

# User Manual

# **1.BASIC**







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# Chapter 1: Basic

	1	• 🕀 • 😡 •							PLIRES3 - S	Scada			
	Βασικό	Μοντελοποίησ	η Εμφάνιση	Εργαλεία	Πλάκες	Φορτία	Ανάλυση	Αποτελεσματα	Διαστασιολόγηση	Ξυλότι	υποι Πρόσθετα		
1	•	60	+ *	C	Harr	×		5	XZ • 1-300.00 •	11	<b>()</b>	DXF	
Γραμ	μη Κυκλος Τ	ίοξο Πολυγωνο	Μεταφορα Αντιγρα	φη Περιστροφ	η Επεκταση κόψιμο	η Διαγραφη	(Array) * επιλογ	τλες γές ergearg		×	Ιδιοτητων Αριθμισεις	Στρωσεις	Αντιγραφη Επικολληση επιπέδου Επιπέδου
	2χεδιο	αση		ET	τεξεργασια				2τρωσεις - Επιπεδα		Αναφορα	DWG-DXF	Clipboard

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

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

#### Design



The "Design" command group contains the commands to design:

- -Gram
- -Circle
- -Box
- -Polygon

Each command includes the corresponding subcommands that define the type and/or how they are drawn.



#### 1.1 Line

Command to draw rectilinear segments.

Απόλυτο Σύστημα Συντεταγμένων 🗙	Line :Select the command and set the start and end point:
X (cm) 0 Y (cm) 0 Z (cm) 0 Cancel	<u>Graphics</u> : left-click to set two points within the desktop, or <u>With coordinates, (absolute or relative)</u> : left click to set a point on the desktop, then select the command and enter the absolute coordinates
Σχετικές Συντεταγμένες 🗙 🗙	or the command to enter the relevant coordinates
X (cm)       Image: Constraint of the system       OK         Y (cm)       0       OK         Z (cm)       0       Cancel         Σχετικά με δεδομένο σημείο	Activate the checkbox Σχεπκά με δεδομένο σημείο, set the relevant coordinates and move the mouse to a point (given point). A box will show you the point with the relative coordinates you set, relative to the given point.

Polyline : Command to draw polylines. Select the command and follow the previous procedure (see "Line").

#### 1.2 Circle

Command to draw circles.

Centre-Actina :

Graphics: Set a point on the desktop that will be the center of the circle and a second point to set the radius,

With the coordinates: Set a point on the desktop and select the command or to specify the end point of the radius of the circle.

Three Points :

Graphics: You successively define three points on the perimeter of the circle, With the coordinates: The definition of points can be based on absolute or relative coordinates or on the points of attraction of objects (Osnaps).

Set the first point on the desktop and select the command and or

REL



⊖ '<sub>Diameter</sub> :

Graphics: Set a point on the desktop that will be the centre of the circle and a second point to set the diameter,

With the coordinates: Set the first point on the desktop and select the command to specify the end point of the circle diameter. or

#### 1.3 Arc

Command to draw arcs. The definition of the arc can be done in one of the following two ways (like the " Circle " counterparts) see "Circle"> Centre, Radius see " Circle"> Three Points

#### 1.4 Polygon

Command to draw inscribed or circumscribed polygons with a specified number of sides in a circle of a specified radius.



## Registered :

Determine the number of sides of the inscribed polygon. Next, you define graphically or numerically the radius of the circle in which the polygon will be inscribed.

**ATTENTION**: The number of ribs must be at least З.

#### Described:

The way to use the command is the same as for the inscribed polygon.

Εγγεγραμμένο Πολύ	γωνο Χ
Πλήθος πλευρών	3
ОК	Cancel
Περιγεγραμμένο πολ	λύγωνο Χ
Πλήθος πλευρών	8



#### Edit

The "Edit" command group includes the commands:



-Table/Offset/Create clone/Transfer Group -Multiple Options

**OBSERVATION**: Entities can be selected individually, by polyline, by window, by polygon and by group.

#### 2.1 Transportation



Command to <u>transfer</u> one or more entities in parallel at the same time.

#### 2.2 Copy



Command to <u>copy</u> one or more physical or design entities by creating one or more

copies.

#### ATTENTION:

This command <u>only</u> applies <u>to copying **physical data**</u>. Elements with a mathematical model do not obey it and you should use the "**Create Clone**" command.



#### 2.3 Rotation



Command <u>to rotate</u> an object to bring it to the desired position. Calling the command displays the following dialog box:

Πέριοτροφή				$\sim$
Γωνία	0		OK Cancel	
Γωνία		$\sim$		
Γωνία				
Με περασιά				
2 Σημείων				
// X-X				
// Z-Z				
<u> </u>				

Select from the list how to set the rotation:

<u>Angle</u>: enter the "angle" of rotation in degrees (+, counterclockwise) and select the object or objects to be rotated. Complete the selection by pressing the right mouse button and finally select a feature point which will be the centre of rotation.

<u>With perchance</u>: First select the object to be rotated, then select the point to which the rotation will be made, and finally select the line along which the object will be rotated.

<u>3 Points</u>. Select the object or objects to be rotated. Complete the selection by pressing the right mouse button and then select the point to which rotation will be made. Finally, point to 3 points, which will form

2 sides with the  $2^{\circ}$  point being the vertex of the angle. The angle is calculated clockwise. //X-X: This option allows you to rotate an object with respect to the global X-X axis. After entering the rotation angle, select the object or objects to be rotated. Complete the selection by pressing the right mouse button and then select the point with respect to which to rotate.

<u>//Z-Z</u>: This option allows you to rotate an object on the global Z-Z axis. After entering the rotation angle, select the object or objects to be rotated. Complete the selection by pressing the right mouse button and then select the point with respect to which to rotate.

#### 2.4 Expansion-Burning

Commands **to expand** or **trim** an object up to a limit you specify. The way to use it is as follows :



Select the "Extend" command and then select first the line which will be the boundary up to which the extension will be made and finally the entity (beam, line, etc.) you want to extend. Repeat or right click to complete the command.



The "Cut" command works similarly.

#### 2.5 Delete



Command to **delete** one or more entities of the physical and/or mathematical model. Select the command and then select the objects you want to delete.

με Παράθυρο
📈 με πολυγραμή
με πολύγωνο

The deletion can be done either individually, with a window, or with a polygon, by

selecting the corresponding command, or with a group by selecting and .

**NOTE:** Recall that deleting only the mathematical model and objects belonging to a specific layer can be done with the layer manager command.

**NOTE:** It is possible to delete an item by knowing its number:

Select "Delete" and the command . Select layer, set the item number to From and To and press (+) with filter. Ok" and right click on the screen.

Φόρτωσε Ομάδα	x			×	
🗌 Υλικό	Σκυρόδεμα	$\sim$	Στύλοι - B3D	$\sim$	Προσθήκη Καθάρισμα
🔲 Ποιότητα	C8/10	$\sim$	$\sim$		$\sim$
🗌 Τύπος	B-3d	$\sim$	B-3d - 156(2803,2884) - O 30/5	i0 - L:Y	΄π/τα Σκυροδέματος
📃 Είδος	Δοκός	$\sim$			
🗹 Ομάδα	Υποστυλώματα	$\sim$			
🔲 Στρώση	Γραμμές, Κύκλοι	$\sim$			
🗌 Προτίμηση	Cross Section	$\sim$			
🗌 Χρώμα	o <b>1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1</b>				
Επιλογή	Από Σε Βήμα				
Στοιχεία	156 156 0				
(+) με φίλτρο	(-) με επιλογή + Καθάρισμα	9			
Φόρτωσε Ομάδ	α Σώσε Ομάδα 💦 ΟΚ				



#### 2.6 Table

Command to **create** one or more **copies of** an object and arrange them in a rectangular, circular (polar) or linear arrangement.

Arr	ау	×	
Ορθογώνιο Πλήθος Αποστ.(cm) Στοιχείων Γωνία(°)		~ Αποστ.(cm) Γωνία(°)	Ορθογώνιο Γραμμικό Πολικό
x	0	0	
Y	0	0	
z	0	0	
	Με Περιστρ	οφή	
	OK	Cancel	
`Ç	EXAMI	PLE 1	

Select the command and in the dialog box:

where at the top you can select the type of array rectangular, polar, linear). Then and depending on the type of array you choose you type the number of elements per axis direction and the distance or angle between them, Select on the desktop the element you want to copy and press the right mouse button.

