AUTODESK UNIVERSITY 2013

Autodesk®360 with AutoCAD® 360 Web/Mobile: How Powerful Are These Tools? (To use after AU 2013)

Andrzej Jaskulski – University of Warmia and Mazury in Olsztyn

AC2241-L / AC4127-L Ever since Autodesk® web services and mobile applications were first introduced—Autodesk® AutoCAD® 360 (formerly AutoCAD® WS) and Autodesk® 360 cloud-based services—Andrzej Jaskulski has run his yearly "Autodesk Authorized Author Spring Laboratory" which has explored the advantages and disadvantages of this solution. Each year, after tests were complete, he has written a new book for a well-known training series in Poland called AutoCAD–Design Course. In this hands-on-lab, he shares his knowledge and experience on the power of these tools and identifies its strong and weak points and how to avoid them in individual and concurrent design workflows. Attendees have the opportunity to practice with desktop, mobile, and cloud configurations. They should also be able to assess how effective this solution can be in their business or design office. To benefit from this class, attendees should have a basic knowledge of Autodesk® AutoCAD®.

Learning Objectives

At the end of this class, you will be able to:

- Configure AutoCAD on your desktop and the AutoCAD 360 web service and software for mobile devices to work with Autodesk 360 cloud services
- Carry out an individual and concurrent design process using AutoCAD® 360 via a browser and AutoCAD® 360 on a mobile device
- Carry out and control a product data management (PDM) process with design data stored both locally and on the cloud
- Assess the effectiveness and limitations and select the appropriate workflow in your enterprise or design office

About the Speaker

Andrzej Jaskulski is a: Professor in the Department of Mechanics and Bases of Machinery Construction at the University of Warmia and Mazury in Olsztyn; CAD expert and "Autodesk Authorized Author" of books on AutoCAD and Autodesk Inventor in PWN Scientific Publishers (since 1999); Manager and Trainer in Autodesk Authorized Training Center (since 1993) - "Autodesk Certified Instructor"; Subject Matter Expert on AutoCAD in Poland; Author of the parametric CAD Polish terminology and co-author of the Polish version of the famous CAD system - Design View; Author of 28 manuals and over 50 papers in the field of Methodology of Computer Aided Machinery Design; Active blogger (CADAJ blog at Autodesk Community in Poland); Autodesk Community in Poland Coordinator (2009-2011). He started from AutoCAD® 2.62. He graduated from the Warsaw University of Technology, Department of Automobiles and Heavy Machines where he also completed his Ph.D. He worked 7 years as a Chief Engineer in industry.
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Content

1. Configure AutoCAD on your desktop and the AutoCAD 360 Web service and software for mobile devices to work with Autodesk 360 cloud services

There are several variants of typical workflows of cloud-based design using the "AutoCAD solutions" family. And there are as many as four tools at a designer's disposal. In addition to this, the Autodesk software and services names are very similar. Because of this, here is a list of the names and short descriptions used in this material. This should make it easier to distinguish between them.

1.1. Autodesk software and services

Autodesk 360: a **cloud platform** for accessing several Autodesk cloud **services**.
It provides a set of features, cloud services and mobile applications to visualize, simulate, and share work with other designers.
"SaaS" (Software as a Service) Cloud Computing service model.

AutoCAD 360 Web: a free sketching and drafting **web application** for viewing, creating, editing and sharing drawings using your web browser.
"SaaS", formerly AutoCAD WS.

AutoCAD 360 Mobile: a free sketching and drafting **mobile application** for viewing, creating, editing and sharing drawings using your smartphone or tablet.
"SaaS", formerly AutoCAD WS.

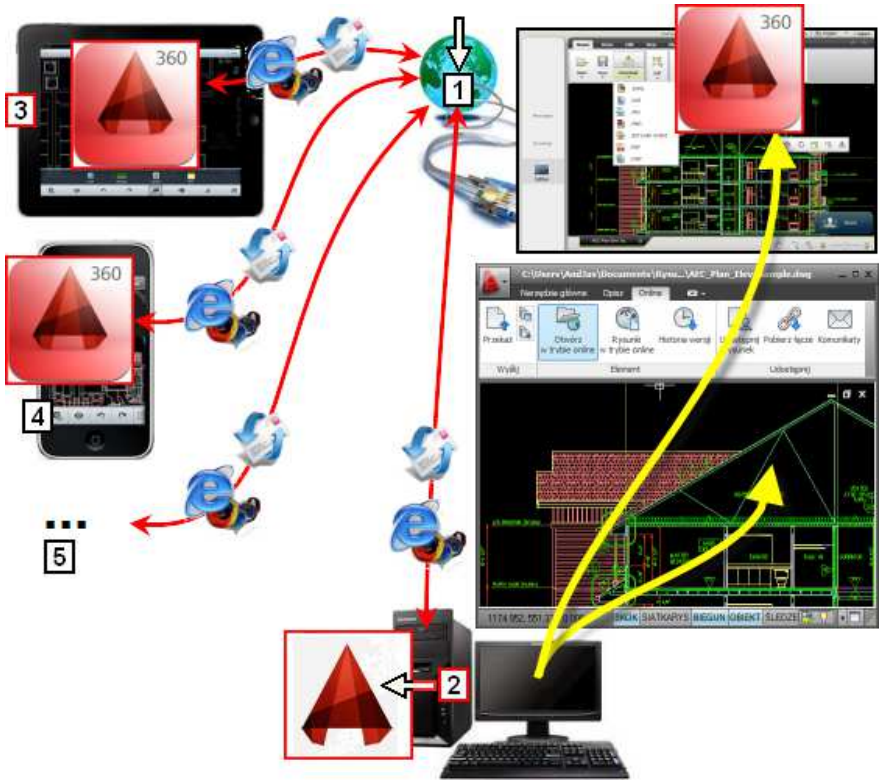
AutoCAD: the **3D CAD** system (since 1982) **on your desktop**. It now has an optional Autodesk 360 module to manage all the cloud resources from the desktop computer.

1.2. Typical workflows

If a company wants its main storage site to be at the design office and the cloud storage site only to serve as a temporary buffer, it will be called a mixed workflow.

1.2.1. Mixed workflow

1. Upload an **AutoCAD** file from a desktop computer to the **AutoCAD 360 Web** service cloud storage (user account) (**1**).
2. View, review or edit the file located on the cloud storage, with the aid of the **AutoCAD 360 Web** service or the **AutoCAD 360 Mobile** software installed on your mobile device.
3. **Download** the modified file from the **AutoCAD 360 Web** cloud storage (user account) **back** to the desktop computer (**2**) or mobile device (**3**, **4**, **5**).



If the company wants the main storage place to be on the cloud, there are only two steps in the cloud-concentrated workflow.

1.2.2. Cloud-concentrated workflow

1. Upload an **AutoCAD** file from a desktop computer to the **AutoCAD 360 Web** (**Autodesk 360**) service cloud storage (user account) (**1**).
2. View, review or edit the file **located on the cloud storage**, with the aid of the **AutoCAD** on the desktop computer (**2**) or **AutoCAD 360 Web** service or **AutoCAD 360 Mobile** software installed on your mobile device (**3**, **4**, **5**).

The exercises on configuring **AutoCAD** on the desktop and the **AutoCAD 360 Web** service and **AutoCAD 360 Mobile** software for mobile devices to work with **Autodesk 360** cloud services will be carried out in chapter 2 and 3.

2. Carry out an individual and concurrent design process using AutoCAD® 360 via a browser and AutoCAD® 360 on a mobile device

In this chapter the mixed workflow (see *1.2.1. Mixed workflow*) is practiced. A discussion of its effectiveness is presented in chapter 4.

2.1. AutoCAD 360 Web – working via a browser

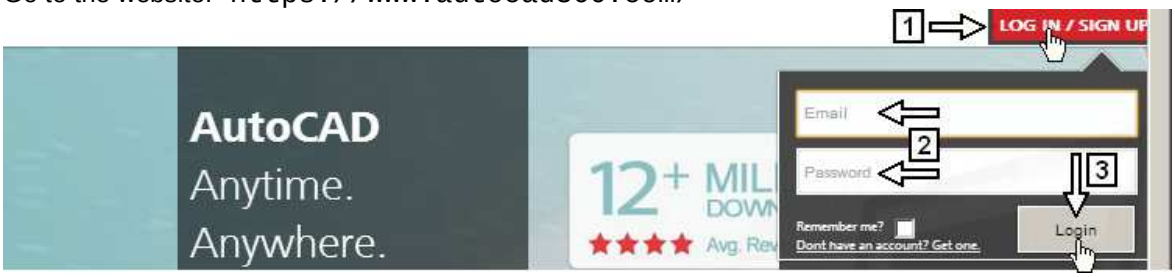
We start working just using a web browser and the **AutoCAD 360 Web** service. Neither the **AutoCAD** program installed on the desktop nor the **Autodesk 360** cloud service will be used. To use the service, **AutoCAD** software is not necessary.

The first step is to log in to the **AutoCAD 360 Web** service.

2.1.1. Logging in to the AutoCAD 360 Web

A. Launch the Internet browser

B. Go to the website: `https://www.autocad360.com/`



C. Click the button: **LOG IN / SIGN UP** (**1**)

D. Enter the user name (it does not have to be an e-mail address) and password (**2**)

> ➢ Your user name is: ***use your own account and credentials***

E. Click the button: **Login** (**3**)

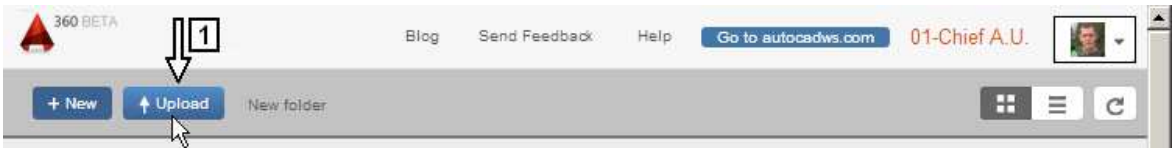
The effect can be seen in figure **4**

F. Click the link: **See All Drawings** (**5**)

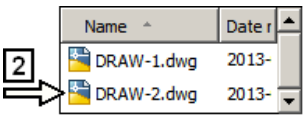
> ➢ Do not click the button: **Go to autocadws.com**

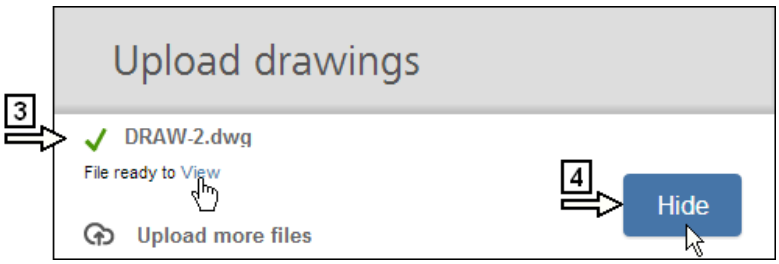
2.1.2. Uploading drawing files to the cloud

