CAD PROJEKT K&A

Operation manual

Free-formed objects

CAD Kitchens 8.0, CAD Decor 4.0, CAD Decor PRO 4.0

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This manual describes the use of free-formed elements in CAD Kitchens, CAD Decor and CAD Decor Pro.

We wish you pleasant and productive work with our software!

CAD Projekt K&A Team

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1. Creation and use of free-form elements

The "**Free-formed objects**" button is one of the icons visible on the ,,Interiors 2 " toolbar (Illustrations 1 and 2). Allows you to draw any element with a shape and parameters defined by the user.

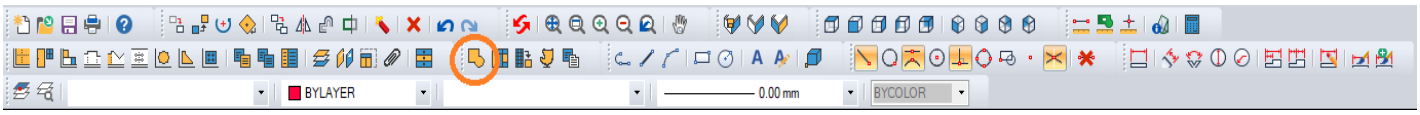


Illustration 1 The program's toolbar (CAD Decor Pro and CAD Kitchens)

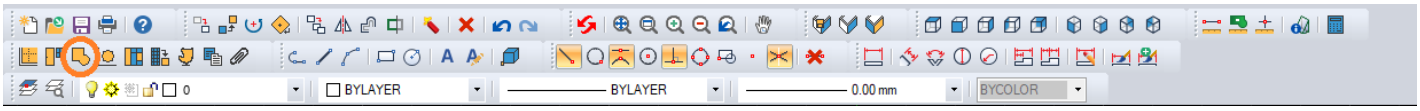


Illustration 2 Program toolbar (CAD Decor)

Objects referred to as freeform elements are created based on a template, either by using the tools from the '**Draw**' bar (Illustration 3) or by using the 3dface command, which allows a surface or face to be drawn. Creating freeform elements requires the use of Entity Snaps. The most commonly used are the end point and the centre point. It is recommended that these are always turned on if possible. You should also pay attention to the tooltips displayed on the Command Bar.

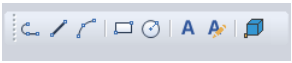


Illustration 3 "Draw" toolbar

The object currently being created is displayed in the drawing as a schematic preview. Seven types of elements are available (Illustration 4):

- **floor,**
- **platformt,**
- **scelling,**
- **text 3D,**
- **casing,**
- **plith,**
- **uuser-made.**

The different types of freeform elements and the options available for creating them are discussed in the following sections of this chapter.

The techniques described below can be combined freely to produce shapes of varying complexity.

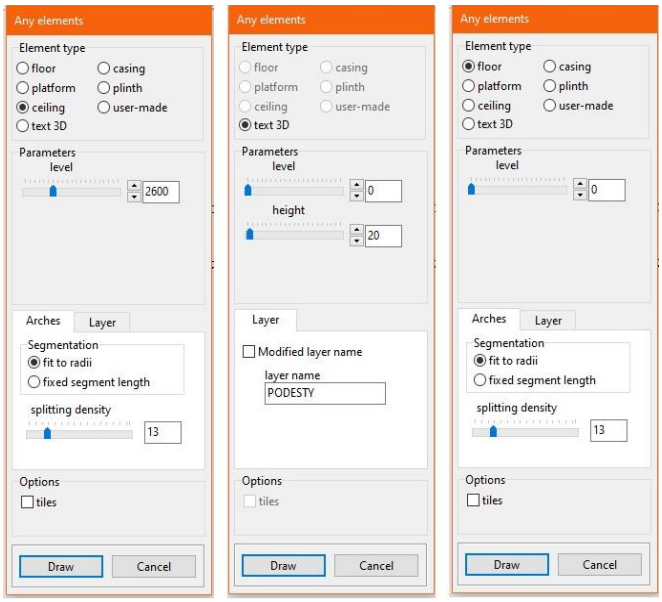


Illustration 4 Parameters of free elements - ceiling, 3D text and floor

2. Types of elements available and brief description of it

The following illustration shows examples of drawings and visualisations of arbitrary 3D objects (Illustration 5). The principles of their creation and the characteristics of the resulting solids are described in the tables on the following pages.