#### <u>Rectangular Array</u>

Execute the command and in the dialog box that appears, select rectangle as the array type and then type the number of elements by X and the distance between them and respectively the number and distance by Z.

Finally, point to the sub-pillar you want to copy in a rectangular layout and press the right mouse button.





The canavos of the columns is formed as shown on the left.

a subcase of the rectangle, giving number of objects and distance

only by X.



È

#### Polar Array

With the polar array the objects are arranged circularly with or without rotation. By calling the command, select the polar from the dialog box and then set the number of elements and the angle to be covered by the layout.

Array X
Πολικό
Πλήθος Αποστ.(cm) Στοιχείων Γωνία
X 6 280
Y D D
Με Περιστροφή
OK Cancel

The rotate option specifies that as the objects are arranged in a circle, they will be rotated at the same time.

Then point with the mouse at the object to be ordered in a circle, press the right mouse button to end the selection and select a point that will be the centre on which the rotation will be based.



**NOTE**: The Array command also works with mathematical members.

#### 2.6.1 Offset



Command to draw a line parallel to and at a certain distance from another line.

Select the command and in the dialog box that appears type the distance in cm at which the new line will be drawn. Then select the line you want to offset and finally left-click on a point on one or both sides of the line to set the offset.

Offset		×
	ОК	
Anoordon jaca	Cancel	

from the other side of the original line (select the half-plane be drawn).

Repeat to draw more parallel lines with the same distance or right-click to complete the command.



#### 2.6.2 Creating a clone

Command to create one or more **exact copies of** <u>physical</u> and/or <u>mathematical</u> data.

**NOTE**: This command differs from copying because it can also be used for mathematical elements, creating "clones", i.e. elements with the same, not only geometric, but also inertial characteristics.

#### 2.6.3 Group transfer



Command to perform a **parallel transfer of** one or more objects at the same time. Objects can only be selected with a window or polygon. Objects enclosed in the window are dragged, while objects intersected by the window are "dragged" and the part outside the window remains fixed. All elements including those of the mathematical model are included in the transfer and pulling.

Select the command and objects and use the relative or absolute coordinates to set the move.

## 

In the grid you see in the picture, the first leftmost vertical column of nodes will be moved to a relative distance of 500 cm from their current position. Select the command and then use a window to select the leftmost vertical column of the canvas.

Notice how the window encloses the nodes that will be moved and intersects the rods that will be "pulled" i.e. their end that is outside the window will remain in place and will be moved along with the



node the edge contained within the window while remaining connected to the node.



Σχετικές Συντεταγμένες
X (cm) -1000 Y (cm) 0
Z (cm) 0 Cancel

Then set the relative distance of the movement to 10 m in the direction opposite to the positive of the universal X-axis.

The final state of the carrier after the transfer is shown on the right.

•	• • • • • • • •
•	

**Notice** the new position of the nodes and the elongation of the bars that have not lost their connection to the nodes.



#### 2.7 Multiple options



Command to **manage** and **modify the properties of** an element or group of elements.

Select the command and the objects to modify by selecting one by one, or selecting with a polyline, or selecting with a window, or selecting with a polygon, or selecting a group

ότητες				
		. Right-click	to display	y the dialo
Τύπος Μέλους	Ιδιά	ότητες μελών	Ελευθ	ερίες Μελών
Rigit offsets Ma	:λών	Σχεδίαση	Ιστορι	κά στοιχεία
Υλικό	Διατομή	Στοιχεία	Διατομής	Κόμβοι
Υλικό		= +	- x	1
Σκυρόδεμα	~	Γραμμικά Στα	οιχεία	
Ισοτροπικ	ó V	E (GPa)	= 25	ō
Ποιότητα	a	G (GPa)	= 10	).4166
Anó C8/1	0 ~	ε(kN/m3	3) = 25	j
Σε C8/1	0 ~	at*10-5	= 1	
Στοιχεία Plate —				
Exx (GPa)	25	Gxy (GPa)	10.4166	
vxy(0.1-0.3)	0.2	🗌 ε <mark>(kN/m</mark> 3)	25	
Eyy (GPa)	25	atx*10-5	1	
vyx(0.1-0.3)	0.2	aty*10-5	1	
Exx * vxz = E	yy * vxy	atxy*10-5	1	Apply

The dialogue box is divided into 10 different fields. Each field contains the corresponding properties of the selected item(s) with the possibility to modify them.

#### **OBSERVATION:**

In the new version of SCADA Pro a new "TAB" of commands named "Edit" has been added and includes all the features of Multiple Options and separate commands for greater convenience when editing an element or group of elements (*see User Manual 4. "Edit"*).

**ATTENTION:** The fields marked with the word "**Cross-section**" refer exclusively to the elements entered as <u>physical cross-sections</u> and allow changes to their characteristics. Conversely, the fields with the word "**Members**" refer to the elements defined as <u>members with cross-sectional attributes</u> as well as <u>the mathematical members of the cross-sections</u>, and allow changes to their attributes.



#### 2.7.1 Material

Where	you	can	modify:	
-------	-----	-----	---------	--

Τύπος Μέλους		διότητες μελών	Ελευθε	οίες Μελών
Rigit offsets M	ελών	Σχεδίαση	Ιστορι	κά στοιχεία
Υλικό	Διατομή	Στοιχεία	α Διατομής	Κόμβοι
Υλικό		- +	- ×	1
Σκυρόδεμα		- Γραμμικά Σ	τοιχεία	<i>,</i>
Ισοτροπι	ко́	E (GP)	a) = 25	
Ποιότητ	τα	G (GP	a) = 10	.4166
Από C8/	10	ε(kN/i	m3) = 25	
Σε C8/	10	at*10-!	5 = 1	
Στοιχεία Plate -				
Exx (GPa)	25	Gxy (GPa)	10.4166	
vxy(0.1-0.3)	0.2	🗌 ε(kN/m3)	25	
_ Eyy (GPa)	25	atx*10-5	1	
vyx(0.1-0.3)	0.2	aty*10-5	1	
Exx * vxz =	Eyy * vxy	atxy*10-5	1	Apply

- the type of material, from the list of materials,

- the designation orthotropic or isotropic, (recall that a material is orthotropic when it has different properties in each direction. By selecting "Orthotropic", the parameters

must satisfy the relation ),

- the quality of the material by selecting "From" (original material selected) "To" (modified material)  $\overrightarrow{\Sigma} \approx \overrightarrow{\mathbb{C20/25}}$ , or only "To  $\overrightarrow{\Sigma} \approx \overrightarrow{\mathbb{C20/25}}$ 

regardless of the original.

- the physical properties of linear and surface members. To modify a value, corresponding activate the property, select the act enter the new value 🔽 E (GPa) 29 = + х = ---



**NOTE:** In the subsequent modification of the material to be checked by default all its properties.

#### Y EXAMPLE

If, for example, you want to multiply the value of the elastic constant E, by a factor of 2, select and enter the value 2.

Select Apply to save the modifications.

#### 2.7.2 Cross section

Where you can modify a cross-section when it has been entered as a physical crosssection and change:

Ιδιότητες					×
Τύπος Μέλα	ους	διότι	ητες μελών	Ελευθε	ρίες Μελών
Rigit offsets	Μελών		Σχεδίαση	Ιστοριι	ά στοιχεία
Υλικό	Διατομή	i –	Στοιχεία Δι	ατομής	Κόμβοι
Δοκός		$\sim$		B-3d	~
Στρώ Δοκοί Σ	Σκυροδέματο	ς			~
🗌 Anó	Διατομή				
Σε Β	-3d		$\sim$		
Ξ Σε	Διατομή				
	]Μεταβολή Σ	τύλου	με βάση το αρχι	κό σημείο εια	σαγωγής
					Εφαρμογή
			[	Exit	Βοήθεια
The building c	ategory, ,	Δοκός	2	•	
The type of lin	ear memb	er,	3-3d	•	



The layer	the elen	nent
belongs to	, and fir	nally,
	🔽 Anó	Διατομή
	3ζ 💟	B-3d
The filters	32 💟	Διατομή as in the example:

# 

Modify, at one level, the dimensions of the cross-sections of the beams of one level from 25/60 to 35/70.

