

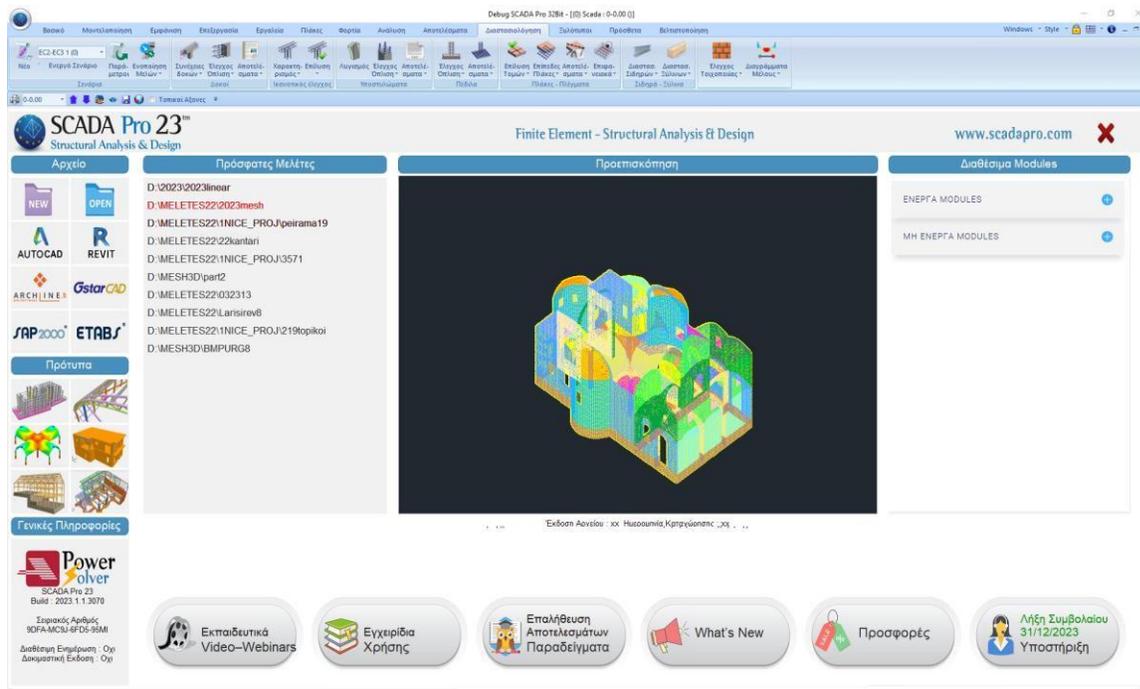


SCADA Pro 25tm

Structural Analysis & Design

User Manual

INTRODUCTION



Note

The present manual, as well as all the educational material of the SCADA Pro application, constitute a guide for the correct use of the program and in no way substitute the specialized technical background of the professional engineer, which, together with the knowledge of the relevant technical legislation, are necessary conditions for the correct use and operation of the program.

Thanks to

The creation of this manual is the result of a collective effort of the entire team of design, development and distribution of the SCADA Pro application, which Ace Hellas would like to thank. Special thanks must also be given to our colleague civil engineer Ms. Amalia Bagourdi-Degleri for her significant contribution to the writing and general editing of the texts of the user manual.

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COMPANY

ACE-Hellas, a member of the Quest Group, was founded in 1979 and is one of the largest providers of integrated solutions in the field of IT and technical software applications. Its strategic objective is to provide its customers with integrated business solutions, designed to provide functional and effective solutions to all their technological and communication needs.

ACE-Hellas' successful multi-year track record in the Greek market is due to continuous growth and expansion in new activities, trusting relationships with customers and partners, strategic partnerships and investment in innovation.

SCADA Pro, a product of ACE-Hellas, is widely used in the Greek market as an easy-to-use and reliable program for structural calculations of buildings and engineering projects.

GENERAL INFORMATION ON THE PROGRAMME

SCADA Pro offers a single integrated environment for the analysis and design of new structures, as well as the control, evaluation and enhancement of existing ones.

It combines linear and surface finite elements, incorporates all applicable and non-applicable Greek regulations (N.E.A.K., N.K.O.S., E.K.O.S. 2000, E.A.K. 2000, E.A.K. 2003, Old Seismic, method of allowable stresses, KAN.EPE, KADET) and the corresponding Eurocodes.

It offers the designer the possibility to design structures of different materials, concrete, metal, wood and masonry, individually or mixed.

With the use of new cutting-edge technologies and based on the requirements of construction project designers, a program was created with a number of smart tools with we can create 3D constructions, process them in the field and build the final structure in simple steps and complete even the most complex studies.

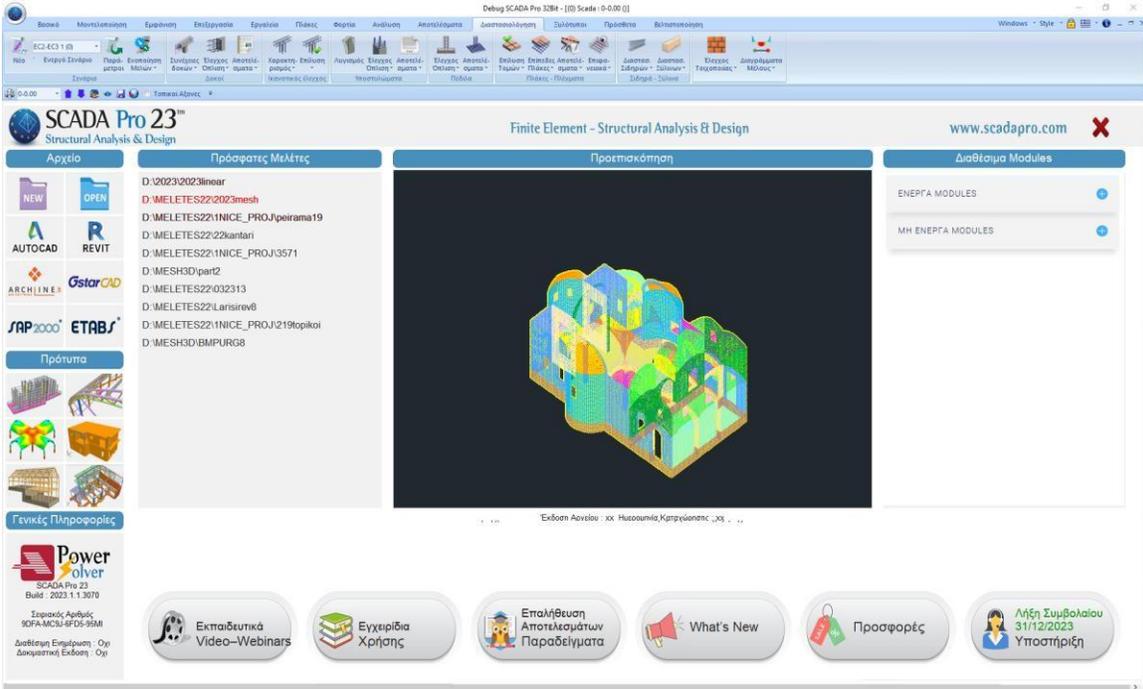
SCADA is a program that is constantly upgraded, evolving and adapting. The technical department of ACE-Hellas in permanent cooperation with Metsovio Polytechnic University engaged in its continuous development and its adaptation based on new data, applications and needs. A "living organism" that matures!

GENERAL FEATURES OF THE NEW SCADA Pro

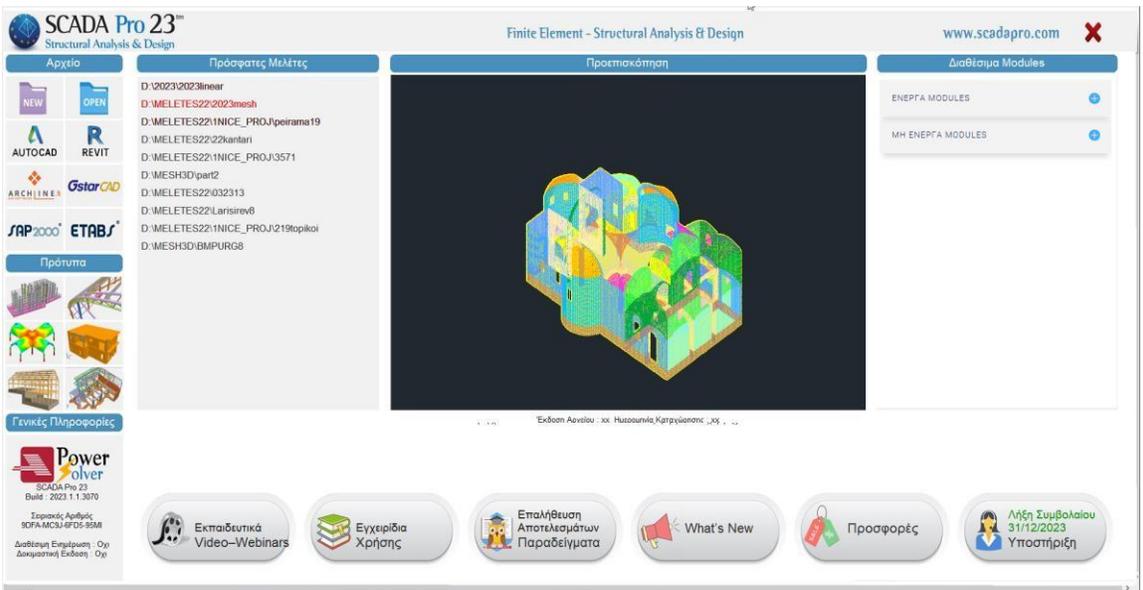
The product of SCADA development is the NEW upgraded SCADA Pro. It is a new program that includes all the applications of the "old" one and incorporates additional technological innovations and new features.

INTRODUCTION TO SCADA Pro

Selecting the SCADA Pro shortcut icon on the desktop opens program interface.



The user can either select one of the quick tools in the "Home Window" for immediate access, or close the window and execute the command through the menus.



Left click on the icons of the " Home Window " to:



Create a new file



Open an existing file



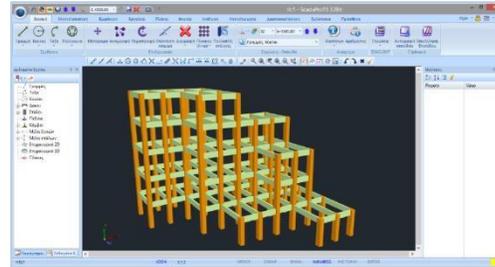
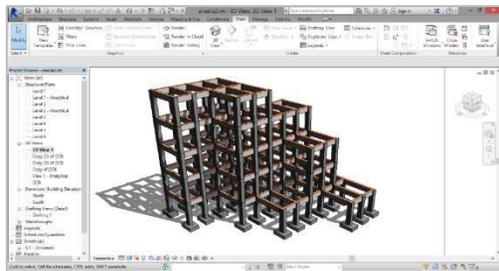
Import of Autocad-2D file, as an auxiliary file within the interface with additional possibility of Automatic Layer Creation and Automatic Identification of all static elements of the design.

⚠ In the example entitled "Design of a new reinforced concrete building" the use of automation is described in detail.



Reading ifc files from Autodesk Revit.

Making use of the "scada_revit_families" cross-section library, provided to the user to adapt them in Revit, SCADA Pro automatically identifies all the structural elements (columns, beams) with their respective properties, so that the structure is ready for analysis.



Reading xml files from ArchlineXP.



Import cad-2D or 3D file as an auxiliary file within the environment

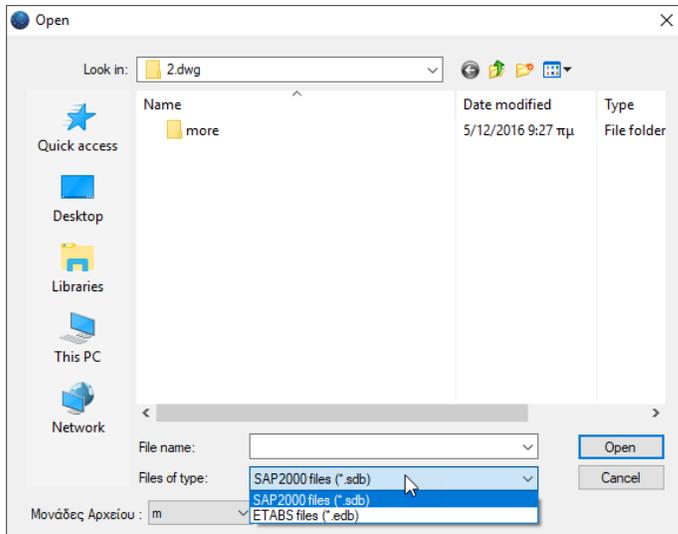
Labour



Reading .edb & .edb files .sdb from static programs

ETABS & SAP2000 .

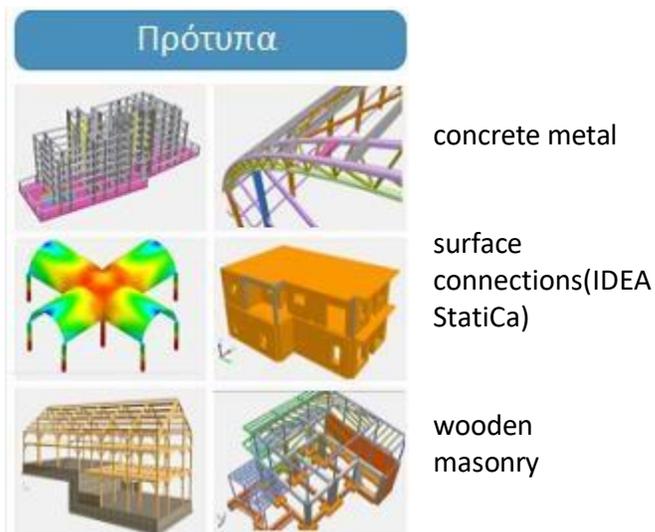
The new bi-directional communication of SAP2000 and ETABS with SCADA Pro, allows the import and export of any project to SCADA Pro and SAP2000/ETABS, respectively.



OBSERVATION:

The interface of SCADA Pro 22 has been updated with the new versions of the programs SAP2000 V23, IDEA StatiCa Steel V21.0 and ETABS V19.

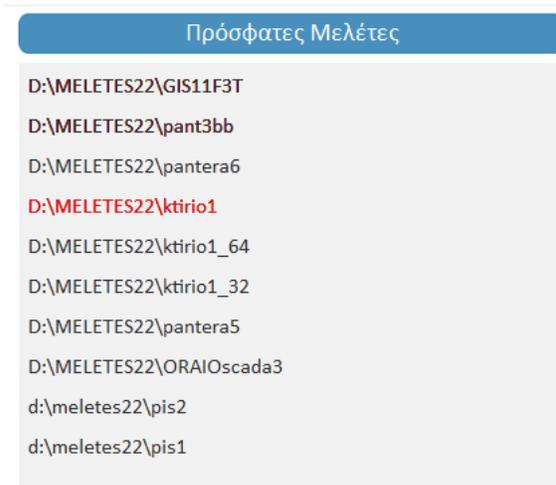
For direct access to the "standard constructions" menu:



⚠ *The same commands can be found in the SCADA Pro menu. For a more detailed explanation see the following chapters where the same commands are described by calling them from the menu.*

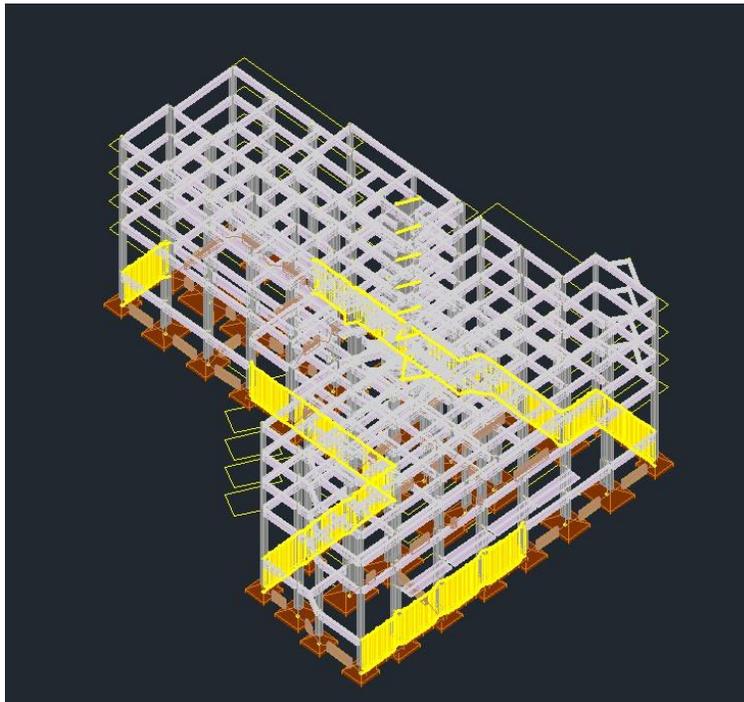
Recent Studies

To select an existing file from the home screen with preview option.

