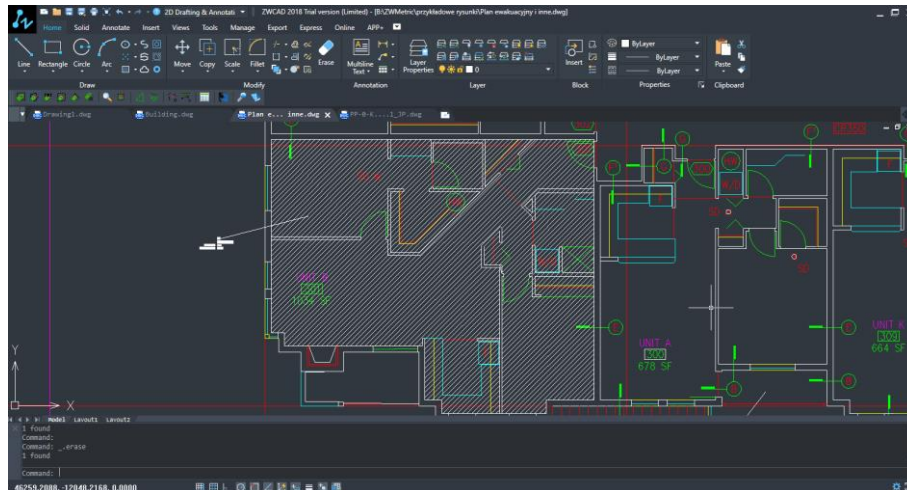
By zooming in, the the description will be adjusted accordingly.



When zooming out, the view will be maximized accordingly.



End result of Area Outline displayed on a drawing of a flat with irregular shapes:



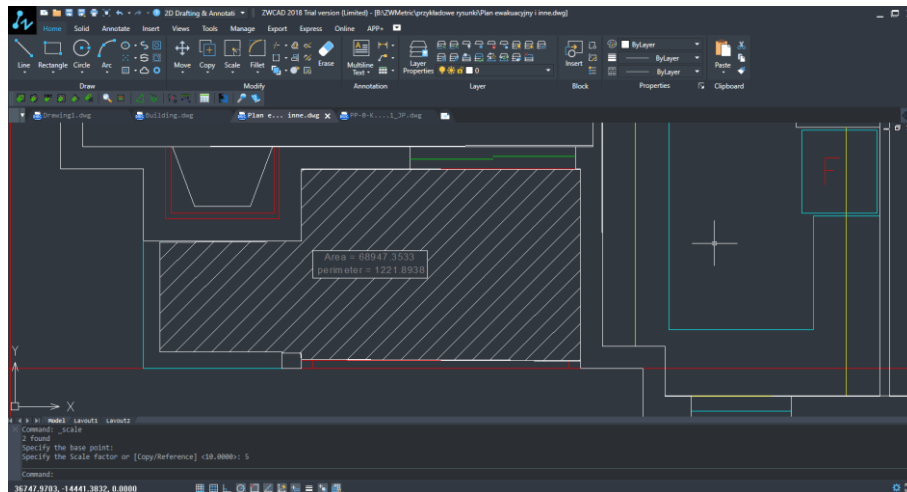
### 5.3 Area Marking

Command: ZWMetric:AA

The function allows you to input an area value in a description block defined on an area by points.

The area should be selected in the same way as in the previous function.

Once finished, confirm by Enter and specify next points of the description line.



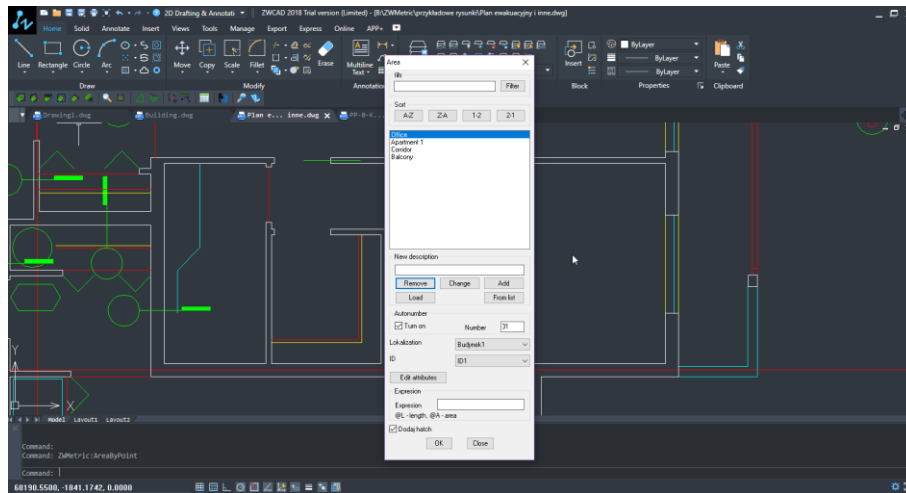
The text settings in the description block and background are available in the settings.

### 5.4 Area by Point

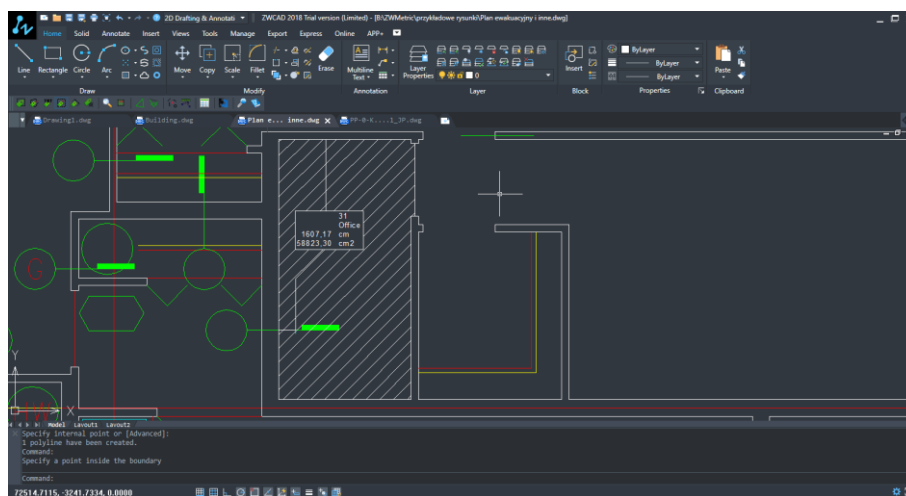
Command: ZWMetric:AreaByPoint

By using the function Area by Point you can define an area by specifying a point within an object that we would like to describe.

Once activated, a window will appear where you will have to define the name of the area, autonumeration and hatching.