For this modification the existence or not of the mathematical model is irrelevant.



Select the command "Multiple options entloyéc and by activating the selection option

with window select the whole floor plan. Right click and the dialog box appears. The beams selected with the window may not all be 25/60, or you may have included columns and other elements, so a filter is required to filter the selection leaving only the 25/60 beams.

Select "Beam" and "B-3d", (if the mathematical model has not yet been created, then the choice of the type of linear member is irrelevant).

Select the layer of the beams, that it is "Concrete Beams" and finally, activate the checkbox "From" and the command .

The beams dialogue box appears on the screen, where you enter the dimensions of the beams to be modified (25/60).





Activate the checkbox "In" and the command and enter the new dimensions (35/70).

case you want modify the dimensions of	f all beams	s independent	ly, the procedure is the
same, but without activating the "From"	🗌 Апо́	Διατομή	

It is also possible to modify only the type of linear member (with an existing mathematical model). Select the objects and the command, activate the checkbox

 $\overline{\Sigma}$  B-3d  $\overline{\Sigma}$  and from the list select the new type.

#### 2.7.3 Cross-sectional data

Where you can modify the overall geometric characteristics (of the elements <u>imported</u> <u>as physical cross-sections</u>), namely:

- all the selected beams
- of all the selected pedestals
- of all the selected pedis
- of all selected connecting beams,

διότητες					×
Τύπος Μέλα	ους	Ιδιότητες μ	μελών	Ελευθε	ρίες <mark>Μελώ</mark> ν
Rigit offsets	Μελών	Σχεδ	ίαση	Ιστορικ	ά στοιχεία
Υλικό	Διατομ	ή	Στοιχεία Δι	ατομής	Κόμβοι
_∆окоі́ (cm)		Πεδιλ/κοι (	cm - MPa/cr	m) Πέδιλα	(cm-MPa/cm)
bw	0	bw	0	ПН	0
h	0	h	0	u	0
🗌 hf	0	bm	0	hs	0
🗌 hfo	0	hf	0	Συμμετ	οχή Εδάφους
hfu	0	Ks	0	Εδαφ	ρος Ναι 🗸
🗌 bm	0	R.Offset	ts Ναι ~	Ks	0
		Συνδετήρι	οι Δοκοί		
R.Offsets	Ναι \vee	bw	0		
Ανεστρ.	$N\alpha\iota^- \sim$	□h	0		
				[	Apply
				Exit	Βοήθεια



To change, for example, the dimensions of all selected beams,

activate bw and enter the desired value, 30cm

can also enable or disable rigid offsets, provided of course that the mathematical model of the beams is available.

#### EXAMPLE 2

You can window select the entire 0 level that includes skids and set the Ground and spring's Ks involvement.

Apply to implement the changes. Exit to close the window.

:m)	Πέδιλα (cm	-MPa/cm)
	ПН	0
	u	0
	hs	0
	Συμμετοχή	Εδάφους
	🗹 Εδαφος	Ναι ∨
,	🗹 Ks	0.5
		Apply

. You

₩ bw

30

#### 2.7.4 Nodes

where you can modify the overall degrees of freedom of the selected nodes:

Right	offecte Meluluv		Σχεδίασο	Introdu	κά στοιχεία
Υλικά		τομή	Στοιχεί	α Διατομής	Κόμβοι
	2.0	, opul	Κόμβος	Ελατήριο	
Dx	Ελευθερία	$\sim$ 0		0	kN/m
Dy	Ελευθερία	$\sim$ 0		0	kN/m
Dz	Ελευθερία	~ 0		0	kN/m
Rx	Ελευθερία	~ 0		0	kNm/rad
Ry	Ελευθερία	~ 0		0	kNm/rad
Rz	Ελευθερία	~ 0		0	kNm/rad
Na	éoc Master	Εξάρ	τηση στον	)	
		Επα	ναυπολογισμός (	συντεταγμένων	
	λευθερία	П	άκτωση		
E					Apply
E					
E					

Activate the relative shift/rotation and select between: "Freedom", Low "Compression", "Dependence", "Spring".

- "Freedom": allows the node to move and rotate freely in the corresponding direction





- "Packing": binds the movements and rotations of the hub
- "Dependency": means that the specific movement or turn of the node depends on the corresponding node, whose number you specify in the "Node" column which is automatically activated when you select "Dependency". Here you have the possibility to make movements and turns dependent on more than one node.
- "**Spring**": automatically activates the "Spring" field where you set the spring constants for the desired displacements and rotations.

If you want the node you enter to be globally dependent on another node press the

"Dependency onbutton <sup>Εξάρτηση στον</sup> <sup>0</sup> and enter the node number. The "New Master" option implies dependency of the selected nodes on the Master. With the "Recalculate Syntax" option, the program automatically calculates the new syntax of the Master Node (Bulkhead Node).

The "Freedom" and "Pack" options respectively free and pack all degrees of freedom. Select "Apply" to enter the changes and "Exit".

#### 2.7.5 Type of Member

Ιδιότητες						×
Rigit offsets	Μελών	:	Σχεδίαση	Ιστορικ	ά στοιχεία	
Υλικό	Διατομή		Στοιχεία Δι	ατομής	Κόμβοι	
Τύπος Μέλα	ους	Ιδιότη	τες μελών	Ελευθε	ρίες Μελών	
	Δοκός		$\sim$			
Στρώση	Δοκοί Σκυρο	δέματα	ος		~	
🗌 Апо́	B-3d		$\sim$			
_ Σε	B-3d		$\sim$			
Ks (MPa/cm)	0					
				[	Apply	]
				Exit	Βοήθεια	1



Where you can modify a member:

Select the category of building elements and change their type. Use "Layer" and/or "From" to filter the selected elements, or directly select "To" to change the type by selecting from the list.

For the foundation data "on Elastic Foundation (ef)" activate the Ks field where you enter the value in Mpa/cm.

#### 2.7.6 Members' properties

Where you can modify a cross-section when it has been entered as a <u>mathematical</u> <u>member with a cross-sectional attribute</u> (such as in standard constructions) and change:

the physical properties of all selected elements of the same type or only those of a specific

cross-section by	activating the	☑	Апо́	Διατομ	ή	filter.

Rigit offsets	Μελών		Σχεδίαση	Ιστορικ	ά στοιχεία
Υλικό	Διατομή		Στοιχεία Διατ	τομής	Κόμβοι
Τύπος Μέλο	υς	διότι	ητες μελών	Ελευθει	ρίες Μελών
Δοκός		$\sim$		B-3d	~
Στρώ Δοκοί Σ	κυροδέματο	ς			~
Από	Διατομή				
_ Σε	Διατομή				X
	=	+	x	1	
A(m^2)	= 0		Asy(m^2)	=	0
Ak(m^2)	= 0		Asz(m^2)	=	0
Lx(dm^4)	= 0		🗌 beta	=	0
ly(dm^4)	= 0		Ks (MPa/	cm) =	0
Iz(dm^4)	= 0		Πάχος (cr	m) =	0
				I	Εφαρμογή
				Exit	Βοήθεια



ζ Σε	Διατομή		X
	= +	x	1
A(m^2)	= 0	Asy(m^2)	= 0
Ak(m^2)	= 0	Asz(m^2)	= 0
lx(dm^4)	= 0	🗌 beta	= 0
ly(dm^4)	= 0	Ks (MPa/cm)	= 0
Iz(dm^4)	= 0	Πάχος (cm)	= 0
			Εφαρμογή

by activating the corresponding checkboxes, selecting an operation (=) and typing the new value. If, for example, you want to multiply the area by the factor 2, select the operation and type 2. Select Epapuovi to save the changes.

#### 2.7.7 Members' freedoms

Where you can globally modify the start and end freedoms of all selected members of the same type.

