ELEVATION PLAN
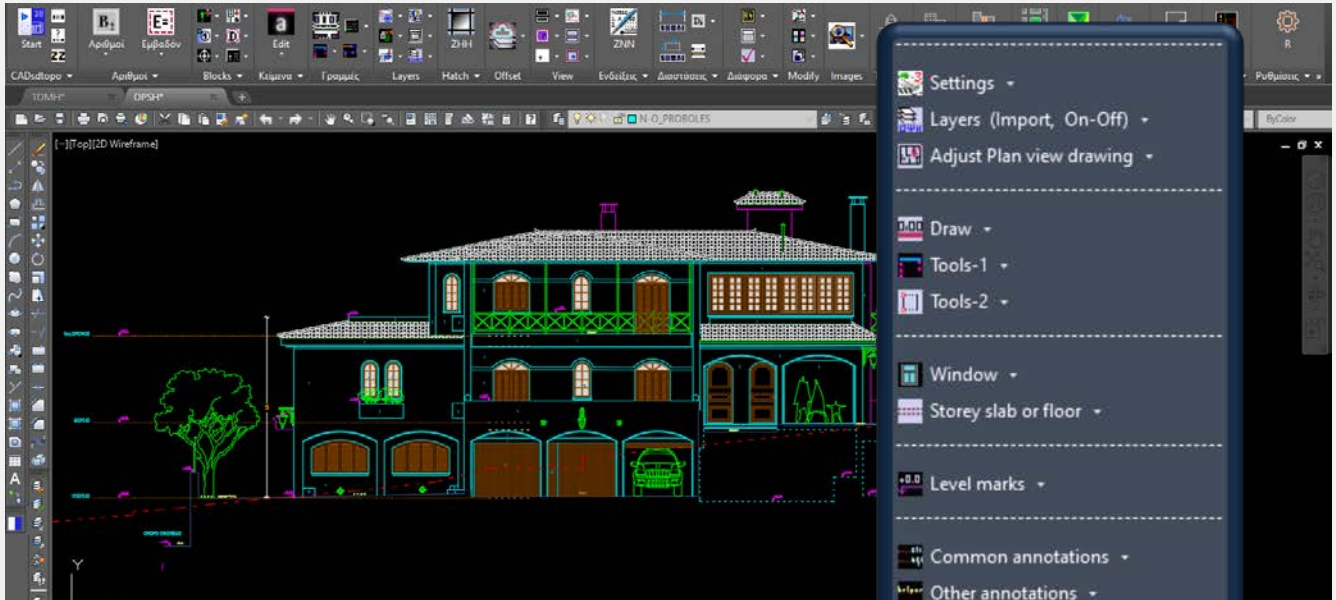
DETAILED INSTRUCTIONS FOR ELEVATION PLAN

Procedure and commands are available on:

- Menu → **"Elevation step by step"**
- Toolbar **"14b Elevation step by step"**
- Ribbon → **Elevation**

Follow the steps below to draw up a complete Elevation plan:

Note: Links for Manual in English are being developed and will be completed soon. Until then automatic translation is provided. (For those of the videos that are in Greek, subtitles are provided.)

0. Settings

Recommended settings: **SDBOX → Settings→ Default settings for buildings and topographic surveys.** This process only needs to be done once.

In case of survey mapping

Set Survey Units: TOPOUNITS. In case you have used MKO command to project the survey nodes, then you can insert them into the plan with the ITAX command.

Resize points: You can resize points to be sharp (depending on density and scale) with the ZCS command.

On-Off points : You can open or close points layers automatically by SDD command (with setting SDD1) for easier drawing.

Symbol and text sizes

There is an option to set symbol sizes (e.g. for annotations and level-marks) to be entered at almost twice the recommended size for printing. This is recommended when it is required to be able to print a design drawn up for e.g. scale 1:50, to be printed also on a scale of 1:100 and to keep the texts and symbols as legible as possible. It is common for 1:50 or 1:100 scale floor plans to be printed on smaller paper sizes (as A3 or A4) and for this reason objects can be inserted 'larger' to be read at larger scales.