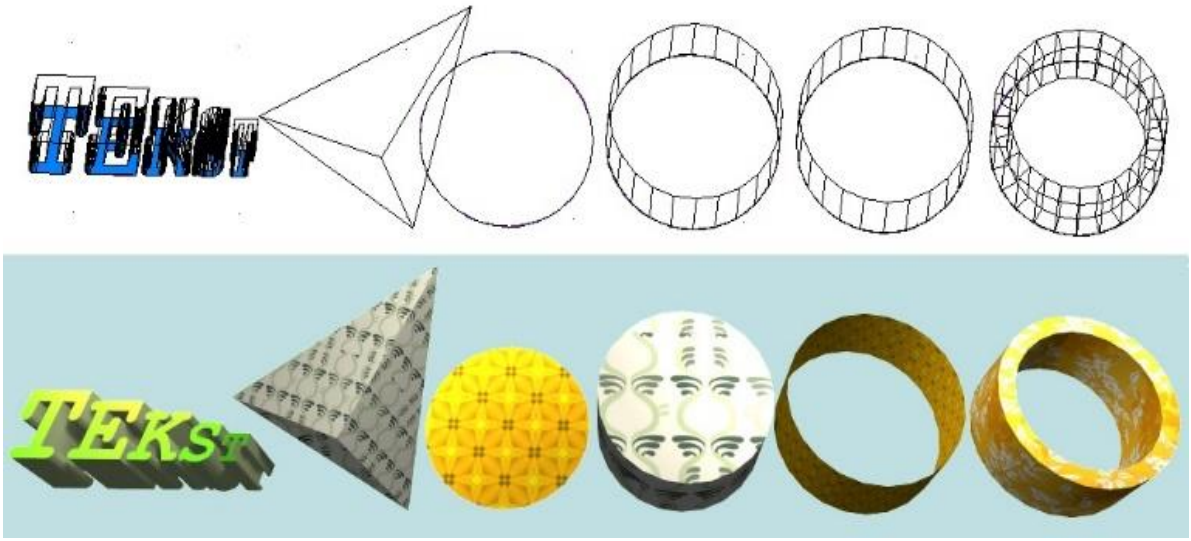


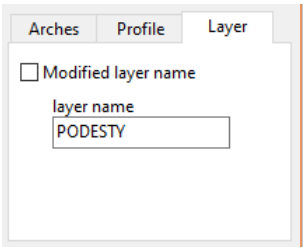
Illustration 5 Free-form elements, CAD and visualisation view

Important! The Free-form elements window opens when the outline or area of the element to be created is specified.

Important! All free elements except 3D text can be applied to tiles and other facings in the visualisation, provided the 'Tiles' option is selected in the 'Options' box.

Type	Discripction
Floor	- flat element, mainly used for drawing floors of a specific shape element, - the only parameter required is the insertion level, indicating at what height the element should appear when you click "**Draw**", - a room created using any technique has an automatically drawn floor (symbolized by a green outline), which can be replaced by a manually drawn floor in a shape that corresponds exactly to the wall layout - to do this, outline the room with a polyline, click on the "**Free-form elements** "  icon and select the "**Floor**" option.
Platform	- a solid with side walls, a bottom and a top, - in addition to the level, the height of the solid should also be specified in this case, - an element used to create platforms of any shape (also with openings), landings, suspended ceilings, bathtub enclosures, etc.
Celling	- flat element analogous to the floor, except that in this case the insertion level is set to 2600 mm by default, - the room-shaped ceiling is automatically drawn the first time you enter the visualisation.
Text 3D	- 3D object created from the text entered into the project using the "Text" icon  (which can be freely edited using the "Edit Text"  function - for more information on entering and editing text, see the "Basic Drawing Function" manual), - to create an element of the "3D text" type, enter the text, possibly change its parameters, select it and choose the " **Free-form elements** icon  , then set the parameters of the object (insertion level and height), - to change the size of 3D text, select it, call up the context menu under the right mouse button, select "Edit" then the edit window for the free-form element will reopen. Important! : For the "3D text" element, the option to tile in the visualisation is not available.
Casing	- an element having only side edges, - is close to the floor due to its zero thickness, with the difference that it draws vertically, - can be created from a single polyline segment and used, for example, to create a background behind the windows of a room.
Plinth	- - a solid in the shape of a frame or ring (when created from an outline) or a cuboid (if drawn from a single polyline segment).
User-made	- A spatial element with a user-defined shape that is based on surfaces (faces) rather than on lines or polylines, - for drawing unusual corner bevels and decorative elements of non-standard shapes, - to draw a surface, type the command "3dface" on the keyboard, confirm with [Enter] and then define the shape of the surface by left-clicking on the points where the vertices should be (to finish drawing - right-click), - then select one of the sides of the shape from which the object is to be created and click on the "Free formed element" icon  - a window of the same name will open in which you can specify the insertion level of the element, - if an element outline is selected from a line, arc, circle or polyline - the "user" function remains inactive (however, if only surfaces are selected when the " Free formed element"  icon is clicked, this will be the only option available).

