



ToolKit ®™

USER MANUAL



ToolKit®™

www.tss.link

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1 About ToolKit®™

Performing everyday Engineering tasks designing small- or large-scale construction projects, sometimes becomes a tough job. There have been times, for all of us -I am sure- when we wished we had a “magic” hand to help on some simple but peculiar tasks.

Even though Autodesk® AutoCAD® and Civil3D® are very cleverly designed, there are tasks that cannot be done easily.

Toolkit®™ has been designed by our team to cover some of those tasks. **Toolkit®™** hopes to provide you with a group of handy tools to help expedite your tasks.

Toolkit®™ is an Autodesk® (AutoCAD® family) plugin, and forms a library of small smart tools, where TSS will be constantly adding new useful and smart mini tools, that aim in providing you with user friendly solutions to everyday small tasks, in a quick and accurate way.

Toolkit®™ works in Autodesk® AutoCAD® and Civil 3D®. Considering that there are many colleagues and friends that have previous versions of Autodesk® AutoCAD®, we are supporting previous versions of Autodesk® AutoCAD® until 2012 (visit our site www.tss.link).

We are working and developing **Toolkit®™** since 2018, but it has been published on May 2022 and its current version is 203.101.

In order to take full advantage of the tool, please read the present User Manual to get acquainted with all capabilities available.

We strongly believe you will find in **Toolkit®™** many interesting tools.

You are welcome to visit our site www.tss.link and check on the other Apps we have been publishing which we strongly believe will help you with your everyday work.

TSS has a unique target. To link CAD programming expertise with Engineering and Drafting needs.

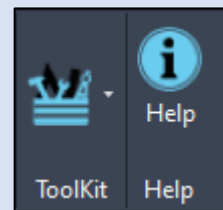
Thank you for contacting us.

2 Exploit ToolKit[®]™, enjoy the benefits.

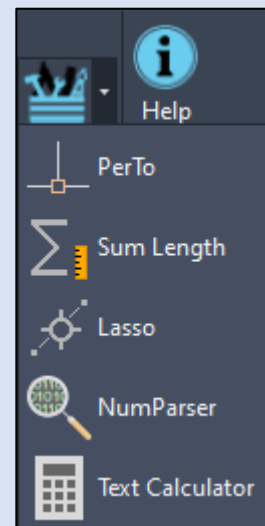
In the next chapters we will show you how **ToolKit[®]™** can save up much of your time.

After you install **ToolKit[®]™**, you will see this panel in TSS ribbon.

There is one (1) sub menu that include the following commands:



1. The **ToolKit[®]™** Quick Tools Submenu.



Let's see now one by one the tasks you can perform with the various tools **ToolKit[®]™** provides.

2.1 Quick Tools Family

This is a group of tools that offer great relief on small everyday tasks.

The tools included are:

1. **PerTo**: draws a perpendicular line to an entity at a specific point on the source entity.
2. **Sum Length**: sums up the length of all selected entities
3. **Lasso**: creates a polyline by automatically selecting the point closest to your crosshair
4. **NumParser**: extracts numbers from text or other entities of AutoCAD
5. **TextCalculator**: performs small mathematical operations using numbers that appear in AutoCAD entities

2.1.1 Function: [PerTo]

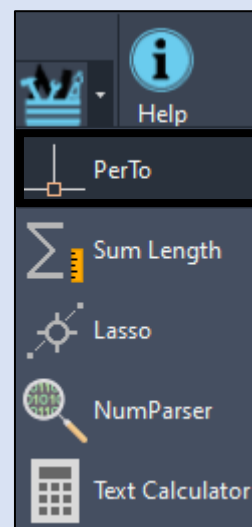
[PerTo] is a very useful function and it has covered a very long-lasting request of many of our colleagues.

With [PerTo], you are able to draw a Line **perpendicular** to an entity, but to a predefined point on that entity.

Until now, we had to start from a random spot somewhere away from the entity, in order to draw a line that would end up perpendicular to that entity, never being able to end it directly to the exact point that you wanted.

After the line was drawn perpendicular to the entity, then you would move it to the point of your choice.

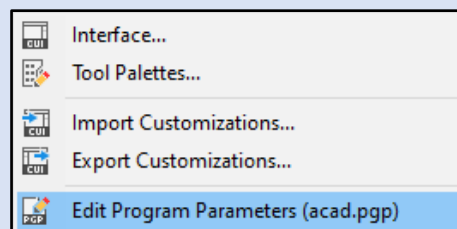
With [PerTo], after you choose the entity that you want the line to be perpendicular to, just define at which point on that entity you want the line to End and then give the length you want.



