



CECA LEONARDO PROJECT



ECDL CAD COURSE CONTENT TEMPLATE

Scope: *This template is intended for preparing material for both the ECDL CAD training manuals and also the ECDL CAD on-line training material. Please fill in all the (white) cells in the enclosed template accordingly. Use the same fonts for the different sections as disclosed in the template example. Make use of diagrams/screen shots to explain the concepts being described.*

The resulting document should be the basis of the CAD training manuals from which material can be also used for developing the on-line ECDL CAD web pages.

Terms that can be hyperlinked to other pages (in the case of the on-line training material) or that are defined in the index/contents or glossary of the training material should be marked in red and underlined.

Due to copyright issues, it is important that existing material (eg AutoCAD on-line help manual is not used as-is. Rather, the CECA CAD Training Manual should be composed as much as possible of original material including drawings/screen dumps.)

Remember to add an appropriate tutorial section at the end of each topic using the same formatting style as per attached example.





Task Item Number

1.1.2.1

Task Item:

Using Zoom / Magnification Tools

General Topic Introduction:

(not related to a specific CAD system/platform):

When manually generating drawings on a drawing board, draughtsmen are normally used to work on large format (eg Size A1 or AO) drawings. On the other hand, using a CAD system, the commonly used display screen size (14", 17" or 19") monitors means that less area is now actually available to see the whole drawing. To overcome this limitation with screen sizes, CAD software packages provide *magnification tools* allowing the CAD Operators to change the apparent (not real) size of their drawings i.e. they can *zoom in* or *out* of the drawing to see more or less detail as required in the available screen area. It should be emphasized that the real size of the drawing does not change – it is only the apparent visible size on screen that is changed.

AutoCAD's magnification Command:

The magnification command available in the AutoCAD system is **ZOOM**. The ZOOM command can be utilized by either typing in the word *zoom* in [AutoCAD's Command Prompt Area](#) or else via the pop-down menu *View*. Alternatively, the appropriate zoom icon (see below) can be clicked from the zoom toolbar. Some pointing devices (e.g. mice) can with special buttons (or rotating wheels) that automatically execute the zoom command once activated. It is therefore advisable to check the manual instructions of your pointing device hardware to check if this facility is available.

By default, ZOOM zooms to display the *selected* drawing in the [current viewport](#). In a plan view, AutoCAD zooms to the [grid limits](#) or [current extents](#), whichever is greater. In a 3D view, ZOOM All is equivalent to ZOOM Extents. The display shows all objects even if the drawing extends outside the grid limits.

Zoom Icon / Toolbar:



Zoom Command Description

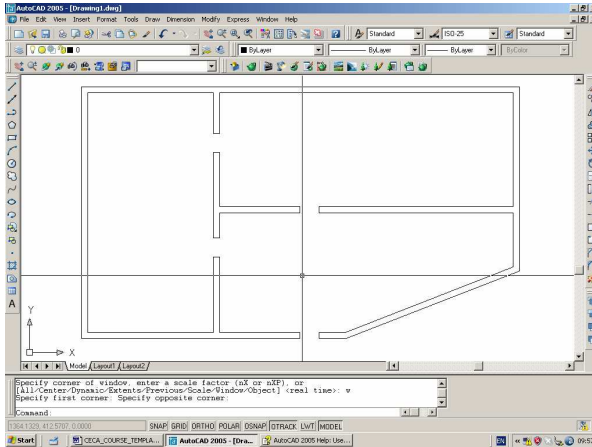
Once the ZOOM command is entered, the following dialogue appears in AutoCAD's command prompt area:

Specify corner of window, enter a scale factor (nX or nXP), or
[All/Center/Dynamic/Extents/Previous/Scale/Window/Object] <real time>:

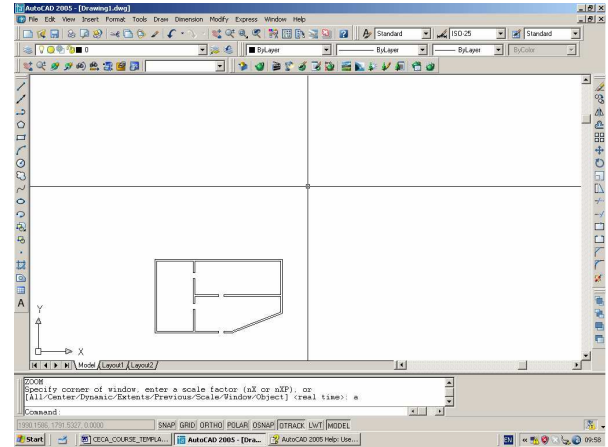


Zoom ALL

With the **ALL** option, the ZOOM command zooms to display the entire drawing in the current viewport (see diagram). In a plan view, AutoCAD zooms to the *grid limits* or *current extents*, whichever is greater. In a 3D view, ZOOM All is equivalent to ZOOM Extents. The display shows all objects even if the drawing extends outside the grid limits.



Before Zoom ALL

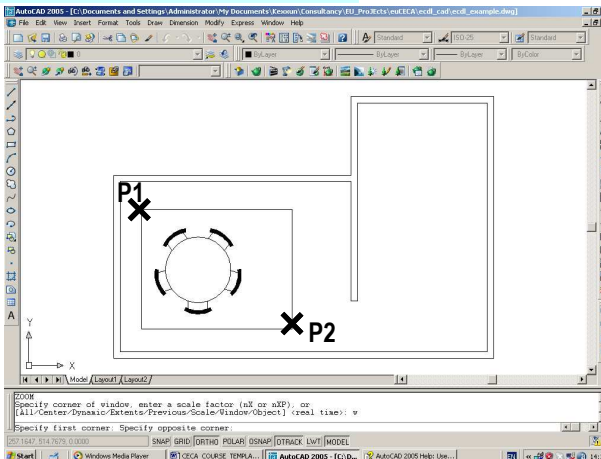


After Zoom ALL

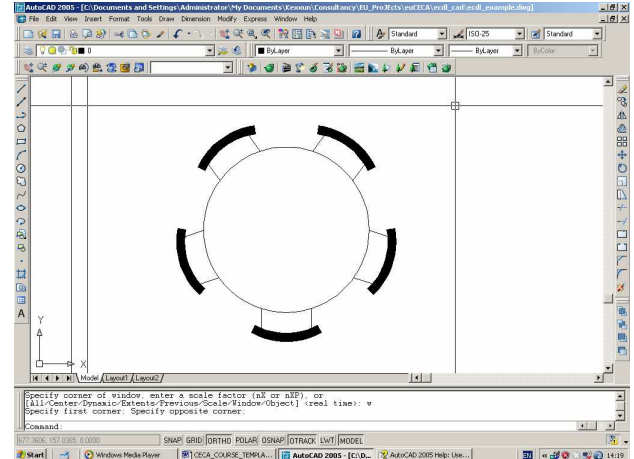
Zoom WINDOW

With this option, AutoCAD Zooms to display an *area* specified by *two opposite corners* of a *rectangular window* as disclosed below:

- Specify first corner: Specify a point (P1)
- Specify opposite corner: Specify a point (P2)



Before zoom Window

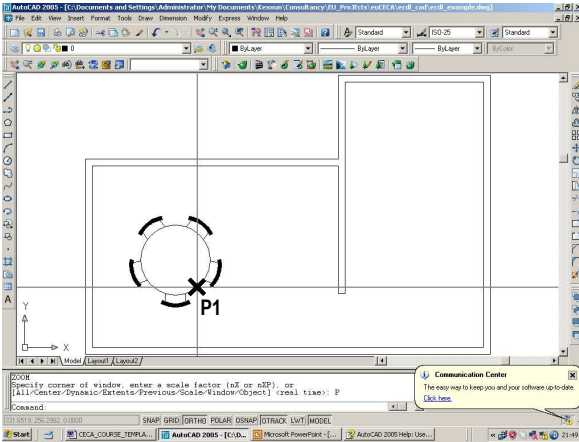


After zoom Window

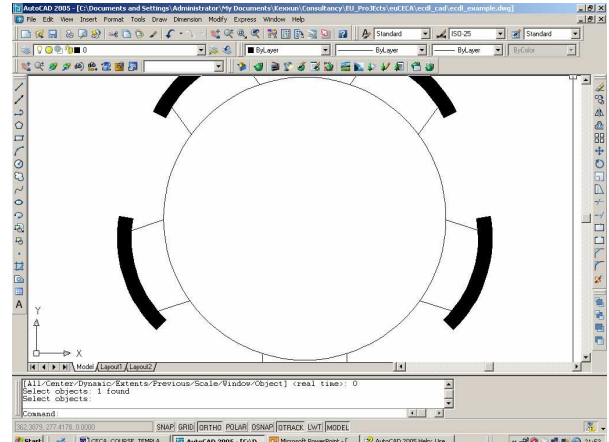


Zoom OBJECT

The *Object* option will zoom to display one or more selected objects as large as possible and in the *center* of the drawing area (see Diagram below). You can select objects before or after you start the ZOOM command.



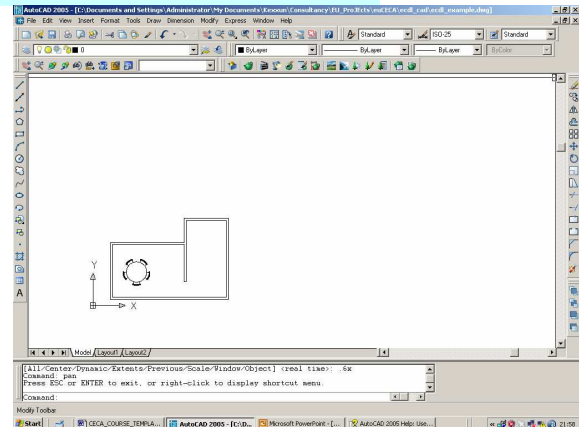
Before zoom Object



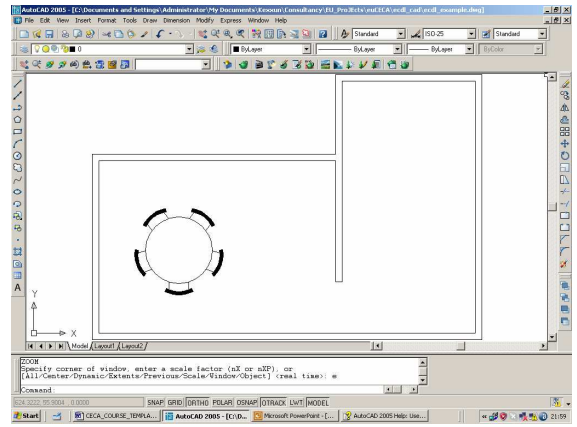
After zoom Object

Zoom EXTENTS

With the *Extents* option, one can zoom to display the *drawing extents* this resulting in the largest possible display (see below) of all the objects.



Before zoom Extents



After zoom Extents

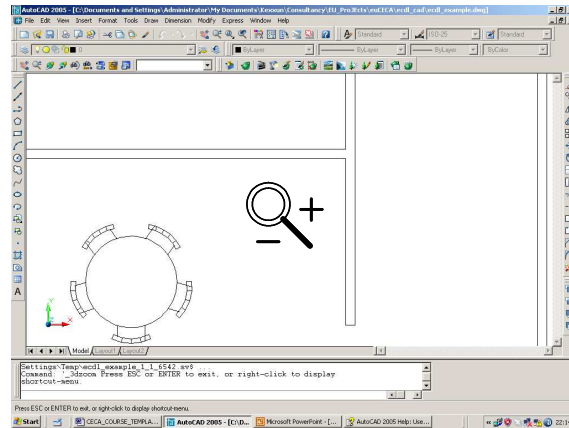
Zoom REAL TIME



Using special buttons on your *pointing device* (e.g. *wheel on a mouse*), the zoom command magnifies the drawing interactively to a logical extent. On doing so, AutoCAD's cursor (cross hair) changes to a *magnifying glass* with plus (+) and minus (-) signs (see the icon on the left). Holding down the pick button of your pointing device at the midpoint of the



window and moving vertically to the top of the window (with the pick button still pressed) zooms in to 100%. Conversely, holding the pick button down at the midpoint of the window and moving vertically to the bottom of the window zooms out by 100%.