With 50100Scale command you have the ability to change this setting and set the symbol and text sizes to default to be sharp and save space on the design, or large to print on smaller paper.
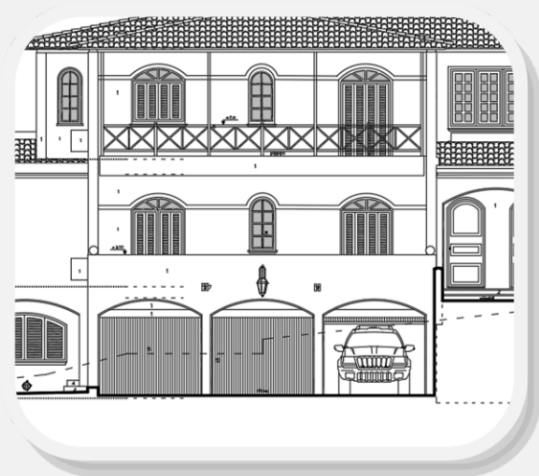
At any time, you can restore the program's default settings, which were analyzed above. The above settings do not affect any other scales than 1:100, 1:50 and smaller.

1. IMPORTING SECTION LAYERS

Click on the images below for presentation of the defaults Layers and example of an Elevation design:

Presentation of default Layers

Elevation design

Importing Layers for Elevation (OLAY):

By this command usual Layers for Section Plan are imported. At the beginning of the command, you will be asked for the abbreviation of the Elevation, where you can enter **three (3)** letters (e.g., FCD, WEL etc.) or Null (nothing). If you enter an abbreviation then the Layers are created accordingly (FCD_PATT, FCD_PROJECTIONS, etc.). Use this option when multiple Elevations are in the same drawing and there is a need to differentiate them from each other or when you want to conveniently switch from a Floor plan drawing to an Elevation plan drawing. In most (other) cases mostly "Null" is selected.

2. Add Datum Level line & Import Xref

[GRYO](#): Define start and end of the line with Y = Datum level. In general, the drawing of the Elevation is suggested to be done in such a Y position that the ordinate of each element (floor section, ceiling section etc.) is their actual level so that the drawing is done easier that way.

IMPORTING XREF & VPORTS
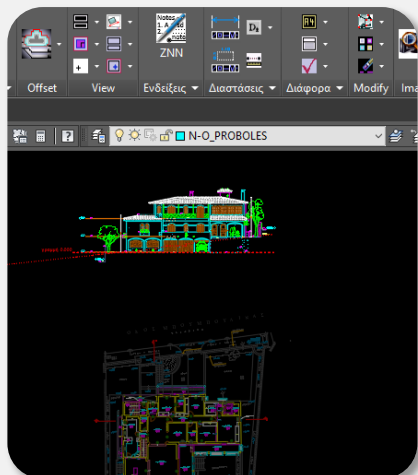
Importing Xref of Floor Plan (ZINSXREF): Command to import the Floor Plan as an Xref. Πlace it below the Section and rotate it so that the section line in the Plan is horizontal and the section line arrows point up.

Splitting the screen into 2 Viewports ZV2H: The screen is divided into 2 Viewports where one will display the Elevation and the other the Floor Plan so that it is easy to "lift" lines.

Alignment of the two Vports [ZVF](#): The 2nd Viewport (Floor plan) is set to be X-aligned with the 1st Viewport of the Elevation, and from now on the 2 drawings can be aligned one below the other, at any time, with the [ZVFF](#) command.

3. DRAW SECTIONS & PROJECTIONS OF ELEVATION-PLAN
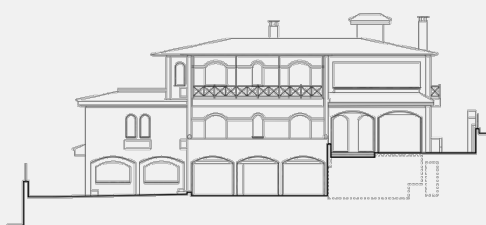
Walls (LTOIX)   **Hidden Walls** (LTK)

Columns (LFER)   **Hidden Proj/ons**

Projections (LPROB)   **Other elements:** ZLL

During drawing with the commands of SDBOX you also have the possibility to [construct points](#) you need to specify.