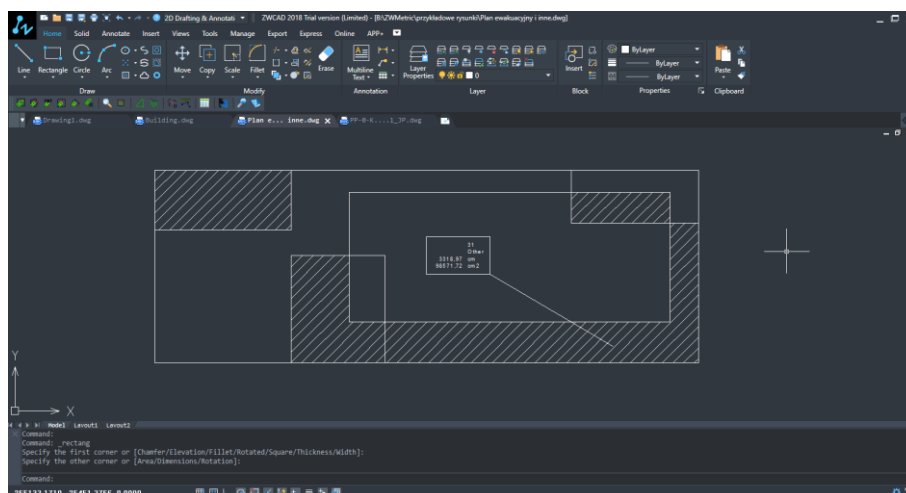
Afterwards, specify a point within a closed area which is going to be described.



The command lets you specify more than one area.

On the example below we can see a few closed areas.

When activated, Area by Point will let you specify points within closed areas. Once done confirm by pressing Enter.



It is necessary to specify a desired place for your description block.

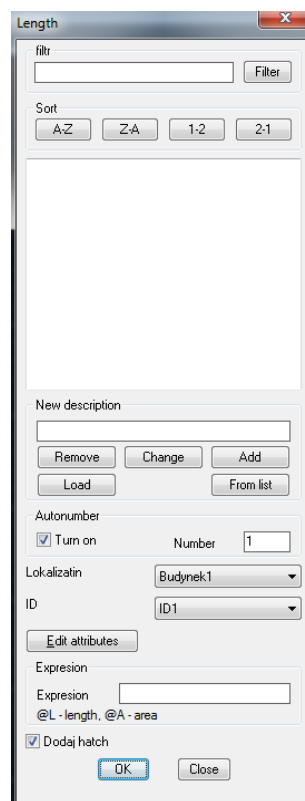
The size of description and desktop properties can be found in the settings.

## 5.5 Line Measurement

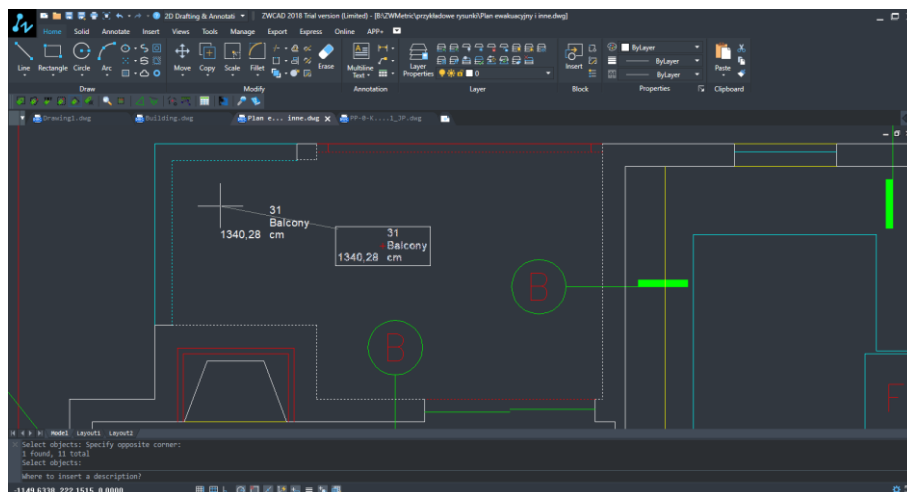
Command: ZWMetric:MarkLinear

This function works analogically to the function Area Measurement with one difference. Only the lines will be calculated, not the whole area of a selected object.

Once the function is activated, you need to define the name.



Now choose next objects as well as the insertion point of the description line.

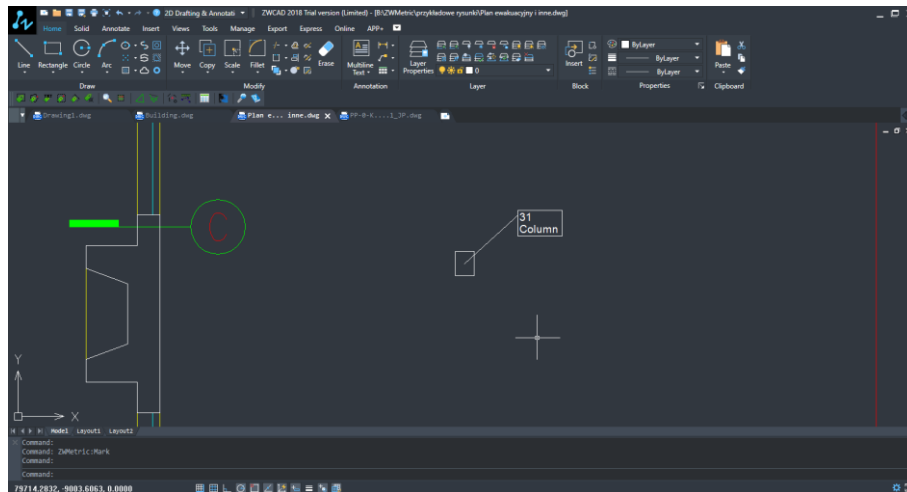


When you insert a descriptive line at the end is inserted description of the object taking into account its circuit.

## 5.6 Objects Description

Command: ZWMetric:Mark

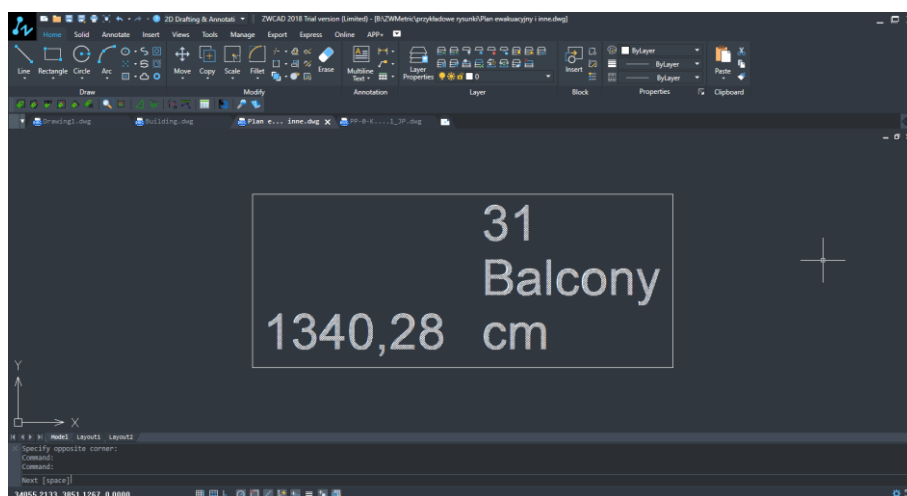
Function inserts description in selected points, optionally it can be automatically numbered.



## 5.7 Find

Command: ZWMetric:Find

This function find all description blocks where description attribute has the same or similar value as selected description text. After find such block, view is centered to description block. After press space found will be next elements with the same description.



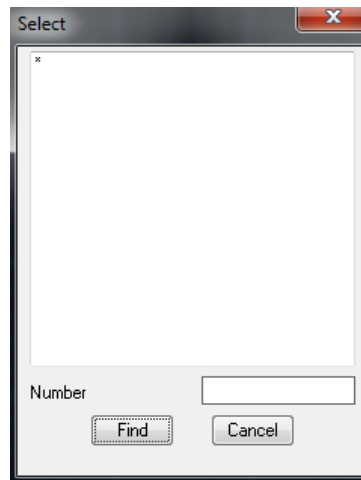
By selecting the element name and clicking the Find, program moves the item view.