G. Click button **1**



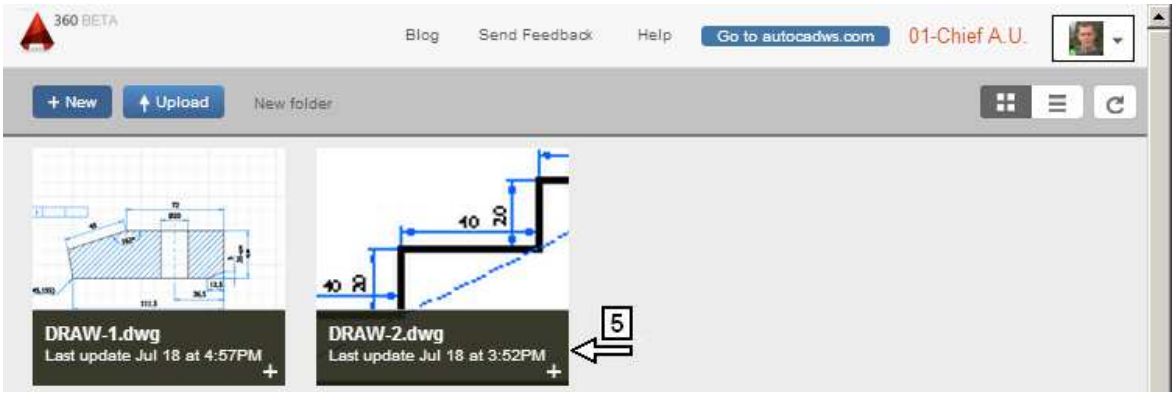
H. From your desktop folder, select and open the file: DRAW-2.dwg (**2**)





I. When the file: DRAW-2.dwg is ready to view (**3**), click the button: **Hide** (**4**)

The file uploaded to **AutoCAD 360** cloud storage, can be seen in figure **5**



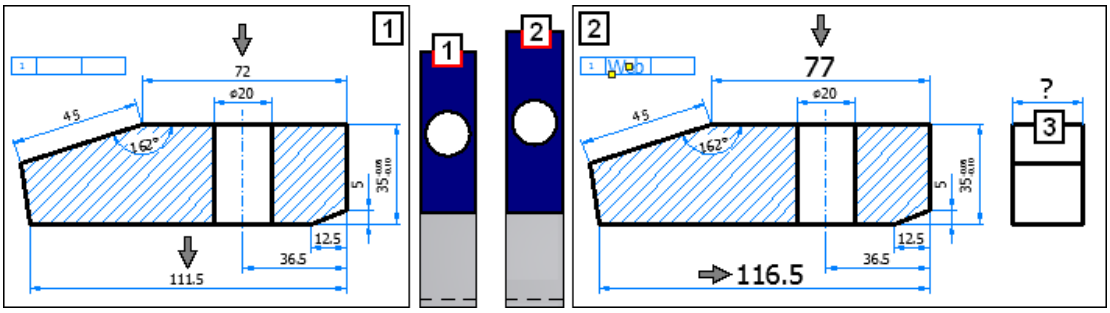
> ➢ **AutoCAD 360 Web** service and **Autodesk 360** share the same **Cloud Storage** space. So the file uploaded with the aid of the **AutoCAD 360** is automatically accessible via **Autodesk 360**.

In the storage of the **AutoCAD 360 Web** service there are already several files. Among them is the file: DRAW-1.dwg . It will be used in the next exercise.

J. **Do not close** the browser with the open session of the **AutoCAD 360 Web** service.

2.1.3. *Description of the design task*

Ex 1: Change drawing **1** (of the model **1**) to the state presented in figure **2**. Dimensions to change, have been pointed by arrows in the figures.
Use the "Third angle" (European) method of projection.
Measure the dimension **3** directly at the place of part installation.
Add to the table 5-units-high text "Web" justified with the center of the cell
Use **AutoCAD 360 Web** service via the **Internet browser**. Design file name: `DRAW-1.dwg`



Solution:

Analyzing the dimension to change, we can see that to solve the task, the right side of the drawing should be stretched. One rectangle, one line and one linear dimension should be created.

> Try to use exactly the same drawing and editing methods and techniques as in the **AutoCAD** installed on your desktop.

2.1.4. *Configuring the AutoCAD 360 Web*

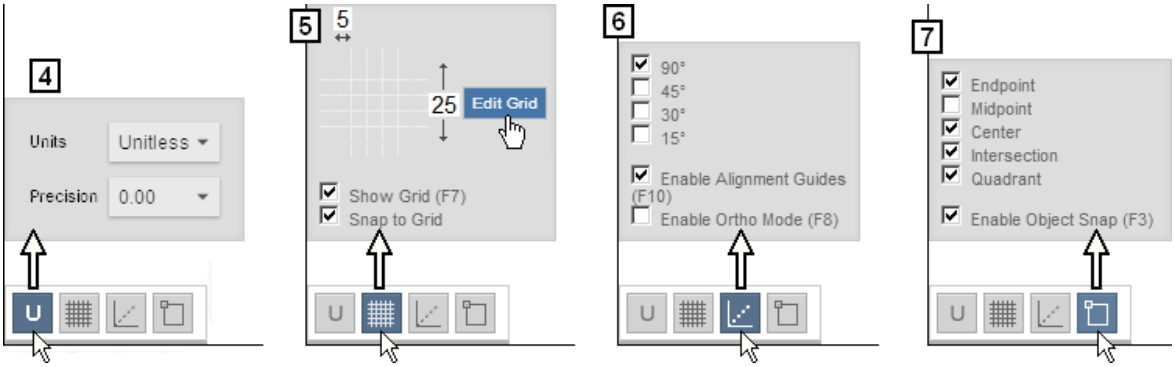
A. Open the file: `DRAW-1.dwg`

B. Configure **Drawing Units** exactly as in figure **4**

C. Configure **Grid Settings** exactly as in figure **5**

D. Configure **Alignment Settings** exactly as in figure **6**

E. Configure **Object Snap Settings** exactly as in figure **7**



F. Click layer name **Outlines** (**8**), to set it to current
Its name appears on the drop-down list **9**

G. Set the color of the **Outline** layer to **Black** (**10**)

H. Set the **Line Weight** (**11**) to **ByLayer** (**12**)

I. Set the **Color** (**13**) to **Layer color** (**14**)

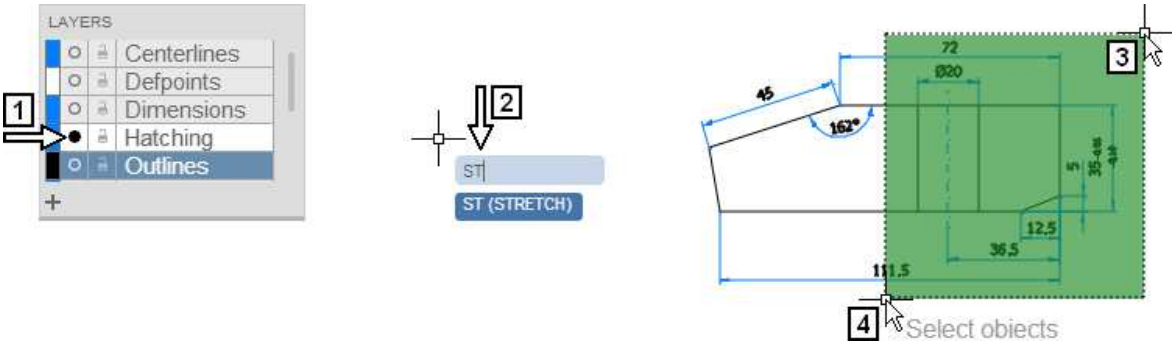
2.1.5. Editing objects

The simplest way to solve the editing task is by stretching with the aid of the **STRETCH** command. The right part of the drawing should be stretched to the right by 5 units.

A. Turn layer **Hatching** Off (**1**)

> ➢ **AutoCAD 360 Web** is unable to stretch an associative hatching.
> If the layer **Hatching** is On, all of the stretched objects remain unchanged and the whole drawing becomes useless.

B. Type the command name: ***stretch*** and pres **Enter** (**2**)



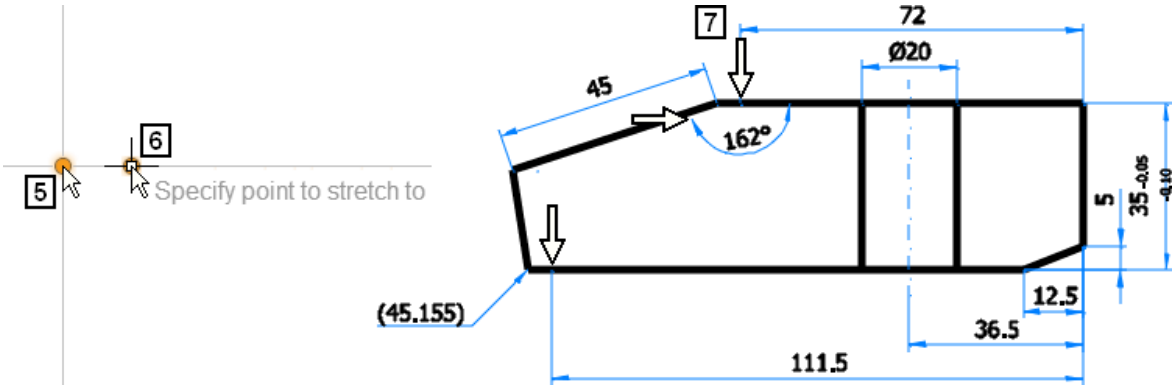
C. Select objects to stretch with the aid of the crossing window **3**-**4**

D. Use **Grid Snap** (snap spacing is set to 5 units) to define the beginning and the end of the stretching vector:

E. Click any grid node **5**

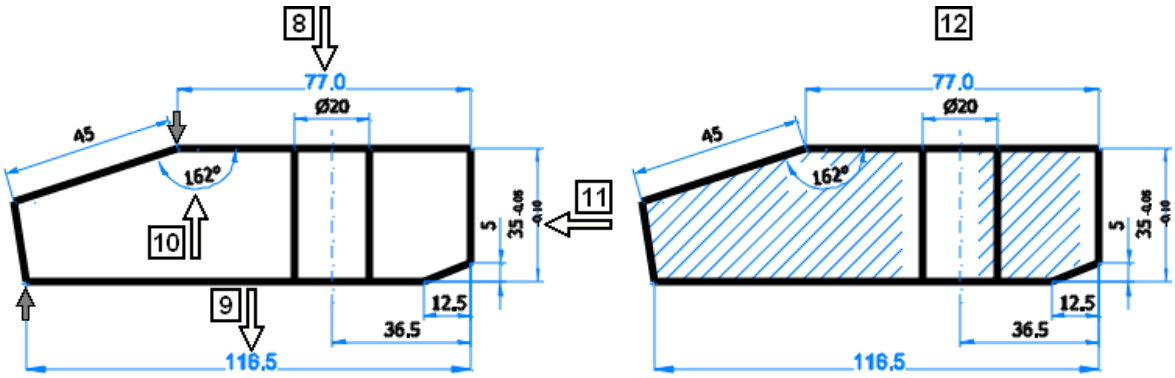
Click the next grid node **6**

The effect can be seen in figure **7**



> ➢ **AutoCAD 360 Web** is unable to stretch dimensions. Unchanged (moved) dimensions are indicated by the arrows in figure **7**.

F. Edit dimensions **8** and **9** using grips



G. Leave the angular dimension **10** unchanged

Fixing this in **AutoCAD 360 Web** is impossible

> ➢ After editing, the appearance of the dimensions **8** and **9** are incompatible with its original style. Please also note, that linear dimension **11** is inconsistent with the dimension style from the beginning.

H. Turn layer **Hatching** On

The effect can be seen in figure **12**

2.1.6. Creating objects

In this part of the design task, a side view containing the rectangle, the line and the linear dimension will be created. A few additional dimensions in various drawing units will also be created. The missing dimension of the model has been measured as 25 units long. At the end of the editing process, the text "Web" will be added to the table.