Tip1: Make sure, after you install ToolKit on your computer, to create an Alias of [PerTo] into acad.pgp file.

If you don't know how to do it, her is the way:

1. From Autocad menu go to [Tools]->[Customize] and choose the [Edit Program Parameters] command.

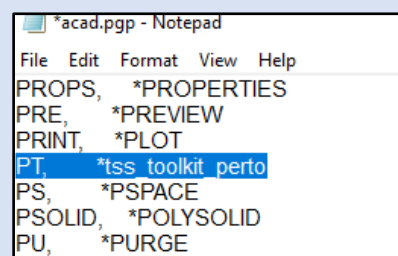


2. The NotePad will open allowing you to edit an alias of your choise.

Like shown on the picture on the right, edit the command :

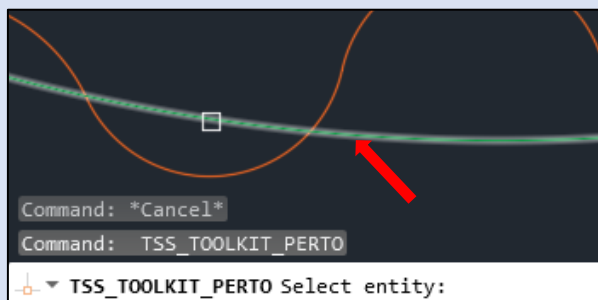
*PT, *tss_toolkit_perto*

With this command you will be writing only [PT] in order to quickly invoke [PerTo] when you work in Autocad.



2.1.1.1 How [PerTo] works

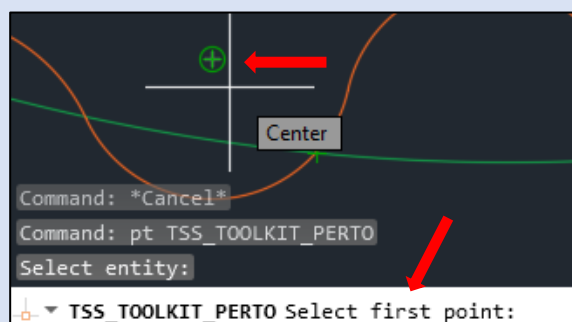
1. When you press the button [PerTo] or run the command, the application will ask you to select the entity you want your line to be perpendicular to.



Tip2: Remember the selected entity has to be a Line, Circle, Arc or Polyline (not working at the moment with ellipse, parabola and hyperbola curves).

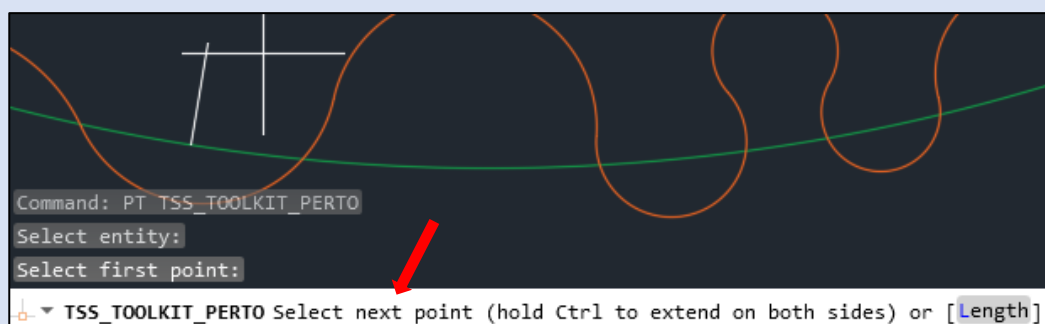
Tip3: The application can even select entities from within a Block or an XRef drawing.

2. After you select the entity, you must specify the point, on that entity, you want the line to be perpendicular at!
The command actually asks for the **first** point of the line (while the second will be the End point of the Line).



Note 1: The points can even be defined indirectly. If you [Click] on any point on the drawing the application will calculate its projection on the selected entity.

3. To end the command, you must define the second point of the (perpendicular/drawn) line. As you move your mouse the Line gets continuously drawn. Choose your desired point and [Left Click] your mouse to define the end of the perpendicular line.



