



CAD PROJEKT K&A

Operation manual

Draw the room

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

INTRODUCTION

This manual describes how to use the Walls module. Here you will find information about drawing walls in rooms and inserting chamfers, columns and walls.

We wish you pleasant and fruitful work with our software!

CAD Projekt K&A Team

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Creating a room

1. Introduction

The programme offers four wall drawing techniques: "**Wall Wizard**", "**Draw Walls**", "**Select**" and "**Wall Editor**".


The 'Walls Wizard' feature is activated automatically when starting a new project. To access both the '**Wall Wizard**' and other functions, select the '**Walls**' icon  from the "**Interiors 1**" icon bar (Illustration 1, 2, and 3).



Illustration 1 CAD Decor Pro icon bar with the highlighted icon „Walls

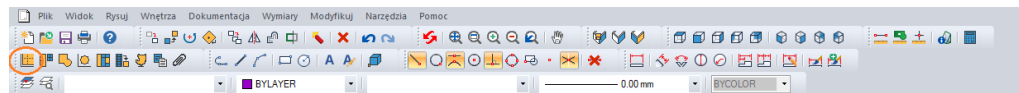


Illustration 2 CAD Decor icon bar with the highlighted icon „Walls

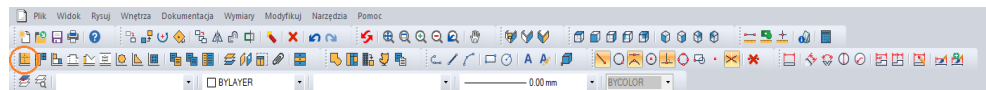


Illustration 3 CAD Kitchen icon bar with the highlighted icon „Walls

Clicking on this icon will open the 'Edit wall elements' window (Illustration 4).

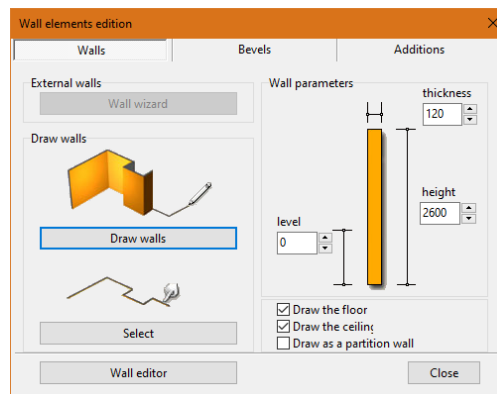



Illustration 4 "Wall elements edition" window

This window allows you to adjust the parameters of the walls, including their thickness, height, and insertion level within the project. Additionally, there are three available functions: "**Draw floor**", "**Draw ceiling**", and "**Draw as partition wall**". The first two functions automatically generate the floor and ceiling after the walls have been drawn using any method. If you select the '**Draw as partition wall**' function, the programme will treat the drawn wall as a partition and display it differently in the visualisation. This means that the wall will not disappear when it is between the viewer and the interior of the room. Additionally, you will be able to change its thickness independently of other walls. Load-bearing walls can have their thickness adjusted independently of other walls. However, it is important to note that the thickness of all load-bearing walls can only be changed simultaneously.

Note that when drawing walls, it is important to keep in mind the limit on the maximum number of faces for a single tileable object. This limit is 2,000,000 faces.

The program automatically divides the objects to be tiled (e.g. walls, ceilings, landings with the "Tiles" option selected) into 10 x 10 cm areas during the visualization - if one of them exceeds the safe number of areas, you will be notified by a special message. If there is such a possibility, the program will divide such an object into larger areas (100 x 100 cm), which will reduce their number. This will happen, for example, if you draw a room that is too large (more than 100 x 200 m). On the other hand, there is no such possibility if a too large area is created as a result of incorrectly defined dimensions, e.g. as a result of an unexpected program error, in such a situation the program will simply abort the function and such an area will not be created in the visualization at all. If the user draws an object that is too large, a division of 100 x 100 cm will protect the program from overloading, but may result in a less favorable appearance of the room in the visualization in the base renderer. On the other hand, if the Render PRO algorithms are used, the new division will not affect the results. This is because the Radiosity algorithm performs its own scene subdivision (recall that Radiosity computes global illumination only for surface vertices), while Path Tracing does not use any surface subdivision at all, since it computes illumination for each pixel of the view separately.

