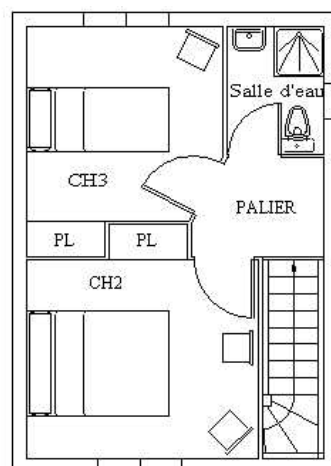
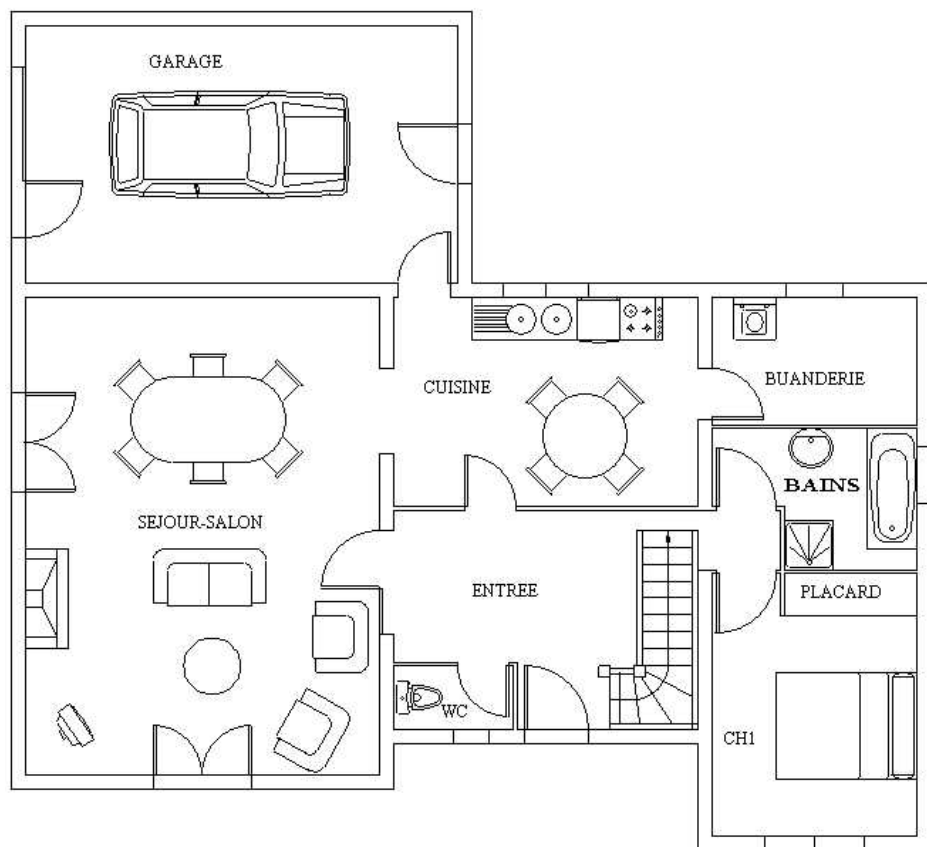


1-LibreCadManuel Training

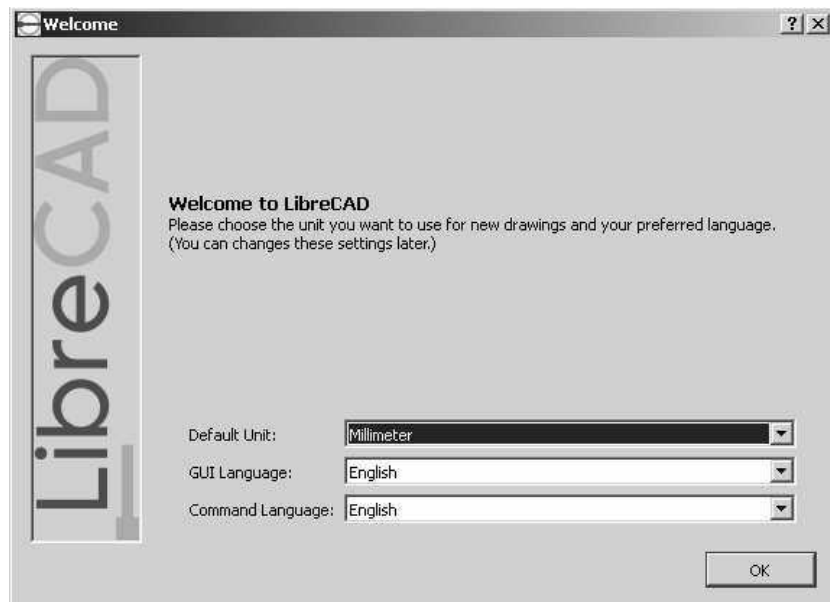
The training manual presented here is based on the one I had written for Turbocad versions but with LibreCad features. It is composed of several drawings to discover the software. **qcad-manual-en.pdf** can be a plus to discover this software.

Shower, Hand wash, Sink, Bathtub, Sink, Toilet. Creation of a house plan and integration of library elements, construction lines, hatching, dimensioning, printing.

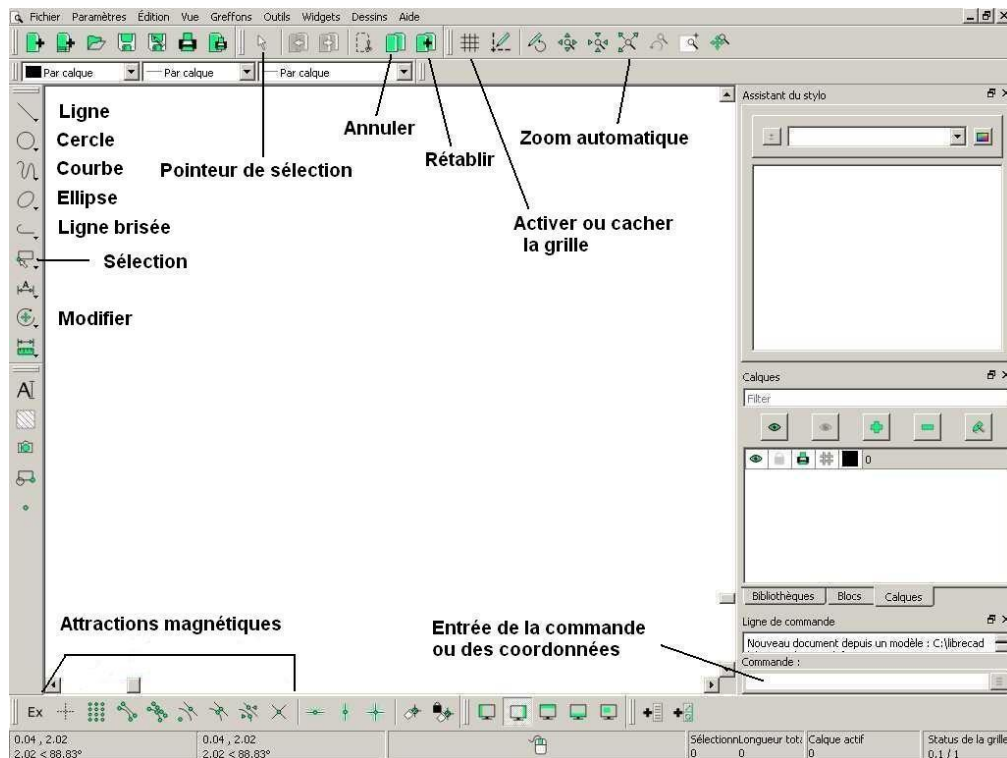


LibreCad

Getting started with LibreCad
Language choice in Welcome



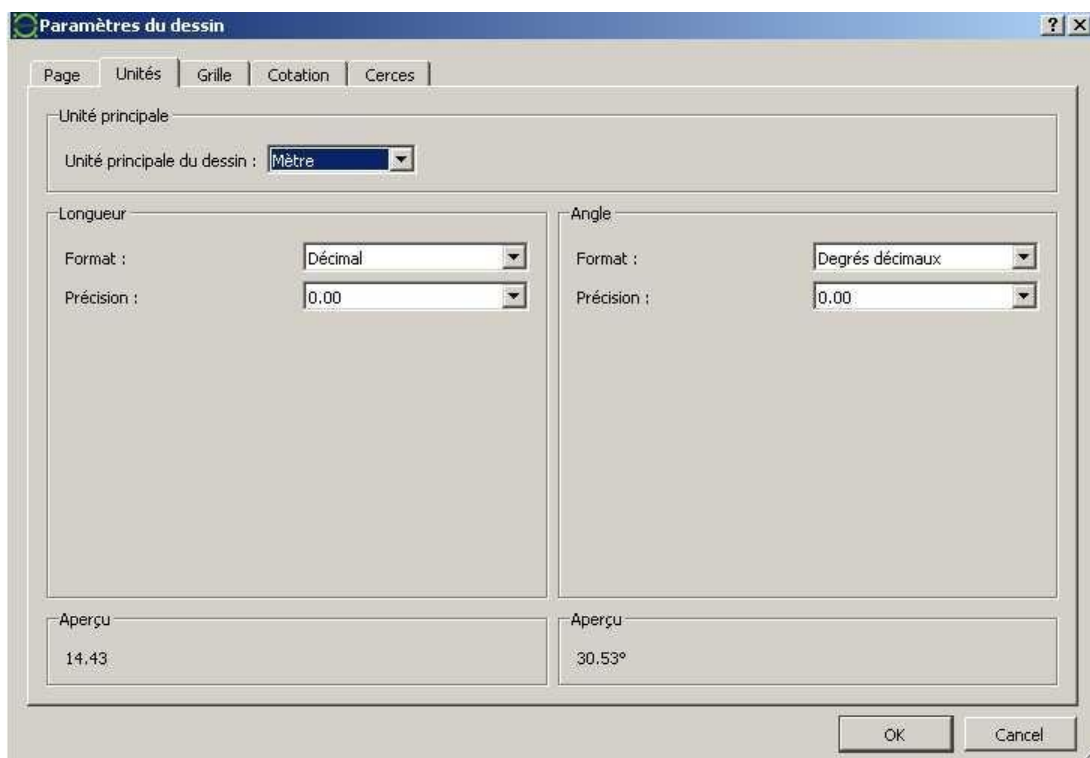
Display of the LibreCad window



Set the Drawing Parameters :

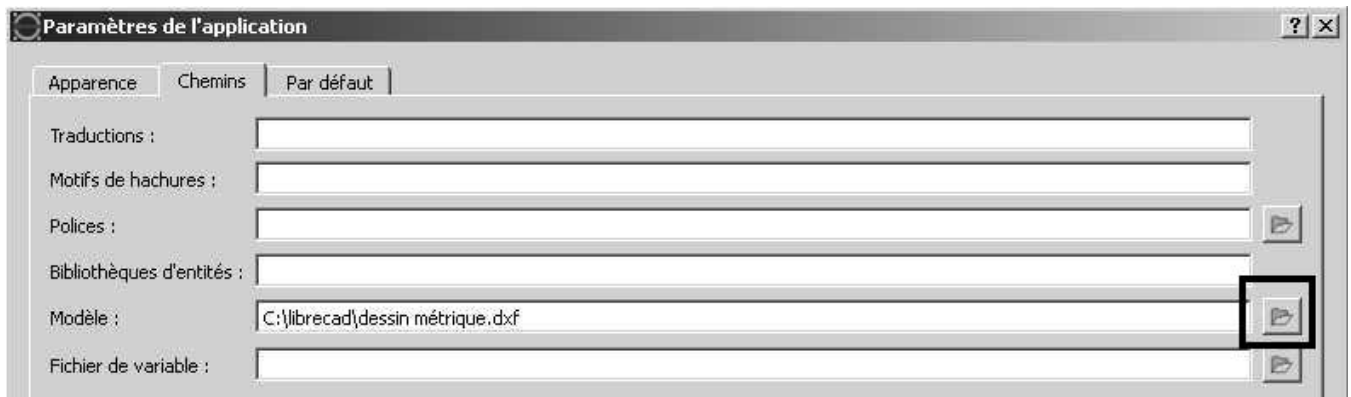
Page : Choose **Page A4 Landscape**

Units: Choose **Meters** as drawing units, keeping the decimal format and with a precision of 0.00.
Keep Degrees decimal for angles with a precision of 0.00.

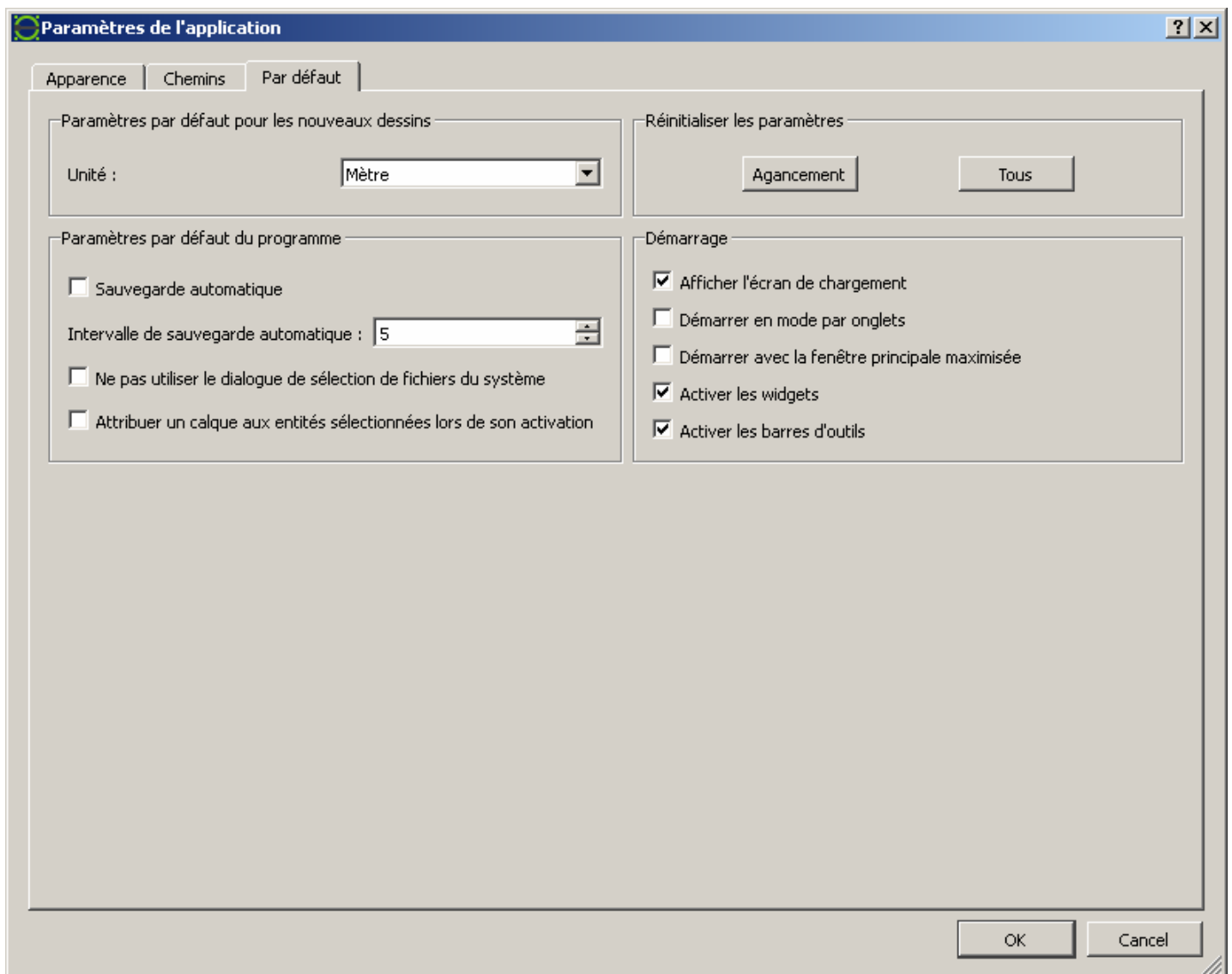


Quit LibreCad to validate these changes and save under "metric drawing" in a librecad directory for example. It is possible to save under different dxf or other,

Relaunch LibreCad and activate **Application settings**, then **paths** and then click on the framed icon to indicate the path of the model which is the one of the metric drawing. Then deactivate the **Automatic save** in the Default folder of the application parameters.



Set the units to Meters:



It is possible to reset the settings by clicking on **All**, which will return to the original presentation.

Remark:

Right click applies to the right mouse button. To zoom in on a particular point on the drawing, simply place the cursor on the desired area and use the scroll wheel.

2-Shower

Select **File, New from Template** and activate "metric design".