Ιδιότητες											×	
Rigit offs	sets	Μελών			Σχεδ	δίαση		Ιστα	ορικά (	στοιχ	εία	
Υλικό	Υλικό Διατομή					Στοιχεία	α Δια	τομής	Κόμβοι			
Τύπος Μ	έλο	υς		Ιδιότ	ητες	μελών		Ελει	υθερίε	ες Με	:λών	
Δοκός	Δοκός ~					B-3d			$\sim$			
Στρώση	Δor	κοί Σκυρ	οδέμα	ατος							$\sim$	
Αρχή ί	Ап	ó		Σε	:	Τέλο	si—	Апо́			Σε	
□ N			N				Ν			Ν		
U Vy			J Vj	/			Vy			Vy		
🗌 Vz			Vz	2			Vz			Vz		
Mx			M	x			Mx			Мx		
🗌 My			M	y [			Му			Му		
Mz			M	z			Mz			Mz		
										Ann		
										wpp	лу	
								Exit		B	οήθεια	



Select the intensive size(s) of the start to activate the "From" (which as always works as a filter and is optional) and the end to activate the "To" so that you can select:

= the intensive is transferred
= the intensive care unit is not transferable



#### 2.7.8 Rigid Members' offsets

Where you can globally modify the Rigid offsets of the selected members of the mathematical model.

διότητες							×
Υλικό	Διατομ	யி		Στοιχε	ία Δια	ατομής	Κόμβοι
Τύπος Μέλ	ους	διό	ότητες μελών Ελ				ερίες Μελών
Rigit offset	s Mελών		Σx	εδίαση		Ιστορι	κά στοιχεία
Δοκός		~				B-3d	~
Στρώση Δο	κοί Σκυροδέμ	ατος					$\sim$
[	= +		-	X	t i	1	
Αρχή i (cm)	Апо́				2	Σε	
🗌 dx	0		dx	=	0		
🗌 dy	0		dy	=	0		
dz d	0		dz	=	0		
Τέλος j (cm)	Апо́					Σε	
🗌 dx	0		dx	=	0		
🗌 dy (	0		dy	=	0		
dz dz	D		dz	=	0		Apply
						Exit	Βοήθεια

**NOTE:** Recall that this command allows global modifications, while for individual modifications it is better to select the member and edit it directly from the "Properties" field.

Activating "From" acts as a filter. It is optional and requires entering the values of dx, dy and/or dz of the rigid offset to be modified.



	dx
Г	dy

To set a new value, activate the corresponding checkbox 🗖 dz , select the action =

	+		×	_/	and enter the new value
--	---	--	---	----	-------------------------



Goal: To zero all rigid offsets by x (dx) of the beginning of the beams of a floor plan. Select

the "Multiple Options" command, activate 🖾 command (windowed option) and select the entire floor plan. Right-click to display the dialog box. The selected group contains all the elements of the floor plan.

Select the beams from the list	•	
--------------------------------	---	--

In the "In" field of "start" activate "dx" type the value 0 and select the operation = I dx 0 = "Apply" and "Exit".

#### 2.7.9 Design

Where you can modify altogether:

Ιδιότητες						×					
Υλικό	Διατομή	i	Στοιχείο	ι Διατο	μής	Κόμβοι					
Τύπος Μέλα	ους	Ιδιότ	τητες μελών		Ελευθερίες Μελών						
Rigit offsets	Μελών		Σχεδίαση		Ιστορικά στοιχεία						
🗌 Από στρώ	οση Δοκο	ί Σκυρ	οοδέματος			$\sim$					
🔲 Στην στρ	ώση Δοκο	ί Σκυρ	ροδέματος			$\sim$					
Από χρώμ	ια 0 ια 0										
					Exit	Αρρίγ Βοήθεια					



the layer & color of the selected elements.

Enabling "From layer" acts as a filter. It is optional and requires the selection of the layer to which the items to be layered belong. Activating 'To layer' changes the layer of the selected or 'filtered' items.

🗹 Στην στρώση Δοκοί Σκυροδέματος	$\sim$	
----------------------------------	--------	--

In exactly the same way you can modify the colour of the selected or "filtered" elements.

🗹 Στο χρώμα	- /											
$\checkmark$	Στο χρωμα	0										

#### 2.7.10 Historical Data

Where all modifications made to the selected item are displayed. Select "Clear" to delete the "Historical items".

Ιδιότητες					Х	
Υλικό	Διατομή	Στοιχεία	Διατομής	Κόμβοι		
Τύπος Μέλο	υς Ιδ	ιότητες μελών	Ελευθε	ρίες Μελών		
Rigit offsets	Μελών	Σχεδίαση	Σχεδίαση Ιστορικά στ			
Draw Proper To Layer: Πε To Color	ties διλοδοκοί			Καθαρισμός		
			Exit	Βοήθεια	x	



#### Layers-Levels

#### The "Layers-Levels" command group contains commands for:

<b>μ</b> Επεξεργ Δημιου επιπέδω	γασία επιπέδων ργία και επεξεργασία υν	Μεταφορά επιπέ Μεταφορά επιπέ	έδου δου			
<b>ΧΖ, ΥΖ, ΧΥ</b> Εμφάνιση επιπέδων	× 🍠 xz 🔹	1.400.00 - 👔 👢	Προηγούμενο επίπεδο Προηγούμενο επίπεδο			
Στρώσεις Δημιουργία, επεξεργασία και διαγραφη στρώσεων	Γραμμές, Κύκλα Στρώσε	οι 🔹	Επόμενο επίπεδο Επόμενο επίπεδο			

- Create
- Edit
- Transportation
- Go to

of the layers and layers the study.

Moving the mouse over a command displays the corresponding tooltip. A window with the title of the command and a short description of the command.

Command to create and edit layers.

By left-clicking on the icon, the dialog box opens for editing the HZ levels, which for SCADA Pro are the levels of the study floors:

πεξερ Επε Διαγ	ογασία Επιπέδων ΧΖ στόθμη ^ ζεργασή ἀληλη μετας Υψόμετρ Ενημέρωση Επαγ	0   10 (cm) 0 14070000000000000000000000000000000000	- 	0		Ιολλαπλή Αριθμό	χ προσθήκη Επιπέδων ς 0 Προσθήκη
A/A 0 1 2 3 4	Ovoµa 0 YP IS OR APOL	Υψόμετρο 0.00 320.00 640.00 960.00 1200.00	Δ.Λ.Π. <b>♀</b> <b>※</b> <b>※</b> <b>※</b> <b>※</b>		3D Q Q Q Q		Επιλογή ολων Απεπιλογή Δ.Λ.Π. Χωρίς Δ.Λ.Π. Ισοσταθμία Ανισοσταθμία Εμφάνιση στο 3D
Τρόr Εξά	πος Σύνδεσης Κόμβων Στύ) ρτηση στον πλησιέστερο κ	ών με Πλέγμ όμβο του επ	α Επιφανε ιφανειακο	ειακών ύ		$\sim$	Εξοδος



New level: to create a new level, select "New level" and enter "Name" and "Altitude".

The fields - **and** + are filled in in case of anisostasy or slope or the existence of vertical surface, so that the data they include belong to this level (for the distribution of masses) and are displayed at this level.\*

#### **EXAMPLE**:

If, for example, the 2<sup>h</sup> level with an altitude of 700 cm has an anisostasy at 600 cm. Type in -, 150 (cm). This way when you activate level 2<sup>h</sup>, in addition to the entities belonging to level 2, all entities up to 150 cm below it will be displayed.

**Edit**: To modify an existing level, select "**Edit**" and the level from the list to turn blue, type a new name in the "Name" field or the new level in the "Altitude" field and "Update".

Activating the Re-adjust command, allows to re-adjust the elevations of the existing levels to a possible change of the elevation of an intermediate level. The readjustment requires the absence of a mathematical model.