Design tools:

Line with same Y at both ends (GGY): Example for drawing floor slabs in an Elevation design: The floor level is selected from a Level mark on the Xref of the Floor Plan. Also, both start and end of the floor slab can be specified on the Xref of the Floor plan. Although the level and line points are selected/specified on the Floor Plan, the drawing is done on the Elevation Plan.

Line with same X at at both ends (GGX): The command works the same as above but in terms of X. Example in a Section plan: To draw a projection line from the floor to the ceiling of a room first specify a point, on the Floor plan Xref, for the X value of the projection and then specify random points one on the floor and one on the ceiling and the line is automatically drawn from floor to ceiling in its correct X position (with no need for OSNAPS, ORTHO, TRIM, etc.).
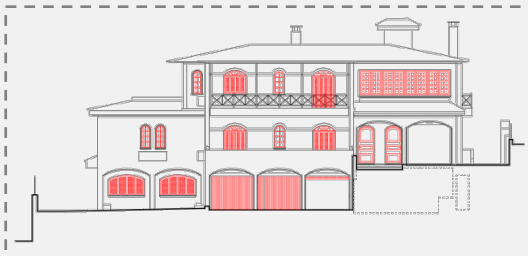
Pick up line at Y (GG1): Specify point for the desired Y and then specify as many points as you want on the Floor Plan from which vertical lines are drawn up to the desired Y.

Draw stairs by 2 points (ZSKO): Specify both start and end points and also enter count of steps. Then the section of a staircase is automatically drawn.

WINDOW FRAME DESIGN

OPSPAR: Repetitive automatic design of windows in front view with options from a tab (opening, sliding, non-opening, with shutter, overlapping, French type cover). Also set the number of leaves, vertical divisions and width of case and frame.

FLOOR SLABS

GRP0: The floor level is selected from a Level mark on the Xref of the Floor Plan. Also, both start and end of the floor slab can be specified on the Xref of the Floor plan. Although the level and line points are selected/specified on the Floor Plan, the drawing is done on the Elevation Plan.

4. LEVEL INDICATIONS
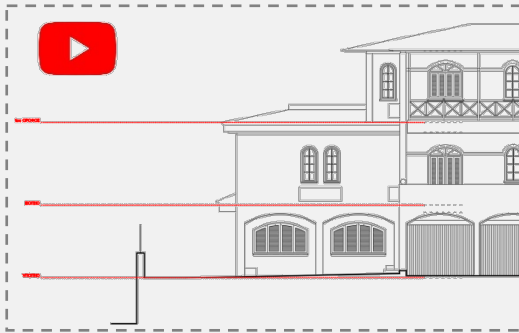
NNR: Specify one side of the building and then a point on the floor of each level, select its name from a library, and a dotted line is automatically drawn from the point you specified to the level name at a predetermined distance from the building.
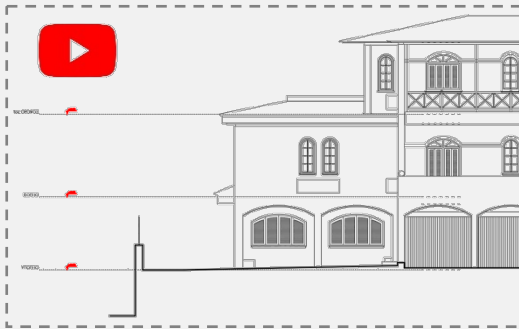
As soon as you finish with all the levels draw a temporary vertical line where with the TST command the elevations will be added at the intersections of the temporary line.
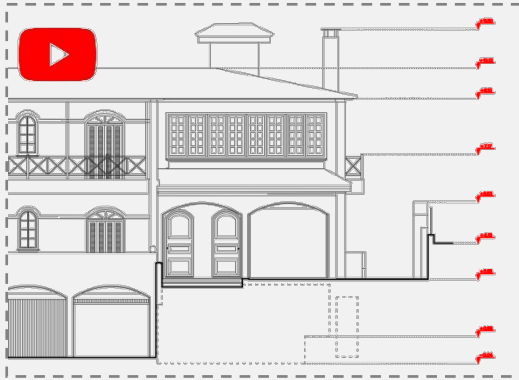
5. Roads - Streets