Preparation of the drawing area for sanitary drawings:

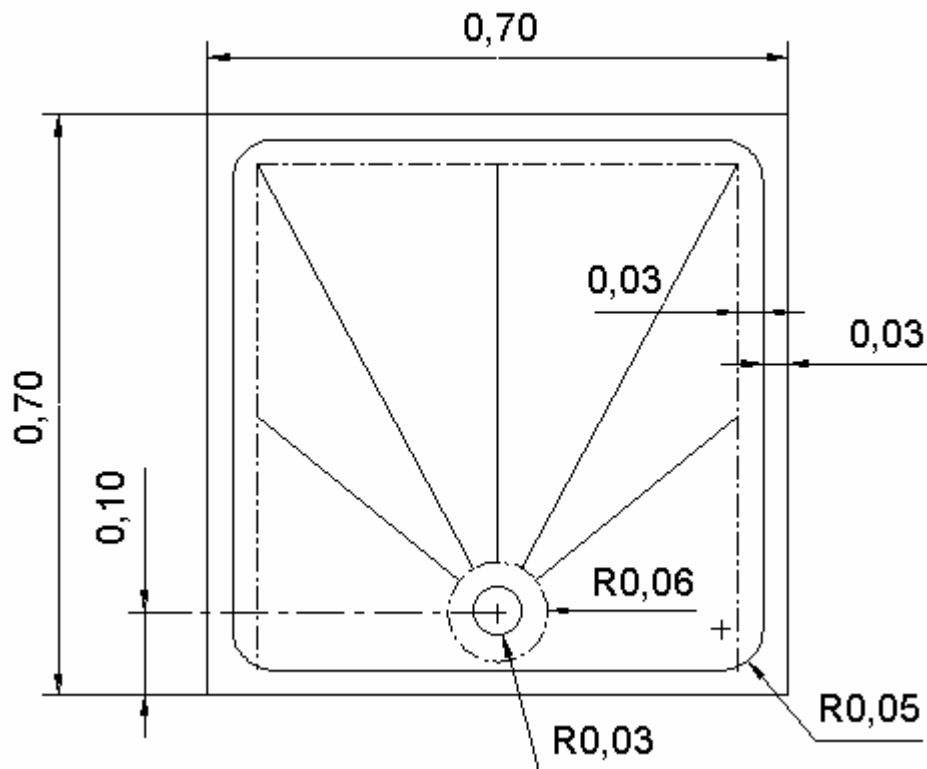
Click on the **tool bar, Line, Rectangle** and enter the following coordinates: 0,0 for the first point and 2,2 for the second point.

Activate an **automatic zoom** so that the square is fully displayed.

Click on the **Selection Pointer** and click on the square to delete with the Delete key on the keyboard.

Quit LibreCad, Save as and select the name metric drawing. When opening LibreCad load the model again.

Drawing of a shower:



Activate **Tools, Line 2 points** and enter the following coordinates:

First point 0,0 (the comma separates the x and y values)

Next point 0,7,0 (the point is used for decimal values) Next point

0,7,0,7

Next point 0,0,7

Last point 0,0

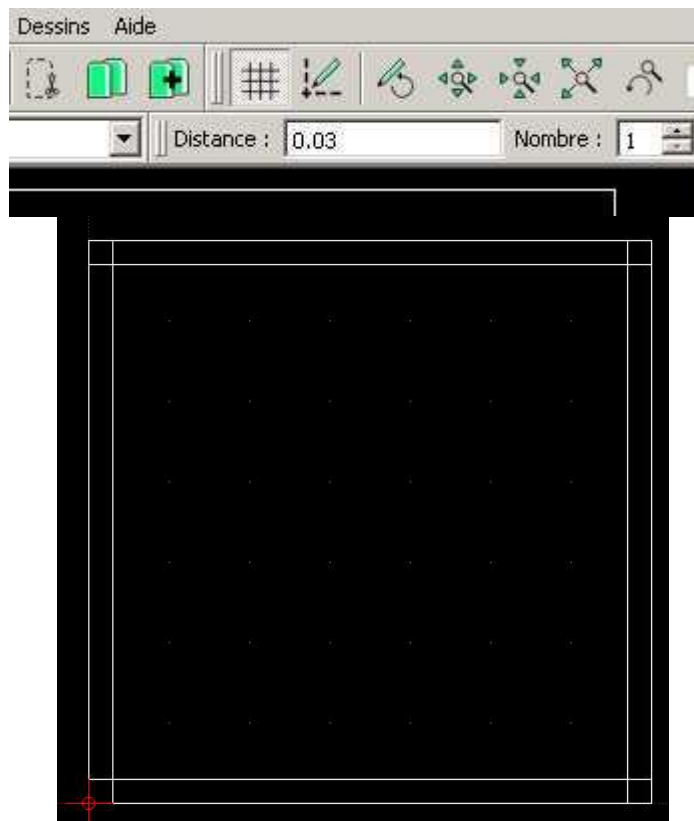
To exit the command press the Esc key or click the right mouse button twice.

Note: A right click recalls the list of previous commands that can be used again.

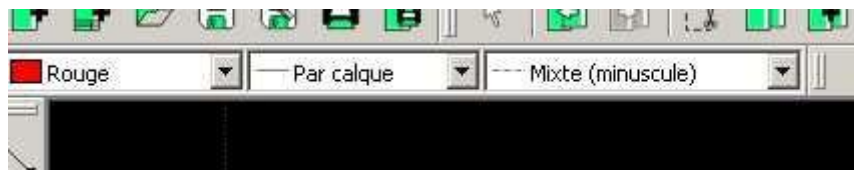
Zoom in automatically.

Inner frame at 0.03 of the edge.

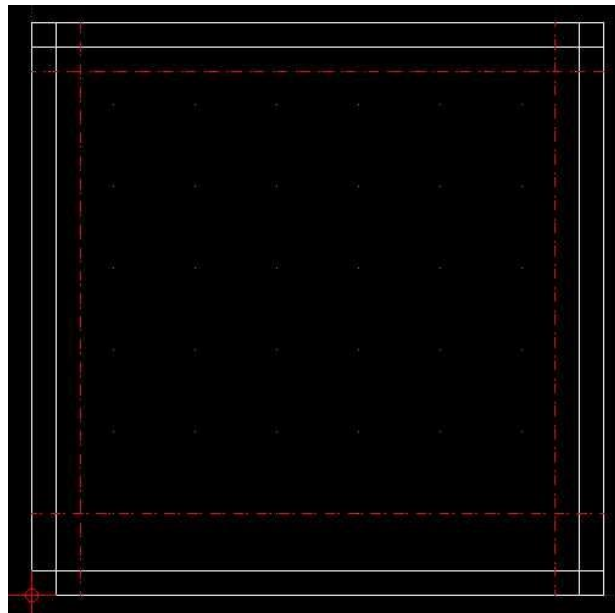
Activate **Tools, Parallel Line** and set the value. Click near the line to be copied on the desired side. Esc



Red line construction Mixed (lower case).

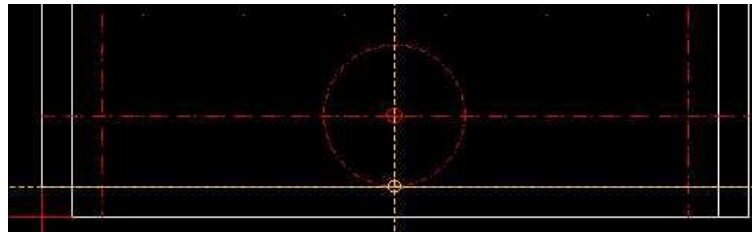


Reactivate parallel line and draw the 3 mixed lines at 0.03, then the lower line at 0.1, placing the cursor close to the lower line.

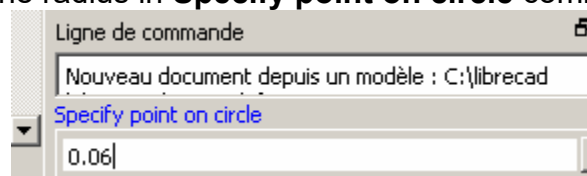


Drawing the circle :

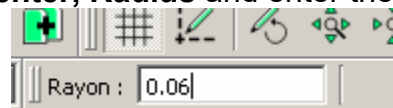
To do this, **the magnetic attraction** must be activated. Enter the radius R 0.06.



Activate **Tools, Circle Center, Point** and click on the yellow point on the bottom mixed line. Then enter the value 0.06 for the radius in **Specify point on circle** command line.



It is possible to choose **Circle, Center, Radius** and enter the radius value.



Joining mixed segments:

Tools, Modify, Double adjustment.

Select the upper mixed line as the first entity and the two lines one after the other.



Adjustment of vertical mixed lines :

Tools, Modify, Adjustment

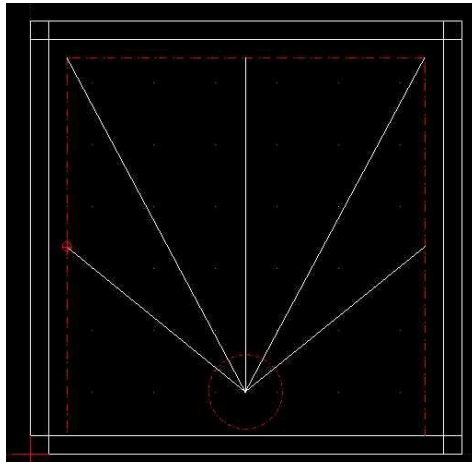
Select the line just below the circle and click on the part of the two lines to be kept.



Delete the mixed horizontal line, axis of the circle.

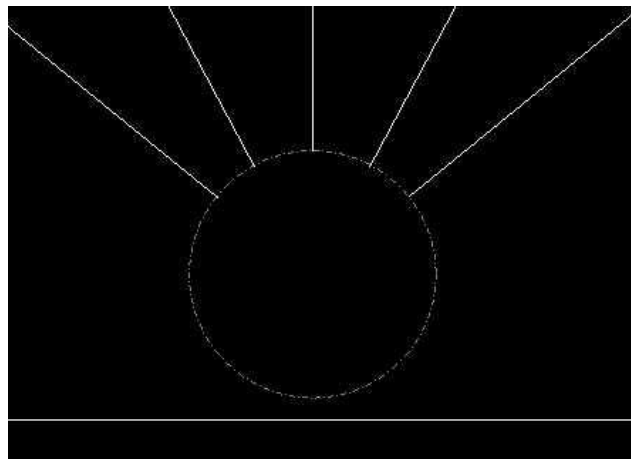
Reset the layer color and stroke type to By Layer for the rest of the stroke.

Drawing the shower background with the Line tool 2 points with magnetic attractions **Hook the middles, centers and intersections**.



Adjustment of these last lines:

Click on the construction circle and then on each part of the line to keep.

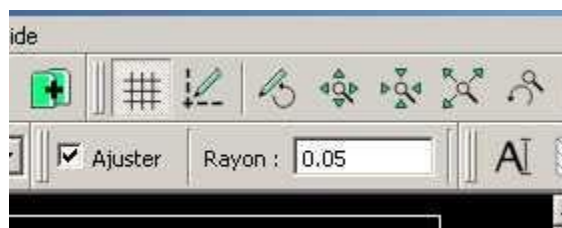


Draw the circle R0.03 with **Hook the centers**. Then deactivate the magnetic attractions.

Delete mixed lines. Rounding

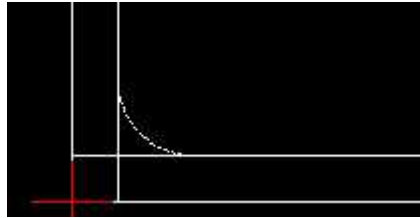
of the tray :

Tools, Modify, Round or Fillet by 0.05 radius.



Note: If Adjust is checked, the radius plot removes the outer part of the lines.

Select the first line then the second line if the rounding is well positioned as here.



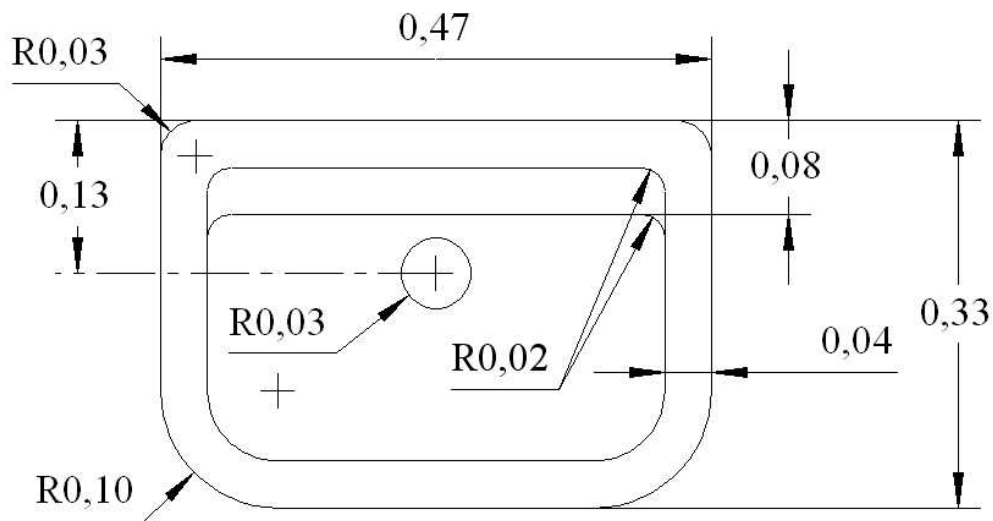
The drawing is saved in the health directory of the librecad folder.

Important note: During a plot it is possible that some entities overlap (duplicates) and the only way to detect them is to see a white entity appear under the red dotted line.



They must be removed one by one.

3-Hand washer



The drawing is done using the **grid** and the **magnetic attraction grid**.

File, New from template, metric drawing.

Setting the grid :

Design parameter, Grid

Spacing in x and y with a value of 0.01.



Frame design:

Tools, Line, Rectangle

Place the cursor at the origin and confirm, then place the next point at x 0.47 and y 0.33. The position of the cursor is visible at the bottom left of the screen.

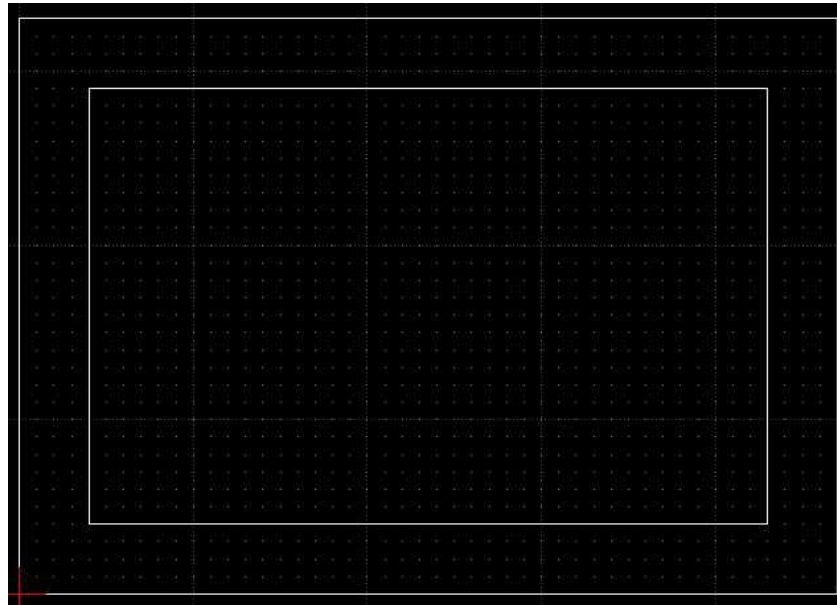


Drawing a parallel frame:

Tools, Broken line, Create equidistant broken lines.

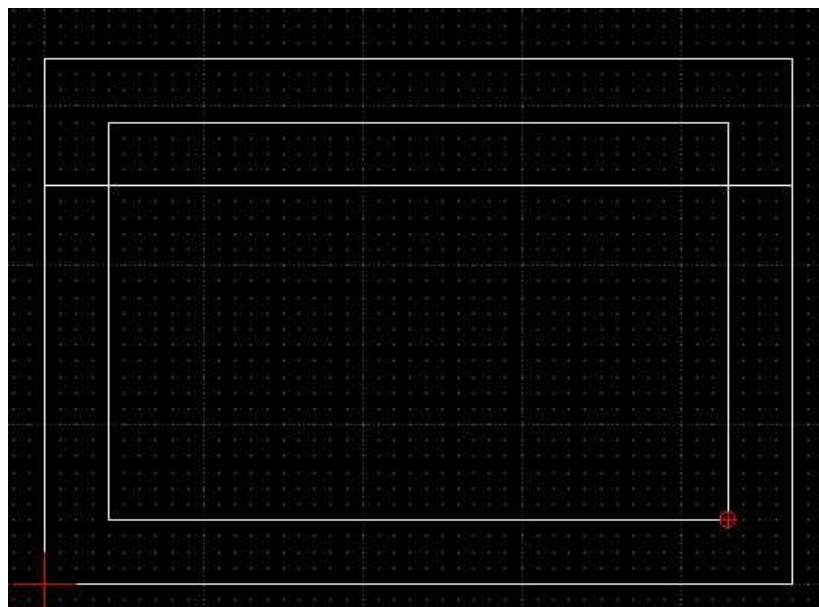
Set Spacing to 0.04.