3. The tabs of the „ Free-form elements”

Tab	Function
Arches	- tab for floors, ceilings, platforms, casings and plinths, - is used to define the number or size of segments forming an arc, - if the object is to be tiled, the "fixed segment length" option should be selected and the size of the tile to be used should be specified, together with the width of the joint (on one side of the tile); in this way the tiles will not be cut to size, - in this variant, an "all segments equally" function is available, which divides the arc into equal parts, - if the object is not to be tiled, the "fit to radii" option can be used - the number of segments in this case depends on the number of radii defined by the user (the more radii, the more segments), - the default value is 12 - for large curves it is worth increasing this value to avoid displaying straight sections on the curve in the visualization, - this parameter can be edited along with editing the entire block, - for both options, the arcs adjacent to each other should have the same number of segments to ensure a correct display in the visualisation (no gaps), - if the solid will not be tiled, deselect the 'tiles' option, in which case the arc in the visualisation will be smooth, and covering it with texture will result in it being distributed around the entire perimeter rather than in segments.
Layer	- available for all types of Free-form elements - allows an object to be saved on a layer other than the current one when the 'Modified layer name' option is selected.  *Illustration 6 Layer tab*
Profile	- is only available for landings and plinths, - allows any edge of an object to be profiled based on a pre-drawn path (called a user profile), - the profile can be reflected symmetrically if inserted from the wrong side - use the "flip horizontally" option to do this, - examples of use are described below in this manual.

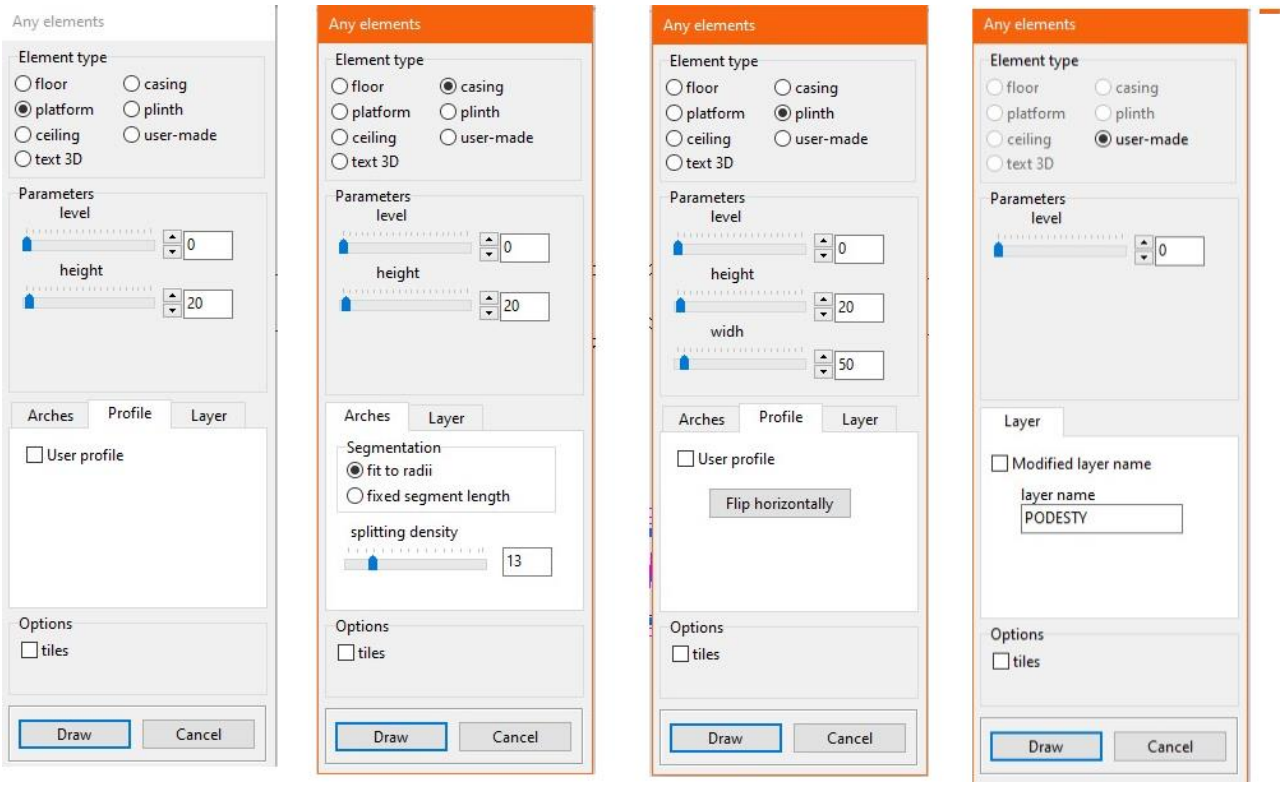


Illustration 7 Parameters of free elements: platform, enclosure, plinth and use-made