2.1.7. Creating outline objects

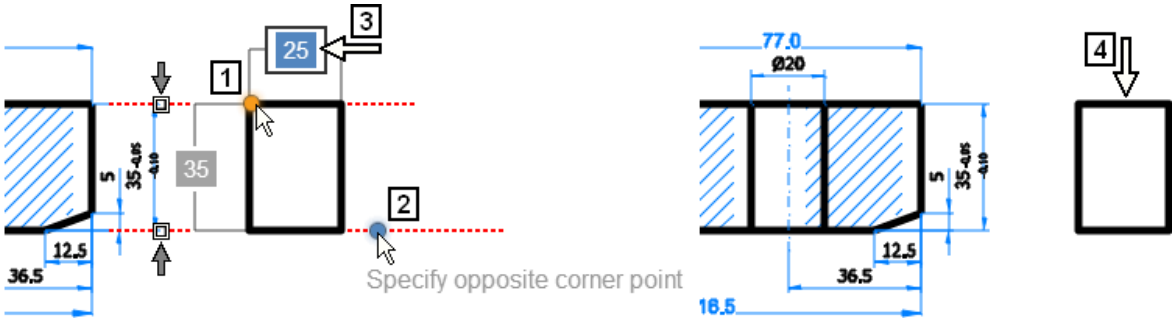
A. Turn **Grid Snap** Off

Using Polar Tracking and Object Snap Tracking (called "Alignment Guides") draw a rectangle 25 units wide:

B. Launch the command: **RECTANGLE** (⌨ R, REC)

C. At the upper horizontal alignment guide **click** point **1**

D. **Move** the cursor to the position **2** at the bottom horizontal alignment guide



E. Press **Tab** key to activate the field **3**

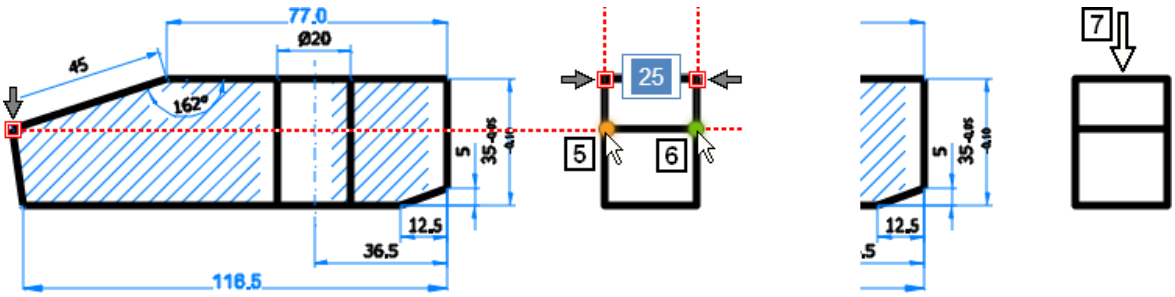
F. ⌨ Type: ***25*** and press **Enter**

The effect can be seen in figure **4**

G. Launch the command: **LINE** (⌨ L)

Using Polar Tracking and Object Snap Tracking (Alignment Guides), draw line **5**-**6**

The effect can be seen in figure **7**

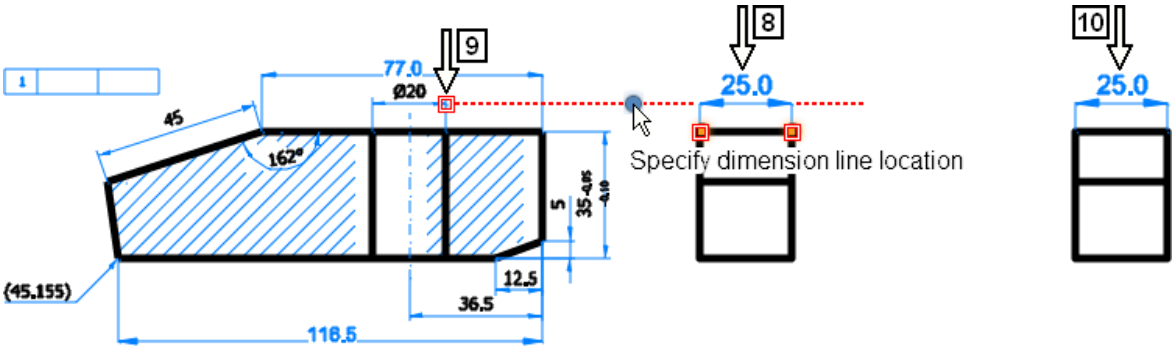


2.1.8. Creating a missing dimension

H. Set the **Dimensions** layer to current

I. Launch the command: **DIMLINEAR** (⌨ DLI, DIMLIN)

J. Create the missing dimension **8** aligned with the existing dimension **9**
The effect can be seen in figure **10**



2.1.9. Playing with dimensions

The goal given in the description of the design task has just been achieved. However, to become more familiar with the abilities and limitations of the dimensioning tools, a few additional operations will be done.

K. Change units to centimeters (**1**)

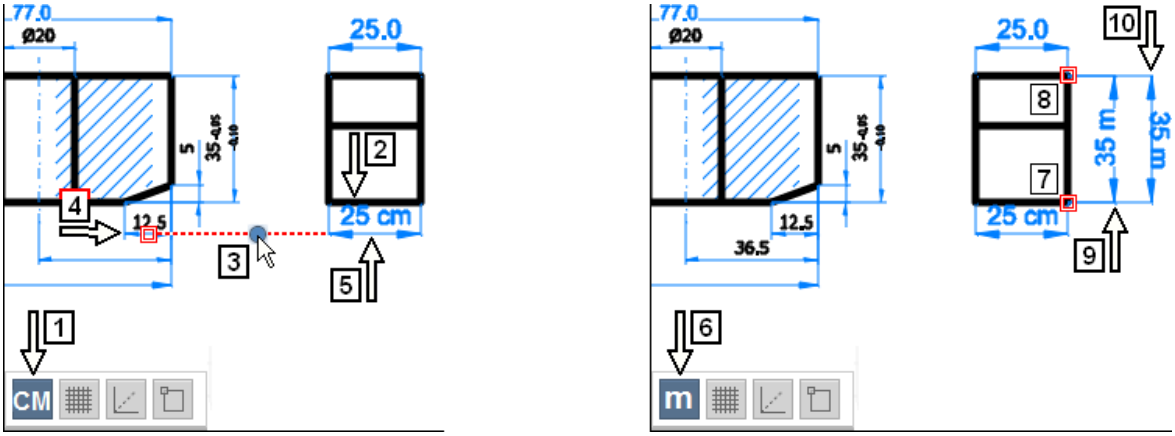
L. Launch the command: **DIMLINEAR** (⌨ DLI, DIMLIN)

M. Click the bottom edge of the outline (**2**)

N. Track down and click the dimension line location **3**, to align it with the existing dimension **4**

The effect can be seen in figure **5**

Do not worry about the potential collision of the dimension text with the bottom edge of the outline (**2**)



O. Change units to meters (**6**)

P. Launch the command: **DIMLINEAR** (⌨ DLI, DIMLIN)

Q. Click point **7**

Click point **8**

Click dimension line location (**9**), to create dimension **9**

R. ⌨ Press **Enter**, to repeat the command: **DIMLINEAR**

S. Click point **8** first

Click point **7** second

Click dimension line location (**10**), to create dimension **10**

> Dimensions **9** and **10** have opposite orientation of the dimension texts.

T. Set units back to "**Unitless**".

2.1.10. Creating text

U. Click layer name **Text**, to set it to current

V. Launch the command: **TEXT**

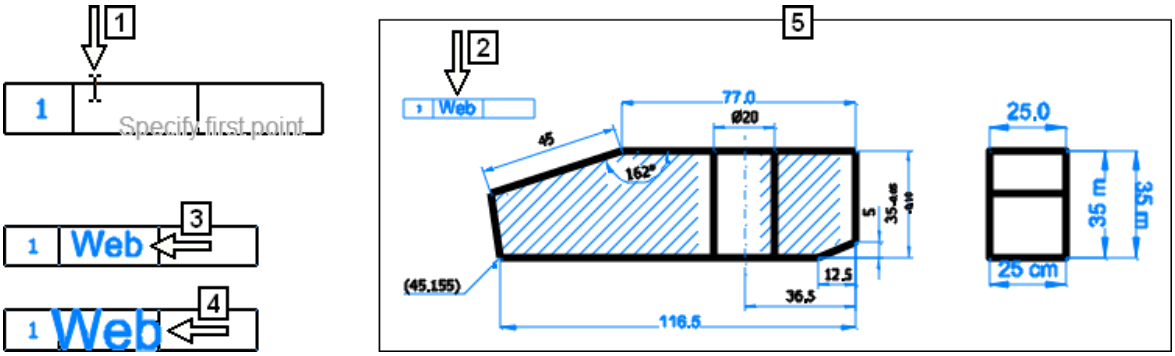
W. Zoom In or Out to achieve the desired proportion between the text cursor size and table cell height as in figure **1**

Click as in figure **1**, to specify the first point of the text to be created

Type the text: ***Web*** and press **Esc**

The effect can be seen in figure **2**

> ➢ Text height during creation depends on the current zoom scale. During creation of text **3**, the zoom factor was set correctly. During creation text **4**, the zoom factor was too small.



> Use command: **MOVE** together with **Midpoint** snap, to correct the vertical text placement, if necessary.
>
> Use command: **SCALE (SC)**, to correct the text height, if necessary.

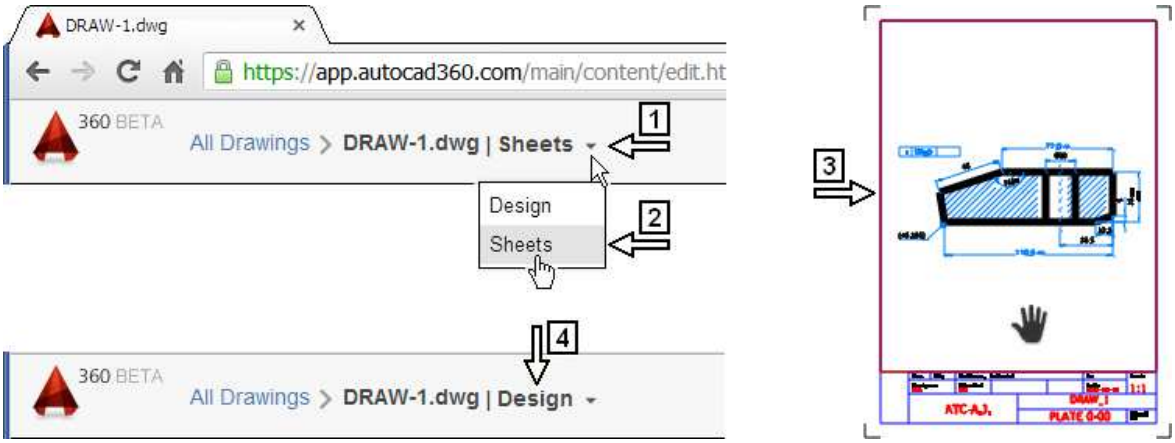
X. Check if the drawing looks like figure **5**.

2.1.11. Checking the layout

Y. From the list **1** chose: **Sheets** (**2**)

Only one drawing view can be seen in figure **3**

The second (side) drawing view created is not visible in the viewport



> ➢ The viewport in the paper space has to be reconfigured outside **AutoCAD 360 Web**.