### **EXAMPLE**:

Suppose that 3 levels have been created at heights 0,300,600,900 and you want to change the height of the <sup>1st</sup> level without changing the individual heights of the floors. Select the level, the Edit command and the Readjust command. Change the Height value and select Update. The result you will get is that of the image below:

Επε Διατ Διατ	<mark>ξεργασία</mark> ∧ γραφή ιάλληλη μεται γραφή επιπέδι Υ Ένημέρωση Επαναπρο	300 ) 300	] - 0 + 0		Τολλαπλή Αριθμό	Επεξ Διαγ Παρα Διαγ	εργασία οαφή αλληλη μεται οαφή επιπέδι 🗡 Γινημέρωση	Ονομαι 1 Υψόμετρο (cm)	400 αρμογή	- 0 + 0		Πολλαπλή Αριθμά
A/A	Оvoµa	Υψόμετρο	Δ.Λ.Π.	Ισοσταθμία	3D	A/A	Ονομα		Υψόμετρο	Δ.Λ.Π.	Ισοσταθμία	3D
0	0	0.00	9	l∎°	Ø	0	0		0.00	Ŷ	<b>_</b>	
1	1	300.00	. <mark>∲</mark>	<b>∎</b> î	Ø	1	1		400.00	×	l∎	Ø
2	2	600.00	×.	<b>₽</b>	Ø	2	2		700.00	×.	∎°	<b>¤</b>
3	3	900.00	×	<b>₽</b>	Ø	3	3		1000.00	×	∎°	Ø

In the "**Multiple Add Levels**" field, and after setting an elevation, enter the Number of floors you want to create and select Add. This way you can create all the levels of the building in one go.

**Delete**: To delete a layer, select the layer, "**Delete**" and "Update". This deletion <u>deletes</u> the layer and all items belonging to it.



**Parallel Transfer**: With the "**Parallel Transfer**" command you can transfer a level from one position in the station ranking order to the next position. Select the level you want to transfer, select "Parallel Transfer" from the task menu and then select the "Update" button. The level moves one position down. This command is useful in cases where you want to insert a level between other stations and the original creation of this level was not in the correct position but at the end of the list of stations.

**Delete Levels**: the operation of the "**Delete Levels**" command at the end of the task list is similar to the previous deletion, except that only the level is deleted and not the elements belonging to it.

Each level after "Update" is entered in the list divided into 6 columns. In addition to the number, anonymity and altitude, each level is characterized by: "**D.L.P.**" (Diaphragmatic Plate Mode), "**Equidistance**" and "**3D**" with the respective symbols active  $\widehat{V}$  or inactive  $\widehat{V}$   $\widehat{I}$   $\widehat{V}$  or inactive  $\widehat{V}$   $\widehat{I}$ 

To modify these 3 features use the commands on the right. First select the level or levels (ctrl and left key or "Select all") and the command:

"I.L.P." for plates with a diaphragm function or "Without B.O.D." "Equalize" to lock the altitude  $\stackrel{\frown}{=}$ , which means that any new member will be inserted at that altitude regardless of where the insertion is made. "Show in 3D" in order to display the elevation in the 3D view of the model "Hide in 3D" in order to hide the level in the 3D view of the model.

**OBSERVATION:** It is not possible to import stations with the same altitude

#### **Connection of Column Nodes with Surface Grid**

SCADA Pro allows the collaboration of linear and surface elements in the same interface. The need for binding between them is therefore born.

At the bottom of the window there is the choice of the way of connecting the nodes of the columns to the surface grid, for the selected level, by selecting one of the three ways, connecting the nodes either by simple dependency or by connecting through tie rods.

 Τρόπος Σύνδεσης Κόμβων Στύλων με Πλέγμα Επιφανειακών

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πεξεργασία Επιπέδων XZ				$\times$	
Νέα στάθμη <u>Επεξεργασία</u> Διαγραφή Παράλληλη μετας Ενημέρωση Επα	00 (cm) 600 ναπροσαρμογή	- 0 + 0	Πολλαπλι	ή προσθήκη Επιπέδων ιός 0 Προσθήκη	
А/А Оvoµa 0 0	Υψόμετρο Δ.Λ 0.00 ♀ 300.00 ※	.Π. Ισοσταθμία 🚅	3D Q	Επιλογή ολων Απεπιλογή	
2	600.00	- -	Ø	Δ.Λ.Π.	
3	900.00	an ∎	o o	Χωρίς Δ.Λ.Π.	
5	1500.00		a	Ισοσταθμία	
				Ανισοσταθμία	
				Εμφάνιση στο 3D	
				Απόκρυψη στο 3D	
Τρόπος Σύνδεσης Κόμβων Στύ	λων με Πλέγμα Επι	ρανειακών			
Σύνδεση με δεσμικές ράβδους	; με κόμβους επιφα	νειακών	$\sim$	Εξοδος	

Select level XZ from the list and use the arrows to move up and down the floors.

XY	-	300.00	-	Ŷ	Ŷ
----	---	--------	---	---	---

Left-clicking on the arrow to the right of the icon opens the list of all levels:

Left click on the icon



to set layers parallel to the XY plane.

In the dialogue box that opens:



		-	+		Апо́	0	
1	0.00	100.00	100.00		5-	2100	
2	300.00	100.00	100.00		28	2100	
3	600.00	100.00	100.00		Βήμα	300	
4	900.00	100.00	100.00			100	
5	1200.00	100.00	100.00			100	
6	1500.00	100.00	100.00		+	100	
7	1800.00	100.00	100.00			no <del>a</del> θήμα	
8	2100.00	100.00	100.00			DOORINI	
9	0.00	0.00	0.00		Ка	θάρισμα	
10	0.00	0.00	0.00				
11	0.00	0.00	0.00		ОК		
12	0.00	0.00	0.00	┓		Cancel	

start "From" one value (0), "Step" every (300cm) up to "At" altitude (2100cm), with a range of "-" and "+ " (100cm), which means that all entities at a distance up to +100, -100 from the active XY plane, will be displayed in it.

Select the XY plane from the list and use the arrow keys to change the altitude.



As for XY levels

(see t

(see treatment of HZ levels)



you create correspondingly the levels XZ



Command to **transfer** the XY, XY or YZ work levels.

Left-clicking on the icon opens the dialog box:

Μεταφορά Επιπέδου						
Επίπεδο	XY 💌					
Απόσταση	0					
🔲 Σχετικά με						
OK	Cancel					

Select the level, check the checkbox and specify the distance for the transfer.

In the example on the left, the XY plane has been moved 500cm in relation to the start of the axes.



Left Click

Switching to 2D display and back to 3D restores the displaced planes to their original position.



Layer processing

Command that allows to **manage** the predefined **layers of** the program and to create new ones.

Left-clicking on the icon opens the dialog box for editing the predefined SCADAPro layers and creating new ones:

Επεξεργασία Στρώσεων				×
Εργασίας Γραμμές, Κύκλοι				Eninεδα XZ - Οροφοι
Nέo				Update
Αριθμός	Ορατό	Επεξεργάσιμο	Χρώμ 🐴	Επιλογή όλων
Γραμμές, Κύκλοι Υπ/τα Σκυροδέματος	Ø Ø	 		Αποεπιλογή όλων
Μανδύες Σκυροδέματος Δοκοί Σκυροδέματος	a a	 	6 31	Ορατό
Πεδιλοδοκοί Συνδετήριοι Δοκοί	Ø Ø	f f	37 38	Μη ορατό
Πέδιλα	Ø	∎°	12	Επεξεργάσιμο
Μεταλλικα Υπ/τα <	Ø	∎°	34 ♥	Μη Επεξεργάσιμο
Διαγραφή Δεδομένων				
Μοντέλο Συνολικά Βάσει επιπέδου	XZ Βάσει	Στρώσης 🗌 Μ	όνο Μοντέλ	OK Cancel

"Working": to change the active layer. Select a layer from the list and "Work" command. "New": to create a new layer. Enter a description and select "New".

"XZ Levels - Floors": to open the dialog box of the floor levels and edit it.



)



#### **Treatment of HZ levels**

**"Editable**." of the given layer.

Επεξεργ	ασία Επιπέδων ΧΖ					×
Νέα Επεξ Διαγ Παρο	στάθμη εργασία ραφή άλληλη μεται Ενημέρωση Επαναπρο	) <u>300</u> σαρμογή	- 0 + 0		Πολλαπλι Αριθμά	ή προσθήκη Επιπέδων ός 5 Προσθήκη
A/A 0 1 2 3	Ονομα ΘΕΜΕΛΙΩΣΗ 1 2 3	Υψόμετρο 0.00 400.00 700.00 1000.00	Δ.Λ.Π. ♥ ₩ ₩ ₩	Ισοσταθμία ਵੀ ਵੀ ਵੀ	a 3D Q Q Q Q	Επιλογή ολων Απεπιλογή Δ.Λ.Π. Χωρίς Δ.Λ.Π. Ισοσταθμία Ανισοσταθμία Εμφάνιση στο 3D
Тро́п	ος Σύνδεσης Κόμβων Στύλων μ	ε Πλέγμα Επιφ	οανειακών		~	Εξοδος

"**Update**": to save an existing layer with a changed name. Select a layer from the list, enter the new name, select "Update".

"Select all", "Deselect all": to make group modifications to all layers. The selection of layers from the list is done with the left mouse button and "ctrl".

**Visible**." **\*** "Not visible": to hide or show the elements of the corresponding layer.

"Not editable": to make it possible or not to modify the data

The "Delete data" field allows deleting the mathematical model of the study or part of it.

Διαγραφή Δεδομένων			
Μοντέλο Συνολικά	Βάσει επιπέδου ΧΖ	Βάσει Στρώσης	Μόνο Μοντέλο

Μοντέλο Συνολικά: select to delete the entire mathematical model of the study.

Bάσαι επιπέδου XZ+Móvo Μοντέλο: select one or more layers, keep the checkbox of"Model only" and "Based on HZ layer" inactive to delete all elements belonging to the<br/>selected layers and the active HZ layer.Báσαι επιπέδου XZ+Móvo Μοντέλο: select one or<br/>more layers, keep the checkbox of "Model only" andBáσαι επιπέδου XZ+Móvo Μοντέλο: select one or<br/>more layers, keep the checkbox of "Model only" and"Based on HZ layer" to delete<br/>the



mathematical model of all elements belonging to the selected layers and to the active layer XZ.

**Βάσει Στρώσης** + Movo Movτέλο : select one or more layers, keep the checkbox of "Model only" and "Layer based" unchecked to delete all study elements belonging to the selected layers.

Βάσει Στρώσης <sub>+</sub> 🔽 Μόνο Μοντέλο	: select one or more layers, activate the checkboxes of
"Model only" and "Layer base	d" to delete the mathematical model of all study elements
belonging to the selected laye	rs.

Γραμμές, Κύκλοι	Left Click
Γραμμές, Κύκλοι	hr.
Υπ/τα Σκυροδέματος	
Μανδύες Σκυροδέματος	
Δοκοί Σκυροδέματος	
Πεδιλοδοκοί	
Συνδετήριοι Δοκοί	-

Left-clicking the arrow opens the list of all layers, and the active layer is always indicated in the window.



#### Reference

The "Reference" command group contains the commands to check and modify the properties of individual elements of the geometric or mathematical model:



#### 4.1 **Properties**

Select the command from the list (cross-section, member, node or surface) and select an element from the study that belongs to it. The properties of the selected element will be displayed in the "Properties" field.

Another way to get the same result is to simply click on the item.

Ιδιότητες	# ×	Ιδιότητες	<b>д х</b>	¢	Ιδιότητες	# ×	Iδ	ιότητες		ф ×
91 Al 🔳 🗲		9⊨ ≙↓ 🔳 🖌			음!! 순↓ 🔟 🗲			⊫ 2↓ 🔳 🖌		
A/A	13	A/A	95	•	A/A	58	A,	/A	6055	
Στρώση	Υπ/τα Σκυροδέματ	Στρώση	Δοκοί Σκυροδέ		Στρώση	Μαθηματικό Μοντ	Στ	τρώση	Πλέγμα 3D	
Χρώμα	12	Χρώμα	16		Χρώμα	2	X	οώμα	16	
Ε Διατομή		Τύπος	B-3d		🗉 Συντεταγμένες	1315.73, 700.00, 54		Κόμβοι		
Υλικό	Σκυρόδεμα	Διατομή			X	1315.73		Κόμβος ί	4531	
Ποιότητα	C20/25		+ hm -		Y	700.00		Κόμβος j	4522	
Διατομή	Ορθογωνικός στύ		* DIII		Z	54.58		Κόμβος k	4529	
	hu		ht		🗄 Βαθμοί ελευθερίο			Κόμβος Ι	4537	
	t 09 1	Εικόνα			Dx	Εξάρτηση	Ξ	*Διατομή*		
	- <del>2</del>				Εξαρτάται από:	62		Υλικό	Τοιχοποιία	
Εικόνα			+har-		Dy	Ελευθερία		Ποιότητα	chris	
			1.511		Dz	Εξάρτηση	Ξ	Είδος Επιφανεια		
	+dv+	Е коррог	<b>C</b> 0		Εξαρτάται από:	62		Είδος Επιφανει	Plate	
	, ay i	Αρχικος κομβος	60		Rx	Ελευθερία		Πάχος (cm)	50.00	
Ε τεωμετρια	459.99	τελικός κόμβος	56		Ry	Εξάρτηση		Ks (Mpa/cm)	0.00	
by	150.00	Ε "Διατομη"	-		Εξαρτάται από:	62	Ξ	Στοιχεία Επιφανε	ιακού	
dz	25.00	Υλικο	Σκυροδεμα		Rz	Ελευθερία		Είδος Επιφανει	Ισοτροπικό	
dy	25.00	Ποιοτητα	C20/25		Κύριος Κόμβος			Exx (GPa)	0.79	
bz	35.00	E Rigid Offsets (cm)			Ελεύθερος Κόμβος			vxy (0.1 - 0.3)	2.00	
Γωνια	0.00	dx (Αρχη)	-35.00		Πακτωμένος Κόμβος			Eyy (GPa)	0.79	
Φυτευτο		dx (IEAOC)	/8.91		Εξαρτημένος Κόμβ			vyx (0.1 - 0.3)	0.00	
Περισσοτερα		dy (Αρχη)	0.00	_	Περισσότερα			Gxy (GPa)	0.40	
		dy (TEAOC)	0.00					ε (kN/m3)	15.00	
		αζ (Αρχη)	0.00					atx*10-5	1.00	
		dz (1£Λος)	1,09					aty*10-5	1.00	
		Ε Ελευθεριες μελων	( and a second s					atxy*10-5	1,00	
		Ν (Αρχη)						Γωνία	0.00	
		Ν (Ιελος)					п	ερισσότερα		
		νγ (Αρχη)								
		Vy (Ιελος)	E Carto							
		Vz (Αρχή)								
		Vz (Τελος)								
		Mx (Aoxn)								
		THE FIRE O	(and )							



#### 4.1.1 Cross section

0

Select the cross-section either by left-clicking on its outline in the 2D or 3D interface, or from the list in the "Tree".





The selected item is coloured to make it easy to locate within the desktop.

. Depending on the type of element, the "Properties" field displays its physical and geometric characteristics.

. Make the desired modifications directly within the "Properties" field or select the "More" command to open the dialogue box of the physical cross-section of the specific element.

Στύλος (3) × Γεωμετρία (cm) Καταχώρηση Διατομή Υλικό Επιλογή 150 by Σκυρόδεμα • ģ Info Ποιότητα 25 dz • C20/25 dy 25 0 90 3D 35 +dy+ 180 270 bz View ٠ Γωνία 0 🔲 Φυτευτό • • Υπ/τα Σκυροδέματος OK Cancel

For example, selecting a pole opens the pole dialog box:



4.1.2 Member



Select the member either by left-clicking on its outline within the 2D or 3D interface, or from the list in the "Tree".

The selected member is coloured to make it easy to locate within the desktop. The "Properties" field displays all the mathematical characteristics of the member, as well as the geometric elements of the cross-section to which the selected member belongs.

Make the desired modifications directly in the "bar" or select the "More" command to open the dialog box of the characteristics of the specific member:

Γραμμικό μ	έλος					×
A/A	461	Tύnoς B-3d 🛛 🗸	A(m^2)	0.75	Asz(m^2)	0.625
Κόμβοι ί	201	j 2382	Ak(m^2)	0.75	beta	0
Υλικό	Σκυρόδεμα	~	Ix(dm^4)	148.04534	E(GPa)	33
Ποιότητα	C30/37	~	Iy(dm^4)	39.0625	G(GPa)	13.75
Απόδοση	Διστομής		Iz <b>(d</b> m^4)	5625	ε(kN/m^3)	0
Δοκός	$\sim$	Διατομή	Asy(m^2)	0.625	at*10^-5	1
0:	25/300	Υποστυλώμα 🗸	Δείκτης Εδο	άφους Ks <b>(</b> MP	a/cm)	0
Μέλος	; Δοκού Μεγάλ	λης Ακαμψίας				
Rigid Offs	sets (cm)		Ελευθερί	ες μελών —		
A	ρχή ί	Τέλος j		N Vy	Vz Mx M	ly Mz
dx 0		0	Αρχή ί Τέλος j			
dy 0		0	Μαθηματι	κό Μοντέλο		~
dz 0		0	OK	Can	cel	Info

#### 4.1.3 Node

Select the node either by left-clicking on its outline within the 2D or 3D interface, or from the list in the "Tree".







The selected node is coloured to make it easy to locate within the desktop.

The "Properties" field displays all the mathematical attributes of the node.

Make the desired modifications directly in the "bar" or select the "More" command to open the node's attributes dialog box:

Κόμβο	ος				×	
A 235	$\frac{1}{22}$	Ευντε ( 18	ταγμένες (cm) 371.93454 Υ 0	Z 11	3.109375	
Bat	μοι ενευθερια	ς	Κόμβος	Ελατήριο		
Dx	Πάκτωση	$\sim$	0	0	kN/m	
Dy	Ελατήριο	$\sim$	0	33083.335389644	kN/m	
Dz	Πάκτωση	$\sim$	0	0	kN/m	
Rx	Ελευθερία	~	0	0	kNm/rad	
Ry	Πάκτωση	~	0	0	kNm/rad	
Rz	Ελευθερία	~	0	0	kNm/rad	
	Κύριος Κόμβος Ελεύθερος Κόμβος Πακτωμένος Κόμβος					
	Εξαρτώμενος	στον	Κύριο Κόμβο :	0		
Μαθ	Μαθηματικό Μοντέλο · OK Cancel Info					



🗄 🛞 walls

PLATE

3349 - 0-0.00

#### 4.1.4 Surface



Select the surface either by left-clicking within the 2D or 3D interface, or from the list in the "Tree".



You have the option to select individual surface elements. The selected surfacing is colored to make it easy to locate within the desktop.

The "Properties" field displays all the characteristics of the selected surface. Make the desired modifications directly in the "bar" or select the "More" command to open the dialog box of the characteristics of the specific surface:

Επιφανειακά Στοιχεία						×
Πλέγμα 2D 🛛 🗸 KOITOSTRO	$\sim$	Υλικό Σκυρό	ν ομε	Ποιότητα	C30/37	$\sim$
Επιφάνεια	$\sim$	Ο Ισοτροπικό	Ο Ορθοτρ	опіко	Γωνία Ο	
Στοιχείο Plate O.E.F. 🗸 Ks (MPa/cm)	1					
Ονομασία 1771 Πάχος (cm)	60	Exx (GPa)	33	Gxy (GPa)	13.75	
Κόμβοι		Eyy (GPa)	33	ε <b>(</b> kN/m3)	25	
2208 2209 2239	2238	Ezz (GPa)	0	atx*10-5	1	
	0	vxy(0.1-0.3)	0.2	aty*10-5	1	
		vxz(0.1-0.3)	0.2	atxy*10-5	1	
	`	vyz(0.1-0.3)	1	Exx * vx	z = Eyy * vxy	
OK Cance	el					

#### 4.1.5 Change of column height

Command with which you can **change** the elements of a **column cross-section as a whole** at the desired level or levels.

Select the command, point to the substructure with the corner or side you want to remain fixed and in the dialog box that appears:



Στύλος (6)			×
Διστομή Υλικό Σκυρόδεμα ν Ποιάτητα C30/37 ν	Геоџетріа (ст) by 50 bz 200	Катаҳѽҫлал Ель/оү́л 1лfо 0 90 30 180 270 View	
		Y	
	Γωνία 0	Οροφος	
Υπ/τα Σκυροδέματος	$\sim$	Anò 1 Εως 1 OK Cance	1

You make the change you wish to make and in the "Floor" section you set the level or levels you want the change to apply to.

**CAUTION**. The increase in the cross-section of the column in height can only be carried out from the bottom up and not vice versa.

The same command can be found in the command list that opens by approaching a pole and pressing the right mouse button (see. Chapter 2 Modelling - Pillars)

Changing the height of a column requires the cross-sections of the columns have the same fixed points (see chapter 4 Tools-Fixed points)

#### 4.1.6 With number

In the new versions of SCADA Pro it was integrated the search of a member, node or surface by simply typing the number of element you want to search for.



umber of element you want to search for. Seekers. Select the command, enter the number of the

OK

member, node or surface

OK and this appears in the Project Data, as well as on the desktop on the drawing.



#### 4.2 Numbers



Command to **display** on the physical or mathematical model any information you want such as **numbers**, **degrees of freedom of members**, **nodes**, **moments of inertia**, etc.

Calling the command displays the following dialog box:

		Εμφάνιση
Υλικό	Σκυρόδεμα	΄ Δοκοί Υ Προσθήκη Καθάρισμα
Ποιότητα	C8/10	/ 1 Δ1 - Ο 40/60 - Β-3d 233 - L:Δοκοί Σκυροδέματος
Ο Τύπος	B-3d	1 Δ2 - Ο 40/60 - L:Δοκοί Σκυροδέματος 1 Δ3 - Ο 40/60 - L:Δοκοί Σκυροδέματος
Είδος	Δοκός	1 Δ4 - Ο 40/60 - Ε.Δοκοί Ζκυροδεματος 1 Δ5 - Ο 40/60 - Β-3d 236 - L:Δοκοί Σκυροδέματος
Στρώση	Γραμμές, Κύκλοι	1 Δ22 - Ο 40/60 - Β-3d 248 - L:Δοκοί Σκυροδέματος 1 Δ23 - Ο 40/60 - L:Δοκοί Σκυροδέματος
🗌 Προτίμηση	Cross Section	1 Δ24 - Ο 40/60 - L:Δοκοι Σκυροδεματος 1 Δ25 - Ο 40/60 - L:Δοκοί Σκυροδέματος
Ζρώμα		1 Δ26 - Ο 40/60 - Β-3d 252 - L:Δοκοί Σκυροδέματος 1 Δ27 - Ο 40/60 - Β-3d 253 - L:Δοκοί Σκυροδέματος 1 Δ28 - Ο 40/60 - L:Δοκοί Σκυροδέματος 1 Δ29 - Ο 40/60 - L:Δοκοί Σκυροδέματος
Επιλογή		1 Δ30 - Ο 40/60 - B-3d 256 - L:Δοκοί Σκυροδέματος
KANENA	~	1 Δ31 - Ο 40/60 - Β-3d 257 - Ε.Δοκοί Σκυροδεματος
Qofr	Από Σε Βήμα	1 Δ33 - Ο 40/60 - L:Δοκοί Σκυροδέματος 1 Δ34 - Ο 40/60 - L:Δοκοί Σκυροδέματος
opiu 🔹		Εμφάνιση
(+) με φίλτρο	(-) με φίλτρο Ακύρωση ΟΚ	Αριθμός ΚΑΝΕΝΑ Υ

Select the items you want using the filters. Depending on the case, select "Material",

"Quality",	"Type" <i>,</i>	etc., or	one of	the	groups	in	the	list <sup>]∆oĸoi</sup>	 and
"Add".									

The commands (+) µe φίλτρο and (·) µe φίλτρο are used to add or remove the selected items through a filter respectively.

Select the items you are interested in from the list (left key and ctrl, turn blue) and in the "Show" field:

Check the "Number" check box to display the numbering of the selected items. From the list, select the information you want to display.

#### CHAPTER 1 "BASICS"



Εμφάνιση —			1	
🗹 Αριθμός	KANENA	<b>•</b> [	Rigid Offsets dz	-
	Δατομή		Ξλευθερίες Μελών	
	Εμβαδόν Α Εμβαδόν Ακ			
	Επιφάνεια διάτμησης Asy			
	Επιφάνεια διάτμησης Asz	- IP	Κ-Συντεταγμένη	
	Ροπή Αδράνειας Ιχ		Υ-Συντεταγμενη	
	Ροπη Αδρανειας Ιγ	4	2-2υντεταγμενη	
	Γωνία beta b Μέτος Ελασικάπητας Ε	E	Βαθμοί Ελευθερίας	
	Μέτρο Διάτυησης G		Σταθερά Ελατηρίου Dx	
	Ειδικό Βάρος ε	2	Σταθερά Ελατηρίου Dy	
	Θερμικός Συντελεστής at	2	Σταθερά Ελατηρίου Dz	
	Δείκτης Εδάφους Κε	2	Σταθερά Ελατηρίου Ρχ	
		- 12	Σταθερά Ελατηρίου Ry	
	Rigid Offsets dx	2	Σταθερά Ελατηρίου Rz	
	Rigid Offsets dy			
	Rigid Offsets dz	4	Δαφραγματικη Λειτουργια	
	Ελευθερίες Μελών		Táxος (cm) Ξα (GPa)	
	Μήκος	E	Eyy (GPa)	
		ě	s (kN/m3)	
	Υ-Συντεταγμένη	Ē	3DX	
	2-2υντεταγμενη		aty attac	
	Βαθμοί Ελευθερίας	-	Ks (MPa/cm)	•

In the "Option" field of the dialog box:

Επιλογή ——			
Εμβαδόν Α			•
	Апо́	Σε	Βήμα
Ορία 💌	0	0	0

You can set additional filters based on the maximum and minimum values, or limits you specify. For example, to display the max and min cross-sectional area values of beams, or those included within the limits "From", "To" with a certain step, etc.

To make all the values you have displayed disappear, select "NONE" from the list, uncheck the "Number" checkbox and select . [-] με φίλτρο



#### DWG-DXF



The "DWG-DXF" command group is for auxiliary files. The user has the possibility to import 2D 3D dwg-dxf files into the SCADA interface and use them as guides for data import.

The auxiliary file has a dual role:

1. The design entities it includes act as tractions using the necessary osnaps.  $2 \neq \beta \perp 0 \otimes \delta \times$ 

drawing representing columns and beams are

automatically converted into physical cross-sections using the corresponding tool. (see Section "Modelling"). While the lines of the 3D file can be automatically converted into cross-sections.



The "DWG-DXF" command group contains the commands for managing auxiliary files:

- Transportation
- Delete
- Layers
- Layer freezing
- Rotation

#### 5.1 Transportation



Command to move a .dwg or .dxf file that you have imported into the SCADA interface. Select the " Move " command and left-click to point to the "from" and "to" points.

#### 5.2 Delete







#### 5.3 Layers

DXF DWG

Select which layers of the file you have imported into the interface you want to be visible and which you do not want to be visible.

In the dialog box that appears, select one or more layers, the command "Visible" or "Not visible" and "OK".

τρώσεις Βοηθητικού αρχείου			×
Αριθμός	Ορατό	^	Επιλογή ολων
0	Ø		Ακύρωση
arch miroforwn	Ø		LIIMOYIIG
ARCH top Arxag.	Ø		Ορατό
Defpoints	Ø		Μη ορατό
DOIKOI STEGHs	Ø		
PLAKA MPETON MIROFORWN	Ø		Μετατροπή Γοσμικών, Τόξων
Plaka orofis mirof.	Ø		(pappar)(oqui
PR01	Ø		ОК
VPORTS	Ø	~	Cancel
Απόδοση Διατομής Στύλου	Απόδοση Διατομή	ις Δοκού	
Απόδοση Διατομής	; Δοκών Θεμελίωσης		Εκκαθάριση
Επιλογή στρώσης			
Γραμμές, Κύκλοι		$\sim$	
Layer1		Νέο	



Command to automatically convert lines, arcs and circles to the corresponding design objects SCADA Pro.

When you call a helper file in the SCADA Pro environment, the objects that are imported are not SCADA Pro objects, but only helper lines that provide "traction" at their various points. To convert them into SCADA Pro design objects (lines, arcs, circles), select from the list the layer or layers to which they belong and the command " Convert Lines, Arcs".

#### CHAPTER 1 "BASICS"



ARCH top Arxag. Defpoints	a		Μη ορατό
DOIKOI STEGHs	Ø		Manager
PLAKA MPETON MIROFORWN Plaka orofis mirof.	o o		Γραμμών,Τόξα
PR01	*		OK
PORTS	Ø	~	Cancel
Απόδοση Διατομής Στύλου	Απόδοση Διατομής Δοκο	Ú	
Απόδοση Διατομήα	ς Δοκών Θεμελίωσης		Εκκαθάριση

Automatically all the design objects of the selected layer are converted to SCADA Pro design objects with their respective properties.

Ιδι	Ιδιότητες 🛛 🕹 🗙						
	8≣ 2↓ 🔳 🗲						
Στρ	οώση	Γραμμές, Κύκλ					
Хρ	ώμα	1					
	Σημείο Αρχής	1693.23, 0.0, 10					
	х	1693.23					
	Y	0.0					
	Z	1049.33					
	Σημείο Τέλο	1568.94, 0.0, 69					
	х	1568.94					
	Y	0.0					
	Z	693.87					

Επιλογή στρώσης	
Γραμμές, Κύκλοι	~
PR01	Nżo

The Select layer

field allows

you to define a new layer to which these lines of the plan that were converted to SCADA Pro lines will belong. Select New to create the new layer with the name of the layer of the drawing or type a new name and then New.

In the Edit Layers window, the new layer will be added at the bottom of the list.



Επεξεργασία Στρώσεων Εργασίας Γραμμές, Κύκλοι				لار Eninεδa XZ - Οροφοι
Nżo				Update
Αριθμός	Ορατό	Επεξεργάσιμο	Χρώμ 🐴	Επιλογή όλων
 Μ.Ι.Π. Πεσσοί	a a	 	8 14	Αποεπιλογή όλων
Μ.Ι.Π. Υπέρθυρα Μ.Ι.Π. Ποδιές	o o	_n 	15	Ορατό
Μ.Ι.Π. Πρέκια Μ.Ι.Π. Διαζώματα	ă	- 	38	Μη ορατό
PR01	ø	∎°	2	Επεξεργάσιμο
< Διανραφή Δεδομένων			>	Μη Επεξεργάσιμο
Μοντέλο Συνολικά Βάσει επιπέδ	ου XZ Βάσει	Στρώσης 🗌 Μ	όνο Μοντέλ	OK Cancel

#### 3D dwg-dxf

With SCADA Pro you have the ability not only to import a 3D dwg-dxf drawing but also to automatically assign the corresponding cross-sections of the beams and columns to the lines of the drawing.

2D-3D	

First select the 3D view of the SCADA and through the Insert command, enter the 3D drawing.

	DXF DWG
C	

By selecting opens the list with all layers of the project.





For the automatic assignment of the cross-sections to the lines of the drawing, the basic condition is that they are correctly mapped to the corresponding layers.

Select a layer from the list and, depending on whether it contains poles or beams, select the corresponding command at the bottom of the window

Απόδοση Διατομής Στύλου Απόδοση Διατομής Δοκού

Automatically opens the cross-section window to select the cross-section to be assigned all lines of the selected layer. Also select the angle, insertion point and the SCADA layer to which they will be added.







Members with physical and mathematical properties are automatically generated.

#### 5.4 Layer Freeze



Command to freeze the layers of the .DWG/.DXF file you have imported into the interface.

#### 5.5 Rotation



Περιστροφή	X
San (a	ОК
ιωνια μ	Cancel
// X-X	

enter the angle of rotation and the global axis in which you want the rotation to take place. The command is completed by selecting the centre of rotation.



#### Clipboard

The "Clipboard" command group includes the commands Copy & Paste Level.



With the "Copy Level" command all **physical elements** on the active level are selected to be copied to another level with the "Paste Level" command.

Display on your screen a floor plan with physical cross-sections. Select the command "Copy Plane" and use to change the plane. Then select "Paste Plane" to copy all the physical elements of the previous plane to the new plane. Change the layer again with and select "Paste Level" again, repeating the process for all layers containing the same elements.

#### **ATTENTION:**

The Copy - Paste Level command can also be used after the mathematical model has been created. However, the paste layer will only include the physical cross-sections and design entities, not the mathematical ones.

The Copy - Paste Layer command copies all the physical elements of the layer to the paste layer. A warning message cautions you not to create copies on top of each other. Choose, either to delete all existing elements of the selection level by replacing them with those of the selected one, or to keep them, but taking into account that if there are already elements in the same position, they will not be overwritten but will overlap, causing an error in the model!