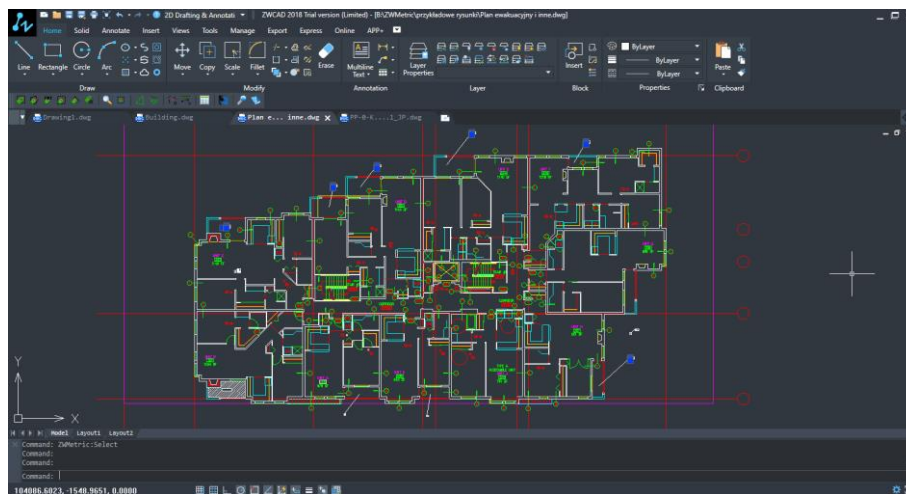
## 5.8 Select

Command: `ZWMetric:Select`

Selects all description blocks where attribute description is the same as selected by the User.



When you select an item and click `Find`, the program selects all items in the drawing area indicated by the user.



## 5.9 Draw a triangle by specifying distances of sides

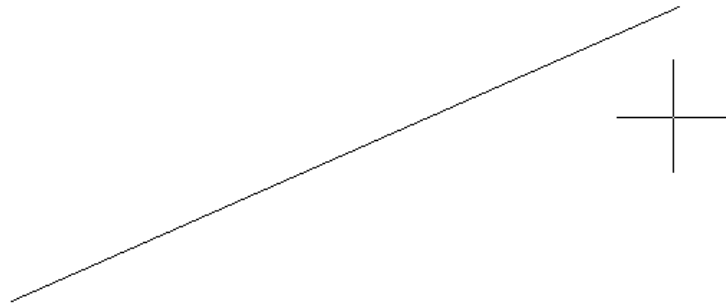
Command: `ZWMetric:Triangle`

This function lets you automatically draw triangles of specified sizes, as well as giving you the option to fit the object to an existing shape.

Once the command has been activated, specify the starting point of the triangle and its direction.

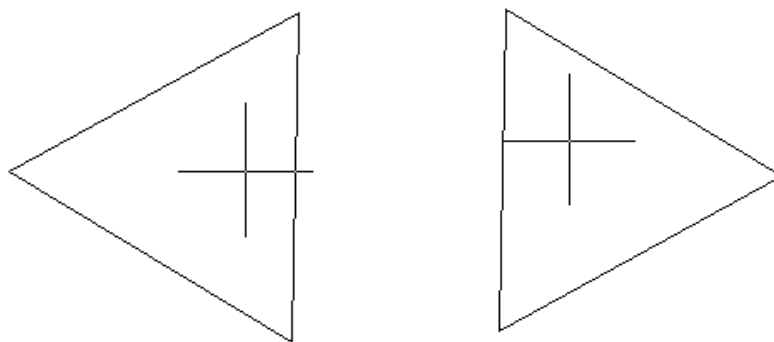
Now specify the distances of following sides.

The size can be defined by entering a value in the command bar or by using the cursor.



Now specify distances of next sides.

The size can be defined by entering a value in the command bar or by using the cursor.



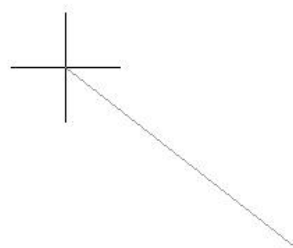
Once side distances are entered, choose a direction of the triangle.

#### 5.10 Draw a triangle by specifying an angle and length of two sides

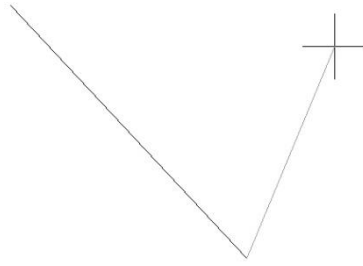
Command: `ZWMetric:Triangle:DDA`

This function is used to creating a triangle with an angle and length of two sides of your choice.

Once activated you will have to specify the top of the angle and the direction of the first side of the triangle.



Now enter the length of the first side, an angle and the length of the second side.



The angle needs to be entered in degrees or you can choose the function Measure from the toolbar. After typing in the shortcut “Z”, you need to determine the start and end of two lines in between which the angle will be measured.

Once all data has been entered, the last side of the triangle will be added and by using the cursor you should choose the direction of the triangle.

### 5.11 Sum of length

Command: `ZWMetric:SummLength`

User selects objects, then application calculates sum length of all lines, polylines, arcs and circles.

```
x Selected 40 Objects
Sum of objects length = 1565.4453
```

### 5.12 Mdist

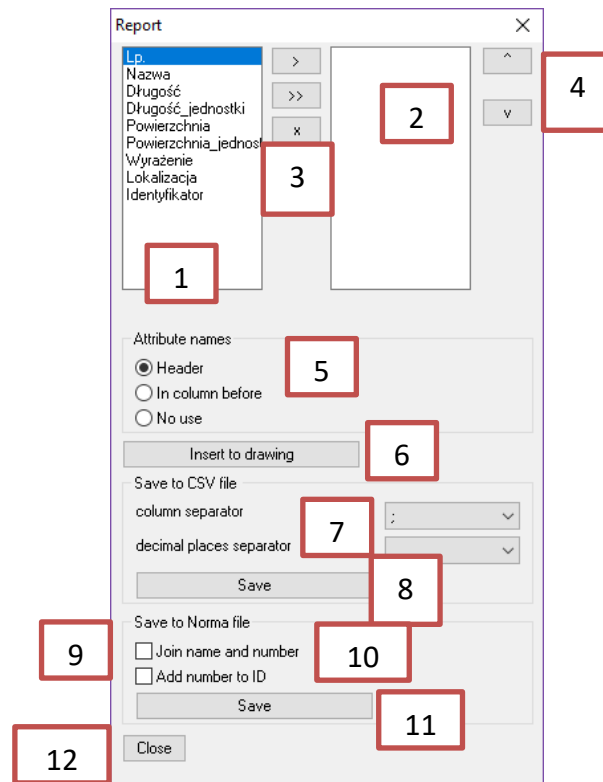
Command: `ZWMetric:MDist`

User pick points, then application calculates and display in command bar sum of all distances between picked points.

### 5.13 Report

Command: `ZWMetric:Report`

With this function, you can create a report of your measurements.



Report window.