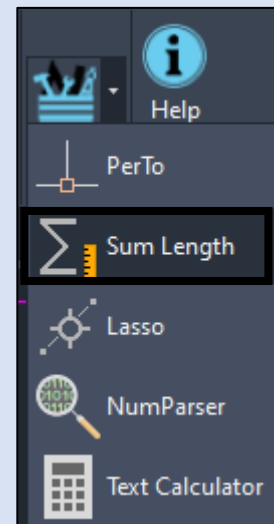
Note 2: Holding [Ctrl] key pressed the line is drawn on both directions.

4. If you prefer, there is also the possibility to define the [Length] of the line (so the second point of the line) indirectly, by showing the direction (with your mouse) and provide the Length typing it on the command prompt.
To define the Length, in the previous question (step 3 above), [Click] the letter **L** on the command line and simply type a number.

2.1.2 Function: [Sum Length]

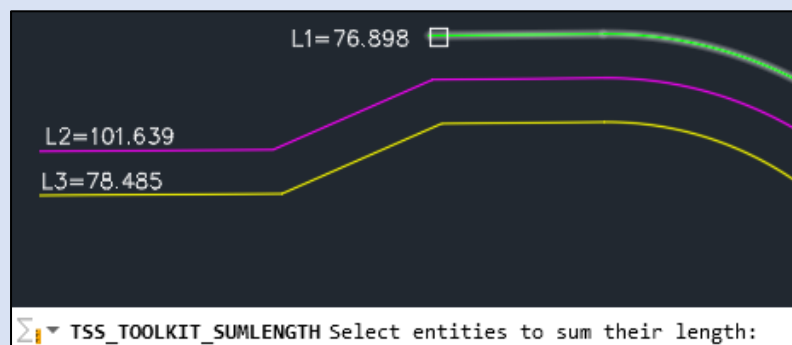
[Sum Length] does the obvious!

Sums up the Length of all entities that you select and gives the final result as an information in the Command Line.

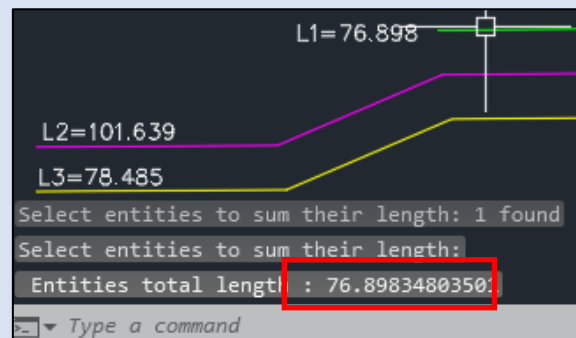


1. When you press the button [Sum Length], the application will ask you to select the entities whose lengths you want to sum up.

In the example on the right side of the page, if you only select the green line, you will get its length.



Check the second picture with the result.



2. When you have finished selecting the desired entities, [Right Click] your mouse and you will receive the result of the summation on the command line.

```
Command: TSS_TOOLKIT_SUMLength
Select entities to sum their length: 1 found
Select entities to sum their length: 1 found, 2 total
Select entities to sum their length: 1 found, 3 total
Select entities to sum their length:
Entities total length : 257.022576081926
```

Tip4: Remember the selected entities have to be Lines, Circles, Arcs or Polylines (not working at the moment with ellipse, parabola and hyperbola curves).

Tip5: The application can even select entities from within a Block or an XRef drawing.

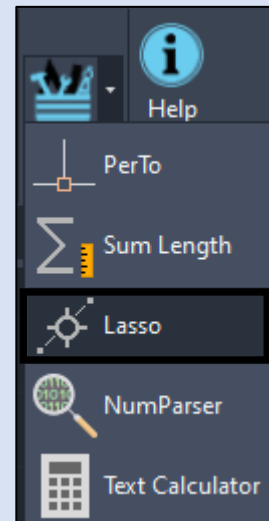
Tip6: If you first select a block and then run the [Sum Length] command, you will get the total length of all entities inside the block.

2.1.3 Function: [Lasso]

[Lasso] is a tool that will help you quickly create a polyline by automatically selecting the point closest to your crosshair, as you “drive” your way through thousands of points within a point cloud in your drawing.