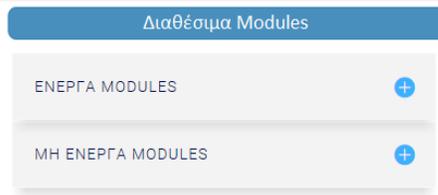


List of the most recent files.

Clicking on path of each file displays the model in preview and double-clicking opens the study.



Available modules



Useful information about the modules that each user owns, those that he does not own, as well as information about the support contract and general information about the program.

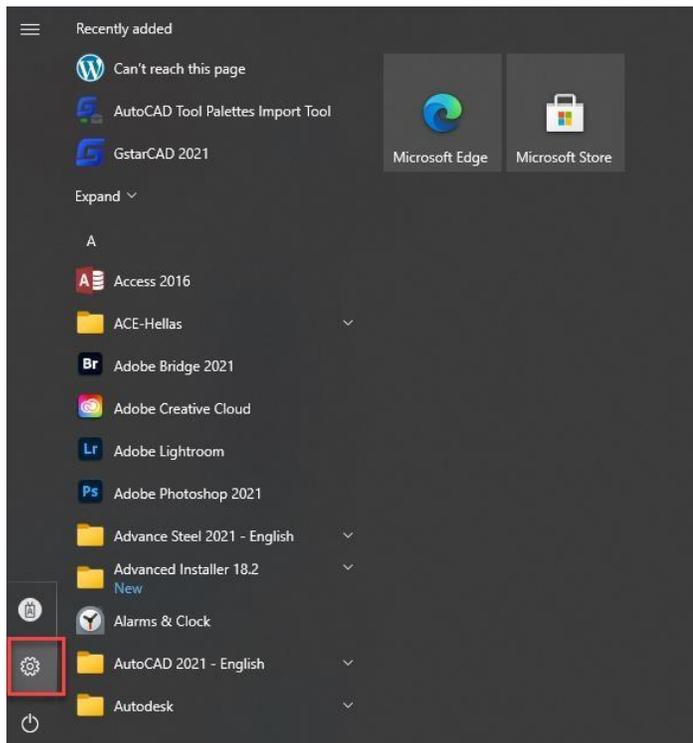


A new area where users can refer to the supporting documents that accompany the program (User Manuals, Examples) and videos, be informed about new versions and upgrades of the program, and receive support from experienced staff.

⚠ OBSERVATION:

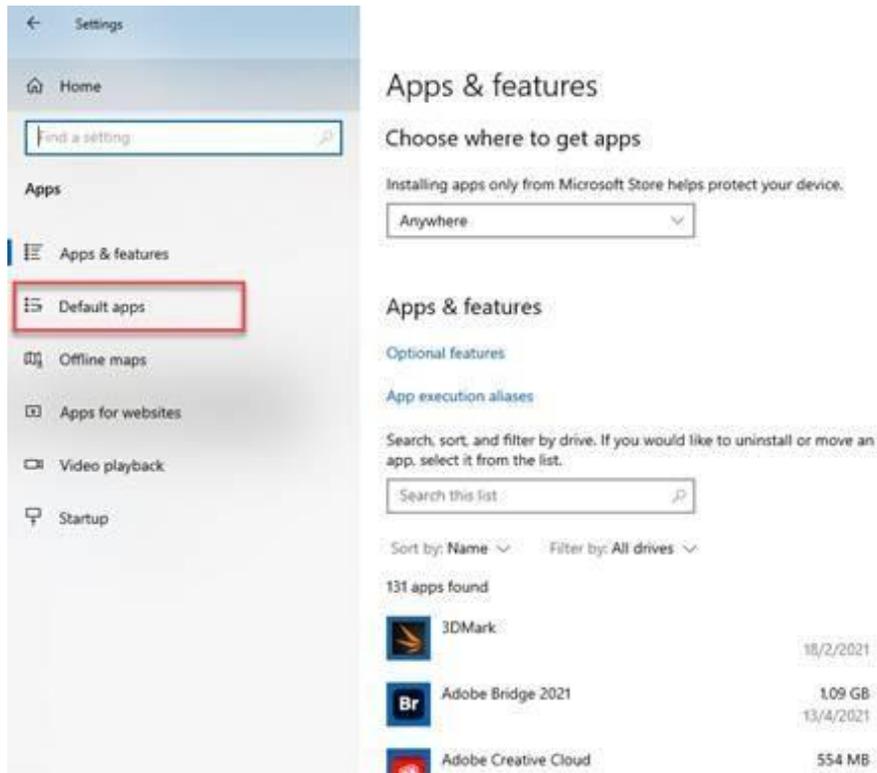
If the new version does not open or download the pdfs (manuals, examples etc.) from the home screen, then follow the 5 steps described below with pictures:

1

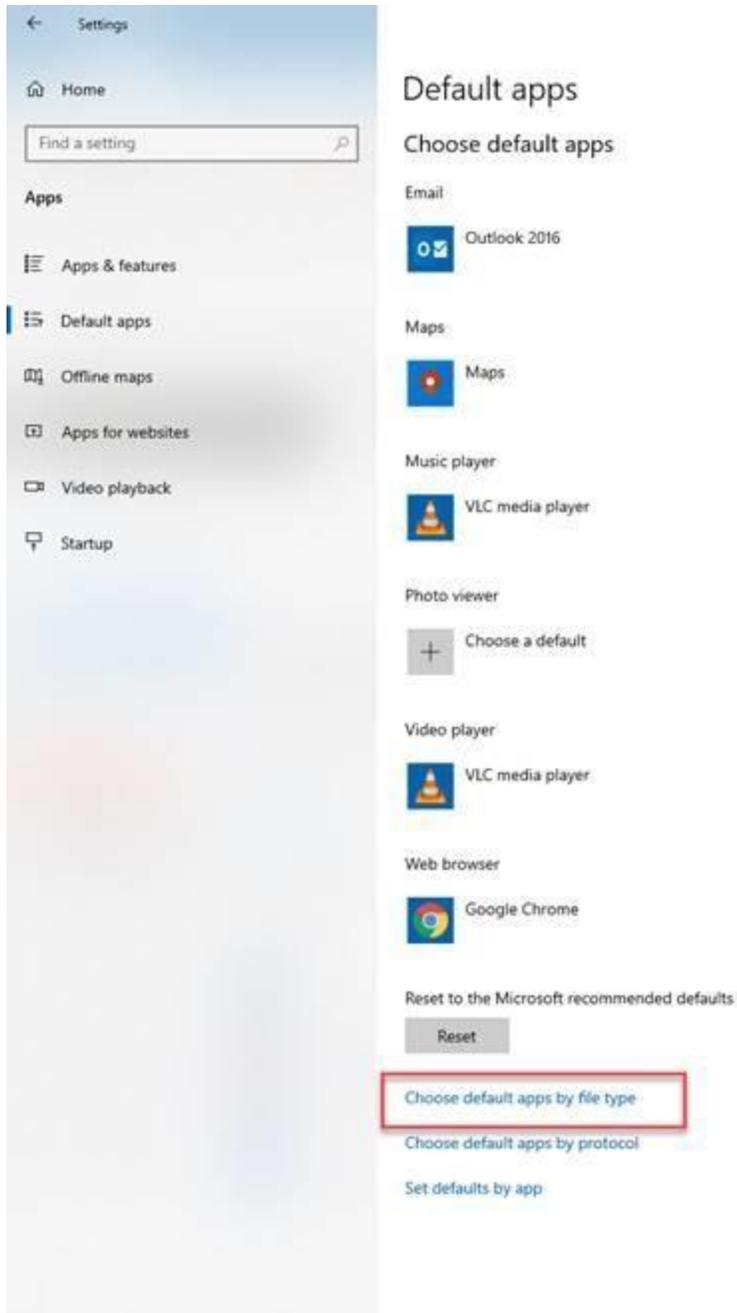




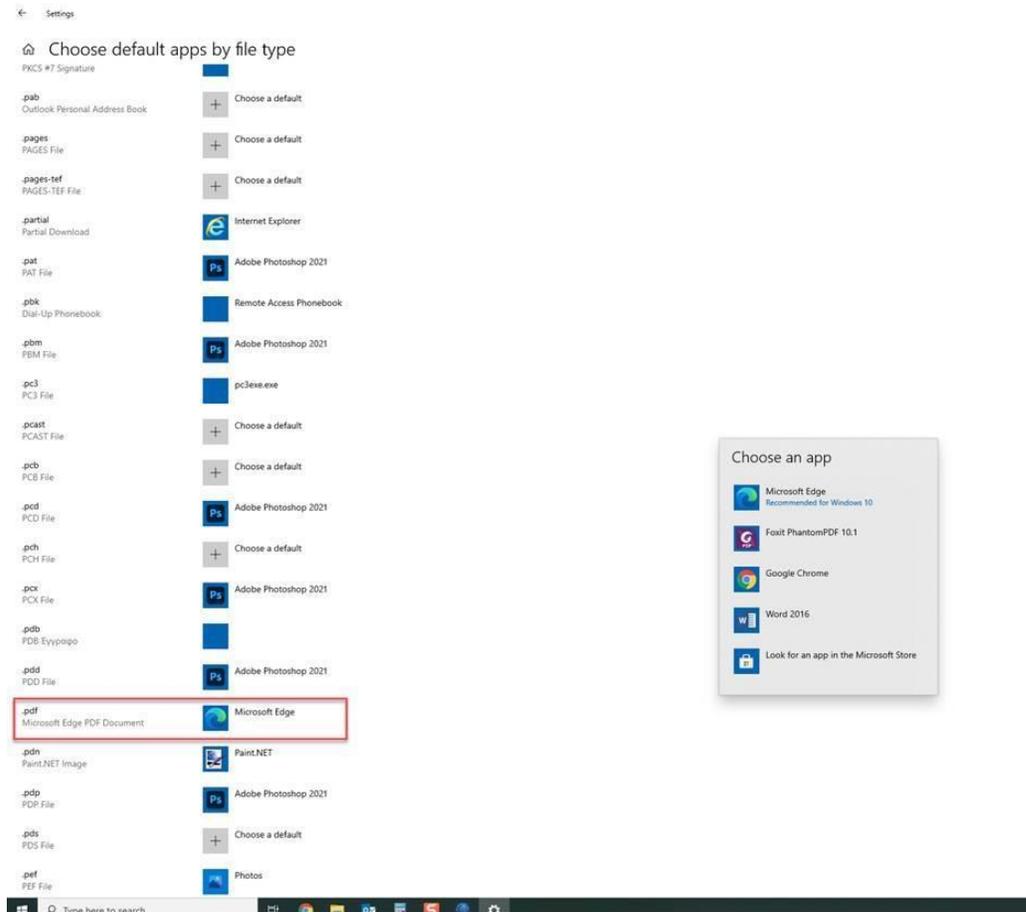
2



3



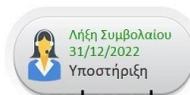
4



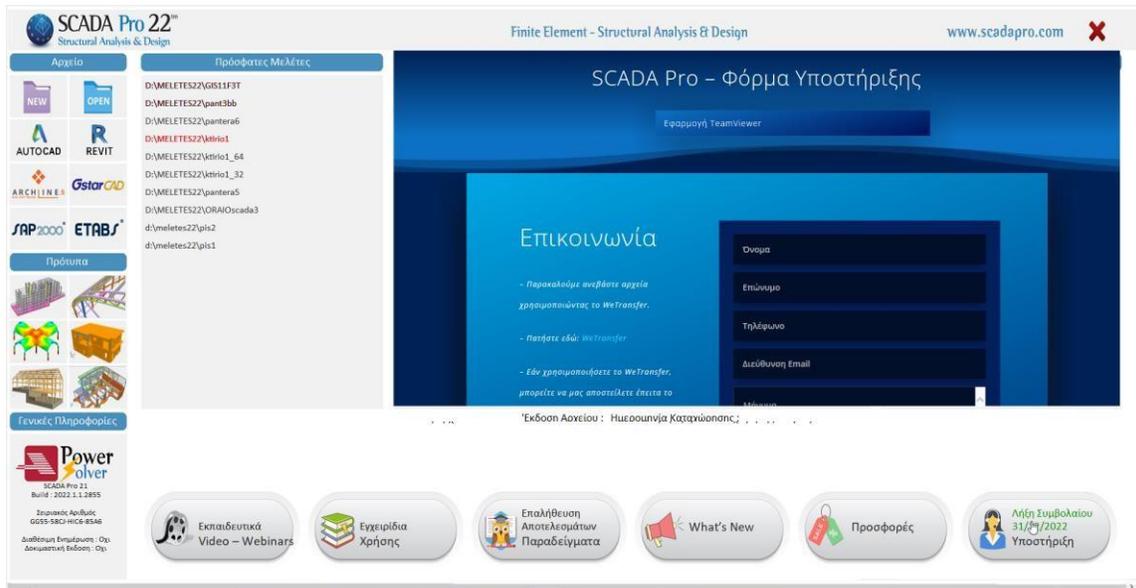
Single click on the icon next to the .pdf extension and choose as default application the Microsoft Edge which is present in all windows.

To open the links to New Releases and Support, you need an internet connection.