The shape of the room can be The 'Wall elements edition' function allows for changes to be made to the room design at any stage. However, keep in mind that making changes may result in the loss of certain elements, such as bevels or tiles. For more information on this topic, please refer to [section 8](#).

Inserting doors and windows is done in a separate module. To insert windows and doors, select the 'Doors and Windows' icon  in the icon bar. Refer to a separate manual for a detailed description of the process.

2. Wall Wizard

To start a new design, open the 'Wall Wizard' window (Illustration 5). Select the room type template that most closely resembles the final layout from the four pre-defined options, and then modify it as needed using the 'Specify room dimensions' and 'Rotate room' functions. In this window, you can also define the height and thickness of the walls. If the user does not specify their own parameters, the program will set them to the default values of height = 260 cm and thickness = 12 cm.

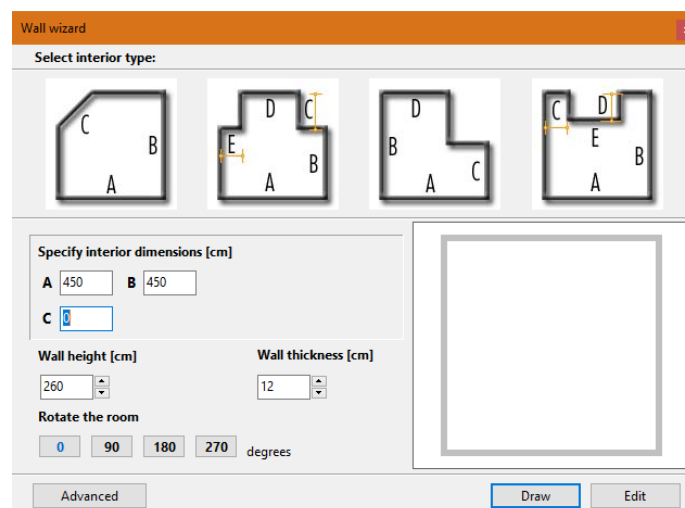



Illustration 5 Wall Wizard

Note that dimensions should be given in centimeters!

The right part of the Wall Wizard window displays a live preview of the shape of the interior to be drawn. Changing the entered data changes the layout of the preview according to the entered dimensions. If you do not


want any of the walls to appear in the project, you can hide them here. To do this, click with the mouse cursor on it in the Preview area. The wall indicated by the cursor will turn red, and when it is hidden, it will appear as a circled line.

Once the basic parameters of the walls have been set, you can open the **"Wall Wizard"** window using the **"Edit"** button or press the **"Draw"** button, which will insert the room into the design together with the automatically generated floor, which will appear as a green rectangle surrounding the room outline. If none of the above methods meets your requirements, you can use the **"Advanced"** button, which opens the **"Edit Wall Elements"** window (Figure 4), also available under the icon  **"Walls"** icon.

Note that the "Walls Wizard" function does not work if the interior has already been drawn. In order to be able to reopen the Wizard in a given project, you need to remove all previously drawn walls, and then select the "Walls" icon  and the "Walls Wizard" button.

3. Drawing walls using the "Draw Walls" function


The "Draw walls" option allows you to create a room outline on the fly. To draw walls using this method, you must:

- select the **"Walls"** icon .
- in the newly opened window, define the thickness of the walls, height and level of the room to be drawn, and decide whether the floor and ceiling should be drawn automatically;
- then click on the **'Draw walls'** button - this will take the user to a project where they can draw the outline of the walls;
- the creation of an outline is started by clicking on any starting point;
- then, by moving the mouse, indicate the direction in which the walls should be drawn (**must be clockwise**).
- after defining the drawing direction, enter the length of the wall in millimeters using the keyboard (the value will be displayed in the command bar), the value will be displayed in the project and accepted with the **[Enter]** key, you can also move the mouse in the appropriate direction, the value will be displayed above the line being drawn;
- then point the mouse in the direction in which the next wall is to be drawn and proceed like this for the previous wall;
- in order to draw a wall at an angle, first enter the length of the wall and then use **[Tab]** to switch to the account dimension and enter and confirm its dimension and confirm **[Enter]**;
- repeat this procedure until the desired interior shape is achieved;
- when drawing walls using this method, you can follow the values displayed at the start point of each successive line; basic information about the line currently being drawn is displayed there - its current length and the value of the angle at which it is being drawn;
- when drawing walls using this method, you can follow the values displayed at the start point of each successive line; basic information about the line currently being drawn is displayed there - its current length and the value of the angle at which it is being drawn;
- to finish drawing the outline of the room, right click - this will add the walls to the design.