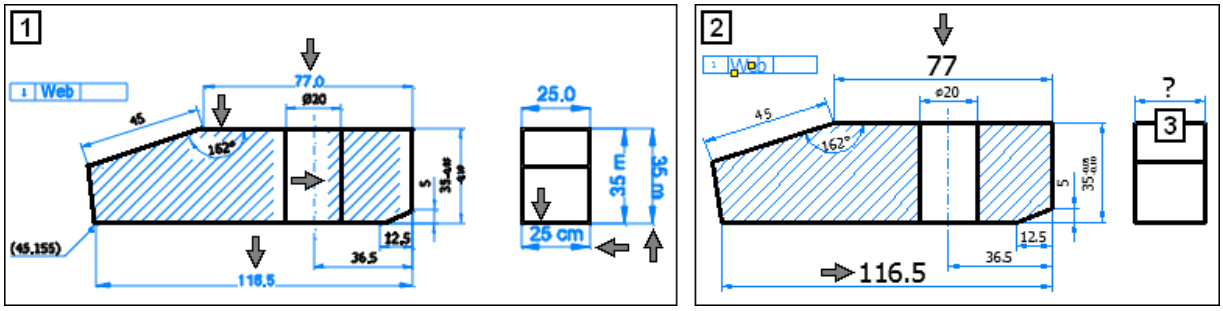
Z. Return to the: **Design** environment (**4**)

End of Ex 1

2.1.12. AutoCAD 360 Web – session conclusion

During this web session, typical non-parametric 2D design and drafting operations have been carried out involving object creation and edition operation. The objects were both elementary and complex types. The complex key **STRETCH** command was tested instead of simpler commands like **MOVE** or **ROTATE**.

Below the imperfections summary can be found. The final assessment, however, is possible only after downloading the edited drawing and reviewing the changes with the aid of the **AutoCAD** system installed on your desktop. Let's look at the solution achieved (**1**) in comparison with the design task definition (**2**). (A.J.: November the 2nd, 2013).



- **AutoCAD 360 Web** is unable to stretch an associative hatching.
  If the layer **Hatching** is On, all of the stretched objects remain unchanged and the whole drawing becomes unreadable.

- **AutoCAD 360 Web** is unable to stretch associative dimensions. This does not depend on the value of the **DIMASSOC** variable.

- The size of the components (text, arrows, etc.) of the newly-created associative dimension depends on the current zoom scale during creation.
  This also means that the existing dimension after edition **appears** incompatible with its original style defined in `DWG.*` file.
- Setting different units (centimeters, meters. etc.) only causes different ways of displaying. It does not change distances or angles.

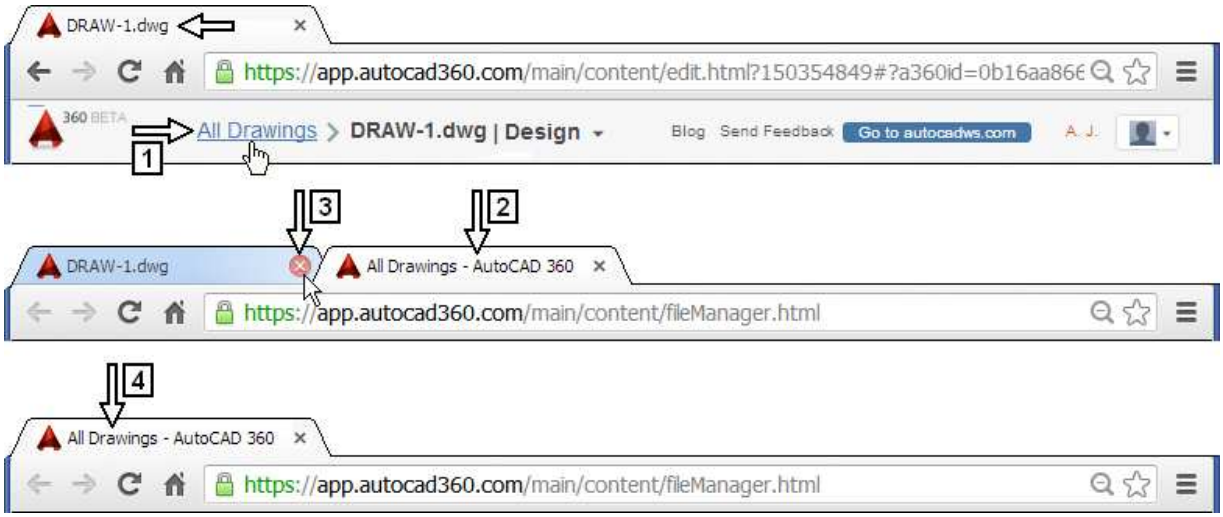
- The text height of the newly-created text objects depends on the current zoom scale.

- Viewports in the paper space have to be reconfigured outside the **AutoCAD 360 Web**.

2.1.13. Closing the file and its session

The author encountered some problems with the permanent autosave functionality of the software. Because of this, here is a suggested way to close the session:

1. Click the link: **All Drawings** (**1**), to open an additional tab (**2**).
2. Click the **Close** button (**3**), to close the drawing file and its session.



The effect can be seen in figure **4**. The drawing file: `DRAW-1.dwg` and its session are closed.

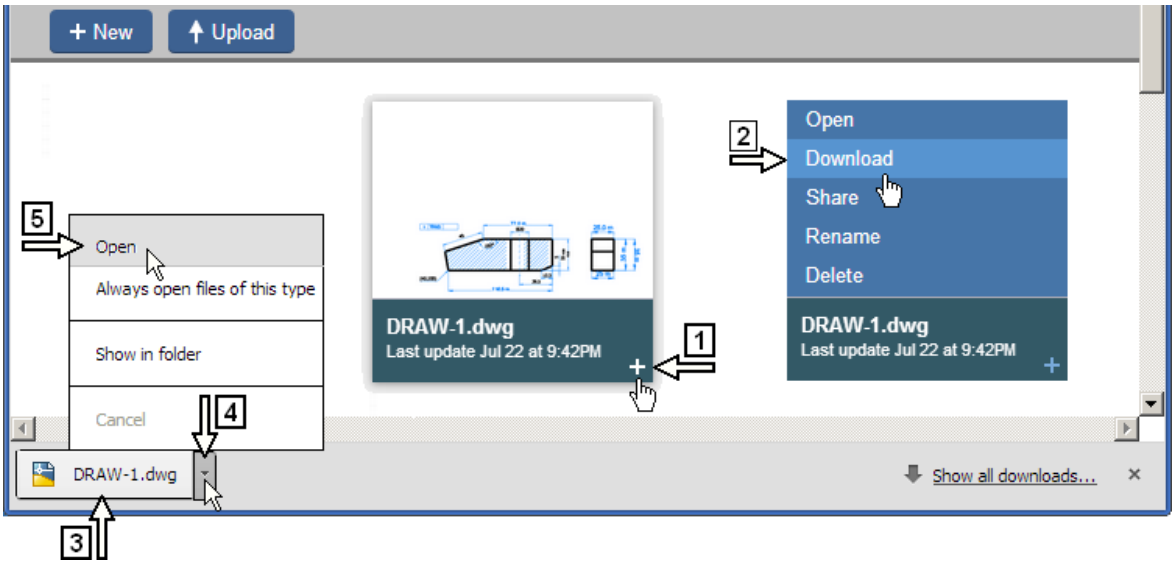
2.1.14. Downloading the file to your desktop

Here is the last step of the mixed workflow (see chapter: *1.2.1. Mixed workflow*) – downloading the modified file from the **AutoCAD 360 Web** cloud storage (user account) **back** to the desktop computer. The current (the last) version will be downloaded.

A. Click button **1**

B. Click the command: **Download** (**2**)

After the file is downloaded, it can be seen in the bottom-left corner of the window (**3**)



C. Drop-down the list **4**

D. Click the command: **Open** (**5**)

The **AutoCAD** is launched with the current (here the last) version of the file: `DRAW-1.dwg` opened

E. Close the file in **AutoCAD** and return to the Internet browser.

2.1.15. Saving and choosing versions

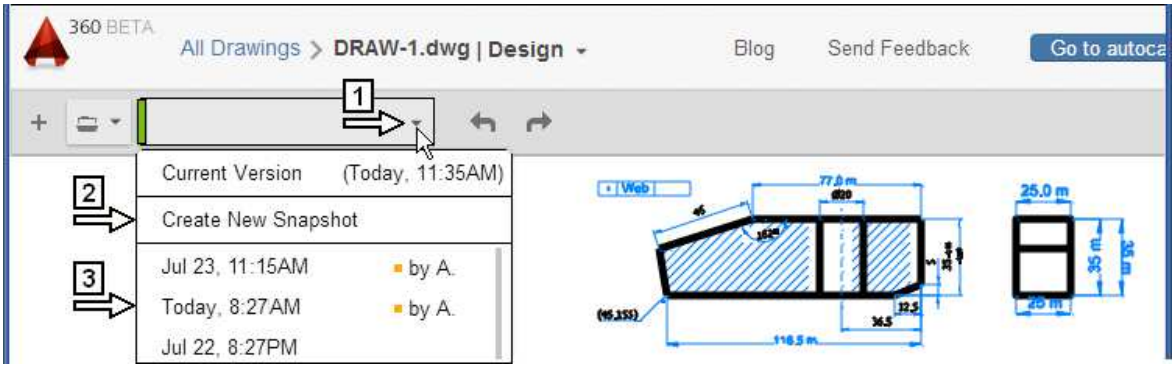
F. Open the file: DRAW-1.dwg

G. Drop-down the list **1**

H. Click the command: **Create New Snapshot** (**2**)

I. Click **OK**

> ➢ The current state of the drawing is saved as a **Snapshot** and is indicated on the list with a small square.



J. Click an older version (e.g. **3**) to open it

Open the newest version of the drawing from the list **1**

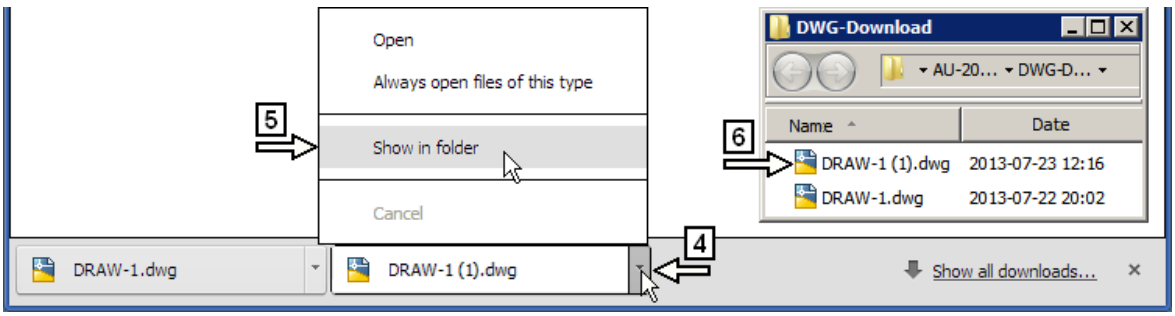
K. Close the file and its session (see the chapter: *2.1.13. Closing the file and its session*)

Download the newest version of the file: DRAW-1.dwg to your desktop (see the chapter: *2.1.14. Downloading the file to your desktop*)

L. Drop-down the list **4**

M. Click the command: **Show in folder** (**5**)

The effect can be seen in figure **6**



N. Double click the file name (**6**)

AutoCAD is launched with the downloaded version of the file: DRAW-1(1).dwg opened.