Real time zooming in AutoCAD

Zoom PREVIOUS

With the *PREVIOUS* option, the Zoom command will display the display view in the previously defined magnification factor. AutoCAD allows one to restore up to 10 consecutive previous views.

Zoom SCALE

This will magnify the display at a specified *scale factor*. To do so, you need to specify a value to the following prompt:

Enter a scale factor (nX or nXP):

There are three different entry modes for the scale fact. One can enter a value followed by *x* to specify the scale *relative* to the current view. For example, entering **0.5x** causes each object to be displayed at *half* its current size on the screen.

Alternatively, one can enter a value followed by **xp** to specify the scale relative to paper space units. For example, entering **0.5xp** displays model space at half the scale of paper space units. You can create a layout with each viewport displaying objects at a different scale.

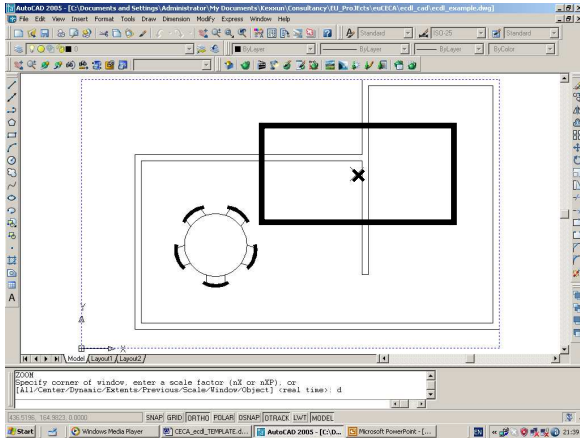
Finally, one can enter a value only (i.e. without an *x* or *xp*) to specify the *scale relative to the limits of the drawing*. (Note that this option needs to be used with care – the other options are probably more useful).

Zoom Dynamic

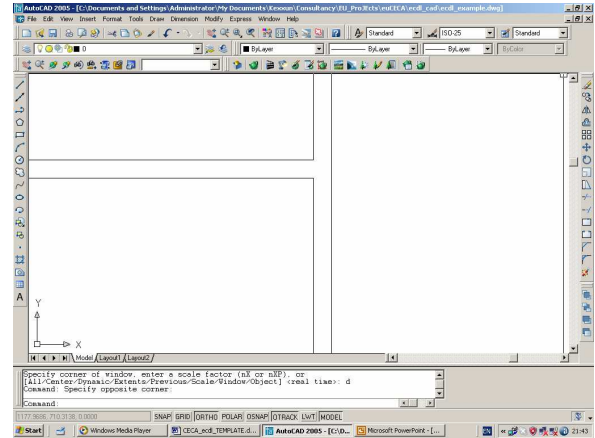
This option of the zoom command displays the selected portion of the drawing defined with a *view box*. The view box represents your viewport, which the user can *shrink* or *enlarge* and *move* around the drawing. Positioning and sizing the view box pans or zooms to fill the viewport with the image inside the



view box. The panning view box is displayed first. Drag it to the location you want and *click*. The zooming view box is then displayed. To resize it, drag the pointing device and press ENTER when ready or click to return to the panning view box. To end, press ENTER to fill the current viewport with the area currently enclosed by the view box. An example is shown in the diagrams below.



Before Zoom Dynamic



After Zoom Dynamic

Section 1.1.2.1 Tutorial

Hands on Tutorial on Zooming

1. Load/Download the drawing **ecd1_tutorial_zoom.dwg**
2. Make a **zoom all** of the drawing. Print the result or show it to your tutor on screen. For e-Learning students, make a screendump of your result and send it to your tutor in an MS-Word file named **zoom_tutorial_your_name_surname.doc**.
3. Now make a **zoom extents** and as in (2), show it/send it to your tutor in the same MS-Word file.
4. Using **zoom dynamic**, magnify the kitchen area only. Once again, as in (2), show it/send it to your tutor in the same MS-Word file.
5. Using **zoom window**, magnify the cooker sufficiently and inform your teacher what the name of the cooker make is.
6. Using **zoom dynamic**, magnify the bedroom area only. Once again, as in (2), show it/send it to your tutor in the same MS-Word file.
7. Using **zoom window**, magnify the left bedside cabinet sufficiently and inform your teacher what is the name of the book.