4. Use the 'Select' function to draw walls.

Before drawing walls using this option, it is necessary to determine the path (a.k.a.: polyline) of the course of the room.

To do this, you need to:

- select the icon  "Path" from the "Draw" toolbar and click at the starting point of the path;
- move the mouse in the direction in which the wall is to be drawn, **(must be clockwise!)**, and then enter the length of the first segment from the keyboard and confirm it by pressing [Enter];
- as in the previous case, you can also define the length of the wall section by clicking the left mouse button, but this method does not guarantee precision;
- continue to draw the remaining sections of the path until the desired shape of the room is achieved;
- finish drawing the path by clicking the right mouse button;
- when you have finished drawing the path, go to the "Wall elements edition" window, and in the "Walls" tab, select the "Select" button;
- the user is returned to the project, where the previously drawn path must be specified by left-clicking on it;
- once selected, the program will create walls of the specified thickness and height;
- if the "Draw floor" option was checked, the floor will be automatically generated;
- if the path is drawn incorrectly, a message will appear indicating the nature of the error (Illustration 6).

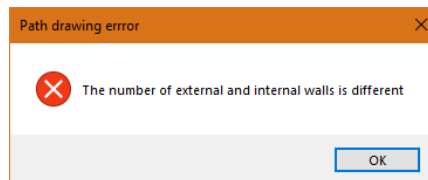


Illustration 6: Error message for incorrectly drawn path

Note: When drawing the walls of a room using the "Draw Walls" and "Point" functions, successive sections should always be applied clockwise! This is necessary to maintain the internal dimensions of the walls of the designed room.


Note: Advanced ways of drawing arbitrary shapes using the path are presented in the s "Free-formed objects" manual.

5. Using the 'Wall Editor' function to draw walls

"Wall Editor" allows you to create a new room and modify an existing room at any stage of design. Keep in mind, however, that editing an existing room may result in the loss of previously applied tiles and bevels when saving the new layout in "Wall Editor".

There are several ways to enable this option:

- by selecting the "Edit" button from the "Wall Wizard" window that opens when creating a new project;

- by clicking on the icon  "Walls" and then on the "Wall Editor" button;
- by double-clicking with the left mouse button on one of the walls;
- by selecting an already drawn wall then right-clicking on its edge, expanding the pop-up menu and selecting "Edit";
- all these ways open the "Drawing and editing walls" window.

6. „Drawing and Editing Walls” Window Menu

After entering the wall editing mode using one of the above methods, a new window will appear (Illustration 7). When you click on the selected wall, it is highlighted in dark blue and the corners are marked with a green and red square. The colour markings help to identify the parameters of the wall when working with the editor. When a wall is selected, the functions in the icon menu at the top of the window and the context menu under the right mouse button become available. They are described in the table on the following pages.

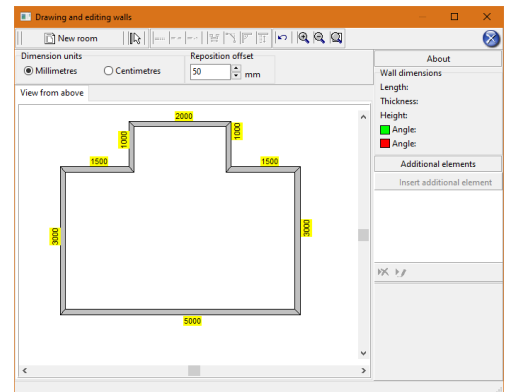





Illustration 7 Window „Drawing and editing walls”

Note that the thickness of individual structural walls cannot be changed - it can only be changed for all walls at once (this restriction does not apply to partitions).

Note: You can change the unit of dimensions - from centimeters to millimeters and vice versa.