2.1.16. Signing out from AutoCAD 360 Web

O. Go to the web browser

P. Click the command: **Sign Out**

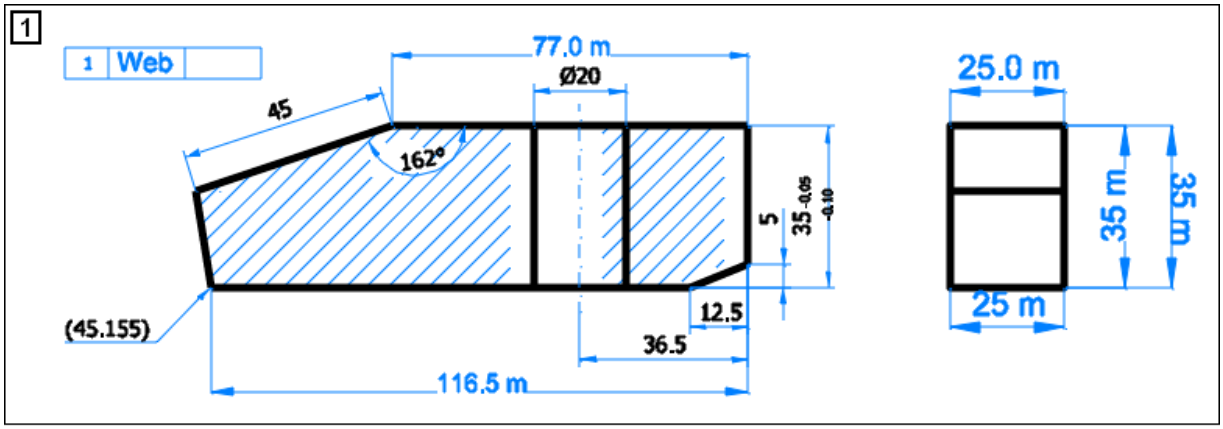
Q. With the file: DRAW-1(1).dwg and **AutoCAD** program still open, go to the next chapter.

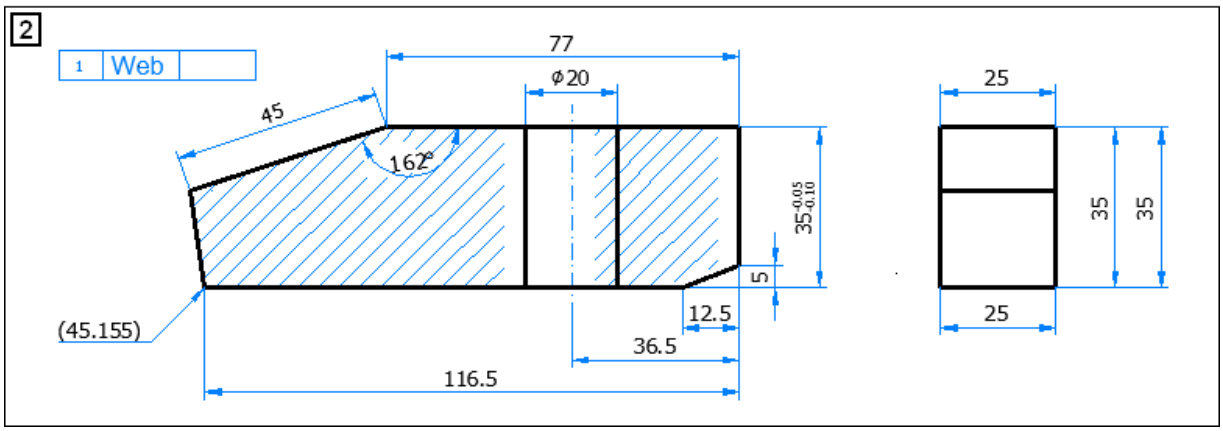
2.2. Revision with AutoCAD

In figure **1**, the final version of the file: DRAW-1.dwg is presented after edits made with the aid of the **AutoCAD 360 Web** tool.

Figure **2** shows the **downloaded file**: DRAW-1(1).dwg from the download folder opened in **AutoCAD** software installed on your desktop.

> ➢ The exact effect of editing operations could be different, because since the beginning of July, **AutoCAD 360** (Beta) has been undergoing a process of permanent updating.

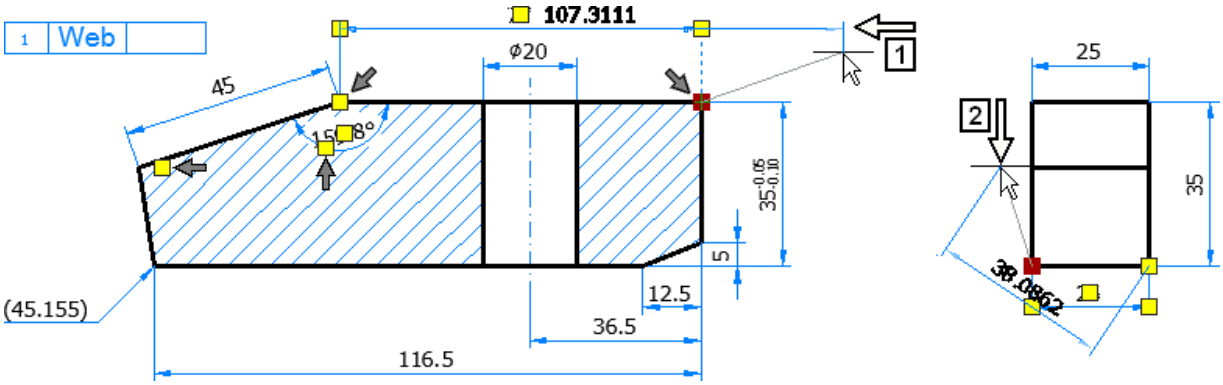




Here, the statements formulated in chapter *2.1.12. AutoCAD 360 Web – session conclusion* should be considered and verified.

2.2.1. Dimensions

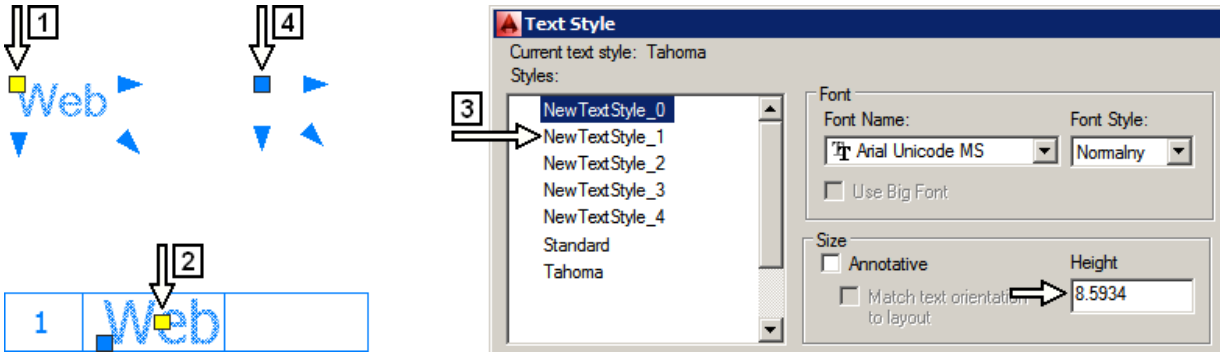
All dimensions are compatible with their original text styles. The angular dimension has to be edited. Because a variable: **DIMASSOC** equals 1 in the file, this is enough to edit the dimensions with grips. Contrary to what we expected, all dimensions created in **AutoCAD 360 Web** are aligned (**DIMALIGNED**) instead of linear (**DIMLINEAR**). Grip edition examples are shown in figures **1** and **2**.



2.2.2. Text objects

The text “Web” is a multi-line text (**1**). It should be exploded and justified according to the instruction (**2**). Its style has to be changed to **Tahoma** and its height to 5 units.

Several new text styles (**3**) with random heights (for different zoom factors during text creation) have been created (before September 2013). The hidden text entities (**4**) may also be created in the drawing. They should be deleted first. Deleting the redundant text styles will then be possible.

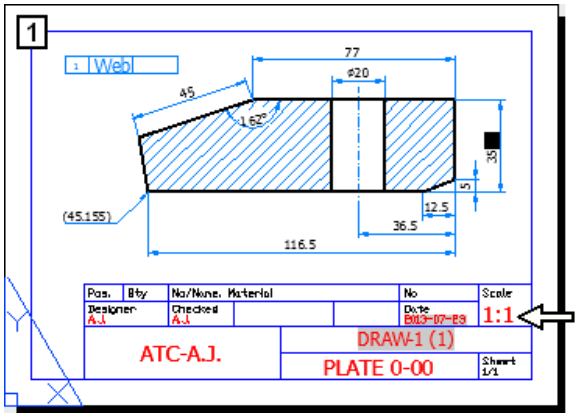


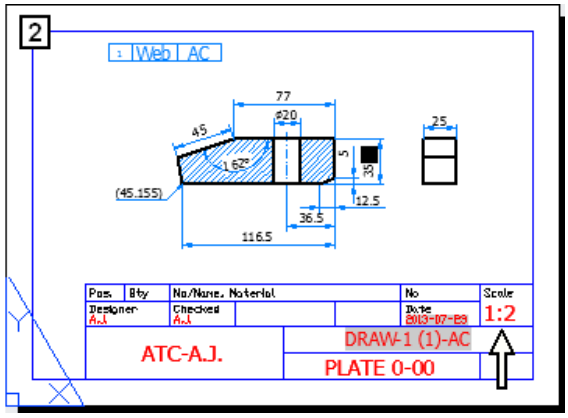
2.2.3. Hatchings

In this case, after the first editing operation (e.g. of the angular dimension “162º”) is done, the hatching will go in its place. Once more, it also remains associative with appropriate edges.

2.2.4. Layouts

The layout has to be changed after the side view is created. The drawing scale should now be 1:2. **DIMSCALE** has to be changed to two or the annotativity should be applied to annotation objects. In figure **1**, the version before editing is presented. The edited layout is shown in figure **2**.





2.3. AutoCAD 360 Web – final conclusion

Please formulate your own conclusion here.

A. I represent the industry segment(s):

……

B. My company is:

- ○ small
- ○ mid-sized
- ○ large

C. I am going to use **AutoCAD 360 Web** for:

- ○ creating and editing objects
- ○ reviewing and markup purposes only
- ○ I will not use it at all
- ○ I will study/observe it to use in the future
- ○ Other ……

D. In my case **the main strong** point of **AutoCAD 360 Web** is:

……..

E. In my case **the main weak** point of **AutoCAD 360 Web** is:

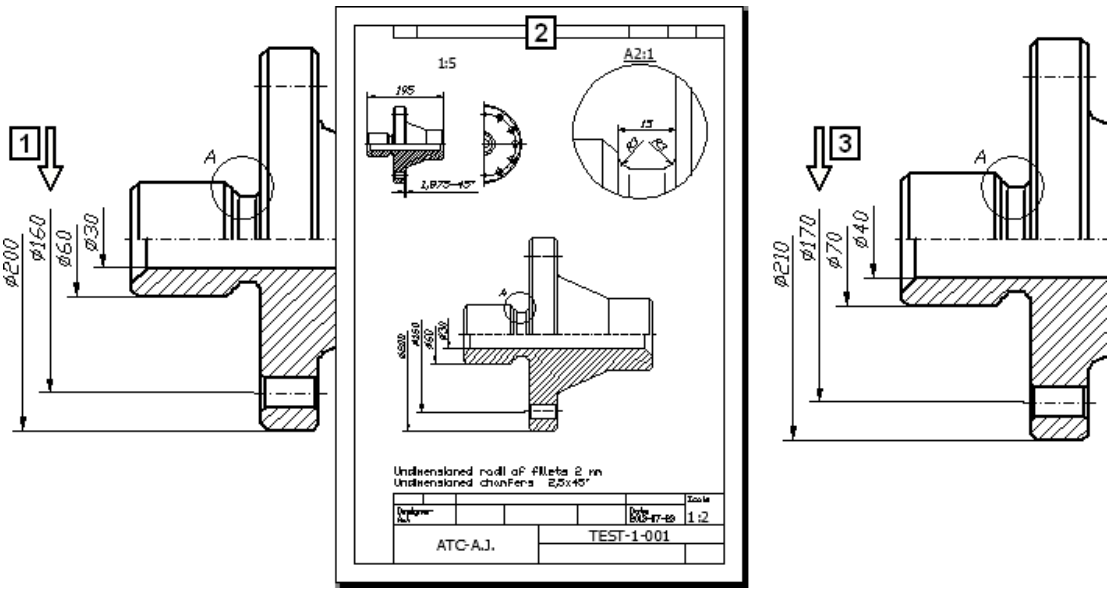
……..