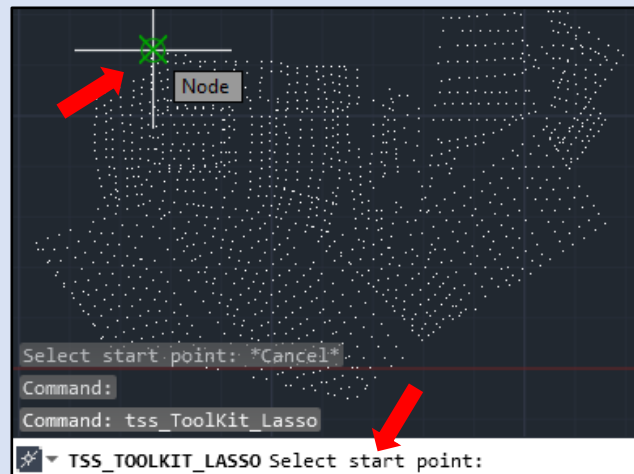
We felt the need to create [Lasso] tool, when we found ourselves wanting to create boundary polylines, in many cases, when working with big amounts of As Built points, in our projects.

Instead of suffering selecting the right points, [clicking] numerous times in the point-clouds, which after a while becomes really tiresome, it is much easier to simply move your mouse through the points and fine tune the result using the provided “switches & levers”, until you quickly create the desired polyline.

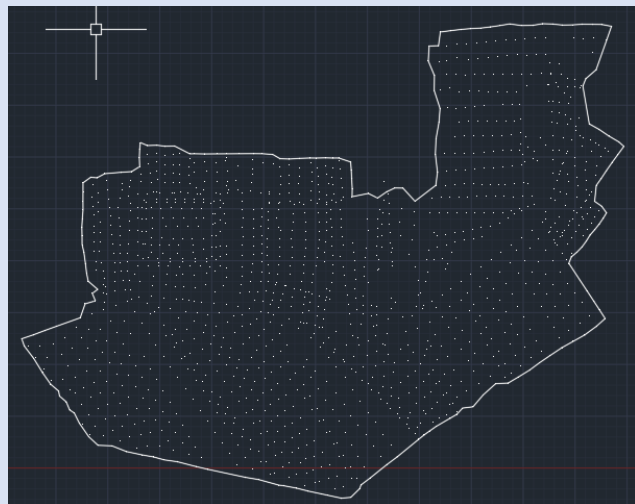


2.1.3.1 How [Lasso] works

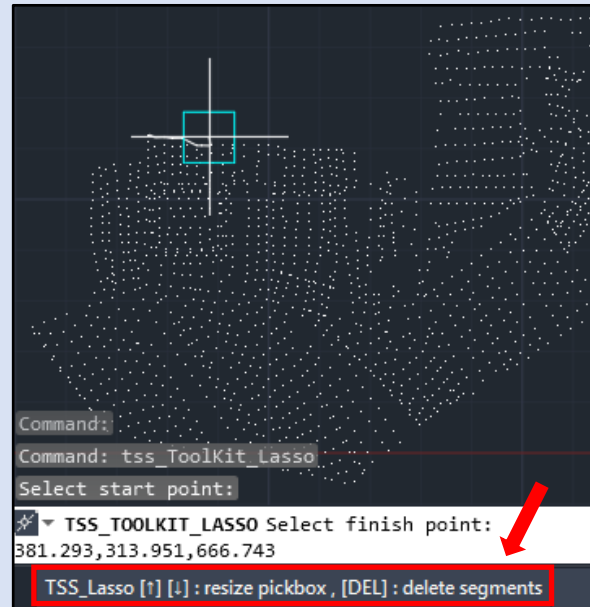
1. When you press the button [Lasso], the application will ask you to select the start point of your polyline.



2. As you move your mouse, the algorithm will automatically keep selecting the closest points to the crosshair and every point that gets selected, it is added to the polyline that is being created.
3. When you want to finish the selection process, you must do one of the following:
 - a. click the right button of your mouse.
 - b. Press [Esc] button or
 - c. Press [Enter] button.
4. The resulting polyline is now drawn.

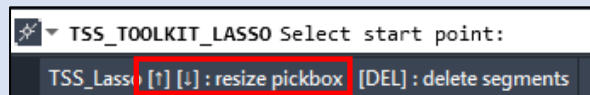


Note 3: Please notice that on the Status Bar there is a permanent reminder of the [buttons] ([UpArrow], [DownArrow] and [Del]) you should use for performing adjustments during the procedure of selecting points. As you move the mouse (crosshair) you can press any of those [buttons] and the prescribed action will take immediate effect.