Function	Description
 New room	Allows you to draw a new wall layout (also under the keyboard shortcut [Ctrl + N]); in a new window you can enter the dimensions of the room and decide which walls to draw. For more on this topic, see in point 8.
 Selection of wall for edition	Selects the wall to be edited (selected wall displays in dark blue color).
 Add new segment	Adds a new segment to the selected one, at the selected angle and with a do-free length (also using the [Ctrl + Ins] shortcut) (Illustration 8).

New wall

Vertex selection

Vertex 1

Vertex 2

Length

750 mm

Rotation

Preset angle


90 0 -90

45 -45

90 degrees

OK Cancel

Illustration 8 New wall

 **Divide the wall into segments** Divides a wall into 2 segments of different lengths or 3 segments of the same length (also with the shortcut **[Ctrl + [Delete]]**). Each newly created segment has the option of being further divided (Illustration 9).

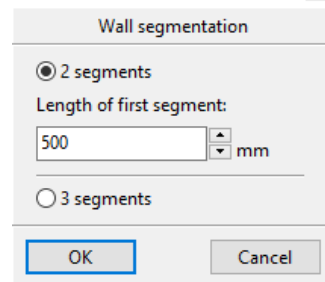



Illustration 9 Segmentation of a wall

 **Delete the segment**

Deletes an existing segment (also under the **[Delete]** button).

 **Wall recess**

Adds cavity walls based on 4 basic cavity types; also allows insertion of a platform into the cavity (Illustration 10).

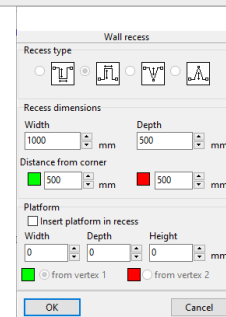



Illustration 10 Inserting a recess

 **Vertex cutting**

Cuts the selected vertex perpendicularly or diagonally (Illustration 11).

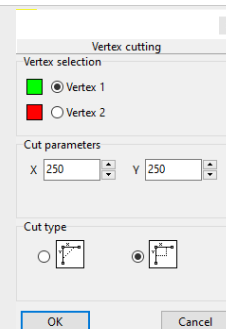



Illustration 11 Vertex cutting

 **Wall rotation**

Allows you to rotate the wall relative to the one it is adjacent to by any angle value (Illustration 12).

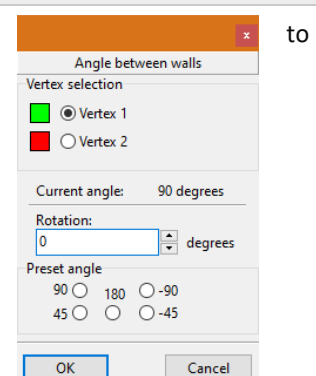

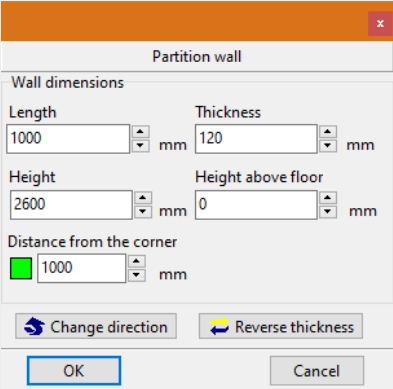

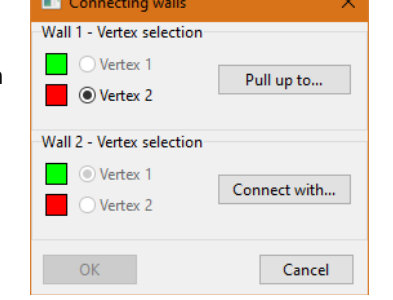





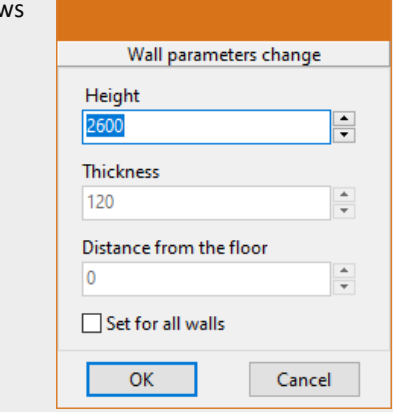



Illustration 12 Wall rotation - Window „Angle between walls“.