ΟΔΟΣ ΑΓΙΑΣ ΑΝΝΗΣ
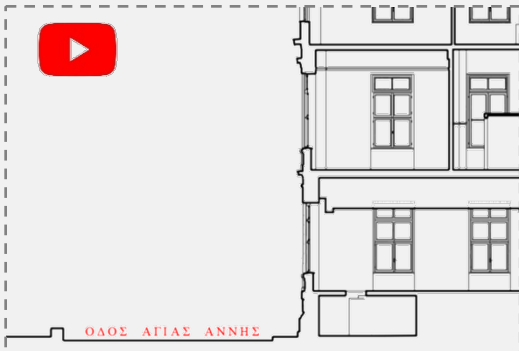
NNOD: The name of the street is added (if its displayed in the Elevation) or after an arrow showing the direction in which the street is.

6. Levels marks

TST: Place level marks at characteristic points of the Section. The value of each level mark is automatically updated by its Y ordinate.

Aligned Level Marks

TSTGR: In cases where, either due to lack of space in the design or due to order and alignment, Levels marks are automatically placed aligned at a predefined distance and a reference line is also added.

Checking Level Marks

CCTST: It is recommended to run this command at the end or after the design is completed where there is a possibility that some level symbols may have moved from their listed position. This command will detect them if they exist.

7. EXTERNAL DIMENSIONS (Total height)

[ZDL](ZDL): Specify the exterior maximum height on both sides of the building.

8. INDICATIONS OF MATERIALS WITH TABLE-LIST

NNP: First configure (once) a table (which can be common to all your Designs) whose each row mentions the type (number) and the description of each material. When running command place in the Plan indications for materials and you also have the possibility to automatically insert a legend with the types of the materials and descriptions.
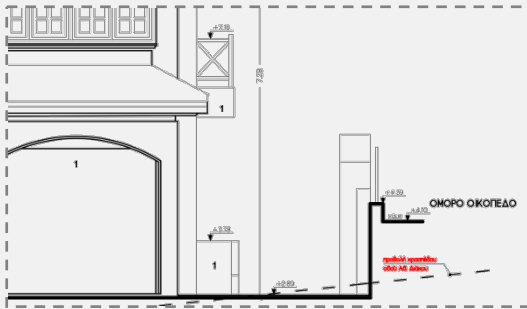

LEGEND

1. Coated surface
2. Wood
3. Bricks
4. Masonry
5. Roof tiles
6. Tent
7. Wooden canopy
8. Window box
9. Metal railing
10. Gutter
11. Wooden roller
12. Wooden French frame
13. Metal roll
14. Metallic roof

9. Other indications
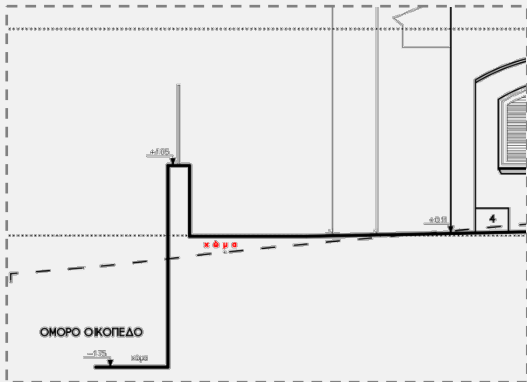
Space Usage
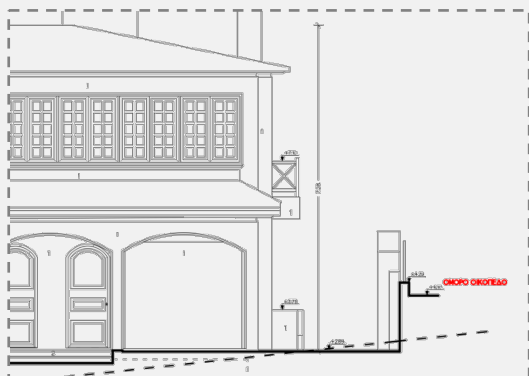
NNX: Single-line Text for space usage (e.g., NEIGHBORING PLOT)
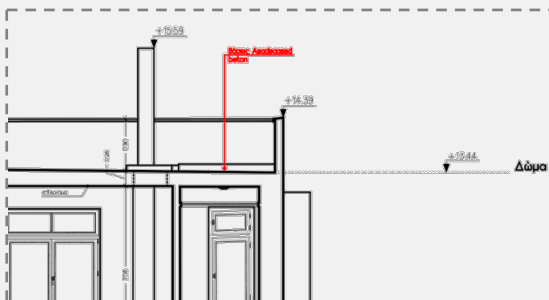
Symbol annotation

 NNB: Block with 2 lines of Text, reference point and line (e.g. Old natural ground)
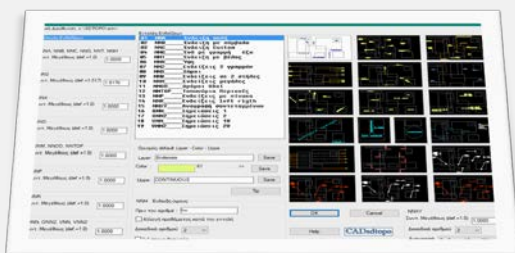
Text annotation

 NNA (e.g. apron, marble, etc.)

Custom indicator

 NNC (similar use to the symbol annotation, with the difference that there is a possibility to select the distance of the indication line from the dot, when there is a need for space or other clarity needs. It is recommended that these indications be entered in the horizontal or vertical direction (Ortho ON).

Choose another indicator

 ZNN : Select one from the rest of the annotation types or set options.

Personal notes

ELE: Indications (Leader with dot) for personal notes on the Plan or observations. The Layer of these notes (ANNO-NOTE-PERS) must be closed when printing.
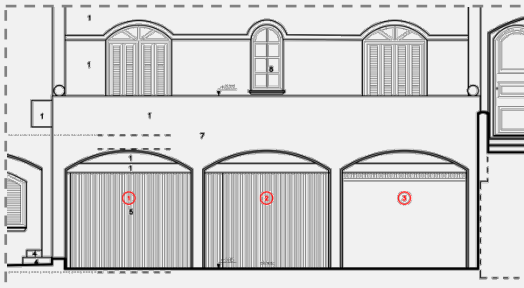
Dimension to check