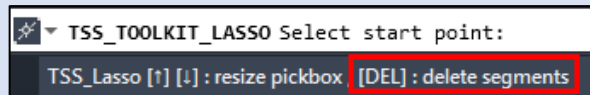
2.1.3.2 [Lasso] support functions – Key Buttons

1. As you move the mouse crosshair you have the ability to resize the pick box by pressing the [Up arrow - ↑] or [Down arrow - ↓].



Remember that pressing the [Up arrow - ↑] you will increase the size of the pick box, while pressing the [down arrow - ↓] you will decrease it. So, by pressing the desired button you will quickly increase or decrease its size, adjusting the accuracy and ease of point selection.

2. Every time you press the [Del] button, you delete the last part that was added to the polyline.



So previous part becomes last, and so on.

This is the way to go back many parts if so required and continue quickly from the part that you consider as correct!

3. In order to keep adding points, just start moving your mouse again towards the correct direction.
4. Also remember that you can always use your [mouse wheel] to zoom in or out in the drawing, for increased accuracy or better view of the area you are moving.

2.1.4 Function: [NumParser]

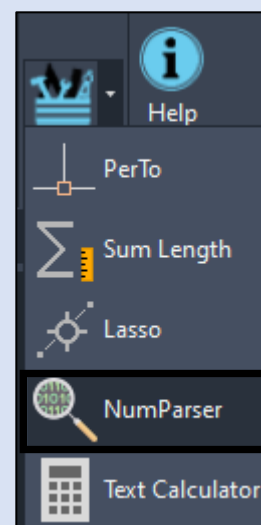
[NumParser] is a tool that extracts numbers from text or other entities of AutoCAD.

[NumParser] will ask you to select an entity (any entity between Text/Dimension/Block/Leader) that includes the number you wish to extract, from the current drawing and presents to you all possible combinations, so that you find exactly what you are looking for.

Then copies the selected number in Windows Clipboard, so it becomes available - to be pasted - everywhere you may want to, in AutoCAD or anywhere else in windows (i.e. in a report you are writing in Word or Power Point etc).

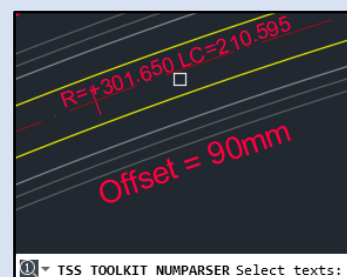
Since numbers some times are long and difficult to remember, we found this idea really interesting and very practical.

Copying numbers in our reports have never been so easy and secure, leaving no space for mistakes during copying!



2.1.4.1 How [NumParser] works

1. When you press the [NumParser] button, in ToolKit Ribbon Group, the application will ask you to select the text entity/ies (not necessarily only one) that include the number you want to copy in the clipboard.

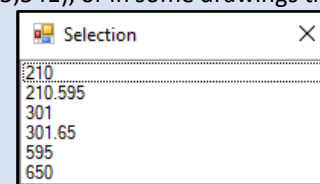


2. When finished, [Right Click] on your mouse and the application will then present a list with all possible combinations.

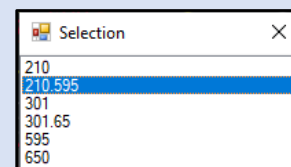
This is mandatory because there will be cases where there might be symbols between the numbers (like when noting Kilometric Positions when 3+145.541 actually is 3145,541), or in some drawings the decimal separator will be either (.) or (,).

So [NumParser] will not just depend on the settings in your AutoCAD, but will give you more choices.

Notice in the picture on the right side, that the decimal parts also appear as independent numbers, just in case!



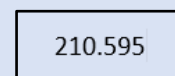
3. Select the number that suits your needs and press [Enter].



4. Then go anywhere in your drawing or in any other windows application and [Paste] the number.

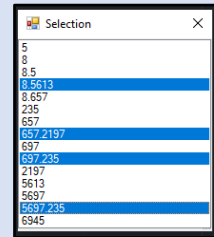


(in AutoCAD)

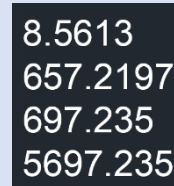


(in Word)

5. Notice that you can also select multiple entities and copy many numbers to Clipboard.
Hold [Ctrl] key pressed and [Click] on as many numbers as you wish.