<p> Partition wall</p>	<p>Forms a partition wall, with the possibility of adding to it further segments of any length, at the indicated angle (Illustration 13).</p>	 <p style="text-align: center;"><i>Illustration 13 Partition wall</i></p>
<p> Join the walls</p>	<p>Option on the shortcut menu, connects open wall vertices by creating a new segment between them. (Illustration 14).</p>	 <p style="text-align: center;"><i>Illustration 14 Connecting walls</i></p>
<p> Undo last operation</p>	<p>Undoes the last action performed (also available with the [Ctrl + Z] shortcut).</p>	
<p> Zoom in</p>	<p>Zooms in on the view of the room.</p>	
<p> Zoom out</p>	<p>Zoom out of the room view.</p>	
<p> Show the whole drawing</p>	<p>Shows the whole room (also under the [F5] key).</p>	
<p> Insert additional element</p>	<p>Option in the context menu; opens a database of additional wall elements, where the user specifies the type of element, its dimensions and insertion parameters.</p>	
<p>Change in wall height/thickness</p>	<p>Option in the context menu; allows you to change the height of selected segments and the thickness of all walls at once (Illustration 15).</p>	 <p style="text-align: center;"><i>Illustration 15 Wall parameters change</i></p>

7. Sliding stroke

A function that allows you to move, lengthen and shorten entire walls by any value (jump). To do this, enter the jump value in the "**Sliding stroke**" field, then select the wall and position the mouse so that the indicator is displayed .

Then click on the corner and move the mouse along the wall, watching how its length changes in the right part of the window - in the "**Reposition Offset**" field. When the desired new length is obtained, release the mouse button. The dimension of the wall will be changed. (Illustration 16).

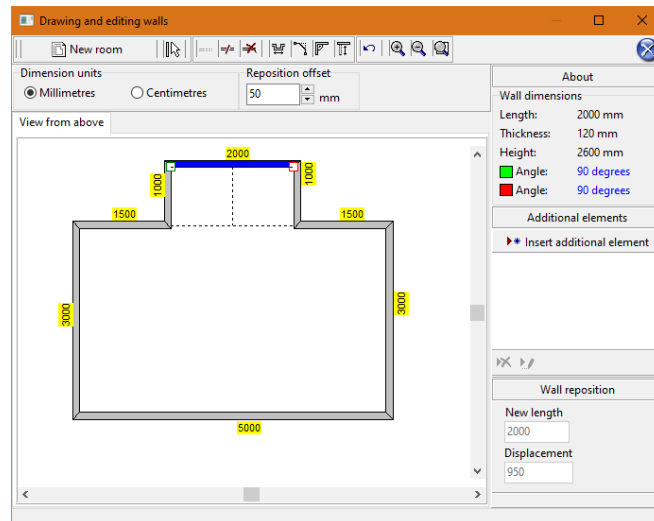



Illustration 16 Moving a wall by a given distance using a sliding stroke

To move the walls (e.g. to change a square interior of 4500 x 4500 mm into a rectangular one of 3900 x 4500 mm), you need to enter the desired sliding stroke value, i.e. the difference between the current length and the desired length (in the described case, 600 mm), then click on the wall to select it and position the pointer so that it becomes a cross shape .

Then click on the wall again and, holding down the left mouse button, move it inwards into the room until a dashed line appears, indicating that a value equal to the defined displacement stroke has been obtained (Illustration 16). While moving the wall, pay attention to the information displayed in the right part of the window in the "**Reposition Offset**" field, where the displacement value obtained is visible. Release the mouse button when the desired shape has been obtained.

8. Drawing a new wall layout

To redraw a room, select the "**New Room**" button in the editor window. Then, in the newly launched window (Illustration 18), enter the dimensions and indicate the walls to be drawn. After entering the parameters, accept them by selecting the "**Draw the room**" button. If further modification of the wall layout is required, it can be carried out in the same way as described above.

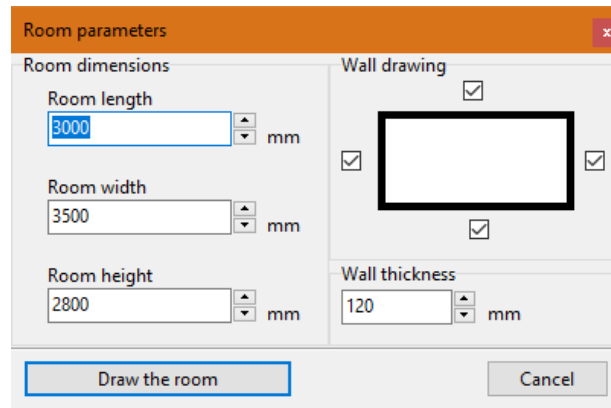


Illustration 18 "Room parameters - Drawing a new room" window

After each modification of a room in the **Wall Editor** and after closing the Editor to return to the .4CAD environment, the following message will appear asking if the user is sure he or she wants to change the wall layout (Illustration 18). To have the layout changed, click **"Yes"** To cancel, select **"No"** or **"Cancel"**.

If you start drawing walls from scratch from the project level (after drawing a room) using the **"Room"** icon, you will not be able to start the **"Wall Wizard"** (this will be possible only after deleting existing walls). The options **"Draw walls"**, **"Point"** and **"Wall editor"** will be available.

After selecting the first one, a message appears with information about existing walls. Selecting **"Yes"** will start the drawing of the wall path. When the drawing is complete, the user will see the outlines of two rooms.

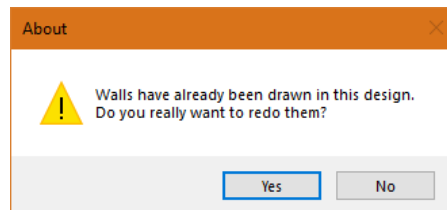



Illustration 19: Reminder of previously drawn walls.


Editing and inserting wall elements

1. Introduction

The "Wall Elements Edition" window, available under the icon  "Walls", is used not only to create the walls of a room, but also to add wall elements, such as bevels, additions. The described parameters of a room always refer to the layout in which the viewer is located. Each inserted object has a preview in the design, drawn based on the given parameters. Bevels are not editable. The methods for inserting the different types of elements are described in the following sections.

2. Bevels

To add a bevel, follow these steps:

- click on the icon  "Walls";
- in a new window, go to the "Bevels" tab;
- click on the 'Select wall' button, then select the wall where the bevel is to be placed;
- after selecting a wall, the user is automatically transferred to the " Wall Elements Edition " window, and a pink schematic drawing of the inserted bevel appears in the project;
- select the type: wall or corner bevel (Illustration 20 and Illustration 21);

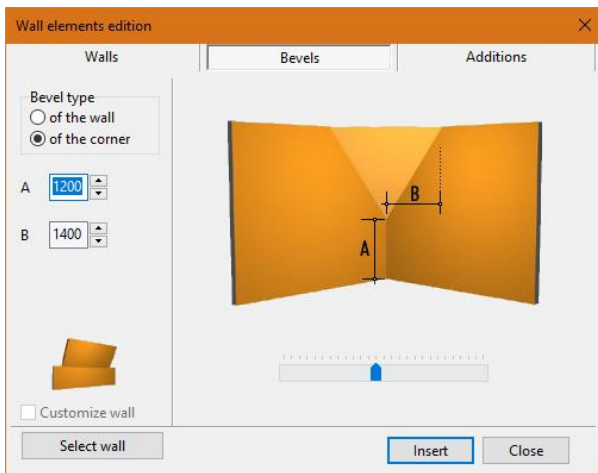


Illustration 20 Inserting a corner bevel

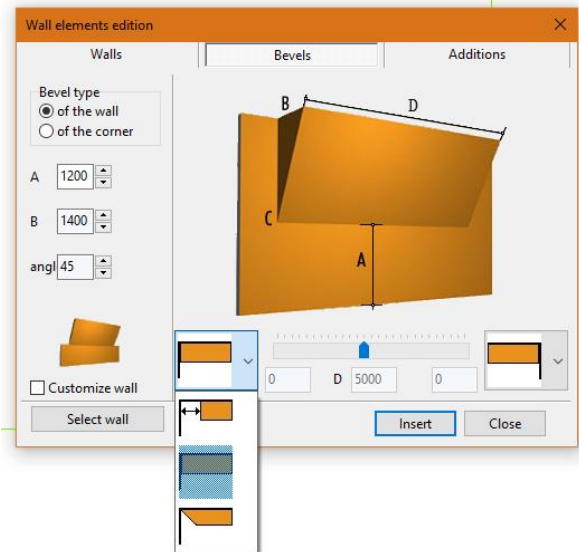


Illustration 21 Inserting a wall bevel

- define the bevel parameters based on the diagram displayed in the right part of the window, using the A and B or C dimensions, and then click 'Insert';
- for wall bevels, you can choose from three types of bevel termination: straight reaching the wall, straight offset from the wall, and chamfered.

To embed a window in the bevel, ensure that you select the 'Adjust wall' option when specifying the bevel parameters. This option is enabled when adding the first bevel. Once you have selected the 'Insert'

function, the wall on which the bevel is located will be lowered to the level of the base of the bevel, and the background will be visible through the window inserted into the project.

Please note that bevels cannot be edited. If the user wishes to modify their parameters, they must delete them and insert them again.

3. Additions

The additive models are located in the third tab of the "Wall Elements Edition" window (Illustration 22). Above the window, the available shapes for add-ons are displayed. They are inserted similarly to windows and doors, additionally defining their type:

- "Protrusion" - has a defined depth;
- "Orifice" - the "through" element has no depth;
- "Recess" - has a depth (not greater than the thickness of the wall).

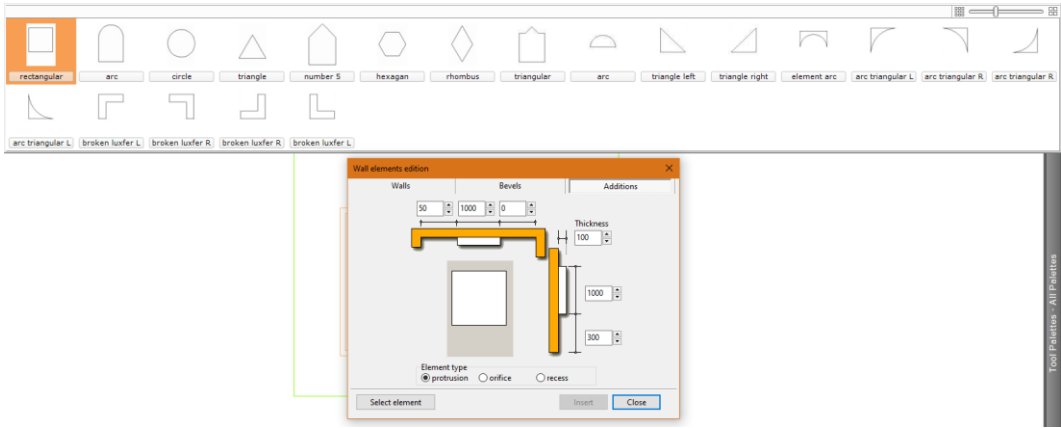


Illustration 22 Edit additional wall elements

To move recesses and protrusions in partitions, select the 'Second Side' option (Illustration 23) in the upper right corner of the window. This option is only available for recesses and protrusions inserted in partitions.

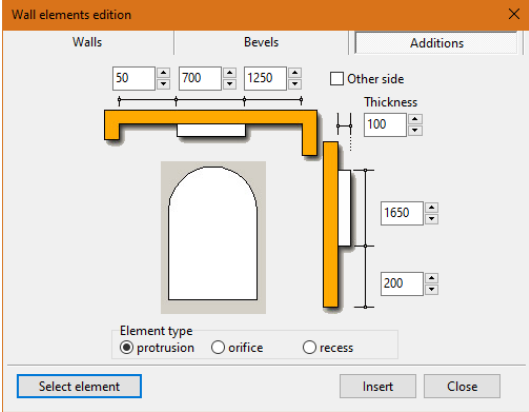



Illustration 23 Editing additional wall elements - inserting a cavity in a partition wall

Creation and use of Posts and Arc walls

1. Introduction


Icon  "Posts and arc walls" is used to create basic solids (cuboids or pyramids with different bases) without drawing templates. Objects are created based solely on the parameters defined in the **Posts and arc walls** window (as shown in Illustration 24) and the selected point in the project where they are to appear (to be indicated immediately after selecting the "Posts and arc walls" icon).