Click on the frame, slightly inside. Note: the rectangle is a single entity.



Draw a line parallel to 0.08 of the top edge:

Tools, Line, Parallel.



Drawing of rounding R0.02

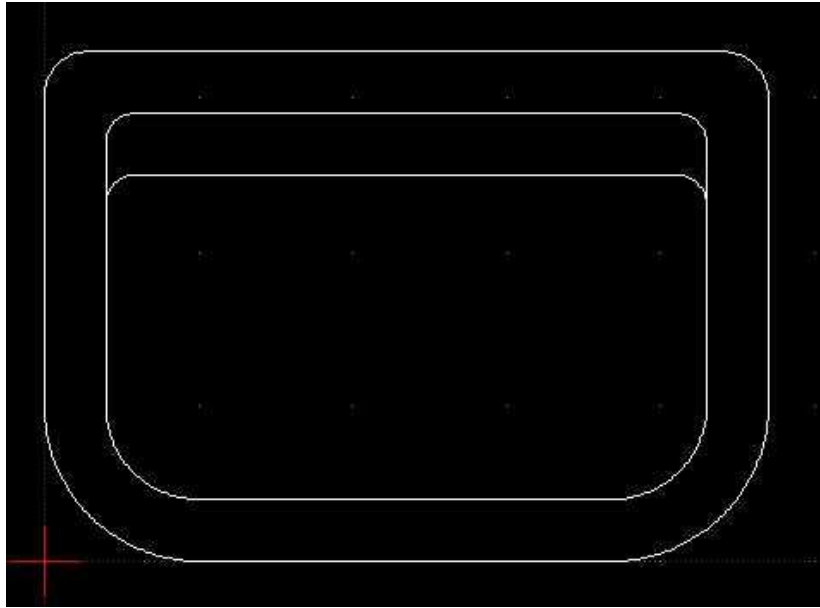
In order to draw the curves, the inner frame must be split into lines because it will not be possible to connect the lower fillets.

To explode select the frame, then **Tools, Modify, Ungroup**. It is also possible to explode the frame with the same command and pressing Enter after the selection to get the same result.

Disconnect the attraction on the grid.

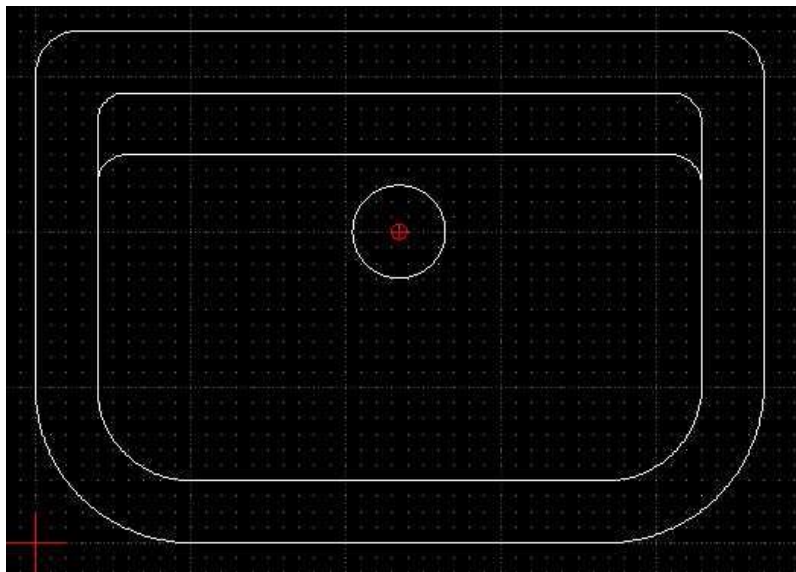
It is necessary to draw the bottom roundings first and then the top ones.

If the top rounding is drawn first, the bottom rounding will create a space, so you will have to erase the top rounding and redo the rounding.



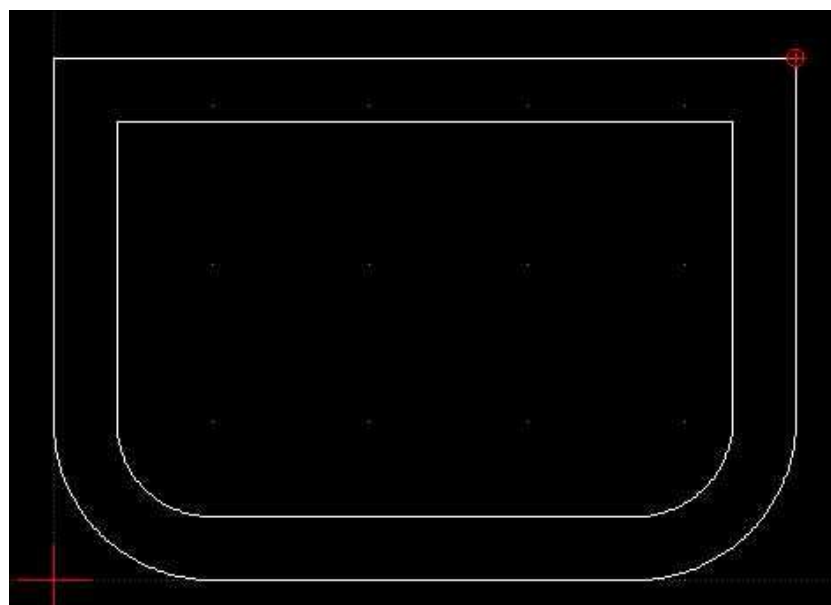
Draw rounding of R0.1, R0.06 and R0.02.

All that remains is to draw the circle R0.03 at 0.13 from the top.

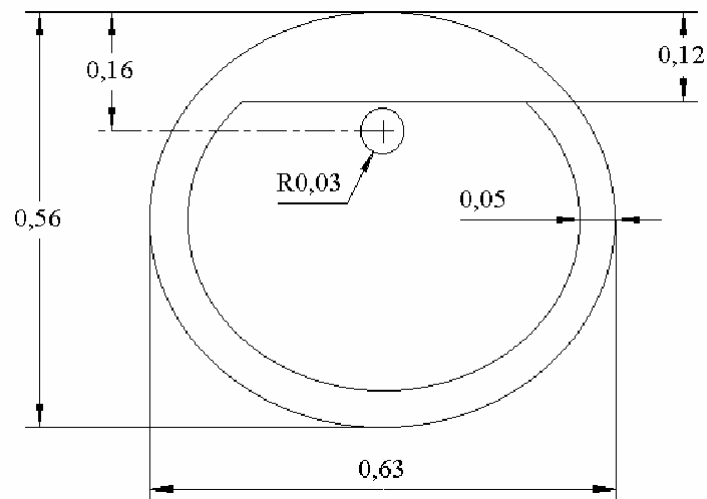


Another solution for the layout of the hand wash:

It is possible to create the R0.1 rounding on the first frame and to create the inner frame with Create broken lines equidistant at 0.04. This gives the figure below.



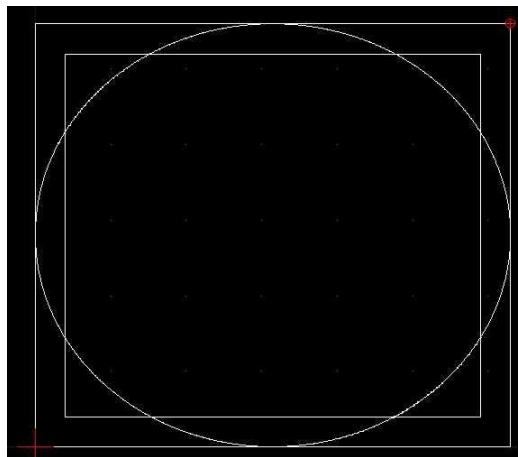
4-Washbasin



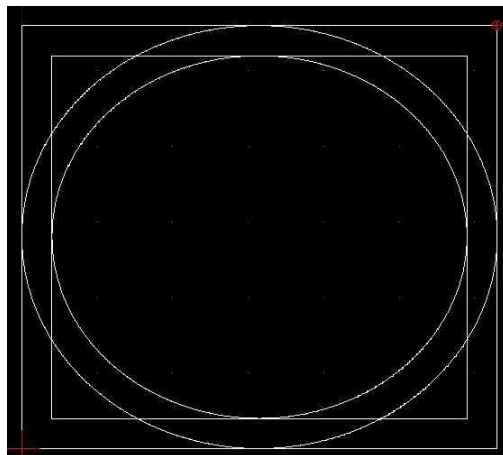
The plot will be done with Ellipses inscribed in rectangles. Draw a rectangle of 0.63 by 0.56

Draw an inner rectangle with a spacing of 0.05 with the command Create equidistant broken lines.

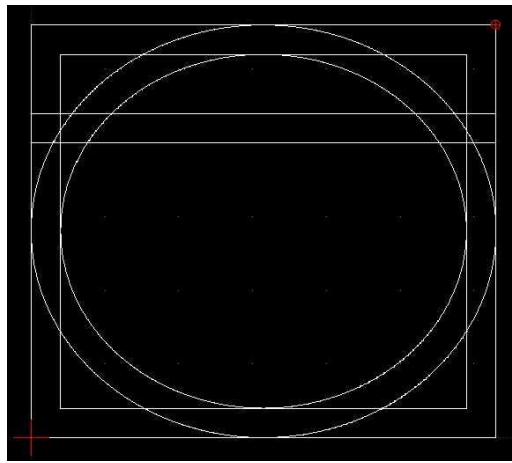
Tools, Ellipse, Inscribed Ellipse,



Click on the first side of a frame, then on the next side until the fourth side.

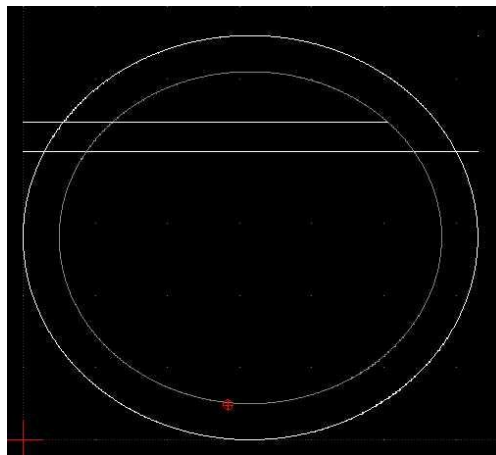


Draw parallel lines at 0.12 and 0.16. Then it is possible to delete the frames.

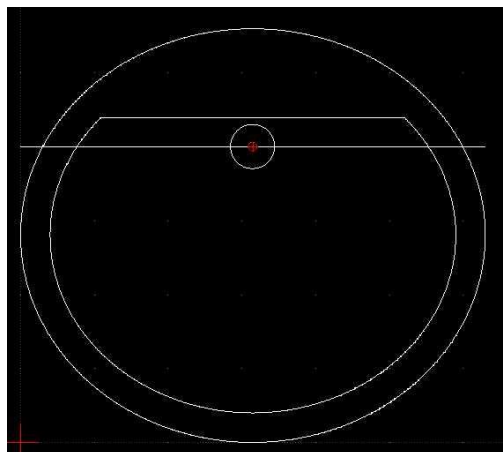


Adjust the ellipse and the upper line with the command Adjust by clicking on the ellipse and then on the line on each side near the ellipse. Press Esc to exit the command and then re-run the command to adjust the ellipse from the adjusted line.

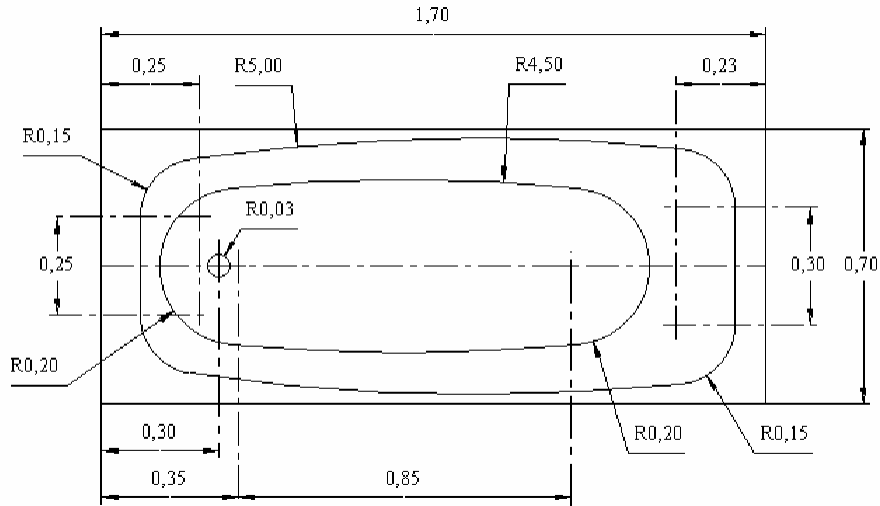
Note: It is also possible to start by selecting the line to remove the ellipse piece.



Draw the hole R0.03 in the middle of the lower line.



5-Bathtub



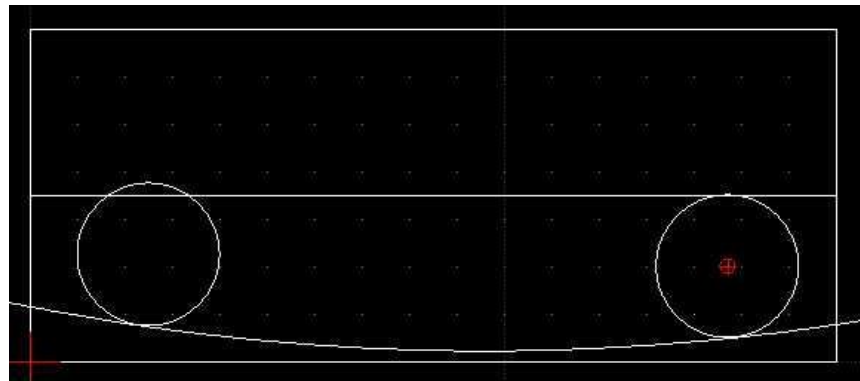
From a rectangle of 1.7 by 0.7 we draw the median axis and the axes at 0.15 and 0.125. From the left edge we draw an axis at 0.25 and an axis at 0.23 from the right edge.

At the intersection of these axes we draw a circle of R0.15.

Then delete the axes except the middle axis which will be used as an axis of symmetry, although it is possible to make the symmetry with the middle attraction.

Draw the tangent circle to the two circles. **Tools, Circle, Tangent to 2 circles, Radius.** The radius is 5.

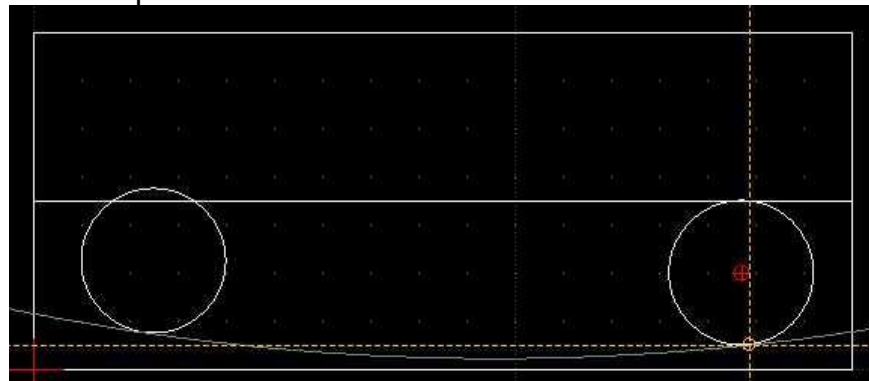
Select each circle and move the pointer up.



Divide the tangent circle:

Tools, Modify, Split.

Activate the intersection attraction, then click on the circle R5 and on an intersection with a circle R0.15 and repeat the same operation for the other intersection.



Note if this does not work with the intersection it is possible to use the method used for the bottom of the bath, see below.

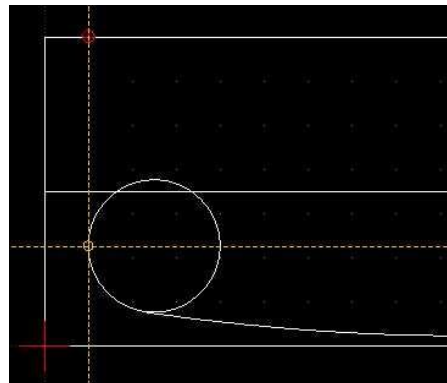
Deleting the R5 circle is not necessary.

Draw a vertical line tangent to each circle:

Line 2 points with **attraction ends**, then click on the circle and activate the constraint **Constrain vertically**.



Note: do not forget to disable the vertical constraint for each line drawing.