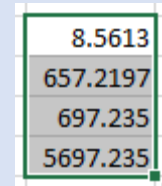


6. Close the form and you can now paste (Ctrl+V) the numbers in your drawing or in any other windows application at once.

A black rectangular box containing the numbers 8.5613, 657.2197, 697.235, and 5697.235 stacked vertically in white text.

8.5613
657.2197
697.235
5697.235

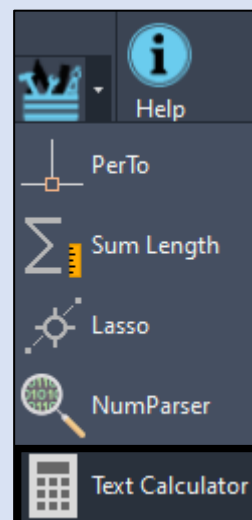
(in AutoCAD)



(in Excel)

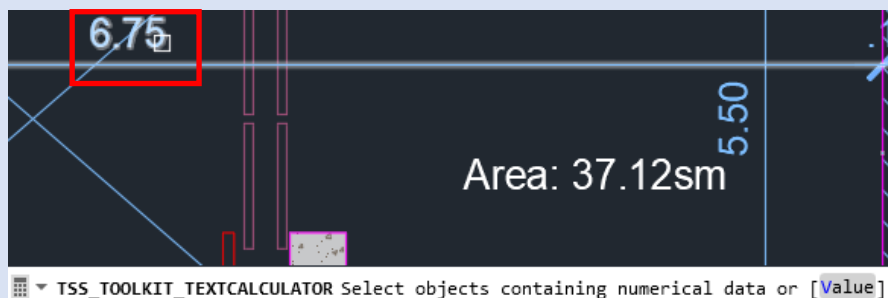
2.1.5 Function: [Text Calculator]

[Text Calculator] is a simple and small Calculator that cooperates with [NumParser] and helps you perform quickly small mathematical operations using numbers that appear in AutoCAD entities.



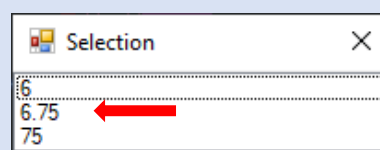
2.1.5.1 How [Text Calculator] works

- When you press the [Text Calculator] button, in ToolKit Ribbon Group, the application will ask you to select the entity that includes the number that you want to grab and bring in the Calculator Form.

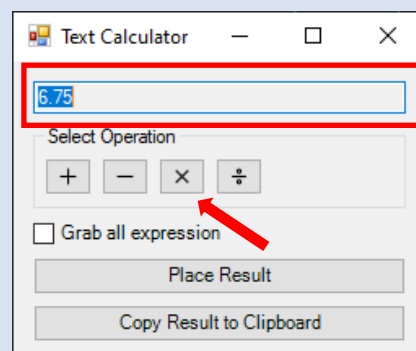


Note 4: Remember that [Text Calculator] just like [NumParser] can extract numbers from Text entities, MText, Dimensions, Leaders, Blocks and Block Attributes.

- After you select the entity, the form on the right side appears asking you to select which of the numbers is the correct one.



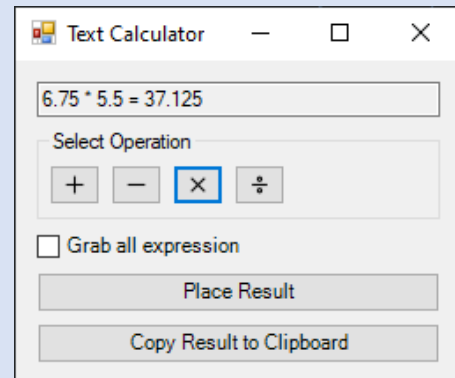
- [Click] on the correct number and the Calculator Forms Opens.
As you can see on the right-hand side picture, it is a very simple Calculator.
The selected number has already taken position in the Formula Line.



All you have to do now is to select the sign of the operation you want to execute.

Suppose you want to calculate the Area of a room. Just selected one dimension of the room and want now to multiply by the other...

4. After you select the next entity (following the same process, as described above), you will end up with the Formula line, like in the picture on the right-hand side of the page.