This function finds practical use in creating all kinds of columns, landings, bevels, pillars, arched walls, suspended ceilings and other decorative objects. As in the case of free-form elements, for columns also the possibility of applying tiles and dividing round elements into segments is available.

To do this, select the "Tiles" option, and then, depending on your preference, choose "fit to radii" or "fixed segment length". You can also exclude columns and walls from the quote - if you select the "no valuation" option, they will not be included in the project cost estimate.

2. Insertion of posts and walls

To insert the columns and walls you need to:

- select the " Posts and arc walls " icon  on the **Interiors 1** toolbar, then click where you want to insert the solid in the design;
- in the newly opened window, specify the parameters, choose the shape of the base and the type of solid (cuboid or pyramid);
- after entering all parameters, approve them by clicking the "**Draw**" button.

3. Types of posts and arc walls

You can create solids with different bases (Illustration 25). The definable parameters of the solids available in the "**Posts and arc walls**" window are described in the table on the next page. When defining the parameters of each solid, you can specify the level at which its base is to be inserted.

After indicating the level, the "Posts..." window. reappears with the level entered. Columns can be in the form of a cuboid or pyramid with any base. For pyramids, the options "**tiles**" and "**no valuation**" are not available.

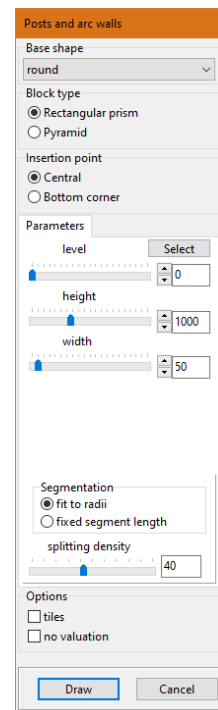


Illustration 24 " Posts and Arc Walls" window

Cross section	Definable parameters	Characteristics
Round	level, height, width	<ul style="list-style-type: none"> – base with a circular cross-section in which the width equals the diameter of the base;
Equilateral triangular	level, height, width	<ul style="list-style-type: none"> – base with the cross-section of an equilateral triangle; – the width given is the length of the side of the triangle;
Triangle (3 side)s	level, height, length of 3 sides	<ul style="list-style-type: none"> – base with the cross-section of a triangle with sides of arbitrary length; – user can enter the lengths of the sides of the triangle;
Triangle (2 sides and angle)	level, height, length of 2 sides, angle value	<ul style="list-style-type: none"> – base with the cross-section of a triangle with sides of arbitrary length; – user can enter the lengths of the sides of the triangle or the angle between them;
Square	level, height width	<ul style="list-style-type: none"> – base with a square cross section; – the width specified is the length of the side of the square;
Rectangular	level, height, width, length	<ul style="list-style-type: none"> – base with a rectangular cross-section; – the solid is perfect for creating partitions and suspended ceilings;
Hexagonal	level, height width	<ul style="list-style-type: none"> – base with a hexagonal cross-section; – width given is the length of the diagonal of the figure;
Arc	level, height width	<ul style="list-style-type: none"> – base is a slice of a $\frac{1}{4}$ circle inscribed in a $\frac{1}{2}$ square; – is used to create concave curved walls; – perfectly fits the 90° corner of the wall; – width specified in this window corresponds to the radius of the circle;
Curved wall	level, height, radius, thickness, angle	<ul style="list-style-type: none"> – base is formed by joining two segments of a circle with different radii but the same angles of expansion, placed parallel to each other; – solid used to draw concave or convex curved walls, also placed between corners whose angle is different from 90°.

Additional information

1. Instructional videos

- Playlist „Walls | Bevels | Windows and doors“.
- Inserting bevels with beveled ends
- Redrawing a 2D interior from a DWG file
- Changing the height of walls in a room
- Inserting a bevel and a window in a bevel
- How to create a slant in a room

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

We would like to inform you that we provide training in the use of our programs. For more information, please visit our website: <https://www.en.cadprojekt.com.pl/trainings/>

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



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