In the window shown above we can see:

1. List of all attributes defined in selected block.
2. List of all attributes names, which will be considered in created report
3. Button which lets User to select attributes to report
4. With this buttons, You can decide order of columns.
5. Options to define, where will be headers of columns in report
6. After click this button, report will be inserted into drawing.
7. Settings to save data to text file. They let user to decide which mark will be columns and decimal places separators in saved file.
8. By this button You can save report data in external text file (with extension CSV)
9. Setting to define if save to Norma file format will be with number and description join in the same column.
10. Setting to define if save to Norma file format will be with number and ID join in the same column.

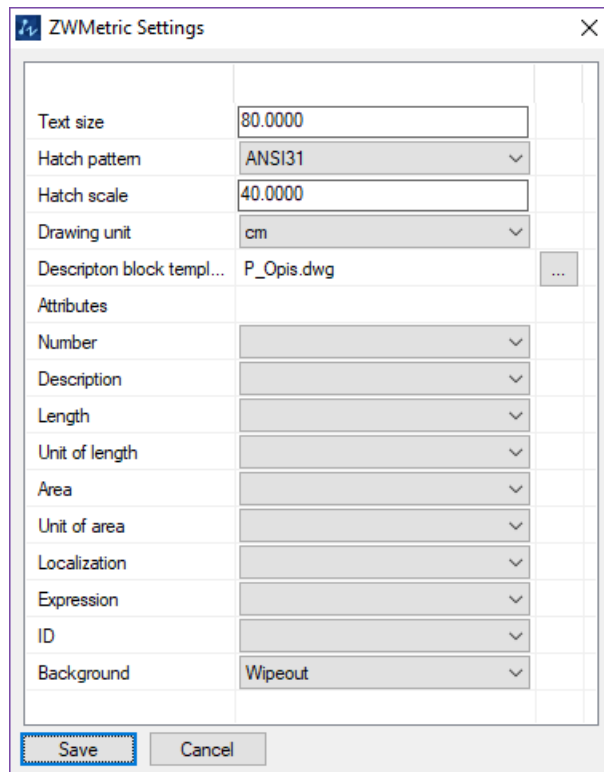
11. By this button report will be saved in external text file with format corresponding with application Norma.

12. Button to close report window.

## 5.14 Settings

Command: `ZWMetric:Settings`

This command lets you change the settings of ZWMetric.



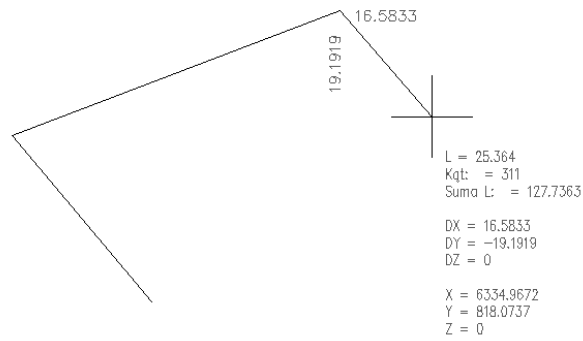
*Settings window*

Available settings include:

- Text size – by this setting, User can define size of description.
- Hatch pattern – User can select one of predefined patterns which will be used in new created markings.
- Hatch scale - scale of fulfillment used to describe areas.
- Drawing unit – selected here unit will be add in description block. Unit will be only set in description, there is NO any calculation between units, only name of unit will be set in description.
- Description block template – in external file, You can define block with own attributes, by this setting, You can choose which block will be used in descriptions
- In next rows, User may select which attributes of selected description

## 5.15 ZWMetric:LL

This command uses parameters from the function "Area Outline" and by using it we can create more lines without hatching and description blocks. To carry out the function refer to the "Area Outline".

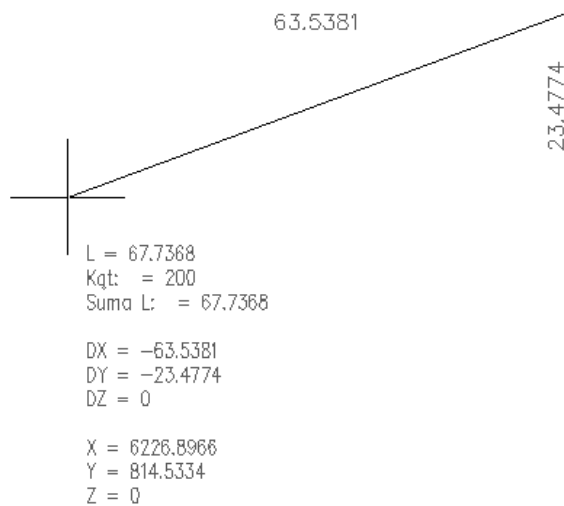


## 5.16 ZWMetric:DD

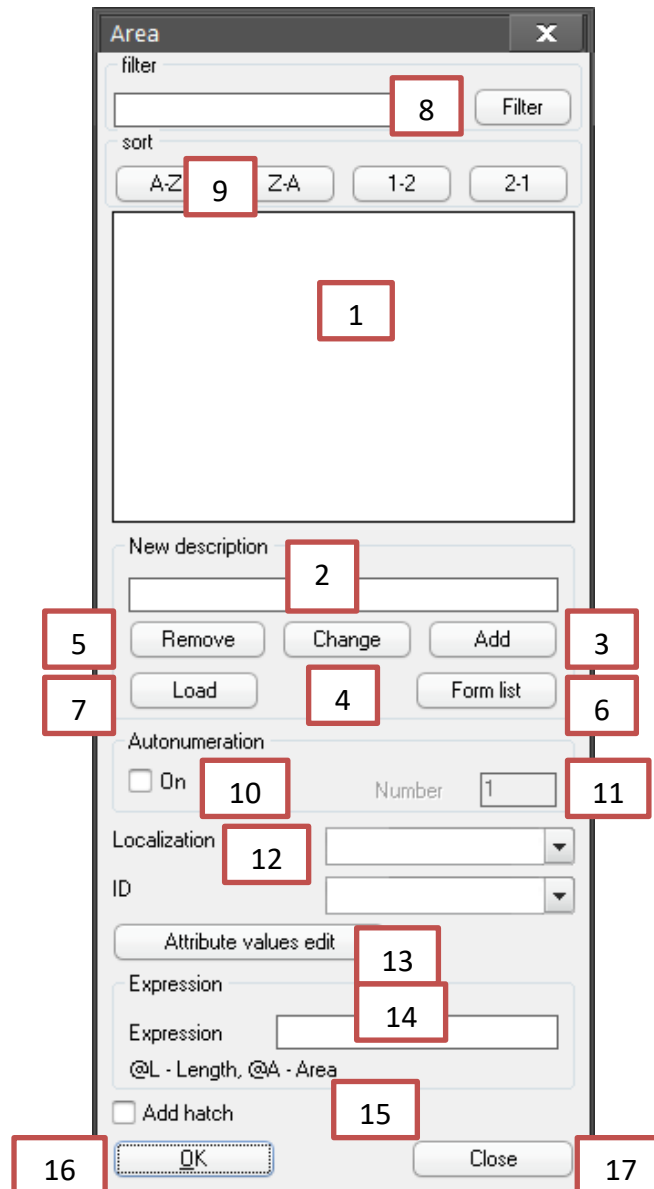
This function lets you measure by using parameters available in the "Area Outline".