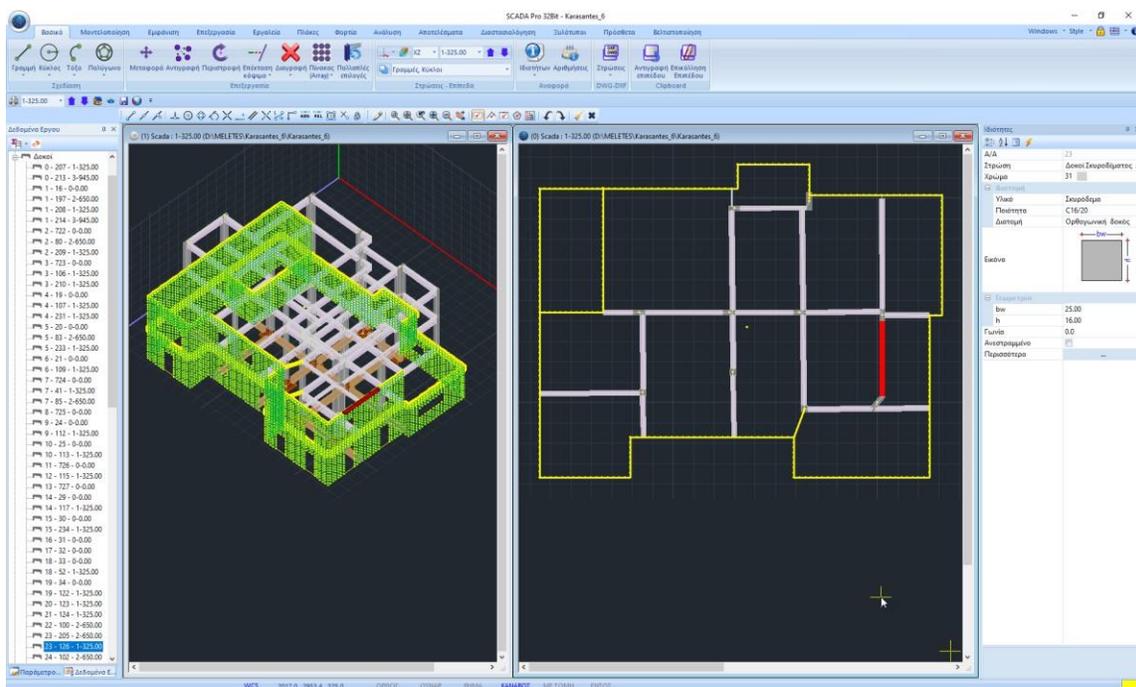
Pressing the keys



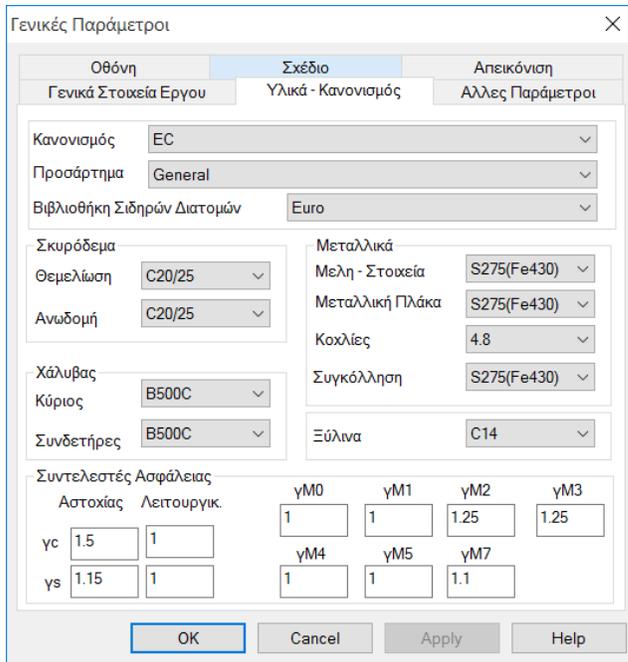
you will have direct access to the project website to fill in the Support Form and send us your questions, as well as find out about our offers.



THE NEW UPGRADED ENVIRONMENT OF SCADA Pro



In each New file you create, General Parameters window appears in the interface where you can specify from the beginning the Materials and Regulation to be used, as well as General Project Information and other parameters, such as the Autosave time discussed in chapter 11. "Extras" of the user manual.



ATTENTION: The materials must be in accordance with the selected regulation, and when data input, all cross-sections must have the correct qualities (C for the newer regulations, B for the Old)

⚠ * Predefined scenarios are created according to the option Regulation and Attachment you make at the beginning, within the General Configuration window that opens automatically immediately after the file name is defined.

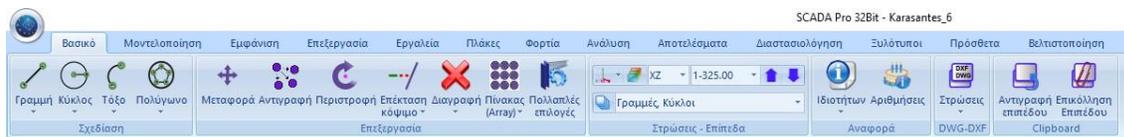
GENERAL DESCRIPTION OF THE NEW WORKING ENVIRONMENT



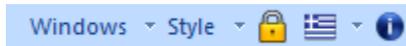
Group of commands to open and save files



The user has the option to create his own group of commands for easy access to them, which is retained after the program is closed and remains every time you open it. You can add and remove commands as well as move it via "customize quick access toolbar".

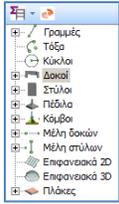


In the new interface SCADA Pro uses RIBBON technology for even easier access to the commands and tools of the program. The main idea behind the Modules is, all program commands are brought together in one place, so that you avoid having to navigate through multiple levels of menus, toolbars and tables in search of the command you want.

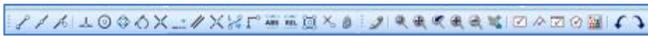


Group of tools for selecting the interface format and language, as well as activating the program and searching for the active version. In the new interface of SCADA Pro the use of

windows, where it is possible to create up to ten (10) windows in a horizontal or vertical or sequential arrangement.

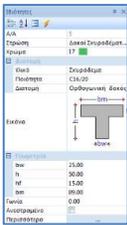


In the new interface SCADA Pro adopts the TREE application. An "interactive" list, "Project Data", which includes all the model elements in the corresponding groups and offers the user multiple possibilities to search and locate the study elements.



Project management tool line

(osnap, zoom, select, undo)

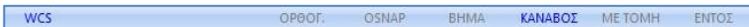


A "Properties" list appears on the right and is automatically populated by selecting an entity item. It informs the user of its attributes, and also allows changes to them.

ATTENTION:



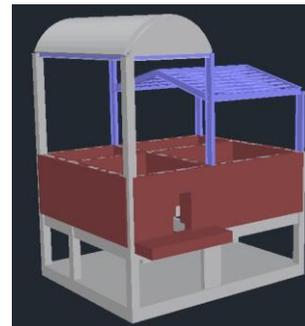
Do not close the "Project Data" and "Properties" windows by pressing on the x, because resetting them requires a complex procedure.



The status bar is located at the bottom of the screen and adjusts according to the selected Module and the vector display (2d/3d), giving additional possibilities for managing the project.

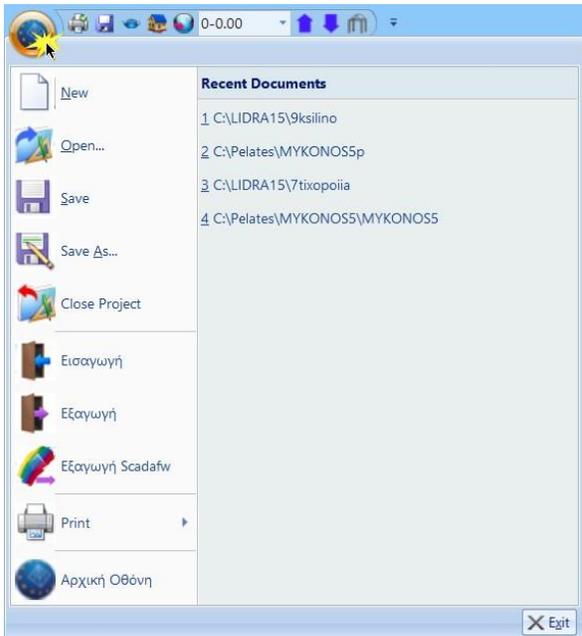


Button that allows selecting a color of an element importing it, different from the default layer. In addition, during the photorealistic visualization, double-clicking displays the carrier with the colors of its construction materials (gray = concrete, blue = metal, brown = masonry, beige = wood)

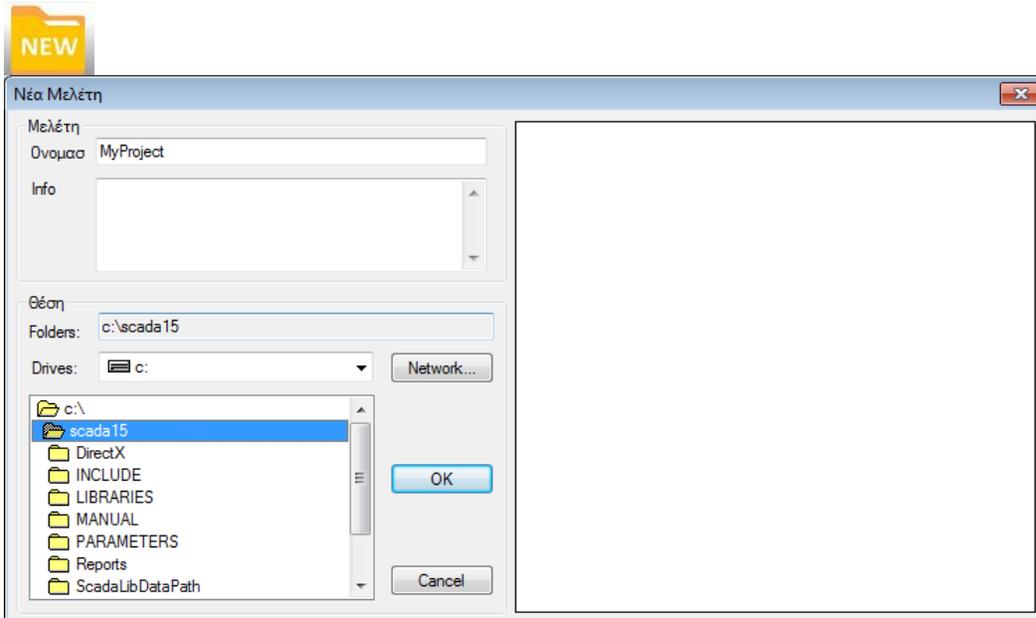


DETAILED DESCRIPTION OF THE NEW WORKING ENVIRONMENT

1. FILE



To start a new study select the "New" command. In the dialog box that appears, you define the details of your new study. More specifically, in the "Name" field you define the name of your study.



A prerequisite for the program's commands to work is to give the file a name.

⚠ The file name must consist of **a maximum of 8 Latin (not Greek) characters and/or numbers, without spaces and without the use of special characters (/ , _ , .)** (e.g. *ARXEIO1*). The program automatically creates a folder where it enters all of your study data. The "Location" of the folder, i.e. this folder will be created, should be on the hard disk. We suggest you create a folder in C (e.g. *MELETES*), where all SCADA studies will be located (e.g. **C:MELETESARXEIO1**)

⚠ **ATTENTION:**

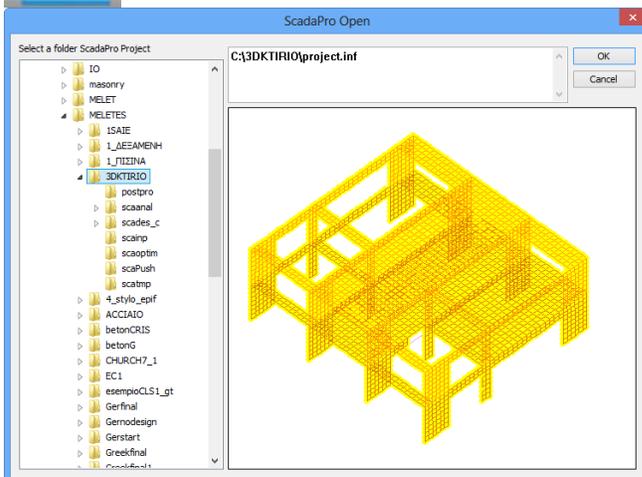
1. *The entire route should be in roman characters and/or numbers, without spaces and without the use of special characters!*
2. *Make a separate folder containing your studies in C, and don't save them in the program folder!*

The program automatically creates a folder with the specified name containing subfolders, ready to receive all the study data. In detail, in each subfolder are:

- scanal: the files of the analysis
- scades_c: the files of dimensioning of concrete elements
- scades_Sid: the files of the dimensioning of the metal elements
- scades_Synd: the files of the dimensioning of the metallic connections
- scainp: the import files of the building elements and plates
- scapush: the analysis files (for next version)
- scatmp: temporary files
- tmp: temporary files
- project.inf: data base-πληροφορίες



Select from the list the folder of the study you wish to open and "OK".



Keyboard shortcuts:

The three basic commands, New, Open and Save



can now also be activated with the keyboard shortcuts CTRL+N, CTRL+O, CTRL+S respectively.



To close a file without closing the program. Selecting the "Close Project" command closes the study that was open while the program remains open either to open another study or to create a new one.

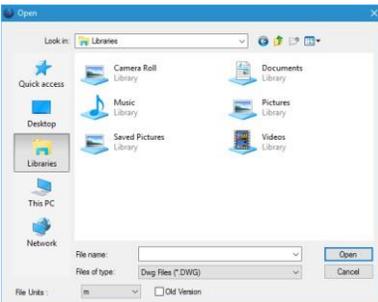


Select the command to save the study file you are editing. The program automatically updates the study file you originally created.

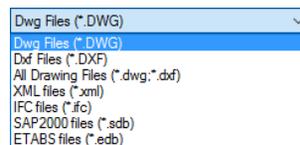
new Ability to automatically save a project with a user-configurable time (Autosave)



Select the command to save the study file you are editing with a different name.



To import a file Autocad, Revit, SAP2000, ETABS etc. in the SCADA Pro interface.

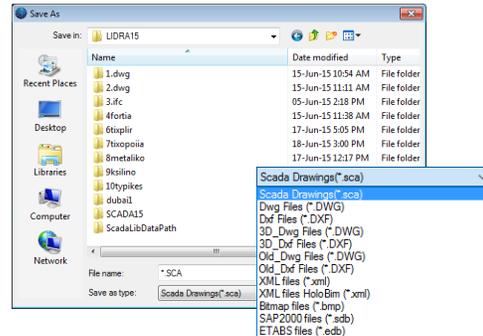


Remember to select from the list the correct unit of measurement, i.e. the one used when creating the .dwg, .dxf file.

- ☞ In the new version of the program, you can now import several dwg, dxf files (one or more per level) and these files are now saved with your design file.
- ☞ In the new version of the program, you also have the possibility to import 3D dwg, dxf files in 3D visualization.
- ☞ The cooperation of SCADA Pro with Revit is even more complete, since it is not only limited to importing design auxiliary files, but also the entire vector.
- ☞ The cooperation of the new SCADA Pro with SAP2000 and ETABS offers the possibility to import any type of structure into **Scada Pro** for the dimensioning of reinforced concrete, metal, load-bearing masonry and wooden structures based on the respective Eurocodes and the Greek National Appendices.



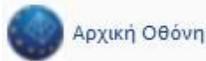
With this command you can export from your study various formats of design files *.dxf, *.dwg, image file of the format *.bmp and *.sca files that open with SCADAFW, and *.sdb files that are SAP2000 files and that open automatically in the SAP2000 environment if installed on the same computer.



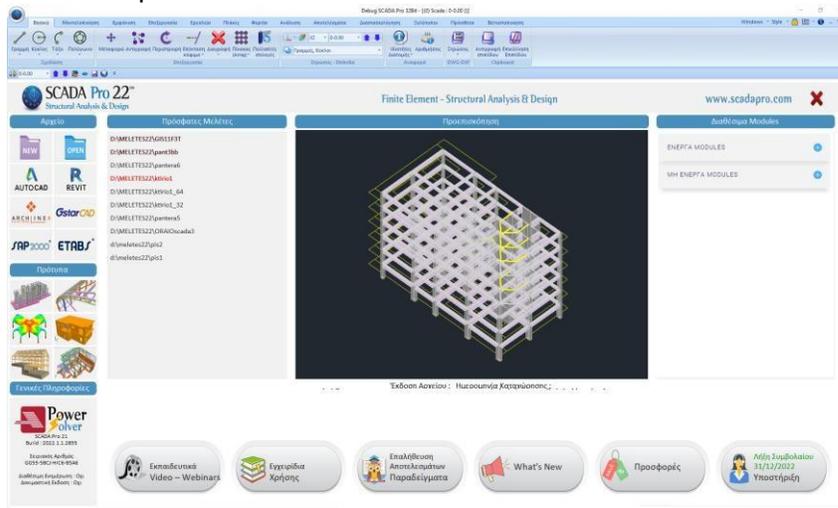
Exclusively for SCADAFW users. Allows to export a file created in SCADA Pro to the SCADAFW environment.