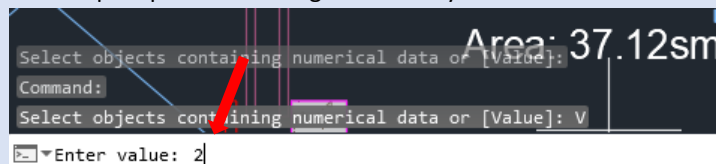


But you have other options as well:

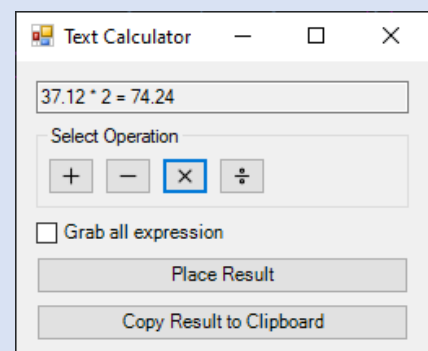
5. Maybe you noticed that in the command line there is also an option to insert a [Value], which is directly a number for your formula.



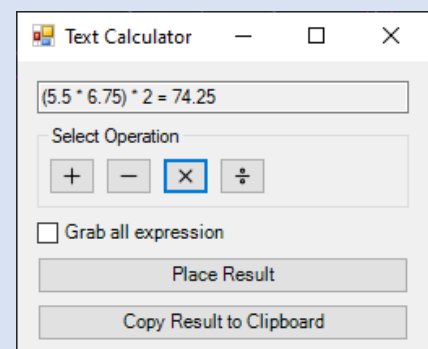
6. As you can imagine, you can perform a simple operation adding also directly a number. In our example we will multiply the Area of a room by 2, (i.e., because there are two same rooms in our plan view).



7. After you enter the number and press [Enter], you are transferred in the Calculator form where you see the formula with the number you just entered:

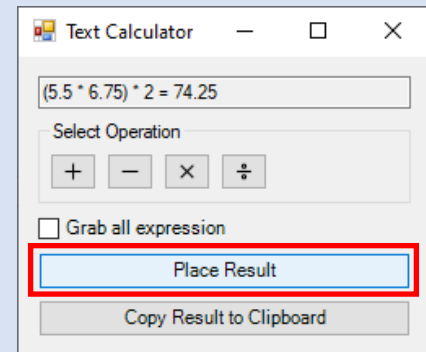


8. Of course, you can always continue your formula.

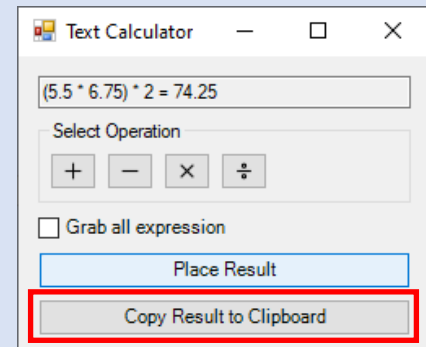


9. But if you finished, there are a couple of actions you can perform:

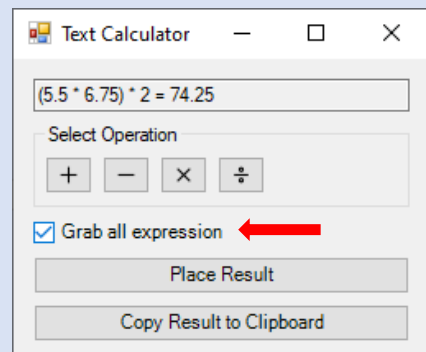
a. Copy the result in AutoCAD in the current drawing.



b. Paste the result in Windows Clipboard, so it can be used anywhere within Windows.



c. Copy the complete formula and Paste it in the drawing or the clipboard.



The decision is yours.

3 TSS plugins Important Notes.

3.1 Important Note: Entities that can be treated with TSS ToolKit.

Currently our tools can treat the following AutoCAD entities:

1. Points,
2. Lines,
3. Arcs,
4. Circles
5. Polylines (comprising of the previous entities.
6. Texts (MTexts),
7. Dimensions,
8. Leaders,
9. Blocks.

It is important to remember that we do not treat for the moment ellipse, Hyperbola, Parabola (excel for Clothoids through our Application [CloKit]) and Splines.

We will soon try to include those entities in the near future.

4 Our Target is to transform our experience into your tools.

Get connected with our sources at www.tss.link and gain access to all our intelligent tools created by our team.

Our goal is to support Engineers and let Engineering community spend more time on real Engineering problems and less on drawing tricks and tweaks.

Sincerely,

TSS TEAM