By specifying two points on a drawing, you can find the value of certain parameters such as angle or coordinates.

Additional options will be displayed in the command bar once the function is called.



## 6 Description Window



*Description window*

1. List of descriptions –contains all descriptions defined in drawing.
2. New description. In this field, You should write text of new description, which will be add to list or change value of other selected description.
3. Add–after click this button, new description will be add to descriptions list.
4. Change - click of this button will cause, change of description text.
5. Remove –Description selected in list [1] will be removed.
6. Loads selected description from list to edit description field. In this way You can load description, change it, and save as new description, without need of retype full, often long, description.



7. Load – loads all description used in drawing. It may be need if all drawing was not crated by application ZWMetric or for example part of drawing was copied from other drawing, to new one, where there is no defined descriptions.

8. Filter – more about it, You can find in chapter Description filtering 6.1.

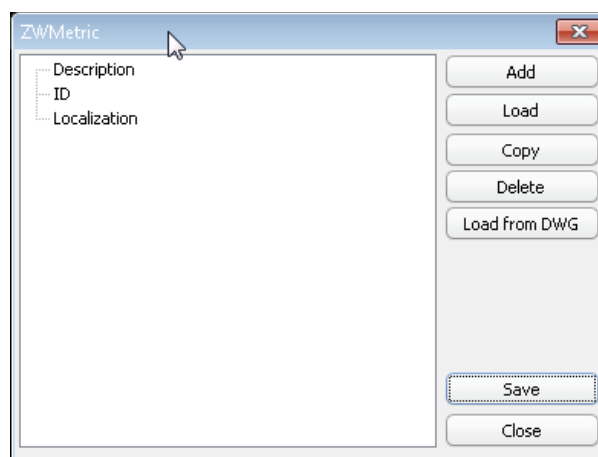
9. Sort - Descriptions you can sort in aphabetical order [A-Z], in reversed aphabetical order. Creation order [1-2] or reversed creation order.

10. Auto numeration Turn on – If You want, new descriptions to be numerated (each one can have own ID number) You can just turn on auto numeration. You don't have to remember next number, just click this option to start automatic numeration of descriptions. Following numbers will be automatically increase by 1.

11. Automation umber. Start number. From this number each description will be numerated. Each description will have number incremented by 1.

12. Additional attributes: Localization, ID. Values of this attributes can be automatically filled by information. Names of this attributes have been fixed for compatybility with application Norma, but You can set there wehatever informations like type of flooring fot selected area.

13. Attribute values edit. Using of this button will move to new window, where user can define values of attributes which can be set to attributes licalizarion or ID. Values can be set manually, load from file or load from external text file.



*Attribute value edition window*

14. Expression. Lets You to write value of expression which will be set in new description block. Values will not me automatically calculated in time of work with application, but You can use some variables. If You use @L in expression filed, instead of this signs will be set length of calculated circumference of selected object. In the same way @A will be replaced by area of selected element.

15. Add hatch. – In case of describe areas, You can fulfill areas using hatches. After click OK[16], user will be asked to select outer loop, then inner loop which will be subtracted from outer loop. Path and scale You may set in application settings .

16. OK. – Insert description.

17. Close – close window without any changes.

## 7 Additional information

### 7.1 Description filtering

Filtering descriptions lets You limit descriptions displayed in list. Filter works on regular expression it means, that text or it parts, can be replaced by signs for example \* or ?

Examples:

\* Replace any number of any signs: 'a\*', will display descriptions where first letter is 'a': axb, akcb, a122b, and so one. If we write '\*c', in list displayed will be all descriptions where last sign is 'c' abcdffc, 123c.

? Replace any sign, but only one sign: 'a?b', will cause displayed texts asb, a4b but will not display accb,

~ Limits displayed descriptions, to all were signs after ~ will not be present. So: '~ab' will display all elements where will be no signs ab together. Signs a and b may be present in description but not together

# Filter replacing digit. Example: a#b displayed will be a1b a9b but not asb.

### 7.2 Description window size

If size of window is too small, and you want more descriptions to be visible at the same time, or window is too big and can't be displayed on Yours screen, You can customize size of window.

You can do it by edit file Ulen.DCL for English version or Uipl.DCL for polish language. This file is located in dictionary, where application is installed (default C:/Szansa/ ZWMetric) Please find there following block:

```
:list_box {key="Opisy";  
    label = "";  
    value = "0";  
    width=36;  
    height=30;  
    multiple_select = false;  
    allow_accept = true;  
}
```

You may change properties:

width –width of window  
height –height of window

In these properties, you must write numeric values.  
After change this values, please save this file, changes will be applied automatically after next open window.

**Warning:**

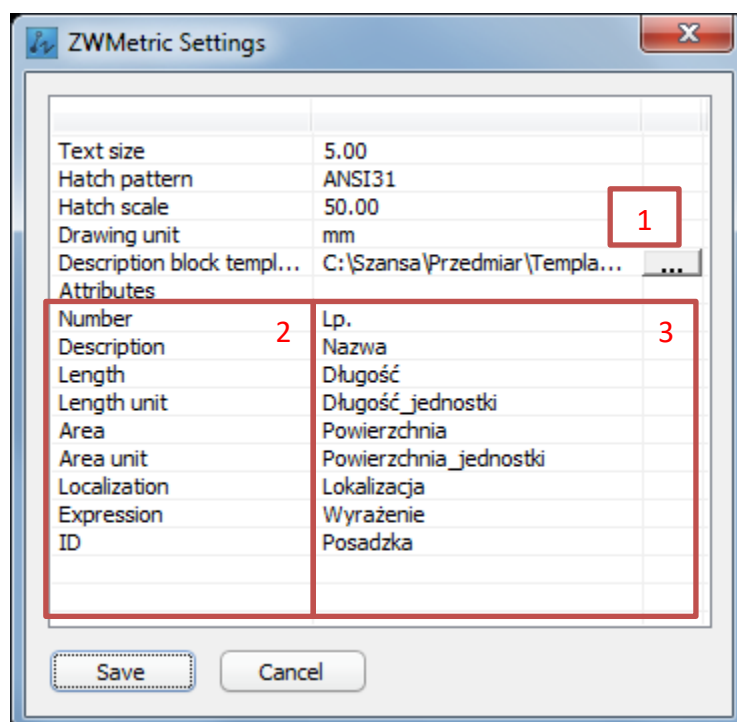
Edit other values in files \*.DCL, may cause wrong working of application, or even crush of application! If this happens please contact our technical support.

### 7.3 Description within the drawing is too small or too large

Size of description depends on units used in drawing, and scale of drawing. If default size is not correct, (description is to large or too small), You can change size of new created descriptions. You can do it in settings of application. Settings You can run b command P\_Setts or click icon . In properties window, You can change text size value. Size written in this field must be numeric and grater then 0.

### 7.4 Change description appearance

With application there are installed two templates of description block. One for polish version, second for English one. If appearance of description block is not good for project, or You have to use other standards, You can define own description template. To create own template the best way is to edit one of default blocks. Especially important is placement of attributes, You should place them somewhere around begin of global coordinate system because this is insertion point of description. Also important is that description block have to contains attributes. If template contains attributes some of them: number, name, length, area ID, localization, will be fulfilled automatically only if such attributes are defined in template. Names of attributes may be different than those used in template. In this case you should join attributenames with function. Such join you can do in settings of application.