VLV Dimension for inspection: Line with arrows on both ends concerning a dimension for on-site inspection or a significant difference that must be resolved before delivery. They are printed in red on all sdbox's plot styles. Their Layer must be closed for final printing.
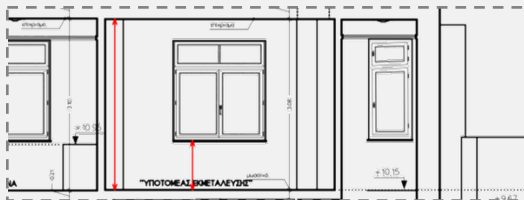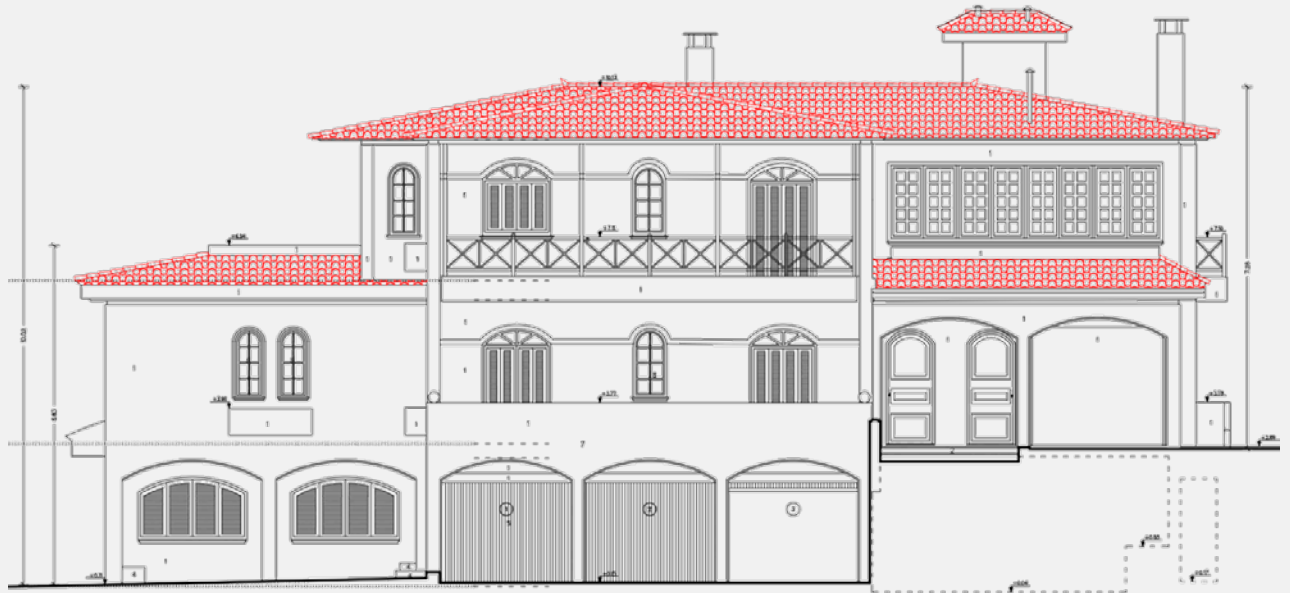
Number in a circle

NNAR: Continuous numbers in a circle (small size) for rooms or any other use.

Roof

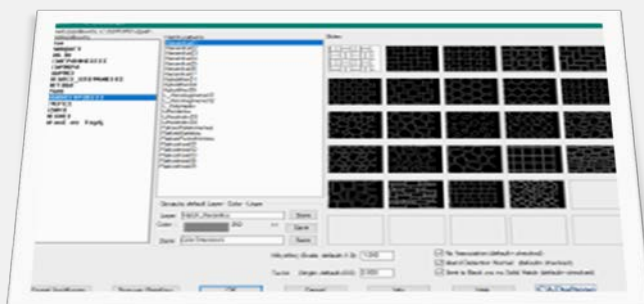For the roof design, the following are provided in the ASD command:
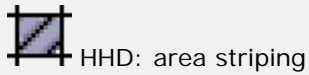
-   Antefix
-   Roof tiles facades
-   Ridge facades

10. HATCH

ZHH Select Hatch Type. Patterns such as marking areas etc. are automatically entered in a scale corresponding to the Plot scale. Patterns such as roof tiles etc. are imported to their actual dimensions.
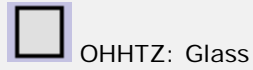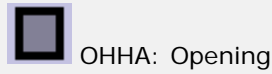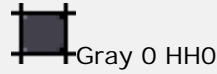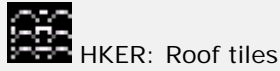
 HHD: area striping

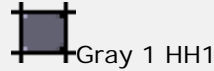 Blue HHBLUE

 OHHTZ: Glass

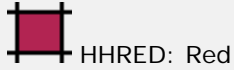 Yellow HHYEL

 OHHA: Opening

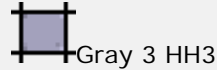 Gray 0 HH0

 HKER: Roof tiles

 Gray 1 HH1

 ZHH: Masonry, Bricks, etc.

 Gray 2 HH2

 HHRED: Red

 Gray 3 HH3
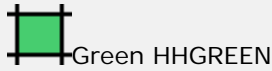
 Green HHGREEN
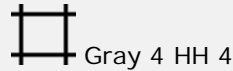
 Gray 4 HH 4

11.   ARCHITECTURAL SYMBOLS

 Insert fixed dimension symbols into Aspects such as People, Cars, Bushes, Trees, Doorknobs, Wall Lights, Light Poles, Roof Elements, etc. with [ASD](#) command
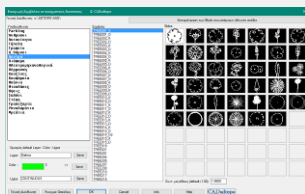
 Symbols are inserted into the Drawing in their actual dimensions (regardless of the Drawing's Plot scale). You can enrich the library with your own symbols and use them easily in any Design.

You can set the symbol library to be read from a shared folder on a local network so that multiple users can use and enrich the same library.

12. LINES-SYMBOLS-HATCH MEMO

ZYPGR : Line legend   ZYPBL : Symbol legend

ZYPHH : Hatch legend
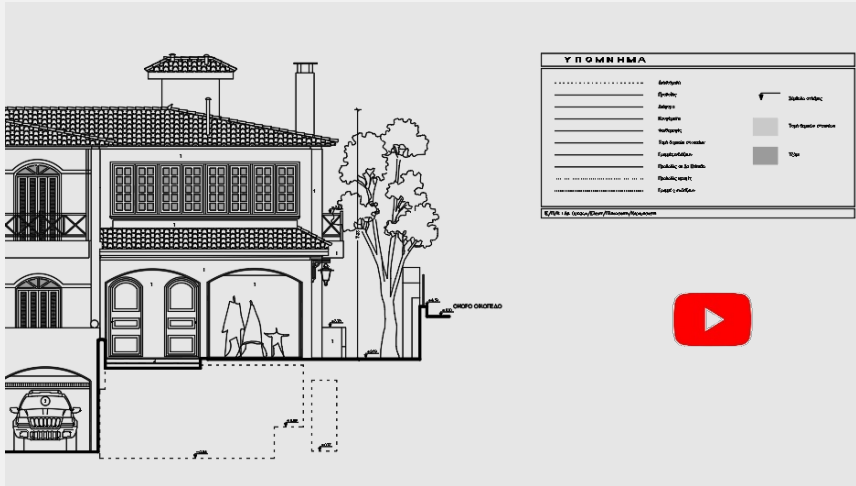
Note 1: The Hatch legend also shows the total surface area of each Hatch type. The symbol legend also shows the set of each type of symbol.

Note 2: You can also use Text Legend (ZYPTT) in the case that e.g. different Text types are used to separate elements.

13. TITLE-BLOCK & LEGENDS

Import a Title-block (**ZTITLOI**). Choose one from SDBOX's database of Title-blocks or add your one in the specified folders.

14. Title under Elevation

With the command YYTT --> (Large Wide Title) you can add the name of the Floor Plan (e.g. FACADE, etc.) to the bottom right of the drawing.

FACADE

15. Printing

It is recommended to use the SDBOX's Plot styles. For generating a PDF you can use the *SDBOX →Misc → ZZPDF command* where you only specify the area to print and the rest is done automatically.
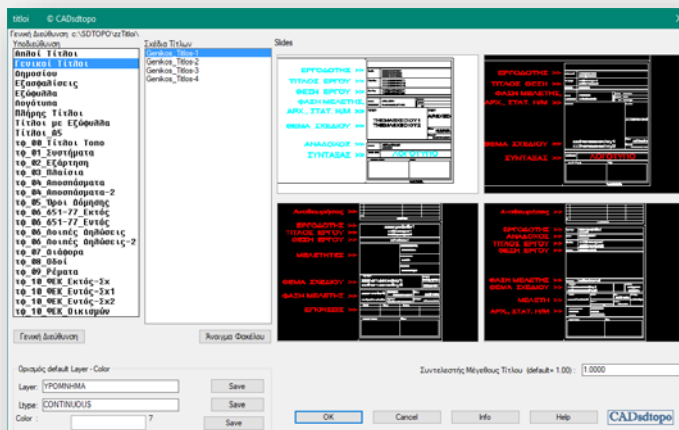
16. Emailing the design to third parties

17. First set all the Layers that are needed for **printing** to be open and also open the ones that still need to be delivered. (Note: You can use AutoCAD's LMAN command to save this kind of layer states.)

18. **ZWB:** A new drawing is automatically created to a folder you define (containing only what's selected). During the creation of the new drawing, you are informed regarding common layers that should or should not be delivered. Images, fonts and ctb files are automatically copied to the folder you specified.

19. **Open the new drawing** and start SDBOX**.**

20. In case source drawing was rotated, then use AutoCAD command _ view and select _ top .

21. ZCIMD: Automatically set images paths to the folder where you saved the new design.

22. **OO:** Set 0 as current layer.

23. ZLAYREN**:** Layers can be automatically renamed if needed. It is suggested to check the Layers that were not renamed and rename them accordingly. For auto-filling of the auto-rename list see here.

24. Run the commands: **PURGE -** T2F **-** TT0 **-** LL0 **-** ZZ0 (except the DTM layers).

25. Check for unwanted entries such as **Xrefs, Images, Layer Filters, LMAN, Views** and remove those that are not needed.

26. **ZZARIAL:** Automatically convert all SDBOX fonts to **Arial** so that problems do not occur in different versions of AutoCAD that third parties may use.

27. **ZOOM:** Extends.

28. **SAVE:** Save your drawing as AutoCAD 2007 version.

29. **ZZPDF:** Automatic pdf generation.

30. **Delete from the folder the *. bak file.**

31.   Other Notes and Tips

- It is recommended during design to follow the Menu commands "Elevation plan step by step " or follow commands from the Ribbon or the Toolbar "14b. Elevation plan step by step".

- **DFF Opening a Photo:** If you have specified (with the FFCHDIR command) the Windows folder that contains the photos of the Project, then you can enter the number of the photo in the project and it will open **automatically**.

- **CEC:** Setting list of tasks, actions or reminders (such as during design or before printing or before emailing to third parties) with CEC options 1 until CEC 4.

- " 09 Design Views " Toolbar permanently open or to work with the Ribbon.

Examples of project management commands:

ZF: Isolation of as many Layers as you want and restoration with ZFF.

ZMSB: (Match Block Scale). First select the Block that has the desired X, Y, Z Scales and then the Blocks that you want to acquire the same Scales.

ADA: Automatic deviation calculation between two numbers that you select on the screen or write them down.

ZMRS: Automatic adjustment of objects (average rotation, move, scale) with data of as many pairs of points as you choose on the screen.

S2P: (Spline to Polyline). Conversion of the selected Splines to Polylines with possibility to configure the density of points between the vertices of the original Splines.

ZONELAY: (Transfer to 1 Layer). Whatever objects you select are transferred to an existing or new Layer, keeping their Color and Linetype.

ZDLAYT : (Layer Based Dimensioning). Automatic listing of Dimensions (plain Text) of all objects on the same Layer.

ZDRC: Open current drawing's folder

D+D: Operations with distances and numbers.

ZCXRD: (Change Xref paths). If the drawing doesn't find the Xrefs you can redefine the folder or folders that contain them in one go.

KTT: (Text Line Spacing). Select the lines of text you want and set the distance between them (default, at a certain distance or with dynamic scaling on the screen).

PP: (Perpendicular to line point). Select any point on an object (eq line, pline), where a perpendicular new line is drawn to the desired length and side.

LLOL: (Highlight Layer). Select any Layer you want which starts to flash on the screen while you are informed about how many and what kind of objects it contains.

ZVPMC: (New Viewport from Model to Layout in the same coordinates). Define an area in Model which automatically appears in a layout at the same coordinates.

ZDFS: (Resize according to different print scale). If, for example, you have inserted an image in random size which you want to be printed at 1:5000 scale while the rest of the design will be printed at 1:200. Just choose a dimension on the image, enter its actual value and the two print scales.

ZIMAA: (Transfer objects between images). Select two images (initial and final) and based on the difference in the size, position and rotation, as many objects as you choose are moved or copied from the 1st to the 2nd.

Thank you for using SDBOX!