2.4. Self-test

Test 1: Change 2D model **1** and its documentation **2** to the state presented in figure **3**.
Change the "Third angle" (European) method of projection to the "First angle" method.

Use **AutoCAD 360 Web** service via the **Internet browser**. Correct downloaded drawing with the aid of **AutoCAD** software. Design file name: `TEST-1.dwg`

All of the annotation objects have to be placed on the layout.



Hints:

This test should be solved unaided. Use the mixed workflow practiced during solving the Exercise 1 above. Below only a few hints can be found.

- Do not use the **STRETCH** command in **AutoCAD 360 Web** at all.
  To increase diameters, use the commands: **MOVE** and grip editing.
- Create Snapshots after each stage of your work.
- When the model corrections are finished, download the file and continue work using **AutoCAD**.
- Re-associate paper space dimensions after editing, if necessary. Use the annotation monitor. Change the dimension placement to be able to set a 1:2 viewport scale.

2.5. AutoCAD 360 Mobile

This issue will be covered by exercises using an iPad 2 by Apple with iOS 6.1.3. We shall perform similar operations as in the previous chapter accounting for the limited capabilities of **AutoCAD 360** for mobile devices.

2.5.1. Basic drawing techniques on tablet

While working on an iPad we will use similar techniques as in the stationary **AutoCAD**. Instead of clicking with a mouse we will be tapping with a finger. Drag and drop operations are performed identically. An additional technique involves tapping and holding a finger for a while without departure from the screen (Press and hold).

2.5.2. Logging in to the AutoCAD 360 Mobile

A mobile device enables working directly in the **AutoCAD 360** service or locally on the device. Following design data synchronization it is possible to work without a network connection.

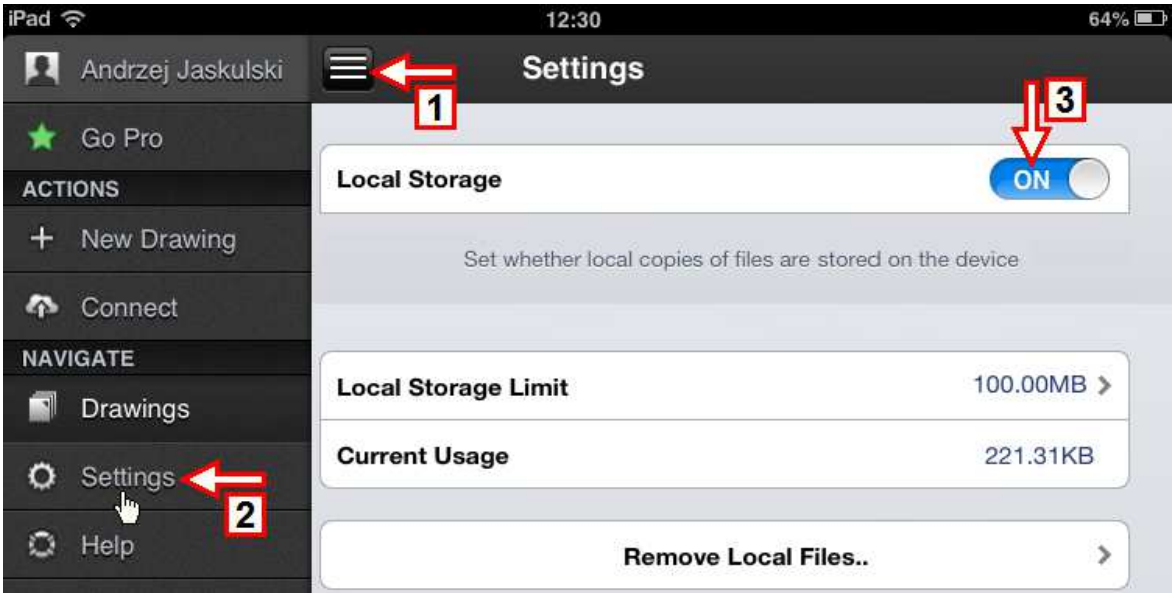
A. Run **AutoCAD 360 Mobile** on a mobile device

B. Log in to the **AutoCAD 360** service **using the same credentials as before**

2.5.3. Configuring the AutoCAD 360 Mobile

C. Tap buttons **1** and then **2**

D. Turn On **Local Storage** (**3**)



2.5.4. Synchronizing your mobile device with AutoCAD 360

E. Tap buttons **4** and then **5**

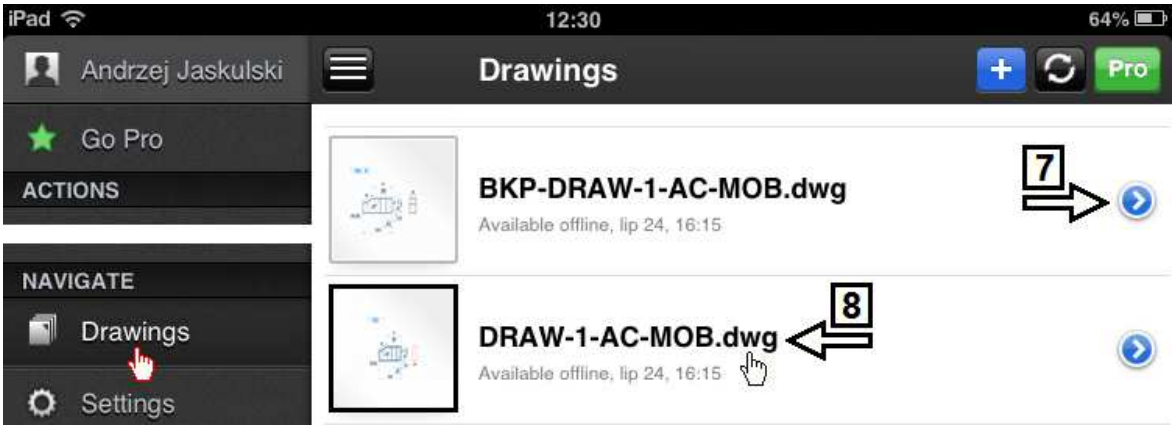
F. Tap button **6** and wait for the end of the synchronization process.

2.5.5. Opening the file on your mobile device

G. Tap button **7**

Save the file: `BKP-DRAW-1-AC-MOB.dwg`
as: `DRAW-1-AC-MOB.dwg`

Return to **Drawings**

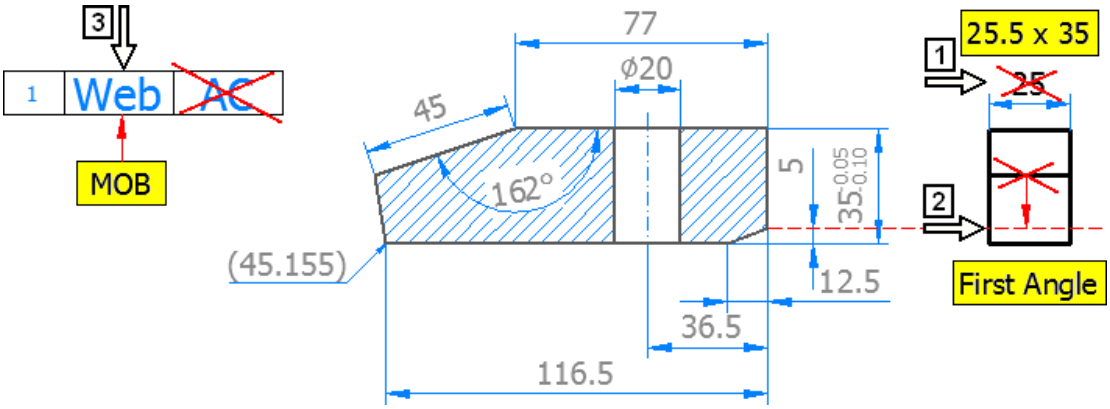


H. Click the copy file name (**8**) to open it.

2.5.6. Modifying the drawing

Ex 2: Change the drawing: `DRAW-1-AC-MOB.dwg` according to the reviewer's suggestions:
– correct the incorrect 25 distance to the correct value of 25.5 (**1**),
– use the "First angle" (American) method of projection (**2**),
– edit the revised table (**3**).
The drawing is prepared for printing from the paper space, on a 1:2 scale
Use **AutoCAD 360 Mobile** installed on your tablet.

After the changes are made, review the effect with the aid of the **AutoCAD 360 Web** service and then also in **AutoCAD** on your desktop.



Solution:

Of course, there are number of variants of the possible solutions. The workflow proposed here is only one of them. The first operation will be drawing a rectangle.

LAYOUT:

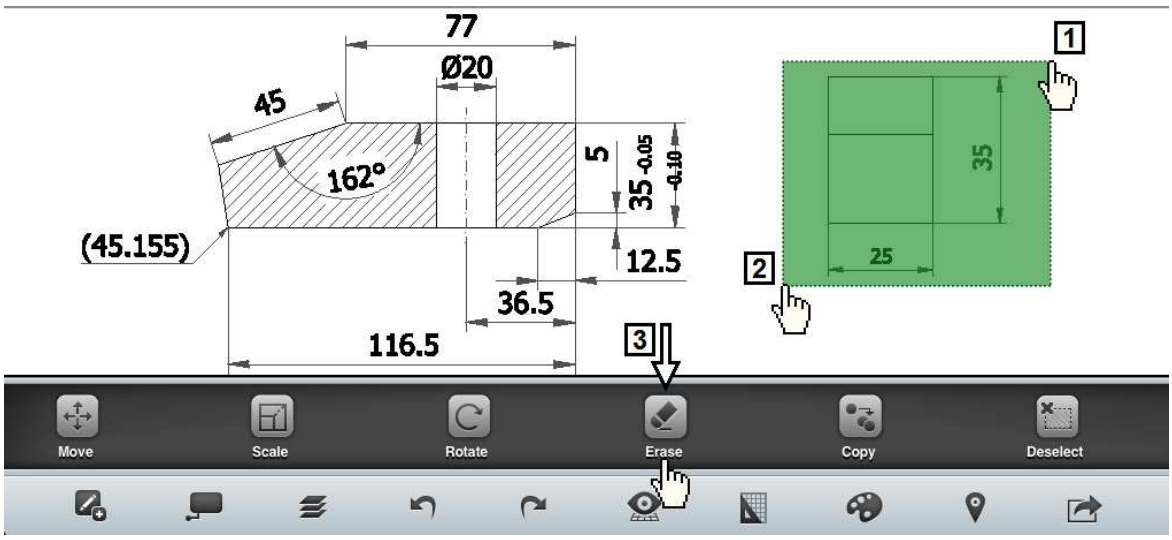
A. Review the layout: **Printout A4**
Go to the model space: **Model**