The print command to print your vector as it appears on the screen. Similarly, you can use "print screen" on your computer keyboard.



Select to open the " Home Window ".

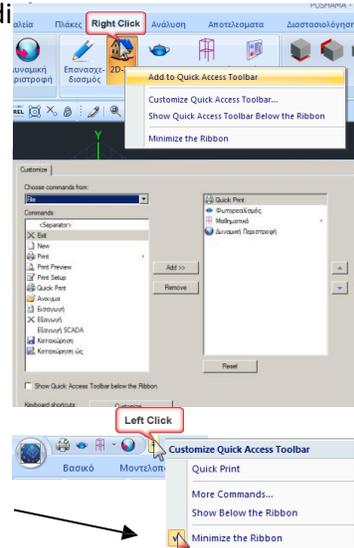


2. RAPID ACCESS TOOL LINE

In the new SCADA Pro environment the commands of the program are located in the corresponding Sections. For greater convenience and faster access to the most useful commands, the user has the possibility to create his own "quick access toolbar".

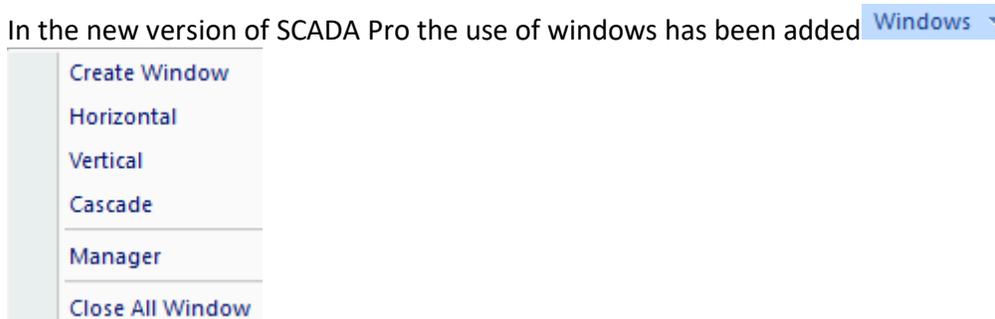
Move the mouse over the command and press the right key. A dialog box will appear.

- Option 1 adds this command to quick access bar.
- The 2nd option allows you to manage the commands you have entered on the line. Add, delete, move commands.*
- The 3rd option moves the line from the top of the surface to a new position, below the Sections.*
- The 4th option makes the line of Sections disappear, maximizing the drawing area. To display it again, press the arrow next to the line and uncheck the minimization.* *The same options are found in the arrow next to the "quick access toolbar".

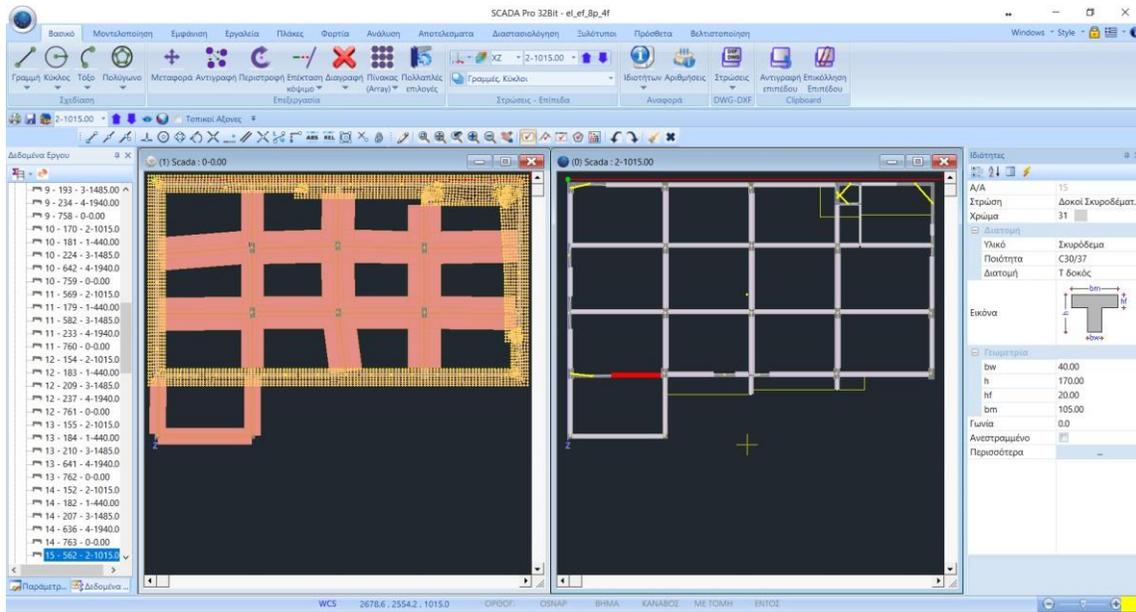


3. CREATION AND DISPLAY OF MULTIPLE DYNAMIC WINDOWS

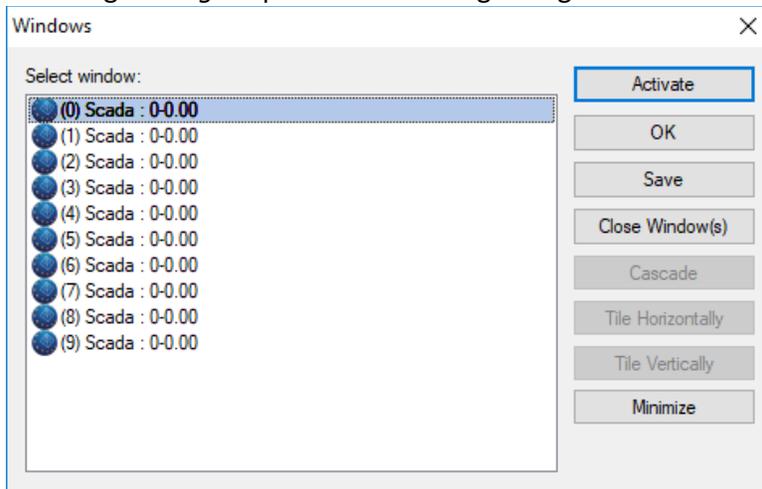
In the new version of SCADA Pro the use of windows has been added



You can create up to ten (10) windows by clicking on *Create Window* and selecting *Horizontal* to display them in a horizontal layout, *Vertical* for a vertical layout or *Cascade* for a sequential layout.



Selecting *Manager* opens the following dialog box:



By clicking *Activate* you can activate the selected window. You can register, close or minimize one or more selected windows by clicking *Save*, *Close Window(s)* or *Minimize* respectively. Finally, by clicking *Close All Window* you can directly close all windows and return to the original SCADA Pro desktop.

So by opening multiple windows you now see your operator simultaneously from multiple views (floor plan, elevations, 3D) so that you have full overview and control. Add elements in any window you like and see the other windows **dynamically** updated in whichever window the element is visible. You can even start importing an item from one window and end up in another! Multiple windows give you the flexibility and functionality so you can complete your studies in less time and be more productive.

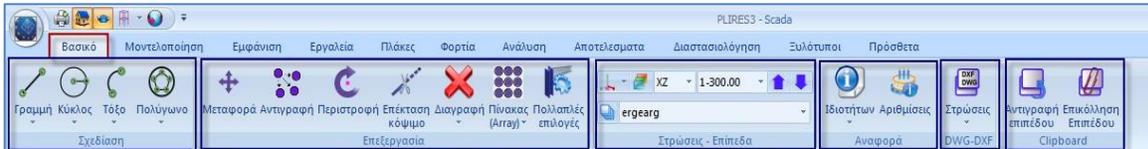
4. SECTIONS

In the new upgraded SCADA Pro all the commands of the program are concentrated within the 12 Modules.



A detailed explanation of all Sections can be found in the relevant chapters of the manual.

4.1 Key



The 1st Module is called "BASIC" and includes the following 6 groups of commands:

- **Design**
- **Edit**
- **Layers-Levels**
- **Reference**
- **DWG-DXF**
- **Clipboard**
-

4.2 Modelling



The 2nd Module is called "MODIFICATION" and includes the following 7 groups of commands:

- **Pillars**
- **Beams**
- **Foundation**
- **Surface**
- **Members**
- **Additional information**
- **Libraries**

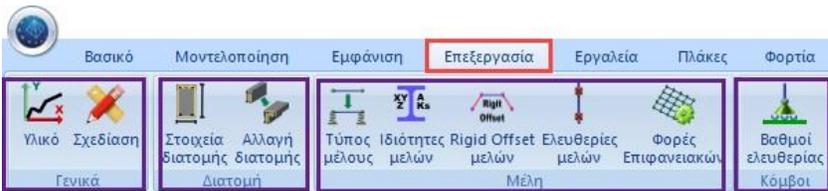
4.3 Show



The 3rd Module is called "REVEAL" and includes the following 4 groups of commands:

- **Exploration - Zoom**
- **Visualization**
- **Views**
- **Dynamic Section**

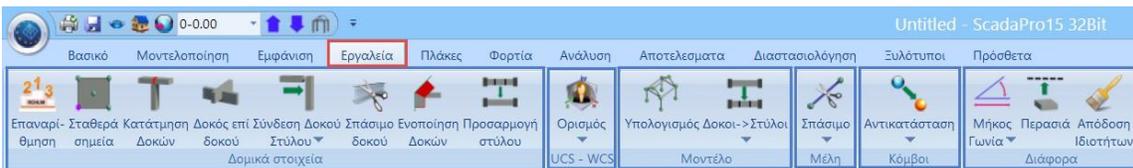
4.4 Edit



The 4th Module is called "PROCESSING" and includes the following 4 groups of commands:

- **General**
- **Cross section**
- **Model**
- **Members**
- **Nodes**

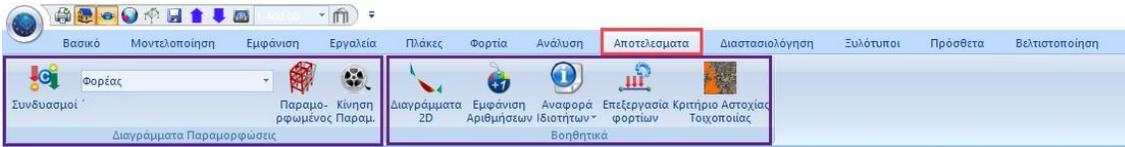
4.5 Tools



The 5th Module is called "TOOLS" and includes the following 4 groups of commands:

- **Structural elements**
- **UCS-WCS**
- **Model**
- **Members**
- **Nodes**
- **Miscellaneous**

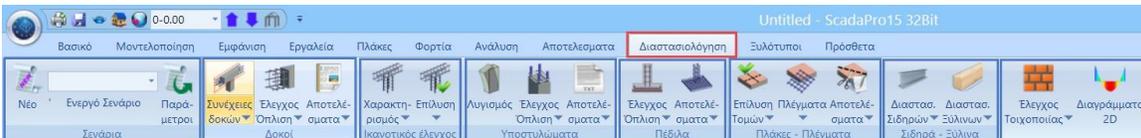
4.9 Results



The 9th Section is called "RESULTS" and includes the following 2 groups of commands:

- **Diagrams-Deformations**
- **Helpful**

4.10 Sizing



The 10th Module is called "DISCUSSION" and includes the following 8 groups of commands:

- **Scenarios**
- **Beams**
- **Legal control**
- **Pillars**
- **Sandals**
- **Slabs-Mesh**
- **Iron - Wooden**
- **Masonry Control - 2D diagrams**

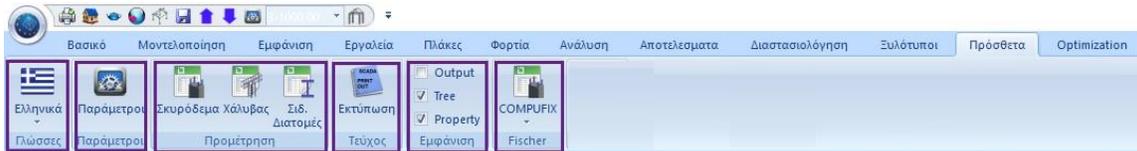
4.11 Xylotyping



The 11th Module is called "WOODY" and includes the following 6 groups of commands:

- **Archive at**
- **Design**
- **Wood type tools**
- **Edit**
- **Show**
- **Layers**

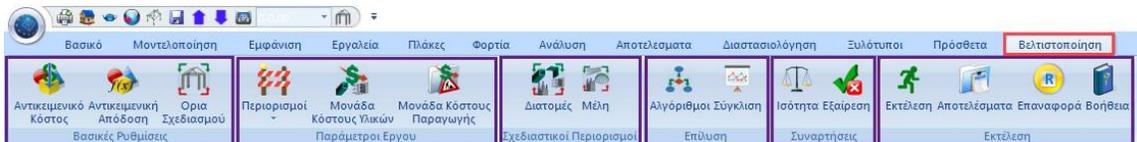
4.12 Additional information



The 12th Module is called "ADDITIONS" and includes the following 7 groups of commands:

- **Languages**
- **Parameters**
- **Preview**
- **Issue**
- **Show**
- **Fisherman**

4.13 Optimization

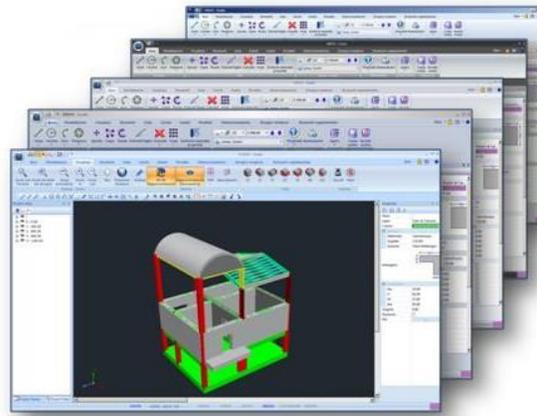
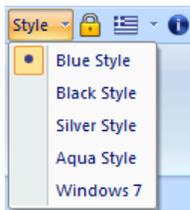


The 13th Module is called "Optimization" and includes the following 6 groups of commands:

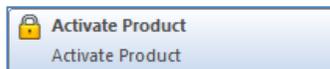
- **Basic Settings**
- **Project parameters**
- **Design Parameters**
- **Resolution**
- **Settings**
- **Execution**

5. MANAGEMENT COMMANDS

5.1 Style



5.2 active product



This is the activation field of SCADA Pro.

After the purchase of the program, the user is sent electronically the Serial Number.