Symmetry:

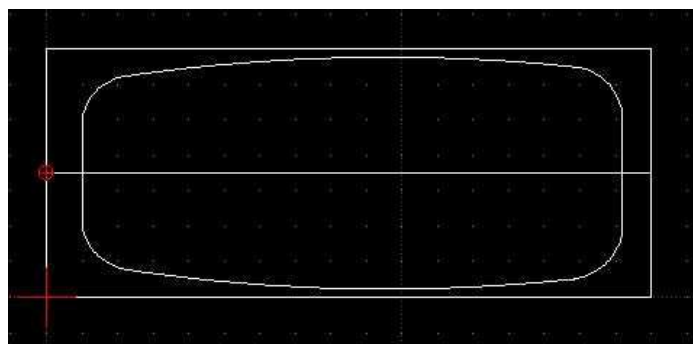
The arc R5 is copied by symmetry using the ends of the bathtub's axis of symmetry as points.

Tools, Modify, Axial symmetry.

Select the arc, then validate, and then click on each end of the axis. Activate Keep original.

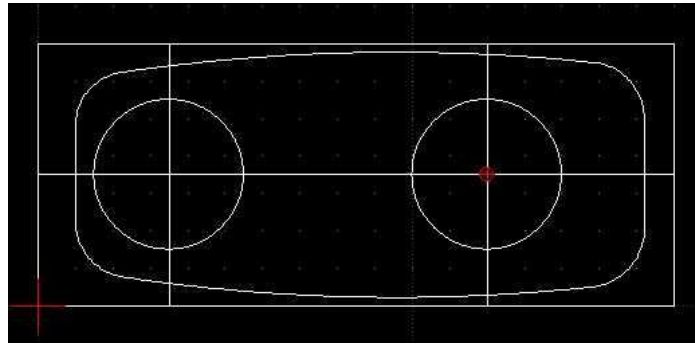


After deleting the 2 circles, R0.15 rounding is done to complete the plot.



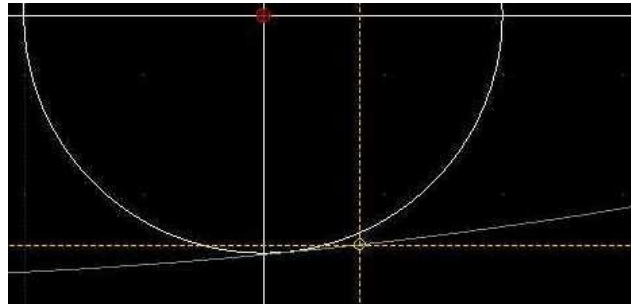
Tracing the bottom of the bathtub:

The centers of the circles are at 0.35 from the left edge and 0.85 from the last line. With the attraction intersection place 2 circles of R0.2.

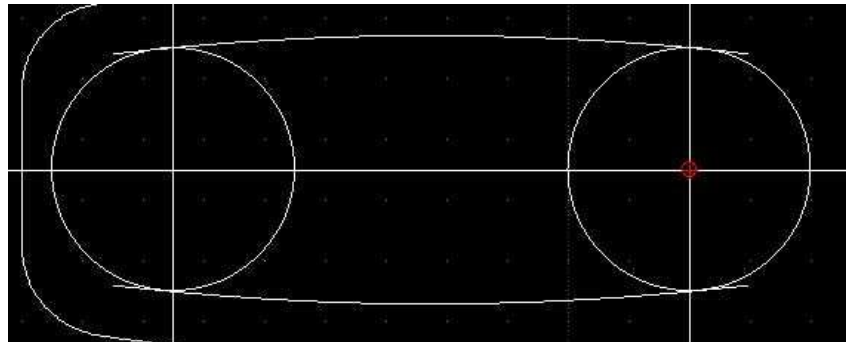


Draw an arc tangent to the 2 circles of R4.5.

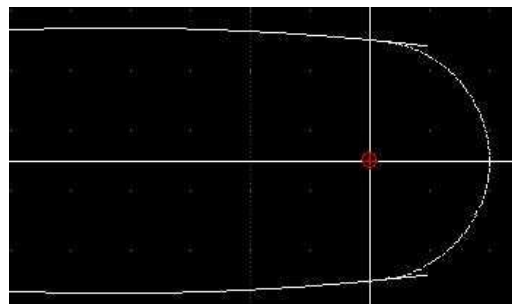
The circle is divided, for ease of construction, with the attraction **Hook entities** and the division points are placed near each circle R0.2.



The resulting arc is copied by symmetry and the circles are deleted and replaced by R0.2 rounding.

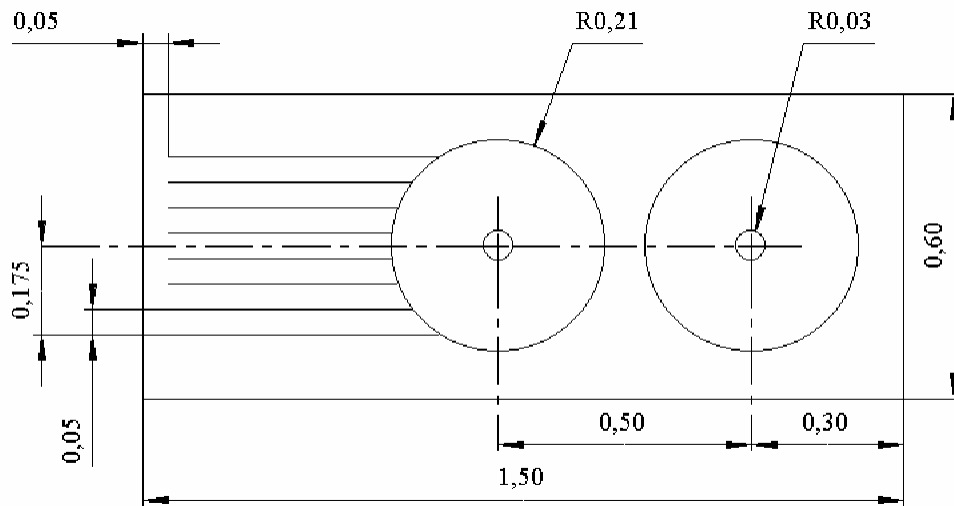


Note: the placement of the rounding is tricky and you have to be very careful with the position of the rounding.

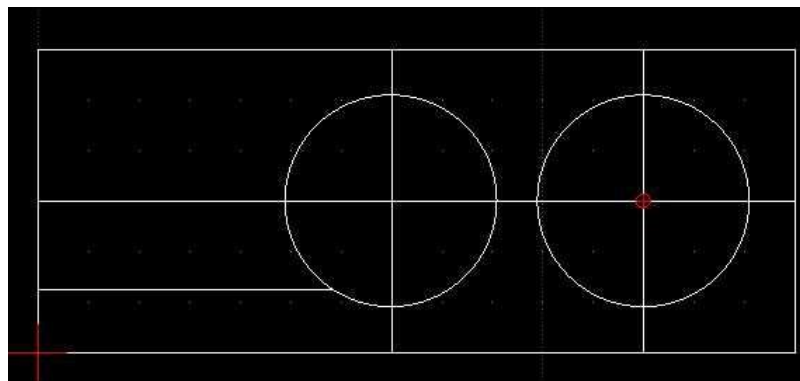


Installation of the drain hole :
It is placed at 0.3 from the left edge and with an R0.03.

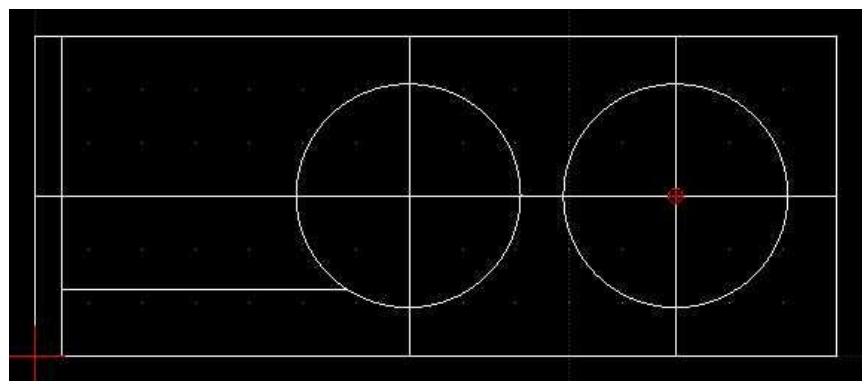
6-Sink



Draw a rectangle of 1.5,0.6 Draw the axis of symmetry
 Draw the axes of the bins
 Draw the circles R21
 Draw a line parallel to the axis at 0.175. Fit this line on the left circle.



Draw a line 0.05 from the left edge. Adjust the line on this vertical line.

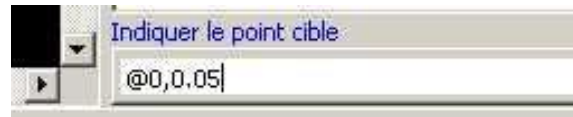


Copy the horizontal line at 0.05. **Tools, Modify, Move / Copy** Select the line and validate.

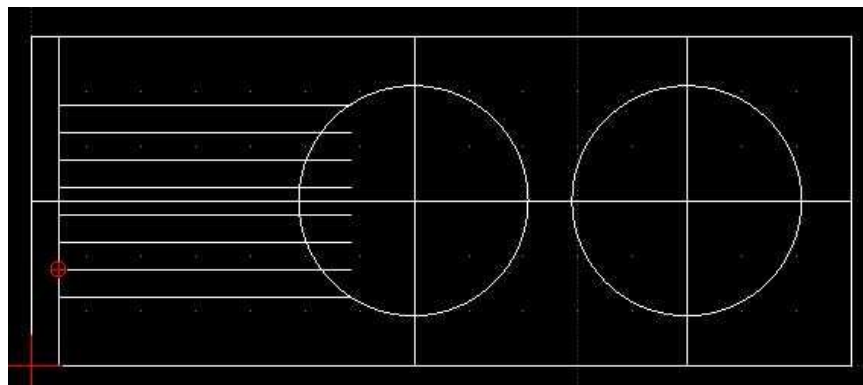
The reference point is the left end of the line.

Click in the command box under Specify target point and enter the value @0.05. The tab key can also be used to go directly to the command box.

Note: the @ sign means that the coordinates are taken into account from the last point placed.



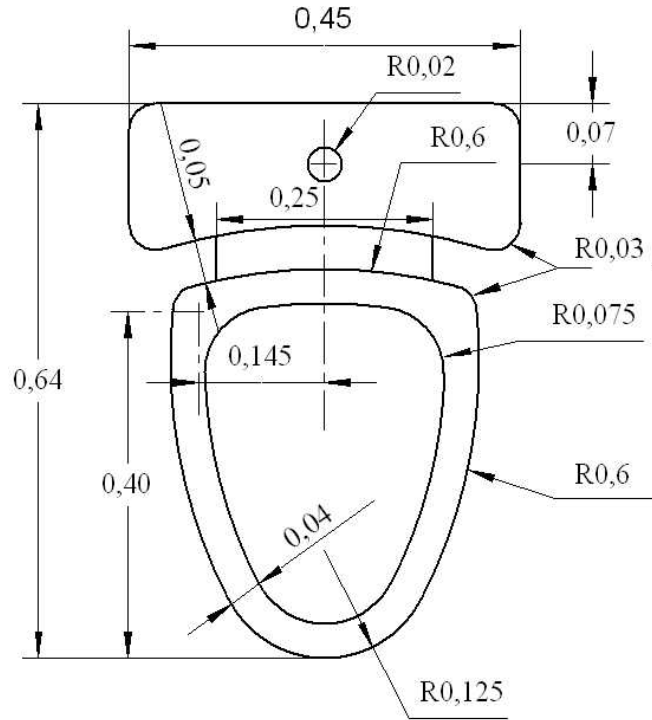
The copy window appears in which you must enter the number of copies, 7 in this case. The original does not count.



It is now possible to delete the axes and the vertical line 0.05. Adjustment of the lines on the circle.

Drainage hole layout R0.03.

7-WC



Draw a circle with center 0,0 and R0.125.

Draw an axis of symmetry with origin 0,0 and length 0.64-0.125 (subtraction is automatic).

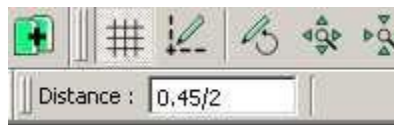
Checking the dimension of 0.64. By using the attraction ends and **Tools, Information, Distance point to point.**

This gives the value, in the command line: Distance: 0.64 Cartesian: (0.00 , 0.64) and polar: (0.64<90.00°) .

Copy the axis by shifting 0.225 :

Tools, Modify, Offset.

Click on the axis, then validate. Enter the offset value $0.45/2$ and click on one side of the axis, then Esc to deactivate the drawn line.



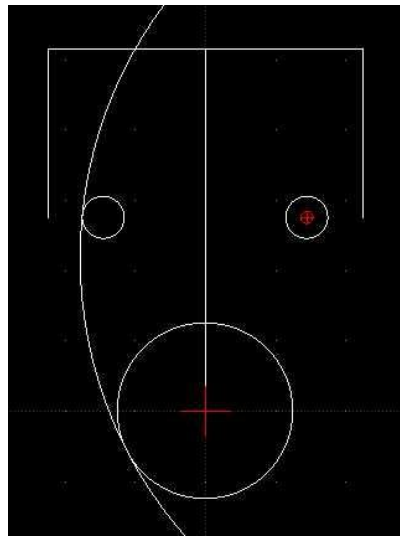
Relaunch the command and start again for the other side. Check the

distance between the 2 lines drawn. There is 0.45. Draw a line

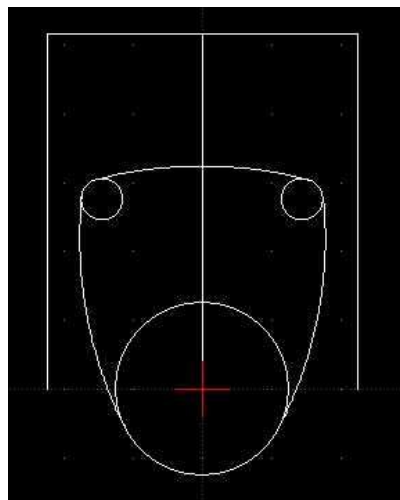
between the two ends of these 2 lines.

Draw the axes of the circles R0.03, then the circles.

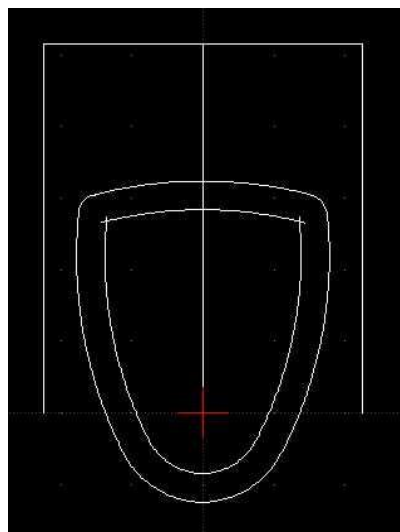
Draw a tangent circle of R0.6.



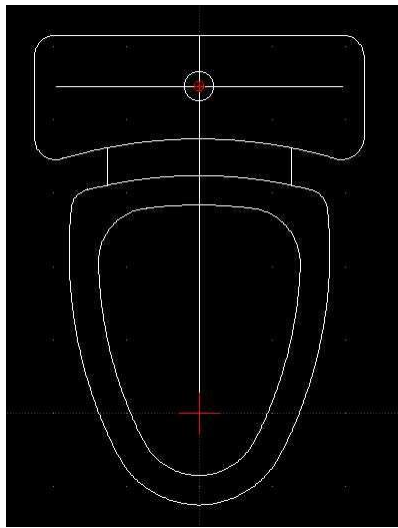
Divide this circle with circle R0.03 using intersection attraction if it works. Otherwise divide near the circles as for the bottom of the bathtub and delete the circles which will be replaced by fittings.



Plot the inner shape at 0.04 and the upper arc at 0.05.
Using the Parallel Line command which also works for arcs.

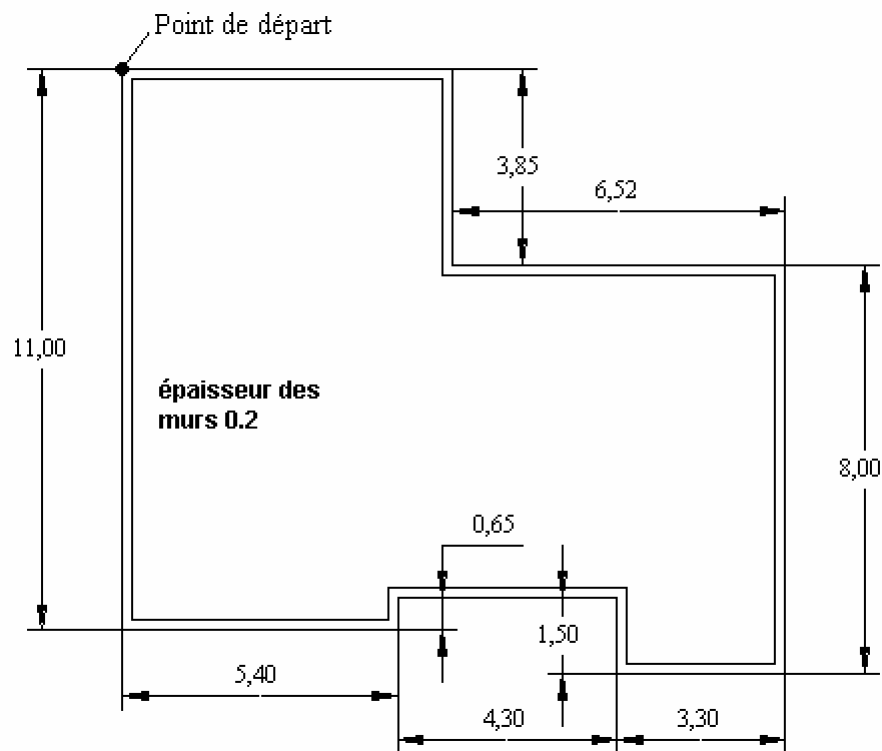


After having drawn parallels at 0.25/2 of the axis it remains to set up the roundings of R0.03 and R0.075 then the circle R0.02 at 0.07 of the upper edge.



8-House walls.

There are no tools for making the walls, so we have to find a solution.



Construction with 2-point line:

The starting point is set in this case to 0.11 and then 0.0.

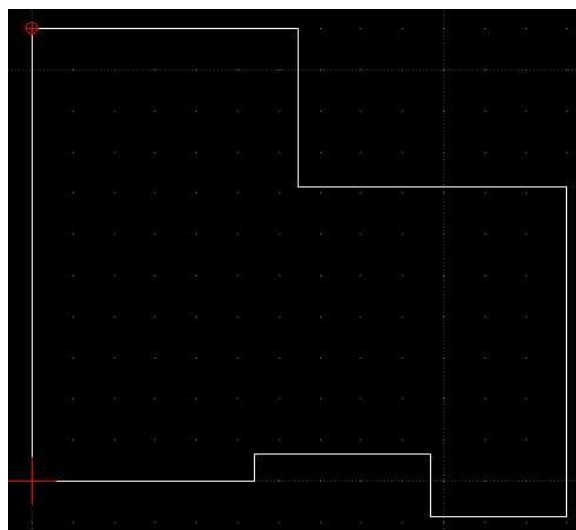
Continue plotting the following point points in polar coordinates: @5.4<0; @0.65<90; @4.3<0; @1.5<270; @3.3<0; @8<90; @6.52<180; @3.85<90 then select the Close icon.



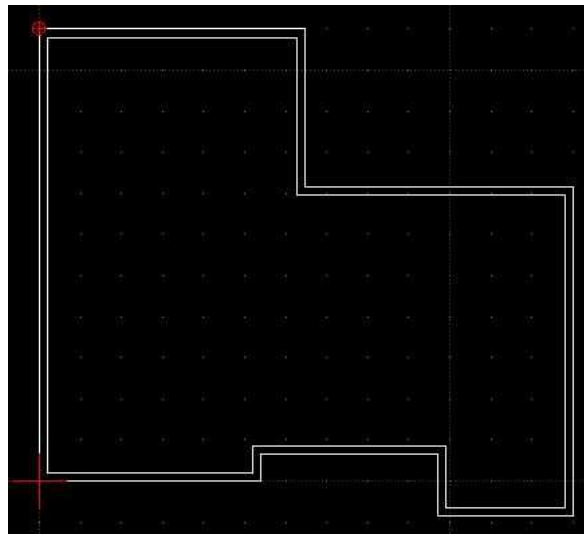
Transform lines into broken lines:

Select all rows: **Tools, Selection, Select all.**

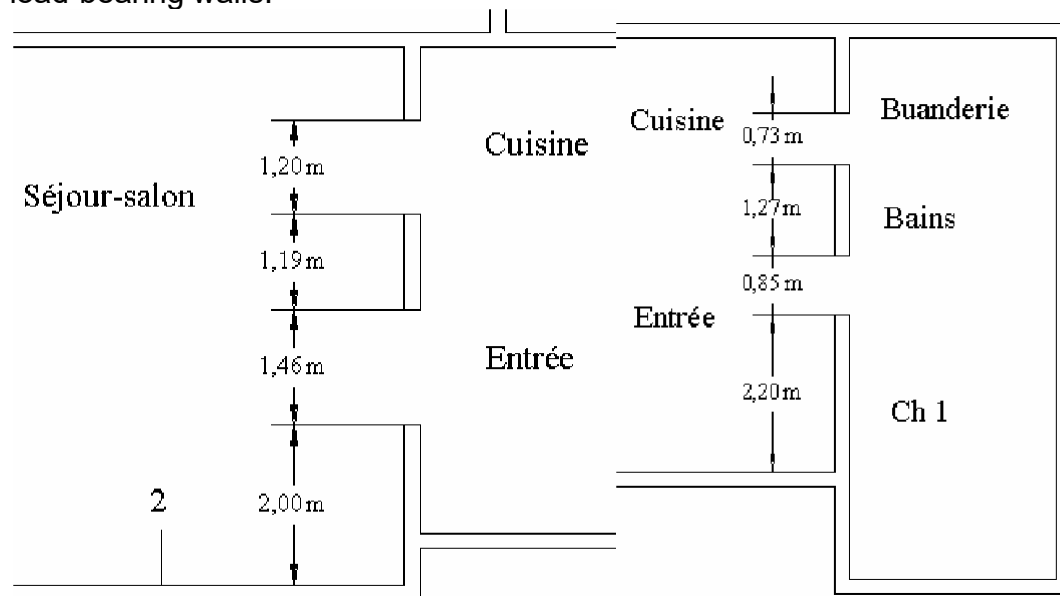
Tools, Broken line, Create a broken line from existing segments.



Note: It is possible to integrate arcs of circles in a broken line. Drawing the inner contour at 0.2.

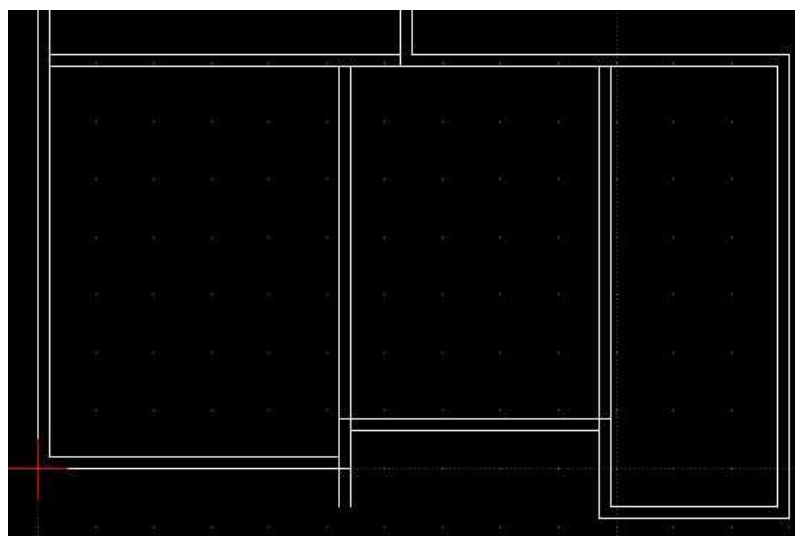


Layout of load-bearing walls:

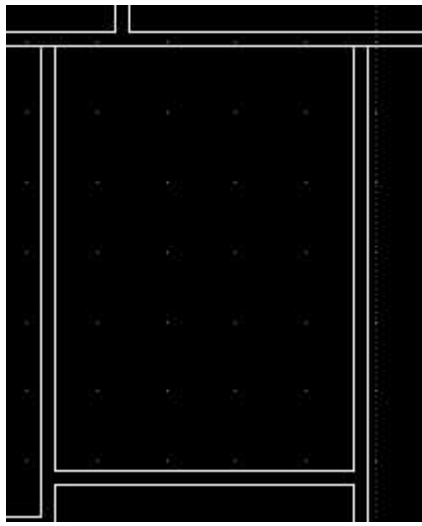


Note: Here is a method that gives an acceptable result.

Select the inner broken line that is broken with Tools, Modify, Dissociate. With **Tools, Line, Parallel passing through a point** and the intersection attraction.

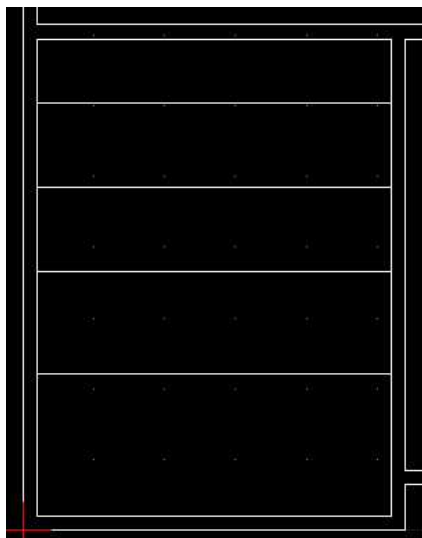


Wall adjustment: Tools, Modify, Double adjustment it is possible to obtain this layout.

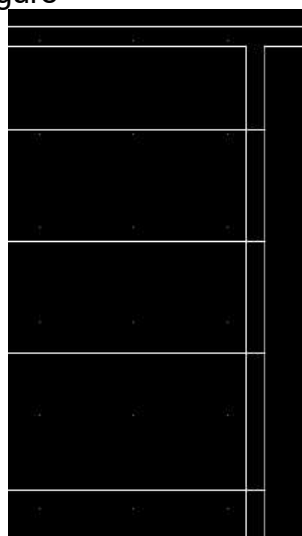


Further adjustment: when adjustment is not possible it is preferable to divide the entities to be adjusted.

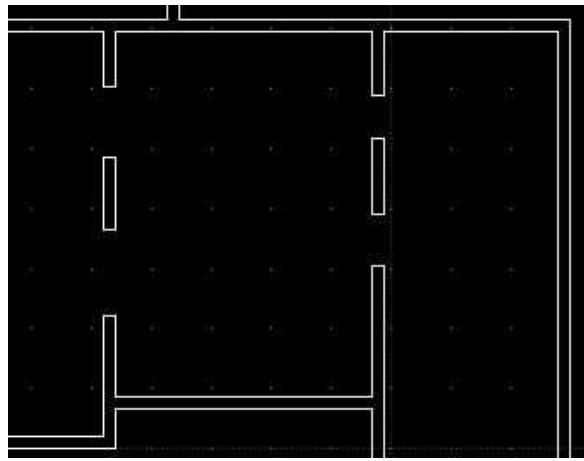
The openings are made with parallels.



The adjustment allows to obtain this figure



The division and a double fit gives this figure.



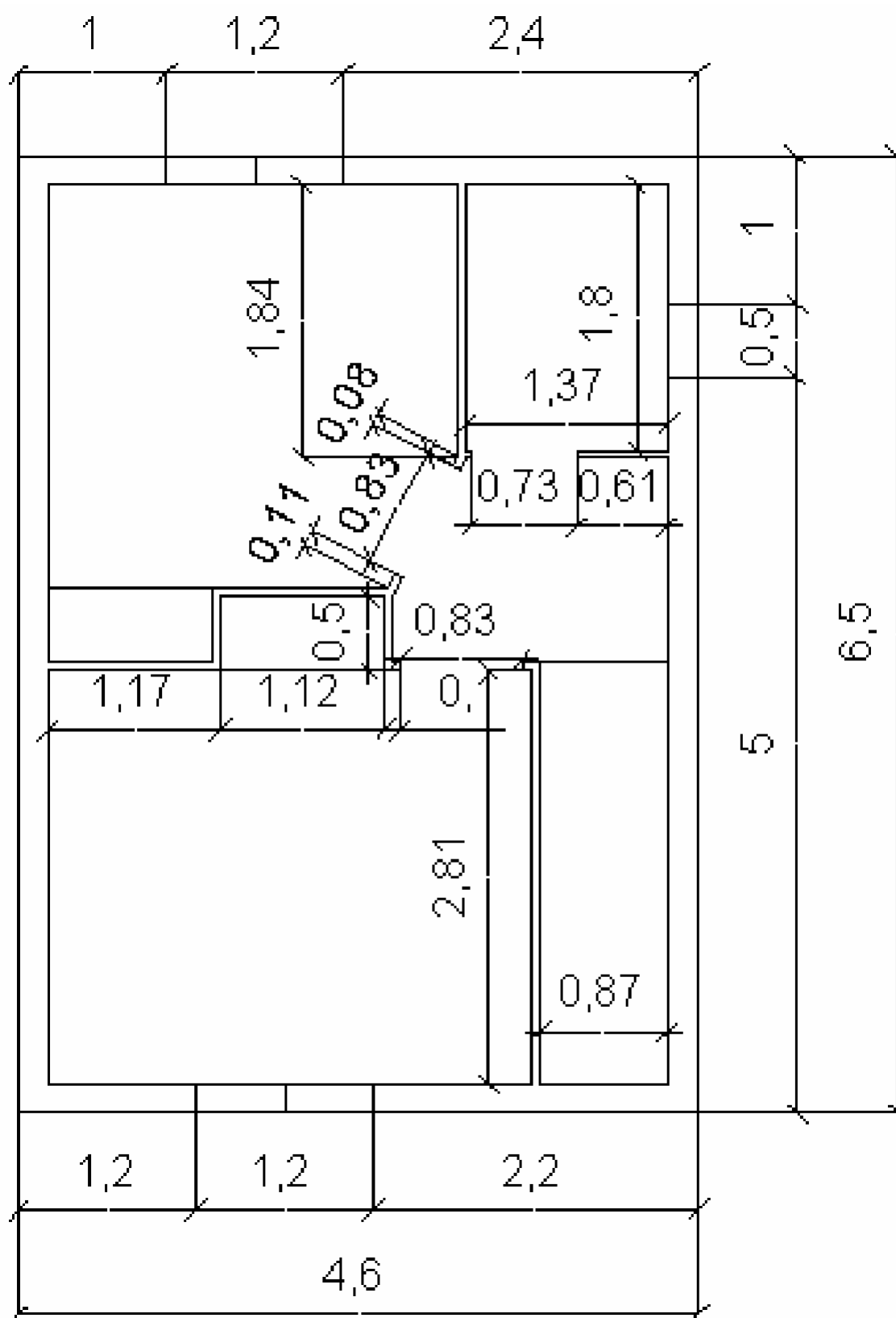
Layout of the interior partitions which have a thickness of 0.05.



The drawing is saved, for example, in the librecad directory, walls.

This design will be used to set up the previous sanitary elements.

The shower is also located on the floor, as well as the hand wash basin. Here is the plan: the thickness of the walls is 0.2 and 0.05 for the partitions.



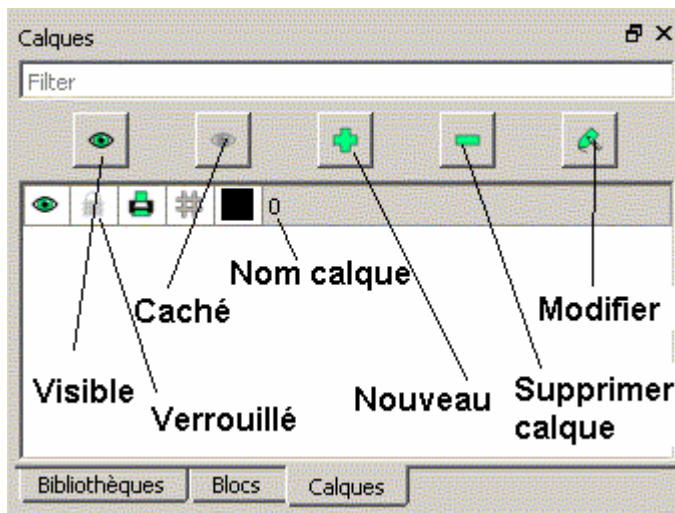
Plans of the openings of the ground floor:

[illegible]

9-House dressing:

The goal is to use the previous drawings and place them on the wall drawing. The position of the blocks will be placed as in the drawing of the house in Chapter 1-Librecad and on a particular layer.

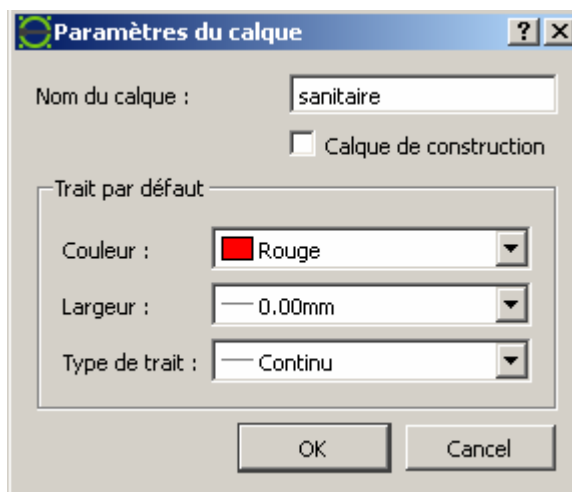
Creating a layer :



Layer attributes can be changed by placing the cursor over the layer name and right-clicking.

- Dégeler tous les calques
- Geler tous les calques
- Ajouter un calque
- Supprimer le calque
- Éditer les attributs du calque
- Basculer la visibilité du calque
- Basculer l'impression du calque
- Basculer le mode construction du calque

The layer is active if it is grayed out as in the figure above.



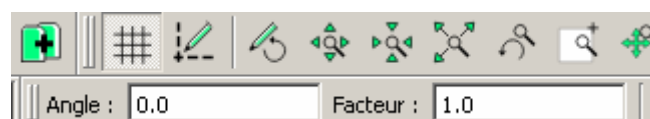
Construction layer allows to obtain unlimited construction lines, with the line tool.

Importing a drawing as a block :

File, Import, Block.

This is the same as creating a block that will be placed in the list of blocks.

The first is the wc drawing that is attached to the cursor and that must be rotated by 90°, keeping the factor1 scale. Then press Esc.



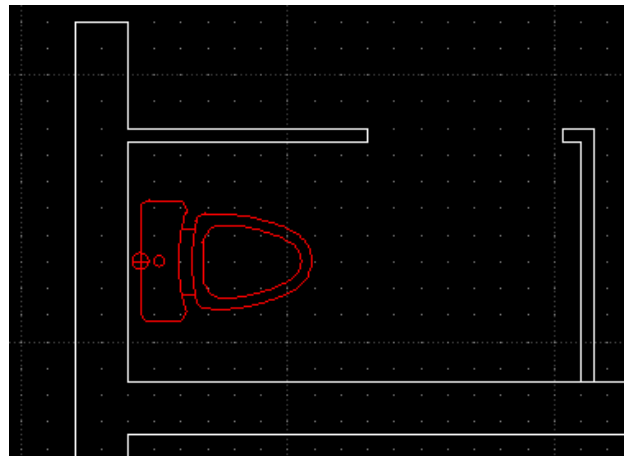
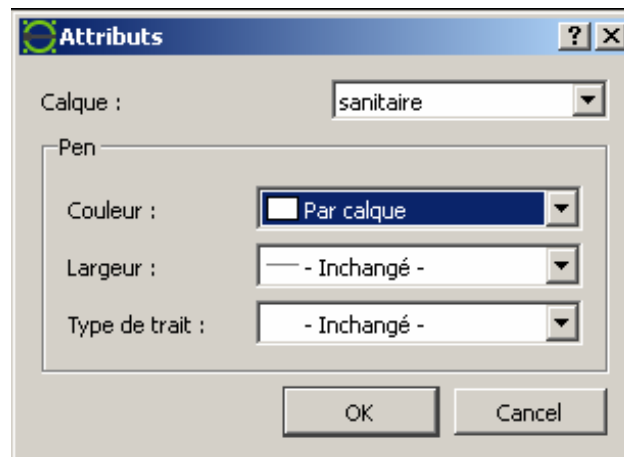
Note: The units of the application and drawing parameters must be identical.

Put the wc in position. It is located at 0.05 of the middle of the left edge. Tools, Modify, Move/Copy.

Place the toilet on the sanitary layer with the layer color :

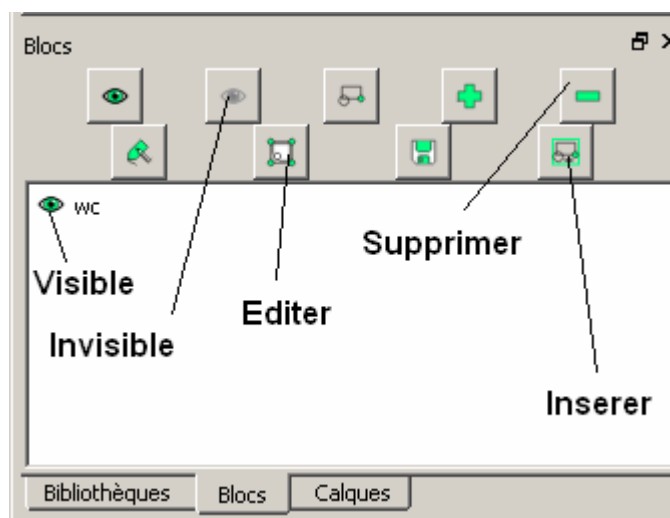
Tools, Modify, Attributes.

You must select the toilet and validate to modify.



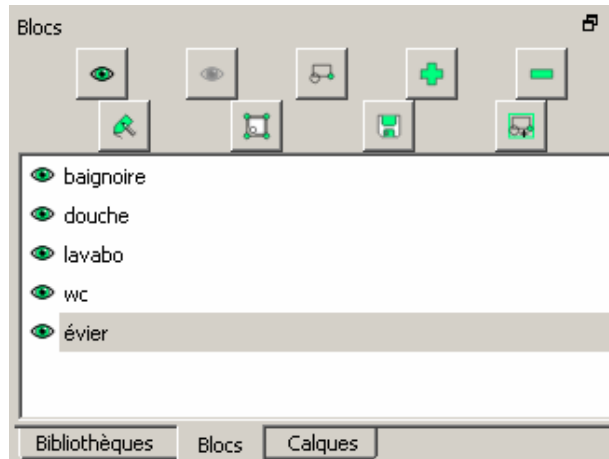
Blocks :

They can be edited and saved (if the block line is grayed out) as for the active layer.

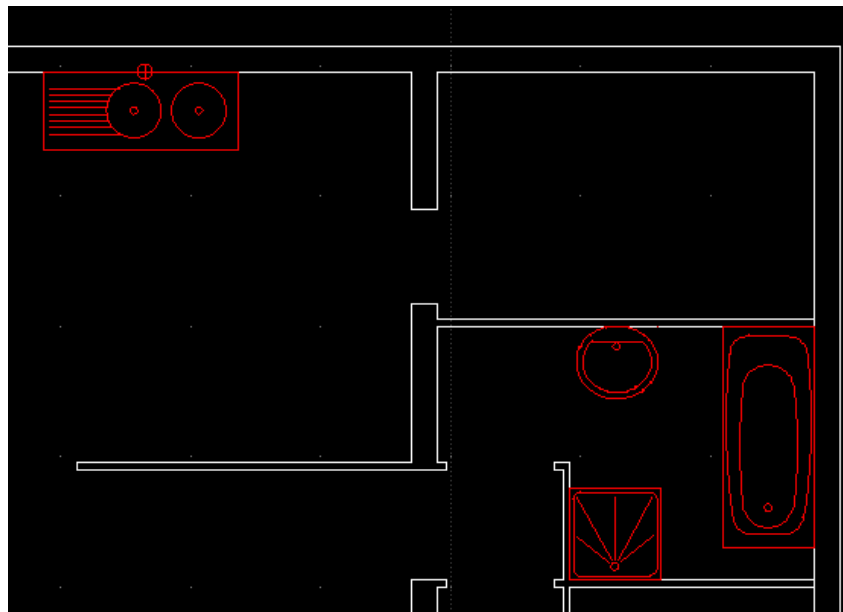


Editing a block will open a new drawing which you must then close to update.

List of blocks :



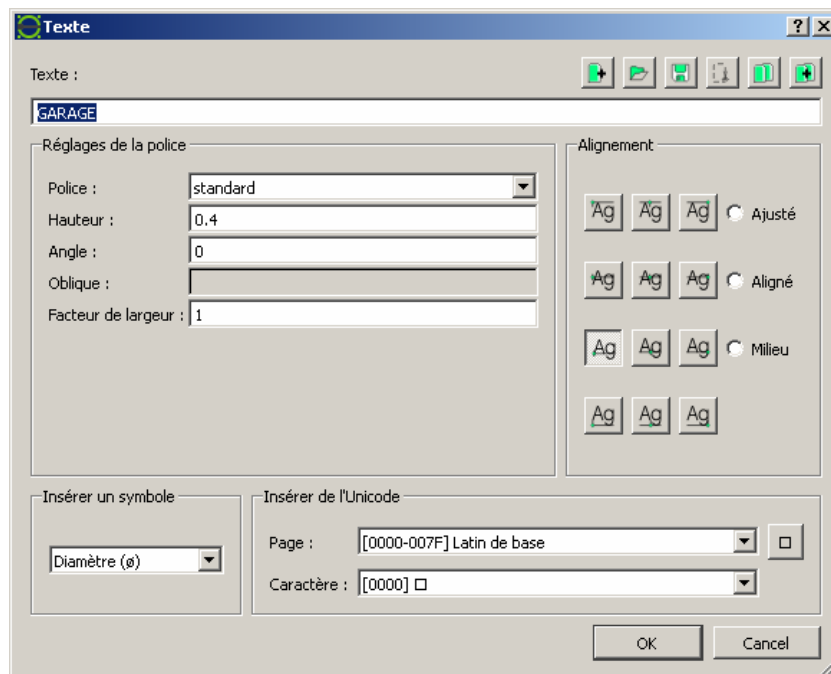
Blocks put in place:



The plan is not fully dressed as many blocks are missing to create or find on the internet.

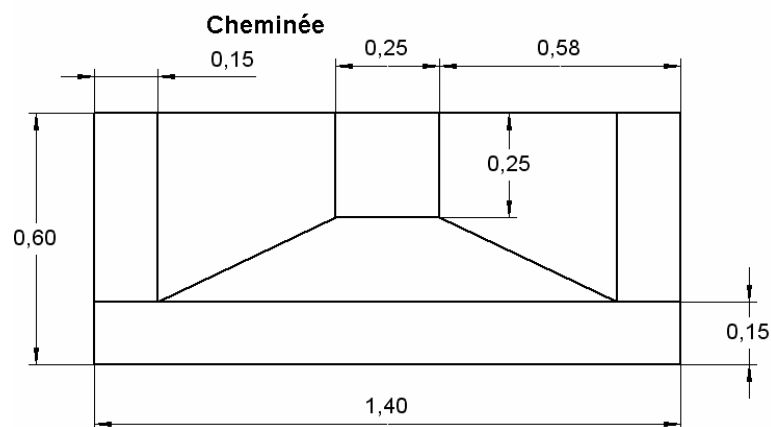
Text:

Tools,Text :

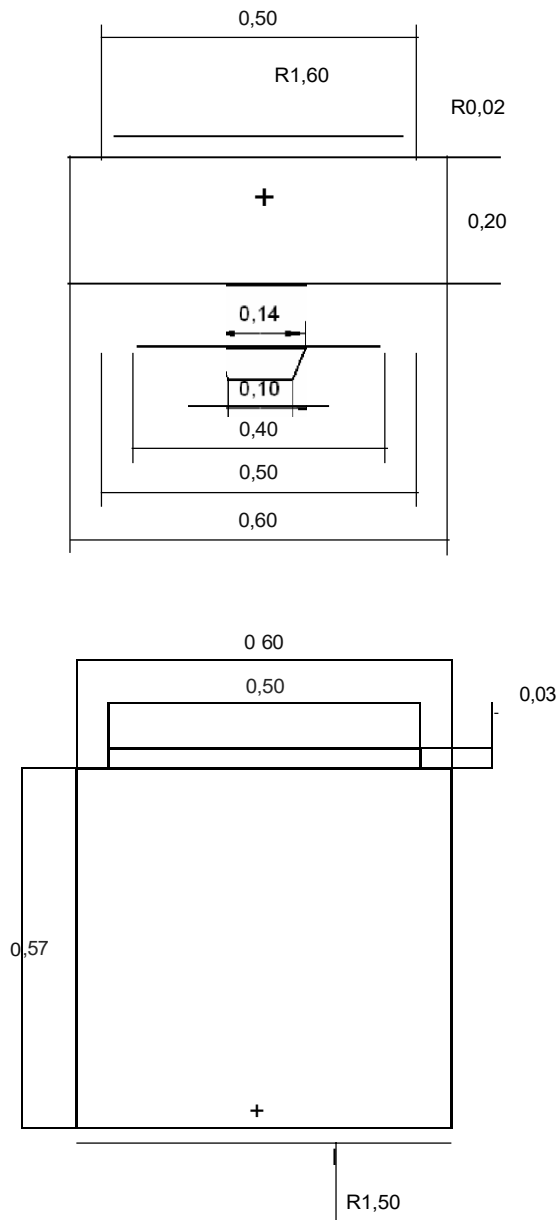


To modify the text use the Properties command, and to move it click on the blue dot of the selected text.

Elements that can be drawn :