POLYLINE:

B. Press and hold your finger down on point **1**

C. Drag to point **2** to select objects

D. Tap button **3** to erase objects



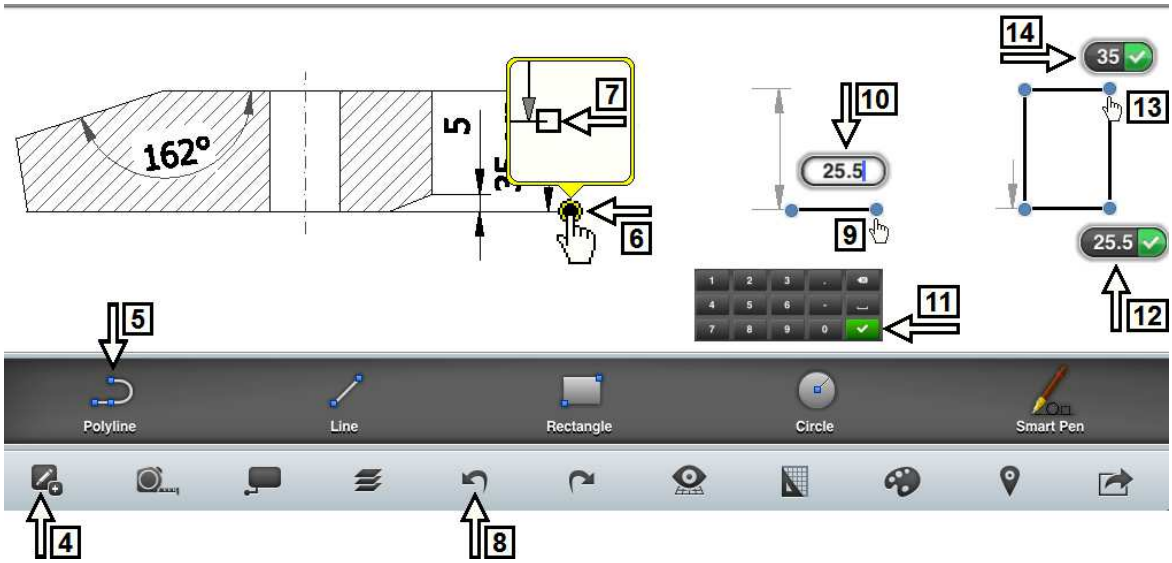
E. Tap button **4**

F. Tap the button: **Polyline** (**5**)

G. Press and hold your finger down at the end of the extension line **6**
Wait for a magnifying glass icon to appear
Be sure the correct point is selected (**7**)

H. Release your finger

> In the case of a mistake, tap button **8** and repeat the operation.



I. Tap point **9** and move your finger right

J. Tap the value in the editing palette (**10**), change it to: ***25.5*** and accept (**11**)
The effect can be seen in figure **12**

K. Tap point **13** and moving your finger achieve vertical distance 35 units
Release your finger
The effect can be seen in figure **14**

L. Continue the same way, to draw two subsequent edges of the rectangle

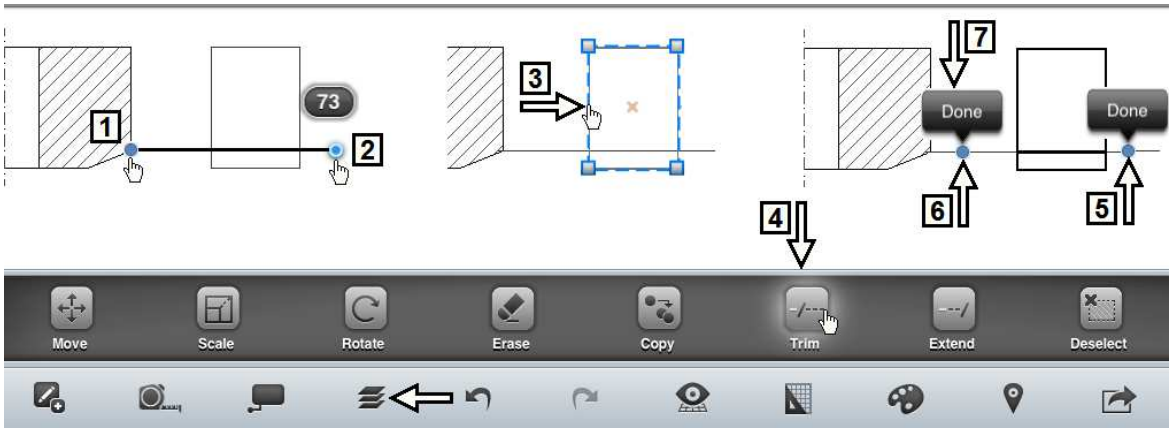
LINE:

M. Turn layer **Dimensions** Off

N. Launch the command: **LINE** (find and tap the button: **Line**)

O. Tap point **1** then point **2** to draw the line **1**-**2**

Tap any point of the drawing window to finish the drawing operation



TRIM:

P. Tap the rectangle (**3**) to select it as the cutting edge

Q. Tap the button: **Trim** (**4**)

R. Tap the right side of the line to trim (**5**)

Do **not** tap the button: **Done**

S. Tap the left side of the line to trim (**6**)

T. Tap the button: **Done** (**7**).

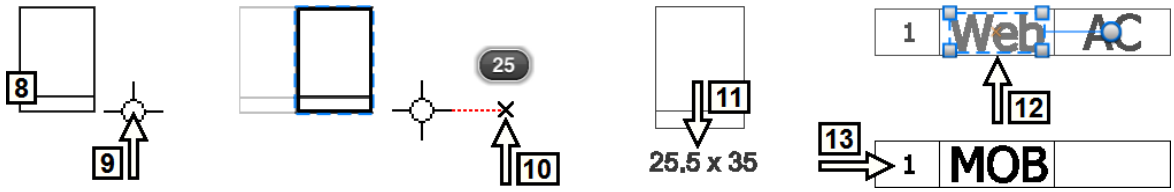
MOVE:

A. Select the rectangle and the line (**8**) tapping on them or with the aid of a window

B. Launch the command: **MOVE** (find and tap the button: **Move**)

C. Tap any point of the drawing window (**9**)

D. Tap point **10** and moving your finger achieve a horizontal distance of 25 units
Release your finger
Tap any point of the drawing window to finish the moving operation



TEXT:

E. Launch the command: **TEXT** (find and tap the button: **Text**)

F. Tap any point of the drawing window and type the text: ***25.5 x 35***

G. Tap the text created and then drag it to the appropriate position (**11**)
Tap any point of the drawing window to finish the operation
Turn layer **Dimensions** On

TEXTEDIT:

H. Tap the text object “Web” to select it (**12**)

I. Launch the command: **TEXTEDIT** (find and tap the button: **Edit Text**)

J. Change the text to “MOB”

K. Remove (Erase) text “AC”
The effect can be seen in figure **13**
Zoom extents of the drawing (find and tap the button: **Zoom Extents**)

L. Tap the button: **Done** to close the drawing file.

SYNCHRONIZING:

M. Synchronize your files with **AutoCAD 360** service (see chapter: *2.5.4. Synchronizing your mobile device with AutoCAD 360 service*).

N. Sign out from **AutoCAD 360 Mobile**

REVIEWING:

> ➢ The exact effect of editing operations could be different, because since the beginning of July, **AutoCAD 360** (Beta) has been undergoing a process of permanent updating.

O. Log in to **AutoCAD 360 Web** (see chapter *2.1.1. Logging in to the AutoCAD 360 Web*)

P. Open the file: `DRAW-1-AC-MOB.dwg` and review the effect with the aid of the **AutoCAD 360 Web**

> ➢ All types of objects created by **AutoCAD 360 Mobile** are placed on the layer: _**Annotations**.

Q. Download the file: `DRAW-1-AC-MOB.dwg` to your desktop computer

R. Review the effects with the aid of **AutoCAD** on your desktop

> ➢ Layer: _**Annotations** is turned **Off** or **On** and has a non-standard line width. (<A.J. If it has been clicked to turn Off, no matter how many times -- is Off permanently A.J.>)
>
> ➢ A new text style and dimension style have been created.

S. Close **AutoCAD** on your desktop

T. Sign out from **AutoCAD 360 Web**.

End of Ex 2

2.6. AutoCAD 360 Mobile – conclusion

Please formulate your own conclusion here.

A. I am going to use **AutoCAD 360 Mobile** for:

- creating and editing objects
- reviewing and markup purposes only
- I will not use it at all
- I will study/observe it to use in the future
- Other ……..

B. In my case **the main strong** point of **AutoCAD 360 Mobile** is:

……..

C. In my case **the main weak** point of **AutoCAD 360 Mobile** is:

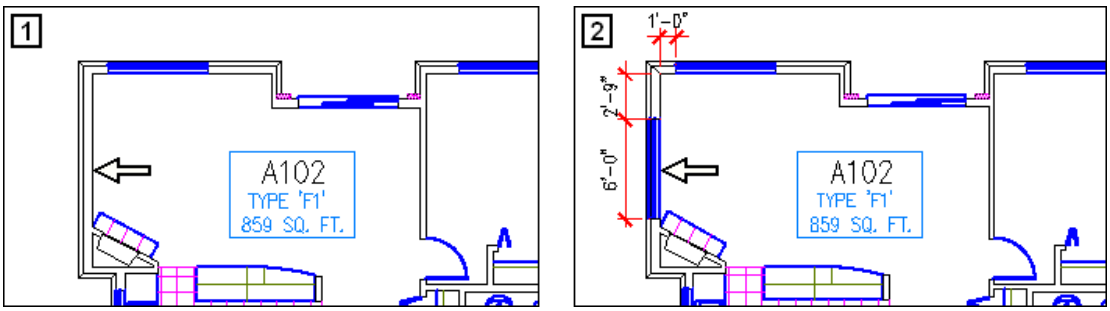
……..

2.7. Elements of Concurrent Design (CD)

With the aid of the **AutoCAD 360**, Concurrent Design workflow can be carried out. It could be both synchronous (simultaneous) and asynchronous. Here is an exercise in concurrent synchronous work involving two designers. One of the preloaded Autodesk sample files has been used for this task.

2.7.1. Description of the design task

Ex 3: Check which version (**1** or **2**) of the apartment 102 "A102" is up-to-date and has been completed? Design file name: `DRAW-3.dwg`



Chief: If your seat number is **odd** (1, 2, 3, …) – you are the Chief Designer.
You must work with the aid of the **AutoCAD 360 Web** via a browser and **AutoCAD**.

Member: If your seat number is **even** (2, 4, 6, …) – you are a member of the team.
As a member, in principle, you should work with the **AutoCAD 360 Web** via a browser.
You can also use **AutoCAD 360 Mobile** instead. However, if you chose **AutoCAD 360 Mobile**, you will not be able to carry out one of the operations practiced in the exercise.