The Serial Number has the following characteristics:

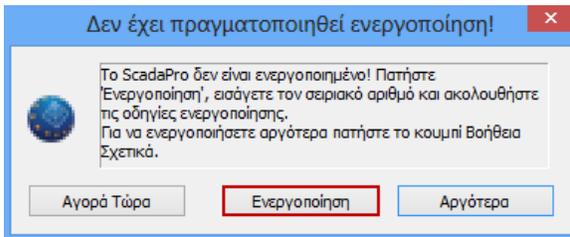
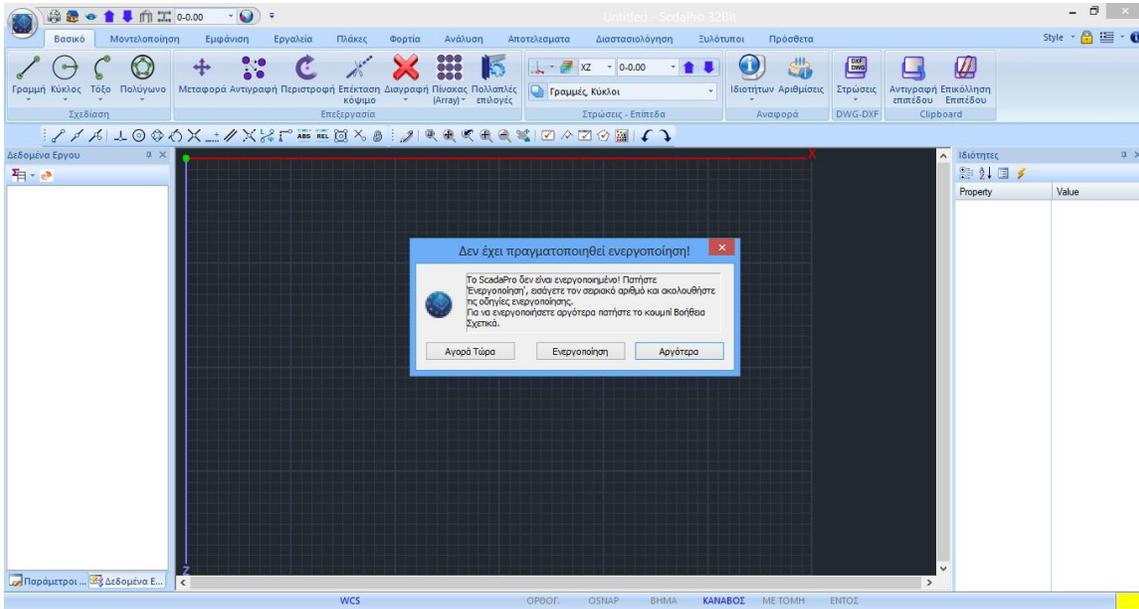
- It consists of 16 digits, with numbers and Latin characters, separated by 4 hyphens.
- It is unique and includes all the Modules of the program that have been purchased.
- Any subsequent purchase of one or more Modules of the same version is added to the same Serial, without requiring any change by the user.
- Upgrading to the next version requires a new Serial Number.

The program can be installed on as many computers as you wish, but it can only be active on one.

You can easily turn the program on and off as many times as you want, on the same or another computer.

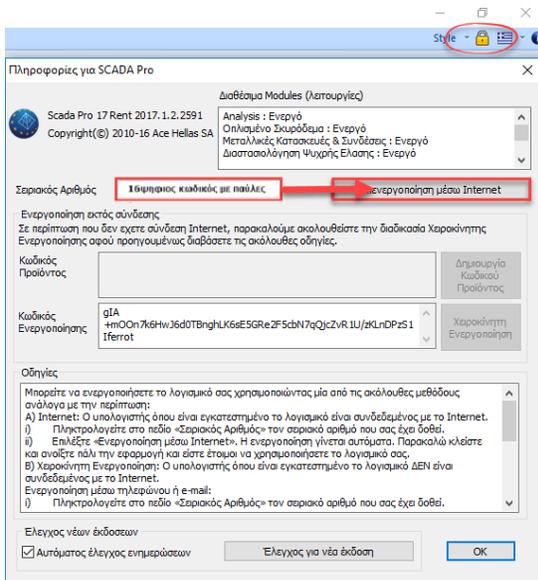
➤ **To activate the program:**

The first time you open the application, the first time you open the application, the window to activate it will appear inside the opening program environment.



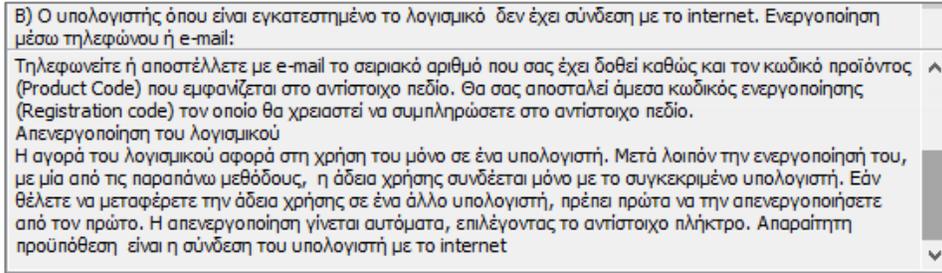
Press the **Activate** button to open the dialog box.

⚠ NOTE: The same window is opened by selecting the padlock button in the program window, top right.



- Enter the Serial Number,
- Select **Activate via Internet** and
- The programme is automatically activated.

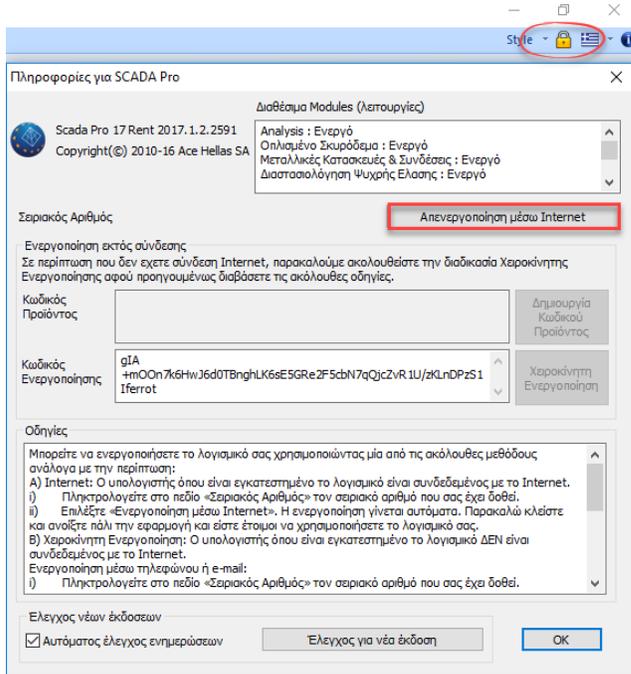
NOTE: *In case you do not have an Internet connection, follow the activation instructions on it.*



When the program is activated, the Serial Number field is deactivated and the command that previously read **Internet Activation** is now **Internet Deactivation**.

➤ **To turn off the program:**

Open the program and press the command with the padlock



- Select **Disable via Internet** and
 - The programme is automatically switched off.
- Now you can activate the program on another computer.

5.3 Language



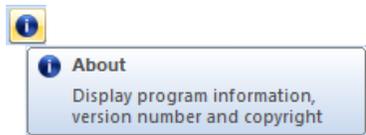
The new upgraded version of SCADA Pro includes 8 languages and the ability to automatically switch from one to another.

Select, from the list, the language in which the will be opened, as well as all the files that will be generated during the study (test files, results, issue, etc.)

The default language, at the start of the program, is Windows. Changing the language (either through the "Administration Commands", or from the "Extras"), causes the program to close momentarily and open automatically in the selected language.

Files can be opened in all languages independently. You can start a file in one language and finish it in another.

5.4 About (About)



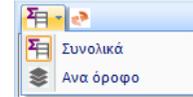
Command to find out about the program features and version number. Users with an active maintenance contract for the program can upgrade the program automatically, as long as they are connected to the internet.

When you open the program a message will inform you in case of a new upgrade. Choose to accept and continue your work undisturbed. The upgrade is loaded automatically.

6. TREE - PROJECT DATA

Opening the new SCADA Pro interface, on the left part of the screen, the TREE application appears. An "interactive" list that includes all the elements of the model in the corresponding groups and offers the user multiple possibilities to search and locate the elements of the study.

Initially the list is empty. Click on and select the type of display:
The symbol before the name specifies that:



- the group includes internal elements
- the group includes external elements
- the group does not include data

Per floor:

Initially it includes 2 groups, with subgroups of the modeling elements,

: with the groups of elements not belonging to any of the specified levels

0 - 0.00 : with groups of elements of level 0

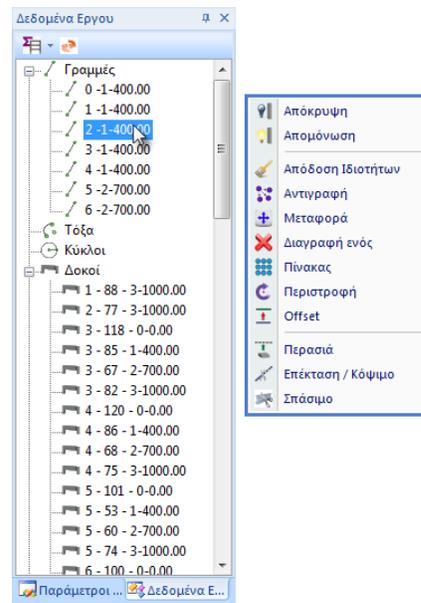
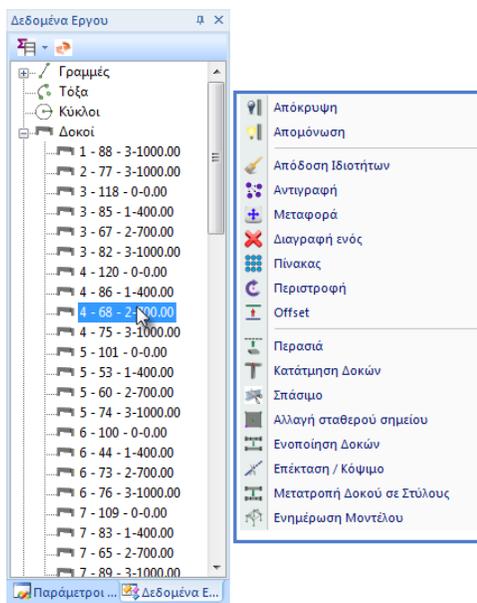
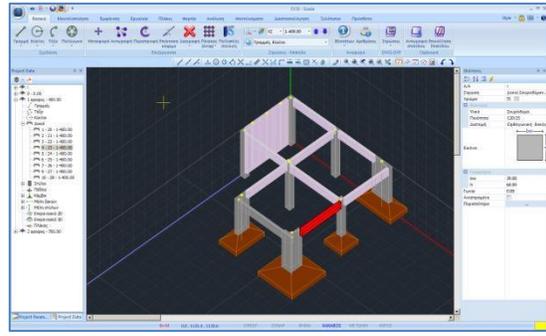
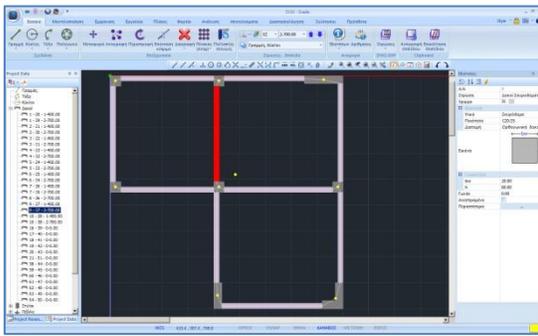
As you create the study levels, the corresponding groups are created with their own subgroups, which will be filled in as you enter your model data.

Overall:

It includes the groups of modeling elements, initially blank, which will be filled in as you enter your model elements.

- In 3D display+ Tree "On a floor":

By selecting an item in the list, the 3D representation of the floor it contains is automatically displayed on the desktop. The selected item is coloured red and the remaining floors are hidden.



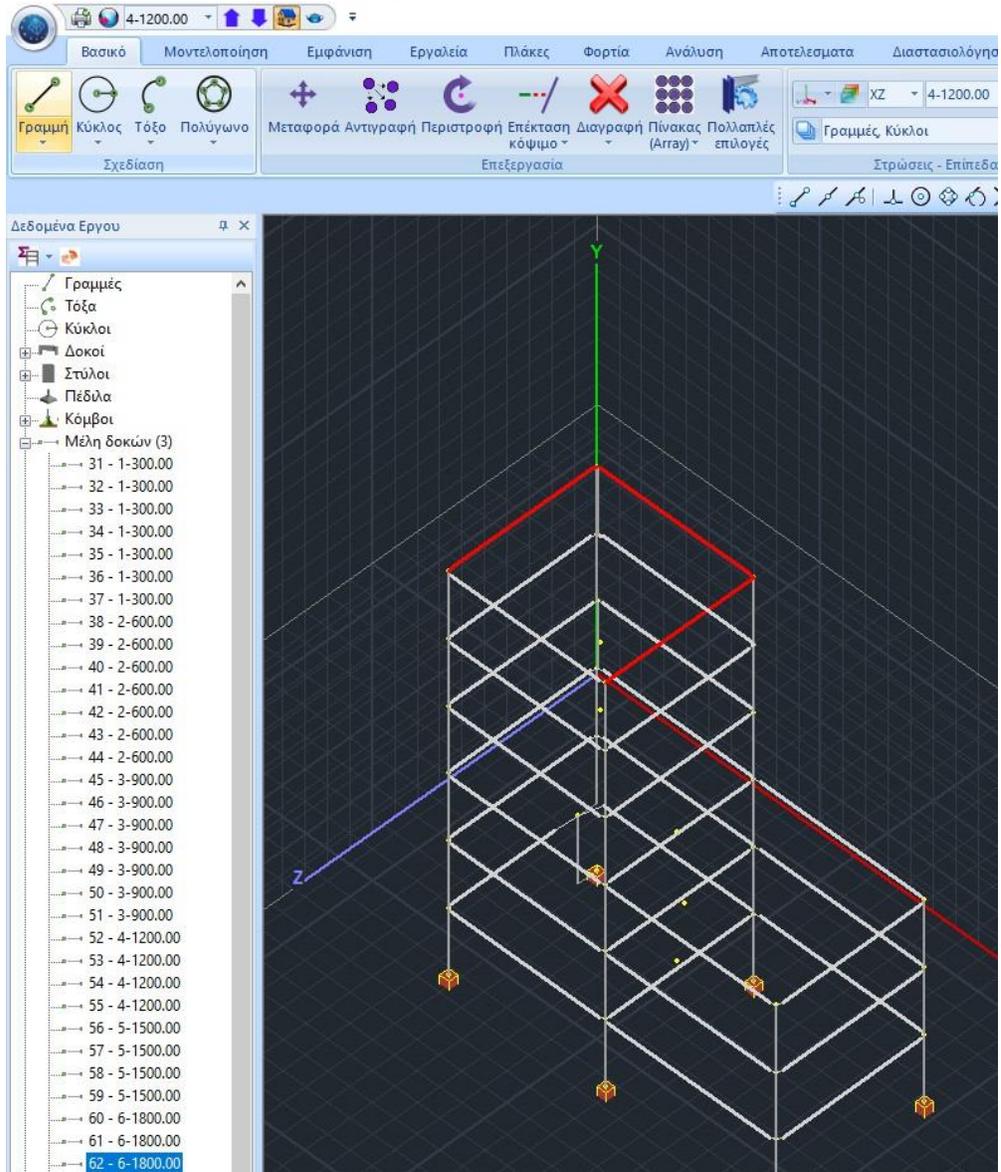
A right mouse click on one of the elements of the tree opens a list of commands related to that element type.

So, if you mouse over an item in the Beams group, the command list that opens is for the beams, and if you mouse over an item in the Lines group, the command list will be for the lines.

6.1 Show selected item number by type

In the new version of SCADA Pro there is now the possibility of visual display in the tree of the number of selected elements in cases where a command is executed that requires the selection of one or more objects. The information is displayed when the selection is made either graphically (in all modes) using the group selection command.

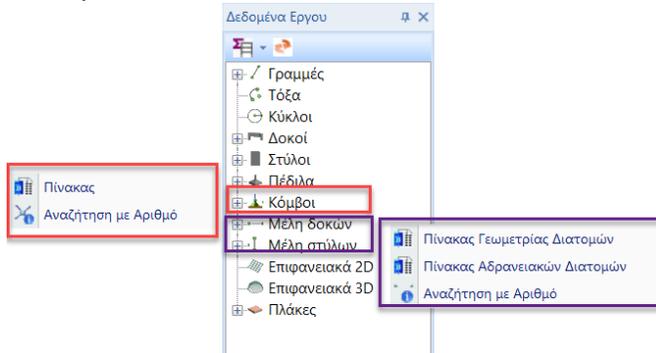
For example, if you select the "Delete" command and then graphically select the members of the beams shown in the image



you will notice in the tree on the left and in the section of the beam members in brackets the number 3. It is the quantity of items you have selected from this item. Similarly, if you select any other item, depending on the species it belongs to, the quantity will be indicated in the corresponding position. So you can know exactly how many and what kind of items you have selected.