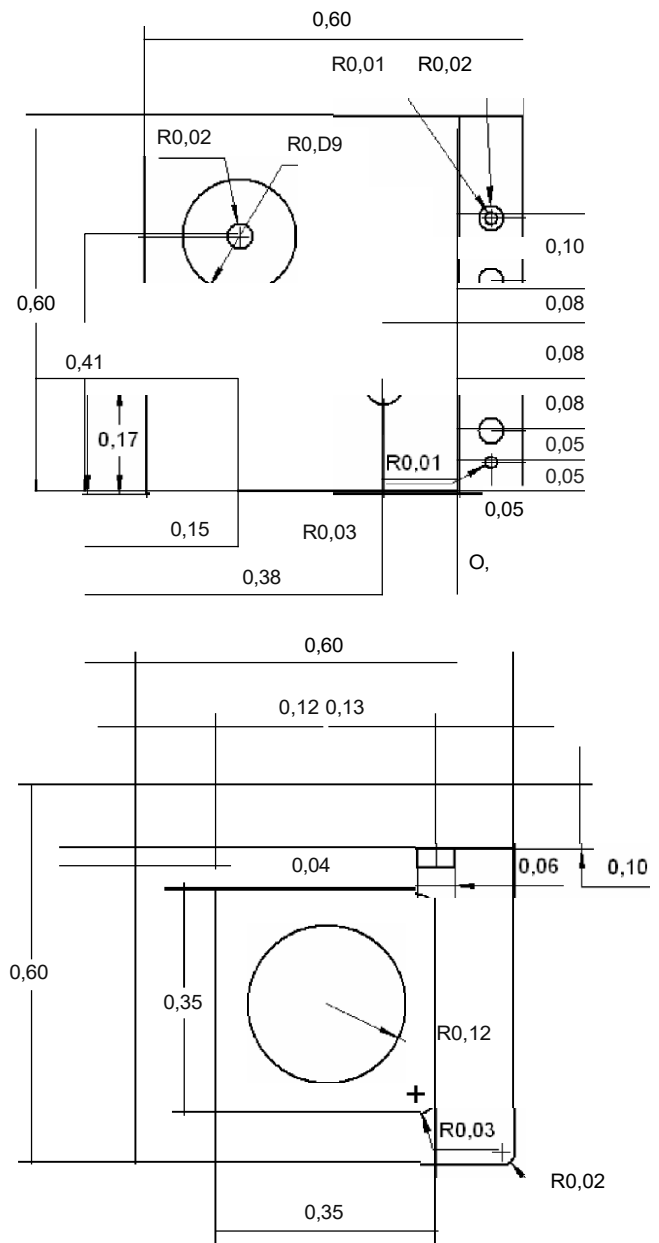


Older televisions

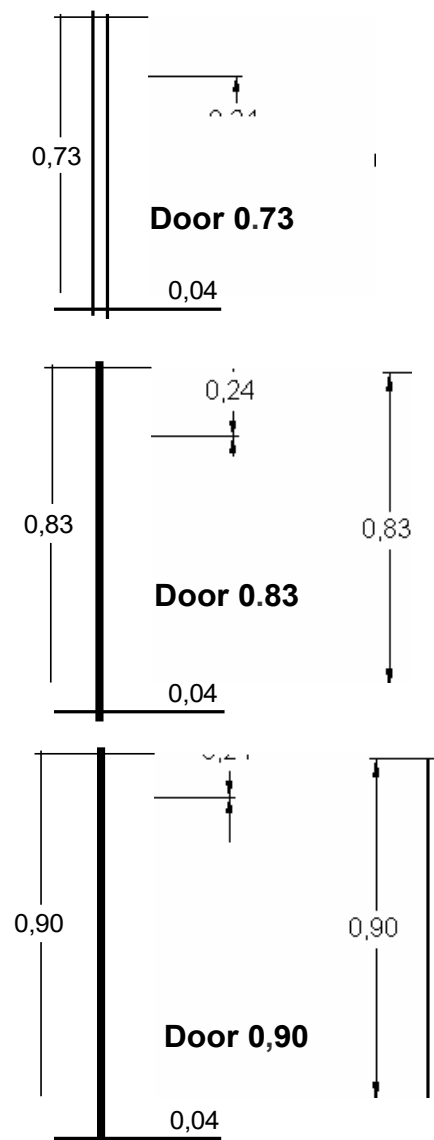
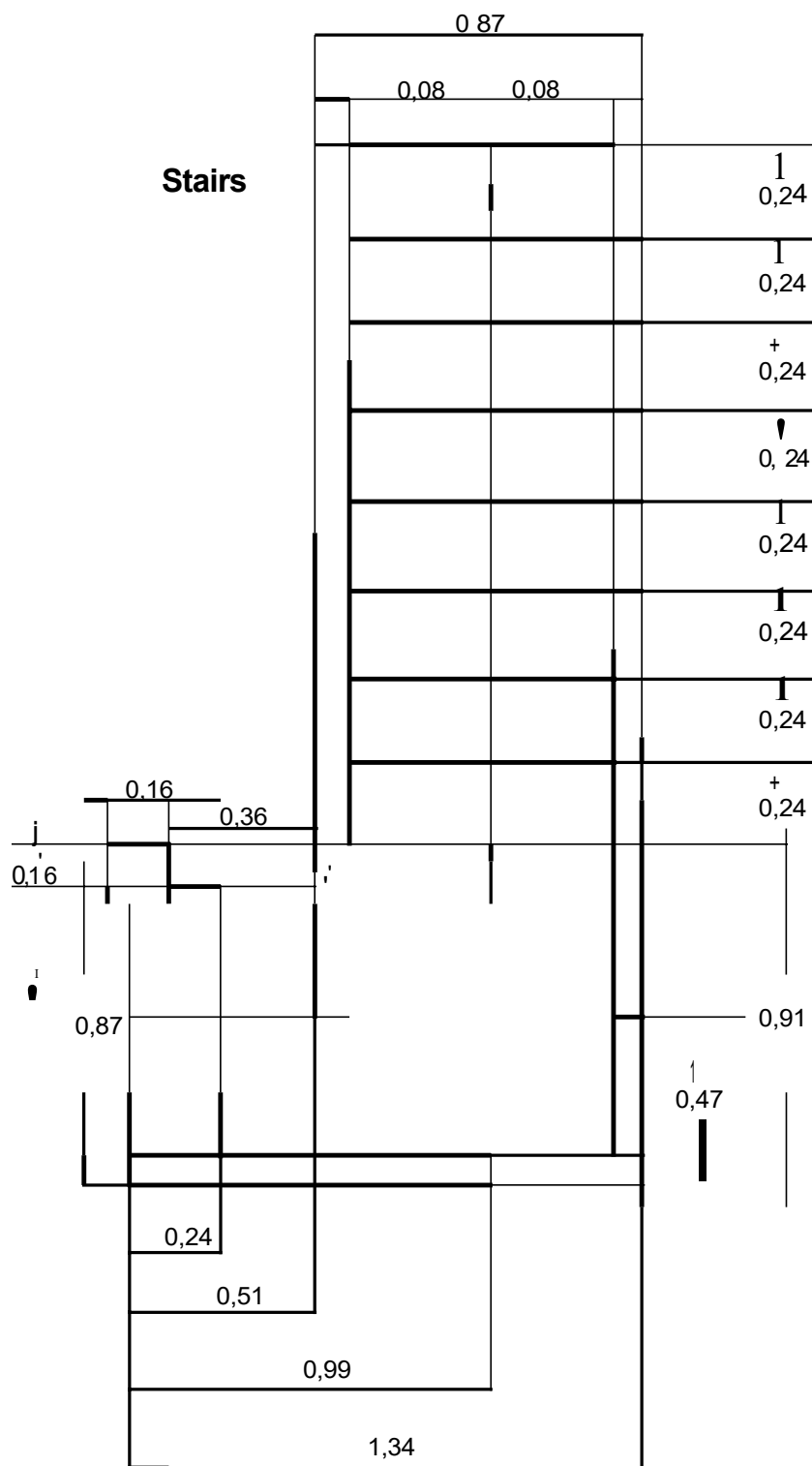


Dishwasher

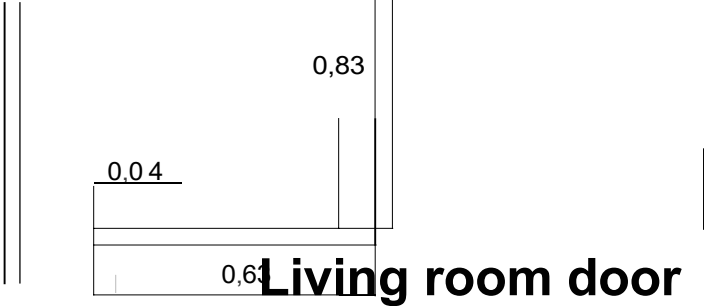
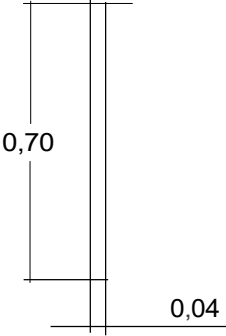
Gaziniere



Washing machine



Door1 ,4



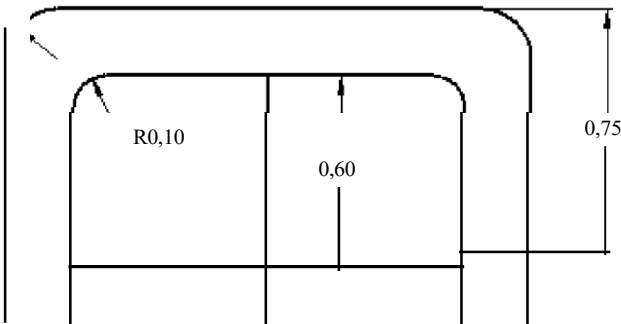
Living room door

Garage door



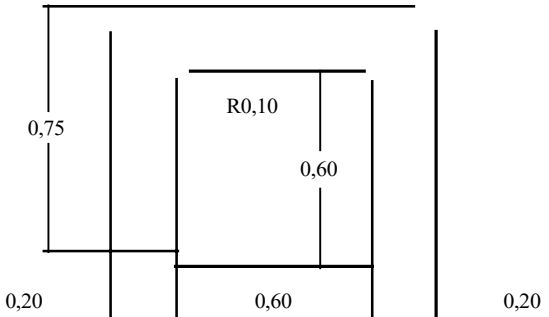
R0,15

Divan



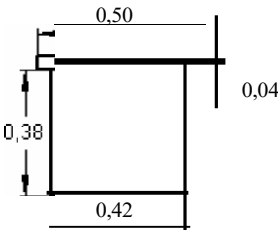
Armchair

R0,15

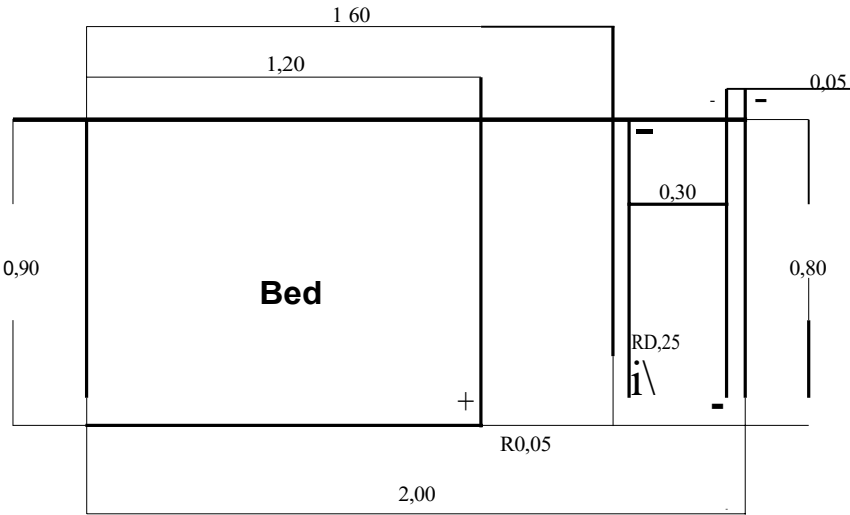


0'2 0 ---+---1-----=0:.....6.....O---J- _0,60 -+---+---0_2,0_ -_

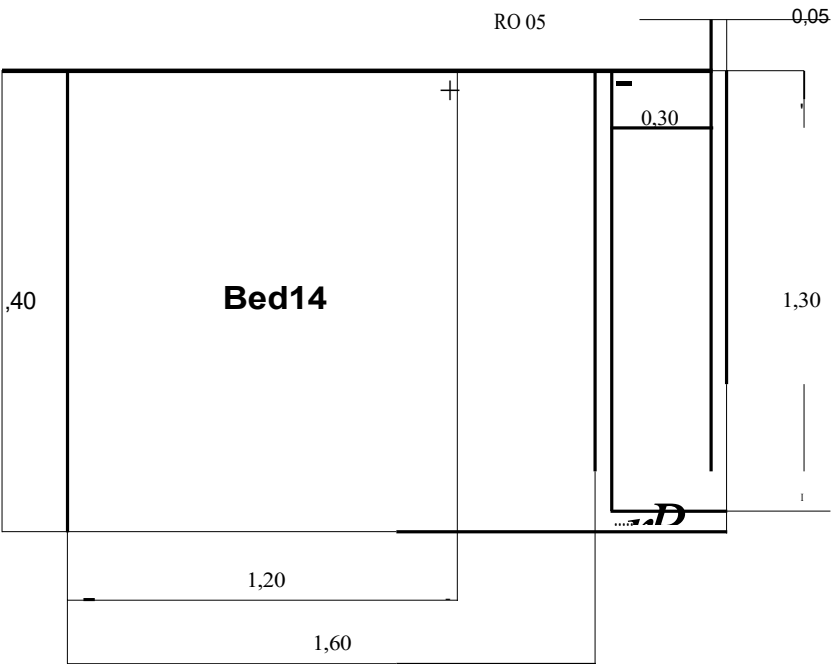
Chair



Bed

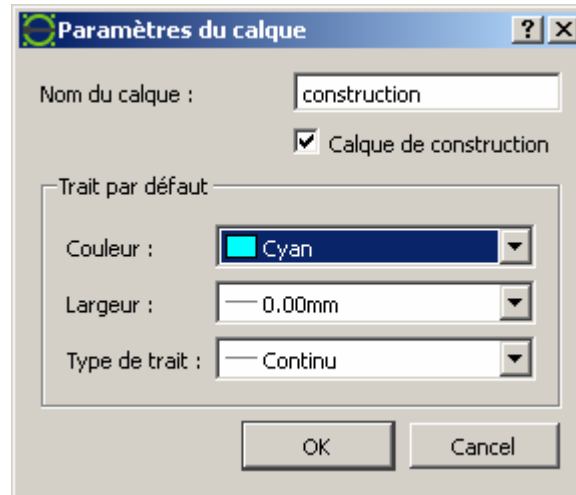


Bed14



10-Shower with construction lines:

Creation of the construction layer :



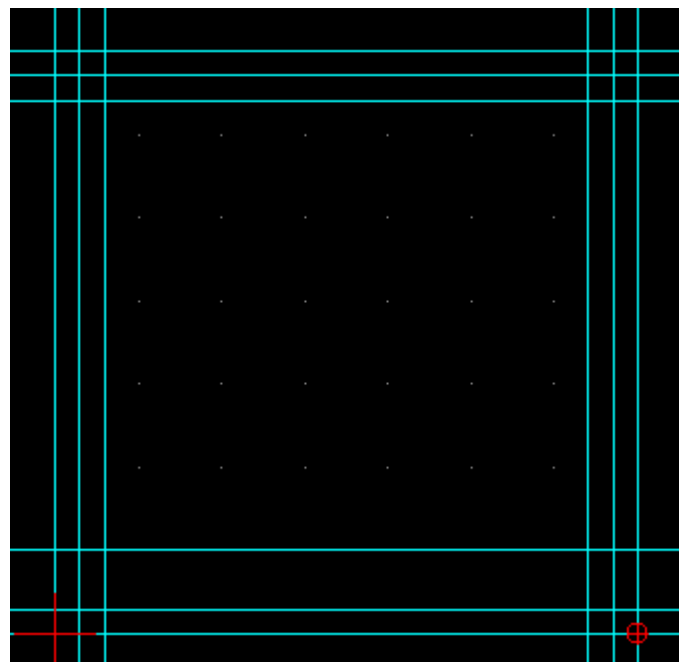
Tools, Line, Vertical.

Point 0.0 then 0.7.0.

Tools, Line, Horizontal.

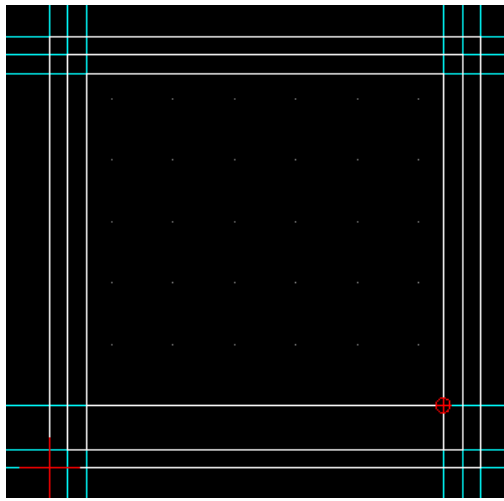
Point 0.0 then 0.0.7

Draw parallels at 0.03 and one at 0.1.

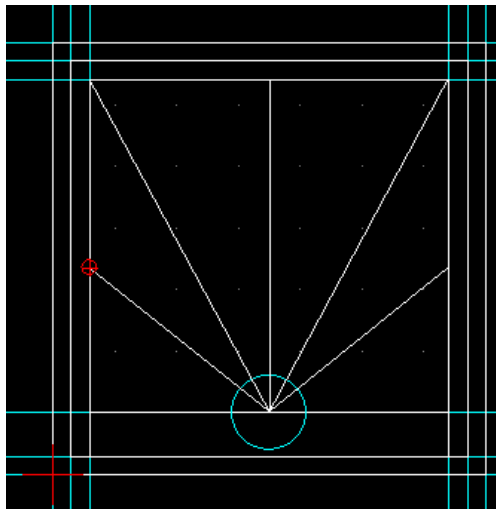


Drawing of the shower in layer 0 :

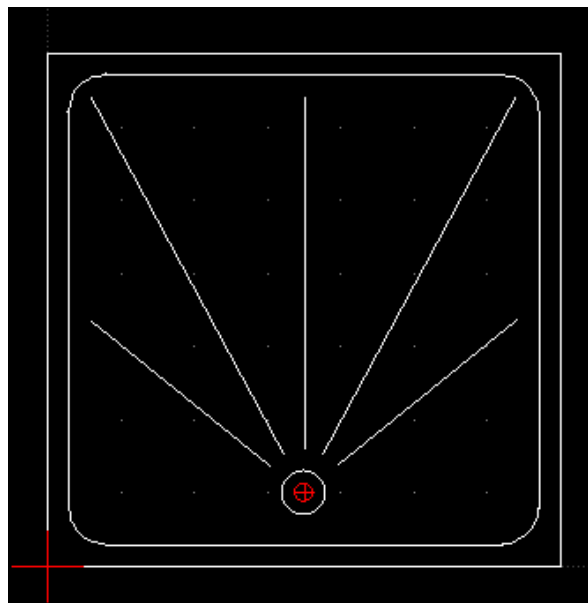
Simply grey out the layer in the Layer list. The drawing is done with for example Line 2 points and with the attraction intersection.



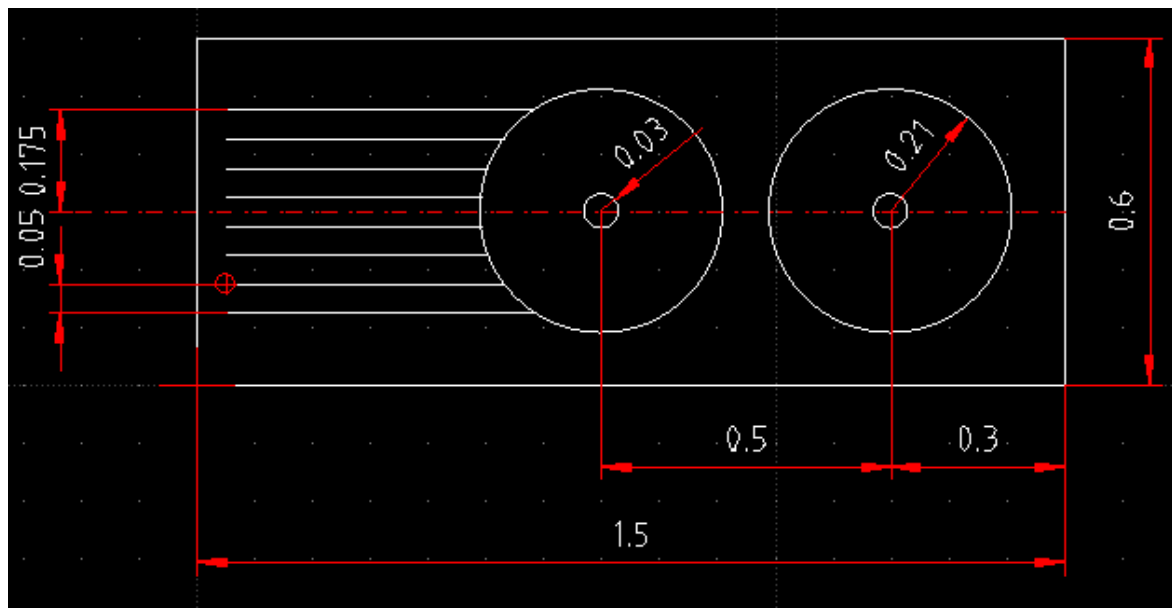
Draw the circle R0.06 either on the construction layer or on the layer 0.



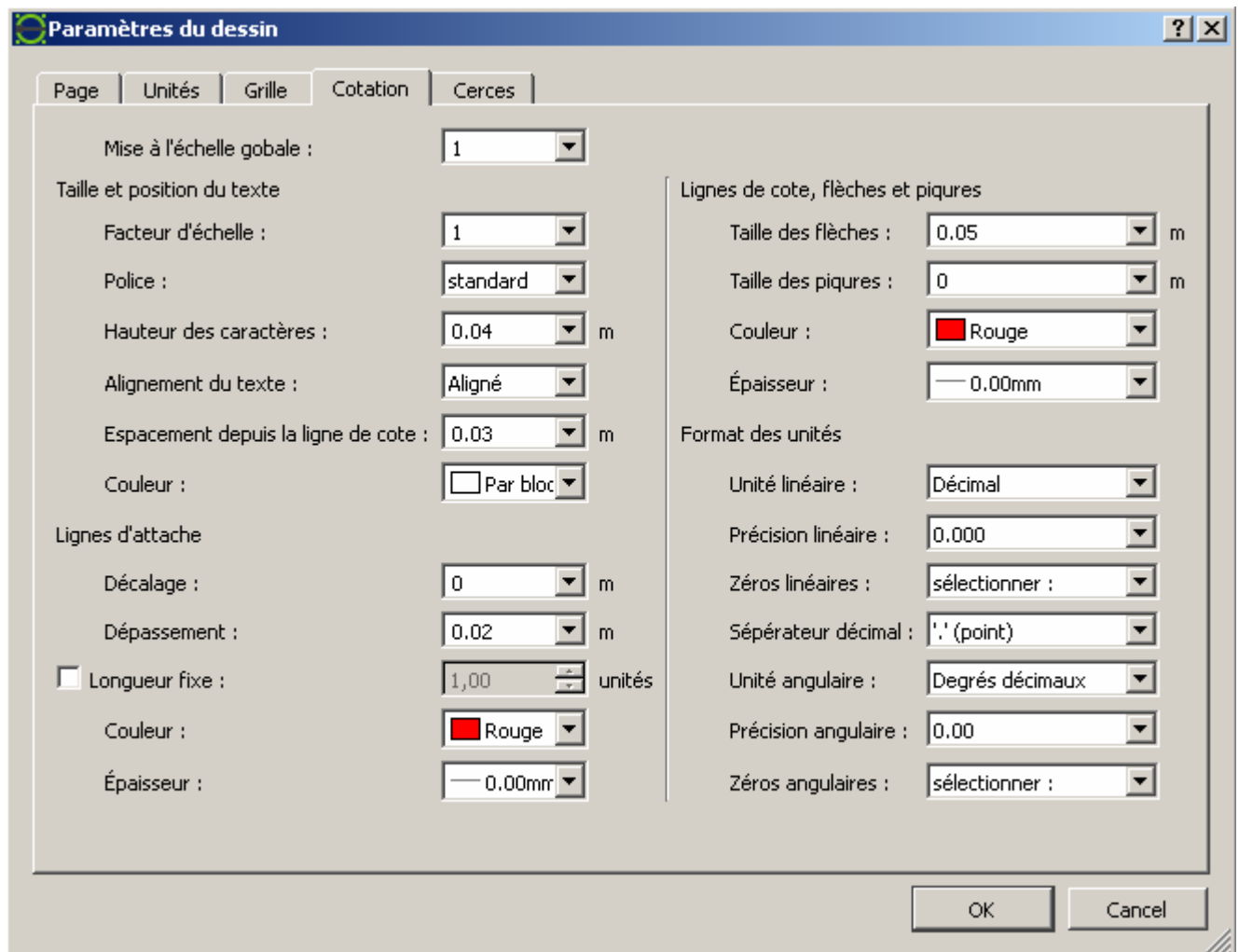
The rest of the layout does not contain anything new and the construction lines are deleted without any particular constraint, just delete the construction layer.



11-Sink quotation



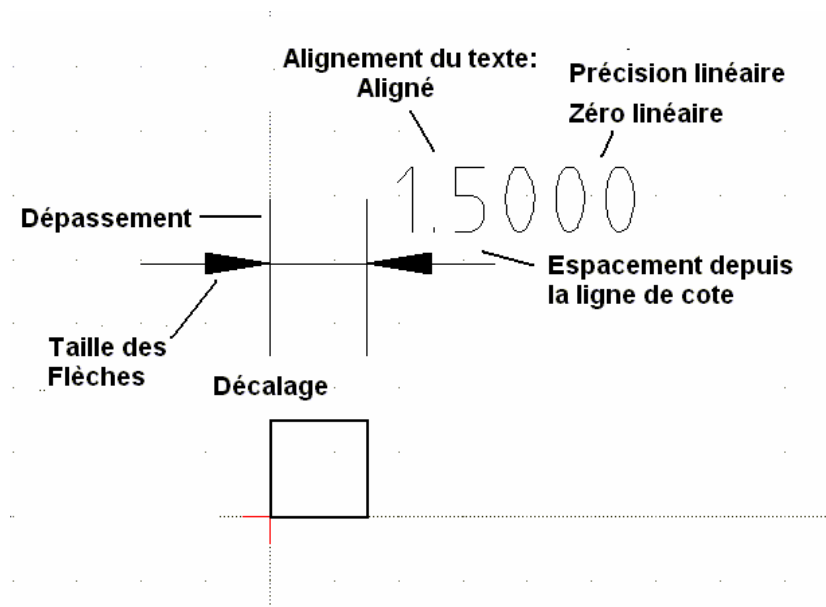
Setting the dimensioning parameters :



An axis of symmetry is drawn for dimension 0. 175

Horizontal, Vertical and Radial dimensioning was used after creating a dimensioning layer.

Meaning of Dimension Parameters: **Apply to all dimensions of the drawing.**



Text alignment: Either Aligned, i.e. above the line, or Horizontal but for all the dimensions.

Overshoot: line length above the dimension line.

Offset: space between the quoted part and the beginning of the tie lines. **Spacing**

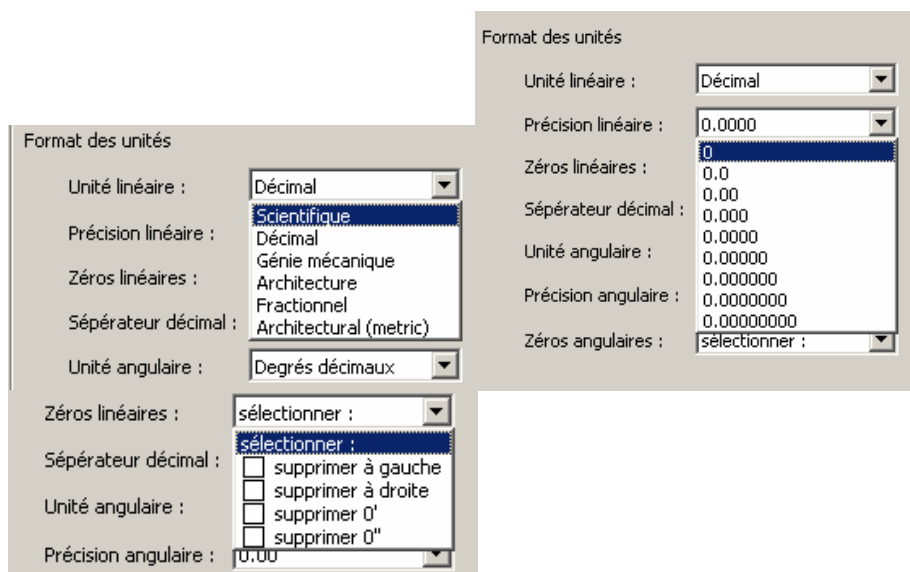
from dimension line: space between the text and the tie lines. **Linear unit:** choice of different types of units.

Linear accuracy: number of decimals.

Linear zero: Deletion or not of unnecessary zeros.

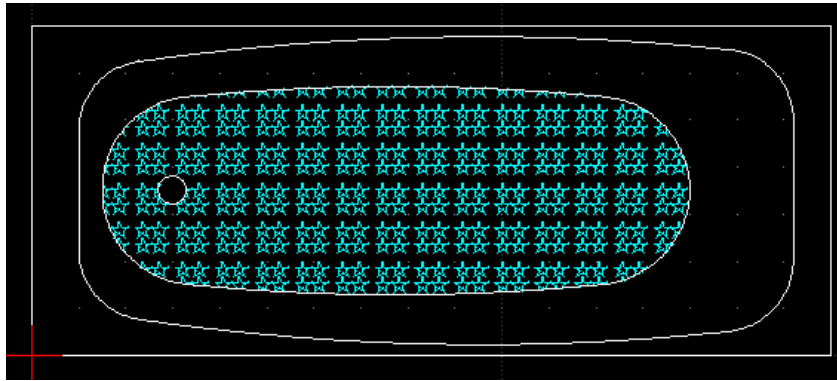
Decimal separator: point or comma.

Sting size: default arrow if not active

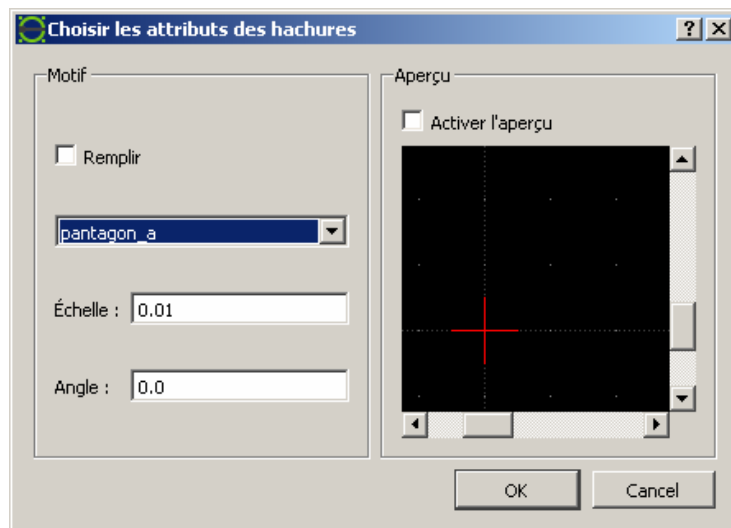


Move the dimension: by selecting the dimension 3 blue dots are displayed and it is possible to move the dimension by activating the arrow dot. The dot on the text allows you to move the text.

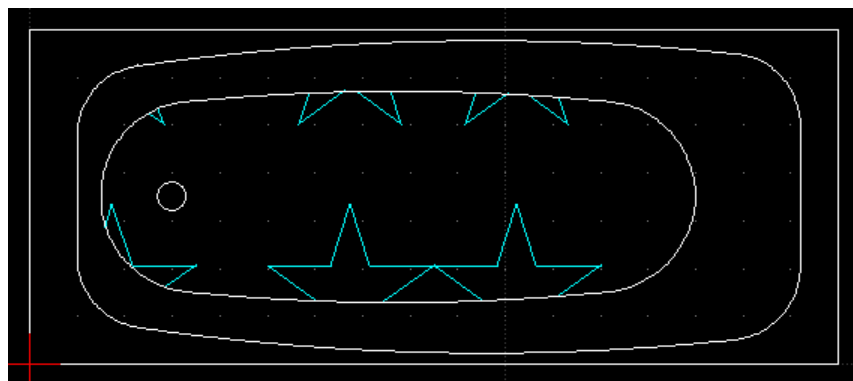
12-Hatching and Printing:



The hatching is placed, in this example, on a cyan colored hatch. Select the bottom of the tub with the hole and activate **Tools, Hatch**. The chosen pattern is **pantagon_a** which corresponds to stars.



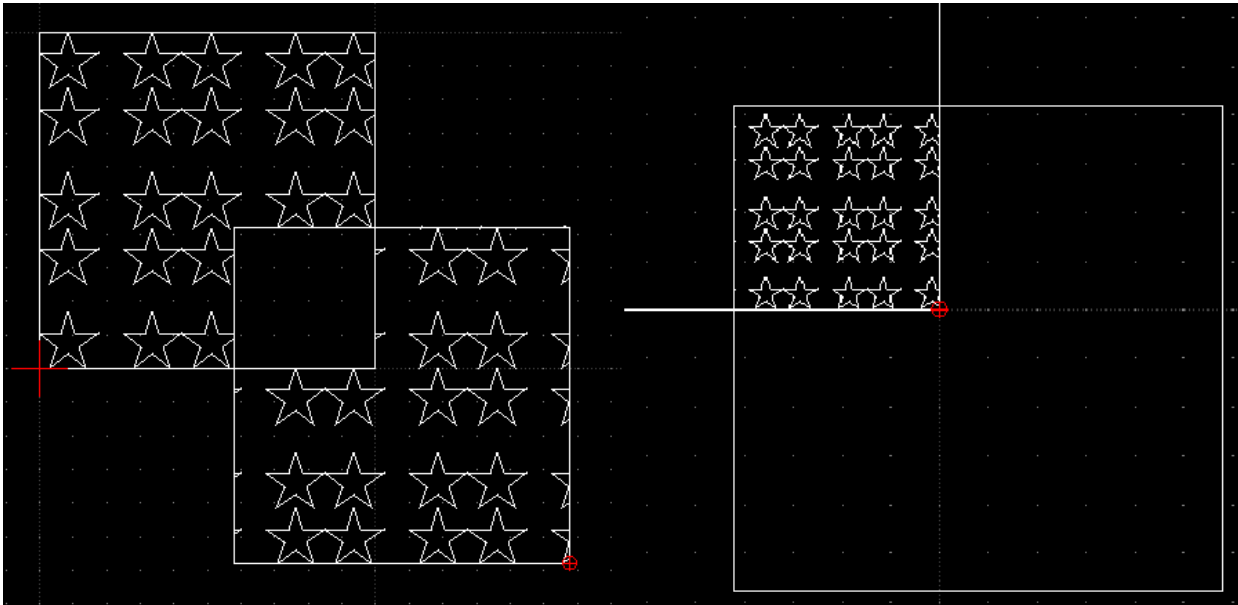
The scale value is deliberately too large to fit the bathtub figure.



To modify the hatching, it is necessary to use the Properties command of the Modify tool. With a scale of 0.001 we obtain a background covered with small stars.

Constraints for hatching:

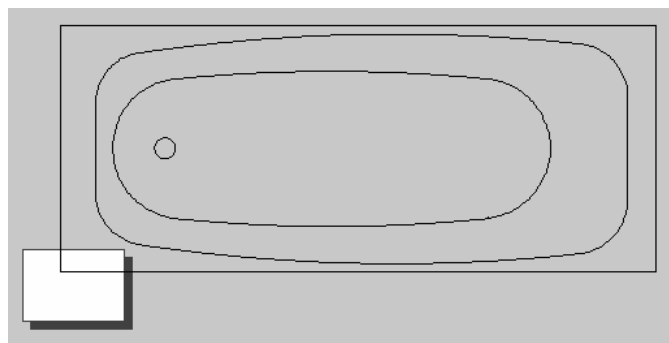
It is mandatory to have a closed outline and the intersection of the 2 squares requires drawing a temporary frame between them or dissociating the squares and dividing the lines at the intersections.



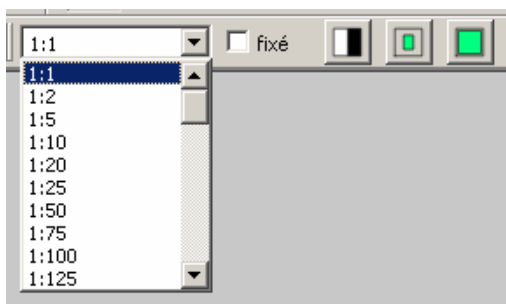
Printing:

From the bathtub with A4 landscape paper.

File, Print Preview :



Setting the output scale: The white rectangle represents the sheet but the bathtub is at scale 1 and you will have to choose from the list or enter a value.



The second icon centers the design and the third one adjusts the design to the size of the page.

By choosing a scale of 1:10 the bathtub will be smaller and to place it on the page it is enough to move the sheet by clicking and dragging.