Solution:

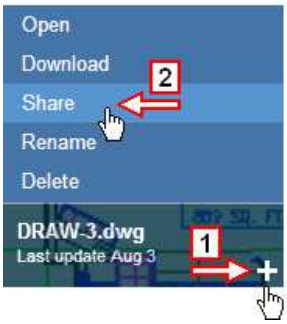
Chief Designer [__ .ac2241]	**Member of the team [__ .ac2241]**
A. Launch the Internet browser and go to the website: `https://www.autocad360.com/`	
B. Click the button: **LOG IN / SIGN UP**	
C. Log in as: ***01.ac2241@...*** or ***03.ac2241@...*** etc.	**D.** Log in as: ***02.ac2241@...*** or ***04.ac2241@...*** etc.
E. Upload the file: `DRAW-3.dwg` on the cloud Ignore missing `*.ctb` file	 *--- wait please ---*

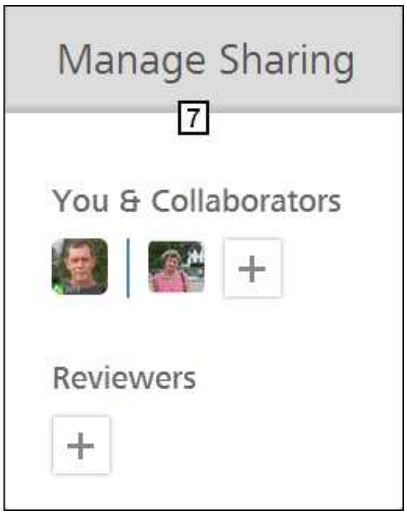
2.7.2. *Adding a member to the team (use your team member number)*

F. Add member: ___**.ac2241** to the team, doing operations **1-2-3-4-5-6**

The effect can be seen in figure **7**

--- wait please ---

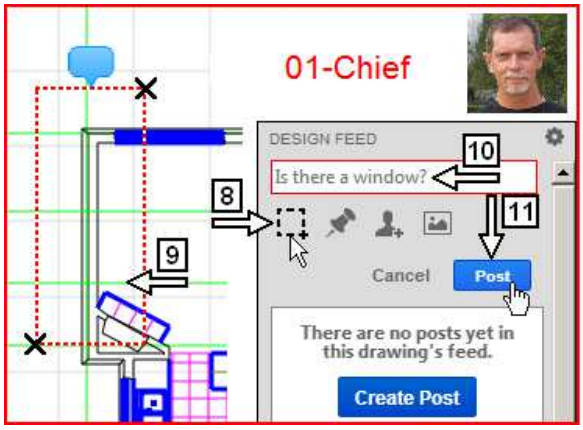


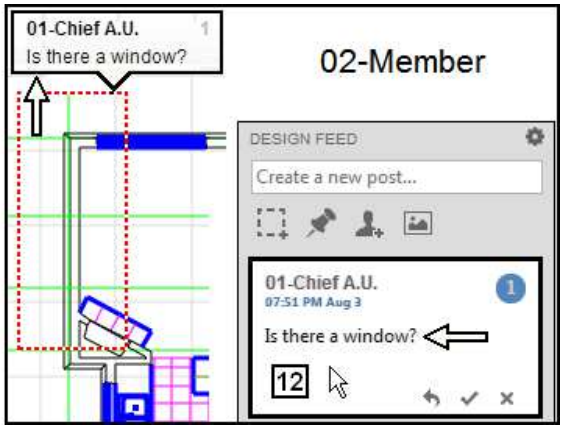


The e-mail: "*DRAW-3.dwg was shared with you*" with links to the file is sent to designer: ___**.ac2241@...** (collaborator)

G. Go to **All Drawings** folder

2.7.3. *Concurrent work*





H. Open the file: `DRAW-3.dwg`

I. Click button **8**, define area (window) **9** and type the design feed **10**

The file: `DRAW-3.dwg` appears in open cloud folder

J. Click the button: **Post** (**11**)

The effect can be seen in figure **12**

--- wait please ---

K. Open the file: DRAW-3.dwg

The simplest way to access the service and open the file is to click the link in the e-mail from the Chief Designer

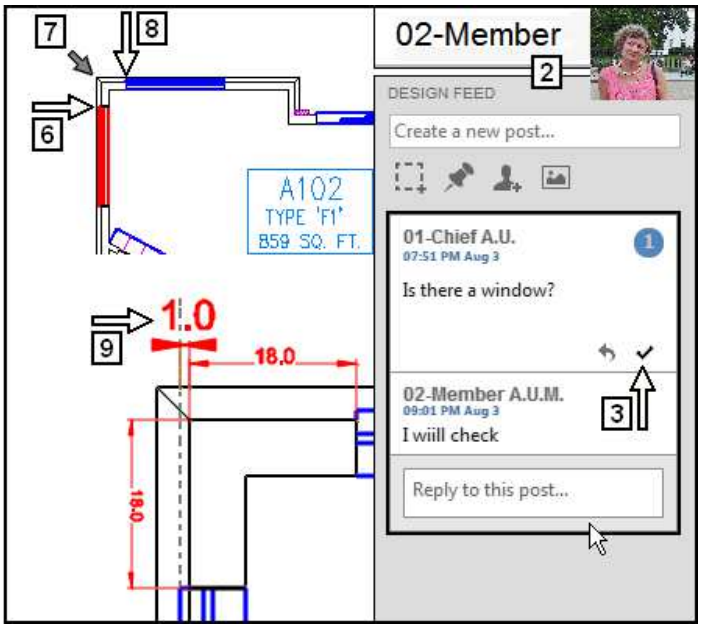
--- wait please ---

The same post as in figure **12** appears on your screen

L. Answer the question with "I will check"

The conversation in the design feed window of the Chief Designer can be seen in figure **1**. The same conversation in the case of the team member is presented in figure **2**. Both of them can resolve the task by clicking the **Resolve** button (**3**). Only the Chief Designer has the **Delete** button (**4**) and, as the owner of this conversation, can delete it.

> ➢ Let's assume that the designer: ___**–Member** checked that there is the additional window (**6**) in apartment 102. It is located the same distance from corner **7** as window **8** is.



M. Exchanging appropriate messages, agree that the designer: ___**–Member** will edit the drawing,

Think over the possible variants and tools necessary to fulfill edition task. Make notes here:

……

……

 *--- wait please ---*

N. Edit the drawing, adding window **6** in the appropriate position

O. Dimension the corner as in the figure

Answer and then **Resolve** the conversation (#1)

P. Draw the Chief Designer's attention to the unexpected one-unit-wide gap (**9**) between the wall and the gridline

Initiate your own new conversation (#2) for this task.

Do not do it if you are using **AutoCAD 360 Mobile**

Q. Review the changes

Delete your conversation (#1)

R. Answer and then **Resolve** the conversation by the team **Member** (#2)

 *--- wait please ---*

 *--- wait please ---*

S. **Delete** your own conversation (#2)

T. Close the file and its session

Do not sign out, stay in **All Drawings** folder

2.7.4. Removing a member from the team

U. Close the file and its session

V. Remove the designer: ___**–Member** from the team (drawing)

 *--- wait please ---*

 *--- wait please ---*

The file: `DRAW-3.dwg` disappears from your still open cloud folder

W. Sign out from the service

2.7.5. Revision with AutoCAD

X. Download the file: `DRAW-3.dwg` to your desktop and open it with **AutoCAD**

Y. Using **AutoCAD** open the backup file: `BKP-Downloaded-DRAW-3.dwg`

Z. Review the effect in the way presented in chapter *2.2. Revision with AutoCAD*

End of Ex 3

3. Carry out and control a product data management (PDM) process with design data stored both locally and on the cloud

The learning objective #3, planned to be carried out during the 75-minute laboratory session, has already been carried out. These are the basic and typical operations of Product Data Management process in its general meaning. Both tools of the "**AutoCAD solutions**" family for cloud-based design have been presented. Practically all the PDM mechanisms of **AutoCAD 360 Web** and **AutoCAD 360 Mobile** solutions have been presented and practiced.

3.1. Completed practice – summary

The completed exercises were carried out according to the **Mixed workflow** idea (see: *1.2.1. Mixed workflow*). These were as follows.

3.1.1. Uploading

The process of uploading data (in the form of files only) from your desktop to the cloud has been practiced several times. Its description can be found in chapter: *2.1.2. Uploading drawing files to the cloud*.

3.1.2. Version management

The basic operations of file version management have been presented and practiced in chapter: *2.1.15. Saving and choosing versions*. The automatic version management mechanism can be observed several times while downloading the data. (see: *2.1.14. Downloading the file to your desktop*).

3.1.3. Downloading

The process of downloading data (in the form of files only) from the cloud to your desktop, has been practiced several times. Its description can be found in chapter: *2.1.14. Downloading the file to your desktop*.

3.1.4. Synchronizing

The automatic version management (called "Synchronization") has been practiced several times. It has only been presented on a mobile device. Its description can be found in chapter: *2.5.4. Synchronizing your mobile device with AutoCAD 360*.

3.2. Further steps to take after this class

Learners who are interested in more advanced cloud-concentrated design (see: *1.2.2. Cloud-concentrated workflow*) using the "**AutoCAD solutions**" family are advised to learn the **AutoCAD** software, together with its **Autodesk 360 module** and **Autodesk 360 cloud platform** for accessing several Autodesk cloud services. Among others, please take into consideration the following additional capabilities of this solution.

- Synchronizing AutoCAD software configuration options with the cloud.
- No necessity of manual uploading or downloading data.
  Data saved on your desktop folder can automatically be stored on the cloud and vice-versa.
- More advanced management of the team members and their rights.

4. Assess the effectiveness and limitations and select the appropriate workflow in your enterprise or design office

You have already completed two partial assessments of the solutions practiced from your point of view. These were:

- **AutoCAD 360 Web** (see: *2.3. AutoCAD 360 Web – final conclusion*),
- **AutoCAD 360 Mobile** (see: *2.6. AutoCAD 360 Mobile – conclusion*).

It would be useful to also assess simple mechanisms of Concurrent Design (CD) and Product Data Management (PDM).

4.1. Elements of CD and PDM – conclusion

Please formulate your own conclusion here.

A. In my case **the main strong** point of **CD and PDM** mechanisms is:

……..

B. In my case **the main weak** point of **CD and PDM** mechanisms is:

……..

4.2. How powerful are these tools for you?

It's time to ask the final question. How powerful are these tools for you? You should now be able to assess more precisely how effective this solution might be in your business or design office. My task is almost complete. Welcome to the discussion and thank you very much for choosing my class.

See you … on the cloud!

Andrzej Jaskulski

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communities.autodesk.com/poland/node/198855/feed-items | cadaj.blogspot.com | youtube.com/user/andjask

Apendix: 2.3. AutoCAD 360 Web – final conclusion (from p. #24)

Please formulate your own conclusion here.

A. I represent the industry segment(s):

……

B. My company is:

- small
- mid-sized
- large

C. I am going to use **AutoCAD 360 Web** for:

- creating and editing objects
- reviewing and markup purposes only
- I will not use it at all
- I will study/observe it to use in the future
- Other ……

D. In my case **the main strong** point of **AutoCAD 360 Web** is:

……

E. In my case **the main weak** point of **AutoCAD 360 Web** is:

……

Apendix: 2.6. AutoCAD 360 Mobile – conclusion (from p. #34)

Please formulate your own conclusion here.

A. I am going to use **AutoCAD 360 Mobile** for:

- ○ creating and editing objects
- ○ reviewing and markup purposes only
- ○ I will not use it at all
- ○ I will study/observe it to use in the future
- ○ Other ……

B. In my case **the main strong** point of **AutoCAD 360 Mobile** is:

……..

C. In my case **the main weak** point of **AutoCAD 360 Mobile** is:

……..

Apendix: 4.1. Elements of CD and PDM – conclusion (from p. #41)

Please formulate your own conclusion here.

A. In my case **the main strong** point of **CD and PDM** mechanisms is:

……..

B. In my case **the main weak** point of **CD and PDM** mechanisms is:

……..