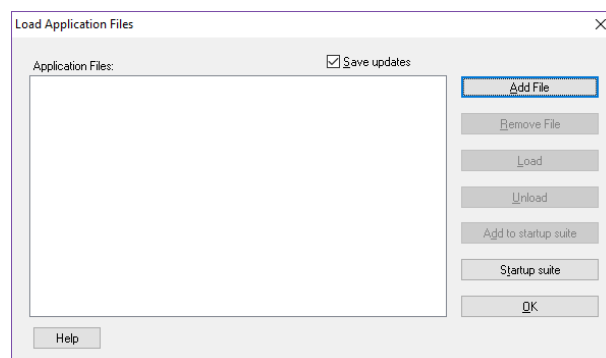


To set template to drawing, You should find path for description block template by button[...][1].After select of new file, names of attributes will be cleared [3]. In column [2], there will be enumerated functions of automatically filled attributes. If You click in column [3] in row of interesting function, there will be list of all attributes names used in drawing. You can select attribute, where ZWMetricwill insert value of such function.

## 7.5 Loading the application manually

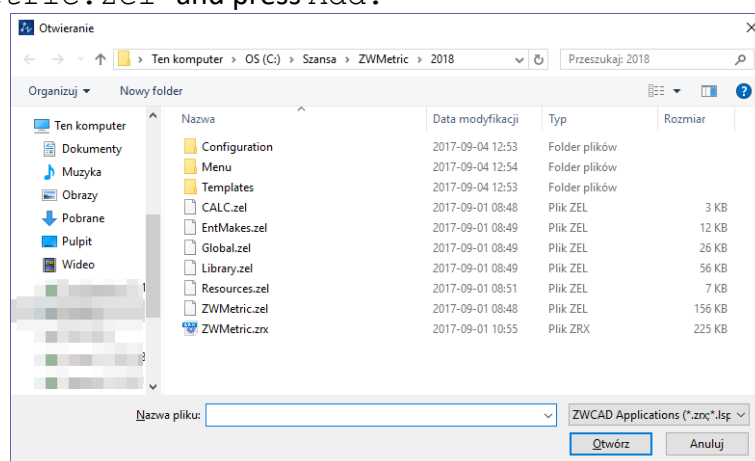
After installation of application, it should be automatically load to ZWCAD. Function should be available and toolbar with icons should be visible. If for some reasons it's not load automatically, You should load in manually. To do it, You should follow steps:

1. Run command appload and You will see window:



2. Click Add File.

3. In new open window change default extension to .zel. than find path where application has been installed. Default its C : \Szansa\ZWMetric\2018 , select file ZWMetric.zel and press Add.



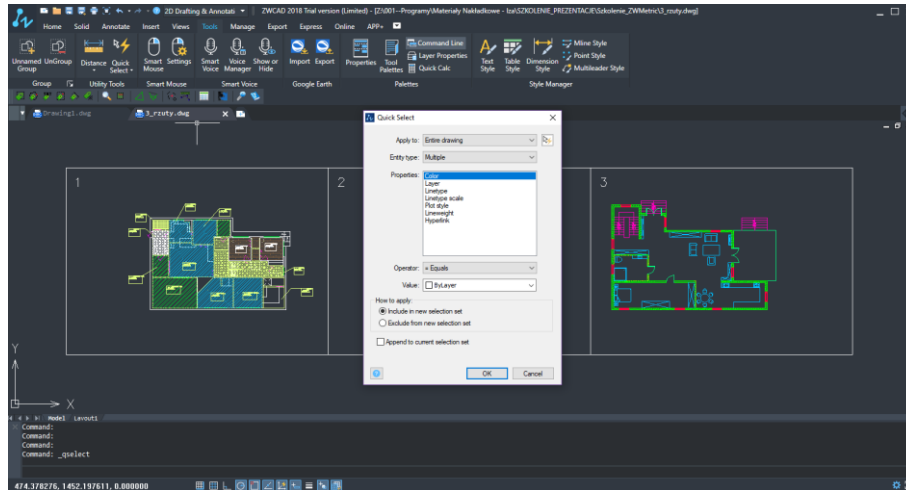
4. On appload window click Load to load application,
5. If you want application to be loaded automatically each time you run ZWCAD 2018, please select ZWMetric.zel on list of files to load, and click button Add to startup suite.

## 8 Tips for working with ZWCAD

### 8.1 Quick select (qselect)

Quick select allows us to identify a select group of items when you specify the features that interest us, for example and indication of all the lines of the same color are all placed on the descriptions.

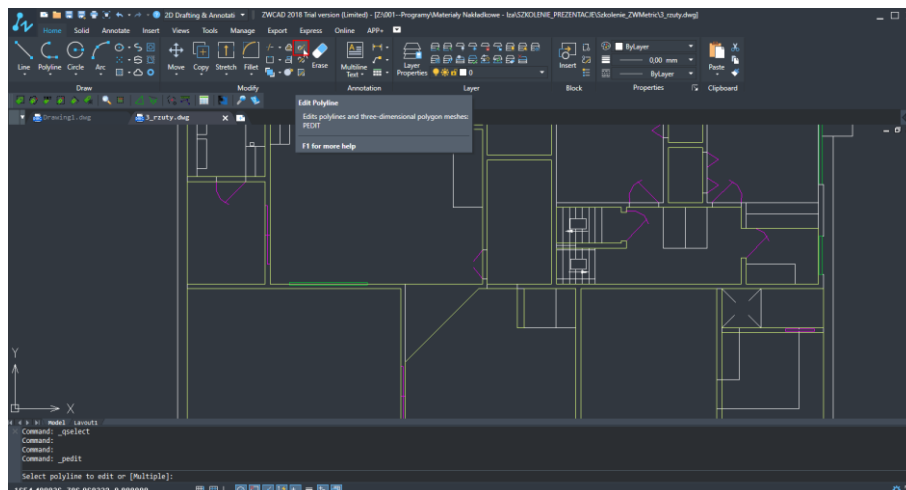
Command: `qselect`



### 8.2 Polyline Edit (pedit)

You can edit polyline or polylines, You can close it by crossing the line between the first and the last segment do You want to change the line width.

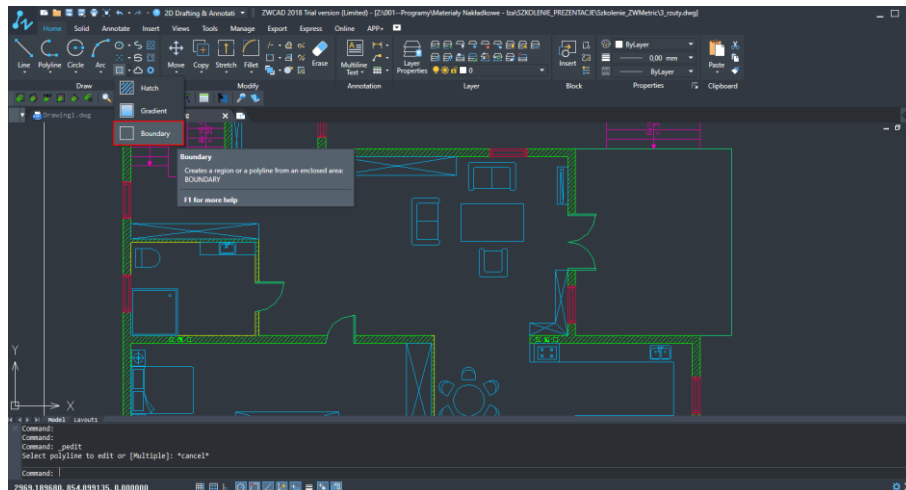
Command: `pedit`



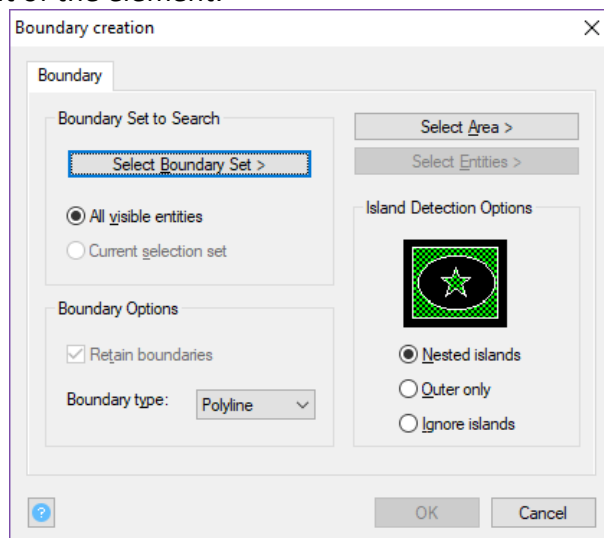
### 8.3 Boundary (\_boundary)

Command: `boundary`

In the case of complex surfaces, You can stroke it use the bounding box. Click in the middle of the area – the program automatically creates a polyline or region ( depending on Your choice ).



After activating the command window appears in which You specify the type of object and specify the center point of the element.

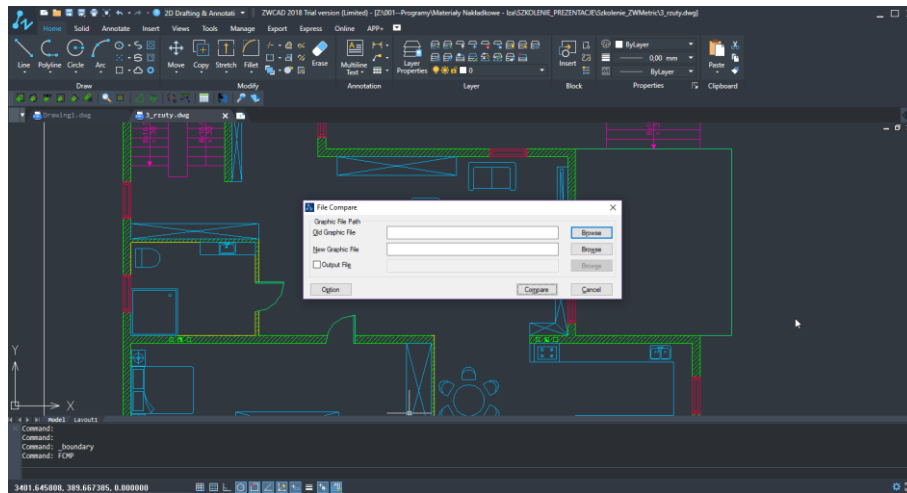


In the command line you will see each step of the implementation of the function.

### 8.4 File compare (\_fcmp)

Command: `_fcmp`

This is a very useful feature for comparing changes between two versions of the same file. The program asks for two files and identifies changes.

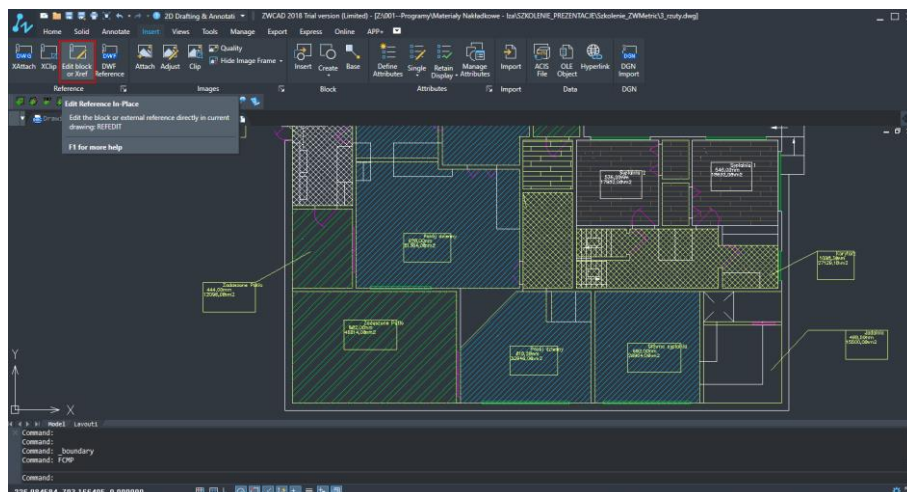


## 8.5 Changing the appearance of the description

### 1. Start the function

Command: `_REFEDIT`

In a very simple way you can edit the description of the block: INSERT -> Edit block or xref



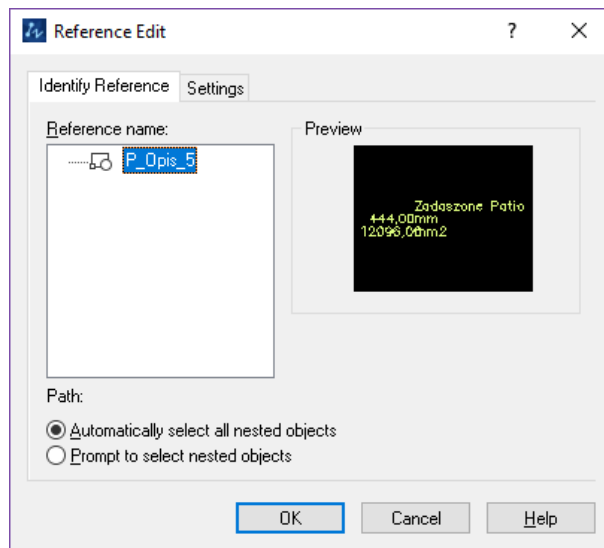
Select a block of editing in the Reference Edit select the link name and click OK. Now You can edit the selected items.

### 2. Description edit

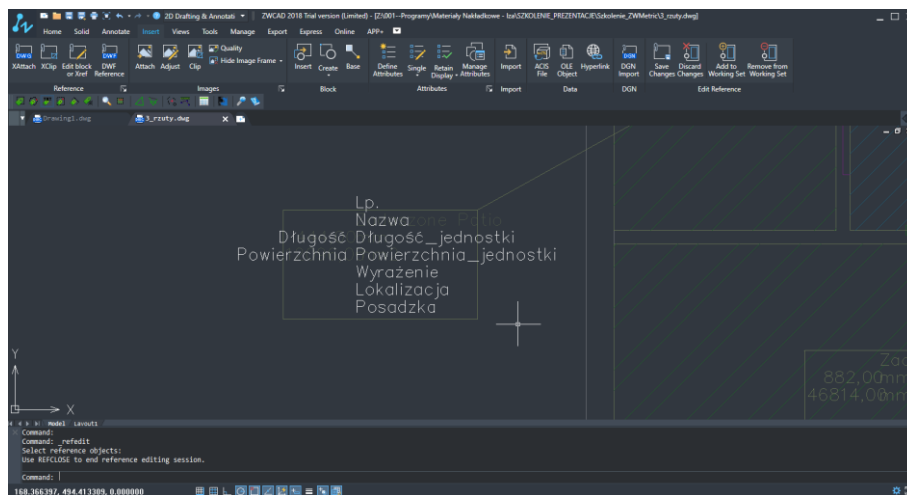
We choose an interesting position highlighted in white and make editing

- change the appearance of fonts
- change the position of the item description
- edit visibility, etc

Select the block to edit and click **OK**.



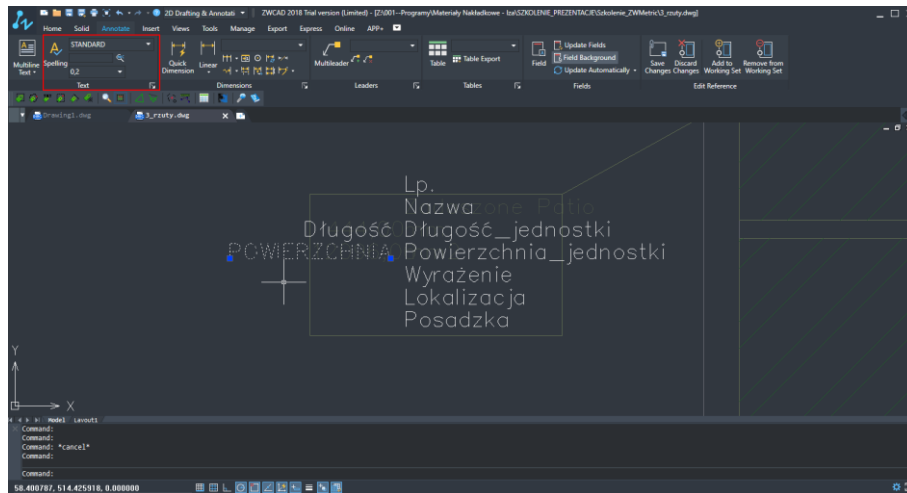
Now You can edit the select items.



## Change the style of description

Possible to modify the style description of selected items such as Oblique Angle → Apply → OK. Assign a style to the selected item description block.





### Modification the description of the selected items.

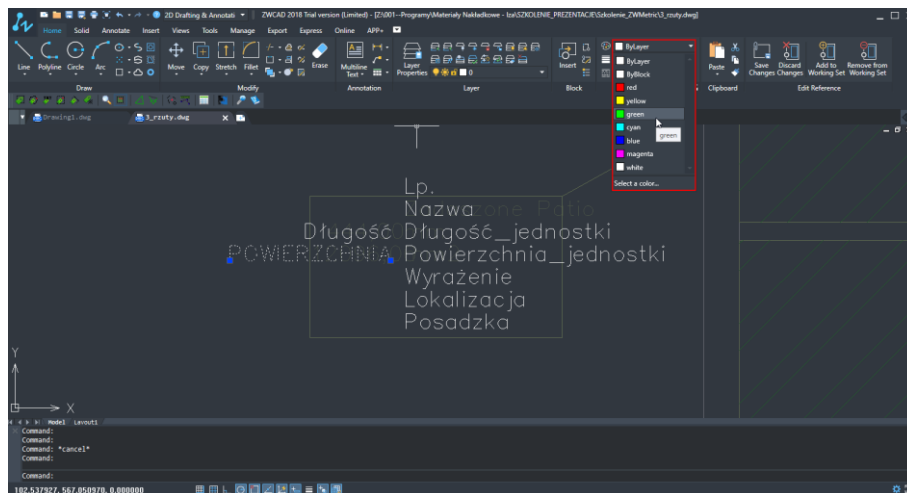
Using the properties of the object, there is the ability to edit multiple items:

General: color, layer, etc.

Text: style, height, obliquing, etc.

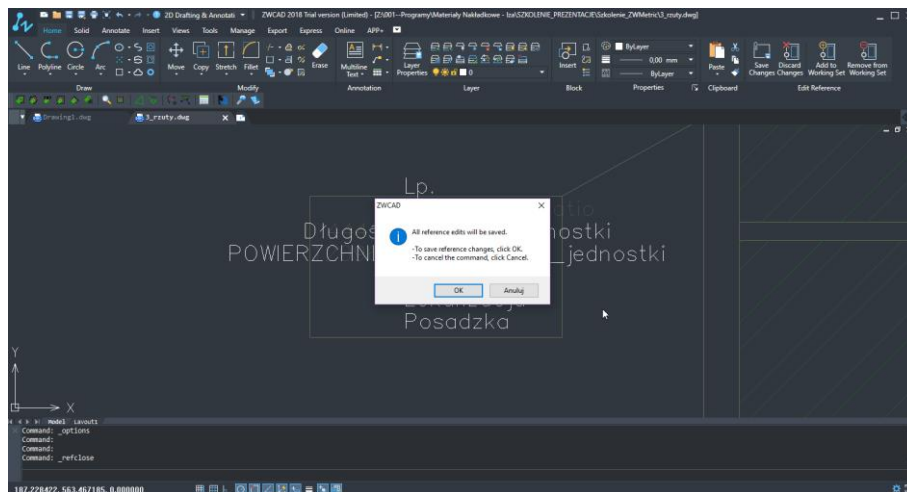
Geometry: XYZ position

Misc: text upside down , invisible elements of the description, etc.



### 3. Save the changes

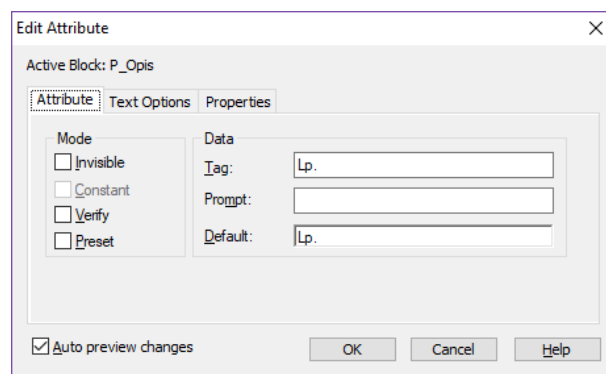
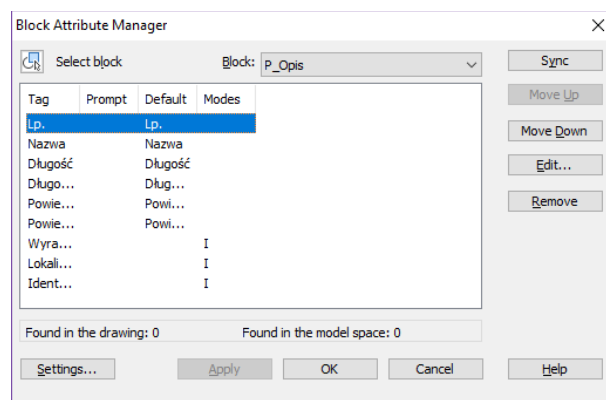
All changes should be save → Save changes



#### 4. Update previously inserted descriptions

Updated descriptions for all blocks: in the command window, type BATTMAN and synchronize selected items.

You will see the window with the ability to edit item all blocks. You should mark the element from the list and then click Edit.



Changing for example the color of the element it will change all the same blocks.