4. Examples of practical use

Each of the following elements can be edited and rotated in space. These options are available by selecting the solid and choosing the right mouse button. Changing the shape of an element is only possible by redrawing the shape of the template.

4.1. Drawing an element with holes

To draw such an element, you need to:

- draw an outer edge using any drawing tool,
- draw the hole shapes inside,
- select the " **Free-form elements**" icon and click inside the drawn shape,
- select the type of element (floor or platform) in the newly opened window, enter the parameters of the object and click "Draw".

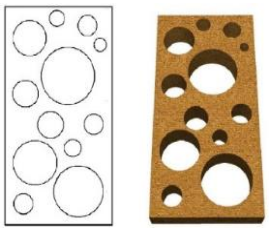


Illustration 8 Element with holes - design and final result

4.2. Drawing a platform using a user profile

To draw a platform with a user profile, you must:

- use any technique to draw the shape of the platform,
- draw a profile next to the platform shape using the polyline tool,
- select the " **Free-form elements** " icon and click inside the drawn outline,
- define the type of element - platform - in the new window,
- select the '**Profile**' tab with the **'User profile'** option: the user will be taken to the project

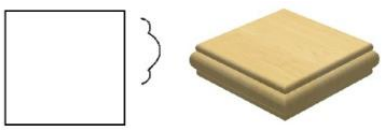


Illustration 9 A platform with a defined profile

where they should click on the drawn profile line and then indicate the point of contact between the profile and the drawn shape of the platform,

- When the " **Free-form elements** " window opens again - select the "Draw" button,
- at this point, the platform with the defined profile is inserted into the project.

4.3. Drawing a plinth using a user profile

To draw such an element, you must:

- use the path to draw the route and the profile shape,
- select the " **Free-form elements** " icon and click on the drawn path,
- in the new window, define the type of element - plinth,
- select the **"Profile**" tab and the "**User profile**" option,
- after the transfer to the project, click on the drawn line of the profile and indicate the contact point of the profile with the drawn route of the skirting,
- select the "**Draw**" button in the "Free elements" window - the skirting will be drawn with the defined profile.

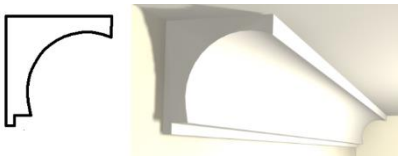


Illustration 10 - plinth with defined profile

5. Additional information

5.1. Instructional videos

- Paylist ,, Free-form elements”

5.2. Shortcuts and commands

The document compares keyboard shortcuts in the .4CAD and visualization environments and lists the most frequently used commands in versions up to 3.Xi/7.X and version 4.X/8.X (both 34 and 64 bit versions of the environment). Find the document at: https://www.cadprojekt.com.pl/zasoby/pdf/opisy-techniczne/shortcuts-4-0-8-0-eng.pdf

This document provides an overview of keyboard shortcuts and commonly used commands in the .4CAD environment for visualization. The shortcuts and commands can be issued using either the mouse or keyboard. It can be accessed at: https://www.cadprojekt.com.pl/zasoby/pdf/opisy-techniczne/shortcuts-4-0-8-0-64bit-eng.pdf

In the above list, LPM and RMB stand for left and right mouse buttons, respectively. A command notation with a + sign (e.g. [Ctrl] + [Z]) indicates that both keys should be pressed simultaneously, while a notation with a >> symbol (e.g. [E] >> [Enter] or [Space]) means that you should first type E and then press [Enter] or the space bar.

Technical support
Mon-Fri from 8 a.m. to 5 p.m.
pomoc@cadprojekt.com.pl
tel. +48 61 662 38 83

Contact form

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Training section
szkolenia@cadprojekt.com.pl
tel. +48 505 138 863

CAD PROJEKT K&A

CAD Projekt K&A Sp.J. Dąbrowski, Sterczała, Sławek
ul. Rubież 46 | 61-612 Poznań | tel. +48 61 662 38 83
biuro@cadprojekt.com.pl | www.cadprojekt.com.pl