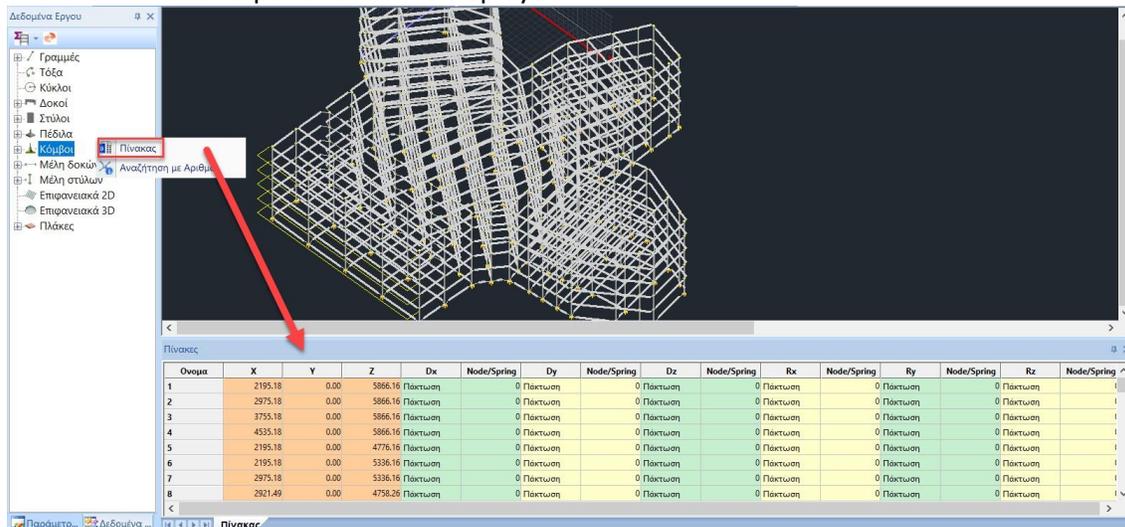
6.2 Table - Search by Number

In addition, in the new upgraded version of SCADA Pro, right-clicking next to the "Nodes", "Beam Members", "Column Members", a list of "Table" appears and "Search by Number"



§ For the COMBS:

Select  and at the bottom of the screen the list all nodes, their geometry and their freedoms per direction is displayed.



The tables are all editable and allow changes to be made that update the model.

You can display the items in ascending or descending order by selecting the Name.

Όνομα	X	Y	Z	Dx	Node/Spring	Dy	Node/Spring	Dz	Node/Spring	Rx	Node/Spring	Ry	Node/Spring	Rz	Node/Spring
1	2195.18	0.00	5866.16	Πακτωση	0										
2	2975.18	0.00	5866.16	Πακτωση	0										
3	3755.18	0.00	5866.16	Πακτωση	0										
4	4535.18	0.00	5866.16	Πακτωση	0										
5	2195.18	0.00	4776.16	Πακτωση	0										
6	2195.18	0.00	5336.16	Πακτωση	0										
7	2975.18	0.00	5336.16	Πακτωση	0										
8	2921.49	0.00	4758.26	Πακτωση	0										
9	3755.18	0.00	5336.16	Πακτωση	0										

-122.90	-0.03	-30.00	95.00
-95.00	-0.02	-30.00	95.00
95.00	-0.01	-30.00	-105.00
20.00	-80.00	-30	-20.00
18.26	-143.68	-30.00	22.10
22.10	-75.00	-30.00	40.00

You can change the values by typing own
 By changing the value in the table, the corresponding value on the right side of the properties tab is automatically updated

The screenshot shows the SCADA Pro 25 interface. On the left is a 3D model of a structure. In the center is a table of nodes with columns for name, start/end nodes, and coordinates (dx, dy, dz). On the right is a properties panel for the selected node, showing various parameters like length (L), mass (Ymas), and rigid offsets (dx, dy, dz).

Όνομα	Κόμβος Αρχή	Κόμβος Τέλος	dx	dy	dz	N	Vy	Vz	Mx	My	Mz
31	2	3	-20.00	0.00	7.50	20.00	0.00	7.50			
32	1	3	100	0.00	87.50	20.00	0.00	7.50			
33	3	6	-7.50	0.00	-20.00	-7.50	0.00	20.00			
34	5	4	20.00	0.00	-7.50	-20.00	0.00	-7.50			
35	6	5	20.00	0.00	-7.50	-20.00	0.00	-7.50			
36	4	1	7.50	0.00	20.00	7.50	0.00	-100.00			
37	2	5	0.00	0.00	-20.00	0.00	0.00	20.00			
38	8	9	-20.00	0.00	7.50	20.00	0.00	7.50			
39	7	8	-20.00	0.00	87.50	20.00	0.00	7.50			
40	9	12	-7.50	0.00	-20.00	-7.50	0.00	20.00			
41	11	10	20.00	0.00	-7.50	-20.00	0.00	-7.50			
42	12	11	20.00	0.00	-7.50	-20.00	0.00	-7.50			

The selection of a node in the table:

- Displays its properties in the right tab
- It shows him in red on the tree
- Displays it in red in the graphical interface

If more than one node is selected, the fields above show corresponding node selected with the last click.

By right-clicking on a cell containing the value of one of the node's properties

The screenshot shows a context menu opened over a table. The menu options include: Απομόνωση, Εμφάνιση Όλων, Εμφάνιση Επιλεγμένων, Φίλτρο, Αντιγραφή, Επικόλληση, Διαγραφή, and Ανανέωση. The table below shows columns for name, X, Y, and other properties.

Όνομα	X	Y	Spring	Dy
1	15.00	0.0	94.00 Πακτωση	0 Πακτωση
2	388.00	0.00	94.00 Πακτωση	0 Πακτωση
3	1156.00	0.00	154.00 Πακτωση	0 Πακτωση
4	15.00	0.00	1062.00 Πακτωση	0 Πακτωση
5	1237.00	0.00	1145.00 Πακτωση	0 Πακτωση
6	756.32	0.00	160.72 Πακτωση	0 Πακτωση

options are displayed that allow

- the *Isolation* of the selected node (isolation in the graphical environment):



- *Show Selected* (you can select more cells with Ctrl or Shift). This display applies to the table only and not to the GUI. Only the selected items are displayed in the table.

Όνομα	X	Y	Z	Dx	Node/Spring	Dy	Node/Spring	Dz	Node/Spring	Rx	Node/Spring	Ry	Node/Spring	Rz	Node/Spring
1	620.00	300.00	700.00	Εξάρτηση	37	Ελευθερία	0	Εξάρτηση	37	Ελευθερία	0	Εξάρτηση	37	Ελευθερία	0
2	1320.00	300.00	620.00	Εξάρτηση	37	Ελευθερία	0	Εξάρτηση	37	Ελευθερία	0	Εξάρτηση	37	Ελευθερία	0
3	2080.00	300.00	620.00	Εξάρτηση	37	Ελευθερία	0	Εξάρτηση	37	Ελευθερία	0	Εξάρτηση	37	Ελευθερία	0
4	620.00	300.00	1280.00	Εξάρτηση	37	Ελευθερία	0	Εξάρτηση	37	Ελευθερία	0	Εξάρτηση	37	Ελευθερία	0

- The *Appearance of All*. This display applies to the table only and not to the graphical interface, and its use makes sense after using the selected display. It displays all the elements of the table.

- The Filters

Φίλτρα Κόμβων

Όνομα
Από Εως Εφαρμογή

Συντεταγμένες
X Από Εως Εφαρμογή

Βαθμοί Ελευθερίας
Κύριος Κόμβος Εφαρμογή

Αρχικοποίηση Εξαιρέση Exit

The filter dialog box allows you to display in the table (and not in the GUI) those nodes that match the following criteria:

- Display based on the name (number) of the node. In the From - To fields you specify the nodes you want to display.
- Display based on the X or Y or Z coordinate of the nodes.
- Display according to the degrees of freedom of the nodes.

More specifically, you can display the main nodes (Diaphragm Nodes) with the "Main Node" option. The "Free Node" option displays nodes whose degrees of freedom are all free. The same applies to the option "Tucked Node".

Finally, the "Dependent Node" option allows you to display only the nodes that are dependent on the aperture node, whose number you enter in the "Node." A value in this field is meaningful only for the main node and not for the previous options.

Filters can be applied individually or cumulatively. Before applying the filter FOR THE FIRST TIME or when we apply multiple filters and we do NOT want them to be applied cumulatively, we press the "Initialize" button.

The "Exception" option makes the filters work the other way around. That is, instead of only the items that obey them appearing in the table, they are removed from the table. To apply the filters with exception, because the process works by subtraction, the table must initially contain elements, so for the application we do NOT select "Initialize".

For example, if we set the first filter "From - To" to the numbers 1 - 5 and select "Exclude", these nodes will be removed from the table and the rest will remain. The "Copy" and "Paste" options copy values from one cell to another. The command "Delete" deletes the node to which the selected cell belongs and should be used with care. Finally, the "Refresh" option updates the table fields for those nodes where there have been changes from the properties tab on the right. For example if we select a node e.g. 15 and in its properties tab change the Z coordinate from 620 cm to 700 cm

Όνομα	X	Y	Z	Dx	Node/Spring	Dy	Node/Spring	Dz	Node/Spring	Rx	Node/Spring	Ry	Node/Spring	Rz	Node/Spring
12	2080.00	600.00	1280.00	Εξάρτηση	38	Ελεύθερα	0	Εξάρτηση	38	Ελεύθερα	0	Εξάρτηση	38	Ελεύθερα	0
13	620.00	900.00	700.00	Εξάρτηση	39	Ελεύθερα	0	Εξάρτηση	39	Ελεύθερα	0	Εξάρτηση	39	Ελεύθερα	0
14	1320.00	900.00	620.00	Εξάρτηση	39	Ελεύθερα	0	Εξάρτηση	39	Ελεύθερα	0	Εξάρτηση	39	Ελεύθερα	0
15	2080.00	900.00	620.00	Εξάρτηση	39	Ελεύθερα	0	Εξάρτηση	39	Ελεύθερα	0	Εξάρτηση	39	Ελεύθερα	0
16	620.00	900.00	1280.00	Εξάρτηση	39	Ελεύθερα	0	Εξάρτηση	39	Ελεύθερα	0	Εξάρτηση	39	Ελεύθερα	0

in order to update the value in the corresponding cell of the table, the "Refresh" option must be used

§ For MEMBERS:



Select **Πίνακας Γεωμετρίας Διατομών** and at the bottom of the screen the list of geometric features and freedoms of all members is displayed.

Όνομα	Κόμβος Αρχή	Κόμβος Τέλος	dx	dy	dz	dx	dy	dz	N	Vy	Vz	Mx	My	Mz	N	Vy	Vz	Mx	My	Mz
641	12	9	85.00	-30.00	20.00	-85.00	-30.00	20.00												
642	9	7	85.00	-30.00	20.00	-85.00	-30.00	20.00												
643	7	6	85.00	-30.00	20.00	-85.00	-30.00	20.00												
644	6	116	85.00	-30.00	20.00	-60.00	-30.00	35.01												
645	11	12	-0.02	-30.00	-95.00	-0.02	-30.00	95.00												
646	12	4	-0.02	-30.00	-95.00	-0.02	-30.00	95.00												
647	3	9	-0.02	-30.00	95.00	-0.02	-30.00	-95.00												

Όνομα	Κόμβος Αρχή	Κόμβος Τέλος	dx	dy	dz	dx	dy	dz	N	Vy	Vz	Mx	My	Mz	N	Vy	Vz	Mx	My	Mz
641	12	9	85.00	-30.00	20.00	-85.00	-30.00	20.00												
642	9	7	85.00	-30.00	20.00	-85.00	-30.00	20.00												
643	7	6	85.00	-30.00	20.00	-85.00	-30.00	20.00												
644	6	116	85.00	-30.00	20.00	-60.00	-30.00	35.01												
645	11	12	-0.02	-30.00	-95.00	-0.02	-30.00	95.00												
646	12	4	-0.02	-30.00	-95.00	-0.02	-30.00	95.00												
647	3	9	-0.02	-30.00	95.00	-0.02	-30.00	-95.00												



Select **Πίνακας Αδρανειακών Διατομών** and at the bottom of the screen the list of inactive features of all members is displayed.

Όνομα	Αρχή	Τέλος	Τύπος	A(m ²)	Ix(km ⁴)	Iy(km ⁴)	Iz(km ⁴)	Iy(km ⁴)	Iz(km ⁴)	Ασ(κN/cm ²)	Ασz(κN/cm ²)	beta	Υλικό	Ποσότητα	E(GPa)	G(GPa)	ε (κN/m ³)	αt*10 ⁻⁵	Καί(MPa/ε)
641	12	9	B-3d	0.24000	0.34000	75.12365827	32.00000000	72.00000000	0.20000	0.20000	0.00	0.00	Σκυρόδεμα	C25/30	31.000	12.917	25.000	1.000	0
642	9	7	B-3d	0.24000	0.34000	75.12365827	32.00000000	72.00000000	0.20000	0.20000	0.00	0.00	Σκυρόδεμα	C25/30	31.000	12.917	25.000	1.000	0
643	7	6	B-3d	0.24000	0.34000	75.12365827	32.00000000	72.00000000	0.20000	0.20000	0.00	0.00	Σκυρόδεμα	C25/30	31.000	12.917	25.000	1.000	0
644	6	116	B-3d	0.24000	0.34000	75.12365827	32.00000000	72.00000000	0.20000	0.20000	0.00	0.00	Σκυρόδεμα	C25/30	31.000	12.917	25.000	1.000	0
645	11	12	B-3d	0.24000	0.34000	75.12365827	32.00000000	72.00000000	0.20000	0.20000	0.00	0.00	Σκυρόδεμα	C25/30	31.000	12.917	25.000	1.000	0
646	12	4	B-3d	0.24000	0.34000	75.12365827	32.00000000	72.00000000	0.20000	0.20000	0.00	0.00	Σκυρόδεμα	C25/30	31.000	12.917	25.000	1.000	0
647	3	9	B-3d	0.24000	0.34000	75.12365827	32.00000000	72.00000000	0.20000	0.20000	0.00	0.00	Σκυρόδεμα	C25/30	31.000	12.917	25.000	1.000	0
648	9	10	B-3d	0.24000	0.34000	75.12365827	32.00000000	72.00000000	0.20000	0.20000	0.00	0.00	Σκυρόδεμα	C25/30	31.000	12.917	25.000	1.000	0

Όνομα	Αρχή	Τέλος	Τύπος	A(m ²)	Ak(m ²)	Ix(dm ⁴)	Iy(dm ⁴)	Iz(dm ⁴)	Asy(m ²)	Asz(m ²)	beta	Υλικό	Ποσότητα	E(GPa)	G(GPa)	ε (kN/m ³)	at*10 ⁻⁵	Ks(MPa/cm)
641	12	9	B-3d	0.24000	0.24000	75.12365827	32.00000000	72.00000000	0.20000	0.20000	0.00	Σκυροδέματα	C25/30	31.000	12.917	25.000	1.000	0.000
642	9	7	B-3d	0.24000	0.24000	75.12365827	32.00000000	72.00000000	0.20000	0.20000	0.00	Σκυροδέματα	C25/30	31.000	12.917	25.000	1.000	0.000
643	7	6	B-3d	0.24000	0.24000	75.12365827	32.00000000	72.00000000	0.20000	0.20000	0.00	Σκυροδέματα	C25/30	31.000	12.917	25.000	1.000	0.000
644	6	116	B-3d	0.24000	0.24000	75.12365827	32.00000000	72.00000000	0.20000	0.20000	0.00	Σκυροδέματα	C25/30	31.000	12.917	25.000	1.000	0.000
645	11	12	B-3d	0.24000	0.24000	75.12365827	32.00000000	72.00000000	0.20000	0.20000	0.00	Σκυροδέματα	C25/30	31.000	12.917	25.000	1.000	0.000
646	12	4	B-3d	0.24000	0.24000	75.12365827	32.00000000	72.00000000	0.20000	0.20000	0.00	Σκυροδέματα	C25/30	31.000	12.917	25.000	1.000	0.000
647	3	9	B-3d	0.24000	0.24000	75.12365827	32.00000000	72.00000000	0.20000	0.20000	0.00	Σκυροδέματα	C25/30	31.000	12.917	25.000	1.000	0.000
648	9	10	B-3d	0.24000	0.24000	75.12365827	32.00000000	72.00000000	0.20000	0.20000	0.00	Σκυροδέματα	C25/30	31.000	12.917	25.000	1.000	0.000
649	8	7	B-3d	0.24000	0.24000	75.12365827	32.00000000	72.00000000	0.20000	0.20000	0.00	Σκυροδέματα	C25/30	31.000	12.917	25.000	1.000	0.000

The tables are all editable and allow changes to be made that update the model.

You can display the items in ascending or descending order by selecting the Name. You can

-122.90	-0.03	-30.00	95.00
-95.00	-0.02	-30.00	95.00
95.00	-0.02	-30.00	-105.00
20.00	-80.00	-30.00	-20.00
18.26	-143.68	-30.00	22.10
22.10	-75.00	-30.00	40.00

change the values by typing your own

Όνομα	Κάμβος	Κάμβος	dx	dy	dz	dx	dy	dz	N	Vy	Vz	Mx	My	Mz	N	Vy	Vz	Mx	My	Mz	
Αρχή	Τέλος	Αρχή	Τέλος	Αρχή	Τέλος	Αρχή	Τέλος	Αρχή	Αρχή	Αρχή	Αρχή	Αρχή	Αρχή	Αρχή	Τέλος	Τέλος	Τέλος	Τέλος	Τέλος	Τέλος	
641	12	9	85.00	-30.00	20.00	-85.00	-30.00	20.00													
642	9	7	85.00	-30.00	20.00	-85.00	-30.00	20.00													
643	7	6	85.00	-30.00	20.00	-85.00	-30.00	20.00													
644	6	116	85.00	-30.00	20.00	-60.00	-30.00	35.01													
645	11	12	-0.02	-30.00	-95.00	-0.02	-30.00	95.00													
646	12	4	-0.02	-30.00	-95.00	-0.02	-30.00	95.00													
647	3	9	-0.02	-30.00	95.00	-0.02	-30.00	-95.00													
648	9	10	-0.02	-30.00	95.00	-86.98	-30.00	-126.74													
649	8	7	-53.75	-30.00	-122.90	-0.03	-30.00	95.00													
650	7	2	-0.02	-30.00	-95.00	-0.02	-30.00	95.00													
651	6	5	-0.02	-30.00	95.00	-0.02	-30.00	-105.00													
652	11	95	85.00	-30.00	20.00	-80.00	-30.00	-20.00													
653	10	8	263.04	-30.00	18.26	-143.68	-30.00	22.10													
654	8	5	206.32	-30.00	22.10	-75.00	-30.00	40.00													
655	5	113	75.00	-30.00	40.00	-280.00	-30.00	17.14													
656	1	6	-0.02	-30.00	95.00	-0.02	-30.00	-95.00													
657	1	118	85.00	-30.00	-20.00	-85.00	-30.00	-20.00													
658	1	2	-85.00	-30.00	-20.00	85.00	-30.00	-20.00													
659	2	3	-85.00	-30.00	-20.00	85.00	-30.00	-20.00													
660	95	10	80.00	-30.00	-20.00	-186.96	-30.00	18.26													
661	113	116	115.00	-30.00	-127.86	0.05	-30.00	130.00													
662	116	118	0.00	-30.00	-130.00	15.00	-30.00	95.00													
663	15	14	74.95	-30.00	-36.35	-84.38	-30.00	-22.16													
664	15	16	-85.00	-30.00	-27.58	75.04	-30.00	-35.82													

You can select one or more elements of the table (with Ctrl) and right-click to select Show Selected. Only the selected members are displayed in the list.

For the corresponding right-click menu options, the same applies as for the nodes. The only difference is in the "Filter" option where the following dialog box appears

Φίλτρο Μελών

Όνομα
Από 0 Εως 0 Εφαρμογή

Μέλη που συντρέχουν στον κάμβο 0 Εφαρμογή

Βαθμοί Ελευθερίας

	N	Vy	Vz	Mx	My	Mz
Αρχή i	<input type="checkbox"/>					
Τέλος j	<input type="checkbox"/>					

Εφαρμογή

Αρχικοποίηση Εξάφαιση Exit

The filter dialog box allows you to display in the table (and not in the GUI) members that meet the following criteria:

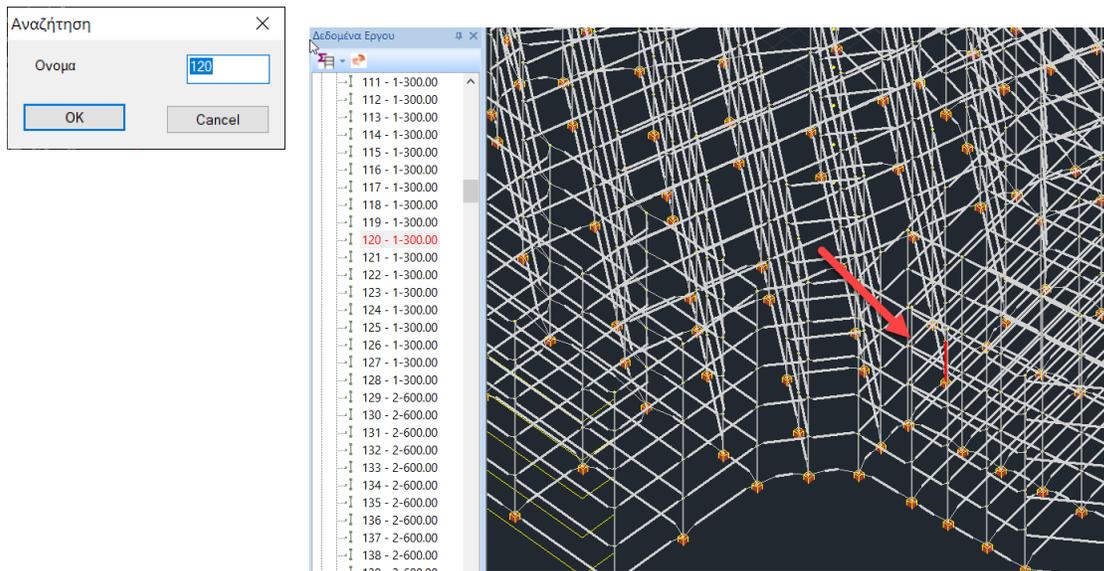
Display based on the name (number) of the item. In the From - To fields you specify the members you want to display.

The filter "Members co-occurring in node" isolates those members that co-occur in the node whose number you enter in the field.

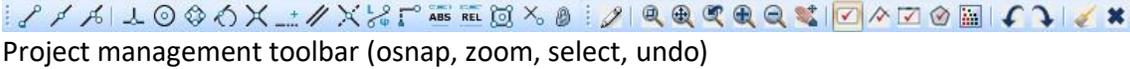
The "Degrees of Freedom" filter shows you only those members who obey the specific degrees of freedom for the beginning and end as you choose.

For the Initialize and Exclude options, the same applies as for the nodes.

Select  Αναζήτηση με Αριθμό and enter the number of node or member you are looking for. It will automatically be identified in red within the vector.



7. OSNAP, ZOOM, SELECT, UNDO



IMPORTANT OBSERVATION:

In SCADA **first** select the command you wish to execute and **then**, with the help of OSNAP & SELECT, select the elements on which it will be executed. Cancelling a command is done by pressing "Esc" or by right mouse button.

7.1 osnap toolbar



The first 9 commands and 16^h activate the osnap at the points with the corresponding illustration:

- ends
- middl
- e
- nearest vertical
- tangent
- section

First select the command icon and then point first to the first line and then to the second line. The indication of finding the point is x. Note that the intersection point can also be the intersection of two perpendiculars of beams, column sides, etc.

View

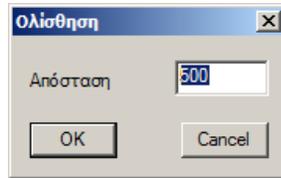
You use the projection point to select a point that is the projection of another given point on a given line. First you select the point and then the line. The point finder is an inverted Tau .

- tops of the columns



- Parallel with

This option allows you to draw a new entity (e.g. a line or a beam) parallel to a given line. You first define the first starting point of the entity, then select from the toolbox to select the specific traction point and finally point the mouse at the line with which it will be paralleled.



Once the mouse pointer is on the line, the characteristic square appears which defines the second point for the parallelism.



Slip, to determine a point on a straight line.



EXAMPLE

For example, suppose you want to place a 40x40 post at a distance of 5.0 m from the end of a straight line.

First you select the 40x40 sub-post you want to place. Then select the "Slip" traction point and the following dialog box appears, where you enter the distance (500 cm) from the end of the line you are interested in.

Moving the mouse closer to the line will display a symbol indicating the position of the



Point . Left-click to place the sub-post at this point.



Distance - Angle, The first option is to find length, relative distances by x, y and z and angle of inclination. After selecting the command you select the first point which defines the origin and then by moving the mouse pointer you can see in the bottom right of the status bar the distance L, the relative coordinates Dx, Dy and Dz and the angle of inclination. `L=800.00 Dx=-800.00 Dy=0.00 Dz=0.00 Angle=0.00`
 By selecting the second point you can see the items you want.



X,Y,Z Coordinates

With this option you can set the X,Y coordinates of a point from those of other points. After starting a drawing or modification command and calling the " X,Y,Z Coordinates" command, you first select the point whose

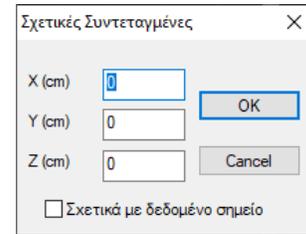
use the X coordinate and then point to the point whose Z coordinate you want to use. Selecting the second point automatically locates the point with the requested coordinates.



Related Coordinates

With this option you enter points relative to another point which can be either the immediately previous point or a point you specify.

Calling the command displays the following dialog box:



Σχετικές Συντεταγμένες

X (cm)

Y (cm)

Z (cm)

Σχετικά με δεδομένο σημείο

OK Cancel



EXAMPLE

Place a 40x40 column in a position which is at a distance of $x=3,0$ m and $z=5,0$ m from a point (which you will define).

Select the substructure to be placed and the command "Relative Coordinates".

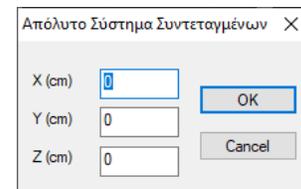
In the dialog box that appears, enter the relative X and Z coordinates assuming a new coordinate system whose origin (0,0) is the point with respect to which the relative movement will be made and whose axis direction is that of the absolute axes. "OK"

Enabling the Σχετικά με δεδομένο σημείο option means that the relative coordinates given be to the point you specify, or otherwise to the last point you entered.



Absolute Coordinates

This command inserts points with absolute coordinates, i.e. with point 0,0,0 the origin of the axes. Calling the command displays the following dialog box where you set the X,Y, and Z coordinates respectively. Entering the Y coordinate is optional. If you leave the value 0, the point is given the elevation of the elevation level.



Απόλυτο Σύστημα Συντεταγμένων

X (cm)

Y (cm)

Z (cm)

OK Cancel



to cancel all pulls  to lock the coordinates

7.2 Zoom toolbar



Command that cleans the desktop from various design debris.



A command that allows the user to zoom in and out of objects on the desktop for a better urbanization. Zooming is done:

- With window
- Within the limits of the project
- Previous
- With +
- With step -



Command that allows the user to move the entire drawing within the desktop.

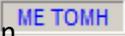
7.3 Select toolbar



Activate the command and left-click:

-  select the objects one by one
-  This is a new option that offers the possibility to select an entire subgroup of surface by selecting a single element of it, a very useful tool especially in complex operators and when you want to make a specific subgroup Delete, Change direction, Change material etc.
-  draw a polyline that intersects the selected objects
-  draw a window containing the selected objects
-  draw a polygon containing the selected objects

NOTE: in the status bar the option  inactive means that objects intersected by the window or polygon will not be selected, unlike

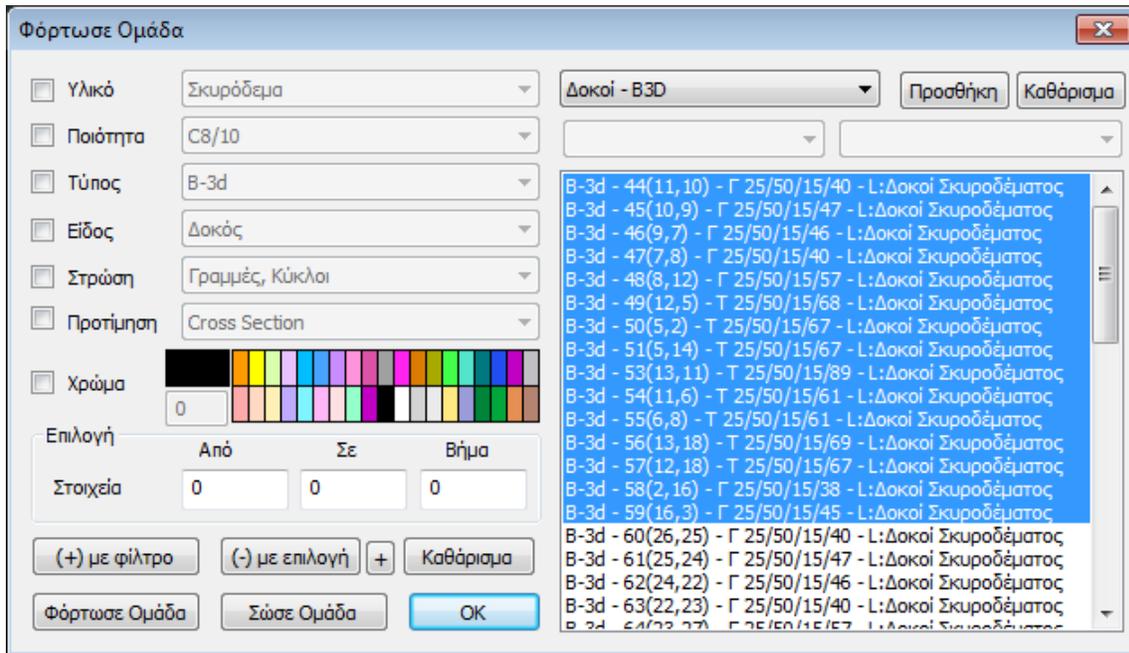
when the option  is active. Activation and deactivation is done by double-clicking.

Depending on the options  



Group selection

Command that allows objects to be selected based on their common characteristics.



1. Activate "**Material**" or "**Quality**", "**Type**", "**Type**", "**Layer**", "**Preference**", "**Color**" and from the respective lists select the common attribute.



For the colour option you can choose directly from the palette or type in the corresponding number of the colour you want.

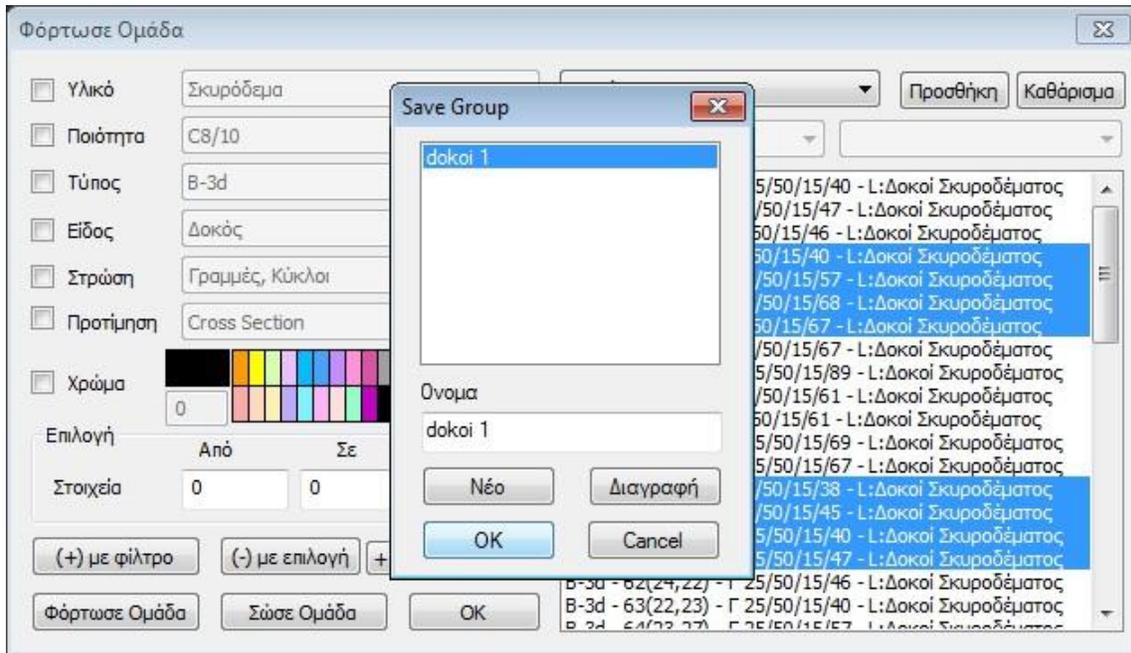
Then, select the command **(+) με φίλτρο** to generate the list of all objects in the study that have the selected attribute on the right.

OK and the screen will display the selected objects with a dashed line between them. line.

2. Select an item category from the list on the right and the command **Προσθήκη** to display, in the white box below, all the study items belonging to the same category. The **Καθάρισμα** command clears the box of all items, and selecting one or more items from the box and the **(-) με επιλογή** command will clear only those items.

3. The command **Σώσε Ομάδα** allows the user to create his own groups of items based on his own criteria, by selecting some items within the box and the command

Φόρτωση Ομάδα. Then select "Save Group", give it a name and "New". With "Load Group" and "OK" select the group you created.



7.4 UNDO-RESET toolbar

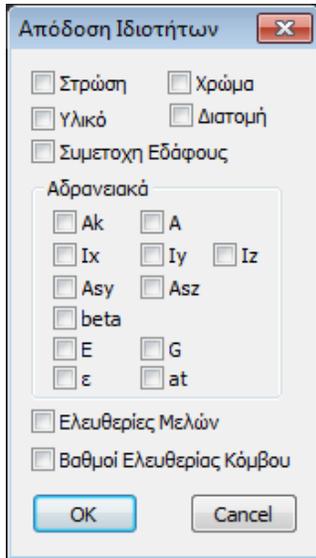


Revocation of the previous order/ Reinstatement of the order previously revoked.

7.5 Performance of PROPERTIES



Command that allows the properties of the selected object to be assigned to other objects *similar* objects.



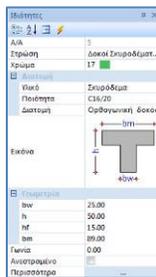
Select the command and left-click a model object to open the corresponding window containing the individual properties.

Check the properties you want to assign and OK to close the window. Then, select (using one of the Select tool modes) the similar objects to which the selected properties of the first one will be assigned.

⚠ Automatically a separation is made in the attribution of properties between columns and concrete walls, with a ratio of 1:4, so that the properties of e.g. a column are attributed only to columns, separating them from walls.

⚠ In the window, properties that cannot be transferred are automatically disabled.

8. PROPERTIES

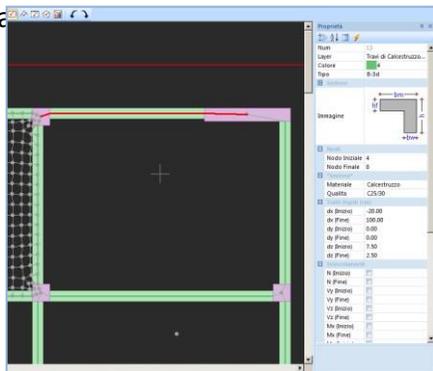


In the new interface of the upgraded SCADA Pro, the list of "Properties" is displayed on the right, informing the user about its characteristics and allowing to make possible changes. The list is automatically populated if selected:

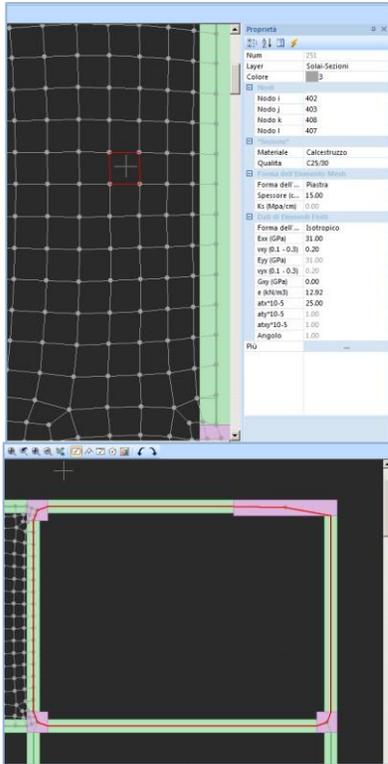
- a vector element on the desktop
- a subgroup element within the TREE
- in the "BASIC" SECTION the command Report-Activities



In



1. if you select a mathematical member, the properties also show the data of the physical member to which it belongs



2. on a surface with surface elements, you can select individual elements and explore their properties

3. by selecting a slab (either from TREE in the Slab subgroup or from the Slab section by left-clicking on its surface), its properties are displayed in the properties field.

4. In the properties of Line and Polyline it displays in the properties and their length L in meters (m).

Ιδιότητες	
Στρώση	Γραμμές, Κύκλοι
Χρώμα	2
☐ Σημείο Αρχής	1794.00, 400.00, 273.80
X	1794.00
Y	400.00
Z	273.80
☐ Σημείο Τέλους	2070.00, 400.00, 444.20
X	2070.00
Y	400.00
Z	444.20
L(m)	3.24

picture below: in

WCS	1455.6, 1337.0, 400.0 (423.4)
-----	-------------------------------

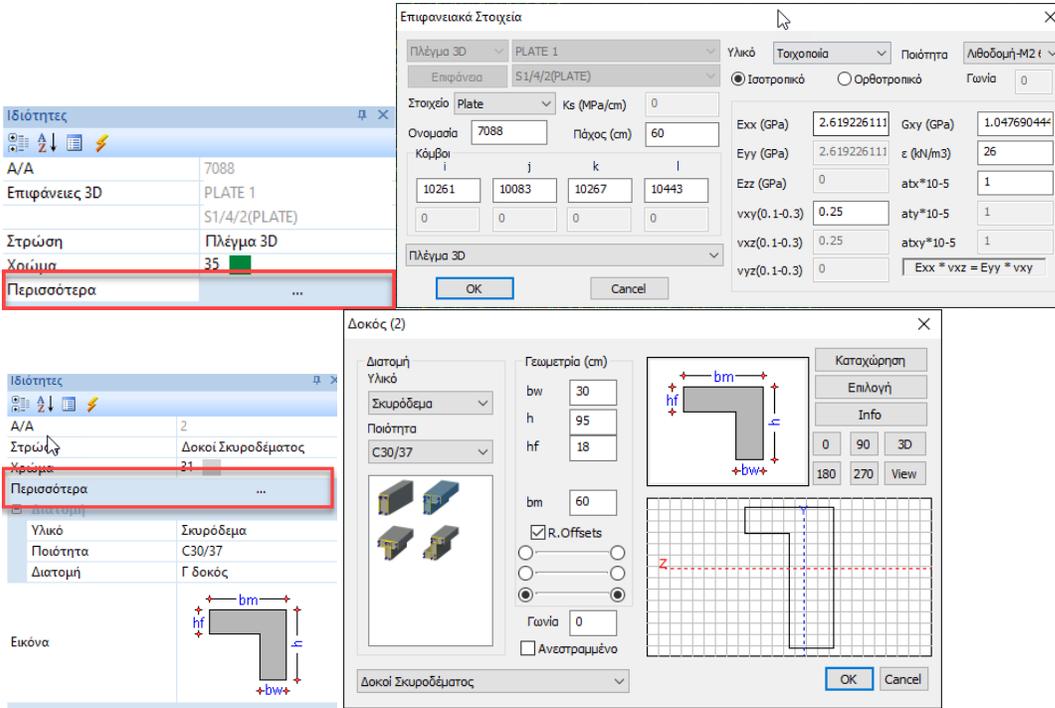
cm).

When an element is inserted with a first and second point, after the first point and before the second point, with the movement of the elastic line shows the current coordinates and the distance from the first point in cm.

For example, having defined the first point in the design of a line and before defining the next point, the coordinates (x,z and y-height) of the point where the cursor is located (the second end of the elastic line displayed on the screen) and in brackets the distance from the first point as in the

x=1455.6, z=1337.0 y=400 distance=423.4 (all

By selecting the More in the properties of a selected Beam-Pillar-Column-Multiplication-Lattice, Member, Node, the corresponding window of the element's properties opens where you can make all the changes you wish:

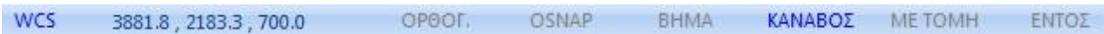


OBSERVATION: The selection point or pass of the element is the one that will remain constant in the event of a change in its dimensions.

9. PARAMETERS

Project Param... Project Data Toggle display of parameters and study data (TREE).
The list of study parameters will be activated in the next version.

10. STATE LINE



The status bar is located at the bottom of the screen and adjusts according to the selected Module and the vector display (2d/3d), giving additional possibilities for managing the project.

- **2D imaging:** WCS
- **3D visualization:** MAΘ. ΦΥΣ. Φ+M Single-click to toggle the visualization of the model, going from mathematical to physical, from physical to both mathematical and physical, and back to the beginning.
- **DEFINITE:** Single click to enable or disable ΟΡΘΟΓ. ΟΡΘΟΓ.

- **OSNAP:** Informs that no Osnap is active.  In the opposite case. informs for . if there is no active SnapSnap or if there is no active SnapSnap in the system. Osnap is active

and allows it to be switched off and on by clicking on it.

- **STEP:** Single click to activate or deactivate the "step" of the canvas (for moving the mouse)

- **CANAVOS:** Single click to make the canavos appear or disappear

- **SECTION:** Active means that, objects intersected by the window or polygon will be selected, inactive, no. Activation and deactivation is done with a single click.

- **INSIDE:** Depending on the

10 COLOUR MANAGEMENT



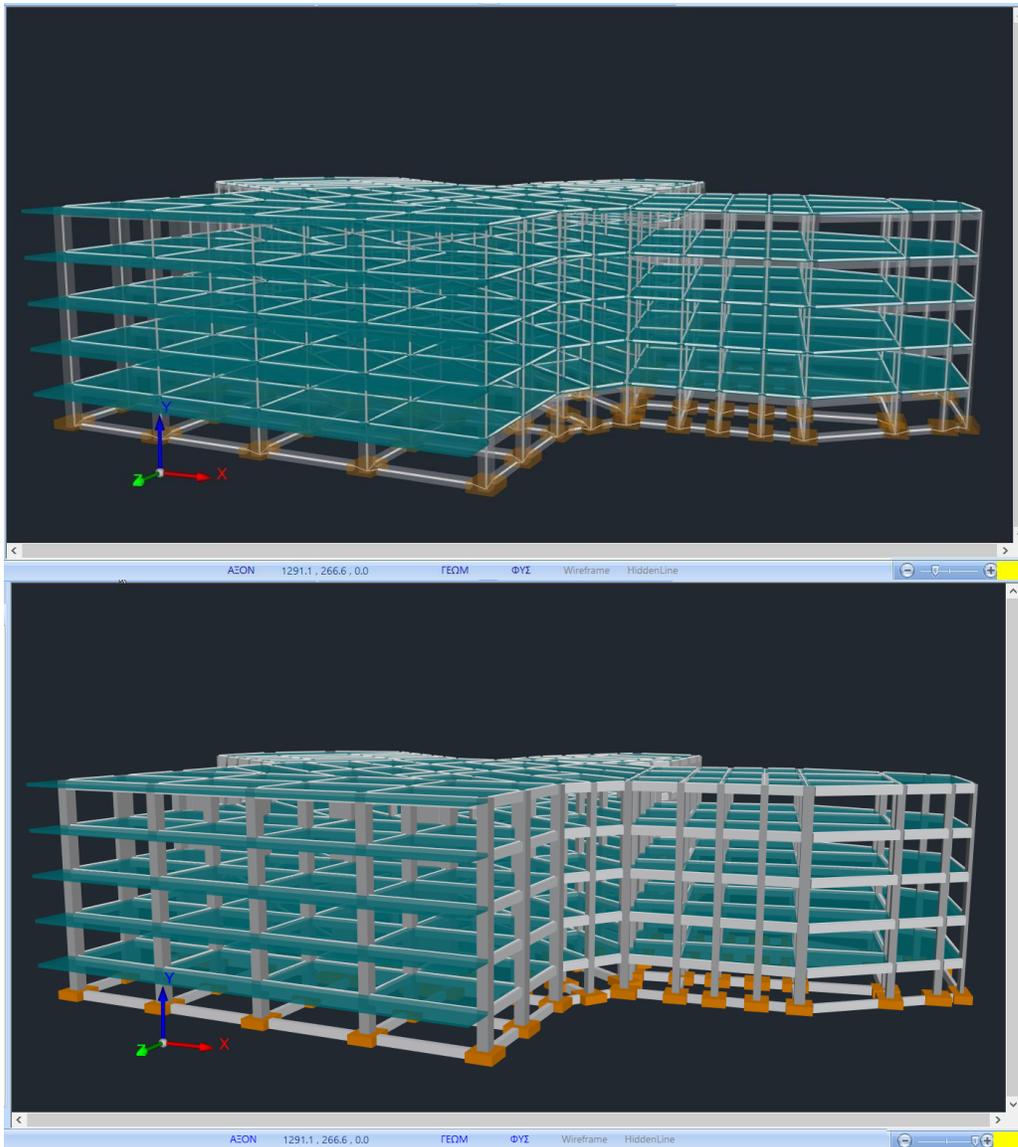
Allows you to select a color from the color palette, when inserting an element, other than the default layer color.



During the photorealistic visualization, double-clicking on the carrier shows the colors of its construction materials (gray = concrete, blue = metal, brown = masonry, beige = wood).



The switch at the bottom of the screen allows you to modify the intensity of the photorealism display. When you move the switch close to -, the physical model is dimmed and the mathematical model is displayed in sharp focus. Conversely, moving the switch closer to +.



11 NEW PAN-STRONG GRAPHICS LIBRARY

The new version of Scada Pro includes a new graphics library developed entirely with the latest and most innovative developments in the field.

This library takes full advantage of the graphics card's memory and combines it ideally with the main memory when required, as well as using the power of the multiple cores of your computer's processor. This allows you to display 3D realistic renderings of even huge bodies in a fraction of a second. You can rotate and view your model at any angle you want, as well as navigate through it and quickly and easily spot any errors. The visualization of the static vector of your structure is now the most vivid and photorealistic.

This library allows you to display all the display formats of the model.

- Photorealism
- Wireframe
- Hidden lines

Let's now look at the above options with an example:

