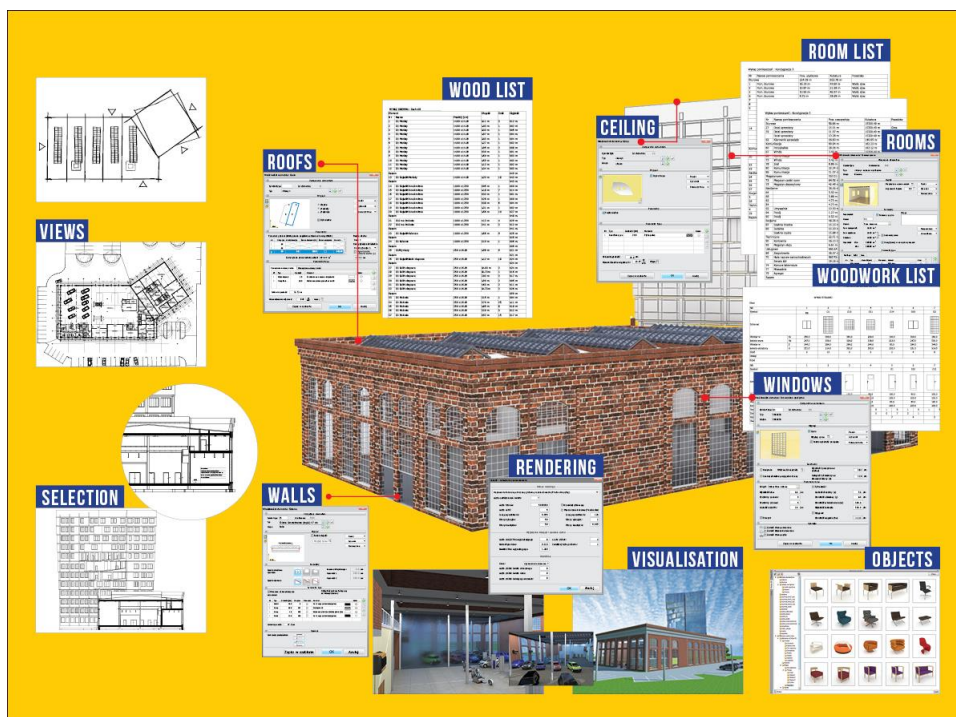


ArCADia-ARCHITECTURE

User Manual



2022-01-27

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Introduction

1. INTRODUCTION

Introduction

1.1. Program description

ArCADia-ARCHITECTURE is an industry-specific module of the ArCADia BIM system. The Application allows the user to create professional architectural documentation. The state-of-the-art technology used in this Application speeds up work with projects, while the advanced, specialised functions introduce the designer with the professional technical drawing in an intuitive manner.

ArCADia-ARCHITECTURE is an object-oriented software that allows users to create professional architectural layouts and sections, interactive 3D previews and realistic visualisations. ArCADia-ARCHITECTURE extends the ArCADia system basic functions with special architectural functions, such as automatic section, automatic dimensioning, possibility to expand the 3D object library, create material lists or import of objects from other applications.

Work with the Application involves drawing of building or floor layouts of any complexity using basic elements, such as single or multi-layer walls (with definition of materials for layers), window and door woodwork, reinforced concrete and steel columns (round and rectangular), chimneys (single and shafts), stairs, roofs etc. Creation of documentation has been supplemented with a fully object-oriented approach, in other words the Application provides an ongoing modification of all elements, their appearance, properties and drawing method.

The ArCADia BIM system is a tool which is fully compatible with Revit, Allplan and ArchiCAD software, allowing for importing and exporting of data entered in the ArCADia-FC RVT module. For example, projects created and visualised in Revit or other applications, after conversion into ArCADia system objects are fully editable and can be provided with any technical details, due to the fact that the projects are transferred as object-oriented. Thus, a window in each of the mentioned applications maintain a window function and dimensions. Similarly, a wall will be a wall, transferred with all its parameters. An analogous object-orientation is present in the cooperation between ArCADia-ARCHITECTURE with ArCon software.

1.2. Using the industry-specific module

You can work with the ArCADia-ARCHITECTURE in several different ways, depending on whether the project has been started from a scratch or, for example, the materials have been received in the form of a digital file created in another application.

- If work on the project has been started using an empty file, the first step can be choosing the correct tool e.g. wall. The building and level will be automatically inserted.
- If you receive a project created with another [CAD](#) program, for example AutoCAD, it should be treated as an underlay. We then start with the introduction of the plan view, the building and levels (check chapter [Building](#)) thereafter we “trace on” on the 2D underlay the system elements, in this case the architectural functions.
- If the project was downloaded from ArCon, it is automatically converted into ArCADia-ARCHITECTURE elements, and such a project should be elaborated through the definition of

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wall layers, adding symbols to windows and doors, i.e. you must proceed as in case of work with the next stage of project created in industry-specific module.

- If you have received the project in IFC format (created with Allplan, Revit or ArchiCAD), or RVT (Revit file), and we imported it as an IFC/RVT model, treat it as a underlay without any system elements. If the project has been converted, proceed in the way similar to ArCon project. The walls' layers and woodwork symbols should be checked (assign the set materials to library) and detail the project which has been loaded as ArCADia-ARCHITECTURE objects.

If you use ArCon project or if you convert the files from the IFC format, there is no need to create level, because they are imported along with other project elements (walls, windows, door, etc.). In such case, first of all, it is necessary to modify existing elements, e.g. define walls' layers, window or door symbol and add other module's functions to the project. However, if the IFC project is only imported, then you should create the building structure (i.e. set the levels) on your own.

Commands are selected by clicking the appropriate icon on the program's ribbon, or by typing a command, shortcut or alias in the command area. If ribbons are used to work with the program, then when you hover the cursor over a given icon, a hint will be displayed of what the option is for and if the icon shown below is displayed, you will be able to watch a short instructional video.

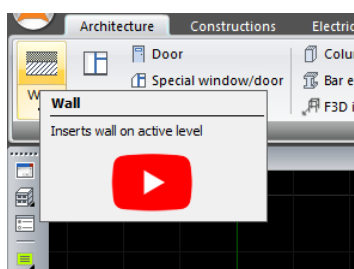


Fig. 1. An example of an icon with the transition to the instructional video

An internet connection is required to watch instructional videos which are posted on the ArCADiasoft YouTube channel.

Data needed to specify e.g. the length or angle of insertion of an element can be given in the dynamic window next to the cursor or in the command area

1.3. Program options

Currently, building design options are split, some of them are embedded in the system as base functions, while other elements are in the ArCADia-ARCHITECTURE trade module.

- ArCADia system base functions include the possibility of introducing: walls and virtual walls, windows and doors, ceilings, openings in ceilings, reinforced concrete columns, chimneys, stairs, inserting the roof, roof windows and dormersmodular axes, 2D objects (architectonic symbols) and 3D objects, as well as elevation points and lines along with the area. Additionally, you can create lists of rooms and woodwork. For communication with other types of software, the conversion of objects from the IFC format has been introduced.

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- ArCADia-ARCHITECTURE expands ArCADia system basic functions with the possibility of introducing: arc walls and walls drawn with a rectangle, script windows and doors (arc, sheared, with any division etc.), holes in walls, any outlines of ceilings, along with full edition, winding stairs, frame, footings and substructure benches, bar elements, roofs inserted on any outline, roof accessories, wind rose, a block, as well as conversion of the line into a wall, a virtual wall or a substructure bench. Furthermore, there is a possibility to automatic dimensioning, inputting element descriptions (with entering the materials of a given bulkhead) and elevation anchor. Vertical straight and step sections are created, also as building facades. For more interesting presentation of the project result, the rendering and multirendering options are added. You can also exchange the data of the building body with ArCon software, by importing or exporting it.











1.4. Description of Applications elements

ArCADia software has basic system function embedded, and is additionally expanded by industry modules (e.g. ArCADia-ARCHITECTURE, ArCADia-SURVEYOR etc.) Below are the basic functions of the ArCADia system and ArCADia-ARCHITECTURE module options with their classification on appropriate ribbons and toolbars depending on the selected graphic layout of the application.










1.4.1. Basic functions

The following options are described in the help files of ArCADia and ArCADia LT systems.

Tab. 1 Basic functions (non-licensed,always available, even in Demo version) which can be found on the Manage, View, Description (ArCADia and ArCADia PLUS) ribbon or in ArCADia LT on Home and View







Icon	Option	Description
	<i>Manager</i>	Recall or hide window of level management.
	<i>Properties</i>	It displays a window for entering project data: investor, address, designers.
	<i>Fix</i>	Checks and corrects possible errors in the project.
	<i>Flatten</i>	Explodes ArCADia-ARCHITECTURE objects into appropriate
	<i>Template manager</i>	Stores element settings configured by user as default.
	<i>Configurator</i>	It displays a window that allows you to turn on and off program modules and create your own templates.
	<i>Templates</i>	Displays a window with a selection of menu templates.
	<i>ArCADia BIM options</i>	It allows to download updates from web server and change the
	<i>About ArCADia BIM</i>	Information about installed version.
	<i>ArCADia BIM Help</i>	Displays help window.

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	<i>Additional content manager</i>	The window managing additional elements downloaded from the Internet which allows you to download, install and uninstall 3D object and surfaces.
	<i>Licences</i>	Status information of installed version (licensed or demo version).
	<i>Network license manager</i>	The window managing licenses stored on the server. Among other things, the window allows you to download a license for a given computer or return it and transfer it to another device.
	<i>3D view</i>	Recall or hide preview window of the building solid.
	<i>Construction view</i>	Switches the project scene to the construction view.
	<i>Restore windows position</i>	Restore default view to initial location.
	<i>Measurement</i>	Temporarily (until the option is turned off) it displays information about the length and angle of the measured section.
	<i>Area and perimeter</i>	Temporarily (until the option is turned off) it displays information about the area, perimeter and length of each side of the measured polygon.
	<i>Insert ruler</i>	Inserts auxiliary object – ruler with 10 cm scale.

**BIM* – options available to ArCADia BIM license holders, i.e. after purchasing one of the following programs: ArCADia, ArCADia LT or ArCADia PLUS.

Tab. 2 Basic functions which can be found on the Manage, Insert, Colaborate (ArCADia and ArCADia PLUS) ribbon or in ArCADia LT on Home and View



Icon	Option	Description	<i>*BIM</i>
	<i>Types</i>	Dialogue box for management of types used in the document and types existing in the global library.	✓
	<i>Change type</i>	The option allows for changing all the elements of a selected type.	✓
	<i>Surfaces</i>	Surface library containing <i>Predefined Surfaces</i> and enabling their edition and creation of new materials, also consisting of program PBR. textures.	✓
	<i>Compare documents</i>	This options compares the two selected documents by marking new, changed, or deleted elements with colours.	✓
	<i>Merge documents</i>	The software creates one document from the two documents originating from one source, merging the branches from a selected project.	✓
	<i>Collisions</i>	Shows collisions/intersections between elements of the entire ArCADia BIM (e.g. between elements of gas and electrical networks).	✓

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	<i>Display collisions/intersections</i>	Displays report of colliding/intersecting elements.	✓
	<i>Remove collisions/intersections</i>	Removes all occurrences of collisions/intersections from the project.	✓
	<i>Insert view</i>	It introduces the projection view in the project.	✓
	<i>Insert a 3D CAD view</i>	It introduces the building model view on the program work screen, only one such view can be in the document. In new projects, the view is turned on by default.	✓
	<i>Building wizard</i>	This option creates a building with a selected number of levels and divides them into specific views.	✓
	<i>Object Explorer</i>	Opens the window of <i>Object Explorer</i> allowing for selection and insertion of 2D and 3D objects from the library.	✓
	<i>Camera</i>	Inserts camera symbol into the Layout and saves parameters of its view.	✓
	<i>Title block</i>	Inserts camera symbol into the Layout and saves parameters of its view.	✓
	<i>Design title block</i>	Defines title block, size and contents of the boxes, and then saves it into the project or Application library.	✓
	<i>Project package</i>	Packages objects and textures associated with the standard library into folder that should be transferred along with the project.	✓
	<i>XML</i>	Exports the project to the XML format.	✓

**BIM* – options available to ArCADia BIM license holders, i.e. after purchasing one of the following programs: ArCADia, ArCADia LT or ArCADia PLUS.







Tab. 3 Basic functions which can be found on the Architecture (ArCADia and ArCADia PLUS) ribbon or in ArCADia LT on View

	<i>3D objects list</i>	Inserts a list of 3D objects used in the document. The list can be inserted for 3D objects located in a building or on the grounds.	✓
	<i>Selected 3D objects list</i>	Table of objects marked on the projection from levels or terrain.	✓

**BIM* – options available to ArCADia BIM license holders, i.e. after purchasing one of the following programs: ArCADia, ArCADia LT or ArCADia PLUS.



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Tab. 4 Basic functions of the ArCADia system that can be found in the Object Explorer window

Icon	Option	Description	*BIM
	<i>Create</i>	Expands the software library by a new 2D object indicated by the user.	✓
	<i>Import</i>	Import 2D symbol in .xobject format	✓
	<i>Create</i>	It groups the system elements into one layout and treats it as one object which can, together, be shifted and deleted, but it is possible, at any time, to split it into primary elements.	✓
	<i>Import</i>	Import 3D objects with the extension .3ds, .aco or .o2c into global database.	✓
	<i>Import from DWG</i>	Import a 3D model that is open as a .dwg file in ArCADia or ArCADia PLUS.	✓
	<i>Download</i>	The window managing additional elements downloaded from the Internet which allows you to download, install and uninstall 3D object and surfaces.	✓

*BIM – options available to ArCADia BIM license holders, i.e. after purchasing one of the following programs: ArCADia, ArCADia LT or ArCADia PLUS.

Tab. 5 Basic functions of the ArCADia system that can be found in the 3D View window



Icon	Option	Description	*BIM
	<i>Save scene as image</i>	Saves the current view from the 3D window as a BMP, JFG or PNG file.	✓
	<i>Save scene as image to clipboard</i>	Copies the scene displayed in the 3D window to the clipboard, so you can paste it into any graphics program or text editor.	✓

1.4.2. ArCADia-LANDSCAPE ARCHITECTURE














The following options are described in the ArCADia-LANDSCAPE ARCHITECTURE help system file, the icon is located on the *Terrain* ribbon. The terrain insertion options included in the BIM license are described in this help in the *Terrain* section.

*BIM – options available to ArCADia BIM license holders, i.e. after purchasing one of the following programs: ArCADia, ArCADia LT or ArCADia PLUS.


Tab. 6 Functions of the ArCADia-LANDSCAPE ARCHITECTURE module located on the Terrain ribbon

Icon	Option	Description	*BIM
	<i>Spot height</i>	Inserts <i>spot height</i> defining the terrain geometry.	✓
	<i>Spot height line</i>	Inserts benchmark line of a given elevation by selecting the section.	✓

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	<i>Insert ground surface opening</i>	Cuts hole in the ground surface.	✓
	<i>Automatically cut in the field</i>	Cuts out a hole in the ground of the same shape as active or lowest level (depending on whether the level or the terrain is active during the cutting).	✓
	<i>Convert texts into spot heights</i>	Changes entered numeric values into benchmarks.	✓
	<i>Outside pipe</i>	Terrain existing systems during collision checking by representing them in all the Views.	✓
	<i>Outside object</i>	During collision checking it simulates existing objects in the area, visualises them in all views.	✓
	<i>Fence</i>	Inserts the fence by indicating subsequent contour points. The fence detects the terrain features inserted using spot height and spot heights lines.	✗
	<i>Fence on terrain</i>	Inserts the fence by indicating subsequent contour points. The fence detects the terrain features inserted using spot height, spot heights lines as well as terrain deformations	✗
	<i>Plant</i>	Inserts a symbolic plant in the projection and 3D view.	✗
	<i>Swimming Pool</i>	Allows to insert a pool of any shape.	✗
	<i>Area</i>	Allows to insert an area, for example: flowerbeds, sidewalk, etc. objects of any shape.	✗
	<i>Area with terrain reduction</i>	Allows to insert an area, for example: flowerbeds, sidewalk, etc. objects of any shape, which modifies the relief to the inserted area.	✗
	<i>Trench</i>	Inserts a hollow with vertical edges and a horizontal bottom.	✗
	<i>Hillock/hole by point</i>	Marks the area of modification and inserts a hillock or hollow in the terrain (depending on the given data) at the indicated point.	✗
	<i>Hillock/hole by area</i>	Marks the area of modification and inserts the hillock or hollow in the terrain (depending on the given data) at the indicated area.	✗
	<i>Reservoir by point</i>	Defines the area such as a waterhole, pond, lake, etc. where the bottom is given by indicating the point.	✗
	<i>Reservoir by area</i>	Defines the area such as a waterhole, pond, lake, etc. where the bottom is given by indicating the area.	✗
	<i>Plant List</i>	Table of inserted plants, their type and amount.	✗
	<i>Fence List</i>	Table showing the measured fence length and the number of posts.	✗
	<i>Area List</i>	Table showing the areas and volumes of areas entered into the project (sidewalks, rebates, etc.)	✗

Introduction









	<i>Help</i>	Display help.	<i>X</i>
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1.4.3. ArCADia-ARCHITECTURE

The following options are described in the help file of the ArCADia-ARCHITECTURE module, the icon is at the *Architecture* ribbon.

**BIM* – options available to ArCADia BIM license holders, i.e. after purchasing one of the following programs: ArCADia, ArCADia LT or ArCADia PLUS.

Tab. 7 Functions of the ArCADia-ARCHITECTURE module which can be found on the Architecture ribbon (ArCADia and ArCADia PLUS) and the Architecture and Ceilings (ArCADia LT)

Icon	Option	Description	<i>*BIM</i>
	<i>Wall</i>	Inserts a single wall with a layered edge on the view by selecting the start point, end point and insertion sides.	<i>✓</i>
	<i>Walls</i>	Inserts layered walls one by one on the view. The walls are introduced with an edge or an axis	<i>✓</i>
	<i>Curved wall</i>	Inserts curved wall by selecting 3 points on the arc.	<i>X</i>
	<i>Insert wall by 3 points</i>	Draws walls by indicating its width and length in the drawing.	<i>X</i>
	<i>Virtual wall</i>	Inserts virtual walls defining the room area into the level Layout.	<i>✓</i>
	<i>Convert line into wall</i>	Converts selected polyline/line into the user-defined wall. Selected polyline/line defines insertion edge/axis.	<i>X</i>
	<i>Convert line into virtual wall</i>	Converts selected polyline/line into virtual wall.	<i>X</i>
	<i>Window</i>	Inserts window opening into the walls, including symbol and description.	<i>✓</i>
	<i>Door</i>	Inserts door opening into the walls, including symbol and description.	<i>✓</i>
	<i>Special window/door</i>	Inserts windows and doors defined during creation, that can be ended, for example with arc, or allows the window arrangement to customised.	<i>X</i>
	<i>Opening</i>	Creates opening in the wall.	<i>X</i>
	<i>Column</i>	Inserts rectangular or round section column into the Layout.	<i>✓</i>
	<i>Bar element</i>	Inserts steel columns and steel elements as horizontal, vertical, or diagonal elements.	<i>X</i>
	<i>F3D Import</i>	It introduces the structure designed in the ArCADia-RAMA software (in version R3D3-Rama 3D).	<i>X</i>
	<i>Insert binding joist</i>	Inserts binding joist into the Layout.	<i>✓</i>


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	<i>Pad footing</i>	Inserts a reinforced concrete spot footings into the foundation layout.	X
	<i>Strip footing</i>	Inserts a reinforced concrete substructure benches into the substructures layout.	X
	<i>Convert line into strip footing</i>	Convert a polyline/line into substructure bench by selecting polyline/line and edge/insertion axis.	X
	<i>Ceiling automatically</i>	Inserts floor slab into the Layout and automatically detects outline of the level drawn.	✓
	<i>Ceiling with rectangle</i>	Inserts rectangular outline of floor slab by selecting three points.	✓
	<i>Ceiling</i>	Inserts a floor slab into the Layout by selecting subsequent corners of the outline.	X
	<i>Ceiling opening</i>	Inserts opening of any shape in floor slab.	✓
	<i>Ground floor</i>	Inserts a floor on ground in all rooms of active level.	X
	<i>Suspended ceiling</i>	Inserts a suspended ceiling of any shape, with the possibility of indicating a cross-section and beam spacing, panel thickness and hanger layout.	X
	<i>Suspended rectangle ceiling</i>	Inserts a suspended ceiling by indicating the width and length. The option allows for indicating a cross-section and beam spacing, panel thickness and hanger spacing.	X
	<i>Suspended ceiling in room</i>	Detects the room shape and inserts a suspended ceiling in its shape. For the ceiling you can define a cross-section and beam spacing, panel thickness and hanger spacing.	X
	<i>Main beam</i>	Element of customizable suspended ceiling, inserted by indicating two points.	X
	<i>Cross beam</i>	Element of customizable suspended ceiling, supported by main beams.	X
	<i>External frame</i>	External rack of customizable suspended ceiling.	X
	<i>Opening finishing</i>	Rack opening of customizable suspended ceiling.	X
	<i>Ceiling panel</i>	<i>A panel of customizable suspended ceiling, indicated by outlining any shape.</i>	X
	<i>Rectangle ceiling panel</i>	<i>A panel defined by width and length, an element of the customizable suspended ceiling.</i>	X
	<i>Ceiling panel with given dimensions</i>	A panel of a customizable suspended ceiling, the size of which can be defined in the insertion window. In addition, the number of elements inserted and their spacing.	X
	<i>Side panel</i>	Vertical cover of any suspended ceiling.	X
	<i>Side panel with given dimensions</i>	Vertical cover of any suspended ceiling with the length, number of repetitions and spacing, indicated in the window.	X

















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	<i>Ceiling hanger</i>	Elements of hangers holding any suspended ceiling.	X
	<i>Cut ceiling element</i>	Cuts or cuts out a ceiling fragment created from individual elements by indicating the area.	X
	<i>Cut ceiling element by line</i>	Divides the suspended ceiling created from individual elements by indicating two points of the cutting line.	X
	<i>Ceiling panels list</i>	Inserts a table of panels and vertical panels from all suspended ceilings inserted in the project.	X
	<i>Ceiling profiles list</i>	Inserts a table of lists of racks: main beams, cross beams, external profiles and openings from all inserted suspended ceilings.	X
	<i>Ceiling hangers list</i>	Inserts a table of lists of hangers located in the inserted suspended ceilings.	X
	<i>Framed ceiling above zone</i>	Insert framed ceiling above zone.	✓
	<i>Framed ceiling</i>	Insert framed ceiling.	✓
	<i>Framed ceiling with rectangle</i>	Insert framed ceiling with rectangle.	✓
	<i>Insert framed ceiling above active level</i>	Insert framed ceiling above active level.	✓
	<i>Insert framed ceilings above zones</i>	Insert framed ceilings above zones.	✓
	<i>Ceiling opening</i>	Insert hole in ceiling.	✓
	<i>Ceiling beam</i>	Insert ceiling beam.	✓
	<i>Reinforcing rib</i>	Insert reinforcing rib.	✓
	<i>Trimmer</i>	Insert trimmer.	✓
	<i>Reinforcing beam</i>	Insert reinforcing beam through one point.	✓
	<i>Reinforcing beam (2 points)</i>	Insert reinforcing beam through two points.	✓
	<i>Distribute nets on given level</i>	Distribute nets on active level.	✓
	<i>Flat net</i>	Flat net.	✓
	<i>Folded net</i>	Folded net.	✓
	<i>Check correctness of ceiling elements</i>	Check correctness of ceiling elements.	✓
	<i>Item list</i>	Insert Stropex ceiling elements list.	✓








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	<i>Chimney</i>	Inserts a ventilation chimney into the floor plan.	✓
	<i>Chimney shaft</i>	Inserts, shaft, group of chimneys located one by one or arranged with a given space between elements.	✓
	<i>Chimney flue</i>	Inserts information about chimney flue and vent stack inlets into the Layout.	✓
	<i>Stairs</i>	Inserts stairs into the Layout by selecting subsequent flights of stairs and landings.	✓
	<i>Winder stairs</i>	Inserts winder stairs into the Layout by pointing subsequent parts of the flight of stairs.	✓
	<i>Ramp</i>	Inserts a ramp into the Layout by indicating its subsequent flights and landings.	✗
	<i>Spiral stairs</i>	Inserts spiral stairs into the Layout by indicating their centre and radius.	✗
	<i>Spiral stairs by 3 point</i>	Inserts spiral stairs into the Layout by indicating three points located on the outline.	✗
	<i>Balustrade</i>	Inserts on the projection of for example, a balcony or terrace, a balustrade, by indicating the next points on its contour.	✗
	<i>Balustrade on the stairs</i>	Inserts on the selected stairs a chosen type of balustrade.	✗
	<i>Solid</i>	Inserts a plate of any polygonal shape.	✗
	<i>Rectangular solid - axis or edge</i>	Inserts a rectangular plate drawn using an edge or axis (this option for example allows binding joists and beams to be simulated).	✗
	<i>Rectangular solid length and width</i>	Inserts plate of any rectangular shape.	✗
	<i>Opening</i>	It introduces the hole in the body.	✗
	<i>Auto roof</i>	Inserts a roof into the Layout and automatically detects outline of the active level.	✓
	<i>Rectangle roof</i>	Roof is inserted by selecting length of one side and width of rectangular outline. Rectangle can be inserted at any angle.	✓
	<i>Roof</i>	Inserts a roof into the Layout by pointing the subsequent corners of the outline.	✗
	<i>Dormer window</i>	Inserts a window into selected roof slope	✓
	<i>Roof hatch</i>	Inserts a roof hatch on a roof piece.	✗
	<i>Collector</i>	Inserts a solar collector on the roof slope.	✗
	<i>Dormer</i>	Inserts a dormer into the selected roof plane.	✓
	<i>Roof opening</i>	Inserts a roof opening of any, user defined polygonal shape.	✗

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
	<i>Chimney cowl</i>	Inserts ventilation or exhaust chimney cowl.	X
	<i>Snow guard</i>	Inserts snow guard in one of the six types of the guard.	X
	<i>Auto gutters</i>	Roof gutters are inserted automatically on roof and dormer's eaves.	X
	<i>Drain pipe</i>	Drain pipes are inserted into the already inserted gutters from the roof to the terrain.	X
	<i>Auto ridge tile</i>	Ridge tiles are place automatically on roof gables and corners.	X
	<i>Gutter</i>	Inserts a gutter on a selected roof or dormer eave.	X
	<i>Gutter start-end</i>	The gutter is inserted on a selected fragment of the eave.	X
	<i>Ridge tile</i>	Inserts ridge tile on the selected roof edge and dormer.	X
	<i>Modular axes</i>	Inserts modular axes into the Layout by setting quantities of vertical and horizontal axes, spacing between them, description (axis label) and insertion location.	✓
	<i>Woodwork list</i>	Inserts woodwork list into the project.	✓
	<i>Room list</i>	Inserts room list into the project.	✓
	<i>Area and cubic</i>	Inserts a table of construction areas, charring rooms, net and gross building areas, cubatures, minimum plot size, slant, roof height, etc.	X
	<i>List of bar elements</i>	Inserts a table of specifications of all bar elements in the document, both those entered with bar elements and those imported from ArCADia-RAMA (in version R3D3-Rama 3D).	X
	<i>Roof area count</i>	Inserts a table with drawn and calculated roofs and dormers together with information about the length of the eaves, gables, corners, top edges, and baskets.	X
	<i>Roof material list</i>	Inserts a table listing materials used in roofs and dormers.	X
	<i>Roof accessories</i>	Inserts a table calculating all the roof elements: windows and roof hatches, chimney cowls, tiles, snow guards, gutters and drain pipes.	X
	<i>Selected roof accessories</i>	Inserts a table counting only selected accessories.	X
	<i>Wood list</i>	Inserts a table of wooden elements, which were given as structural elements in ArCADia-RAMA software (in version R3D3-Rama 3D).	X
	<i>Material list</i>	Inserts tables of material specifications of elements selected in the Material specifications window.	X
	<i>List for materials for marked items</i>	Inserts tables of material lists for elements marked on the projection and confirmed in the <i>Material list</i> window.	X

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	<i>Export of selected list of material</i>	Saves the marked specifications to the files: .rtf or.csv or moves them to the Ceninwest software.	X
	<i>Wind rose</i>	Inserts a north arrow into the Layout by specifying the angle and insertion point.	X
	<i>Wind rose by two points</i>	Inserts a north arrow into the Layout by selecting two points.	X
	<i>Insolation time</i>	Calculation of insolation of selected rooms taking into account the given date and time interval.	X
	<i>Visualization of the shading</i>	The saving of a film or individual frames depicting the passage of the shadow of a building on a given day and time interval.	X
	<i>Help – Architecture</i>	Display the help window for the ArCADia -ARCHITECTURE module	✓
	<i>Help–Teriva Ceilings</i>	Display the help file describing the insertion and modification of Teriva ceilings.	✓

**BIM* – options available to ArCADia BIM license holders, i.e. after purchasing one of the following programs: ArCADia, ArCADia LT or ArCADia PLUS.


Tab. 8 Functions of the ArCADia-ARCHITECTURE module which can be found on the Description ribbon (ArCADia and ArCADia PLUS) and the Architecture (ArCADia LT)

Icon	Option	Description	<i>*BIM</i>
	<i>Dimension</i>	Inserts dimension by pointing start and end point of the element being dimensioned.	✓
	<i>Angular dimension</i>	Inserts dimension by defining the angle between elements being dimensioned.	✓
	<i>Dimensions of selected objects</i>	Inserts dimensions of interconnected architectural objects, e.g. walls with woodwork inserted.	X
	<i>Dimensions entire drawing</i>	Insert dimensions of active level Layout on four dimension lines: woodwork and opening, walls and rooms, external protruding elements and total external dimension.	X
	<i>Dimension radius</i>	Inserts radius dimension for curved wall.	X
	<i>Dimensions angularly objects</i>	Inserts angular dimension by selecting two elements the relative position of which needs to be dimensioned.	X
	<i>Spot height</i>	Inserts spot height into the Layout and Section.	X
	<i>Insert description</i>	Inserts a user-defined element description as plain text or data retrieved from objects, e.g. length, cross-section, etc.	✓
	<i>Object layer description</i>	Inserts flag with material description into the Layout or Section of the building.	X

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**BIM* – options available to ArCADia BIM license holders, i.e. after purchasing one of the following programs: ArCADia, ArCADia LT or ArCADia PLUS.

Tab. 9 The ArCADia-ARCHITECTURE module functions which can be found on the Manage ribbon (ArCADia and ArCADia PLUS) and the Main tools (ArCADia LT)

Icon	Option	Description	<i>*BIM</i>
	<i>Materials</i>	Allows for modification of existing materials and addition of user-defined material into global database.	X




**BIM* – options available to ArCADia BIM license holders, i.e. after purchasing one of the following programs: ArCADia, ArCADia LT or ArCADia PLUS.

Tab. 10 Functions of the ArCADia-ARCHITECTURE module which can be found on the Insert ribbon (ArCADia and ArCADia PLUS) and the Main tools (ArCADia LT)

Icon	Option	Description	<i>*BIM</i>
	<i>Insert cross-section</i>	Inserts Section into the project.	X
	<i>Insert zero depth section</i>	Introduces a section view that shows only the elements intersected by the section line.	X
	<i>Constructional section</i>	Insert constructional section.	✓
	<i>Light</i>	Inserts a light source into the scene, reflected in the rendered scene.	X
	<i>ArCon Import</i>	Imports layouts of selected levels from ArCon.	X

**BIM* – options available to ArCADia BIM license holders, i.e. after purchasing one of the following programs: ArCADia, ArCADia LT or ArCADia PLUS.


Tab. 11 Functions of the ArCADia-ARCHITECTURE module which can be found on the Colaborate ribbon (ArCADia and ArCADia PLUS) and the Main tools (ArCADia LT)

Icon	Option	Description	<i>*BIM</i>
	<i>ArCon</i>	Imports entire project to IFC format. Imports layouts of selected levels from ArCon.	X
	<i>OBJ</i>	Exports project to OBJ format. Imports layouts of selected levels from ArCon.	X
	<i>ArCADia-RAMA underlay</i>	Moves the data (outlines of roofs and grids of modular axes) to the installed ArCADia-RAMA (R3D3-Rama 3D) software from version 15.	X

**BIM* – options available to ArCADia BIM license holders, i.e. after purchasing one of the following programs: ArCADia, ArCADia LT or ArCADia PLUS.



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Tab. 12 Functions of ArCADia-ARCHITECTURE module from Object Explorer window

Icon	Option	Description	*BIM
	<i>Export</i>	Saves selected 3D objects as .xobj3d into global database.	X

*BIM – options available to ArCADia BIM license holders, i.e. after purchasing one of the following programs: ArCADia, ArCADia AC, ArCADia LT or ArCADia PLUS.

Tab. 13 Functions of ArCADia-ARCHITECTURE module from 3D View window

Icon	Option	Description	*BIM
	<i>Rendering</i>	Creates 2D visualisation of the building being designed which next is saved as BMP file.	X
	<i>Multi rendering</i>	Saves photorealistic views for the cameras defined in the project.	X

Options

2. OPTIONS



Options

2.1. Options


The ArCADia provides a program settings window for drawings made in all the branch modules or particularly defined, e.g. in ArCADia-ARCHITECTURE. The general settings include font definition, automatic software update check feature and information about the texture and script folders used in the software and Tracking options.

Activation:

ArCADia and ArCADia PLUS

- *Manage* ribbon ⇒ logical group *Options* ⇒  *ArCADia BIM Options*
- *ArCADia-SYSTEM* toolbar ⇒  *Options*

ArCADia LT

- *Home* ribbon ⇒ logical group *Options* ⇒  *Options*

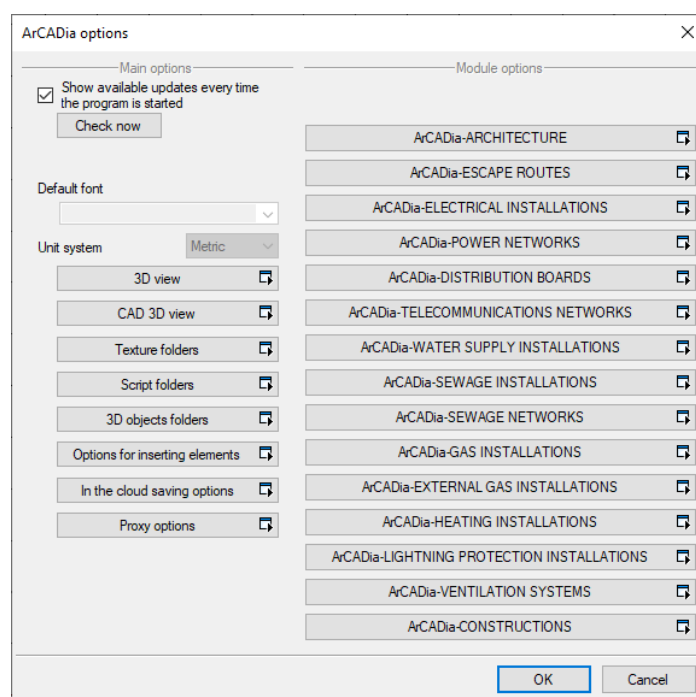



Fig. 2. ArCADia Options dialog box

2.1.1. 3D engine 3D View

ArCADia BIM 11.0 has two built in 3D graphics engines in the 3D view. Depending on the the graphic cards' parameters, the program launches a new or old 3D view. If the old one starts up, it means that either the computer doesn't meets the minimum hardware requirements, or it meets them in the minimal option and the project will run very slow.

Switching engines can take place in the 3D view window by using the  *Switch the 3D view mode* icon or in the *Options* window. The first option switches the engine only in the given document. If more

Options

projects are currently open, the remaining ones will still be displayed in the default engine. The *Options* window contains the definition in which default 3D engine each subsequent project will be opened.

Activation:

ArCADia and ArCADia PLUS

- *View* ribbon ⇒ logical group *Views* ⇒ *3D view*
- *ArCADia-SYSTEM* toolbar ⇒ *3D view*

ArCADia LT

- *Home* ribbon ⇒ logical group *Options* ⇒ *3D view*

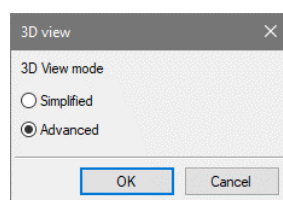


Fig. 3. Window of changing 3D view mode

NOTE: A graphics card compatible with DirectX 11 with a minimum of 2GB VRAM is required to support the new 3D view engine; 4GB + VRAM recommended (depends on the loaded project - the number of textures used, their resolution, quality settings, 3D view window resolution). Supported operating systems are: Windows (7 SP1 / 8/10) x86 / x64. Processor: with SSE2 function support; Intel Pentium 4 / AMD Athlon x64 minimum; Intel i5 / i7 with 3 GHz + clock recommended (also the most cores recommended - the engine can use them). Operating memory: 1GB minimum; 8GB recommended + (depends on the size of the loaded project).

2.1.2. CAD 3D VIEW

ArCADia 12 introduces three-dimensional elements into the CAD environment. You still work in the project on the projection, but if the view is switched into isometry, you will see the mesh of 3D elements and their symbol. The appearance of the model can be modified through *Visual Styles* (the option is available on the *View* ribbon).

Options

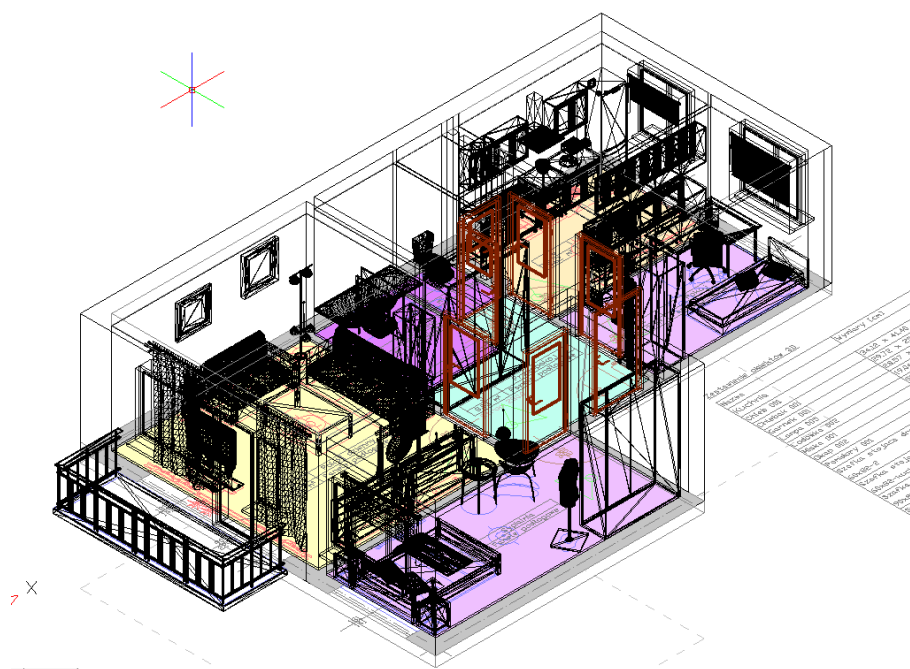


Fig. 4. Sample project in the CAD 3D view

NOTE: the 3D CAD view is available on ArCADia and ArCADia PLUS graphics engines. ArCADia LT software can not switch to the 3D CAD view.

View settings ie. automatic insertion and adjustment of the view, can be found in the window below.

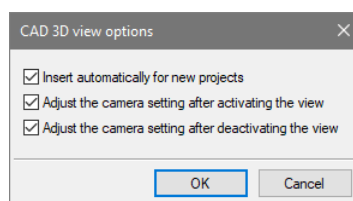


Fig. 5. Window with settings of the CAD 3D view

Insert automatically for new projects – the option creates a CAD model in each new project while drawing elements. With lower spec computers, you can turn off this option. A *3D CAD* model can be introduced at any time during work, but there can be only one such model in the project.

Adjust the camera position after activating the view – the option automatically changes the design view to the isometric view when switching to **3D CAD** view. The automatically changing view shows the entire project, not just the zoom in on which the user was working at the time.

Adjust the camera position after deactivating the view – the option automatically changes the project view into a top view when switching to the view type: projection, cross section or axonometry. The automatically projected view centers the entire project.

Options

2.1.3. Texture, script and 3D object paths

Folders where the software stores window and door scripts, textures and 3D objects may be defined at different locations in the computer. When opening the software and particular projects the software will look for the project elements in these locations stored in the library without textures.

Since version 5.5, ArCADia-ARCHITECTURE has the option to import .aco objects from the ArCon program. These objects are saved with information about where the texture of a given object is located (i.e the texture is not saved in the object). Therefore, it is very important to insert in the *Texture folders* the path to the *Texture* directory in the installed ArCon program before importing the first object or project from the ArCon program. Otherwise, the inserted objects will be downloaded and saved to the library without textures.

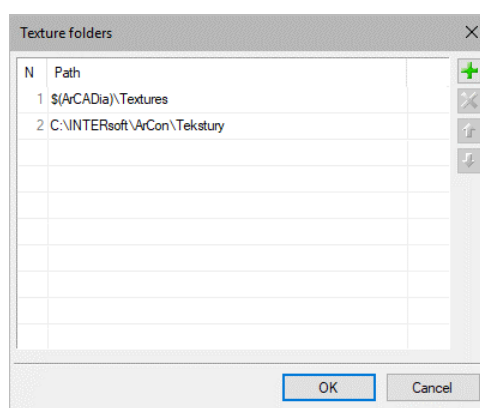


Fig. 6. The dialogue window of paths for texture catalogues

2.1.4. Element insertion options

When introducing elements, the ArCADia System displays various information at the cursor, e.g. location or distance. This information is shown in the underlay and in an additional dynamic window. These items are managed in the window below.

The ArCADia BIM System contains (for most of the inserted elements) tracking options. It means that after inserting a given element the software will detect the same elements and in some cases, walls, columns, and binders.

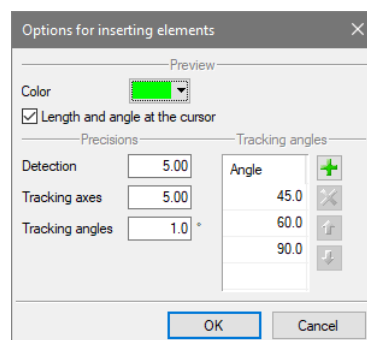


Fig. 7. Tracking Options and element insertion dialog box

Options

Color – color of underlay of entered elements and displayed tracking lines.

Length and angle at the cursor – the distance of the cursor from the last clicked location given by the length and angle. By default, these data are displayed next to the cursor.

Precisions

Detection – this option detects edges, axis, corners, and points of the elements inserted to the project, making possible to precisely set the cursor on the drawn objects.

Tracking axes – this option detects points and edges of the inserted elements and sets vertical and horizontal axes from them against the screen or, in case it is e.g. wall edge, displays the extension of such line

Tracking angles – this option selects the angles given in the window above, setting them from previously inserted elements, e.g. from the edges of the drawn walls.

Enabling and disabling the above mentioned tracking options is done during the drawing in the insert element window.

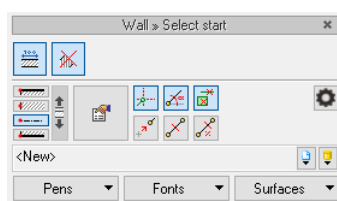


Fig. 8. Example of Wall element insertion window

Tab. 14 Tracking functions in the insert window

	<i>Tracking axes</i>	The option displays horizontal and vertical straight lines directed from the detected points to the inserted elements. If the option will detect an edge of the inserted element it will display a straight line extending the detected edge.
	<i>Tracking angles</i>	This option displays the selected angles set from the existing elements in the project.
	<i>Elements and section detection</i>	This option detects edges and points of the inserted elements
	<i>Options for inserting elements</i>	Brings up the settings window.

Options

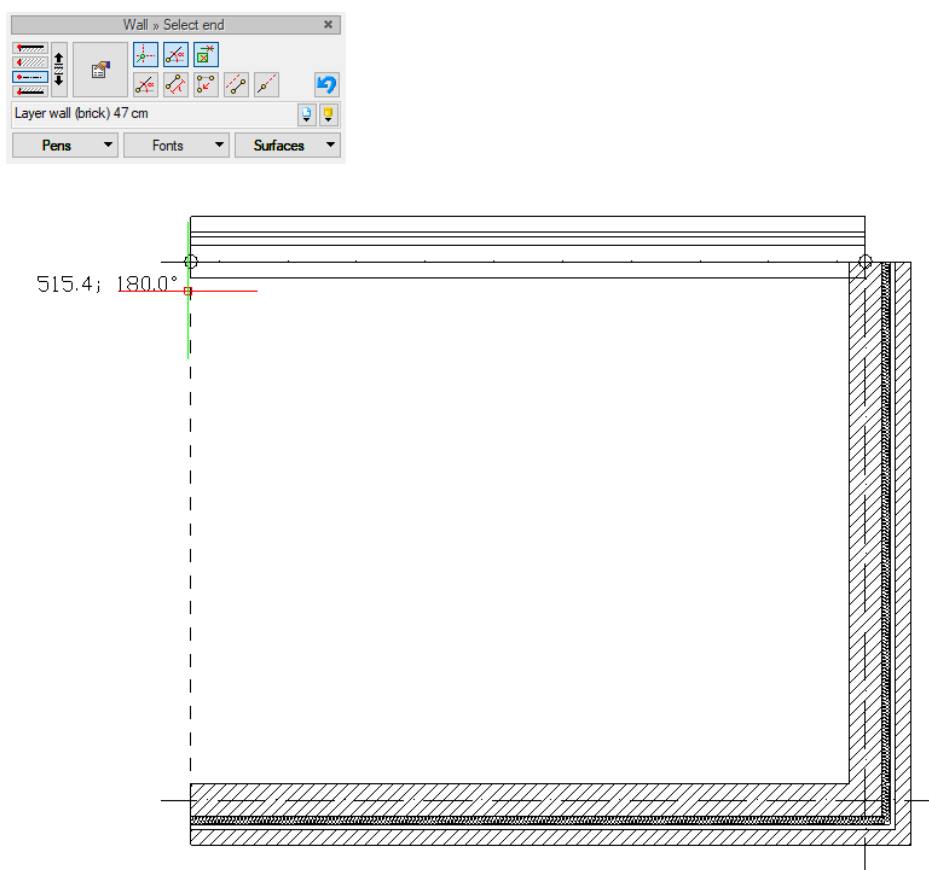


Fig. 9. Example of drawing walls with tracking axes option disabled

Options

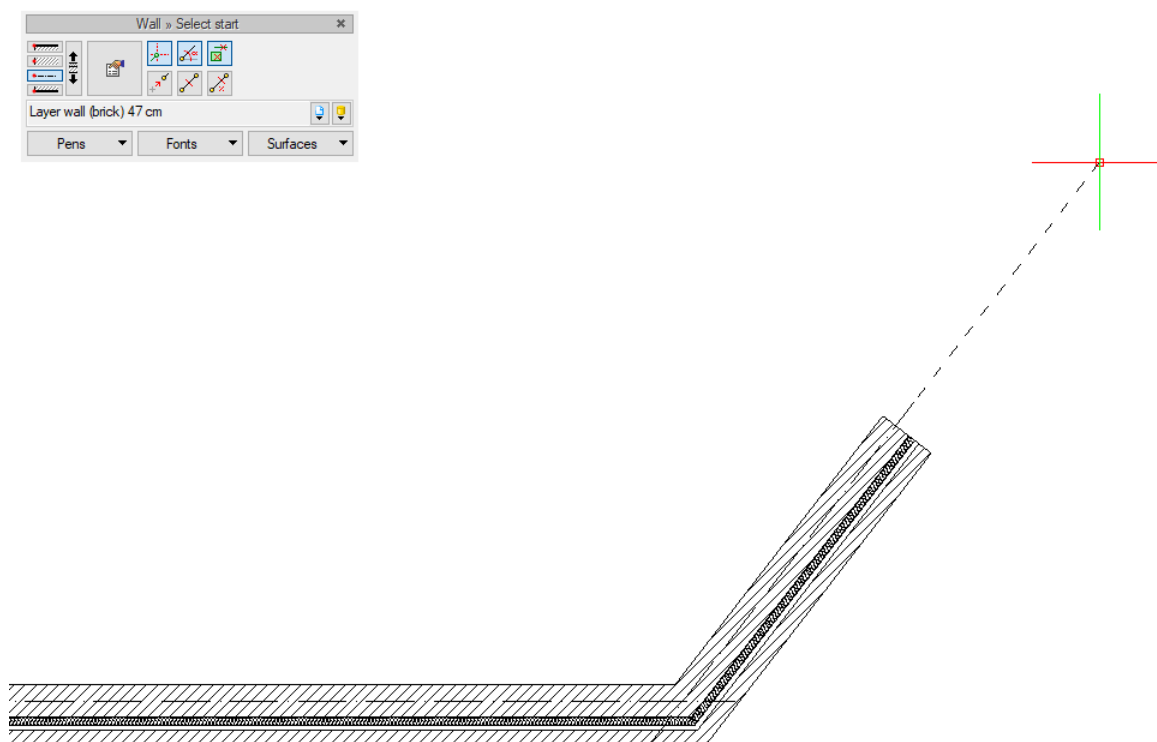


Fig. 10. Example of drawing walls with tracking axes option enabled

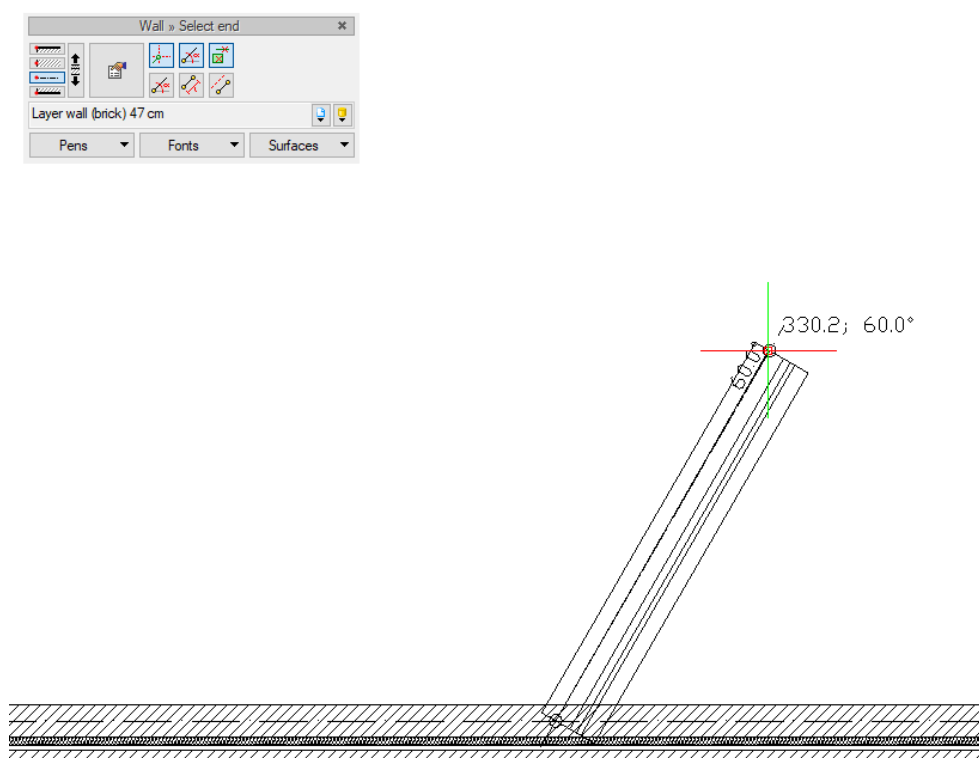


Fig. 11. Example of drawing walls with tracking axes and tracking angles options enabled

Options

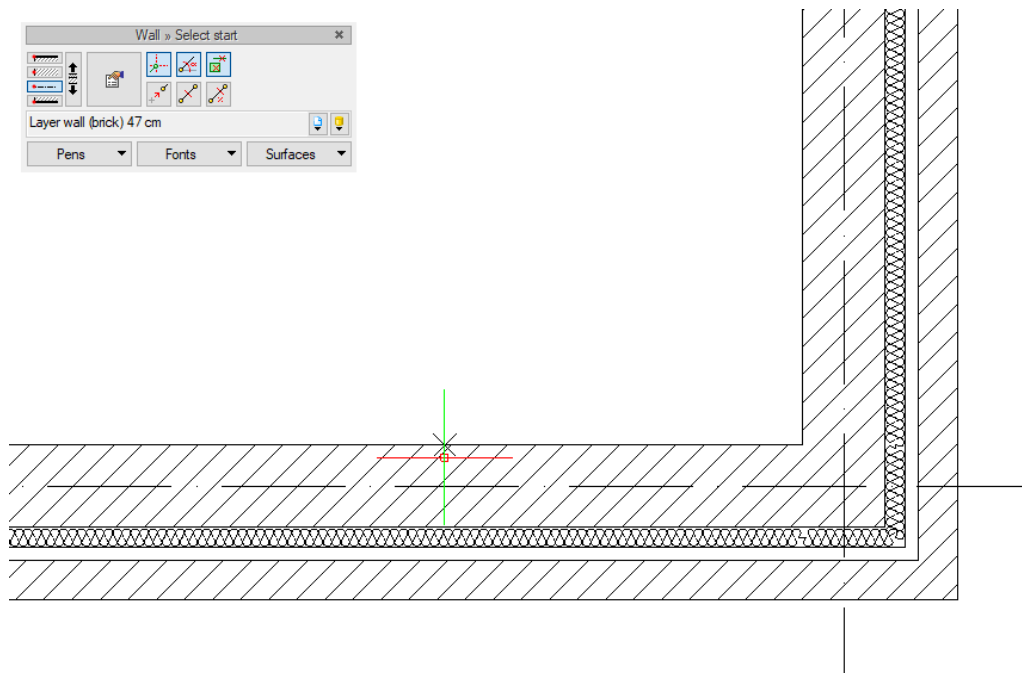


Fig. 12. Example of drawing walls with elements detection enabled

2.1.5. Options of ArCADia-ARCHITECTURE module

The settings of industry-specific ArCADia-ARCHITECTURE module allows also to select the standard used in the calculations of the usable area which will be used in the drawing. The following options are available: PN-70/B-02365 and PN-ISO 9836: 19997. All other rooms are calculated according to the same standard, both on ground and dormer floor. The choice is user-dependant, default areas are calculated according to the more recent standard, PN-70/B-02365.

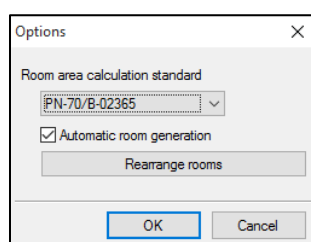


Fig. 13. The option window with a list of calculation standards of usable area

Additionally, this dialogue box allows the user to select the following options *Automatic room generation* and *Rearrange rooms*.

At drawing the projection view the software automatically creates rooms, it can be disabled, but then you cannot create a room, because in the ArCADia system, only the software can create rooms. The User does not have such possibilities.

Options

2.2. Material library editor

The material library is an editable item.

Activation:

ArCADia and ArCADia PLUS

- **Manage** ribbon \Rightarrow logical group **Libraries** \Rightarrow **Materials**
- **ArCADia-SYSTEM** toolbar \Rightarrow **Edit material database**

ArCADia LT

- **Home** ribbon \Rightarrow logical group **Libraries** \Rightarrow **Material database**

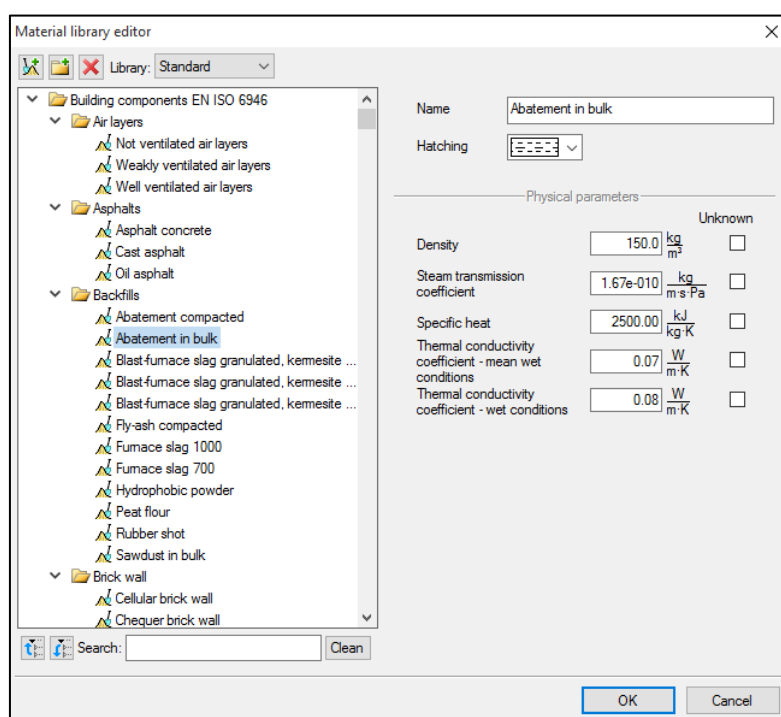


Fig. 14. Material library editor dialogue box

After choosing the material in the above mentioned dialogue box, it can be edited: you can change name, hatching type associated to it and all physical parameters (density, specific heat, etc.).

User may use of the library of materials defined for walls, columns, etc., and for ceiling. Switch between **Standard** library and **Ceilings** library in the above dialogue box and choose the one which is to be edited.

The material library may be modified according to the user preferences. Extension of the library is achieved by adding the new folder and material. . The material or folder can be deleted by choosing the following icon: .

In order to quickly find the particular material, enter its name in **Search:** box and the Application will display all the materials with the name entered.

Options

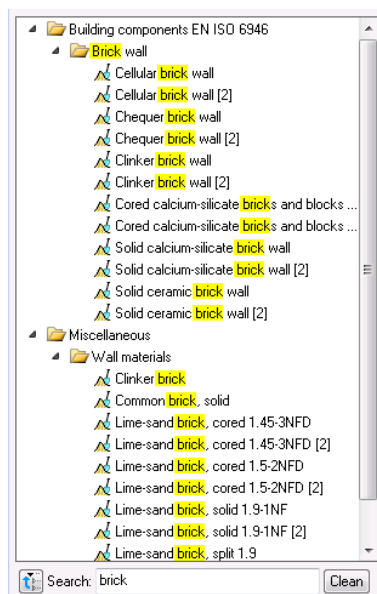


Fig. 15. Searching for materials by inserting key words

2.3. Flatten document

When transferring a document to another [CAD](#) software that does not have any of the ArCADia BIM branch modules, you need to delete the ArCADia system data from it and leave only the CAD drawing before transferring it.

Activation:

ArCADia and ArCADia PLUS

- [Manage](#) ribbon ⇒ logical group [Project](#) ⇒ [Flatten](#)
- [ArCADia-SYSTEM](#) toolbar ⇒ [Flatten document](#)

ArCADia LT

- [Home](#) ribbon ⇒ logical group [Options](#) ⇒ [Flatten document](#)

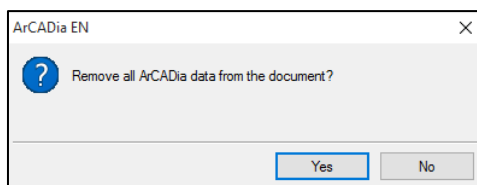


Fig. 16. Question confirming the flattening of the project

After approval of the message from the project, all information about the building, level and its elements will be deleted. From now on, only drawings created with lines (old projections, sections, axonometries, etc. views) or planes (if a 3D CAD view was introduced) will remain in the program workspace, and there will be no 3D preview. The project saved in this form will also not allow further editing with ArCADia options, you would not be able e.g. to shorten a wall, since it was broken down

Options

and the software no longer has any information about it. This option is really useful for people who do not have the ArCADia system and only the bare **CAD** software.



NOTE: *Be careful not to use the system options after flattening the project, as they will substitute the flat elements.*

2.4. Fix document

Should a document become damaged or system elements (walls, ceilings, joinery, cables, pipes etc.) cease working properly, you need to scan the project for errors.

Activation:

ArCADia and ArCADia PLUS

- **Manage** ribbon ⇒ logical group **Project** ⇒  **Fix**
- **ArCADia SYSTEM** toolbar ⇒  **Fix document**

ArCADia LT

- **Home** ribbon ⇒ logical group **Options** ⇒  **Fix document**

Should the software detect errors, these will be automatically fixed; if no errors are found a message is displayed and the drawing is only re-drawn.

Basics of Application operation

3. BASICS OF APPLICATION OPERATION

Basics of Application operation



3.1. Project Manager

The *Project Manager* allows managing all the ArCADia software elements: buildings, levels, electric, gas and sewage installations, telecommunications networks, etc. On the right hand side of the window (by default, these locations can be changed) there are tabs for the following views: *Underlay*, *View 1*, *3D View*, *CAD 3D*. Along with the development of the project and the introduction of subsequent views, new tabs are added: section, axonometry, expansion, etc. Above them there are options for adding and removing views and their settings. As of ArCADia version 6.6 the *Project Manager* has a new graphic appearance, as the view tabs have been divided into two parts: the *Project* tab, with the ArCADia system project tree and the *IFC Model* (or RVT Model) tab, with only the model of the project imported from the IFC or RVT file. IFC and RVT model tab(s) are only visible if such project(s) has/have been imported. If the project has only the ArCADia system model, then on the left only one *Project* tab is visible.

The project structures on the tabs of the system models, the IFC and RVT models differ significantly.. In the ArCADia system, the object managing the elements in the building is the building itself, and the grid elements are managed by the area. In the IFC and Revit model, the main object is the *Project*, divided into the existing and the designed area. Then, under the area, there are the buildings and their division, which does not have to have storeys as defined by the ArCADia system.

Activation:

ArCADia and ArCADia PLUS

- *Manage* ribbon ⇒ logical group *Project* ⇒  *Manager*
- *ArCADia SYSTEM Mini* toolbar ⇒  *Show/hide Project manager*

ArCADia LT

- *View* ribbon ⇒ logical group *View* ⇒  *Project manager*

Basics of Application operation

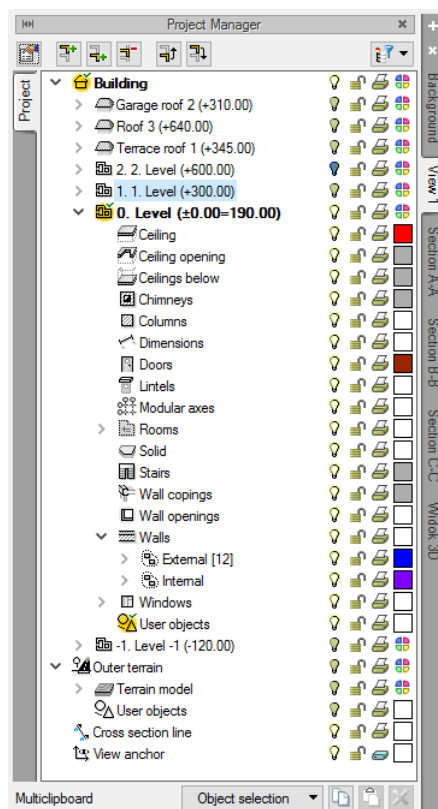


Fig. 17. Sample project Project Manager window

The *Project Manager* window changes along with the creation of the project, additional buildings, system designs, networks and new views are added in tabs, with each subsequent element the windows become more developed. This may however get in the way in the course of designing, the window may obscure the drawing or the much needed workspace, therefore, depending on the option selected, the *Project Manager* windows may be a standard view window, a semi-transparent window or it may be hidden automatically until one of the tabs is clicked. This selection is made from the manager menu available after right clicking the *Project Manager* bar.

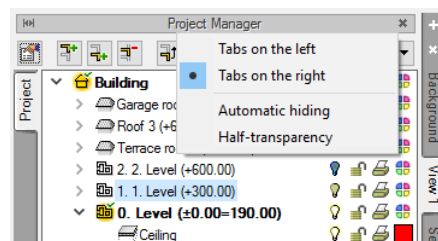



Fig. 18 Visibility options of the Manager window

The *Project Manager* allows setting the visibility, drawing and printing colour. Each building is divided into levels and each level is made up of certain elements, i.e. the installations, walls, columns, chimneys, stairs window and door joinery, etc. These elements may be joined and blocked, both in groups and individually. This means that e.g. rooms descriptions or ceilings may be turned off in a particular level to ensure drawing transparency.

Basics of Application operation

The software also features *Trade filters* to enable working in a team of several designers from different branches using the same project. These filters allow to quickly enable or disable all the elements of a particular branch. For example, once the electric installation is drawn all the architectural elements may be disabled or just the opposite – leave the architectural elements enabled and disable all the electric installation items. The Branch filter  button is located in the *Project Manager*.

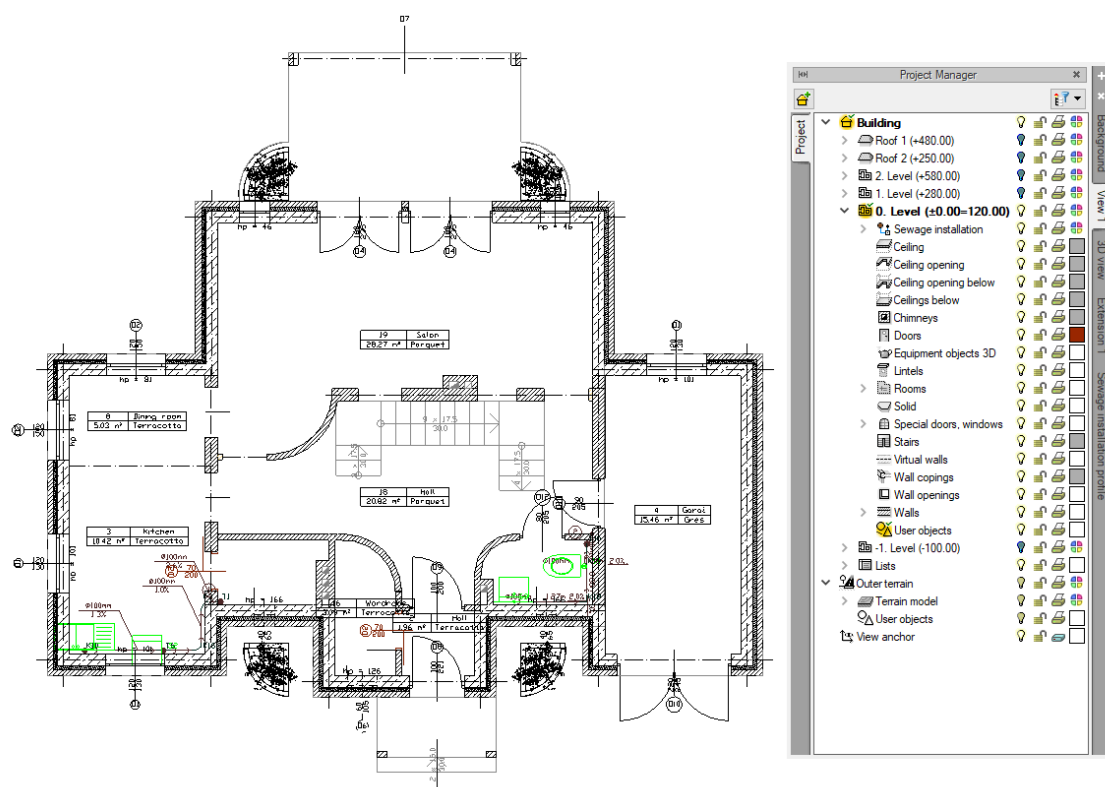


Fig. 19. Level projection with all the items visible

Basics of Application operation

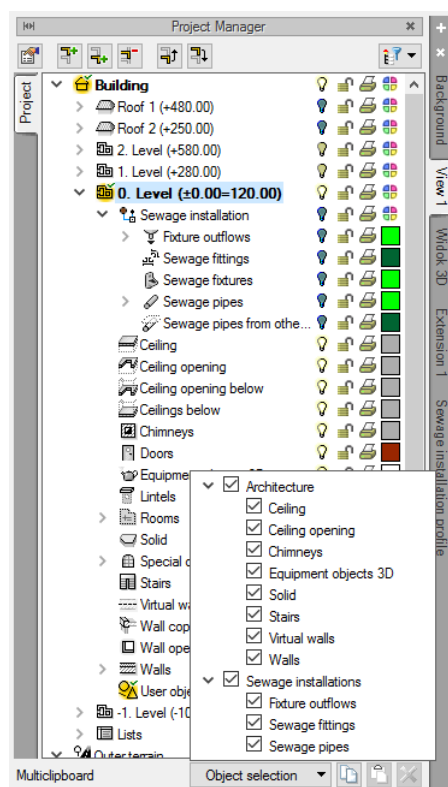


Fig. 21. List of branches and elements of the building that can be copied

NOTE: The Multi-clipboard option works only on the ArCADia system elements, and not on the imported IFC and RVT model.

Another option of the *Project Manager* is the ability to define user's groups. These groups help manage the drawing. They enable e.g. blocking or turning off part of the information included in a view, 3D view or cross-section.

Tab. 15 A description of the options available in the Project Manager for level elements (walls, joinery, ceilings, roofs, electric, gas, sewage installations, etc.) defined as groups or subgroups

	<i>Group properties</i>	Opens the <i>Group properties</i> window.
	<i>Add subgroup</i>	Adds a subgroup of items to the selected group e.g. group of walls.
	<i>Remove group</i>	Removes the selected subgroup.
	<i>Add selected objects to group</i>	Adds the selected object/objects to the selected subgroup.
	<i>Select objects</i>	Selects all the objects in a group or subgroup, e.g. all the windows in a particular level.

NOTE: The *Project Manager* options available for the IFC and RVT model are described in the help file of ArCADia-IFC RVT module.

For example: you draw a building, starting from the ground floor and the external contour. Then you define walls with a particular type and save it in the *External* group. The next step is to introduce walls

Basics of Application operation

to be added to the *Supporting* and *Partition* groups. In order to facilitate work and ensure transparency of the example the groups are assigned different colours.

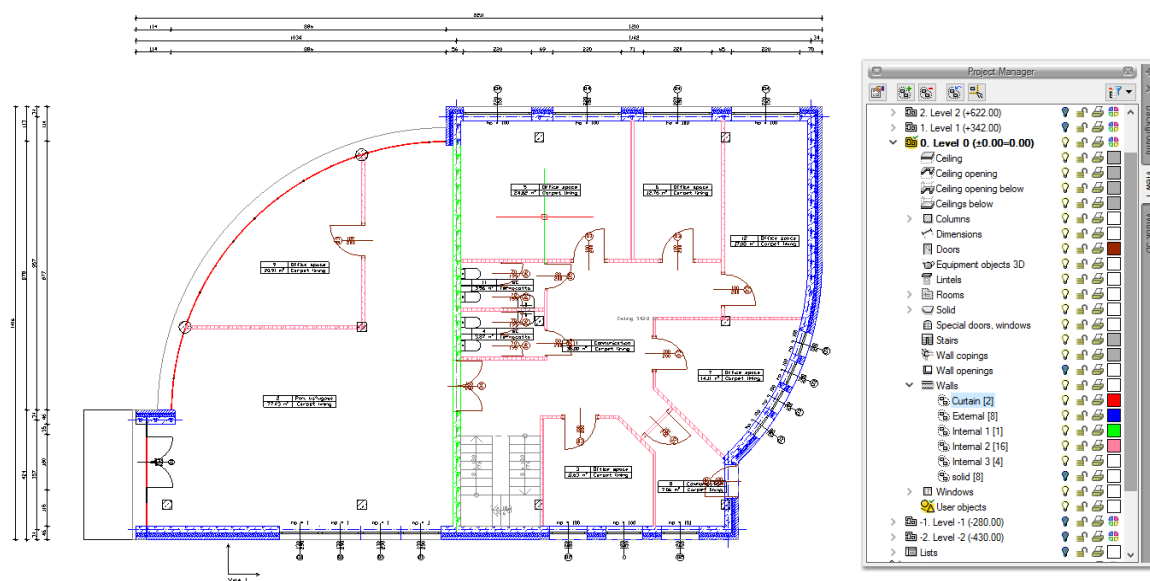



Fig. 22. Example of the project with walls divided into groups

Once the entire level is drawn we introduce another level by copying the contents. No partition walls are necessary in the Substructures level, so after quick-selecting the entire group (indicating the group and pressing the  *Select items* button) you remove all the walls from the group by pressing the *Delete* key.

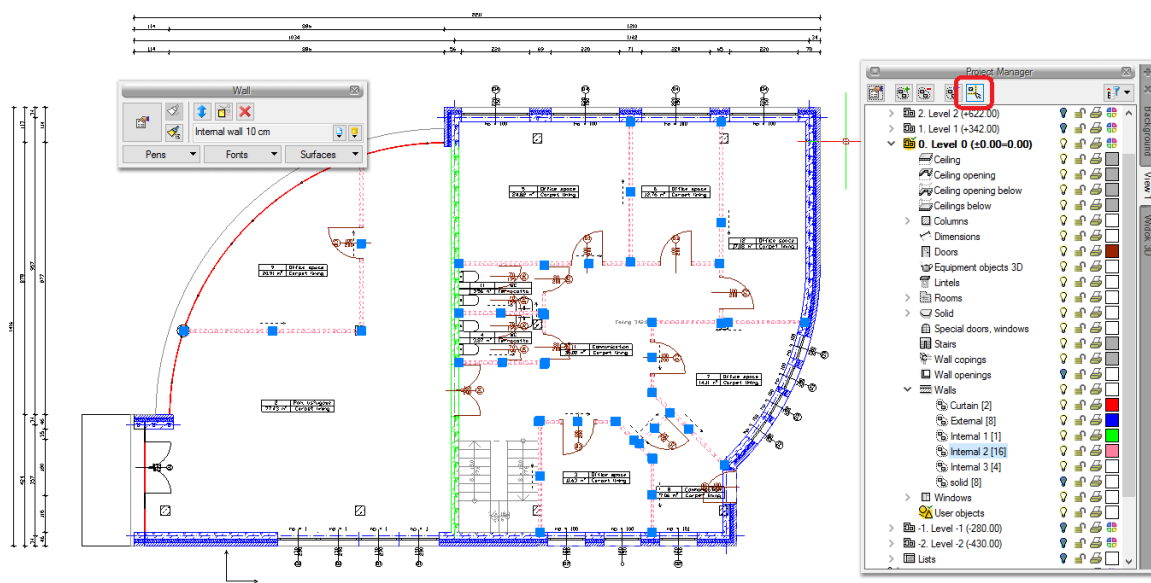


Fig. 23. Marking the group from the Project Manager window

Basics of Application operation

You then change the thickness of external walls included in the next group by removing one of the layers.

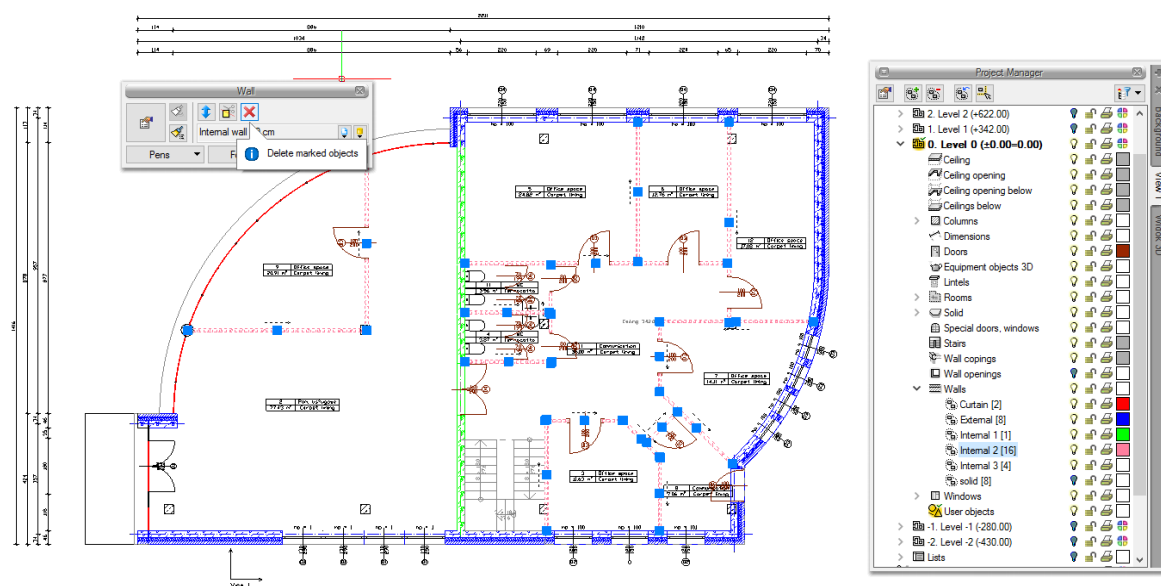


Fig. 24. Modification of the elements from the selected group

Groups may be created for all elements in a level.

The *Project Manager* also enables management of views i.e. saved "worksheets". A view may define what and how will be visible in the subsequent views and cross-sections. This means that one project may have any number of views that e.g. present the subsequent levels. Once distributed on the working screen such views enable the presentation of the project one level next to the other, though in the physical model the levels are still one above the other.

Basics of Application operation

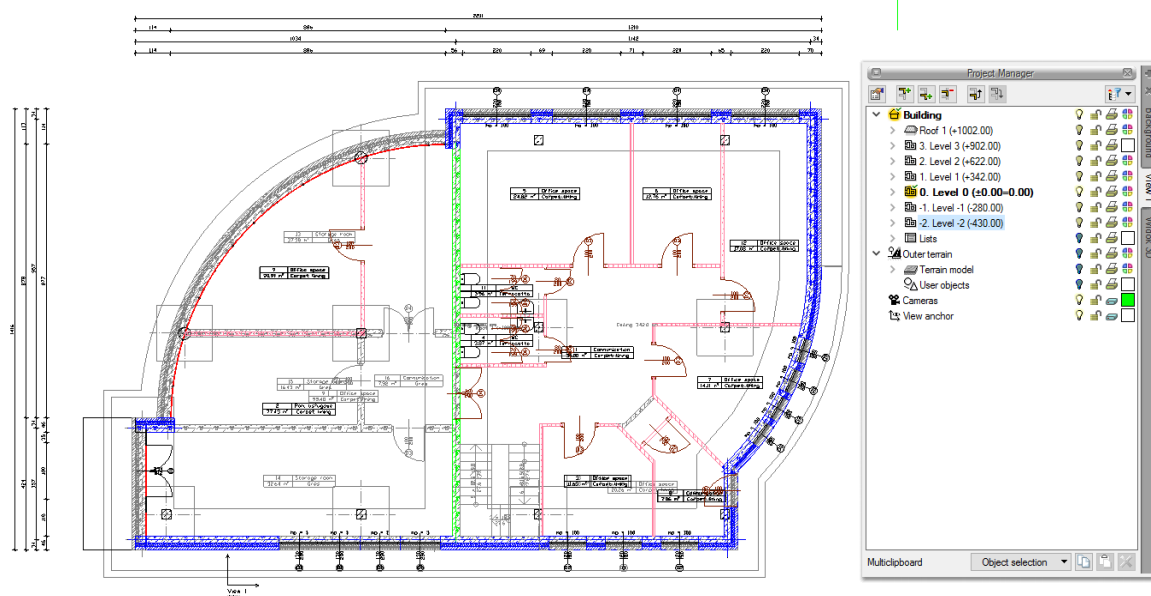


Fig. 25. A projection of the ground floor with a preview of the other levels in the project

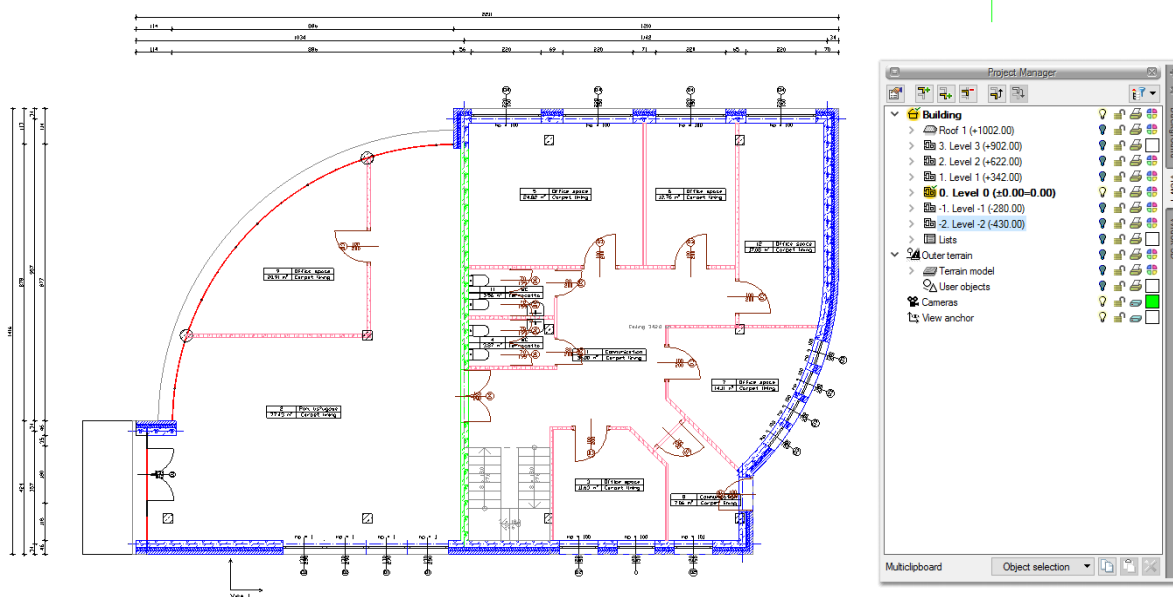


Fig. 26. Projection of the ground floor level

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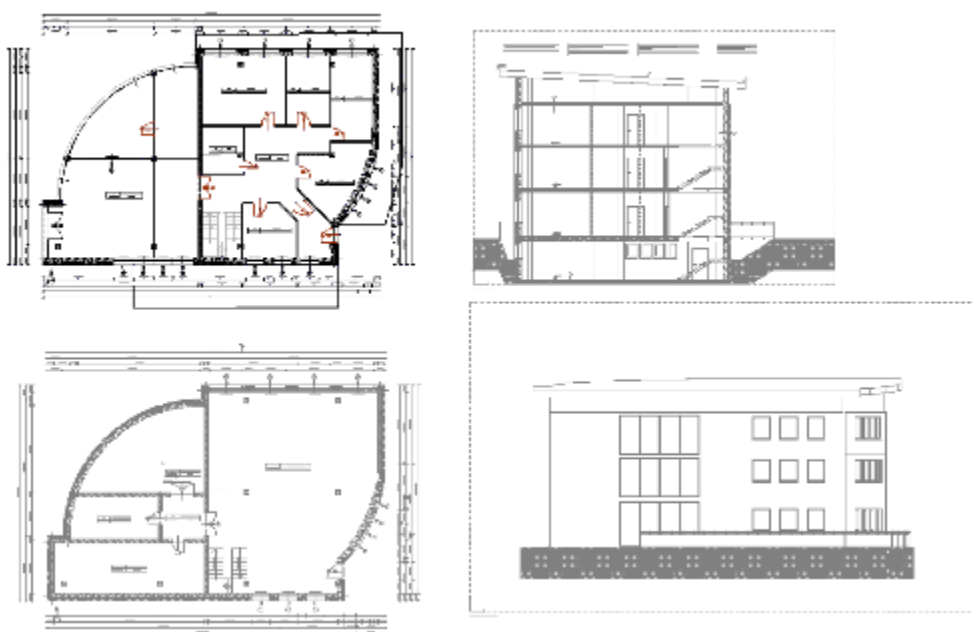



Fig. 27. Views with only one level enabled in each view

NOTE: Elements that are added in the levels are automatically placed in the **Project Manager** tree as **User items** and turned on along with the level. If the user moves to the AutoCAD, ArCADia or ArCADia LT, or other software layer by introducing additional items, these will not be assigned to a level.

The user items, i.e. lines, polylines, descriptions, circles, etc. are placed in the **Project Manager** in the **User objects** subgroup. This group operates similarly to the Levels, which means that the items are introduced into the active subgroup marked with the  icon.

In the new version of the program, there are auxiliary elements that can facilitate drawing, e.g. **Vertical**, **Horizontal** auxiliary line. These options are located on the toolbar on the left side of the screen. The inserted elements are placed in the subgroup **Auxiliary** in the group **User Objects**.

3.2. Views

The ArCADia system allows creating the building shape or designing the gas, sewage, telecommunication or electrical networks by displaying these in different views. The first view is always the projection, work with the project begins on it. Simultaneously, the design model is built in **3D View** and **3D CAD**. The **3D view** is a realistic representation of the model, depending on the selected mode, it can be presented with textures, daylight and artificial light, shadows, or an animated background or as a simplified view representing the colors of groups of elements. The **CAD 3D** is a design model mapped in the three-dimensional space of the program, by default visible as a mesh model. Subsequent views depend on the branch of the project. The additional views for architecture are the sections and elevations, for the water supply systems it will be the axonometry, for gas networks it will be the gas network profile, for the gas installation it will be the expanded view and for the sewage installations it will also be the profile.

Basics of Application operation

And so, as an example: the level projection is entered as the first architectural view. You can work with one view, which will show the levels one above the other and you can also display the level projections in separate views so as to see all the levels one next to the other. Such operations are carried out on the views; levels are not shifted one next to the other, as this would ruin the building shape.

The model (CAD 3D), section views, profile axonometry and 3D views may also be included in a project apart from the projection views. These views are independent and have their separate project trees in the subsequent tabs introduced. Switching between views is possible by clicking the view anchor (as is the case for sections, axonometries, profiles and views) into the **3D view** window or in the **Project Manager** by selecting the relevant tab located on the right or on the left side of the Manager window (depending on user-defined settings).

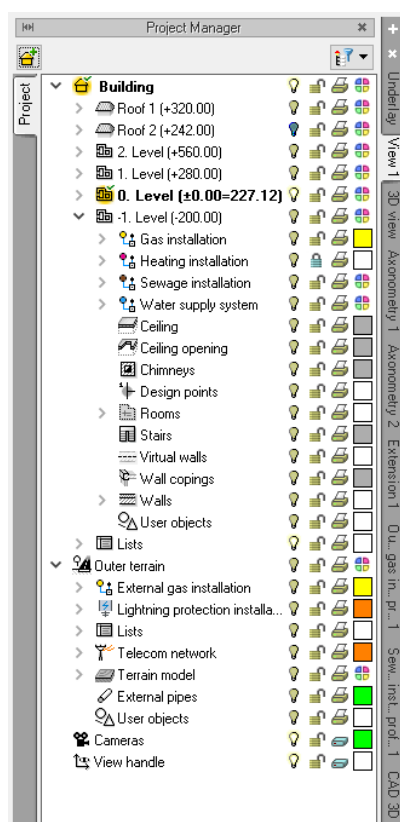


Fig. 28. Project Manager window

Apart from view tabs which are, by default, placed on the left of the **Project Manager** window (they can also be moved to the left), in ArCADia 6.6, we have added the tabs on the left. By default, it is one **Project** tab (as in the view above), but after importing the building from the IFC file (from the ArCADia-IFC RVT module), the **Project** tab is shown below, with the name of the imported model. If several files are imported, each of them receives a separate tab on the left of the project tree. The elements on these tabs are enabled and disabled similarly to the system element. However, remember that if you have the IFC model and the project created using system objects, on each view you have separate project trees (tabs) for both models existing in the software.

Basics of Application operation

If the IFC file project is converted into the system model, i.e. walls, windows, doors, etc., then the elements of this project will be available on the [Project](#) tab.

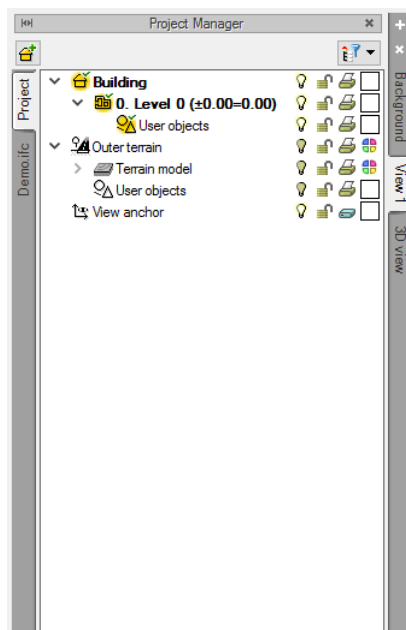


Fig. 29. Project Manager window after importing the IFC model

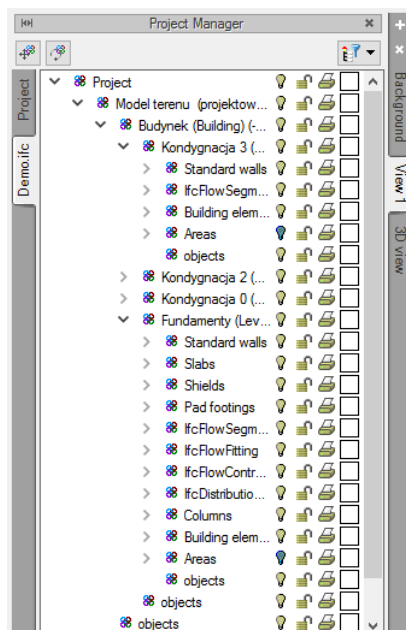


Fig. 30. Sample IFC model tree

3.2.1. 4View properties

By default, each view entered in the workspace (projection, CAD 3D, section, axonometry, development, profile) draws the project in the units defined in the [Options](#) window and with a medium level of detail. These parameters can be changed at any time after the view is created.

Basics of Application operation

Activation:

- *Project Manager* window ⇒ right mouse button on the view tab ⇒ *View properties*

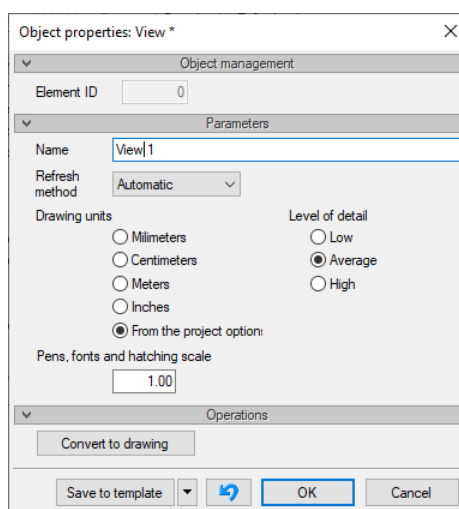


Fig. 31. Properties window of selected view

Name – name of the view visible on the tab in the *Project Manager* window.

Refresh method – by default the *Automatic* view changes with every change in the project, regardless of the view in which it was made. *Manual* only updates a given view when you switch to it. The second option is recommended with a large number of introduced views to speed up the drawing of the project.

Drawing units – by default in the ArCADia system projects are drawn in centimeters. Regardless of the module in which the project is drawn (installations or networks), there is no automatic unit switching. To draw networks, e.g. sewage or telecommunications, the user, after entering a view, should switch the units to meters.

Level of detail – accuracy of imaging elements, which affects the speed of the program. By default the *Average* level is switched on, where all system objects are realistically depicted. The *Low* level of detail presents, for example, the details of the heating installations as symbols on the plan view, 3D objects as a rectangular solid in a 3D view, and plants, regardless of changing views, in a simplified manner in all views. At the moment, the *High* level of detail mainly changes the view of the installation elements.

Pens, fonts and hatching scale – display scale for pens, fonts, and hatching throughout the document, in all views.

Convert to drawing – the option removes system objects from a given view, leaving only their graphical representation. The view is still managed by the *Project Manager* window, but it is not updated anymore and only contains lines, hatches and texts.




Basics of Application operation

3.2.2. Projection



ArCADia presents the project in views of the building or buildings: projections, CAD 3D model, sections, elevations. All the existing buildings or levels or only the selected items may be included in the projection view.

Activation:

ArCADia and ArCADia PLUS

- *Project Manager* ⇒  *Insert view*
- *Insert* ribbon ⇒ logical group *View* ⇒  *Insert view*
- *ArCADia-SYSTEM* toolbar ⇒  *Insert view*

ArCADia LT

- *Project Manager* ⇒  *Insert view*
- *View* ribbon ⇒ logical group *Insert* ⇒  *Insert view*

NOTE: Another (new) projection view can be inserted only when projection view is active. With other views: cross-sections, 3D view, axonometry, etc. new view will not be inserted, instead information about necessity to switch to projection view will be displayed.

Switching and managing the projection views is done through the *Project Manager*.

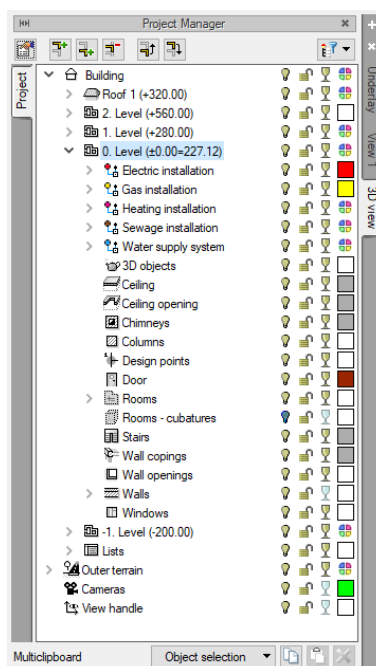




Fig. 32. Project Manager window

Only one building or one level may be active for a projection. The rest is only an underlay which may be made visible or turned off with the  icon. This means that inserting and editing is only done in the level marked with the Active level icon.  Focus is switched by double-clicking on the selected level.


Basics of Application operation

NOTE: For views such as: *Projection and CAD 3D*, you need to activate the level you are working on (this applies to a building made of ArCADia system objects). There is no active level in other views.

The projection is divided into buildings, buildings are divided into levels and levels are divided into item groups: branch installations, walls, doors, headers, ceilings, etc. What is visible in the projection view depends on the items selected in the *Project Manager*.

It is possible to create any number of projections and define the displayed items for each of them. Switching between views is done by clicking the tab (name) of a particular view located on the left or on the right side of the *Project Manager* window. The number of views included in a single project is limited only by the computer's capabilities.

In order to add a projection view:

You introduce a view after selecting the Insert view icon  and indicating its location. Before or after introducing a projection, you can adjust its properties after right clicking on the tab for the particular view and selecting the *View properties* from the context menu.

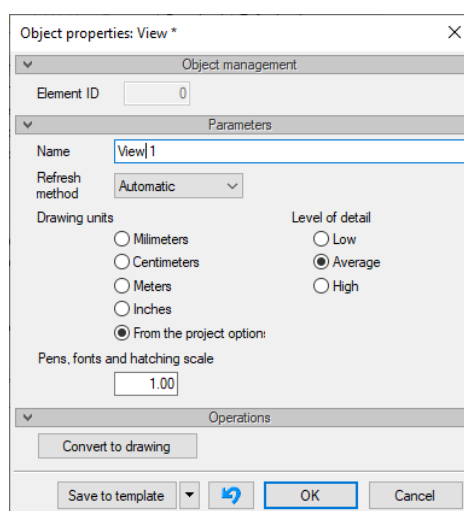


Fig. 33. Selected view properties window

In the window above you may select a name, *Refresh method* and *Drawing units*. Moreover, the selected view may be converted using the *Convert to drawing* option and hence it will be composed of lines only. This will enable e.g. working on the details of the sections or details.

Changing *Drawing Units* will scale the elements of this view, descriptions for eg windows and doors will change automatically only if in the units of description, units will be selected from: *From the project options*. Otherwise, they will remain in the unit that is assigned to them.

NOTE: When working on a large project composed of several views you may need to set the Update type to Manual. This will greatly speed up working on the project, since an element introduced in one view will not have to be represented on the other ones yet. Having to reflect all the introduced options in more than one view greatly increases the duration of the drawing process.

Basics of Application operation

3.2.3. Model, or CAD 3D

In ArCADia 12, in new projects, when drawing with ArCADia system objects, a new **3D CAD** view is automatically introduced. By default, this is a three-dimensional mesh design model placed in the drawing area. There can be only one model in a project.

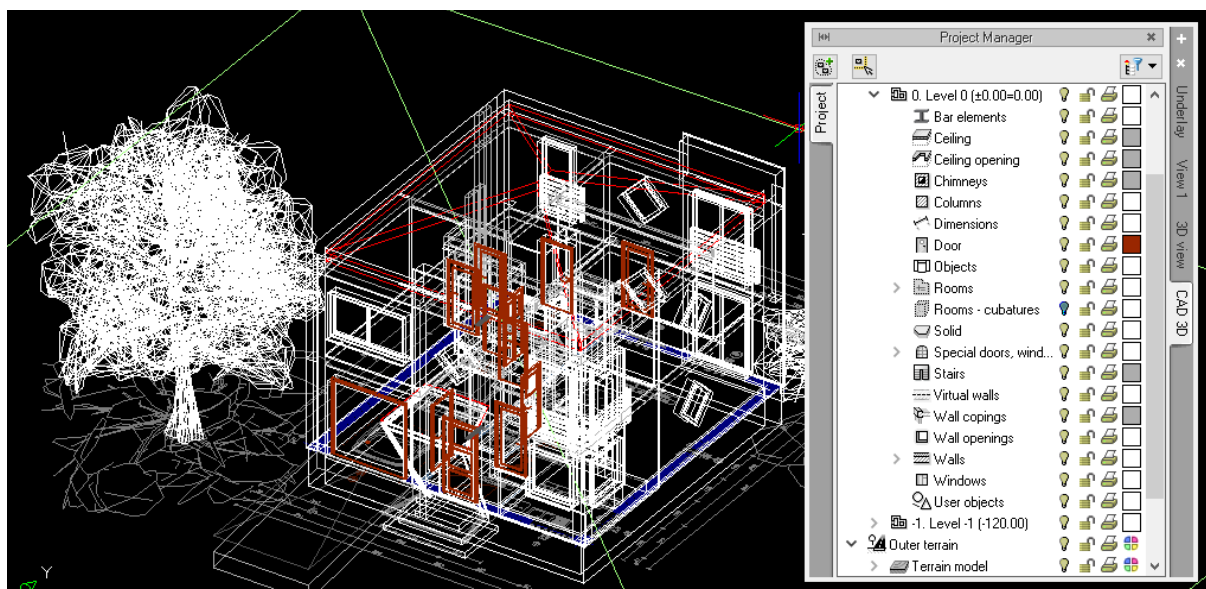


Fig. 34. Sample project in the CAD 3D view

In documents from earlier versions of the program, the model is not entered automatically, it should be entered by indicating the location (similarly to entering subsequent projections).

Activation:

- *Insert ribbon* ⇒ logical group *View* ⇒ *Insert a CAD 3D view*
- *Project manager* ⇒ ⇒ *Insert a CAD 3D view*
- *ArCADia-SYSTEM* toolbar ⇒ *Insert a CAD 3D view*

The view is entered by inserting a view handle. In new projects, the view is created automatically, with lower spec computers you can turn off this option in the *ArCADia BIM Option* window.

3.2.4. Section

If you have ArCADia-ARCHITECTURE licence installed, you can add any number of vertical sections to the project. The Sections can be straight or stepped (offset).

3.2.4.1. Adding straight Section

Activation:

ArCADia and ArCADia PLUS

- *Project Manager* ⇒ *Insert Section*
- *Insert ribbon* ⇒ logical group *View* ⇒ *Insert cross-section*
- *ArCADia-SYSTEM* toolbar ⇒ *Insert cross-section*

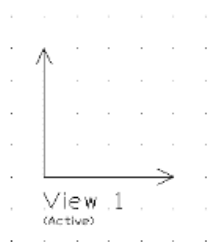
Basics of Application operation

ArCADia LT

- [Project Manager](#) ⇒  [Insert Section](#)
- [View](#) ribbon ⇒ logical group [Insert](#) ⇒  [Insert cross-section](#)

NOTE: Cross-section can be created only on active projection view. With other views: cross-sections, 3D view, axonometry, etc. a cross-section will not be inserted, instead information about the necessity to switch to a projection view will be displayed.

The Section is implemented by pointing on two points of the building cut line, its direction and drawing place. By default, after setting the Section, it is shown as an inactive View, drawn as an underlay. If you want to switch to the Section, you just need to double-click on the View symbol



or select its name on the [Project Manager](#) tab.

All the levels are active in the Section, so you can edit here the elements of each level without switching between the levels.

The new version allows you to enable 3D objects on the section. This option is by default disabled because copying more objects may take a while (everything depends on the degree of complication of the objects and their number). When opening the project from an older version, the objects on the sections will not be visible, because their visibility bulb is disabled. Objects will be enabled after changing the bulb status.

NOTE: It is the best solution to set the Update type to Manual for the Section created. This will not slow down the operation, in other words, it will not be necessary to insert one item in each view.

In the Section [Properties](#) you can define the method of showing the trimmed building: only trimmed elements visible or all Section elements visible. [Zero depth](#) option allows to show only the sliced items, while the items shifted from the Section cut line are not displayed.


NOTE: The Section is one of the Views of the designed building body. Any modifications introduced into the Section will also be represented in other Views (Sections and 3D View). If you need to change the Section without interfering with the building body, then you may Convert the Section into the drawing via View properties. Any modifications introduced into the exploded view are not represented in the project. This also means that the change in the building body will not be drawn in this Section.

3.2.4.2. Stepped Section

ArCADia-ARCHITECTURE allows to insert only one straight Section. The Section drawn can be further converted into the stepped Section by adding the step, i.e. break the Section cut line. The Section may feature any number of steps, however only one break can be added at the same time.

Basics of Application operation

Activation:

- Edit window *Section* ⇒  *Add section step*

The example of defining the stepped Section is shown below:

Start by defining the straight Section, that is, by showing the cut line and drawing place of the Section.

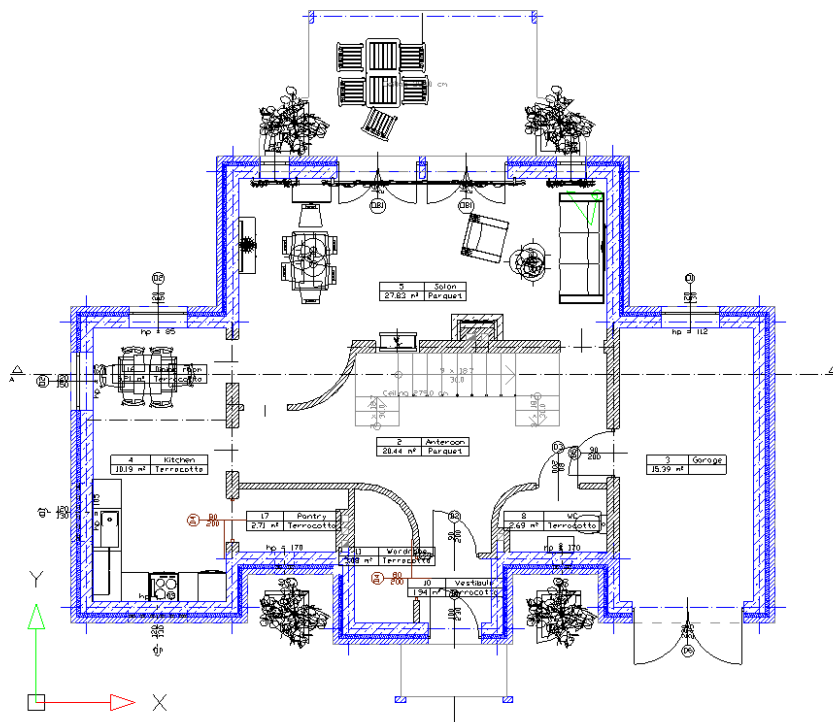



Fig. 35. Inserted and selected straight cross-section line

Select the section line and  *Add section step* icon from the taskbar.

Basics of Application operation

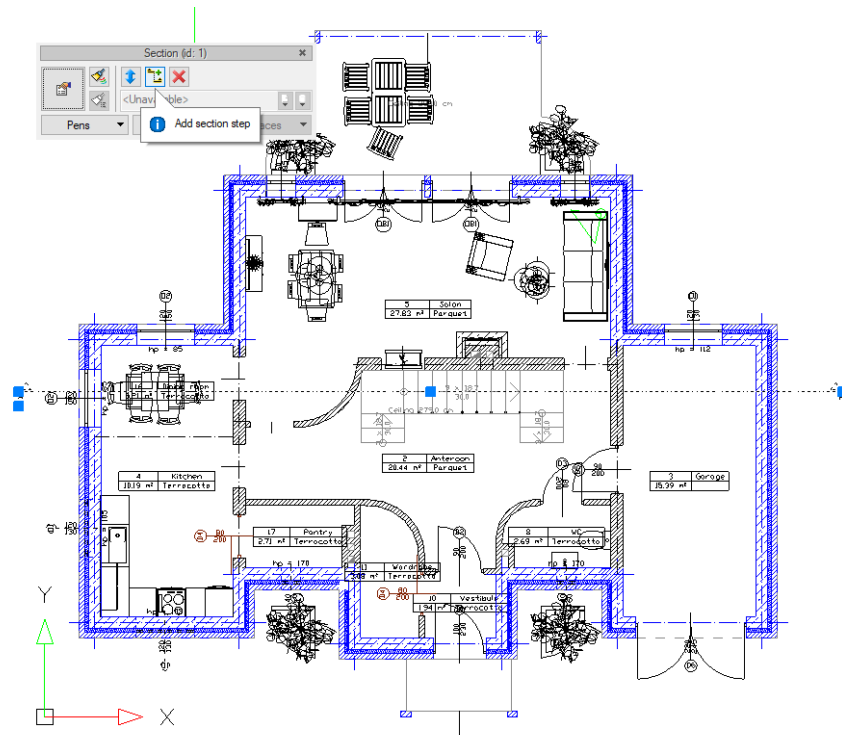


Fig. 36. Modification of straight cross-section into stepped cross-section by selecting the bending place

Show the location of cutline break and its level on the layout.

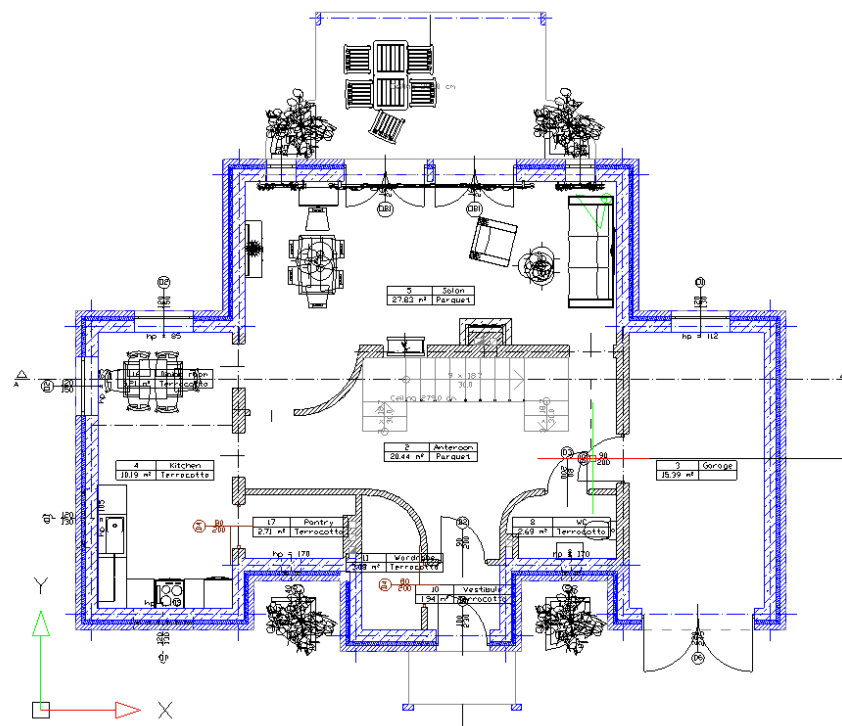


Fig. 37. Drawing out the cross-section degree

Basics of Application operation

The Application calculates the new Section and inserts the new curved cut line.

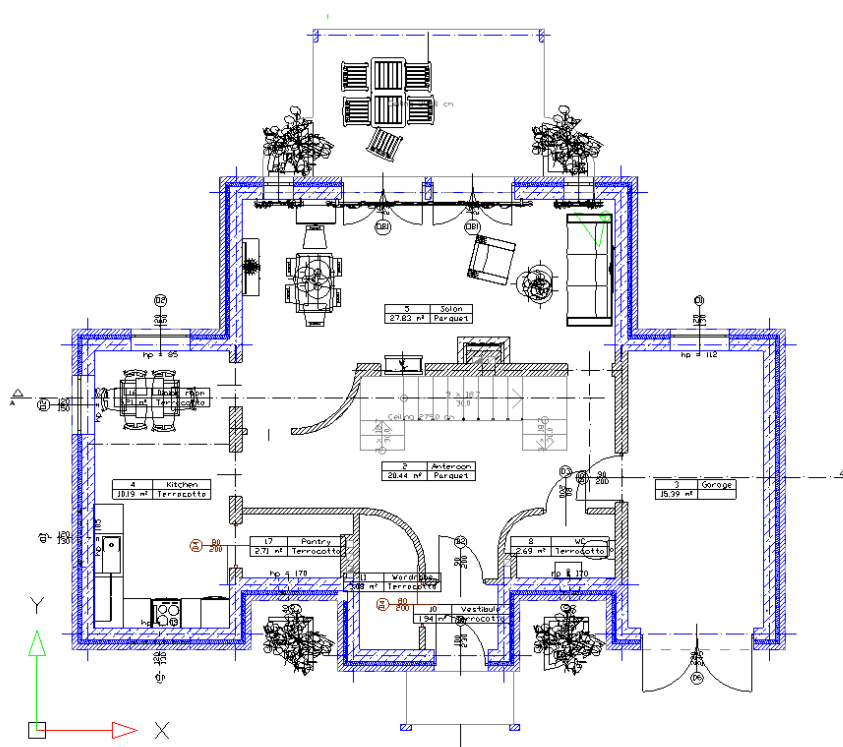


Fig. 38. Stepped cross-section line on the projection

3.2.4.3. A zero-depth section

A zero-depth section can be inserted using a separate option or by modifying an existing section.

Activation:

ArCADia and ArCADia PLUS

- **Insert** ribbon ⇒ logical group **View** ⇒ **Insert zero-depth section**
- **ArCADia-SYSTEM** toolbar ⇒ **Insert zero-depth section**

ArCADia LT

- **View** ribbon ⇒ logical group **Insert** ⇒ **Insert zero-depth section**

Inserting a zero-depth section is no different from inserting the section described in the previous chapter. The only difference is the view, in which there are only elements cut by the section line.

If a section has already been inserted in the project, the **Zero depth** option can be selected in the properties window, which will exclude all elements from the view that are not cut by the section line.

Basics of Application operation

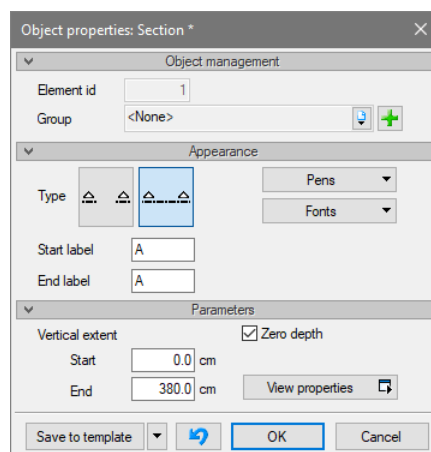


Fig. 39. A section property window

3.2.4.4. Facades

To create a facade for the technical documentation, the software has no special options planned. Facades are made using the section option, but the cutting line does not go through the building, but is conducted before it. The length of the section line from the walls in the building does not matter here.

3.2.5. 3D View

The ArCADia BIM projects are three dimensional projects. All the elements introduced include both information about the dimensions in the plan view and the elevation view. The project be viewed in the *3D view*, in the CAD 3D model, in a cross-section and in axonometry.

NOTE: Starting from version 5.0 the ArCADia-ARCHITECTURE has modified 3D view handling. this means that the 3D view now has a separate project tree and before turning items in the view on/off you need to change the view into 3D view in the Project Manager first and only then adjust item visibility.

Basics of Application operation

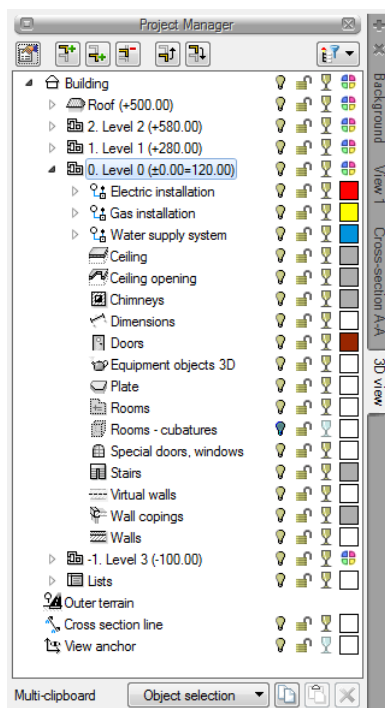





Fig. 40. Window Project Manager with elements tree for sample document for 3D view


The **3D view** tree is different from the other views in that you cannot adjust item printing properties in the view tree, since only a saved image can be printed. Instead of printing the view tree offers the feature to glaze an item .

Activation:

ArCADia and ArCADia PLUS

- **View** ribbon ⇒ logical group **Views** ⇒  **3D view**
- **ArCADia-SYSTEM Mini** toolbar ⇒  **Show/Hide 3D preview**

ArCADia LT

- **View** ribbon ⇒ logical group **Insert** ⇒  **3D view**

Basics of Application operation

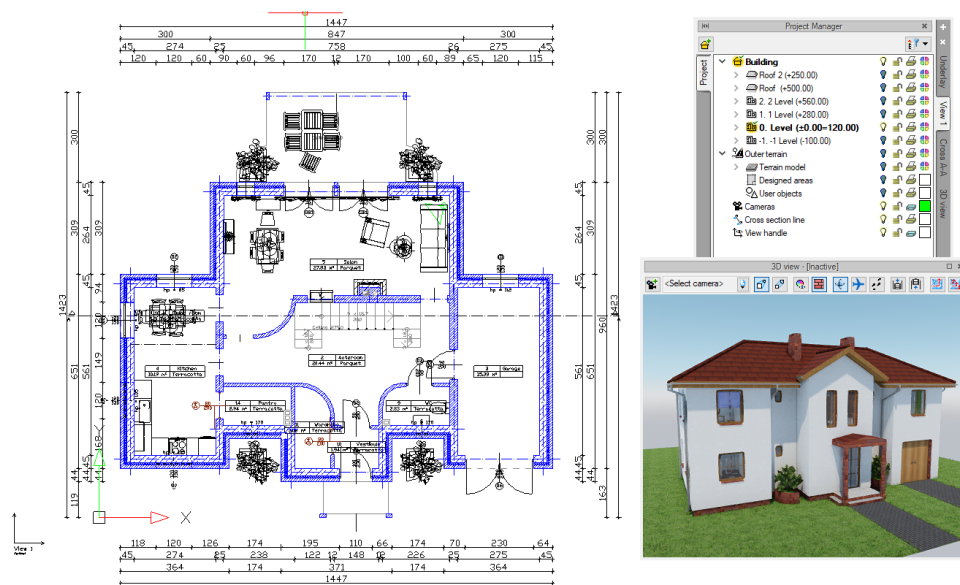


Fig. 41. Example with active view 1 and the view from the new 3D engine

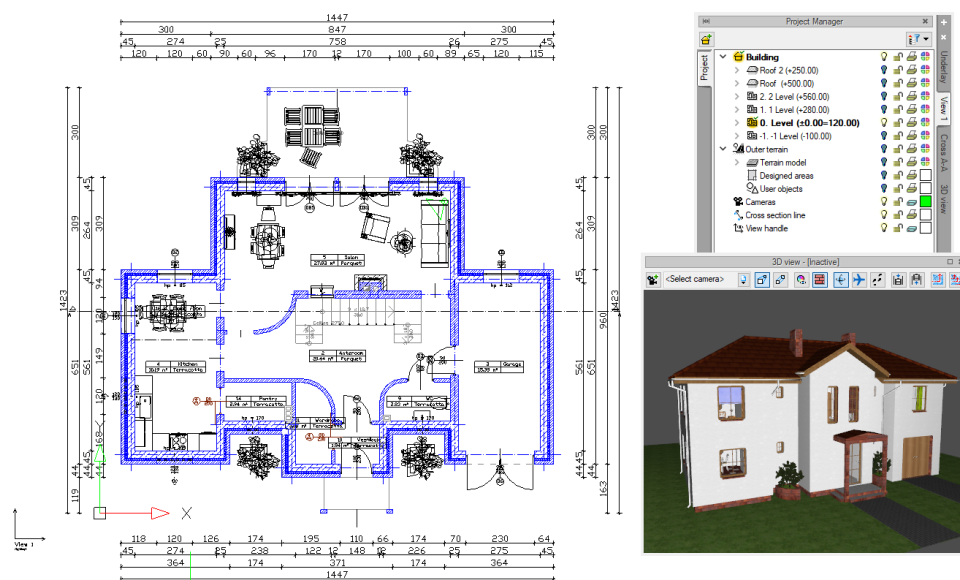


Fig. 42. Example with active view 1 and the view from the old 3D engine

NOTE: Depending on your computer configuration, the program will launch a Advanced or Simplified 3D View engine. If the computer does not meet the basic hardware requirements then the simplified engine will be activated.

The **3D view** is handled similar as the projection view through the **Project Manager** in a dedicated, separate **View** tree. Which means that in order to select the visible/not visible items it is first necessary to switch to the **3D view** tab and then what is marked in the current view in the project tree is displayed in the preview and what is turned off is not displayed.

Basics of Application operation

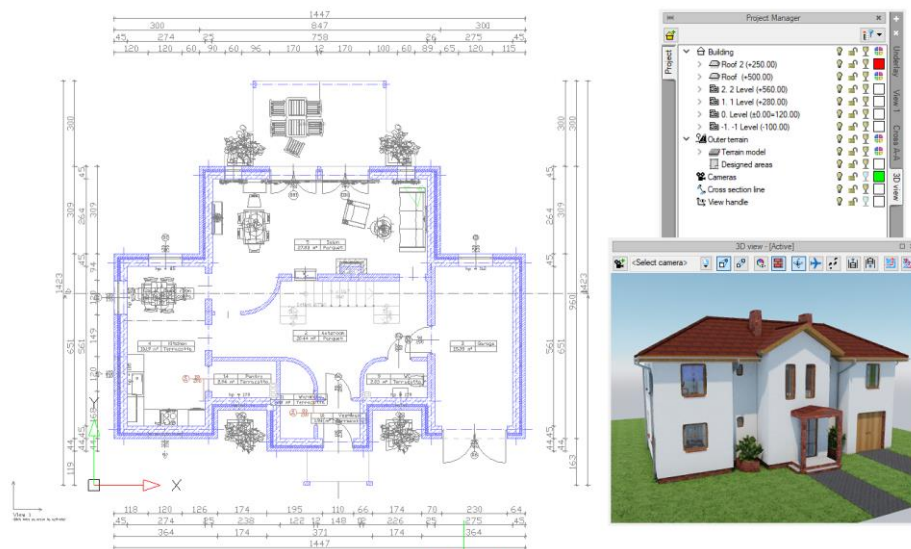


Fig. 43. Active 3D View sample in the new engine

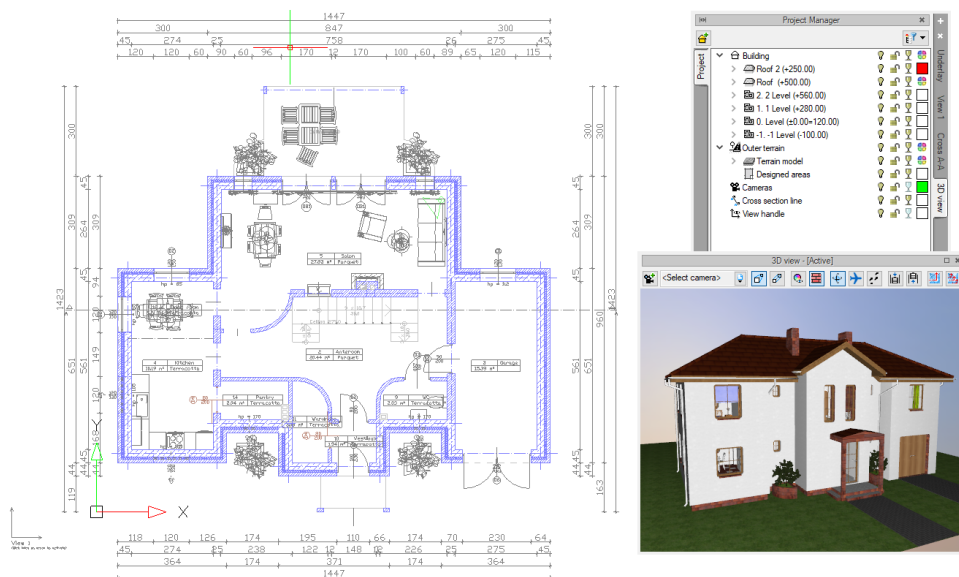


Fig. 44. Active 3D View sample in the old engine

Basics of Application operation

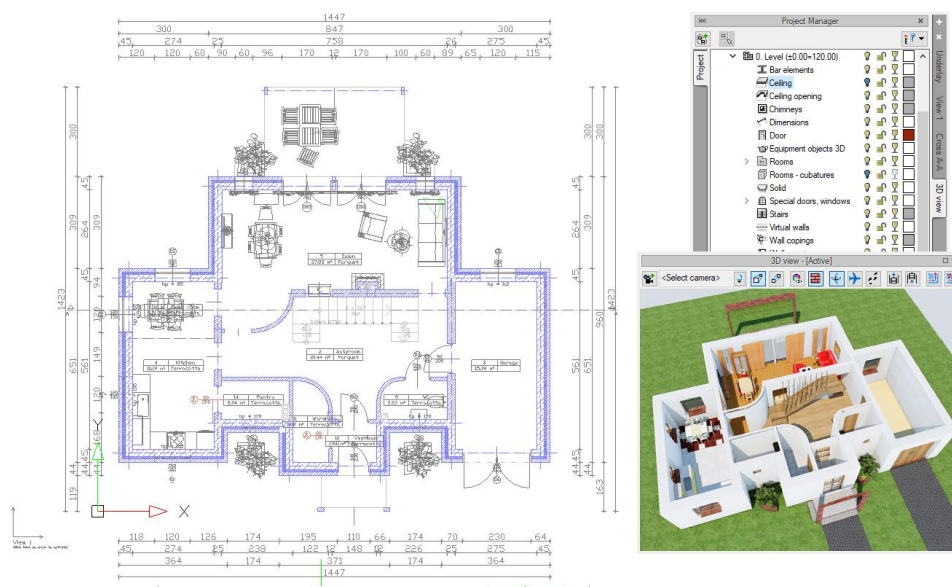


Fig. 45. Active 3D view sample using the new engine and visibility of elements defined for it

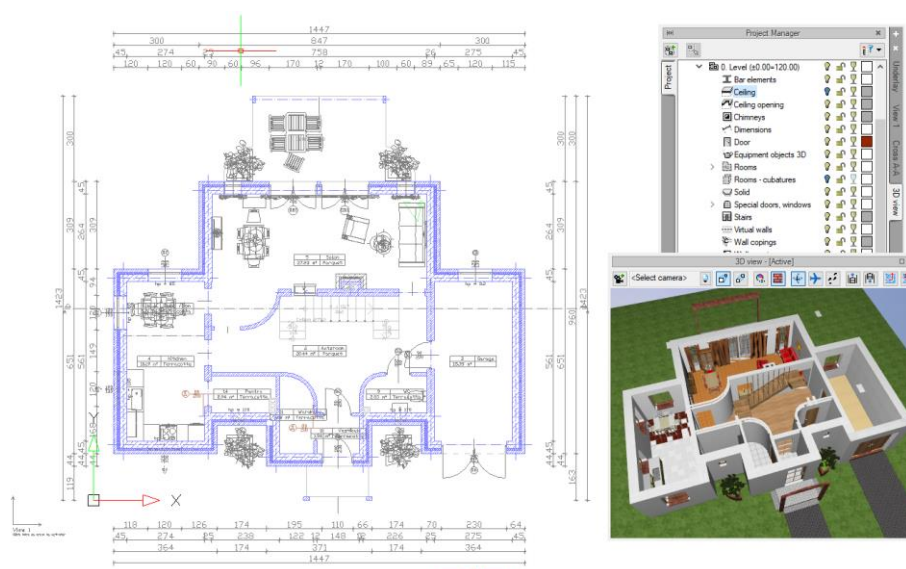



Fig. 46. Active 3D view sample using the old engine and visibility of elements defined for it

The **3D view** window has also been slightly modified – the object removal feature ⇒ **Delete marked objects** is transferred to the edit window which appears once an item is selected. You can only remove a selected element from there. Glazing a shape was also modified and now you can glaze the particular level items, levels or the building by selecting respective  icons on the project tree.

Basics of Application operation

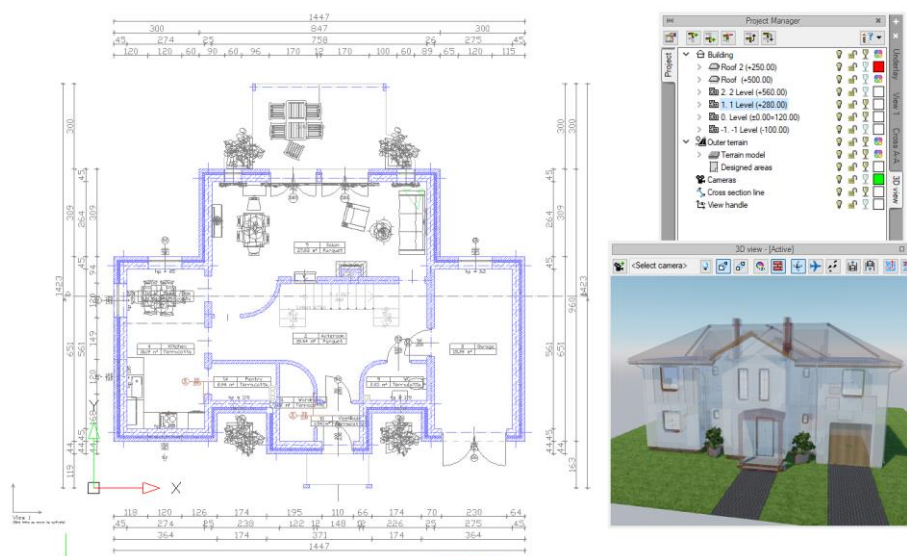


Fig. 47. Showing the transparency of elements in the new engine

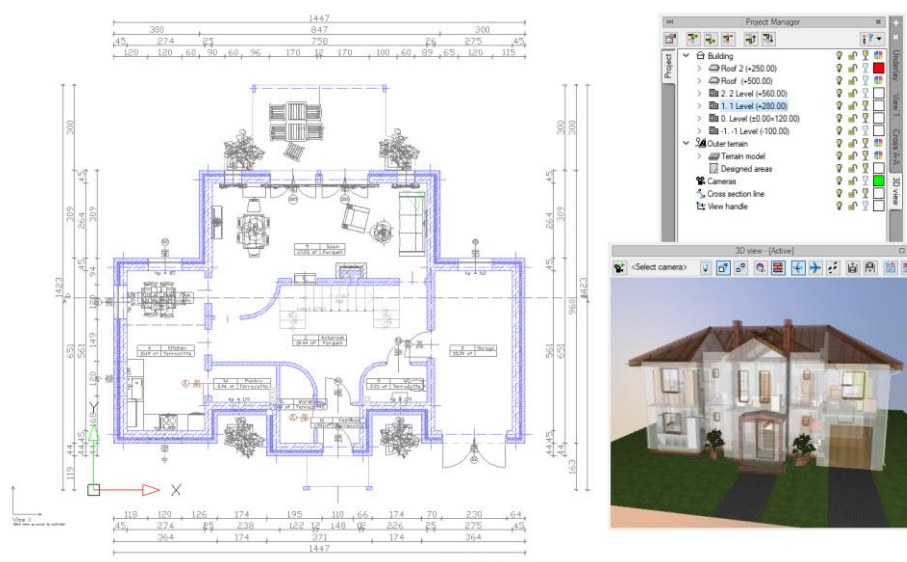



Fig. 48. Showing the transparency of elements in the old engine

The ArCADia system in version 11.0 has two engines in **3D View**. Switching between them can be done in the **3D View** window by using the  icon or in the Program **Options**. In the **3D View** window, the engine switches only on active document, selecting the **Default 3D engine** from the **Options** defines the engine in which the 3D view will always run.

NOTE: A graphics card compatible with DirectX 11 with a minimum of 2GB VRAM is required to support the new 3D View engine; 4GB + VRAM recommended (depends on the loaded project - the number of textures used, their resolution, quality settings, 3D View window resolution). Supported operating systems are: Windows (7 SP1 / 8/10) x86/x64. Processor: with SSE2 function support; minimum Intel Pentium 4 / AMD Athlon x64; Intel i5 / i7 with 3 GHz + clocking recommended (also the most cores recommended - the engine can use them). Operating memory: minimum 1GB; recommended 8GB + (depends on the size of the loaded project).

The **Advanced** 3D View presents the building's body in a realistic environment, using "natural" (solar) and "artificial" lighting (lamps and light sources), showing the chiaroscuro on the facades, the

Basics of Application operation

surroundings and inside the building. The display of materials on the elements of the scene has been significantly changed, especially when it comes to the predefined surface library marked with the name of the new engine.

The surface on the element can be changed under the *Surfaces* button in the properties window, insert or edit window.

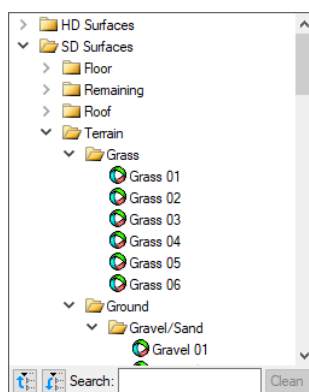


Fig. 49. Sample material in a standard library with additional content downloaded

If from the above list we choose from the *SD Surfaces* catalogue – *Water* and *Grass 01* from the list above, and we have a *Advanced* 3D engine on, the scene will look like this:

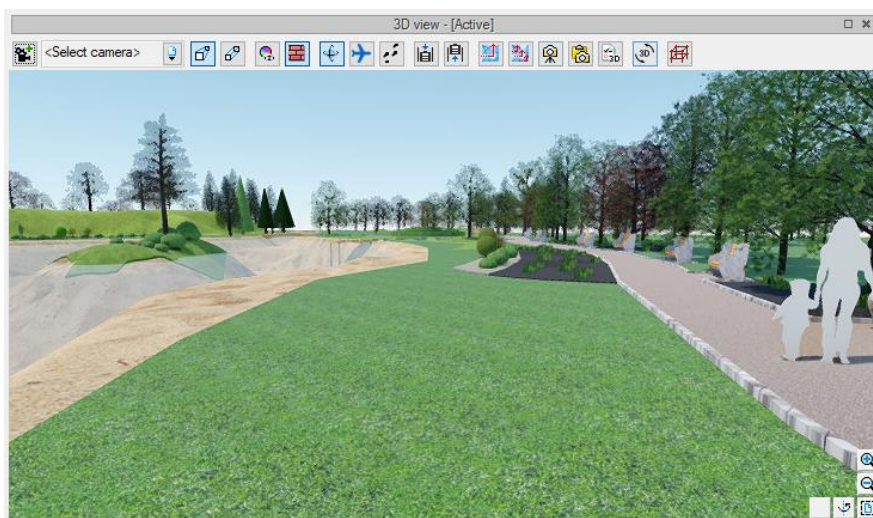


Fig. 50. Sample project using Water and Grass 01 material

If, for example, *Water 02* and *Grass 01 long* are selected from the *HD Surfaces* catalogue list of materials, and in the *Advanced* 3D engine we will have *High* or *Highest* quality turned on, the same scene will look like this:

Basics of Application operation

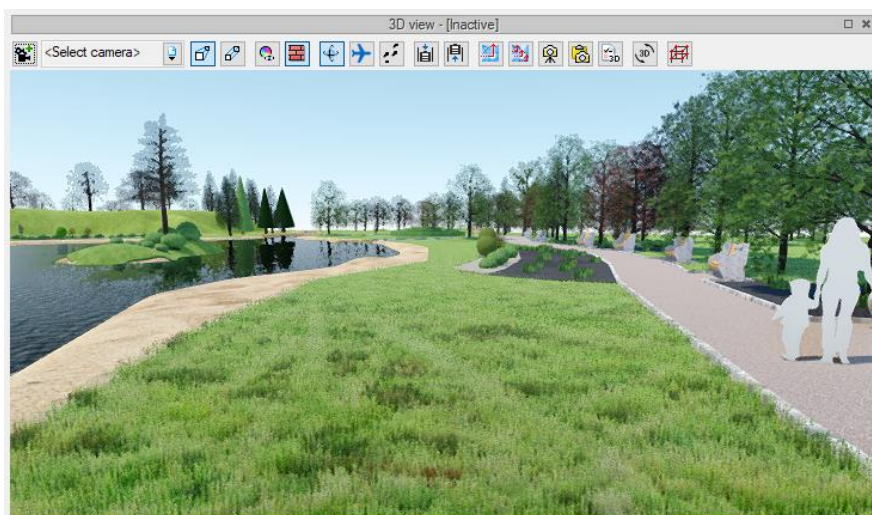


Fig. 51. Sample project using Water 02 and Grass 01long material

On the above screenshot, you can not see the motion effect of both water and grass, but in the 3D view, it will be visible. Only water and grass will introduce movement into the scene, but other materials from the list of predefined surfaces from the [Surfaces](#) catalogue have received new parameters and may look completely different in the scene than in the old engine.



Fig. 52. Sample project using Water 02 and Grass 01 long material using the old engine

Surface modifications for the new engine have also been introduced for [Textured surfaces](#), i.e. textures, which the user can implement himself. The [Advanced](#) mode 3D view is an PBR rendering engine (Physically Based Rendering), i.e. having real-time rendering based on physics. Light parameters and physical material parameters are used to create a realistic scene. This means that pbr materials can be introduced to the scene, which can be composed of several files, e.g. diffuse_map, normal_map, parallax_map, specular_map and emissin_map.

Basics of Application operation



Fig. 53. Sample of tiles texture used from a single file



Fig. 54. Sample of tiles texture used from a few files



Fig. 55. Tiles materials used in the design shown above

Basics of Application operation

In order to use pbr materials, which can be downloaded for example from the Internet, you should select their names appropriately, that is, change them by providing appropriate abbreviations after the underscore (in the screenshot above you can see correctly defined names of textures):


Diffuse	_diff
Normal	_norm
Parallax	_bump
Metalness	_metal
Roughness	_rough
Specular	_spec
Emission	_emis

The file that will be referred as *Textured Surface* for pbr materials is _diff, for example wall16_diff.png.

3.2.5.1. 3D View Options

Depending on the performance of the graphics card or the current need to show the project in 3D, there are two modes available: *Simplified* and *Advanced*. They differ in both the graphics engine and the visual possibilities of the available options. Therefore, the settings windows vary quite significantly.

Activation:

- *3D View* window ⇒  *3D view options*
- *Project Manager* window ⇒ *3D View* tab ⇒ *View properties*

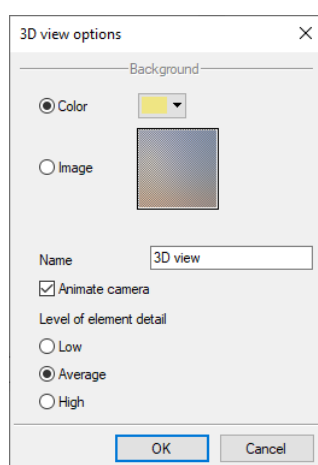


Fig. 56. The 3D view options window of the simplified mode

Color – possibility to set any default color or define your own color.

Basics of Application operation

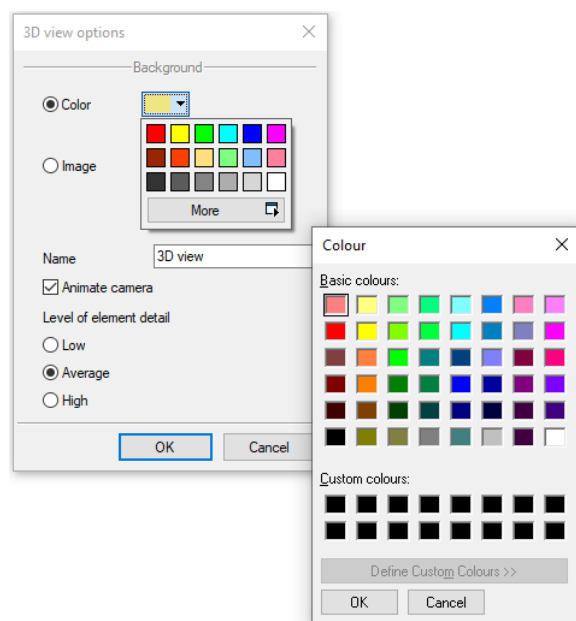


Fig. 57. Changing the background color of the 3D view

Image – the ability to enter any photo or panorama image from a raster file in one of the following formats: BMP, PNG, TIF or JPG. After selecting the option to load a photo, click on the image preview.

Name – name displayed in the *Project Manager* window on the 3D view tab.

Animate camera – the way of switching between one and another camera selected from the list. By default, the option is enabled.

Level of element detail – allows, when selecting *Low*, to limit the displayed polygons for faster work (for example, 3D objects are displayed only as cubes). The *Average* one will restore the realistic appearance of the elements. At the moment, the *High* level of detail is analogous to the *Average* level.

Basics of Application operation

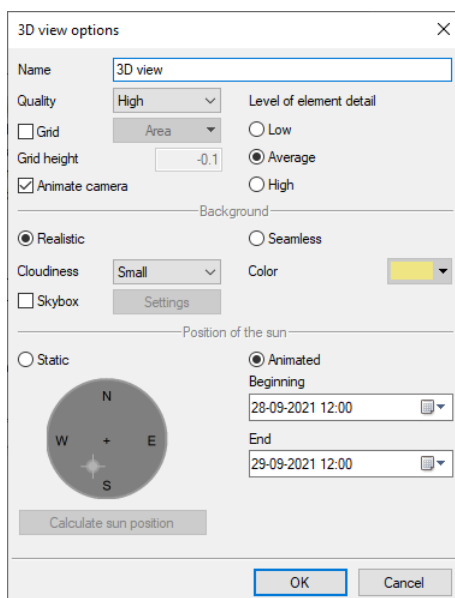


Fig. 58. Parameter window of the advanced 3D mode

Name – the name displayed in the *Project Manager* window on the 3D view tab.

Quality – In the *Settings* of the *3D view options* window with the new engine switched on, you can select the **Quality** of the displayed scene. The **Lowest** has chiaroscuro and all new engine features switched off. The scene looks almost like in the *Simplified* mode engine. In subsequent qualities, various view parameters are included. The **Highest** one has all advanced settings included, among others, grass, chiaroscuro, reflections etc. These parameters and their accuracy can slow down the work in this view.

Mesh – plane automatically entered into the project together with the first element suggesting the ground plane. You can change the mesh texture under the Surface button, and the height of the position is changed in the field below.

Animate camera – the way of switching between one camera and another selected from the list. By default, the option is enabled.

Level of element detail – allows, when selecting **Low**, to limit the displayed polygons for faster work (for example, 3D objects are displayed only as cubes). The **Average** one will restore the realistic appearance of the elements. At the moment, the **High** level of detail is being changed for the installation elements.

The background parameters are divided into **Realistic** and **Seamless** backgrounds. The second option allows you to indicate the selected color, similar to changing the background in the *Simplified* mode. The **Realistic Background** allows you to select the **Cloudiness** level, i.e. whether we have a cloudless sky or it is obscured by animated clouds. Selecting the **Skybox** option allows you to load six images that consist of a three-dimensional background. **Cloudiness** and **Skybox** options do not combine.

Basics of Application operation

The position of the sun has also been divided into two parts: *Static* and *Animated*. The first one allows you to indicate the position of the sun in the sky or define the position by setting a specific day and time (*Calculate sun position* button).

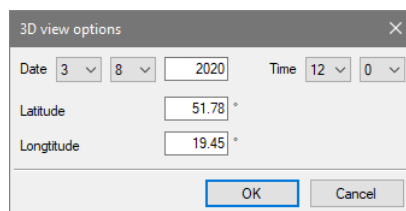




Fig. 59. The geographic location of the project and the date and time, set the position of the sun

The second option allows you to define a repetitive animation with a set start and end by specifying the date and time. In both cases, the definition of the position of the sun takes into account the given date and time, and most importantly, the geographical location, which is defined in the *Element Properties: Project* window.

3.2.5.2. 3D view navigation

3D view window provides access to all needed options settings, etc. By default, the preview window shows the perspective of the created project (the option  *Perspective view* is enabled), but this view can be changed to  *Axonometric view*.

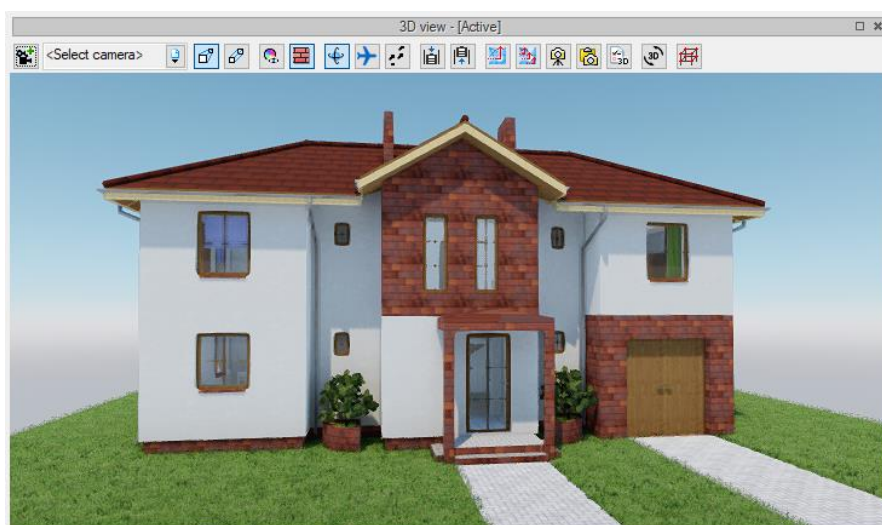
















Fig. 60. Sample of window with the new 3D View engine

Basics of Application operation










Fig. 61. Sample of window with the old 3D View engine

Tab. 16 3D view properties set

	<i>Camera</i>	Registers the parameters of the current view.
	<i>Perspective view</i>	Shows the building in a perspective view.
	<i>Axonometric view</i>	Shows the building in an axonometric view.
	<i>Show layer colours from Project Manager</i>	Shows the building with colours designated for particular groups.
	<i>Show surfaces defined in elements</i>	Shows the building with the designated materials or textures.
	<i>Orbit mode</i>	Project display mode where the camera is located on the orbit of the project.
	<i>Flight mode</i>	The project display mode in which the camera can be located inside the project and goes in the direction exactly set by the mouse.
	<i>Walk mode</i>	Project display mode where the camera may be located inside the project.
	<i>Lower the camera position</i>	Lowers the observer's position.
	<i>Raise the camera position</i>	Raises the observer's position.
	<i>Rendering</i>	Creates a photo-realistic (2D) image of the designed building.
	<i>Multi rendering</i>	Saves photorealistic views for the cameras defined in the project.
	<i>Save scene as image</i>	Saves the current view from the 3D window as a BMP, JFG or PNG file.
	<i>3D view options</i>	Settings of the <i>3D view</i> window.

Basics of Application operation

	<i>Switch the 3D engine view</i>	Switches the <i>Advanced</i> view (with the Unigine engine) to the <i>Simplified</i> one or vice versa (only on the active document). If the hardware requirements are too low to enable the <i>Advanced</i> mode, an appropriate message will be displayed and the <i>Simplified</i> mode will be switched on again.
	<i>Show Construction view</i>	Switches the project view to the construction view.
		Zooms in the project view.
		Zooms out the project view.
		Rotates the current view.
		Rotates the current view.
		Restores the default view settings for the entire project.

ArCADia system 11.0 version it has changed navigation and selection in the 3D view window. Until now, the right mouse button has been assigned to rotation. The left button marked the elements, and their individual unmarking was possible after pressing the *Shift* key and the left mouse button. The mouse wheel was responsible for moving after pressing it, the scrolling of the mouse wheel zoomed the view in or out. In the new version of the program (regardless of the 3D engine used), the rotation is defined under the left mouse button, which also marks the elements. Unmarking one of them or marking more elements is done by pressing the *Crtl* key and the left mouse button on a given object. Clicking anywhere will unmarked everything or if a click will occur on the object unmarking everything and selecting the object. The right mouse button moves the view, just like when the mouse wheel is pressed. Zoom options, namely zooming in and out have not been changed, the mouse wheel is still responsible for it.

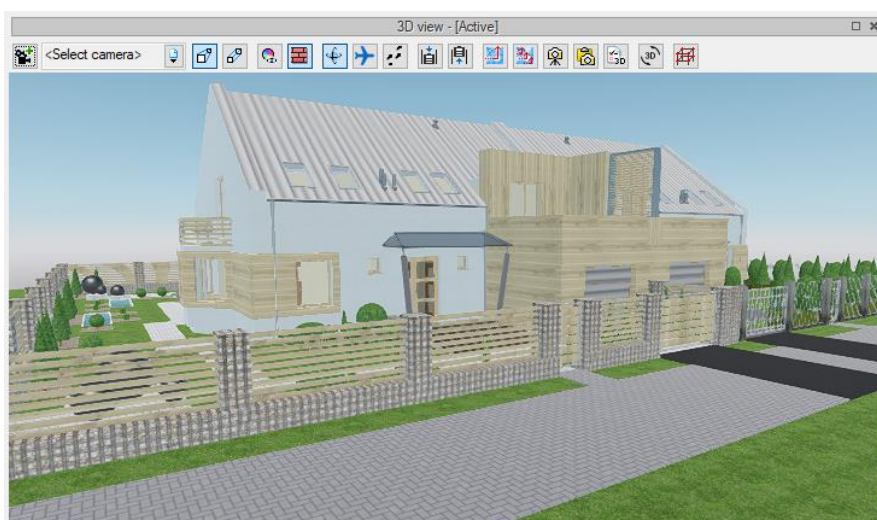





Fig. 62. Sample project in the lowest display quality



Basics of Application operation



Fig. 63. Sample project in the highest display quality

Watching the project in the view window, by default, is presented in  the *orbiting mode*, that is in the view where the camera rotates around the centre of the elements forming the scene (i.e. the building, the area or the along with the building). You can change the way of the project display, by changing the mode e.g. to  *flight mode*. Then, scene elements are rotated around your observation point. This point is a rotation axis. Apart from rotating, i.e. watching the project from the outside, you can also go (fly) to the inside of the building and see the project from the inside. The direction of the "flight" is then dependent on the looking direction, e.g. if we look slightly up, at one point we will move through the ceiling and the roof, if we go slightly down and do not correct this in a suitable place, we will go through the floor. If you want to walk around the project, without changing the storey, going in parallel to the floor, you have to switch to  the *walk mode*. Then, the observer's point will be the rotation axis of the scene and its elements, but the walk direction will not consider inclination of the camera in Z axis.

NOTE: The walk mode and the flight mode are not available in the Axonometric view.

3D view gives also the possibility of various presentation of the project colours. By default, the option  *Show surfaces defined in elements* is enabled, and shows the elements of the project with materials placed on them, e.g. plaster on the wall, clinker on foundation or tiles on the roof. These materials are set in the property window of the element. Sometimes, however, a more legible view (particularly when designing various installations and networks) is to enable the option  *Show colours of layers from the Project Manager window*, which shows the project in colours of groups set in the project tree, i.e. in the *Project Manager* window, in the *3D View* tab.

Basics of Application operation



Fig. 64. Building seen in the new engine in a view with surfaces defined in elements

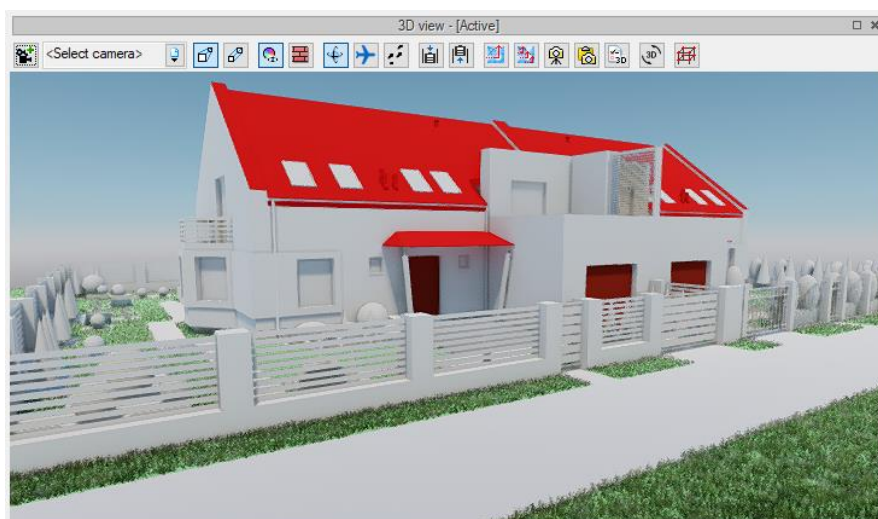


Fig. 65. Building seen with the new engine in the layers color view from the Project Manager



Fig. 66. Building seen with the old engine in a view with surfaces defined in elements

Basics of Application operation

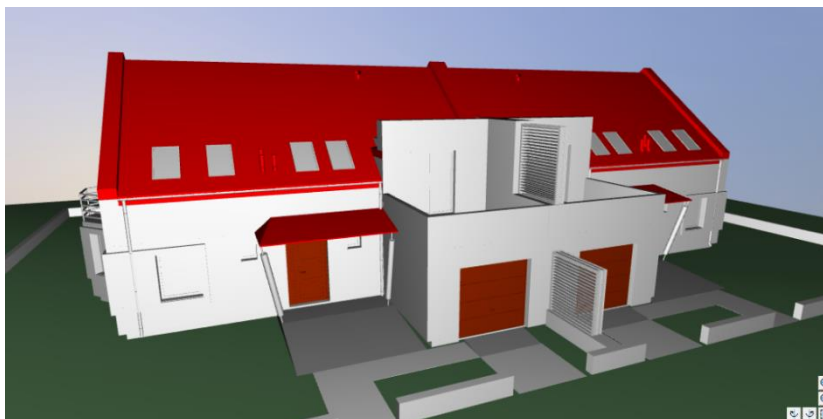


Fig. 67. Building seen with the old engine in the layers color view from the Project Manager

3.2.5.3. Defining Surfaces

NOTE: The surfaces library is not installed with the program, it is available to everyone, but you must additionally download it as a package of additional content: **SD Surfaces** and **HD Surfaces**. You can download both packages or only the first one if your graphics card does not support the **Advanced 3D View** mode.

Textures and materials of the architectural elements are assigned in element properties windows under the **Surfaces** button or after selecting them directly from the editing window.

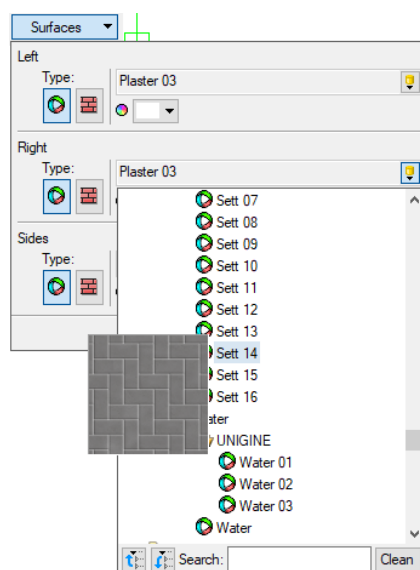






Fig. 68. Part of the list of materials available in the software

Default area setting for most of the elements is material (predefined area) – **Default paint** of a selected colour. It can be changed by selecting any other material  from the software library or by selecting different colour.  Library materials can be defined and modified in the Surface Library (description in the next chapter). If you want e.g. a wall textured with specific file in .bmp, .jpg or .gif format, then after clicking the icon  **Textured surface** click on the image  and in the **Opening** window find and select the appropriate file.

Basics of Application operation

After selecting a file, you can define the size and the starting point of the texture. By default the size of the selected file, e.g. on the wall, will be 100x100 cm and it will be inserted from the top left corner. If you want to move texture, its beginning, e.g. when designing the distribution of plates on the wall, then you have to define the movement in the fields next to the preview of the selected texture. Aside from size you can define the angle of the inserted texture (e.g. to place the diamond shaped tiles), colour which will be mixed with the selected raster file, transparency percentage, and reflection and colour of the reflection.

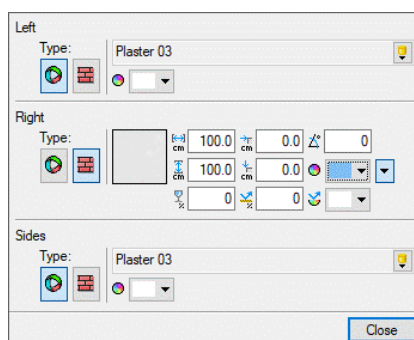


Fig. 69. Example of adding textured material

For example: the screenshot above presents the wall areas. For one of the sides the *Textured surface* was defined and “grey plaster” was selected, together with additional colour green. Below, on the *3D view* you can see the effects of mixing the “grey plaster” with default white colour (not changing the colour of the inserted texture) and with grounded *Texture modifying colour*. It should be note that selected texture with any additional modifying colour will look good only with black and white or monochromatic textures. All others will change in a less transparent way.



Fig. 70. Textured area without changing of the colour

Basics of Application operation



Fig. 71. Textured area with blue as a texture modifying colour



Fig. 72. Textured area with blue as a texture modifying colour

As can be seen above mixing the texture of red clinker with green *Texture modifying colour* did not result in red brick but rather in a colour mixture of red and green brick.

NOTE: It may happen that objects imported in earlier versions have their default colour *Texture modifying colour* set to different than white. In such case the objects may look much darker or have different colours than before. That is why modifying colour should be checked and if need be it should be changed into white.

3.2.5.4. Surfaces editor

The surface libraries are not installed with the program. After installing the application, download its content (description in the *Additional content* chapter).

Basics of Application operation

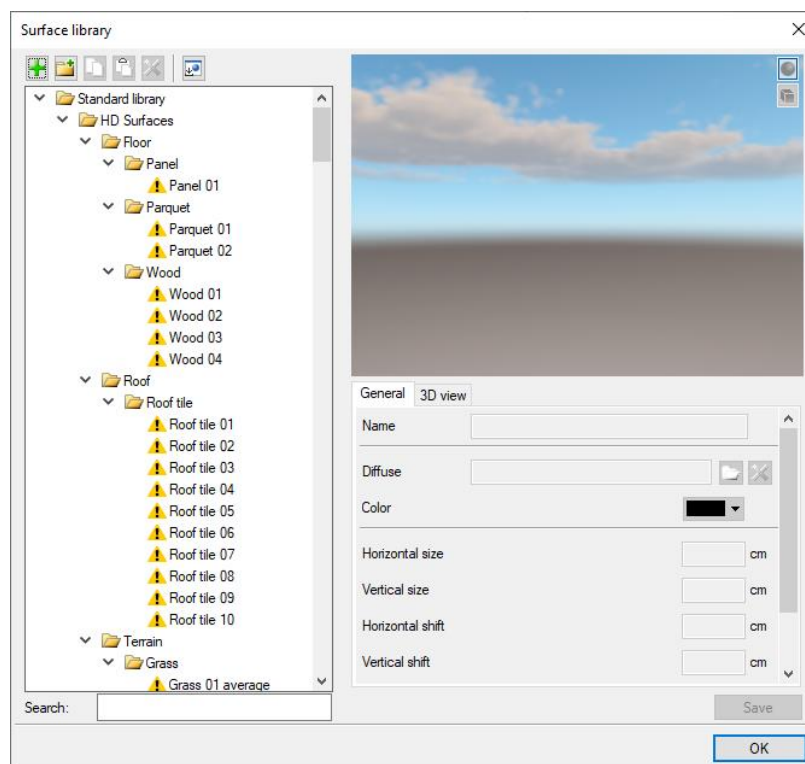


Fig. 73. The library window before downloading the content



In the above window, *SD Surfaces* and *HD Surfaces* packs can download by option  *Download the additional content from the Internet*.

Until now, the library of predefined surfaces was not editable. The materials could be selected but not changed in any way. After downloading additional content, the library window displays the downloaded surfaces, which still cannot be modified. However, you can create new surfaces and copy the ones that are in the program library (then you will be able to edit them and save them for use in subsequent projects).

After downloading the additional content, the library window allows you to create new surfaces as well as copy and edit those that are in the standard library. The library supports PBR files and these extensions: .png, .jpeg, .bmp and .tiff.

Activation:

ArCADia and ArCADia PLUS

- *Manage* ribbon ⇒ logical group *Libraries* ⇒  *Surfaces*
- *ArCADia-SYSTEM* toolbar ⇒  *Edit Surfaces library*

ArCADia LT

- *Main tools* ribbon ⇒ logical group *Libraries* ⇒  *Surfaces library*

Basics of Application operation

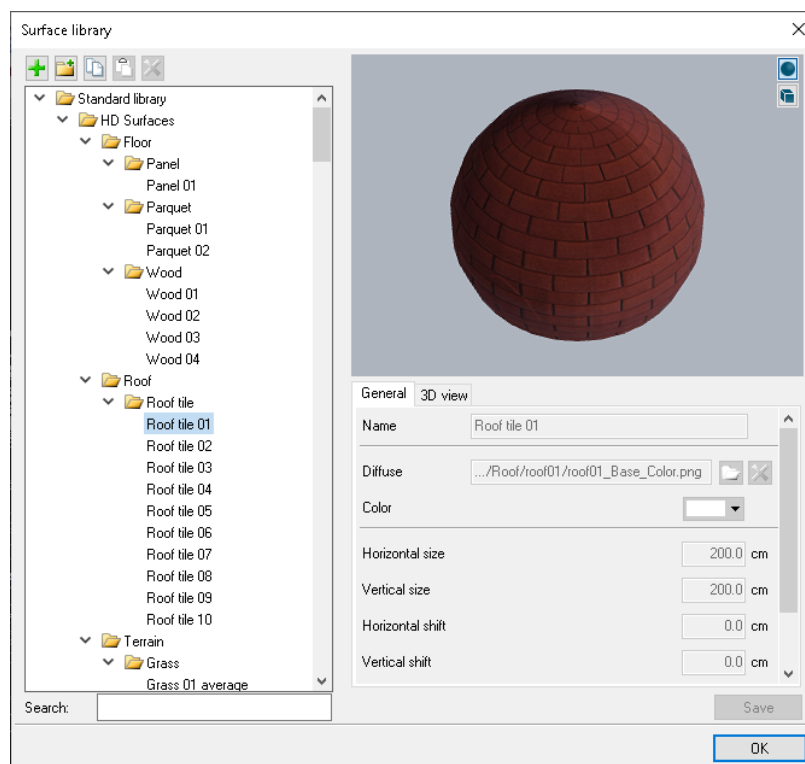


Fig. 74. Surfaces editor window

The window is divided into two parts. The left shows the library tree (*Standard library* and *User library*). The right, divided into preview and texture settings (inactive by default). The *Standard library* is non-editable, however surfaces can be copied and pasted into the *User library*, where it is fully editable. The surface preview can be presented on a sphere or a cube, the change icons are located in the upper right corner of the preview.

General – basic material settings available for all entered textures.

Name – name of the material that will be displayed in the library. Changing the name may cause the program in older projects (with previously used surfaces) to be unable to display the surface on the elements.

Diffiuse – name of the loaded texture along with the location path.

Color – the color that can be modified from the loaded texture. It will, however, be mixed with the colors of the selected file. It will not be a color replacement in the texture.

Horizontal size – width of the surface that a given material will occupy on the element.

Vertical size – the height of the surface that the material will occupy on the element.

Horizontal shift – the beginning of the texture shift horizontally.

Vertical shift – the beginning of the texture shift vertically.

Angle of rotation – texture rotation angle.

Basics of Application operation

Transparency – percentage of surface transparency.

3D View – a tab where you can change the PBR textures by loading the appropriate files and possibly changing the saturation of the effects read from them.

Normal – loading a file that gives three-dimensionality to the surface, simulating depressions.

Parallax – loading a file which renders the surface three-dimensional by simulating the relief shown at an angle.

Metalness – loading a file that gives the surface a metallic appearance that affects the contrast.

Roughness – loading a file that shows the smoothness or roughness of the material.

Specular – loading a file that defines light reflections on a surface.

Emission – loading a file that gives light to the surface by downloading its color from the loaded file.

Ambient occlusion – loading a file that shows the shadow in the recesses, mainly affecting the contrast of a given surface.

PBR textures can consist of several files. The main texture name is the same, with a dash or underscore followed by a name such as normal or bump. The base file is texture_diffuse, sometimes also called texture_basecolor, texture_color, or texture_base. Subsequent textures may also have different names, e.g. texture_parallax may also be texture_bump, texture_height or texture_displacement. All of them give the same three-dimensional effect, the convexity of the material. The texture *Ambient occlusion* it is very often marked as texture_ao.

Comparison of material surface with different settings and application of PBR textures

NOTE: *The sun is in the same position in all of the screenshots below, roughly the right side of the screen (not the top right corner itself, but somewhere above halfway). The camera is also always in the same position.*

The starting point for the comparison will be a white cube with no texture applied:

Basics of Application operation

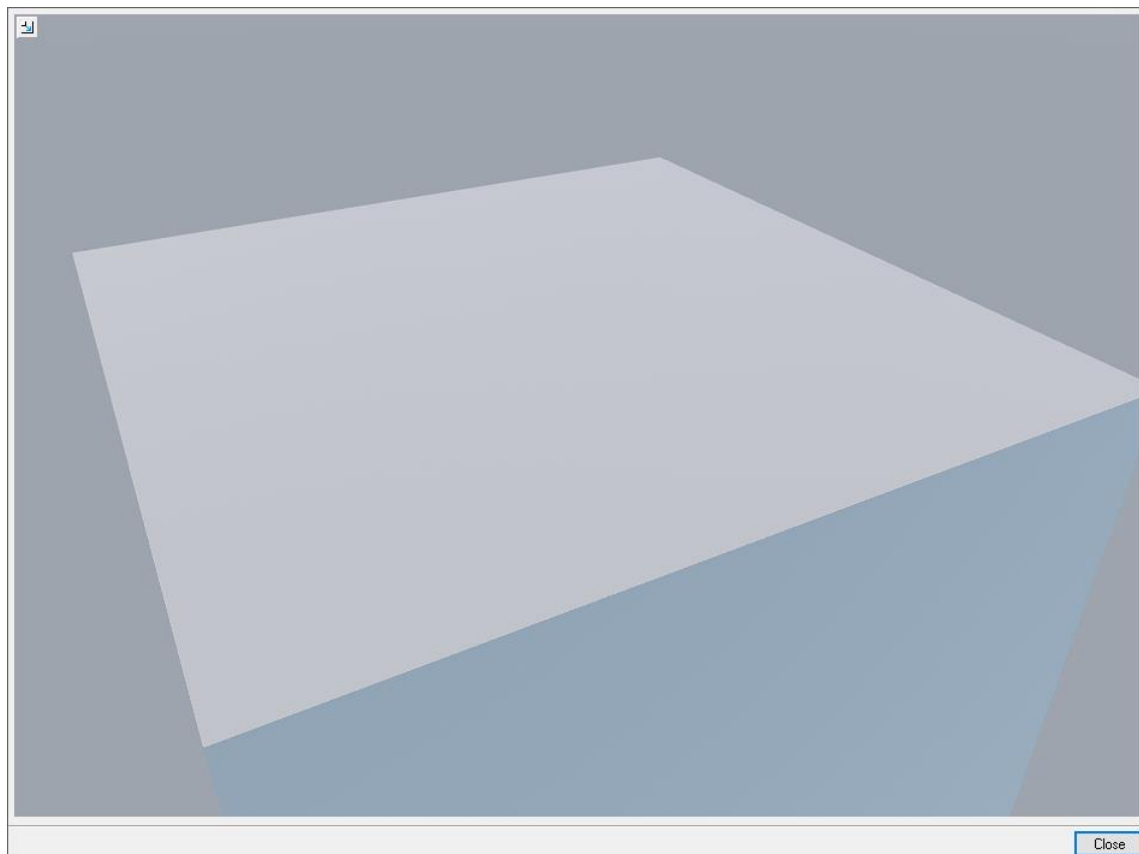


Fig. 75. Preview of the surface before entering the texture file

We add the texture *Diffuse*.

Basics of Application operation

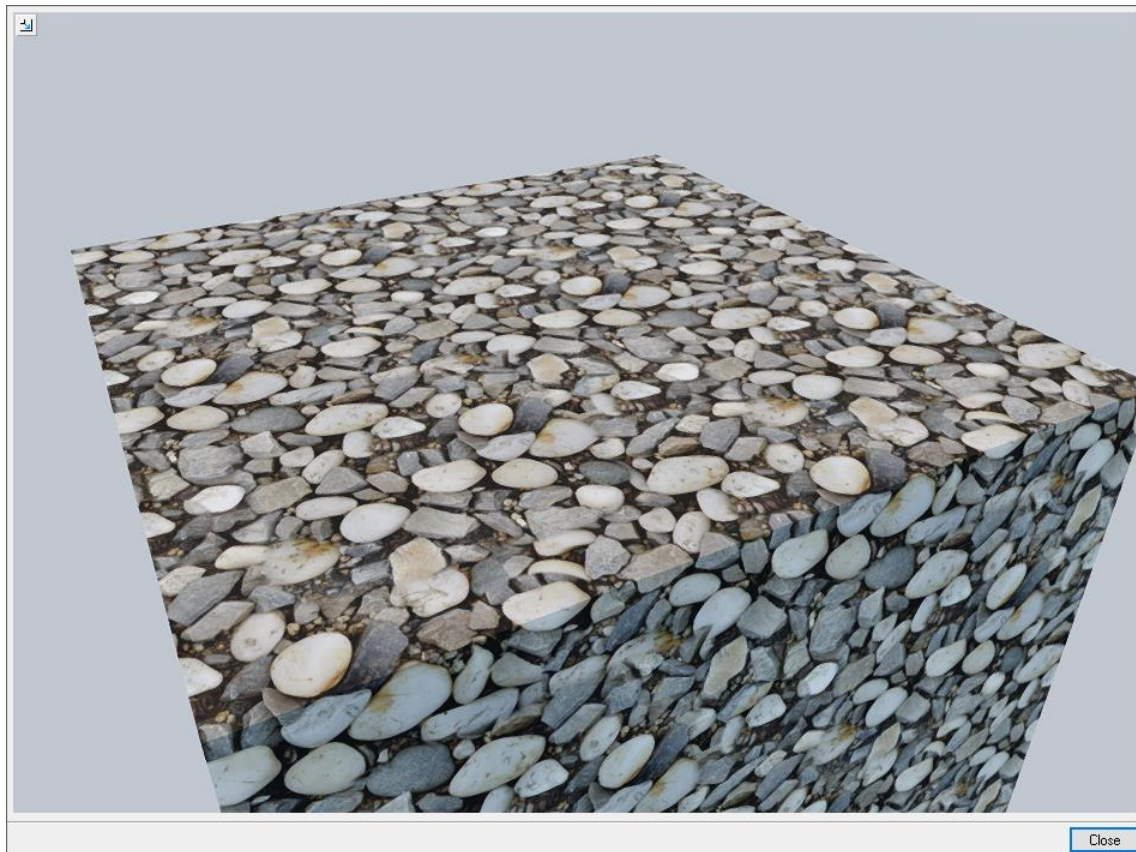


Fig. 76. Surface preview with the basic texture file loaded

There are colors and nothing else, the surface is completely flat, no light refractions are visible, there are no shadows on the surface of the stones. This is what the loaded texture file looks like without using the other PBR textures.

We add the texture *Normal*.

Basics of Application operation

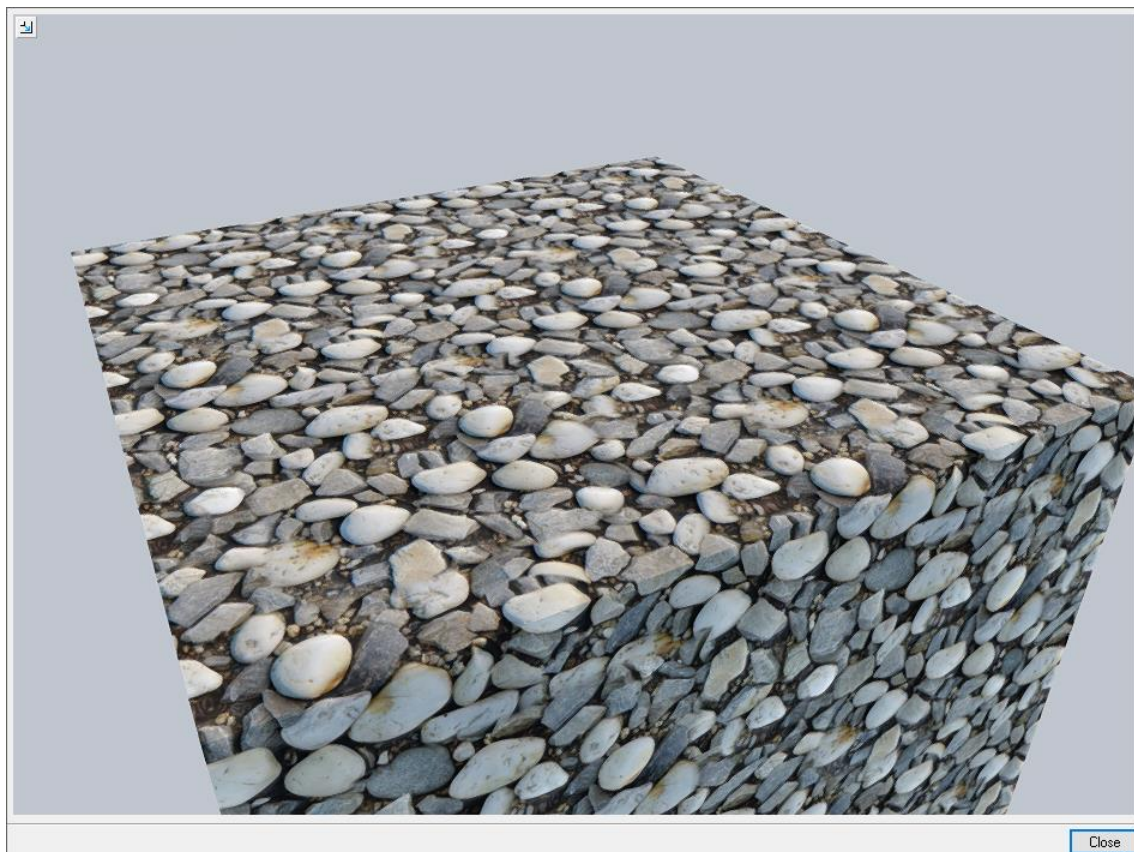


Fig. 77. Surface preview with Normal file loaded

The material begins to change, the stones look more convex, thanks to the fact that delicate shadows appeared on their surface.



Fig. 78. Enlargement of the fragment showing the shadow according to the earlier position of the sun from the right, so the shadows are visible on the left side of the stones

We add the texture [Parallax](#).

Basics of Application operation

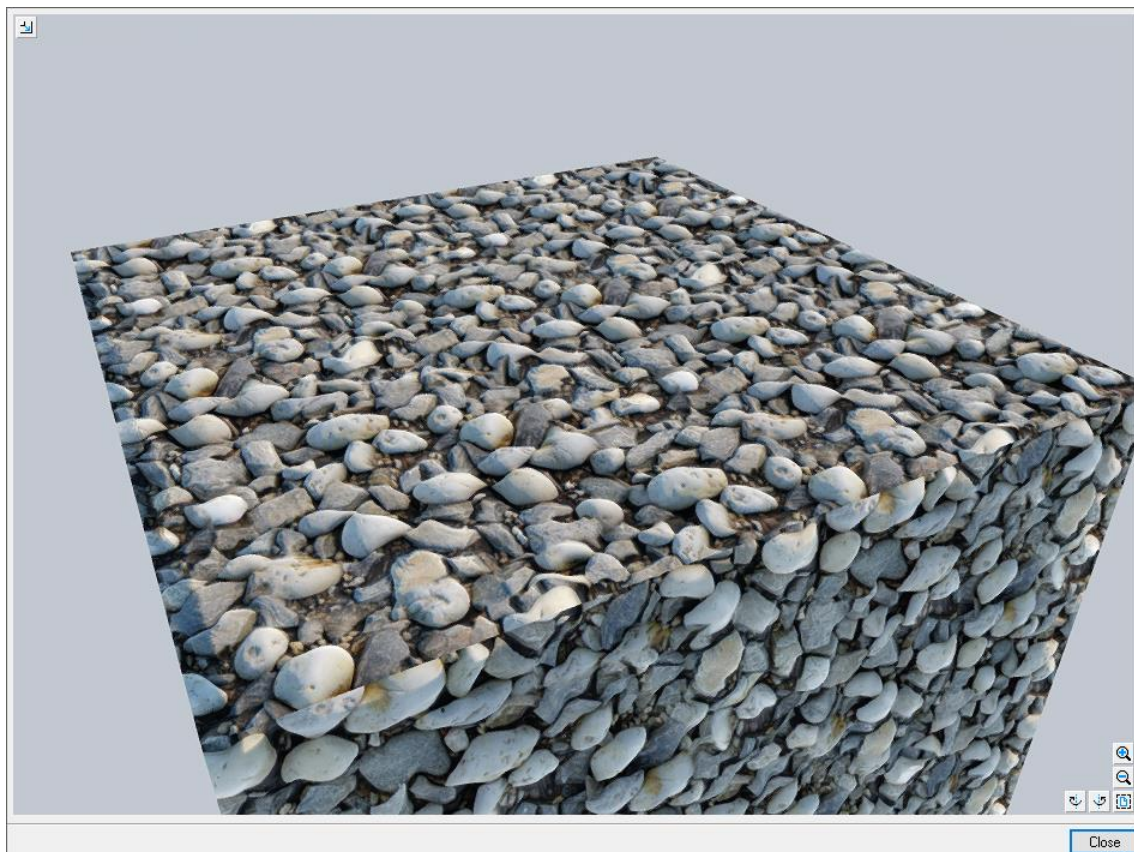


Fig. 79. Preview of the surface with the height file loaded (Parallax)

You can see new bulges on the stones, the texture has become more three-dimensional.



Fig. 80. Enlargement of the area where the changes that the use of the Parallax texture can cause

It looks as if the stone has changed its shape, its upper part has started to obscure the small pebbles behind it and the stones in front of it obscure a part of it.



Fig. 81. Enlargement of the portion that distorts the texture

Basics of Application operation

In this way, we obtained a three-dimensional surface on the completely flat face of the cube. The parallax effect creates bulges on the surface. It is important not to overdo it with its strength, because it will not look very good, values in the range 0.1-0.8 usually should be enough.

The last texture added will be *Ambient occlusion*.

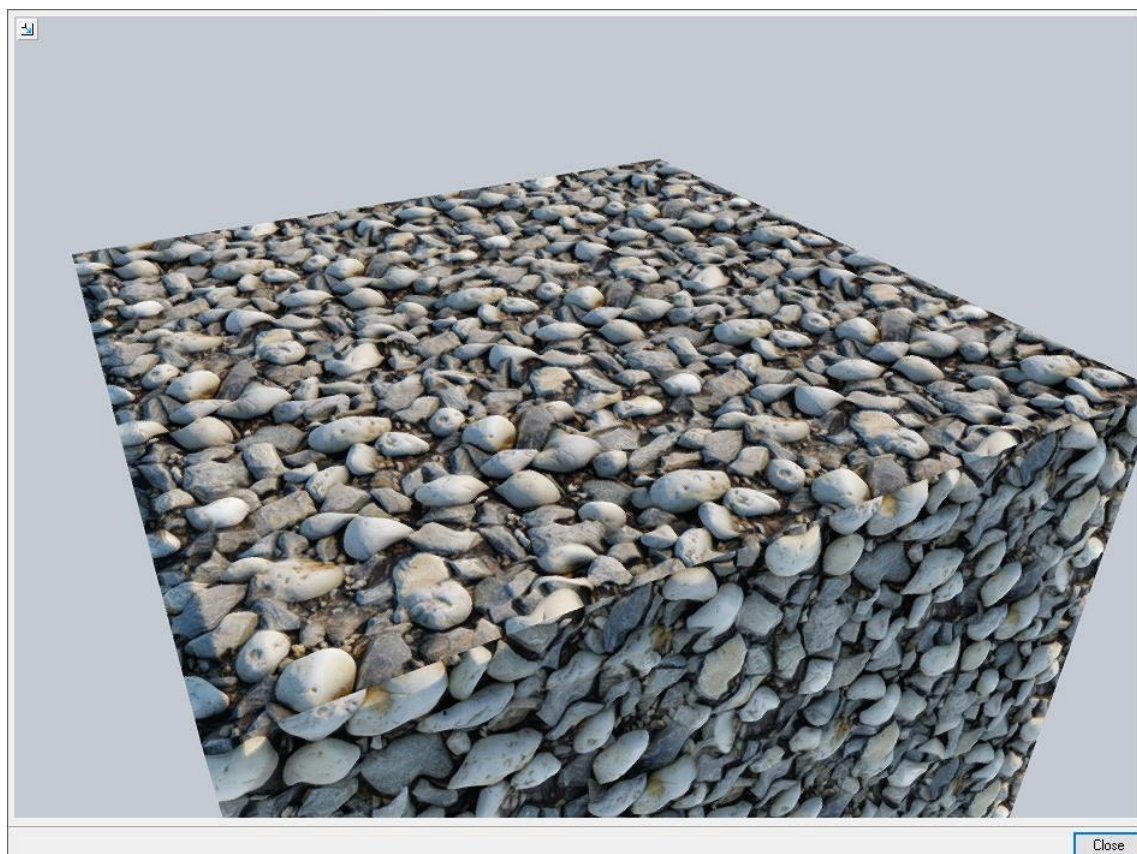


Fig. 82. Preview of the surface with the Ambient occlusion file loaded

A bit darker, but it's not entirely clear why, although the texture lighting file has just been loaded. Ambient occlusion is additional shading applied to corners, troughs, and concave surface regions.



Fig. 83. Enlargement of the fragment where you can see changes in surface shadowing

On the edge of the stone in its lower part without the *Ambient occlusion* texture it was quite light, after adding texture the stone in this place turned darker, which is true because there is less light there,

Basics of Application operation




the stone itself obscures it. The upper part of the stone remained as lit and bright as before, only the lower part darkened.

3.2.6. Construction View

In ArCADia BIM 12.0, a *Construction view* has been added, which if available, if ArCADia-RAMA (R3D3-Rama 3D) from version 17.0 or higher is installed on the computer. This view shows the static model of the designed building on the background of the real model.

Activation:

ArCADia or ArCADia PLUS

- *3D view* window ⇒  *Show Construction view*
- *View* ribbon ⇒ logical group *Views* ⇒  *Construction view*
- *ArCADia-SYSTEM Mini* toolbar ⇒  *Show Construction view*

ArCADia LT

- *View* ribbon ⇒ logical group *Views* ⇒  *Construction view*

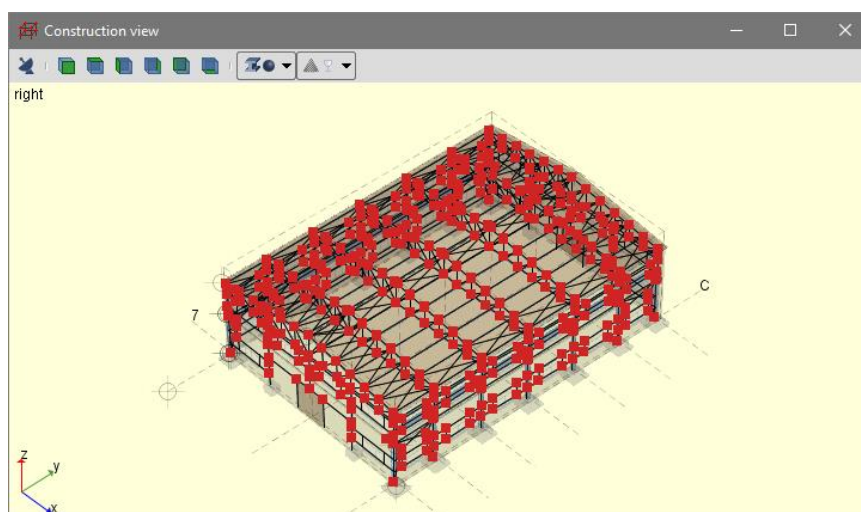


Fig. 84. Construction view of a hall design sample

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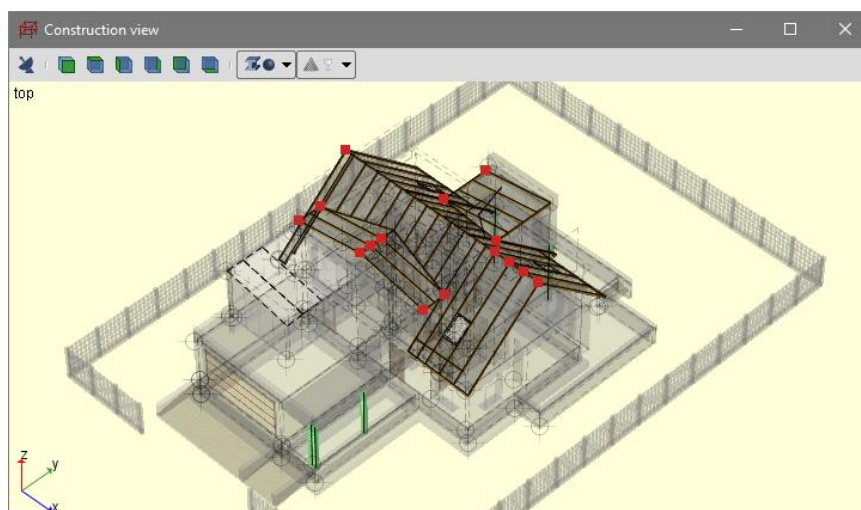


Fig. 85. Construction view of a designed single-family building sample

Tab. 17 Construction view options

	<i>ArCADia-RAMA</i>	The icon that transfers the project to the ArCADia-RAMA program (in version R3D3-Rama 3D).
	<i>From front</i>	View from the front
	<i>From top</i>	View from the top
	<i>From left</i>	View from the left side of the building.
	<i>From right</i>	View from the right side of the building.
	<i>From back</i>	View from the back
	<i>From bottom</i>	View from the bottom
	<i>Texturized</i>	The bar elements are visible in the cross-section.
	<i>Transparent</i>	The bar elements are visible in the transparent cross-section.
	<i>Hidden view of the bar cross-sections</i>	The bar elements are visible only as an axis grid.
	<i>Transparent</i>	Elements like wall, roof, etc. are visible as transparent.
	<i>Texturized</i>	Elements like wall, roof, etc. are visible with the textures that were assigned to them
	<i>Hidden view of the ArCADia model</i>	The auxiliary elements (walls, roofs, etc.) are hidden.




3.2.7. Camera

In the ArCADia system, apart from the default camera views the user may also save his custom observer's viewpoints. When inserting a camera its location, the "view" side, angle and image proportions are stored.



Basics of Application operation

Activation:

ArCADia and ArCADia PLUS

- **3D view** window ⇒  *Add camera basing on existing view*
- **Insert** ribbon ⇒ logical group **Insert** ⇒  *Camera*
- **ArCADia-SYSTEM** toolbar ⇒  *Insert camera*

ArCADia LT

- **3D view** window ⇒  *Add camera basing on existing view*
- **View** ribbon ⇒ logical group **View** ⇒  *Camera*

If the option is selected from the toolbar (or ribbon) it will be inserted in the projection. First the camera, then its direction.

NOTE: The camera location is related to the zero point of the design, i.e. meters a.s.l. The camera is not linked to the level on which it is inserted, which means that if the building is located at 200 m a.s.l, the camera in the projection will be inserted at "0" by default. On condition that the correct values are entered in the properties window.

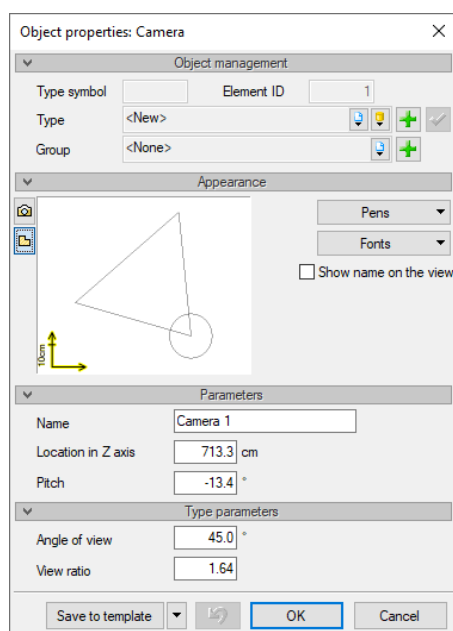


Fig. 86. Camera attributes window

Name — Name of the saved view/camera (can be displayed in the plan view after selecting the *Show name on the view* option).

Location in Z axis — default value is 180, when inserting a camera into a projection you need to enter the correct value. If the camera is added in the 3D view, the height is read automatically.

Pitch — indication of the slant angle, which determines whether the view is facing forward, down or up.

Angle of view — the camera view setting angle (scope of view).

Basics of Application operation

View ratio — when saving a camera the window size ratio (height:width) is also saved, depending on the future size of the window, once the saved camera is selected, the window size will be scaled to the saved ratio, thereby the view will match the saved camera view parameters. Even if the window is larger or smaller.

If a camera is added in the 3D view, all the parameters, except for the name, shall be read from the present view settings. If a subsequent camera is introduced the user will need to decide whether this will be a new view or a modification of an already existing camera. If it is a new camera, you save it under a new name. If this is a modified camera, when saving it you change the initial values permanently or until they are overwritten again.

NOTE: *The inputted cameras can be used for automatic saving of the visualization using the **Multirendering**, option, where, for each camera separately, you can define rendering properties (quality, date, sun position, ect.) and select the saved camera to be used.*

3.2.8. Saving view from 3D preview

The ArCADia system enables saving of the current View from the 3D preview using **Save scene as image** option. This feature does not include Raytracing option, it only saves the current View in one of the following three file formats: BMP, JPG or PNG.



Fig. 87. 3D view window in the new 3D engine

Basics of Application operation



Fig. 88. Saved file from the 3D view window using the new engine



Fig. 89. 3D View window in the old 3D engine



Fig. 90. Save from the 3D view window

Basics of Application operation

3.2.9. Rendering

ArCADia-ARCHITECTURE has the option to calculate and save the rendering, i.e. visualization of the visible scenes. You can create the rendering of a selected scene, which is currently displayed in the preview, or at the same time, start calculations for rendering of many defined cameras.

Additionally, the new version of the software lets you save the visualization on the day and at the time selected by you. The sun line is associated with the wind rose inserted to the project, in which the geographical location is defined. Then on the projection, parts of the world were specified, i.e. the north, and in the rendering options, day and hour are determined.

Before starting of the rendering calculations in the project you have to define the materials and possible lighting.

Below are the examples of further modifications of inserted textures, i.e. applying texture insertion angle different than 0, different values, and different colours of reflection for area.

Changing the texture angle.



Fig. 91. Example interior before area changes

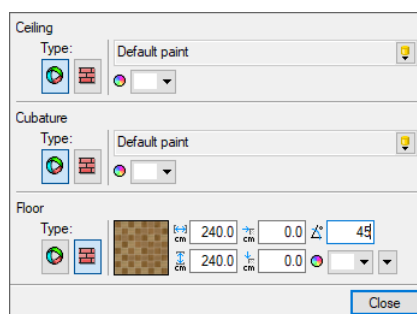


Fig. 92. Change of the material location angle

Basics of Application operation



Fig. 93. Reversed floor texture area

Reflections in surfaces.

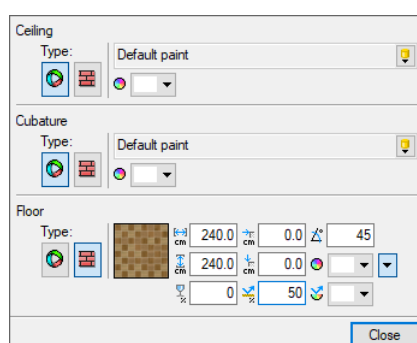


Fig. 94. Change of the material's reflection degree



Fig. 95. 50% reflection on the floor and 25% reflection for wall areas

Basics of Application operation

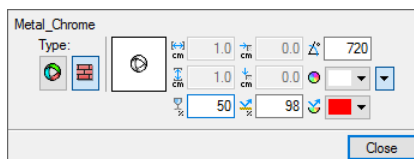


Fig. 96. Change of the material's reflection and transparency degrees



Fig. 97. 50% transparency of the fruit bowl with reflection colour change

3.2.9.1. Defining lighting

Rendering can be done by sunlight or with night-time view where sunlight is replaced with light source inserted into the project.

In the *Advanced* 3D view mode, if light is introduced into the project, and it is turned on, it will brighten the room even in the day view. Therefore, please note that if you are using the new realtime rendering engine, and if you do not need scene lighting to brighten it, you must turn it off, which will speed up the view work.

Activation:

ArCADia and ArCADia PLUS

- *Insert* ribbon ⇒ logical group *Insert* ⇒ *Light*
- *ArCADia-SYSTEM* toolbar ⇒ *Insert light source*

ArCADia LT

- *View* ribbon ⇒ logical group *Insert* ⇒ *Light*

Light sources are inserted on the projection. Both before and after inserting, intensity and colours of the inserted light sources can be changed in the properties window.

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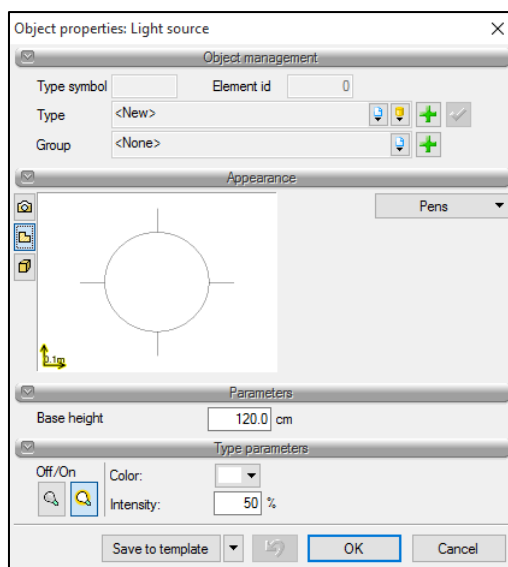


Fig. 98. Light source properties window

Base height — height of the light source location.

Off/On – turning on or off the inserted light source.

Color — the color of the light.

Intensity – intensity of the light source.

Save to template — saves the pen settings, selected styles, and miscellaneous parameters of the element into the temple.



Fig. 99. Example rendering with only the inserted light source enabled

Light sources can be used for rendering together with sunlight and with night-time light sources.

3.2.9.2. Rendering visible scenery

ArCADia has the *Rendering* option which allows for creating a photorealistic view of the designed building.

Basics of Application operation

Activation:

- **3D view** window ⇒  **Rendering**

After executing the option rendering settings window will be displayed.

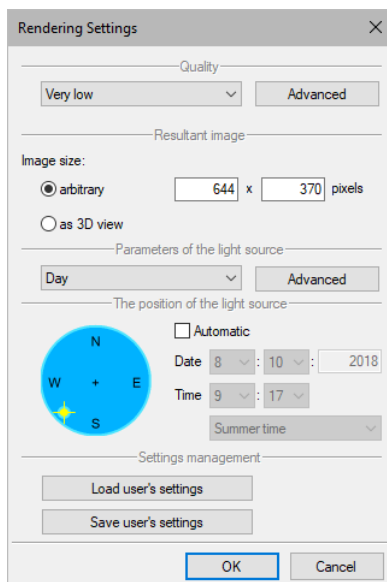


Fig. 100. Rendering settings window

Quality – rendering quality selection area Four default methods are available: *Very low*, *Low*, *High (for exteriors)* and *High (for indoors)*. *Advanced* button can be used to enter the editing window for each quality type and edit the parameters. The window displayed will depend on the selected quality (there will be different window for *Low* quality and different for *High (for indoors)*).

Resultant image – size of the rendered scene. Arbitrary view allows for giving the size in pixels, *as 3D view* do not assume the size of the open *3D view* window.

Parameters of the light source – setting the global light as day or night. In *Advanced* options you can change the color and light source intensity.

The position of the light source – allows for the indication of sun/moon location on the horizon or shows the automatic light source location resulting from the set date, hour and settings in the wind rose window.

Settings management – saving the introduced rendering quality settings, i.e. saving and reading of the file *.arcrenderset*.

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Fig. 101. Example image rendered in a High (for outdoors) quality

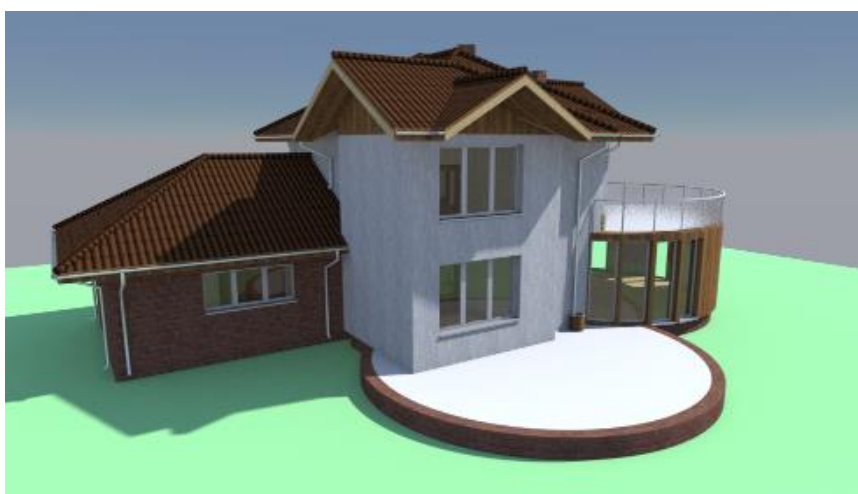


Fig. 102. Example of rendering with the use of the sun line (21 June at 10: 00 AM)

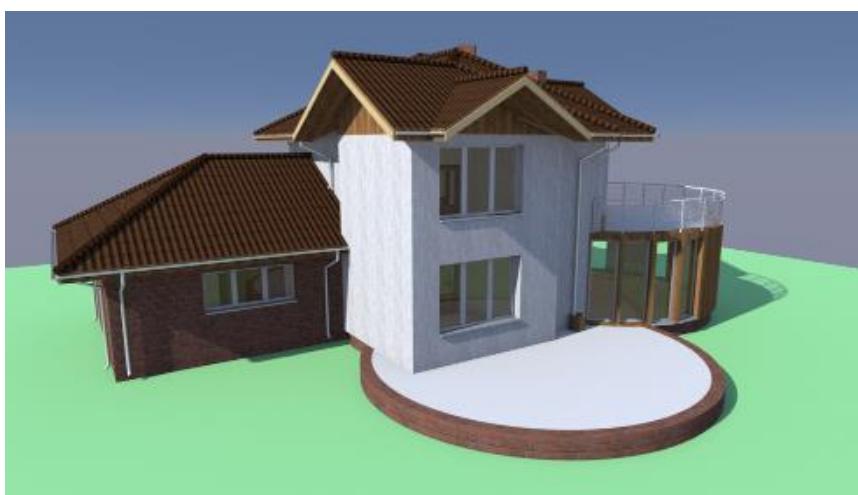


Fig. 103. Example of rendering with the use of the sun line (21 June at 5: 00 AM)

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NOTE: *Rendering window is a separate window which works independently from the ArCADia software, therefore after moving the geometry of the scene in to project you can still work with it, e.g. by introducing diameters or descriptions to the project.*

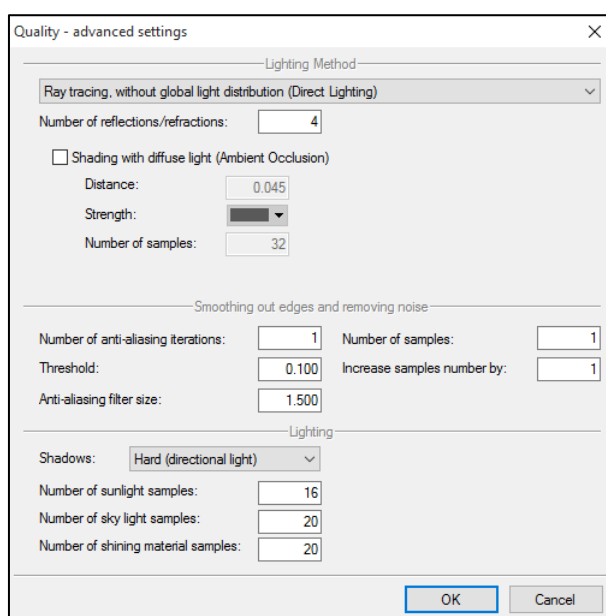


Fig. 104. Low quality rendering properties window

Lighting Method:

Ray tracing without global light distribution (Direct Lighting) – directed light presented without showing the interactions between the different planes.

Ray tracing, calculating global light distribution (Path Tracing) – photorealistic rendering which analyses both the path of rays and global light distribution.

Photon mapping, calculations of global layout of light – tracking of photons emitted by lights in the scene.

Settings are matched to the scenes which they will work with. It is possible that default settings will need to be changed as the effects of the rendering will not be satisfactory. Below are presented the examples of using different rendering options.

Basics of Application operation



Fig. 105. Example for final gather option disabled



Fig. 106. Final gather enabled, Number of samples 2

Basics of Application operation



Fig. 107. Final gather enabled, Number of samples 1024

As can be seen from the screenshots above, the *Number of samples* is very important for final gather in situations with artificial light. *Number of anti-aliasing iterations* can also be changed, but the field *Number of samples* is the most important. Changing this value will extend the calculation time of a scene but the effects are worth it. For better visualization, it is good to save the view in larger format and reduce it later on. The final effect will be better.



Fig. 108. Diffusive photons = 10

Basics of Application operation




Fig. 109. Diffusive photons = 75

The value of *Diffusive photons* is responsible for the brightness of the scene, the higher the value the brighter the scene.

3.2.9.3. Multi rendering

New version of the ArCADia-ARCHITECTURE software has the *Multi rendering* option which allows for calculating rendering for many cameras at the same time. The cameras captured for multi rendering must be defined earlier in the project.

Activation:

- 3D view window \Rightarrow  Multi rendering

After activating the option the following window will be displayed:

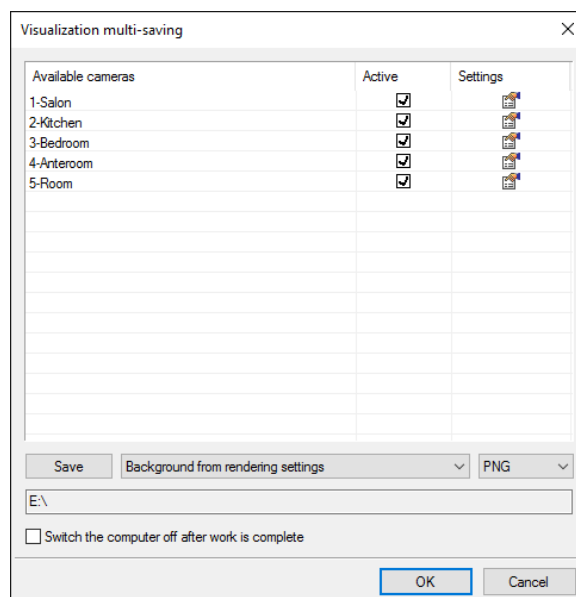


Fig. 110. Camera selection window for saving multi rendering

Available cameras – list of the cameras inserted into the project.

Active – selection whether the view from a particular camera will be rendered or not.

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Settings – setting the quality of rendering, image size, and sun (or moon) location. Displayed window is a rendering properties window described in the *Rendering chapter*. For each camera different quality, image size, and sun location can be set.

Save – selection the save location of the view from the selected cameras. Names will be taken automatically from the cameras.

Background from rendering settings – selection of type of background imported from rendering, 3D view, or lack of background.

Save format – file format of the save visualization files: BMP, PNG, JPEG, TIFF, GIF.


Switch the computer off after work is complete – after saving all renderings, after selecting the option, the computer will be shut down.

After confirming camera selection, the capturing of geometry of subsequent views occurs, and after that the scenes are rendered. During this operation rendered scenes cannot be previewed, as they are calculated and saved to files one by one. And if the option has been marked, the computer will be shut down.

3.3. Project propertie

Project data (investment name, location and designer data) can be found in the *Element Properties: Project* window.

Activation:

- *Manage* ribbon ⇒ logical group *Project* ⇒  *Properties*

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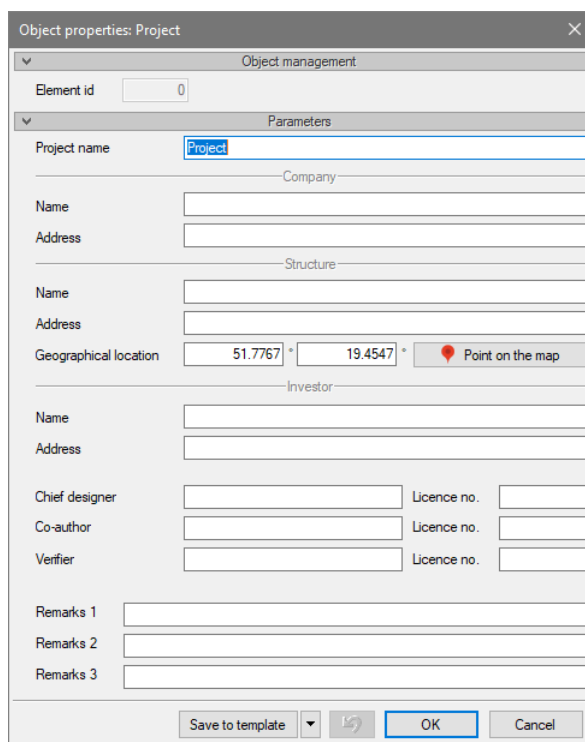


Fig. 111. Project properties window

In previous versions of the program, the above window was called only from the properties window of the table entered into the project, and the coordinates of the designed object were defined in the *Wind rose* window. These options have been combined and the option to indicate the project location from the map has been added.

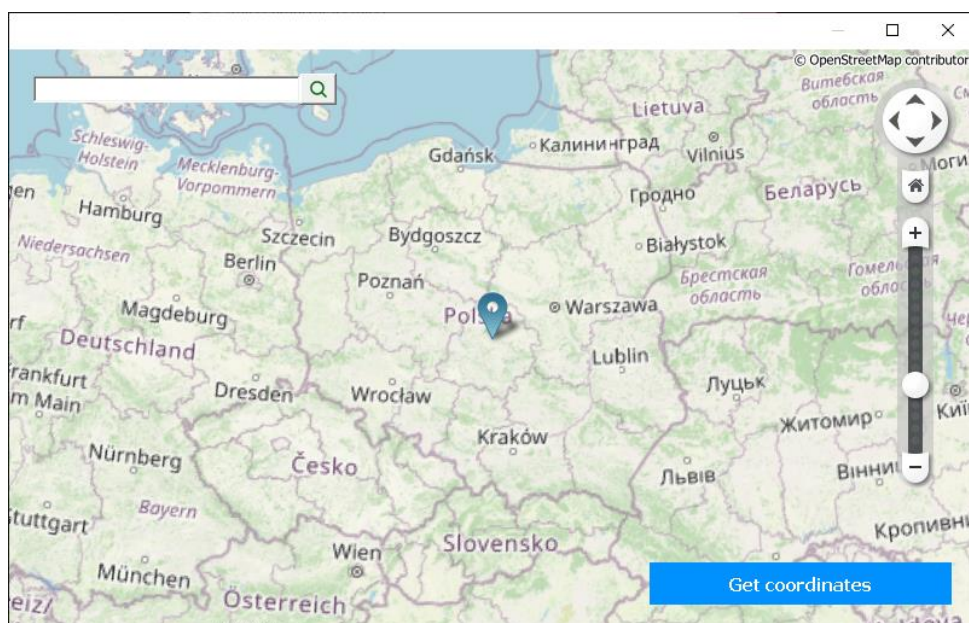


Fig. 112. Default project location window

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The map location is only available online, if there is no Internet access, the project coordinates can be entered manually.

3.4. Comparing projects

While drawing the project, you save it under different names. Sometimes it is one of the phases of the project, sometimes it is a safety copy. When searching for an appropriate phase of the project you open the files one by one and blindly look for the changes. Presently ArCADia system has new function of *Comparing Documents* which will help the user quickly find changes in two selected documents. This option can also be helpful with projects drawn by more than one person. In such case if you do not know exactly what was changed and what was added *Compare documents* option will be very helpful.

NOTE: Only documents based on the same file can be compared, i.e. subsequent versions saved under different names. It is impossible to compare two files based on different source documents.

The option is available for an open document which you can compare with other open or selected from a location drawing.

Activation:

ArCADia and ArCADia PLUS

- *Manage* ribbon ⇒ logical group *Merge* ⇒  *Compare documents*
- *ArCADia-SYSTEM* toolbar ⇒  *Compare documents*

ArCADia LT

- *Home* ribbon ⇒ logical group *File* ⇒  *Compare documents*

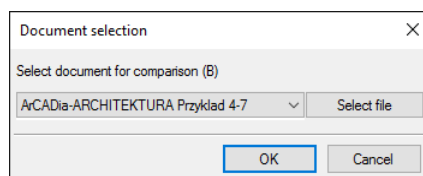


Fig. 113. Second compared document selection window

In the window presented above you have to select second file for comparison. If both documents are open, then, as presented above, list will show the name of the second document for comparison. If only one project will be open, then on the list there will be *<none>* and file for comparison should be selected using *Select file...* button.

NOTE: New file with both documents presented in a single view, will be opened. If any cross-sections or additional projections were inserted into any of the documents they will not be included in the comparison. Only the **View 1** will be compared.

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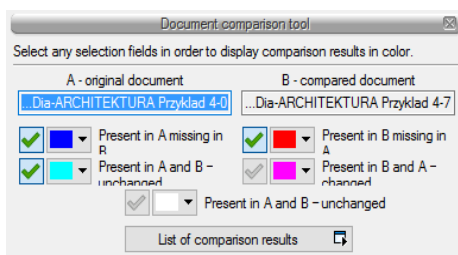


Fig. 114. Comparing documents window

A – original document – name of the primary open document including location path.

B – compared document – name of the document selected for comparing including location path.

Present in A missing in B – elements of the project that can be found exclusively in the primary document of the comparison. During the next phase, they were added to the primary document or deleted from the compared document.

Present in B missing in A – elements drawn in the second, compared, document, i.e. those that are not present in the first project selected for comparison because they were drawn in the second document or deleted in the first one.

Present in A and B – changed – elements present in both projects but changed in one of the documents, elements are different with respect to location, size, or type parameters.

Present in B and A – changed – elements present in both of the projects but changed in one of the documents, elements are different with respect to location, size, or type parameters.

Present in A and B – unchanged – elements that are identical in both documents, unchanged in any way - unmoved, type not changed, etc.

List of Comparison results – window where all the elements from both drawing are displayed together with colour markings of the identical or changed elements.

Each of the above mentioned options has its own colours for the elements displayed. Colours can be changed but similar ones should not be chosen in order to avoid mistakes when comparing the documents.

Basics of Application operation

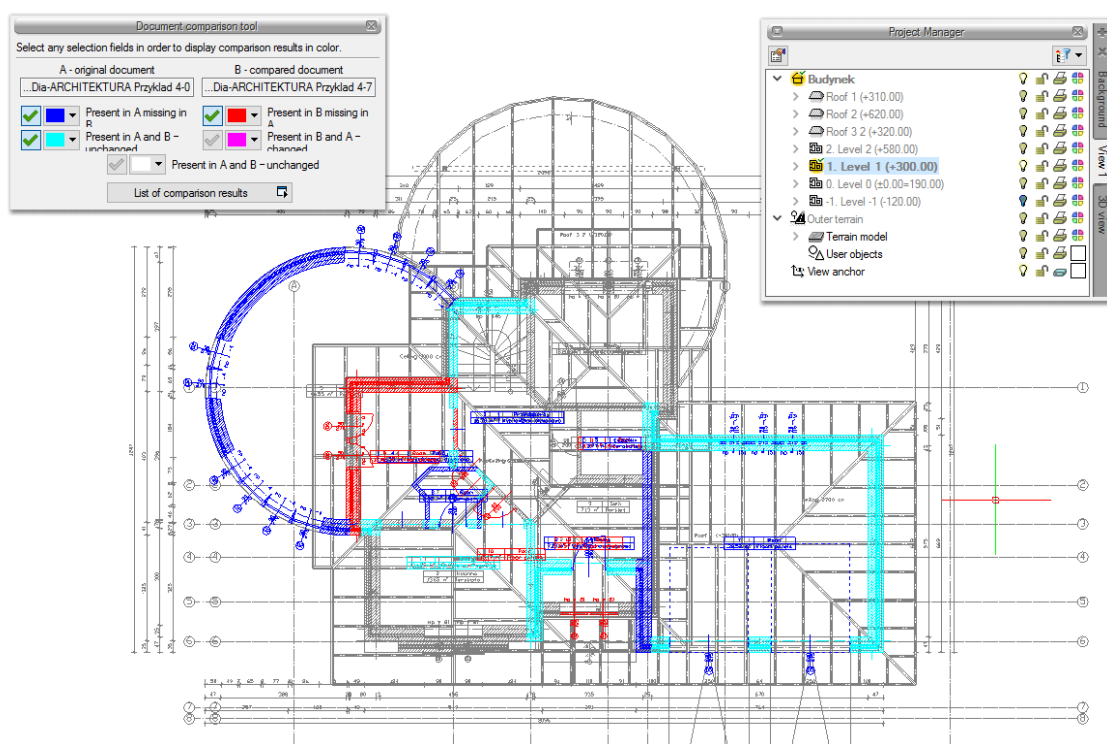


Fig. 115. Example of comparing documents

The example above shows the comparison of two documents where level one has changed.

Compared documents are opened on the same level, where primary drawing was opened. You can move between the levels in a standard way, in the *Project Manager* window. Additionally, *Comparison results list* can be helpful.

By default list displays *All views*, i.e. all elements of levels, roofs and external terrain. Active level is the one that you change in the *Project Manager*. If *Active view* will be selected in the *Comparison results list* window then the list of changes will include elements excluded from the active level, roof or external terrain (depending on which is selected in the *Project Manager*). Other items will not be displayed on the list. Displaying on the projection in the 3D view or the cross-section is still managed in the *Manager* window.

Basics of Application operation

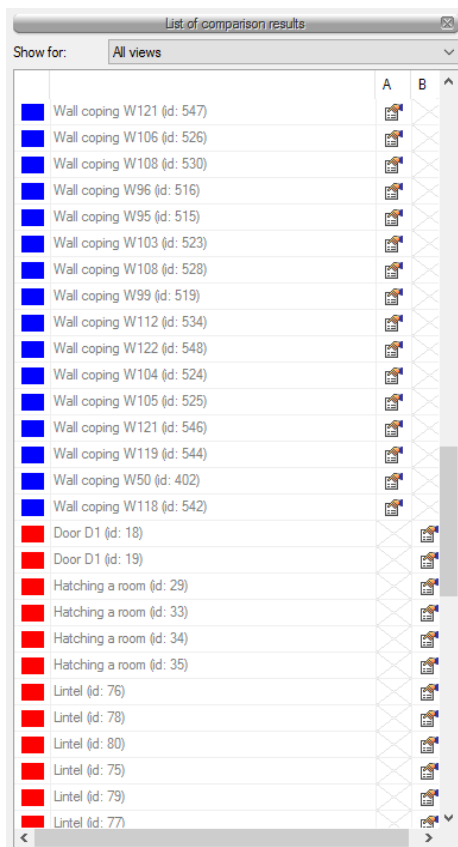


Fig. 116. List of new and changed elements in the compared documents

The list displays element name (e.g. wall, window, door), type symbol (e.g. O1, D4, S1), *id* (displayed in the editing window after selecting an element) and access to the properties window. After selecting the element from the list the projection of the building will be moved, enlarged (reduced) to show on the projection where the selected object is located.

Basics of Application operation

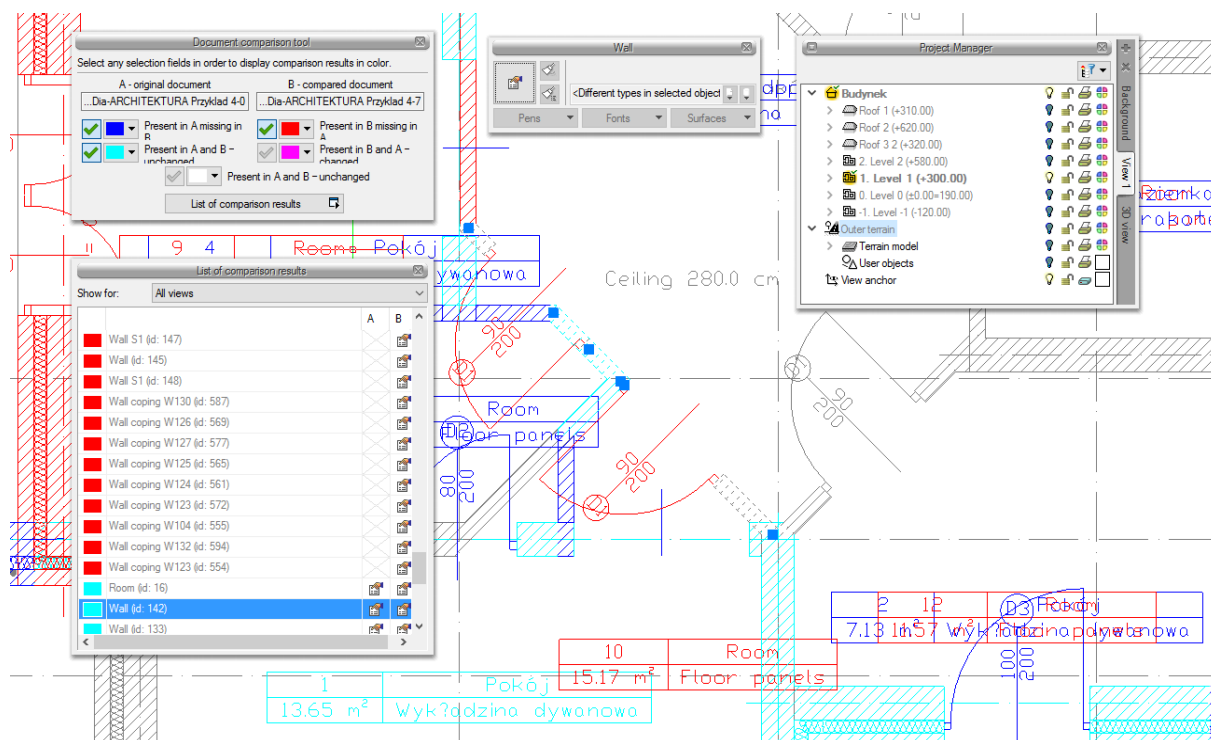


Fig. 117. Sample selection from the list and automatic centering of the drawing

The changes in the document are best viewed if you select the fields *Present in A, missing in B* and *Present in B, missing in A* and elements change from one of the documents. In the example above new or deleted elements from other versions are visible in standard colours - red and dark blue. Additionally, changed elements are marked in cyan (light blue). The elements which are drawn in grey are elements from inactive level or, as in the example, are changed versions of walls from the second document compared. If you selected option *Present in B and A – changed* then the walls marked in cyan will be changed into grey, and grey ones will change into pink showing the changes in the compared document.

Basics of Application operation

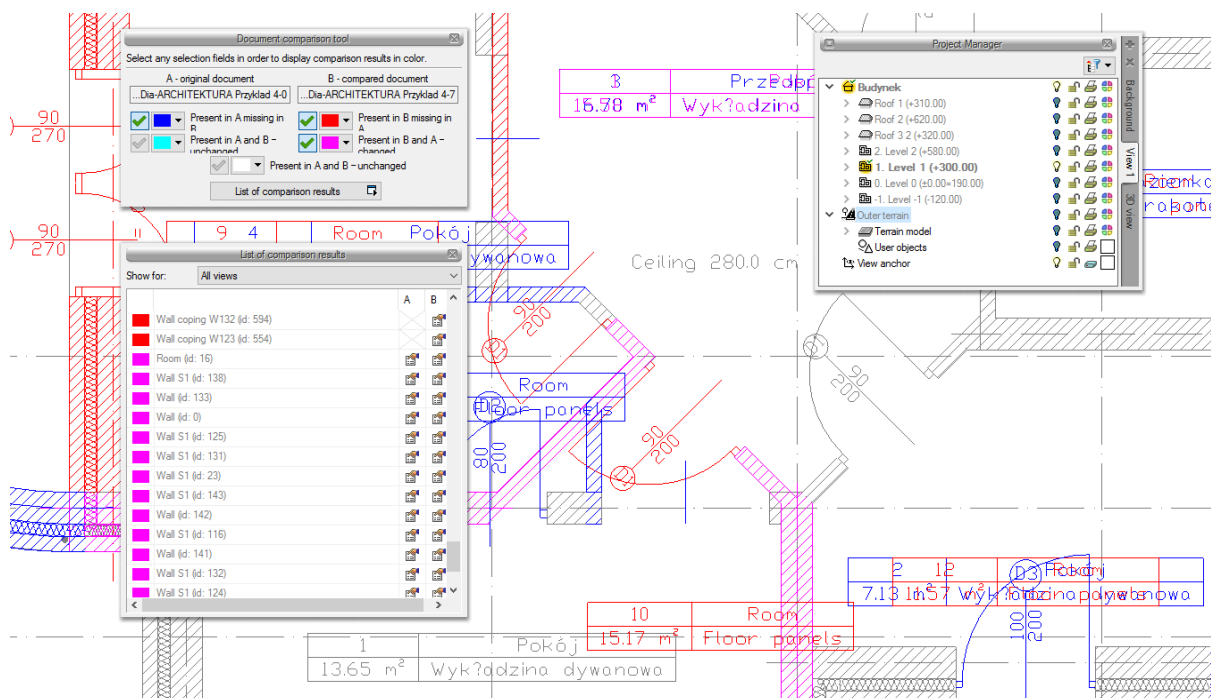


Fig. 118. Compared documents with changes from the document 2 visible

Changes can be viewed on the projection, 3D view, and on the comparative cross-section inserted in the document.

NOTE: Only the elements of the ArCADia BIM modules are compared now (elements of buildings and Benchmarks). Additional elements such as lines, texts, etc. and IFC model do not take part in comparison of the data.

If storey height was changed in one of the documents, then during the attempt to compare the documents information about change of one of the levels will be displayed in the [Comparison results list](#) together with the information about the necessity to unify heights.

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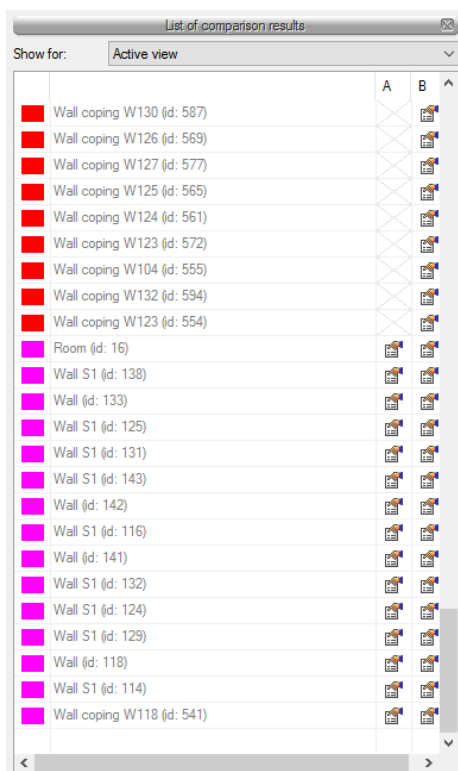


Fig. 119. List of changed and added elements in the second document

During the comparison of the documents nothing can be changed and saved document will be flattened and will not have elements such as wall, window, etc. but only flat blocks. Currently the option [Compare documents](#) displays only changes in the documents, it is impossible to save or modify the drawings. In the first version, it is only graphical display of changes.

If the window presented below will be displayed during the work, it means that autosave option was started and saved fill was changed into the flat document presenting changes. It bears no influence on further comparison.

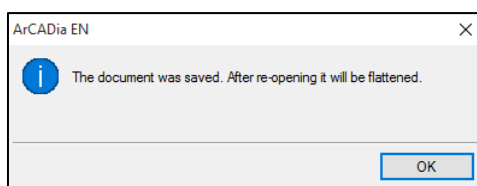


Fig. 120. Autosave information

3.5. Merging projects

The possibility to merge projects between branches, i.e. loading projects from one branch to the file confirming projects in other branch, is the option introduced in ArCADia 6.0. This option is helpful for merging projects within a branch and checking the collisions between them, and during the design, when architect's project is changed and is send to a specialist who has his project partially or completely drawn. Until now it was necessary to insert again, e.g. sanitary or gas installation, again on

Basics of Application operation

a new project. Now all what is needed is to load the new version of the architecture and match the branch project.

Activation:

ArCADia and ArCADia PLUS

- **Manage** ribbon ⇒ logical group **Merge** ⇒  **Merge documents**
- **ArCADia-SYSTEM** toolbar ⇒  **Merge documents**

ArCADia LT

- **Home** ribbon ⇒ logical group **File** ⇒  **Merge documents**

After executing the command the window, where the user selects the document to be merged, is displayed.

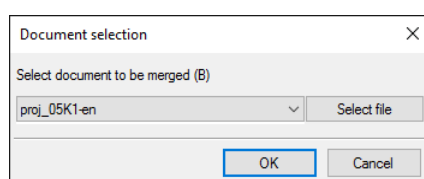


Fig. 121. Selecting documents for merging window

Document list displays open files which can be merged. If there is no file on the list, it should be selected by pressing **Select File**.

NOTE: Only documents based on the same file can be merged, i.e. subsequent versions saved under different names. It is impossible to merge two different files created based on different source files.

After confirming choice another window appears, where you have to select branches, from which you want to add documents to the new file.

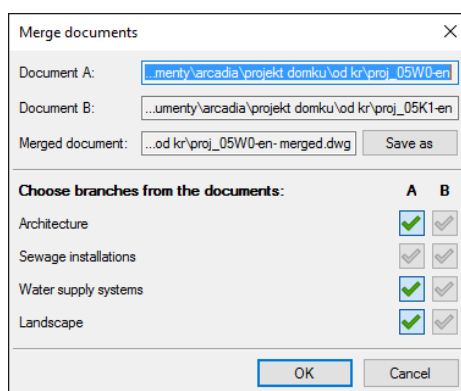


Fig. 122. Merging documents window with default settings

Document A – primary project open, for which merging documents option was selected.

Document B – project open during merging the documents.

Basics of Application operation

Merged documents – project which will be created based on the selection of branches from the lower part of the window. By default the project is saved in the same catalogue where document A is located, this location can be changed using **Save as button** and providing new location for saving the file.

Select branches from the documents – by default branches from the first selected documents are ticked (✓). This choice can be freely changed, or e.g. remaining branches, missing in document A, can be ticked. Selection of branch is done by clicking the icon: ✓.

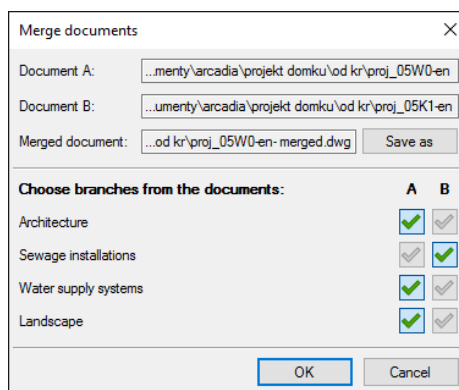



Fig. 123. Change of branches is done in the merging documents window.

NOTE: Merging pertains to the project model. In the merged document views and the structure of the building will be transferred from the Architecture module, therefore it is important to select from which document it will be downloaded. Additional views from the second document will not be transferred.

3.6. Buildings

Drawing an architectural project should start with creating a building. After inserting a View in a **Project Manager** window, icon  **Add new building** is added. Activating the option results in displaying of the following window:

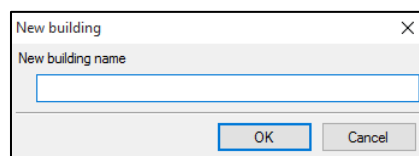









Fig. 124. New building window

After confirming the name a building is created together with first level, with default name and other parameters.

After selecting the building name from the tree in the **Project Manager** window, the following modification options are available:

Basics of Application operation

Tab. 18 After selecting the building name from the tree in the Project Manager window, the following modification options are available:



	<i>Building properties</i>	Displays the <i>Properties</i> window
	<i>Add new building</i>	Adds another building to the drawing, displaying the window <i>New building</i> .
	<i>Delete building</i>	Deletes active building.
	<i>Move building</i>	It moves the building to the selected position.
	<i>Copy building</i>	Creates a copy of the building and inserts it into a selected location.
	<i>Mirror building</i>	Creates a mirror copy of the building.
	<i>Add level</i>	Adds another level in the building and places it above the active level and displays <i>Level properties</i> window.

3.6.1. Building wizard

ArCADia BIM is equipped with option that helps in creating multi-levelled virtual building with one move. It defines the quantity, names, parameters of subsequent levels, and placement of the location view. For each level separate view may be introduced, as a result, levels may be displayed next to each other or one below the other, and not only one on top of the other.

Activation:

ArCADia and ArCADia PLUS

- *Insert* ribbon ⇒ logical group *Insert* ⇒  *Building wizard*
- *ArCADia-SYSTEM* toolbar ⇒  *Building wizard*

ArCADia LT

- *View* ribbon ⇒ logical group *Project* ⇒  *Building wizard*

After executing the command the following window will be displayed:

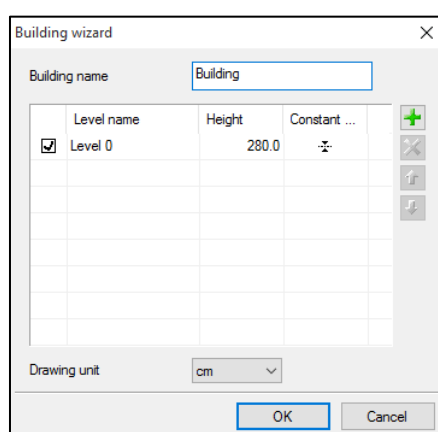


Fig. 125. Window creating a building by means of defined levels

Building name – the name of the inserted building.

Name levels – names of the levels (default Level 0), which can be defined by the user.

Basics of Application operation

Height – storey height counted from the top edge of the raw ceiling to the top edge of the row ceiling.

Constant point – beginning view, location defined by the user as a view anchor of the level. Handle of the subsequent levels can be inserted next to each other or below each other, leaving the space for drawing project's projection.

Add (+) – add level below the lowest level. If the level is supposed to be above other level it has to be moved using the arrow icon **Up ↑**.

Delete (X) – deletes the selected levels.

Up (↑) – moves levels one level above.

Down (↓) – moves levels one level below.

Drawing units – selection of the unit which will be used for drawing of the projection.

NOTE: The column before the level name is responsible for the selection of a base level, that is the level which will be "0" level in the project.

After defining the level and designating their location you confirm the window and move to the drawing of the project. **Building wizard** inserts only „layers” of the levels, for which the user draws the project. Level views will be displayed in tabs in the Project Manager window and their names will be the names of the levels. While working, and moving to the designing another level you should switch using view tabs.

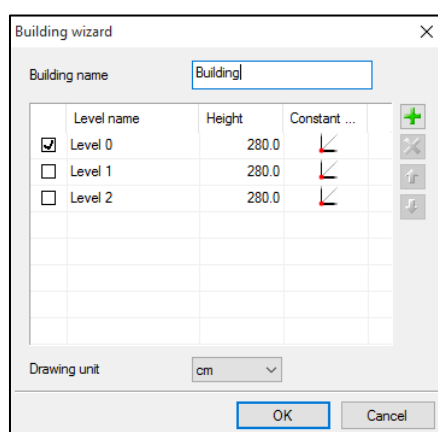


Fig. 126. Sample task with three levels with different location of constant points in the creator window

When defining the levels in the window above constant points for every level where designated. After confirming the above mentioned window, we will receive only the handles of subsequent levels.

Basics of Application operation

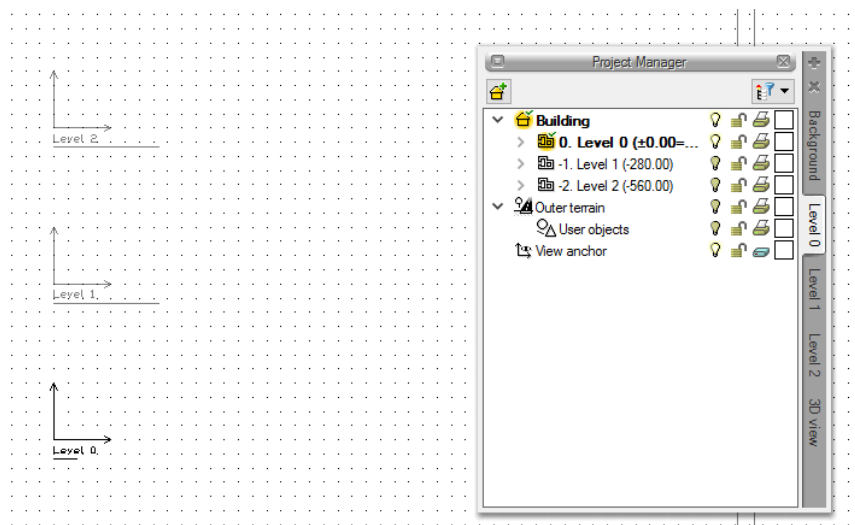


Fig. 127. Sample task with three levels with different location of constant points

In the Project Manager window building tree can be seen, i.e. three levels and on the right side a tab which name is the same as the level's name. For each view active level was defined, therefore to switch between the levels you need to switch views.

During the work with each view you can disable the visibility of the remaining levels leaving only the enabled bulb of the active level.

3.7. Terrain





To reflect the project better, both in the *3D view* and the cross-section, you can introduce an area plane by means of spot or line heights. These options give you the possibility to freely shape the terrain relief by accurately reflecting the factual and designed conditions of the site where the designed building is to be erected.

As of version 4.1 ArCADia provides new features for the terrain, dividing it into the existing terrain and designed terrain. This is the prequel to a new feature, which will be provided with additional specialized functionalities in subsequent software versions.

The terrain may be shaped with the following features: *Spot height* and *Spot height line* by inputting the relevant data or reading it from the drawing text.

In the program, you can additionally edit the terrain initially inserted by means of spot and line heights, insert pools, plants and ponds. These options are available in the ArCADia-LANDSCAPE ARCHITECTURE module. These options are described in Help Files of the ArCADia-LANDSCAPE ARCHITECTURE module.

Activation:

- *Landscape* ribbon ⇒ logical group *Landscape* ⇒  *Spot height* and  *Spot height line*
- *ArCADia-TERRAIN* toolbar ⇒  *Insert spot height* and  *Insert spot height line*

Once the option is selected, a spot height dialogue box is displayed.

Basics of Application operation

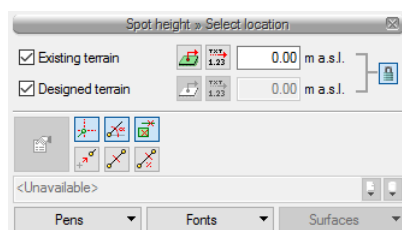



Fig. 128. Inserting Benchmarks dialog box

Existing terrain – turns the existing terrain ordinate for this spot height on or off and deactivates (greys out) the controls: for introducing values, the button  **Take value from text** and the check box **from the area** relevant for this ordinate.

Synchronize values  – turns the editing field **Designed terrain** on or off, taking over (or not) the values from the **existing terrain** field.

NOTE: This button is only available in a situation where the two check boxes **Existing terrain** and **Designed terrain** are checked.

Real terrain coordinate – when it is turned on it deactivates the control for introducing the area altitudes for the existing/designed terrain respectively. The software reads the real/designed ground area height from underneath the mouse cursor or the snapping points and inputs the read value into the control. Should the mouse cursor be outside the real/designed ground area, then the value fed into the control is 0.00.

Designed terrain – similar to the **Existing terrain** field.

After the value is entered the spot height line or spot height are inserted, respectively. The more spot height, the more detailed the terrain relief.

NOTE: In order to adjust the Terrain point height to the building embedment it is necessary to remember that the building location is defined by the Absolute base height, i.e. the above sea level height defined for the base level (usually the first defined level).

For example:

A building where the ground floor is located at a height of 240 m a.s.l. is elevated against the terrain by 25 cm.

Basics of Application operation

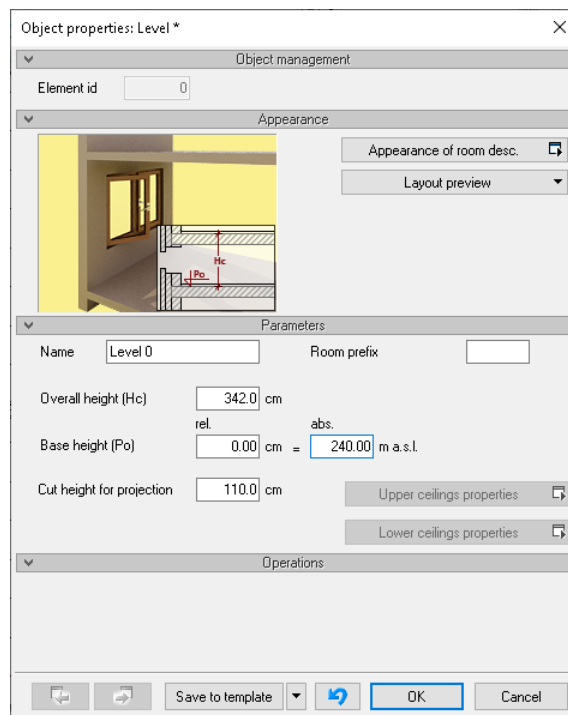


Fig. 129. Level properties dialog box

Data is entered for the base level, where 0.00 of the building (ground floor) is 240 m a.s.l. Whereas for the designed terrain you'd indicate for the benchmarks that they are at 239.75 m a.s.l., i.e. 25 cm lower.

NOTE: If the spot height is to indicate the terrain ordinate, you need to enter this after switching to the *External terrain* in the project tree of the **Project Manager**.

Basics of Application operation

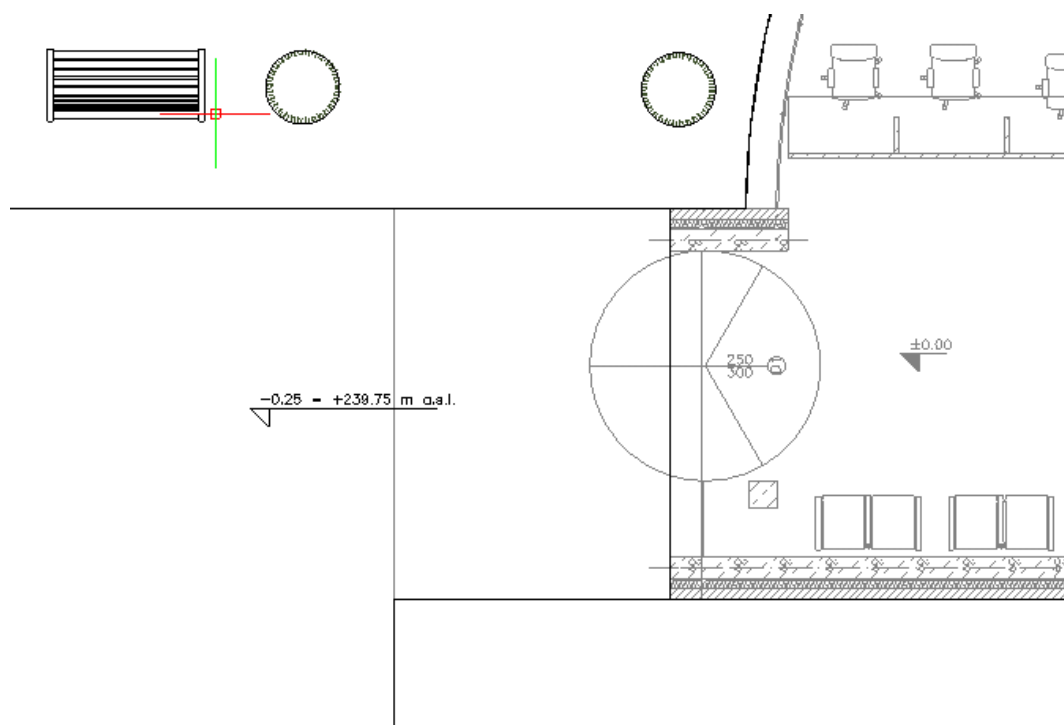


Fig. 130. Sample project with height description

3.7.1. Inserting spot height

Prior to inserting points, you need to determine their height and then indicate the designated location.

Activation:

- *Landscape* ribbon ⇒ logical group *Landscape* ⇒ *Spot height*
- *ArCADia-TERRAIN* toolbar ⇒ *Insert spot height*

The inserted benchmarks are represented on the drawing as in the image presented below.

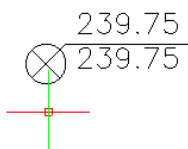


Fig. 131. Benchmark for on the drawing

After calling the option you can insert benchmarks with different heights, changing these as needed in the *spot height* window for the designed or existing terrain.

The more spot height there are in the projection, the more detailed the shape of the designed terrain will be.

Basics of Application operation

Each spot height may be re-edited, changing its height or e.g. panning it. Below you can see the *Object properties: Spot height* window.

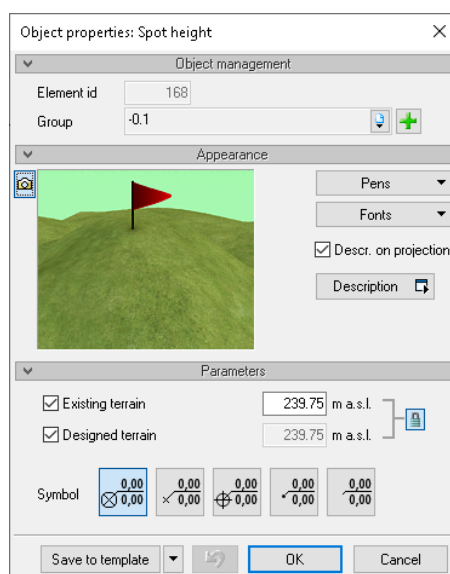


Fig. 132. Spot height properties window

NOTE: When the third spot height is entered, the terrain plane (existing, designed or both) is added. In the terrain plane properties window you can define whether it is visible from the top (default) or from the bottom (e.g. to show installations or sewage systems).

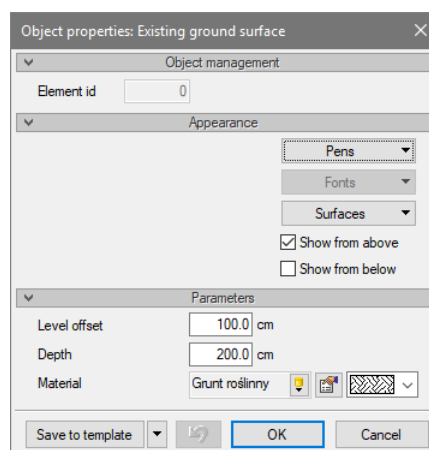


Fig. 133. Terrain properties window

3.7.2. Inserting spot height lines

Prior to insertion you need to indicate the height of the first spot height for the existing terrain and the designed terrain (or only one value using the *Synchronize values* option), select it and then, if the second spot height is located in another height, you need to indicate the appropriate value and insert the last point on the line.

Basics of Application operation

Activation:

- **Landscape** ribbon ⇒ logical group **Landscape** ⇒  **Spot height line**
- **ArCADia-TERRAIN** toolbar ⇒  **Insert spot height line**

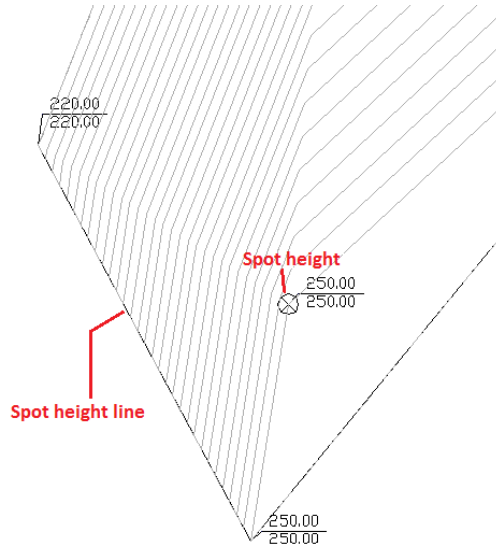


Fig. 134. Terrain elements on the projection

Editing the spot height line is similar to editing spots height. You can change the values for the existing/designed terrain, move the line points or divide the points.

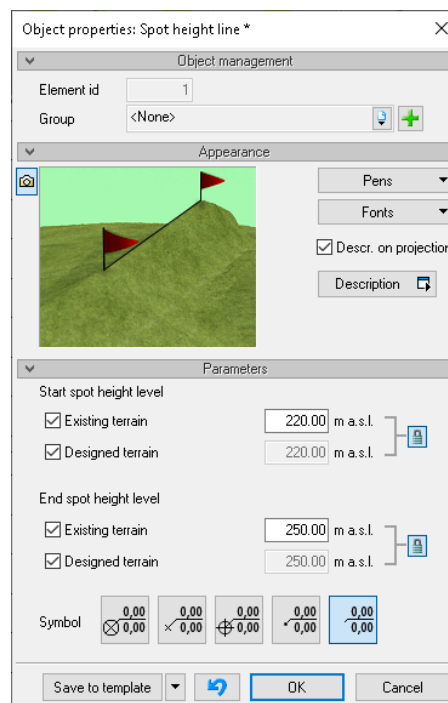



Fig. 135. Spot height line properties window

Basics of Application operation

3.7.3. Cut in the terrain

An opening in the terrain can be done in two ways: by defining its shape or by allocating the shape to the projection of the building. Second option allows for automatic cutting of the opening in the terrain of the same shape as the lowest level (if the terrain is active) or level on which we execute this operation.

Activation:

- *Landscape* ribbon ⇒ logical group *Landscape* ⇒  *Automatic cut in the field*
- *ArCADia-TERRAIN* toolbar ⇒  *Automatically inserts ground surface hole*


3.7.4. External objects

The outside objects are meant to simulate the elements existing in the terrain that may collide with the elements of the designed documentation. An *Outside pipe* may simulate elements of different electric installations, gas installations, etc., whereas an *Outside object* may simulate an existing building, fence, manhole and similar elements in a design.

3.7.4.1. External pipe

An *Outside pipe* is an element that simulates different networks in the terrain. It may be used in the design to verify collisions, reflect the existing networks in the different views, along with a profile.



Activation:

- *Landscape* ribbon ⇒ logical group *Supplementary elements* ⇒  *Outside pipe*
- *ArCADia-TERRAIN* toolbar ⇒  *Insert outer pipe*

3.7.4.2. External object

An *Outside object* is used to simulate different objects in the terrain. It may be used in the design to verify collisions and reflect the existing items in the terrain in the different views, along with a profile. It may have the shape of a cuboid or cylinder.

Activation:

- *Landscape* ribbon ⇒ logical group *Supplementary elements* ⇒  *Outside object*
- *ArCADia-TERRAIN* toolbar ⇒  *Insert outer object*

3.8. Inserting architectural objects

New to the version is the data insertion window pinned to the cursor so that values are entered and options are selected in a clearer way.

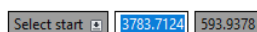




Fig. 136. Data insertion dynamic window

Activation:

- Status bar ⇒  *Toogle Dynamic Input On/Off DYNMODE*

Basics of Application operation

The window displays the command's current status and a field or fields for entering a value next to it. Below the  icon are the sub-options that can be selected while drawing and modifying. The arrow down button on the keyboard is used to select sub-options and switch between them. [Enter](#) confirms the selected option.

NOTE: The icon  is not always displayed, sometimes when drawing in the first part of the dynamic input window there is only the option state, but still pressing the down arrow key from the keyboard will display the available sub-options..

3.8.1. Insertion bar

In order to facilitate the insertion of elements: selecting a handle for insertion, accessing the [Properties](#) and type, an [objects insertion](#) window was created

An example toolbar that appears when inserting a [Wall](#):

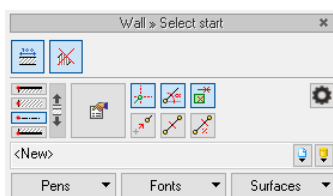


Fig. 137. Example of window displayed during the insertion of the Wall

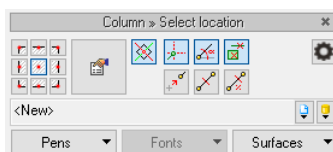

















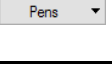

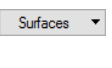


Fig. 138. Window displayed while inserting chimneys

Tab. 19 Options located in the inserting window

	Show/Hide auxiliary dimension	When entering e.g. walls, the length of an inserted wall is shown along it.
	Show/Hide auxiliary cross	The underlay auxiliary line shows the insertion line of e.g. walls. Next to the cursor there is another auxiliary line, which is perpendicular and forms the auxiliary cross.
	Insertion by line	Selecting an insertion line for the wall marked with handles.
	Insertion by Point	Selecting an insertion point for the chimney, column, 2D and 3D objects e.t.c.
	Reorder layers	Changing the location of the layers by rotating them around the selected edge or axis.
	Go to Properties dialog box	Opens the Properties window for an item, e.g. Wall .

Basics of Application operation

	<i>Insert with rotation</i>	The option turned on by default, allows for indicating the angle while inserting elements: columns, 2D and 3D objects, lighting fixtures and similar elements.
	<i>Tracking axes</i>	The option displays horizontal and vertical straight lines directed from the detected points to the inserted elements. If the option will detect an edge of the inserted element it will display a straight line extending the detected edge.
	<i>Tracking angles</i>	This option displays the selected angles set from the existing elements in the project.
	<i>Element and section detection</i>	This option detects edges and points of the inserted elements.
	<i>Reference</i>	Enables inserting a selected element in the selected distances from the indicated point.
	<i>Between points (centre)</i>	Enables inserting an element in the middle of the indicated distance.
	<i>Between points (percentage)</i>	Enables inserting elements with a percentage division of the selected section.
	<i>Element insertion options</i>	Opens the track and underlay settings window. More detailed description of the window is in the <i>Options</i> chapter.
	<i>Type</i>	Save set of features common for many objects of the same type (elements template defined by the user).
	<i>Project library</i>	The saved set of features saved for many items of the same style (user defined element template).
	<i>Global library</i>	Type library is provided with the software and extended by <i>User library</i> where the user can save and store element types created by him for use in future projects.
	<i>Close</i>	Exists the options without inserting an element.
	<i>Pens</i>	Definition of the type of the line used to draw the inserted element.
	<i>Fonts</i>	Definition of the size and type of the font describing the element.
	<i>Surfaces</i>	Assigning materials or textures to the particular areas of the inserted element.

3.8.2. Additional insertion options

Additional features that facilitate drawing are available once you activate the element insertion feature (e.g. *Wall*, *Window*, etc.) in the *insertion* window, in the reporting window or in the *command area*. These options are available for all the architectural elements:

Basics of Application operation

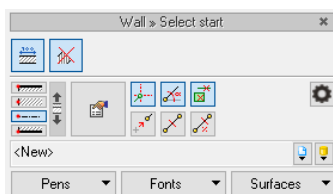


Fig. 139. Insertion window

In the above window, options are selected by clicking the mouse on the icon or button.

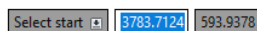


Fig. 140. Dynamic data entry window

On a floating data input window, options are called with the Arrow down ↓ key on the keyboard. The option is selected by pressing the **Enter** key.

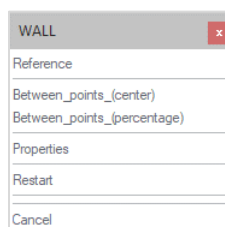


Fig. 141. Prompt Box disabled by default

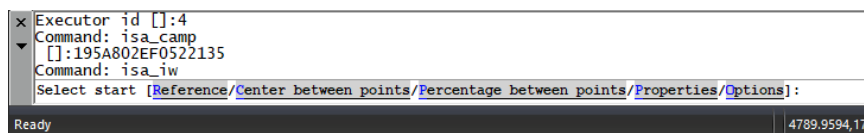


Fig. 142. Command area

In the command area, selected letters and numbers, commands, aliases and keyboard shortcuts are entered. You can also click on sub-options if it is written with underlined text.

3.8.2.1. Reference

Reference is a feature that enables inserting a selected element in the selected distances from the indicated point. This feature is perfectly suited for inserting windows and doors in a pre-determined distance from the wall or another window and also for drawing rooms with pre-determined sizes.

For example:

You want to place a window at a distance of 65 cm from the internal corner of the room. To do that you select **Insert window**, then you select or determine the type and click **Reference** located in the insertion window, the reporting window or command area.

Basics of Application operation

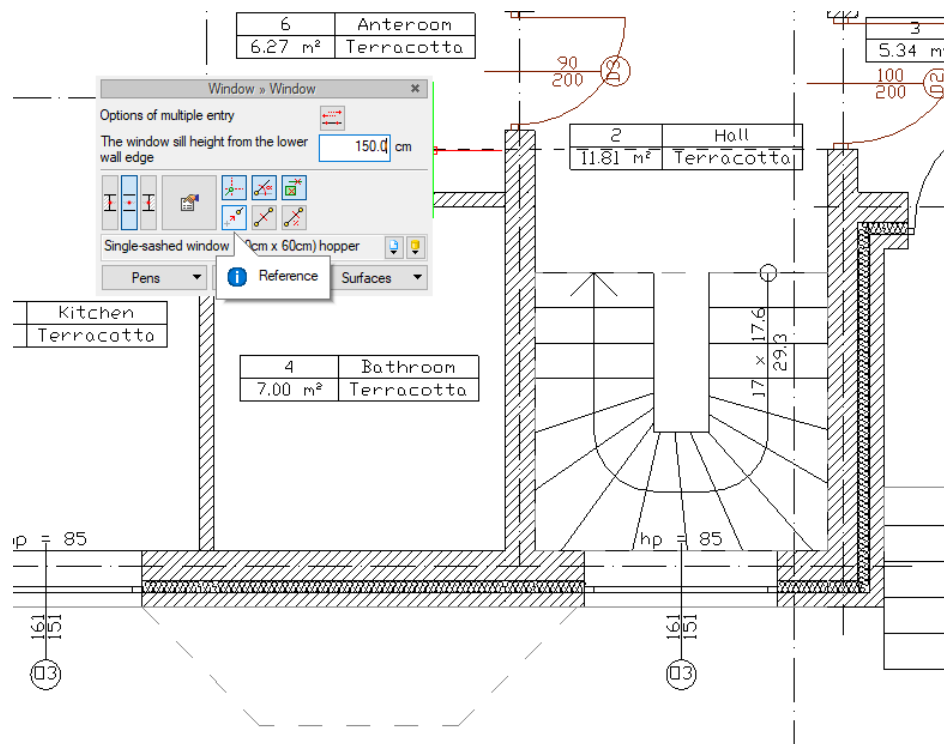


Fig. 143. Enabling the reference options

Then you indicate the location from which the 65 cm will be measured, that is the corner of the room.

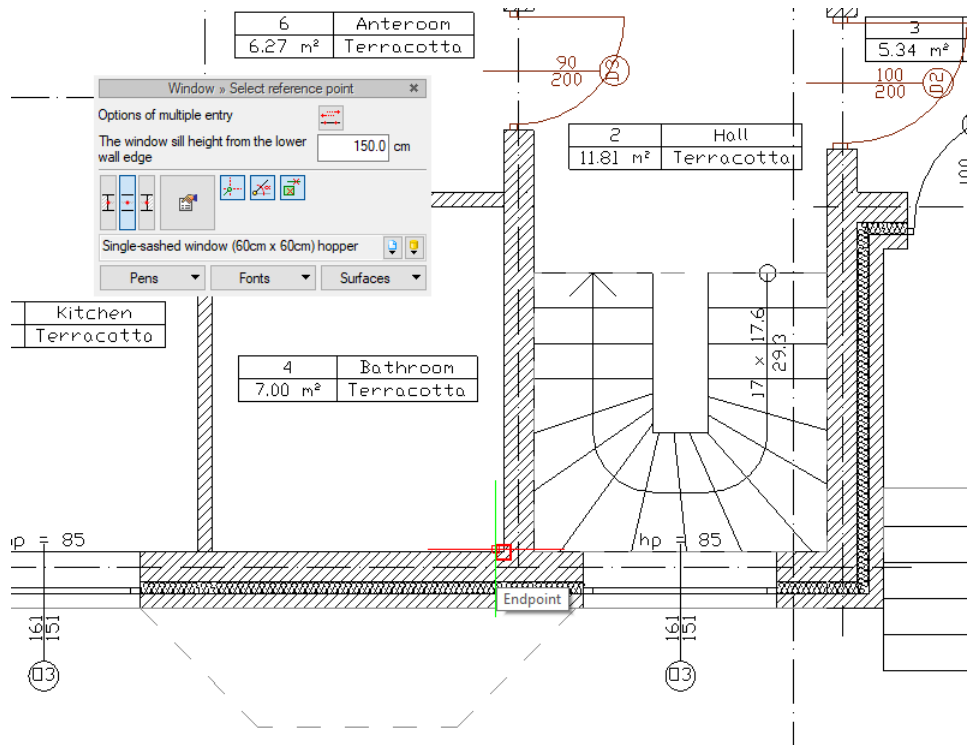


Fig. 144. Setting the reference point

Basics of Application operation

By default the windows are inserted with the centre, which is the symmetry point. When inserting a window with a [Reference](#) you will need the closest window edge. To obtain this you need to select the proper handle in the [Window](#) toolbar. In order to verify whether the correct edge was indicated, you need to verify the ruler up to the insertion point in the projection. If the ruler goes through the window, this means that you should select another edge. The drawing below presents the correct arrangement.

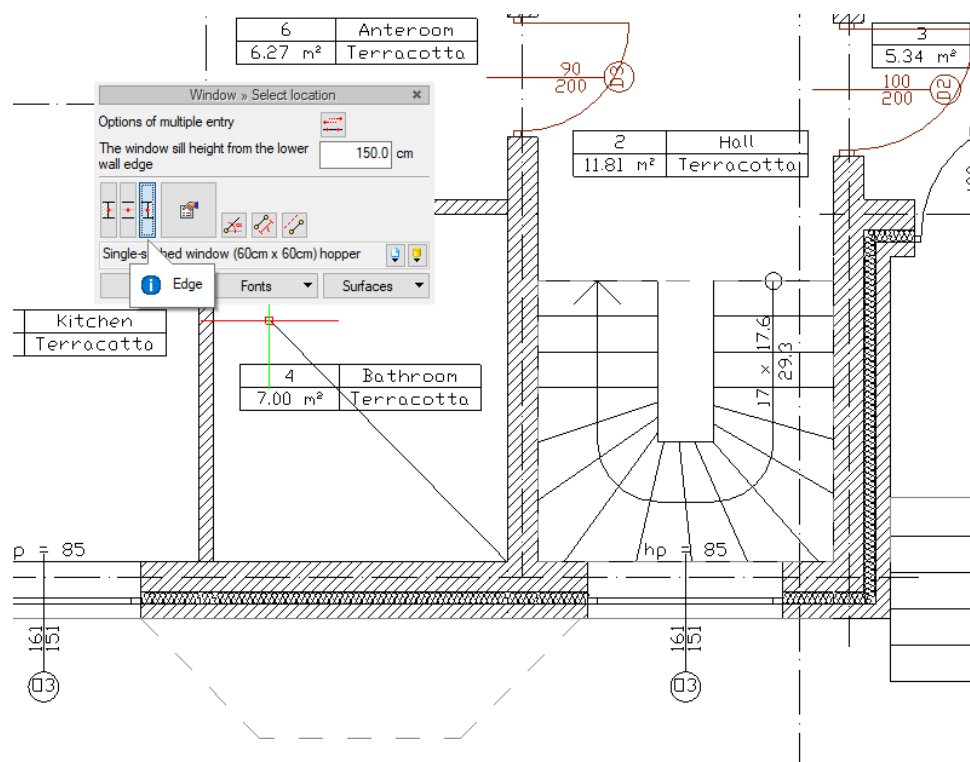


Fig. 145. Setting the direction and the edges of the inserted window

Once the point and handle are selected, you need to determine the distance, that is 65, and once this is confirmed you have a window inserted at the correct distance.

Basics of Application operation

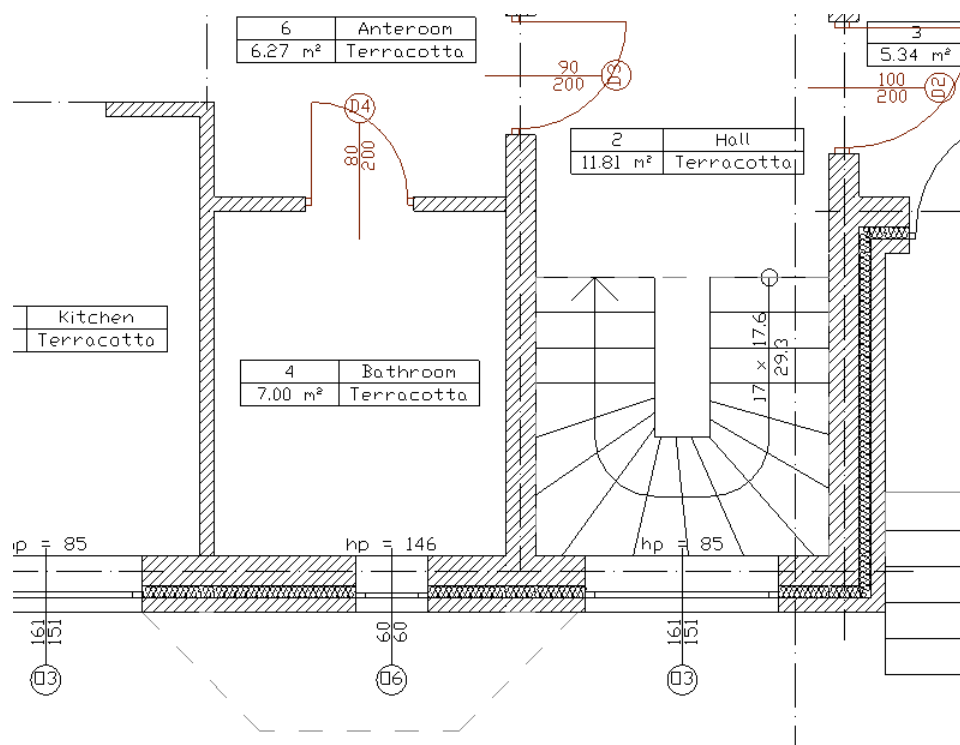


Fig. 146. Inserted window

3.8.2.2. Between points (centre)

The *Between points (centre)* feature allows you to introduce an item, e.g. door, in the middle of the distance indicated.

For example:

You want to insert a balcony door right in the middle of a wall. Unfortunately, there are already two windows in the wall, located asymmetrically, so the anchor point will indicate the centre points of subsequent sections between the windows. Exactly in this case, after calling the *Window* options (balcony door) you need to select *Between points (centre)* in the insertion window, in the reporting window or in the command area and indicate the beginning and end of the wall.

3.8.2.3. Between points (percentage)

The *Between points (percentage)* feature enables inserting elements with a percentage division of the selected section.

For example:

If you want to place two evenly spaced windows in the wall so that one of them is at 1/3 and the other at 2/3 of the wall, then after calling the *Window* option, defining the window type and selecting the *Between points (percentage)* option in the insertion window.

Basics of Application operation

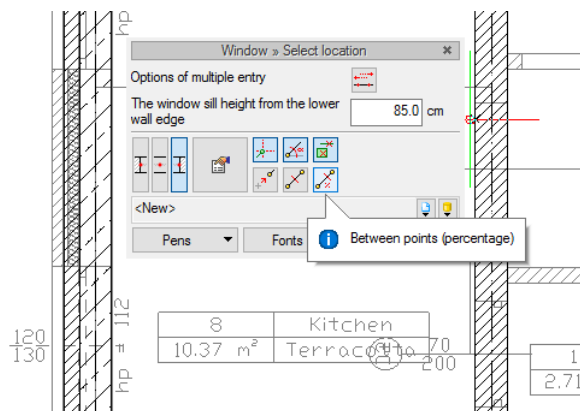


Fig. 147. Selection of inserting options

you need to provide the distance percent in the reporting window or command area, which in this case would be 33. Indicate the beginning and end of the wall.

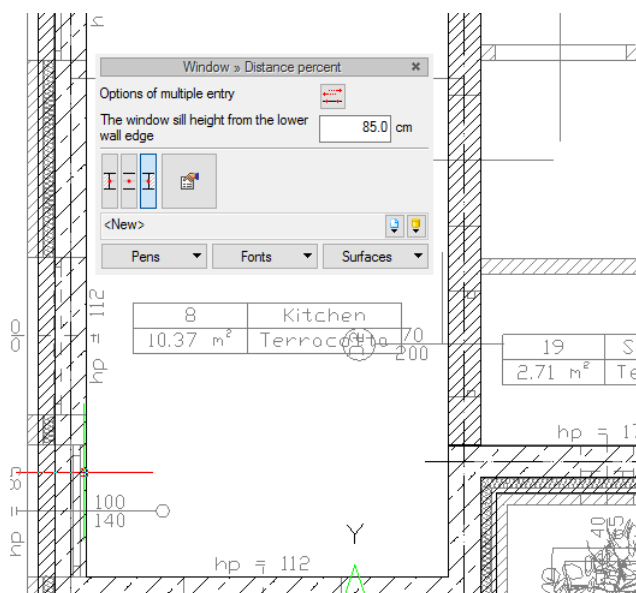


Fig. 148. Designating the insertion section

Then insert the second window same as before, this time indicating the end and then the beginning of the wall, this way arriving at the effect presented below.

Basics of Application operation

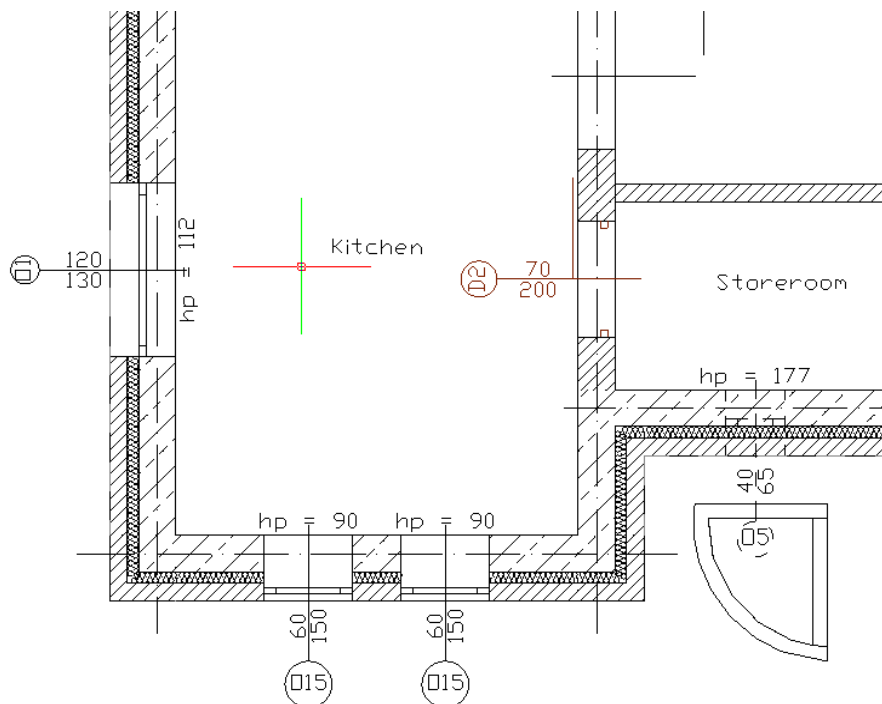



Fig. 149. Inserted Windows

3.8.2.4. Parallel

The *Parallel* option is activated in a slightly different way than the insertion aids described above. In order to draw a wall parallel to an existing one you need to activate the Insert wall option, then indicate the beginning of a wall and only then will the *Parallel*  option become available in the insertion window.

Basics of Application operation

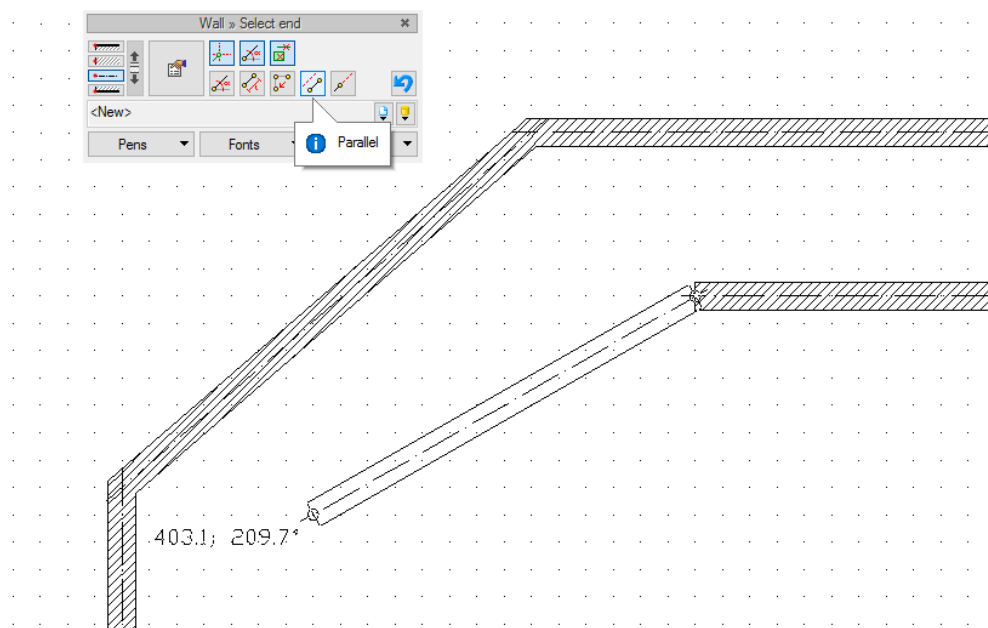


Fig. 150. Drawing a parallel wall

Once this option is activated you need to indicate two points of the wall to which you want to add a parallel wall.

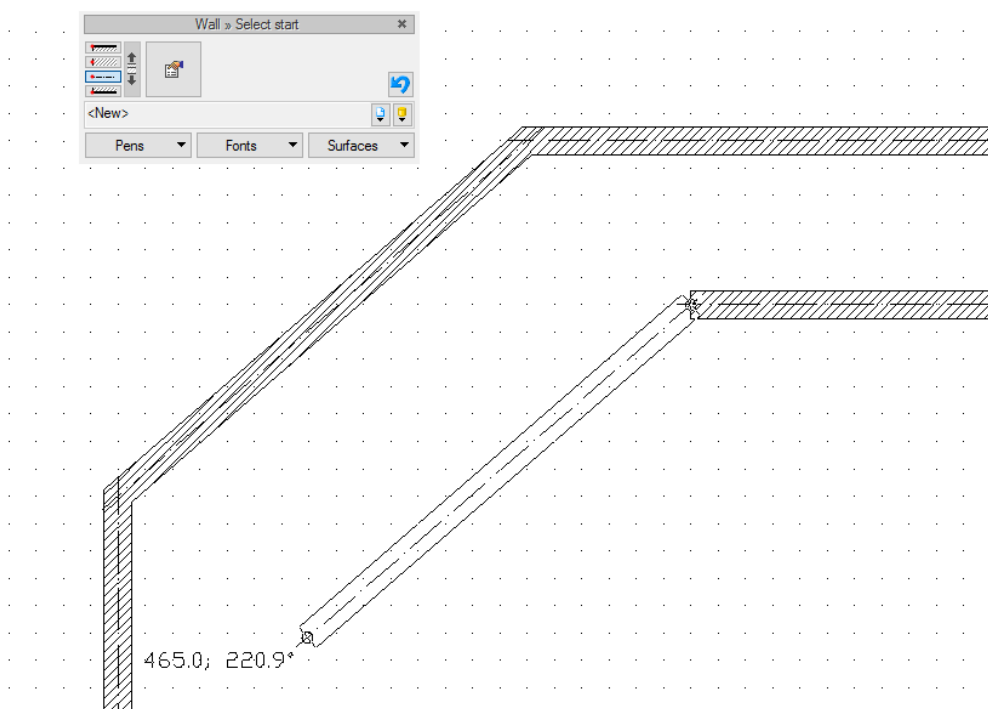


Fig. 151. Designating the parallel reference

The software will lock the insertion angle, which is the time when you need to indicate or determine the wall length.

Basics of Application operation

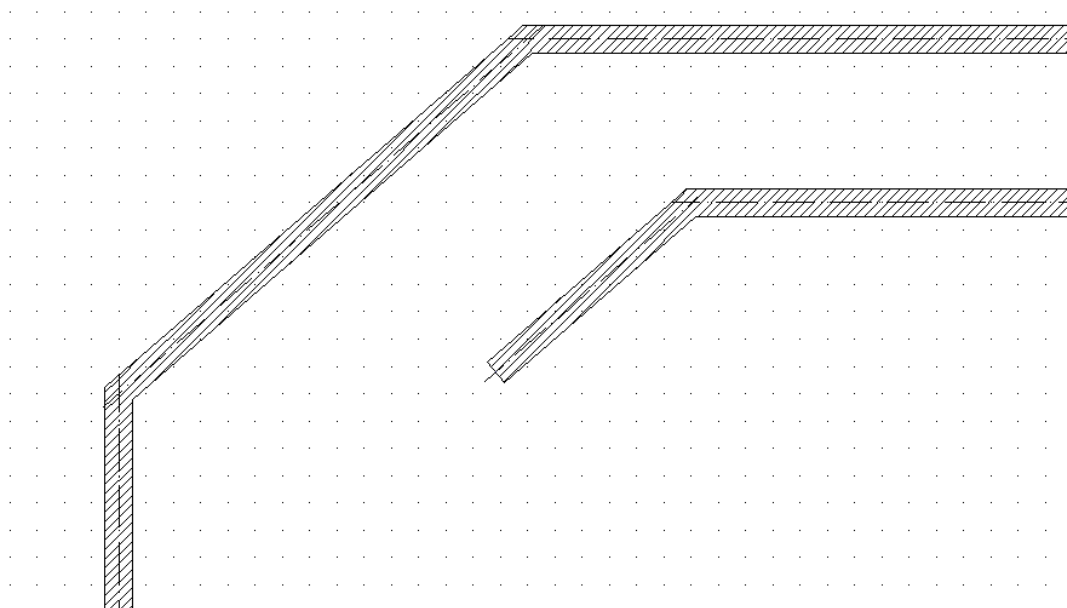


Fig. 152. Two Parallel walls

3.9. Working with types

Some ArCADia items, such as a wall, windows, doors and openings work with a type library. The element type is a saved set of features common for many items of the same type. For example, the wall type stores information about the number, type of layers, etc. A type is saved under the name provided by the user. By default the items do not have a type assigned to them, unless the user selected a type from the library when introducing an item.

There are two types of type libraries:

- **Project library** (saved with the document) – it allows transferring types along with the document.
- **Global library** (saved on the computer in the user's folder) – it allows transferring types between documents.

If an item works with an item library, the **Object management** panel is available in the upper part of the **Properties** dialogue box for the item.

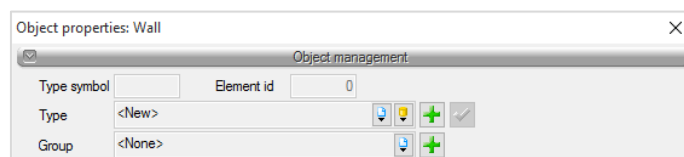


Fig. 153. Type manager when no type is active

Basics of Application operation

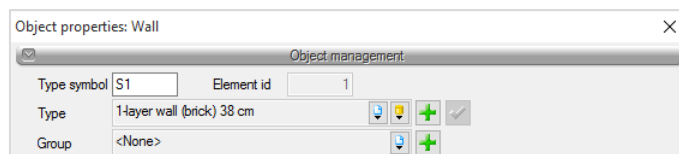


Fig. 154. Type manager when a type is active

The available options include:

Type — to be selected from a drop-down list. A list of the types previously used in the document is also available. After selecting a type from this list the item properties are changed to match the ones set for the type. The type name will appear on the bar.

Add new (+) — creates new type based on presently active object features. The user is asked to give a name to the type and to save it to the global and (or) document library. Saving type to the global library will allow for accessing it with every new project. If you save the type only in the project library it will not be available for future projects

Update (✓) — if, once a type is applied to an item, the user modifies any of the properties, the type name displayed in the bar will be preceded by the string "<New> based on ...". This will also activate the button. Using it will overwrite the type with the properties of the current item and also propagate these changes to all the items included in this type.



Fig. 155. Type symbol field

Type symbol — the field is active if a type has been applied to an item and it has not been modified (see: **Update**). This enables adding a short designation to the item, which can be used e.g. for creating sets. In the case of windows and doors the type symbol (designation) may be displayed on the "match" and in the case of walls, the ceiling and roof it may be displayed in the item label (flag) located in the section.

Moreover, by right-clicking the extended type list you can extend the pop-up menu with two options: **Rename** and **Remove type**.

NOTE: Once the parameters of an item are defined you need to save the type. Saving the type will automatically add a Type symbol, e.g. O1 for windows, D1 for doors, S1 for walls. The type symbols may be changed freely, however you cannot define these without saving the type.

3.9.1. Type Library

Activation:

ArCADia and ArCADia PLUS

- **Manage** ribbon ⇒ logical group **Libraries** ⇒ **Types**
- **ArCADia-SYSTEM** toolbar ⇒ **Edit type library**

ArCADia LT

- **Home** ribbon ⇒ logical group **Libraries** ⇒ **Type library**

Basics of Application operation

Displays the *Type Library Editor* dialog box.

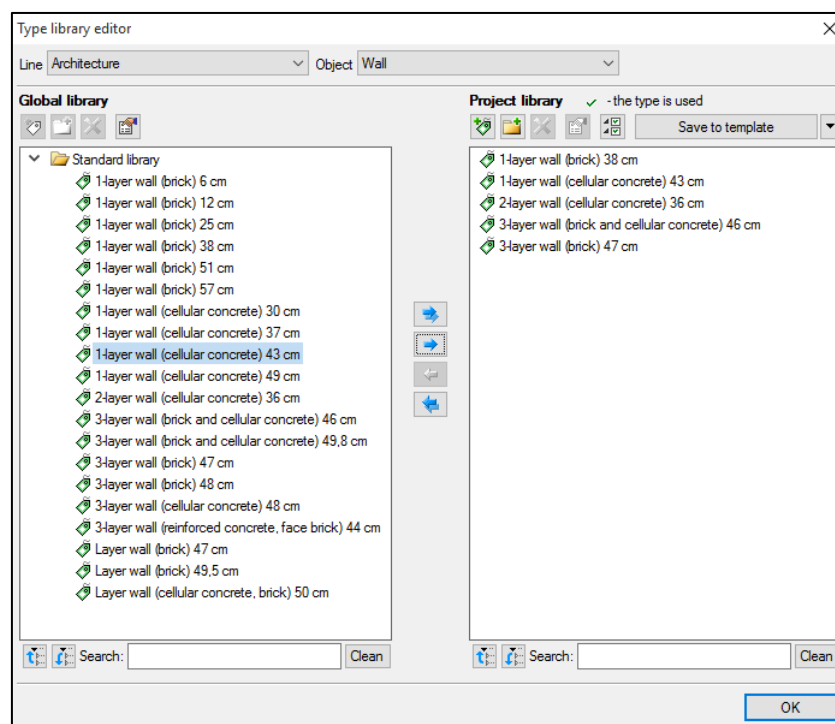


Fig. 156. Type library window

The *Type Library* is used to edit and introduce new item types into the ArCADia system. It facilitates access to manufacturer's catalogues and enables selecting only those catalogues that the user uses most often when designing.

In the upper part of the type editor window the user has the possibility to select a branch from the drop-down list where all the branch-modules available in ArCADia are listed.

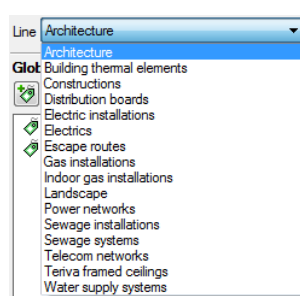


Fig. 157. Branch List

After selecting the appropriate branch the user has access to all the items, e.g. *Wall*, available in the selected branch (module) from the *Object* drop-down list (on the right side).

Basics of Application operation

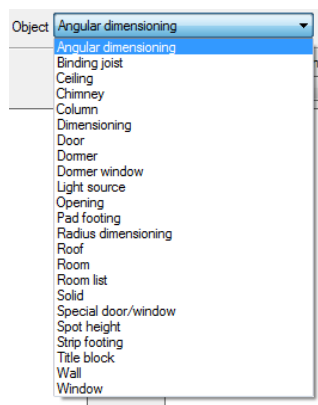


Fig. 158. Architecture branch element list

After clicking on the selected element in the *Global library* all element types will be available. During the first run it will be the types available in the software by default. During the design process you may add additional types into the library.

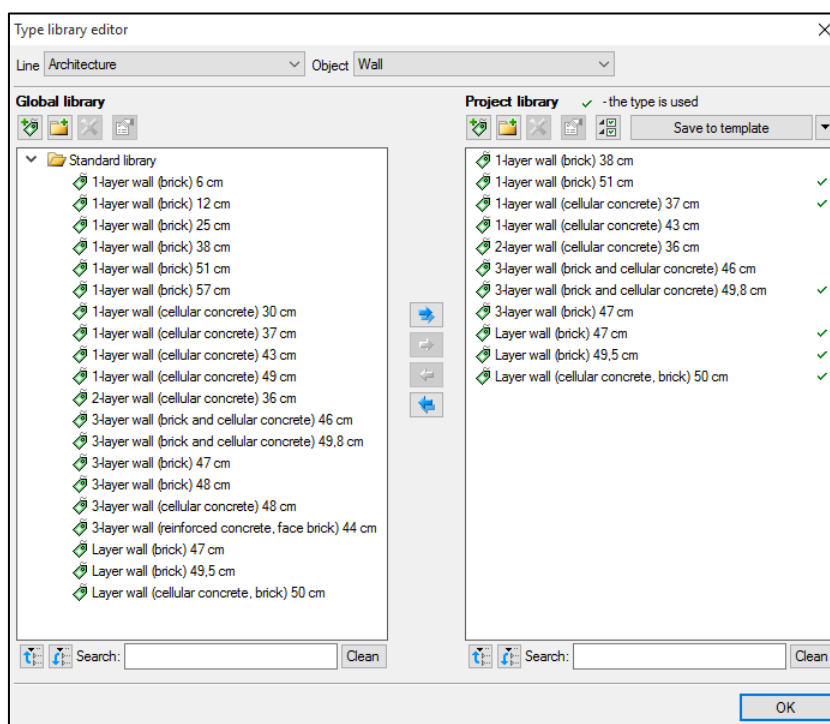


Fig. 159. Type library window

The lower part of the editor is divided into the *Global library* part (left) and *Project library* part (right).

Global library – is a location where all the default element types, available for the user after installing the software, are located (default) – *Standard library* and during the work with the software – *User library*. *Standard library* is not edited (items cannot be added, changed, or removed from it), types available there can be used but modifying and saving the modifications will cause the creation of the new type in the *User library*. All types saved to the global library during the work can be found in the *User library* section. Those types can be modified and deleted.

Basics of Application operation

Project library – is a location where all the saved element types available for use in the project are listed. In other words, element types which were saved during the work (or inserted from a template). List of types changes during the work over a project when the user adds element types.

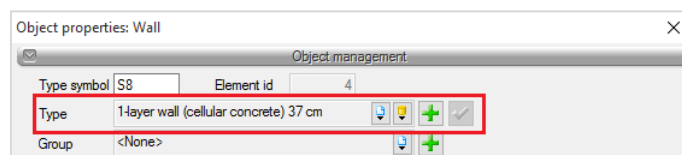


Fig. 160. Fragment of the properties window with the Type selection field marked

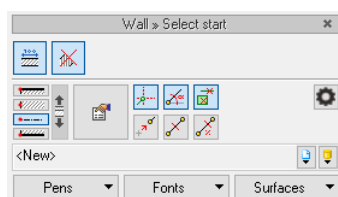


Fig. 161. The Insert window for a wall, where you can also get access to the project type library

Tab. 20 Tools for adding and editing types.

	Add New Type	Adds new type do Global library (<i>User library</i>) or to the project library. After clicking the icon type properties dialog box is displayed where the user defines name and necessary parameters of the element.
	Add New folder	Displays a window, where the user defines the name for newly created catalogue, where he will be able to add element types. After entering the folder name, you need to press the OK button in order to add the folder to the library or Cancel to cancel the command.
	Delete	Deletes selected type (option unavailable in the <i>Global library</i> in <i>Standard library</i> part).
	Type properties	Opens a window with properties of a selected type. These values can be edited and saved (if the type is located in the <i>Project library</i> or in the <i>User library</i> part in the <i>Global library</i>).
	Leave only the types used in the project.	Deletes unused types from the active document. If there are element types saved in the template where the project is created, then the types will return to the project library list with next launching of the software (even though they are not used).

NOTE: Clicking the **Add** new type icon when a type has been previously highlighted in the Library will add a new type based on the highlighted one. This facilitates entering a catalogue of items to the library, e.g. supplied by one company, where the only distinctive feature is e.g. the diameter of the pipe.

Basics of Application operation

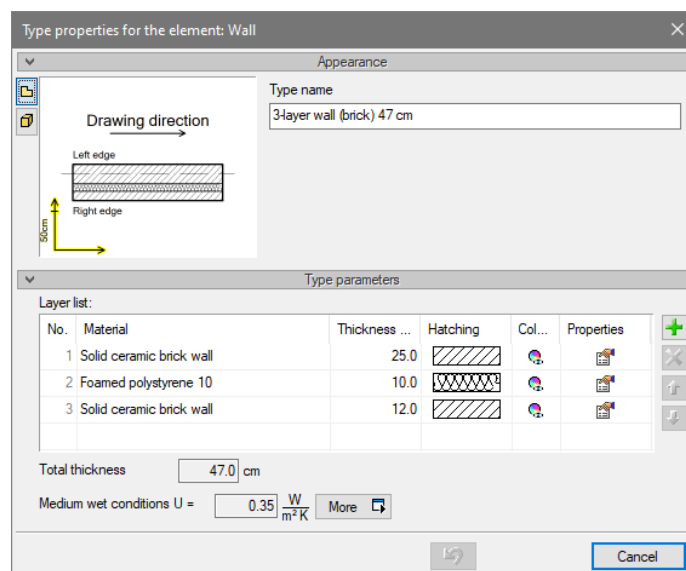



Fig. 162. Wall element type window

Above the project library there is the button. Once you click this button the *Project library* settings will be saved in the template and will be accessible for future projects with this template. Next to it there is the  icon – when clicked it provides the user with the list of existing available templates.

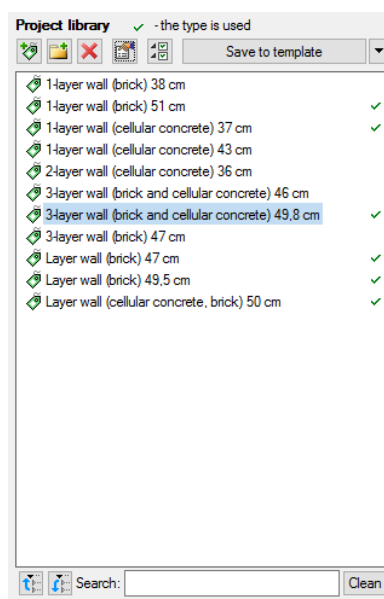




Fig. 163. List of defined wall types in the sample project

In the Project library window, you can also check what types of a particular element are currently in use in the projection, which is displayed in the form of the  symbol on the left of the name of a particular type.

After pressing the icon  *Leave only the types used in the project* and confirming the question about deleting the types, all unused types will be removed from the project library.

Basics of Application operation

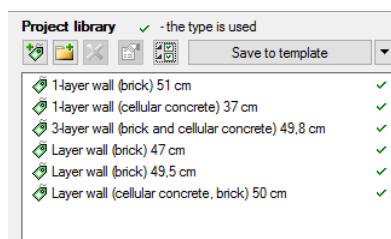




Fig. 164. List of wall types used in the sample project

Below the two libraries there are the *Hide everything* icons – once you click this icon the type tree in a particular library is reduced to the root folders.


The user may also search the library by typing part or the entire name of the desired type in the Search: field. A type list will then be reduced to the types where the name matches the search query. In order to restore the full list and remove the search query you need to push the Clean button, which will clear the search field.

Once you select types or folders, the transfer buttons located between the libraries are activated.

Copy all to the project library  – copies the entire global library content of the selected element to the project library.

Copy to the project library  – copies the selected elements to the project library.

Copy to the global library  – copies the selected elements to the global library.

Copy all to the global library  – copies the entire project library content of the selected element to the global library.

Messages that may be displayed when working with the Type Library:

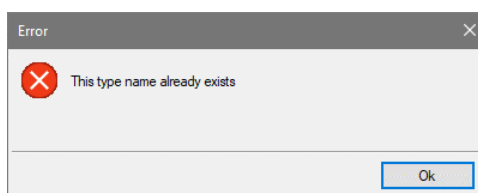


Fig. 165. Message about finding similar type

This message informs that there is already a type with this name, so for the type to be saved, a different name should be given.

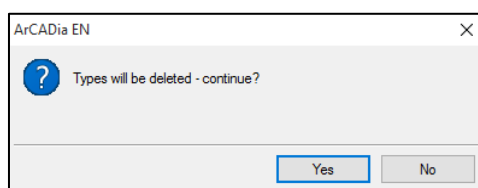
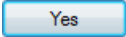


Fig. 166. Message confirming the deletion of the element types from the library

Basics of Application operation

This message informs that the types marked by the user were removed. The  button confirms type deletion.

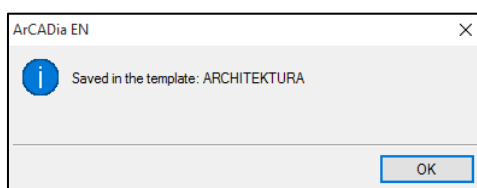




Fig. 167. This message informs that the layout of the project library was saved to a project template, e.g. ARCHITECTURE

3.9.1.1. Changing element type

This option allows for changing one element type for another in the whole document.

Activation:

ArCADia and ArCADia PLUS

- *Manage* ribbon ⇒ logical group *Libraries* ⇒  *Change type*
- *ArCADia-SYSTEM* toolbar ⇒  *Change type*

ArCADia LT

- *Home* ribbon ⇒ logical group *Libraries* ⇒  *Change type*

After executing the command you have to select element, which type you want to change. The following window will be then displayed:

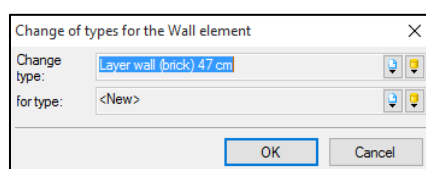


Fig. 168. Type change window for wall element

Change type – type name, read from selected element.

Na type – list of types available in the project  and in the software global library .

After confirming the selection of a new type message about number of elements that will be changed will be displayed.


3.10. Templates

A new template feature is provided to save all the element settings, not only their width and height, but also features such as pens, planes and level heights. This feature stores the settings selected by the user and recalls these for the next project. The number of templates is unlimited, it may be linked to the branch, project printing scale, e.g. with the type of the designed building, where the stored heights and level parameters for industrial buildings and single-family development are different and

Basics of Application operation


repeated changes consume more time than creating a template file with pre-selected values for all the necessary parameters.

This feature is not the same as the *Element type*, since it saves all other parameters. For example, this feature will save the thickness and colour scheme of pens assigned to a wall (all the walls will from then on be drawn with the pens selected by the user), the selected heights (which is by default the level height), the wall inserted by default that does not need to be a single-layer 25 cm thick wall any more but may be any wall selected by the user (e.g. through the *Type*). The entered parameters will be saved to the active style once you press the *Save to template* button, located at the bottom of each element properties dialogue box.

The template is selected at the beginning of working with a project, after selecting the  *Template manager* icon.

Activation:

ArCADia and ArCADia PLUS

- *Manage* ribbon ⇒ logical group *Libraries* ⇒  *Template manager*
- *ArCADia-SYSTEM* toolbar ⇒  *Template manager*

ArCADia LT

- *Home* ribbon ⇒ logical group *Libraries* ⇒  *Template manager*

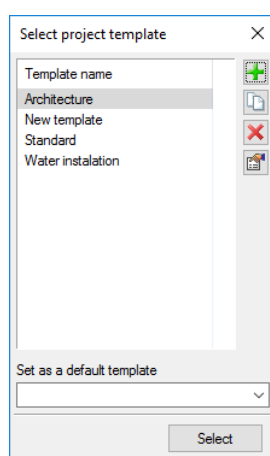






Fig. 169. Template selection window

Tab. 21 Template management options

	<i>Add template</i>	Adds a new template.
	<i>Create template copy</i>	Copies the template along with all the parameters.
	<i>Delete template</i>	Removes the selected template.
	<i>Template properties</i>	Opens the <i>Template properties</i> window.

Basics of Application operation

[Set as a default template](#) – list of available templates, with possibility of selecting default template launched with a project.

In the [Template properties](#) window you can see what elements are included in the template (e.g. modified parameters for the walls, windows, etc.). You can remove a selected element or change the template name.

NOTE: When working with the software you can change the template, which will result in all the new elements being drawn with the new parameters. The drawing and its elements created before changing the template will not be modified.

3.11. Setting drawing units

The drawings created with ArCADia are usually drawn in full scale (scale 1:1), and then the scale factor is further determined during printing of the drawing.

The [Metric](#) or [Imperial](#) unit system is defined in the [ArCADia options](#) window.

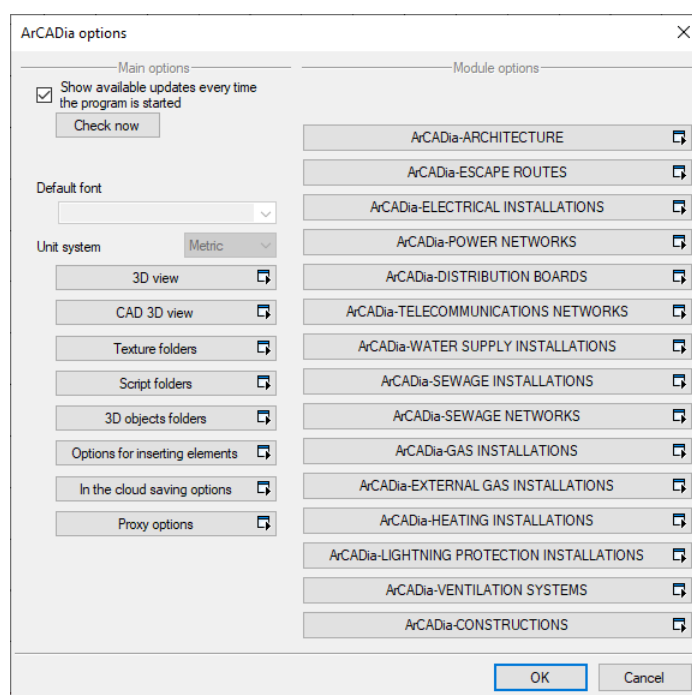


Fig. 170. Options window with metric system of units set

If the [Metric](#) units system is selected in the above window, then the default drawing unit will be a centimeter, however, you can change it in the [View properties](#) window. If the choice is for the [Imperial](#) system, then the drawing will be inserted in feet and inches.

Basics of Application operation

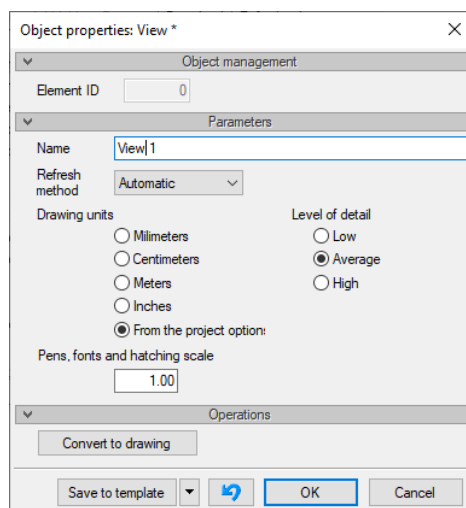


Fig. 171. View properties window

If the *Refresh method* is marked as *From the project options*, then the change of the unit system in the *Options* window will automatically modify the whole drawing unit. If a specific unit is selected, e.g. *Meters*, changes to the unit system will not affect the scaling of the given view. This principle applies to both the view and, for example, descriptions of elements or dimensioning.

NOTE: When designing architecture or an installation, the data is usually entered in cm, therefore the default units of the view are centimeters. If the project is of a network that is drawn in meters as an external, urban project, you must change the drawing units in the View properties window at the beginning of work.


3.12. Layouts

When designing e.g. sanitary installations you often use ready-made patterns that are the same for different projects in the scope of the elements used but may differ e.g. as far as diameters are concerned. It is often the case that manufacturers offer products composed of several different elements, e.g. the mixing system for heater supply, which is composed of pipes, shut-off valves, a three-way valve, actuator, non-return valve pump, manometers and thermometers. In order to ensure seamless design we have added a feature that allows creating such an e.g. mixing system for heater supply and save it to the *Layouts* library. This will enable using a set of elements with the pre-determined parameters as part of any project.

Activation:

- *Object Explorer* ⇒ tab *Layouts*

In order to add a new layout of elements that are already drawn you need to do the following:

1. In the Object Explorer => in the Layouts tab select  *Create*.
2. Then select the elements that are to be included in the group and confirm your selection by pressing *Enter*.
3. Select base point for the layout.

Basics of Application operation

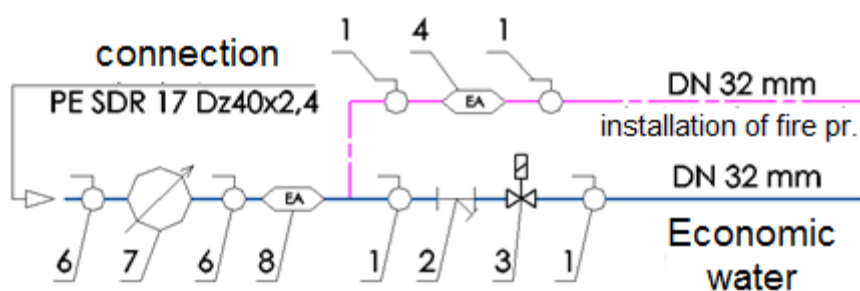


Fig. 172. Drawing elements before saving a layout

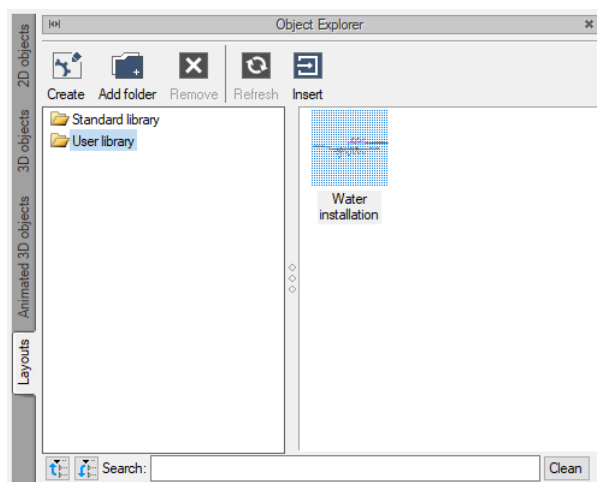


Fig. 173. Saved layout

The layout options are often useful in the ArCADia-ARCHITECTURE module, for saving own sets of furniture or elements forming new structures. For example:

Basics of Application operation

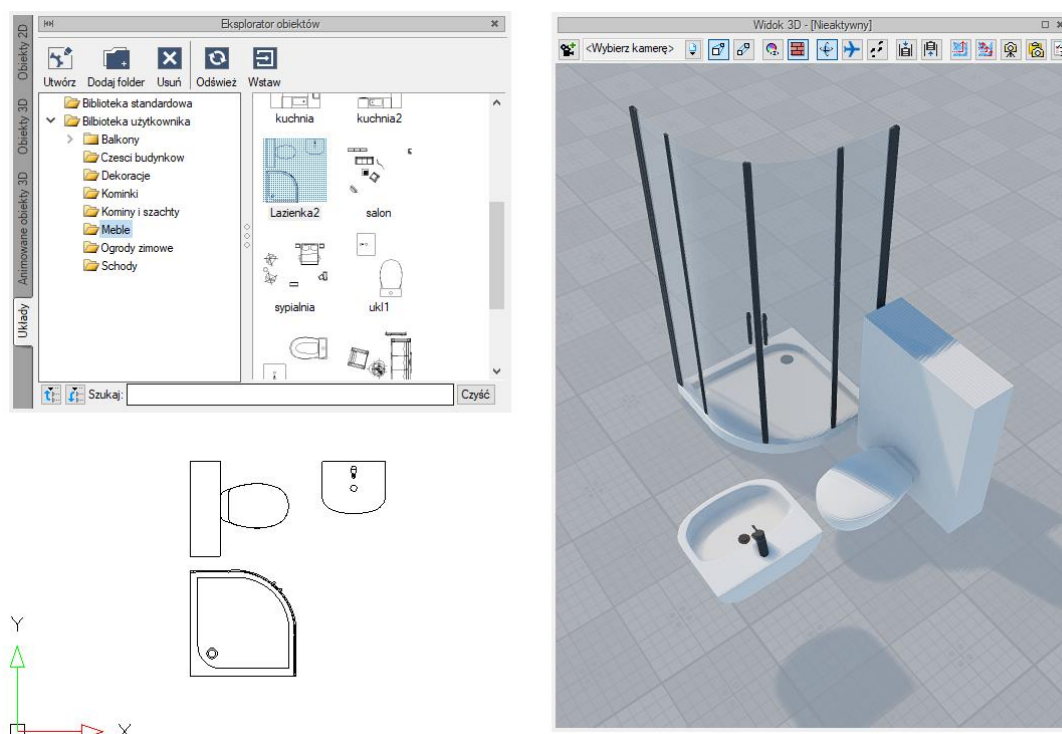


Fig. 174. An example of a layout saved from 3D objects

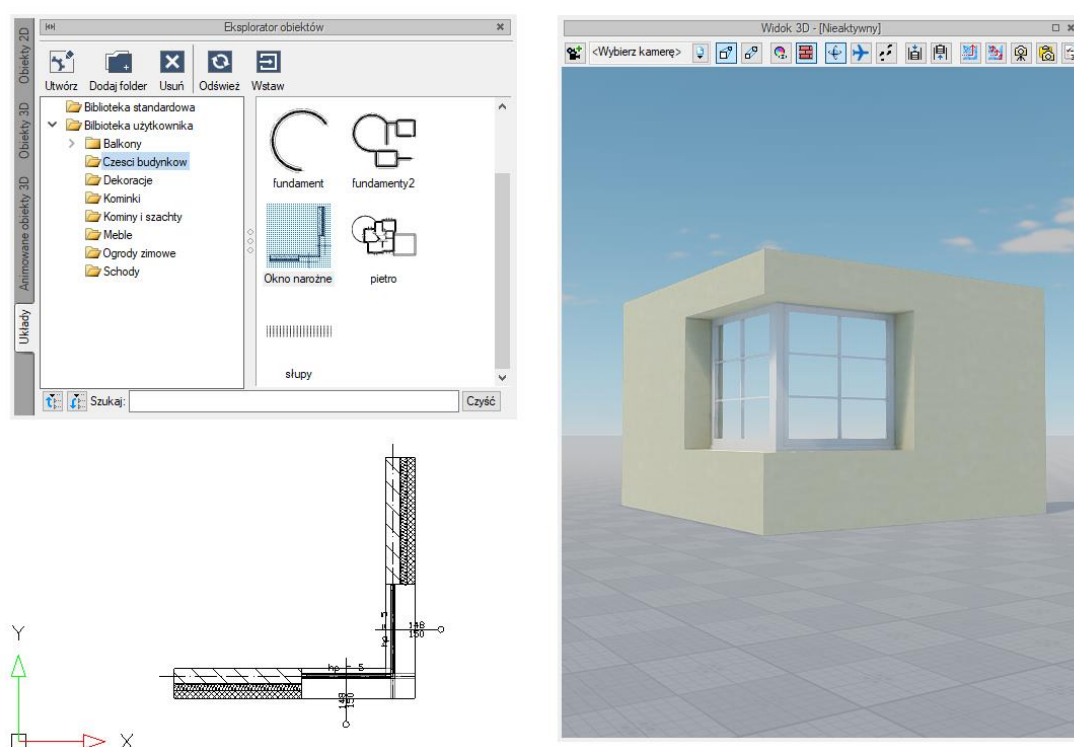


Fig. 175. An example of a layout saved from system objects

Basics of Application operation

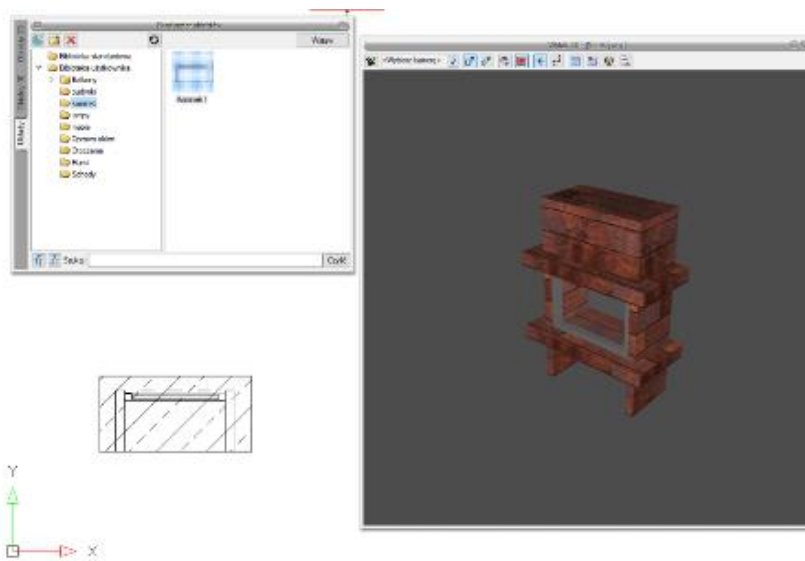


Fig. 176. An example of a layout saved from solids

3.12.1. In order to introduce the layout to the drawing.

Activation:

- *Object Explorer* ⇒ tab *Layouts*

1. In the *Object Explorer* ⇒ in the *Layouts* tab select the layout to be inserted.
2. Press the Insert button and indicate the location for the layout in the project.

3.13. Pens

It is possible to assign colour, type and thickness of the line to each element of ArCADia Application, i.e. type of pen. Pens can be assigned globally for the entire level, so that all the elements are entered using the same pen or they can be defined in the properties of object already inserted or being already inserted. And so, for example for the wall you can define pens for the outline line, separating layer, separating load-bearing layers, supporting structure axis of wall and outline of trimmed wall, e.g. by the roof.

Basics of Application operation

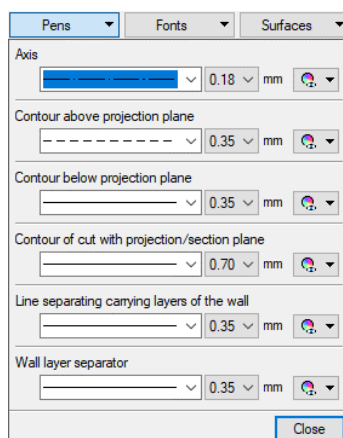


Fig. 177. List of pens for wall element

ArCADia 6.6 additionally offers the pen separating the load-bearing layer of the wall, enabling to select the manner of drawing the wall as before, with thick outline of the entire wall or with a new appearance, where the thick outline is around the load-bearing layer.

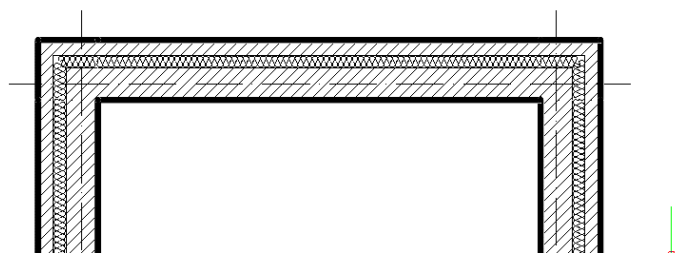


Fig. 178. Wall with the intersection outline pen with the projection/cross-section plane at 0.5 and the line separating the load-bearing layer of the wall at 0.18 (like other pens)

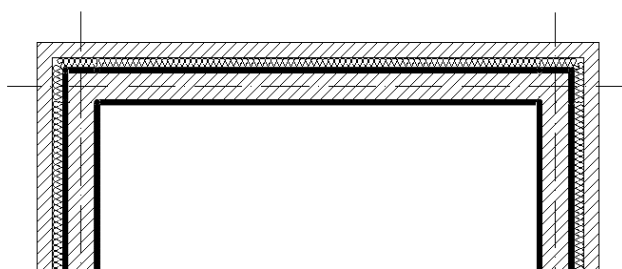


Fig. 179. Wall with the pen of line separating the wall load-bearing layer at 0.5 and the line separating the load-bearing layer of the wall at 0.18 (like other pens)

Thicknesses of hatching pens, i.e. material markings are available in the [Project Manager](#) window from the element group colour element.

Basics of Application operation

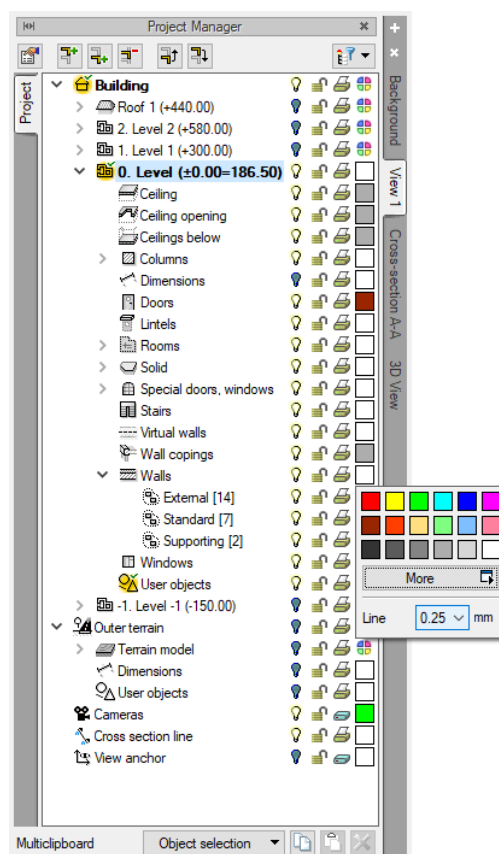


Fig. 180. Wall hatching pen thickness change

NOTE: Before inserting the element, the markers can always be changed in the inserting window, and for the existing element - in the edition window.

3.14. Fonts

Each element with a description, e.g. window – description bubble provides access to font settings in [Properties](#) dialog box.

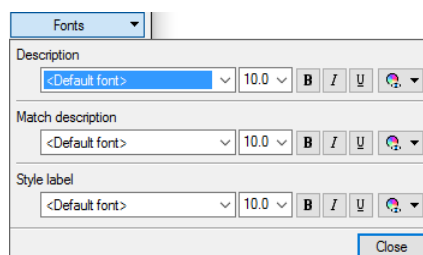


Fig. 181. Window properties dialog box with extended description fonts

The default font can be defined in [Options](#), and specific descriptions can be defined in relevant [Properties](#) dialog box.

NOTE: Before inserting the element, the font can also be changed in the inserting window, and for the existing element, you can modify the font in the edition window.

Levels

4. LEVELS

Levels

4.1. Levels

During drawing of the architectural layouts, ArCADia Application arranges the drawings dividing them into the levels. It is necessary to specify the base height (Reference level) and overall height. The level scheme is shown on the figure below.

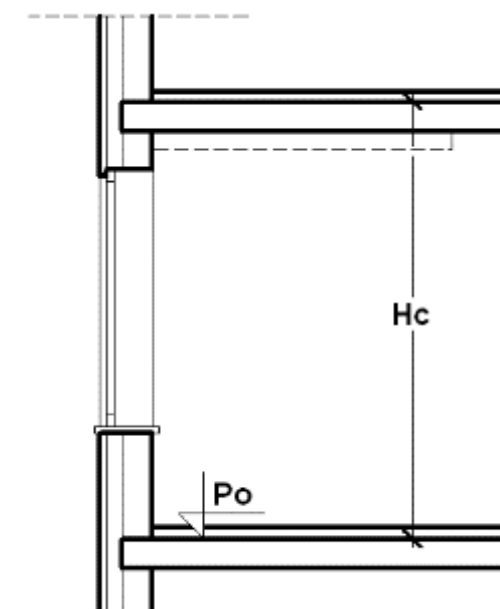



Fig. 182. Level data diagram

Hc — Level overall height;

Po — Base height (Reference level);

NOTE: In order to begin designing using ArCADia Application, the project must have at least one level. If there is no level, during the first use of ArCADia tool, Level 0 will be automatically created.

4.1.1. Inserting level

When you start working with the Application, after you insert the Layout and set the first building, the default level will be created with base height of 0 cm and level height of 280cm. In order to access and set your own level settings, it is necessary to select the level name and choose the  icon located just above the building name.

Levels

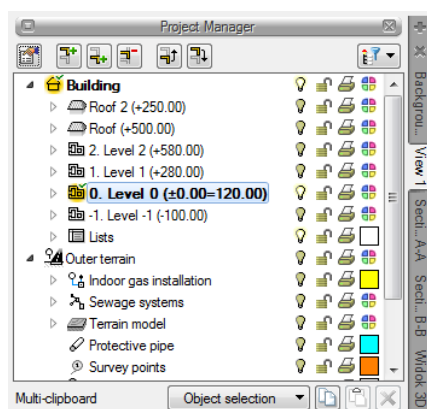


Fig. 183. Selecting the level from the manager window

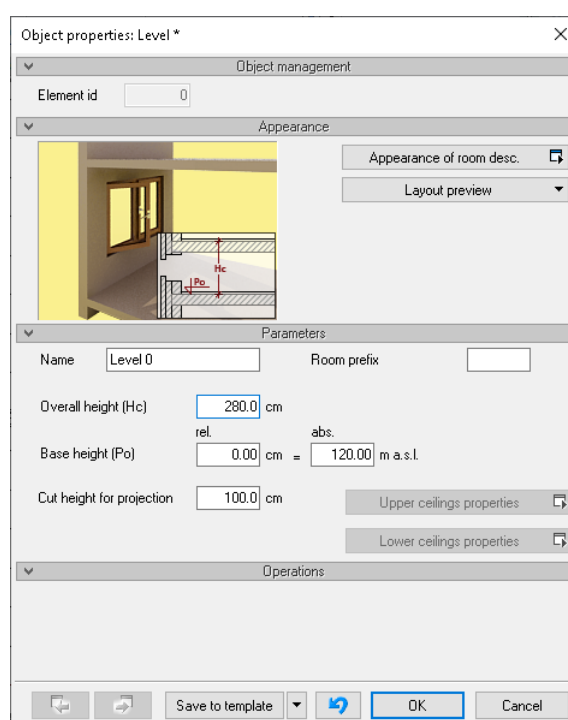


Fig. 184. Level properties window

Appearance of Room description – window managing the information shown in the room table. More information in the [Levels](#) chapter.

Layout preview – diagram of the location of the levels set in the building.

Parameters — see Section [Levels](#).

You can start working with the Application from any level: ground floor, foundations, attic or any floor. It is important to specify the appropriate *Base height* (Reference level), that will be shown in the Section.



If there is no manually defined level, first run of command inserting an element into the level (e.g. wall) will automatically insert the level called *Level 0* with the default parameters.

Levels

The preview on the right side of the dialogue box reflects the interactions between the existing levels (marked with black colour) and already being inserted/edited level (marked with red colour). The changes of the base height and overall height made by user are automatically visualised in the preview.

The number of levels depends on the project that is being drawn. The limitations in this case are only the computer capabilities.

4.1.2. New level above

When you insert subsequent levels it is necessary to decide whether the level should be created below  *Add level below* or above  *Add level above* the active level.

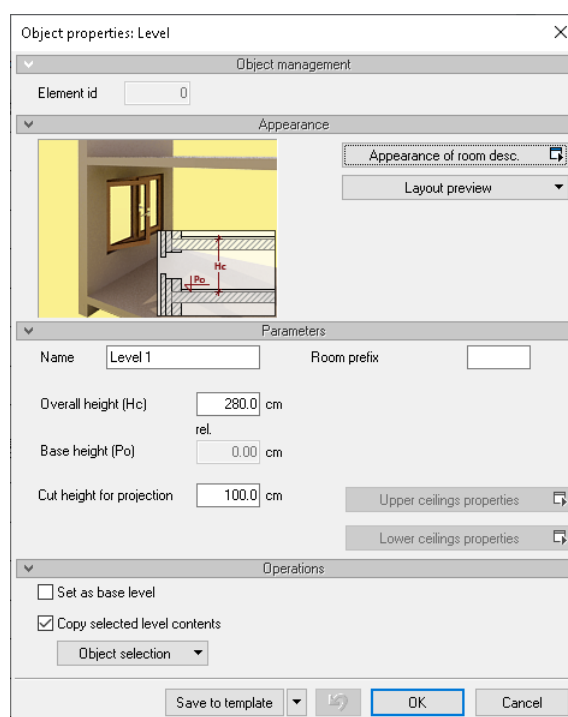


Fig. 185. New level above active level properties window

Operations — setting of subsequent level activates the panel designed for copying the contents of the current level and modification of the base level.

Copy selected level contents — allows you to select the group of level elements (from different branches, if they are used in the project) which are to be copied and inserted along with the new level.

Levels

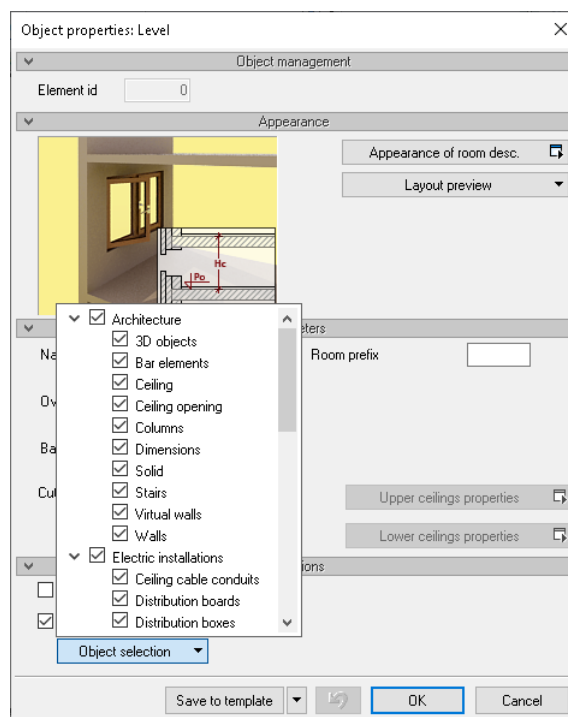



Fig. 186. Copyable list of elements used on the active level

4.1.3. Displaying levels

By default, the Application allows you to work with only one level – the active one. The other ones (if they were inserted) are inactive and may be visible (as greyed-out, non-editable layouts) or may be invisible.

Each level can be set to visible/invisible regardless of its status (active/inactive). You can change the visibility of the level through [Project Manager](#) by clicking  [Show/Hide Level](#) icon.

4.1.4. Switching levels

The active level of the Application by default is the recently set level, which means that if you add one level, this level will be automatically activated. In case of several levels, you can switch between them, if needed, by means of [Project Manager](#) dialogue box through double-clicking on the level name.

The levels are displayed in the list in the sequence associated with their base heights – the lowest levels are located at the bottom of the list and so on. To change the order of the levels, use the following buttons:

 [Move level Up](#) or

 [Move level Down](#)

This will result in adequate change of the base heights.

Levels

4.1.5. Deleting levels

In order to delete the level, use *Delete level*  button available in the upper part of *Project Manager* dialogue box.

This command deletes all elements of a given level, previously displaying the prompt box requesting the user to confirm the decision.

4.2. Rooms

The room is inserted after drawing a closed outline of the wall. Its parameters: name, area, cubic volume, area type can be defined in *Properties* dialogue box.

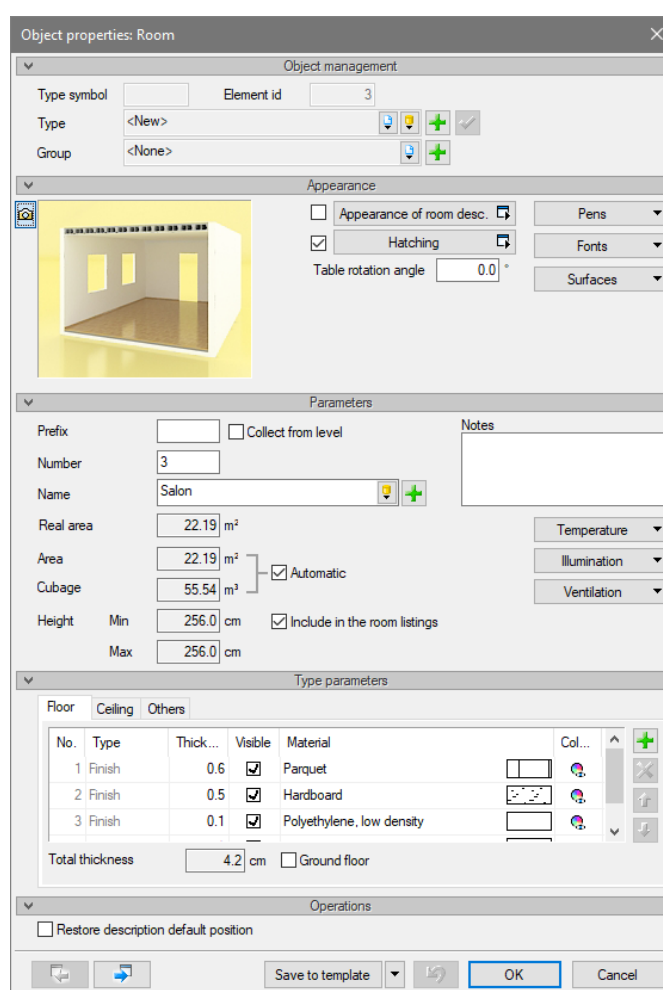



Fig. 187. Sample room properties window

To select the room, click on the description table. After selecting the room (in addition to the table, the outline of the room will be selected), the following modification options become available. You can use the above the window, where you can modify the room name, its number, what is on the floor and the ceiling and the room function (e.g. transport or residential) and fire protection class. If you select the room name from the available list, the temperature placed under the button on the right side will

Levels

be assigned automatically. If you enter the room name, you have to specify the temperature and lighting. If we click on icon:  [Add room to room library](#) the following window will appear.

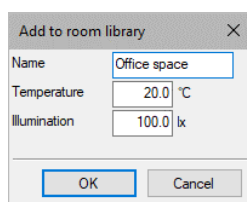




Fig. 188. Window of adding room to program library

Entering the room name in the above window and filling in the [Temperature](#) and [Illumination](#) fields adds the room to the global library of the program, thanks to which, in subsequent projects it will be in the list of rooms.

This information about the room (apart from the lists) is transferred to ArCADia-TERMO and DIALux software (calculation of demand for artificial lighting).

In the room properties window it is possible to switch between subsequent rooms of a given level, without having to leave the window and enter the window of next room. This option is available at the bottom of the window, under the icons:  [Previous object](#) and  [Next object](#).

Rooms in the ArCADia Application are automatically described through the table inserted in the middle of the room. By default, the table contains the room number, its name, area and top floor layer (e.g. laminate flooring). The table appearance is available for each room separately, but by default it is taken from the level settings. The table appearance and its element can be selected in [Object properties: Rooms](#).

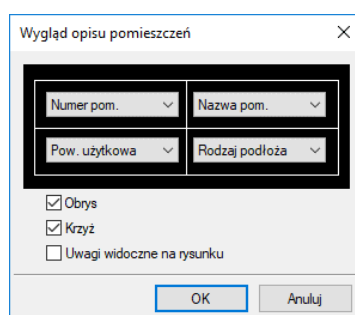


Fig. 189. Room table appearance window

One of the options of the room appearance modification is the definition of its hatching on the projection. In the [Appearance](#) panel, you can enter the [Hatching](#) window and, e.g. define the colour filling the room on the level projection.

Levels

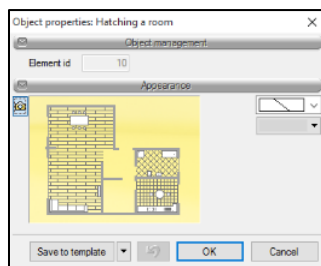


Fig. 190. Hatching rooms window

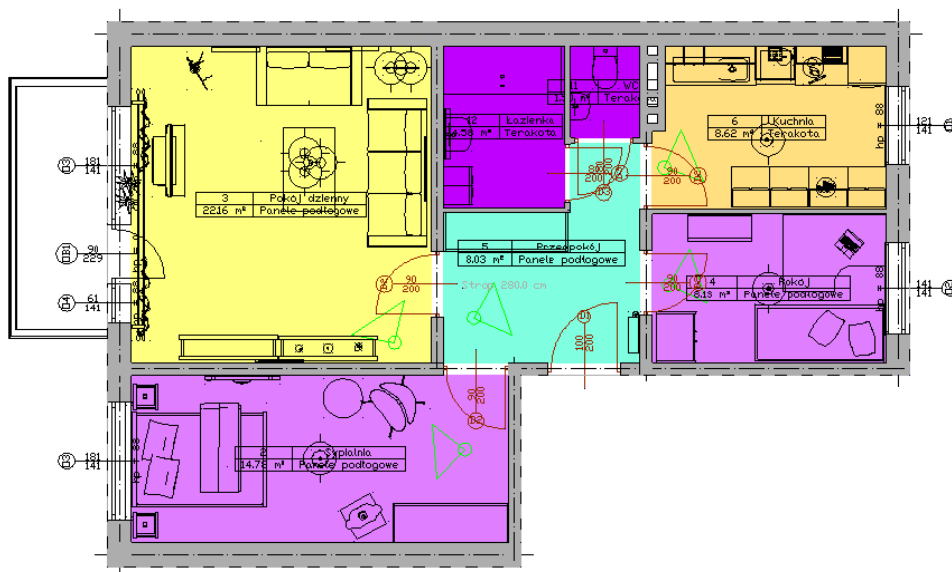


Fig. 191. Example of application of hatching (filling) the rooms

Rooms modifications options are available from the window which appears after selecting the room table, and in the level properties window.

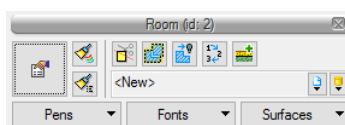











Fig. 192. Room editing window

Tab. 22 Room modification tools

	<i>Go to Properties dialog box</i>	Opens <i>Properties</i> dialogue box.
	<i>Font and pen painter</i>	Copies pens settings (line thickness and type) and type of the defined description font.
	<i>Type painter</i>	Takes over the parameters of the room type, i.e. applied materials and assignment to the group.
	<i>Cancel element trim to roof</i>	Deletes element trim, e.g. to room or floor slab.

Levels

	<i>Join rooms</i>	Joins selected rooms, adding the areas and unifying the type (taken from the first room selected).
	<i>Explode rooms</i>	Explodes joined rooms to the originally created.
	<i>Hide room</i>	Hides description of the selected room by moving the room to <i>Hidden rooms</i> group.
	<i>Renumbr rooms</i>	Changes automatic numbering of rooms.
	<i>Insert floor on ground</i>	Inserts the floor on the ground of given room.
	<i>Pens</i>	Definition of the type of the line used to draw the inserted element.
	<i>Fonts</i>	Definition of the size and type of the font describing the element.
	<i>Surfaces</i>	Assigning materials or textures to the particular areas of the inserted element.
	<i>Type</i>	Element types and icons <i>Global library</i> and <i>Project library</i> .

Since version 3.9, *Use as template* option which copies selected room data, in order to paste it as the settings of the next room being inserted has been introduced into the Application. This option was available on the taskbar as an option, now it is permanently activated and it is not visible on this toolbar any more.

It copies the data of selected wall and inserts them as the settings of the next wall being inserted.

Walls

5. WALLS

Walls

5.1. Walls

5.1.1. Wall properties

When you select *Switching to Properties dialog box* option from the *Insert* window, the following dialogue box appears: *Object properties: Wall*.

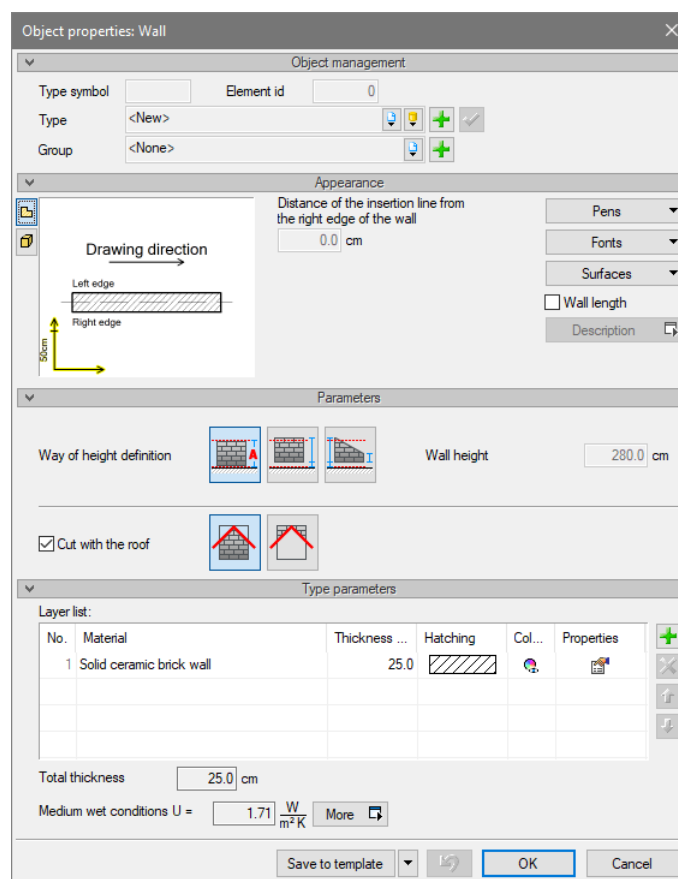


Fig. 193. Wall properties window

Object management – a panel that allows the user to save a defined wall to the *Global library* or to the *Project Library* or to assign it to a group. In order to assign a wall or walls to the subgroup visible in the *Project Manager*, which will enable easier project management, it is necessary to select an existing group in the *Object management* panel or to create it by pressing the *Create new* button. Saving elements to the *Global library* is described in the *Working with types* chapter.

NOTE: A wall should be saved to the library only after all its parameters are defined.

Appearance – the panel is responsible for the way of drawing a wall in a projection, a section, and showing it in a 3D view. The type and thickness of lines can be found under the *Pens* button, and the material, i.e. the texture that is visible in the visualization, under the *Surfaces* button. Since version 4.0, it has been possible to assign a texture (BMP or GIF file) to the wall. The selected wall areas can now be shown by selecting material and its colours (provided by the operating system) (BMP or GIF

Walls

file). The selected texture can be mapped as required, also its angle and coverage ratio may be defined. The assigned areas will be visible in *3D View*.

Distance of the insertion line from the right edge of the wall – the location of the insertion line is unavailable before the wall is inserted. The line is selected from the insertion window, and the options are: *Wall edge*, *Wall symmetry axis*, *Wall axis* and *Wall edge*. The value is calculated automatically, and after inserting a wall, it is saved and it becomes the *Transformation fixed point line*, i.e. the line that remains in place when modifying the wall thickness.

Parameters – the panel is responsible for the height and trimming of a wall. By default, walls should be inserted with the *Automatic cut* option selected. Then the height of walls is changed together with the storey and with the inserted ceilings that trim them automatically.

Since version 3.0 of ArCADia Application it is possible to move the wall vertically, i.e. inserting it, for example, as lower or inserting the wall that begins at the level different than zero. The parameters of the wall height and shape may be found in *Parameters* panel. They are variable for various options. Selecting the *Set height* icon activates the height field, and enables setting the lower edge. The *Set height – trapezoid wall* option provides three fields, defining the lower edge, the wall height at its beginning and end. Furthermore, since version 4, it is possible to trim the wall both from the top and bottom, and the same it is possible to define the wall trimmed from the bottom by the roof. It is still remains applicable that the walls are trimmed only to the roof or floor slab. In version 6.6 of the ArCADia system, the window has been changed for clarity purposes, so that trimming the roof is better visible. If you clear the *Trim roof* option, then the wall trimming side icons will turn grey.

Type parameters – the panel allows to define layers in a wall. Data from this panel are saved to *Type*, i.e. to the library.

You can make necessary modification in the layers (thickness, priority, type) by using *Add*, *Remove*, *Up*, *Down* buttons and clicking on the desired layer (in the appropriate column).

Add – opens the window below, where you can set all necessary parameters of the added layer. In the wall properties window, in the list of layers, there are only the most important layer parameters: *Material*, *Thickness*, *Hatch* and *Colour*. Other parameters such as: *Visibility*, *Type*, *Priority* are defined in the *Layer properties* window.

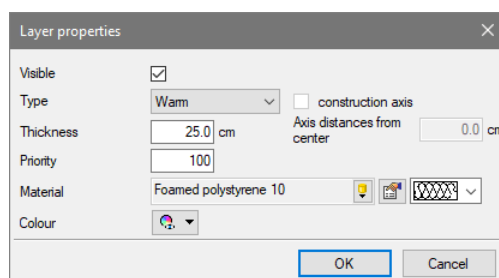


Fig. 194. The Layer properties window

It is necessary to specify the *Type* for the layers already set, i.e. their further behaviour in the program. If you select the *Supporting structure* type for the layer, it will mean that the ring beam will

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be automatically created above this layer after insertion of the floor slab. In the *Supporting structure* layer, above the windows, doors and openings in the wall, lintels are also created. The *Not-construction* layer type is trimmed by the floor slab, but lintels are created and visible in the section similarly to the *Supporting structure* layer. *Finish* layer can be set for the wall, but may be not visible for the drawing of the layout. This makes that all the layers will be included in *Insert object label* (on the flag), even though not all of them are visible in the projection.

Construction axis – in the current version it is available only for the *Supporting structure* layer type. Its default position is at the centre of this layer and this position is remembered despite, for example, a change in the thickness.

When defining a layer wall, it is recommended to assign the subsequent priority values to the subsequent layers. Since the priority value decides on the appropriate layer joints at the bends, connections and intersections (layers of the same priority will be connected). It is recommended for a single document to use the same priority values for the layers that are to be combined. Defining a single-layer wall of thickness of 25 cm, with the layer priority equal to 64 for the exemplary three-layer wall causes that in case of walls coincidence within the drawing, the Supporting structure layers of the three-layer wall and single-layer wall will be combined.

Since version 4.0 both in the wall and other barriers (ceiling and roofs) the *Heat-transfer coefficient* is calculated. By default, the value of the coefficient calculated for the internal walls and medium-humidity conditions is displayed. The other values are shown in *Heat-transfer coefficient* dialogue box.

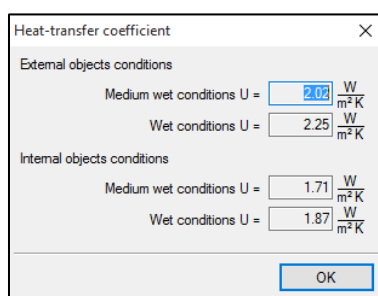


Fig. 195. Window displaying heat transfer coefficient for a selected barrier

5.1.2. Inserting a single wall

The ArCADia system allows for various insertions of walls on the floor plan. The new option is to draw a single wall using one of the edges.

Activation:

- *Architecture* ribbon \Rightarrow logical group *Building* \Rightarrow *Wall*
- *ArCADia-ARCHITECTURE* toolbar \Rightarrow *Insert wall*

A wall can be selected from the program's *Global library* or defined in the properties window.

After running the command, selecting or defining a wall, the user indicates its beginning, specifies its length and drawing angle, and then selects the edge with which the wall is inserted and the order in which the layers are inserted.

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For example:

A wall has been selected from the list displayed under the  *Global library* icon.

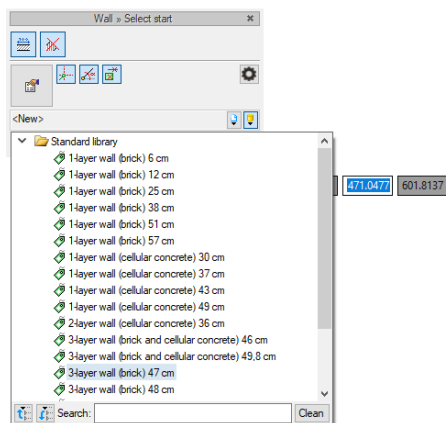



Fig. 196. Selecting a wall from the library

Drawing a wall should be started with indicating its beginning. For easier input of elements, you can turn on the *Ortho* option (using the **F8** keyboard shortcut or the  icon from the status bar).

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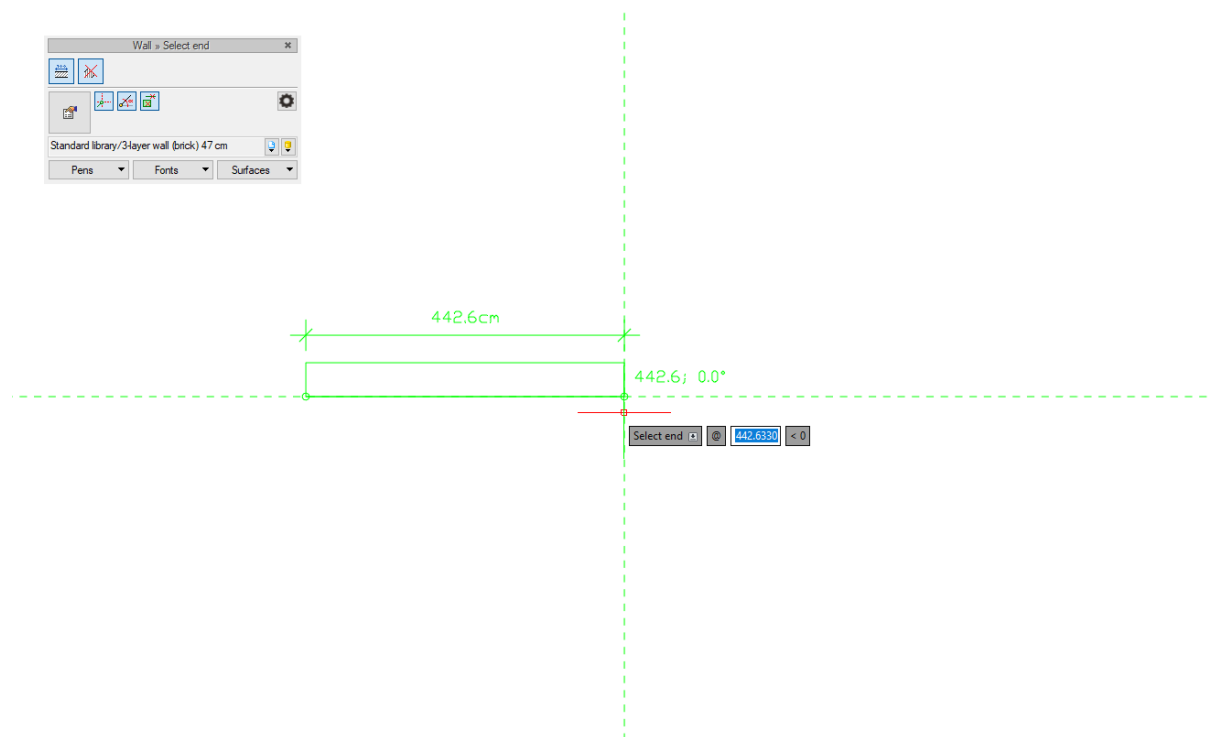


Fig. 197. Starting drawing a wall

There is a data input window next to the cursor where you can enter the *Length* (first field) and *Angle* (second field) of the drawn wall. Switching between value boxes is done by pressing the < key, and confirming the entered data by pressing *Enter*.

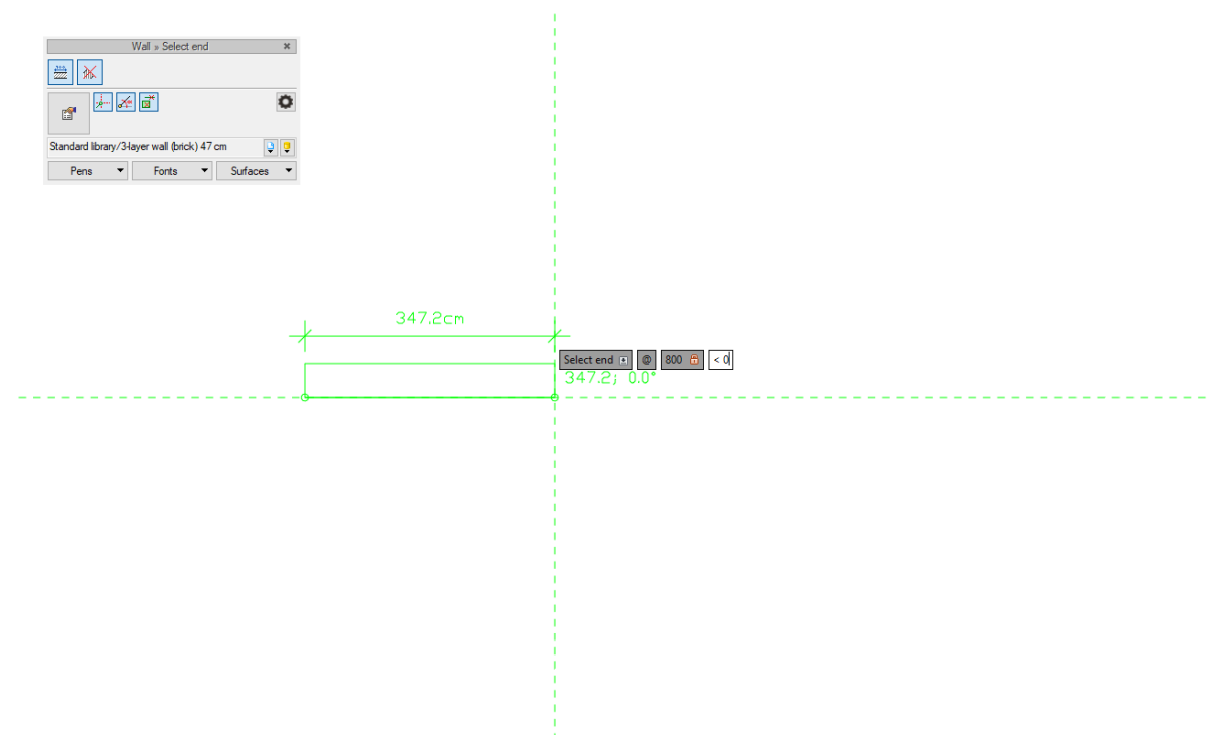


Fig. 198. The length and angle of the inserted wall

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After confirming the data, the wall is displayed together with the layer preview. Moving the cursor changes the position of the layers and the insertion edge. If the cursor is below the wall line with which the wall was inserted, the wall layers will be drawn below. Moving the cursor from right to left will swap the layers but keep the insertion edge in the same place.

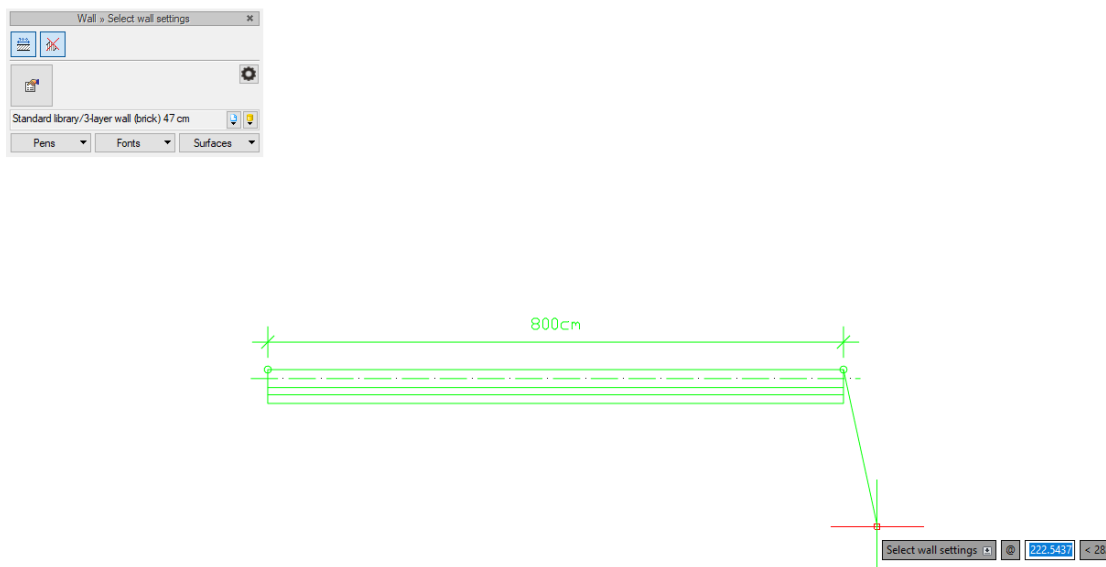


Fig. 199. The cursor located to the right of the end of the selected wall changes the order of the layers to: structural, insulation, non-structural (from above)

Walls

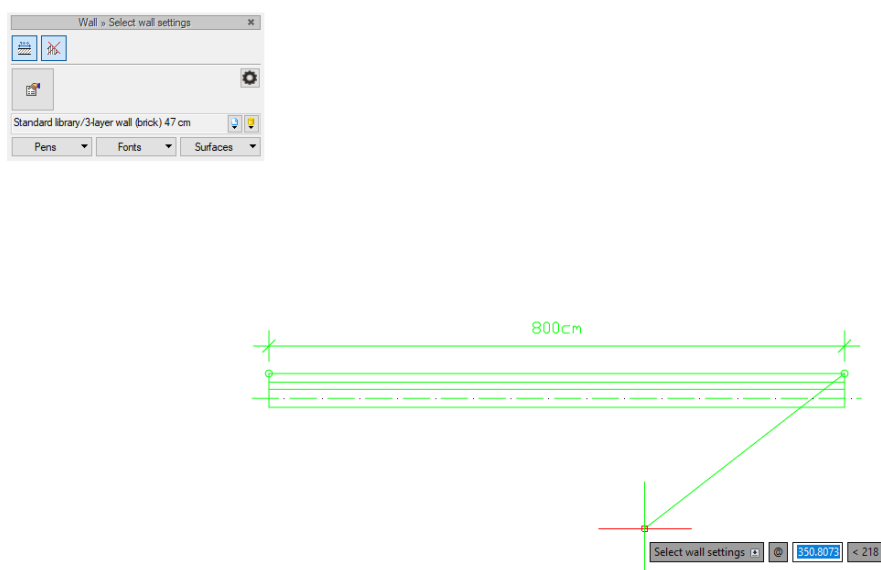


Fig. 200. The cursor located to the left of the end of the selected wall changes the order of the layers to: non-structural, insulation, structural (from above)

Moving the cursor to the edge of an inserted wall will move the wall above, while making a right-left move near the end of the wall will change its layers.

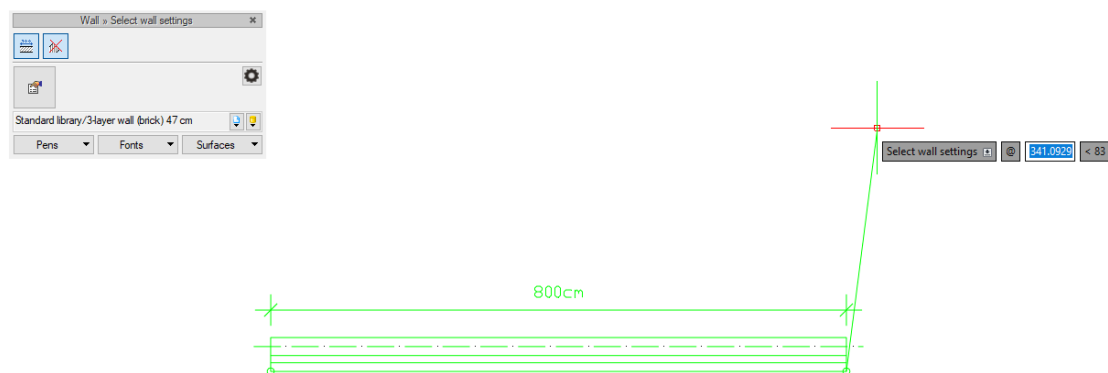


Fig. 201. The cursor located to the right of the end of the selected wall changes the order of the layers to: structural, insulation, non-structural (from above)

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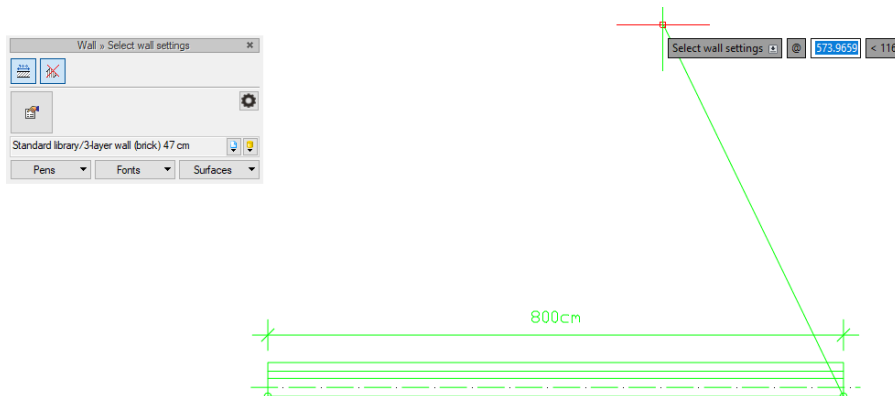


Fig. 202. The cursor located to the left of the end of the selected wall changes the order of the layers to: non-structural, insulation, structural (from above)

After proper setting of the wall and its layers, the wall is inserted after clicking the left mouse button. The option will not be turned off, so it is possible to insert more walls in the same way.

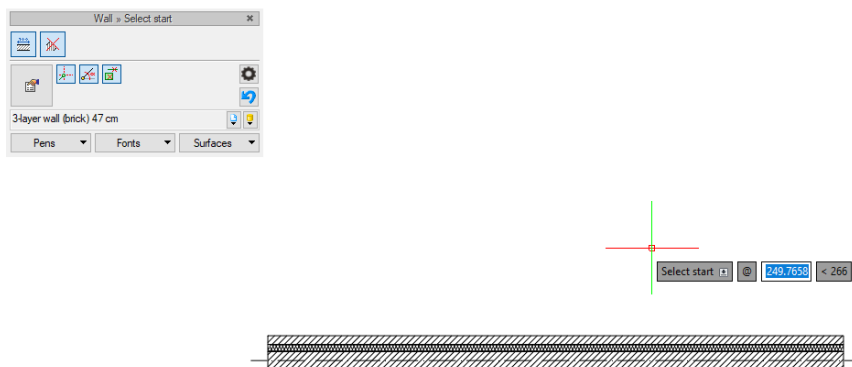


Fig. 203. Indicating the beginning for another wall

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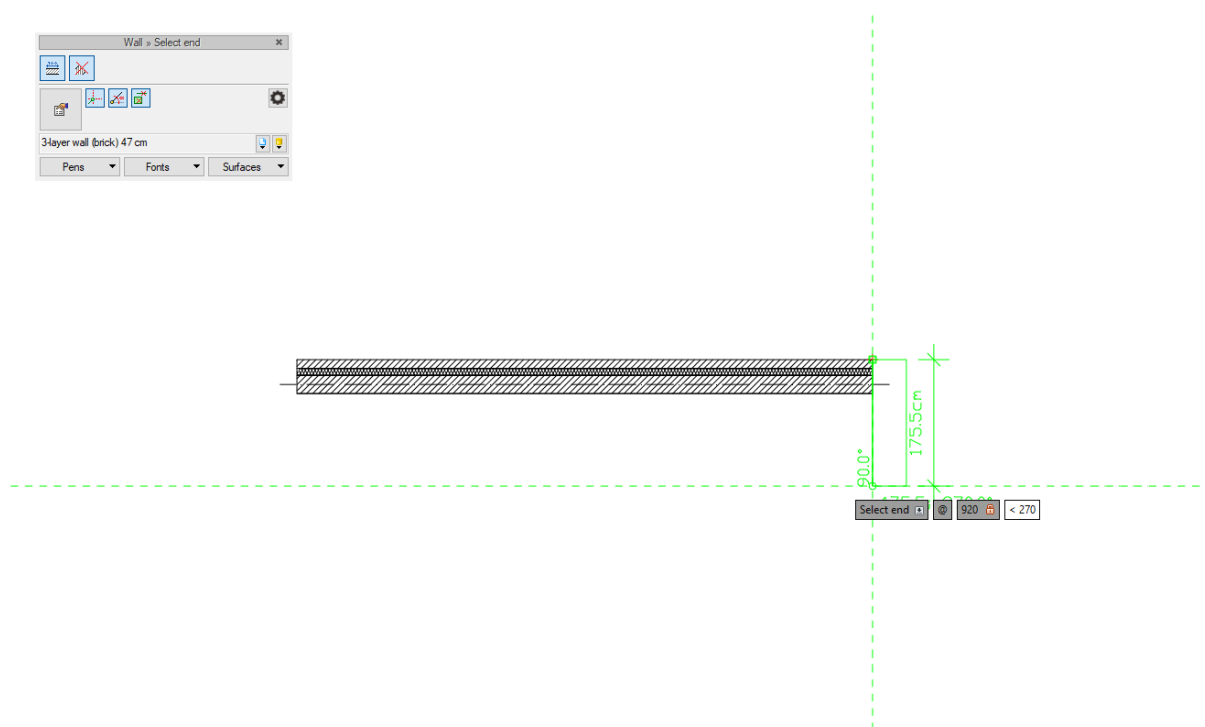


Fig. 204. Setting the length and insertion angle

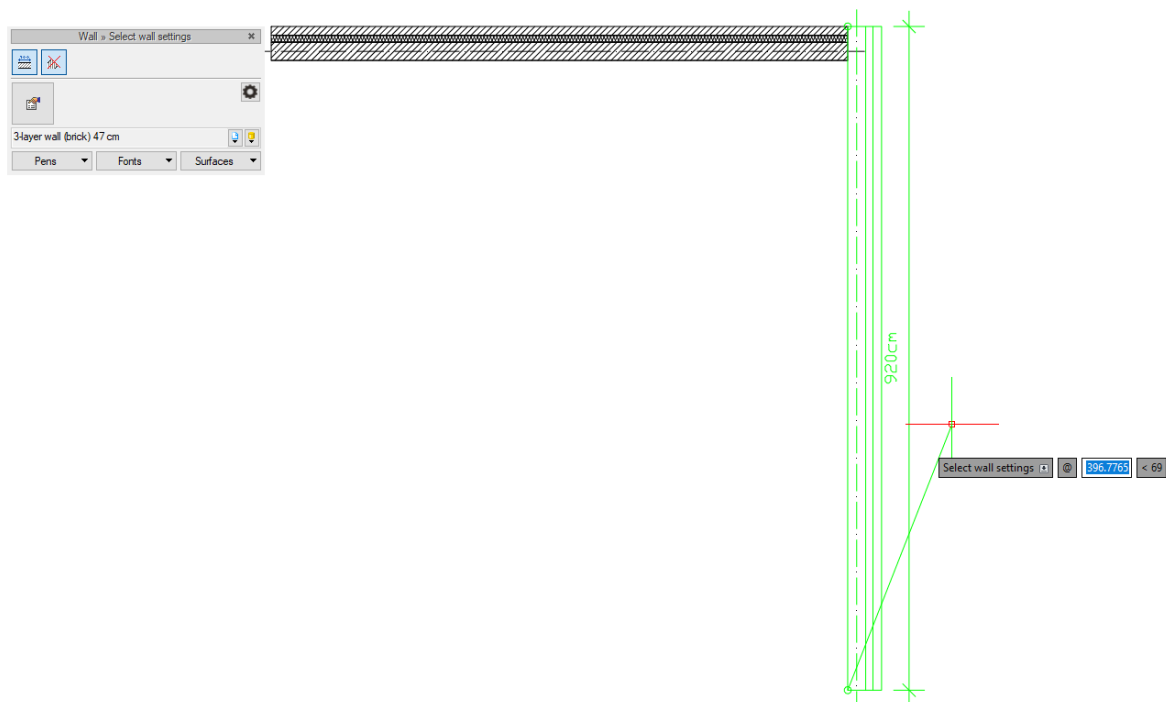


Fig. 205. Selecting a proper edge

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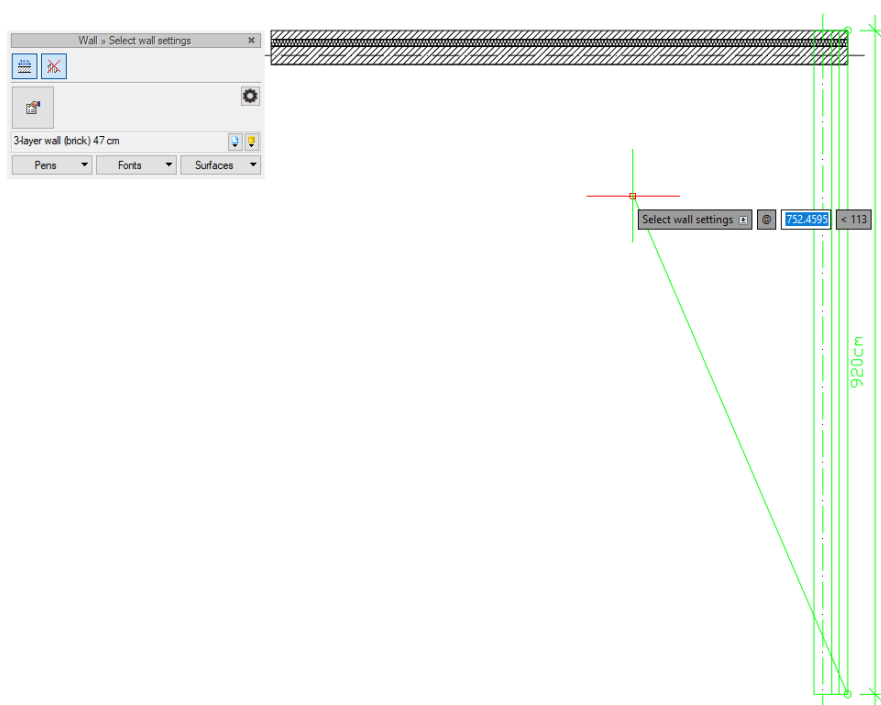


Fig. 206. Selecting the order of the layers

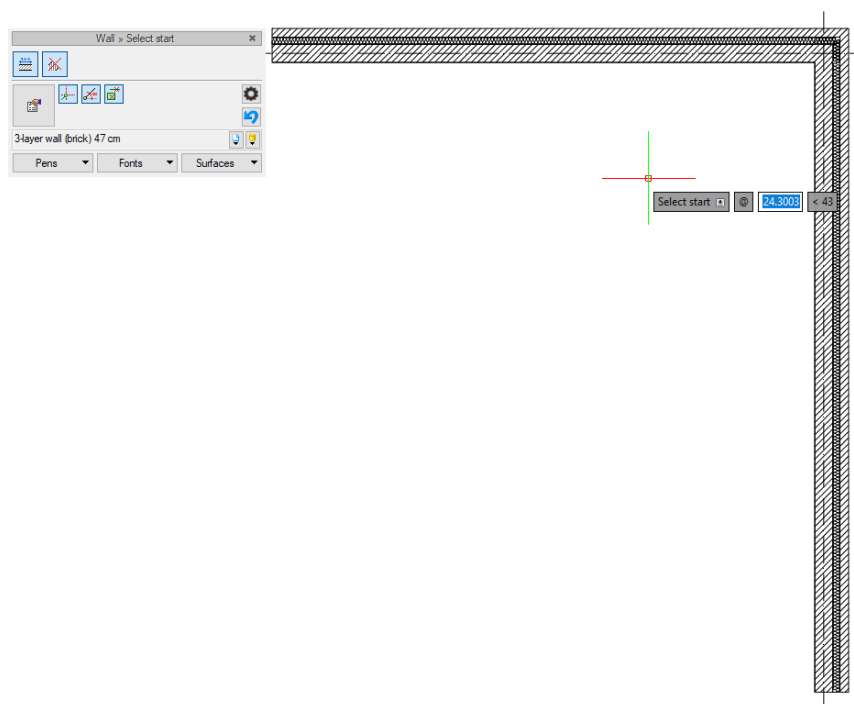




Fig. 207. Inserting another wall

5.1.3. Inserting walls

ArCADia application allows the user to insert custom single or multi-layer walls into the drawing with automatic resolving of the connections and intersections of such type walls.

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Activation:

- *Architecture* ribbon ⇒ logical group *Building* ⇒  *Walls*
- *ArCADia-ARCHITECTURE* toolbar ⇒  *Insert walls*

When you press *OK* button, the wall drawing mode will be activated. It involves the indication of subsequent wall break points, however the user defines which leading line will be used to insert a specific segment of the wall (the *Insert* window, *Anchor* field). The program will automatically draw walls by creating appropriate connections, intersections and breaks.

If you close the outline while drawing the wall, the room will be automatically generated.

During drawing the following functions are accessible from the Insert window, Report dialogue box or Command area:

- *Tracking axes* – this option detects points and edges of the inserted elements and sets vertical and horizontal axes from them against the screen or, in case it is e.g. wall edge, displays the extension of such line.
- *Tracking angles* – this option selects the angles given in the window above, setting them from previously inserted elements, e.g. from the edges of the drawn walls.
- *Detection* – this option detects edges, axis, corners, and points of the elements inserted to the project, making possible to precisely set the cursor on the drawn objects.
- *Element insertion options* – opens the window to set tracking and underlay.
- *Reference* – allows to insert the wall at a given distance from the specified point (available only before inserting the first segment of wall).
- *Between points (centre)* – starts drawing of the wall from the middle of the specified distance (distance is entered by selecting two points).
- *Between points (percentage)* – starts drawing of the wall based on the percentage division of the specified distance (distance is entered by selecting two points).
- *Parallel* – allows to insert an element parallel to the specified one.
- *Continue* – allows to continue the wall on the extension of the previous segment.
- *Back* – withdraws previously inserted segment of the wall.
- *Angle* – inserts segment of the wall at the predefined angle.
- *Length* – inserts segment of the wall of the predefined length.
- *End of command* – closes the drawn outline by guiding the wall to the start point and terminates the command.
- *Cancel* – interrupts the operation of the function.
- *Apply* – terminates the insertion of wall.

The example of wall drawn is shown below:

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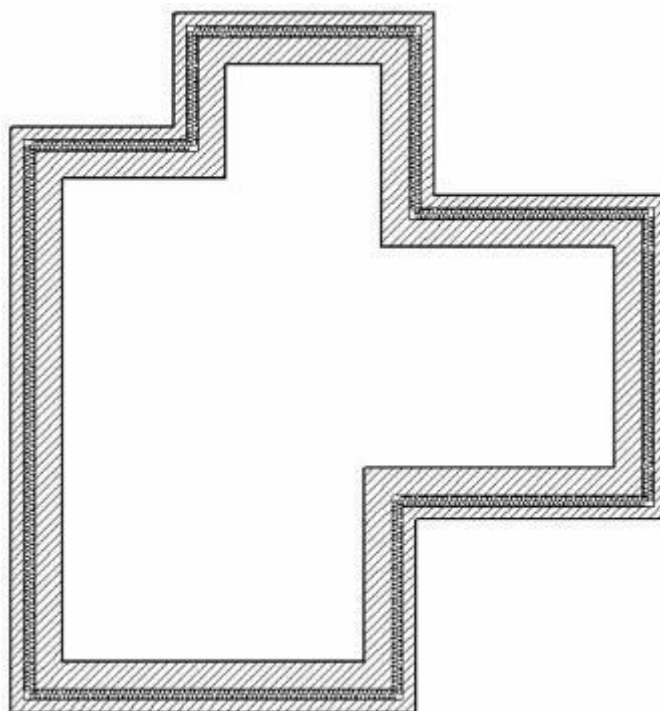




Fig. 208. Example of wall contour

5.1.4. Drawing curved walls


It is possible to insert a wall being drawn along the arc into the architectural design. This wall will be inserted by using three points: arc start, end and its radius. The number and type of the layers on the arc are defined similarly to the straight walls.

Activation:

ArCADia, ArCADia PLUS and ArCADia AC

- *Architecture* ribbon ⇒ logical group *Building* ⇒  *Curved wall*
- *ArCADia-ARCHITECTURE* toolbar ⇒  *Insert curved wall*

ArCADia LT

- *Architecture* ribbon ⇒ logical group *Building* ⇒  *Curved wall*

During drawing you can define the layers and save the wall type, in the similar manner to the regular walls. You can also define the *Curved wall* (edge or axis of the wall).

Similarly to the insertion of all elements of the Application, while drawing, the following functions are accessible from the Insert window, Report dialogue box or Command area:

- *Tracking axes* – this option detects points and edges of the inserted elements and sets vertical and horizontal axes from them against the screen or, in case it is e.g. wall edge, displays the extension of such line.
- *Tracking angles* – this option selects the angles given in the window above, setting them from previously inserted elements, e.g. from the edges of the drawn walls.

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- *Detection* – this option detects edges, axis, corners, and points of the elements inserted to the project, making possible to precisely set the cursor on the drawn objects.
- *Element insertion options* – opens the window to set tracking and underlay.
- *Reference* – allows to insert the wall at a given distance from the specified point (available only before inserting the first segment of wall).
- *Between points (centre)* – starts drawing of the wall from the middle of the specified distance (distance is entered by selecting two points).
- *Between points (percentage)* – starts drawing of the wall based on the percentage division of the specified distance (distance is entered by selecting two points).
- *Continue* – allows to continue the wall on the extension of the previous segment.
- *Back* – withdraws previously inserted segment of the wall.
- *Angle* – inserts segment of the wall at the predefined angle.
- *Length* – inserts segment of the wall of the predefined length.
- *End of command* – closes the drawn outline by guiding the wall to the start point and terminates the command.
- *Cancel* – interrupts the operation of the function.
- *Apply* – terminates the insertion of wall.

For example:

The three-layer curved wall is inserted into the existing wall layout. First, after selecting the wall, the start point is indicated.

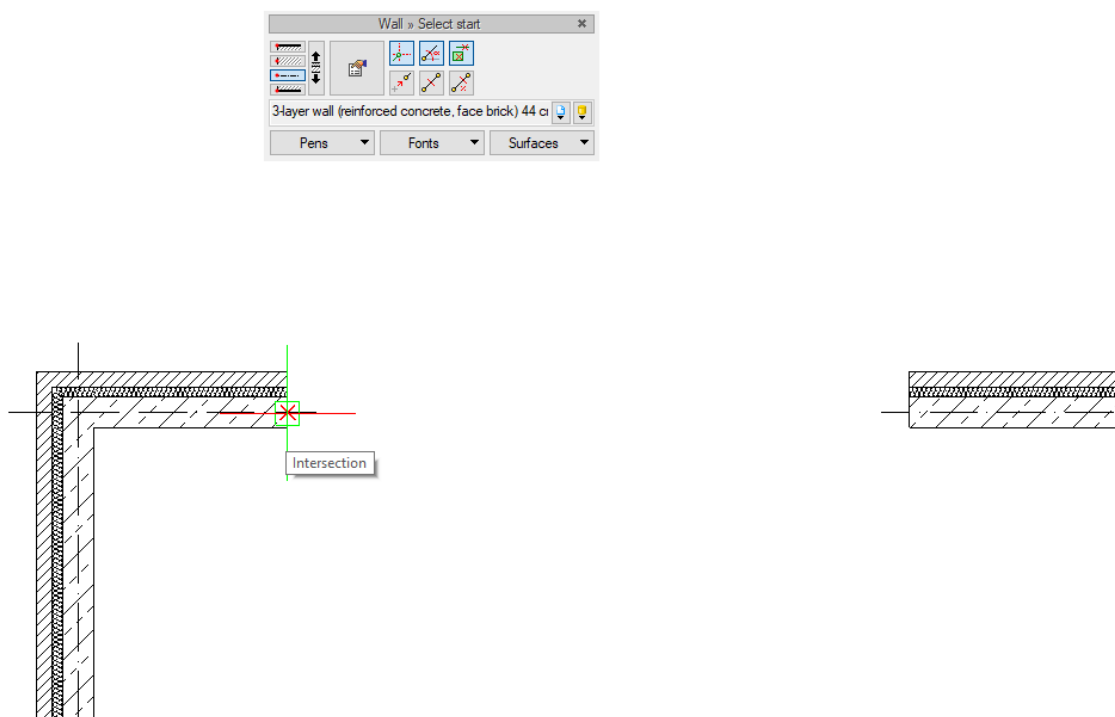


Fig. 209. Drawing an arched wall – setting the beginning

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If the layers are drawn inversely to the other walls in the drawing, then before indicating the second point or radius you may change the layer settings using *Reorder layers* option.

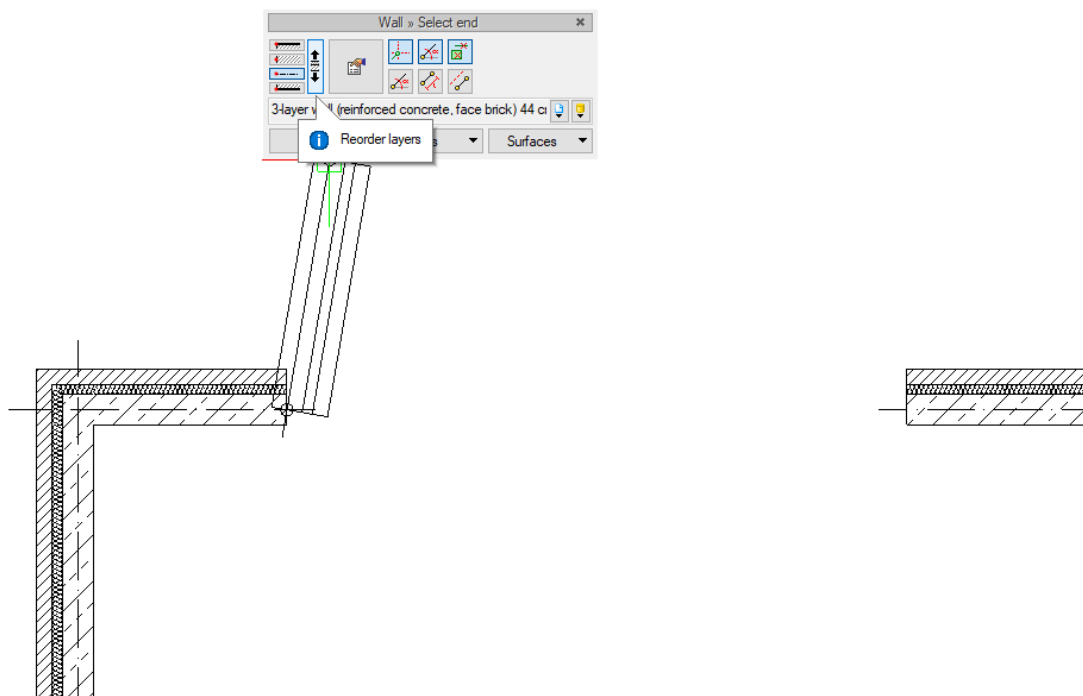


Fig. 210. Drawing an arched wall – rotating the layers

If the end point of the arc is selected, define the radius. During drawing, the value of the radius is shown for an easier indication of the appropriate radius. If better accuracy is required, then after you have the wall inserted, you can adjust the entered radius (*Arc radius (to symmetry axis)*) in *Properties*.

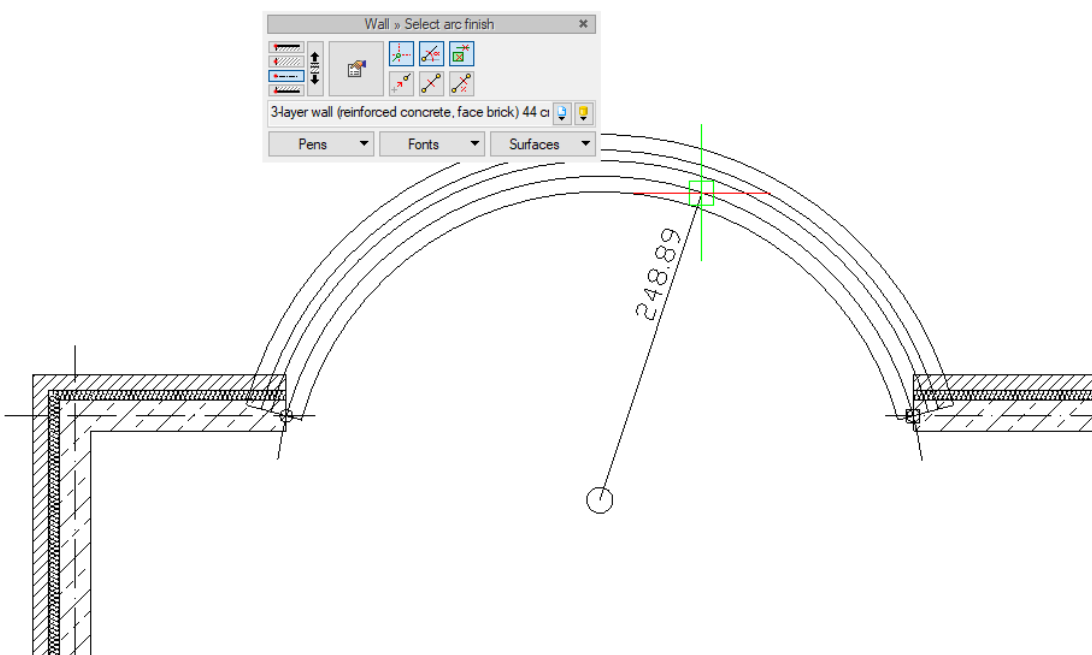


Fig. 211. Drawing an arched wall – setting the radius

Walls

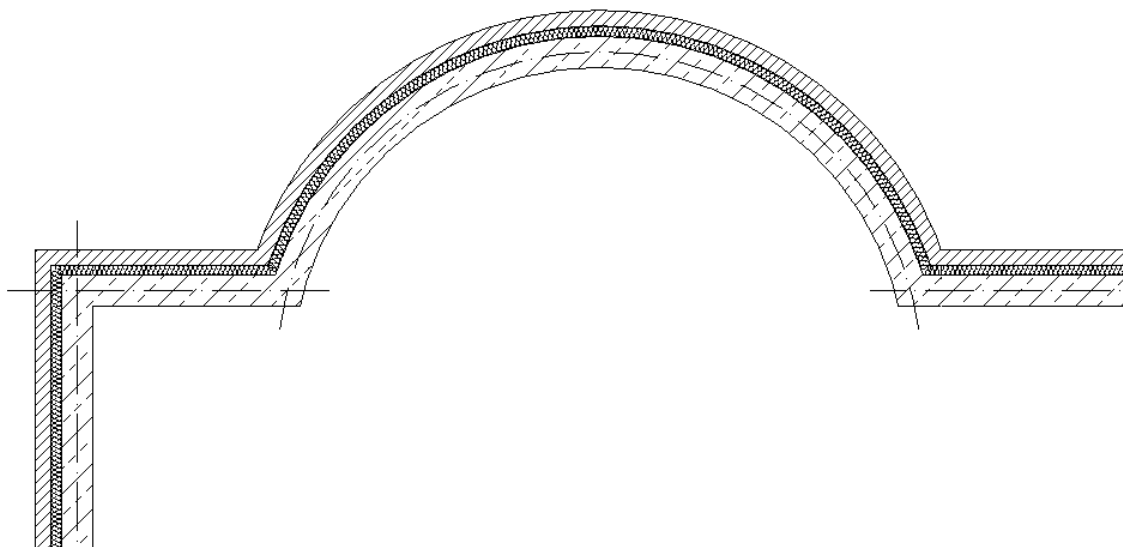



Fig. 212. The example of a curved wall inserted

5.1.5. Drawing walls with rectangle tool

In order to draw a wall which width and length is unknown, but it can be, for example, determined on the basis of outline drawn with lines, you can draw a wall by using  *Wall by 3 points* option even if its parameters are unknown.

Activation:

- *Architecture* ribbon ⇒ logical group *Building* ⇒  *Insert Wall by 3 points*
- *ArCADia-ARCHITECTURE* toolbar ⇒  *Insert wall by 3 points*

The wall is inserted by selecting its start, length and width. After insertion of the wall, you can define layers and other wall parameters in *Properties* dialogue box.

5.1.6. Editing walls

The walls that have been inserted into the projection using any available method can be modified by the following options:

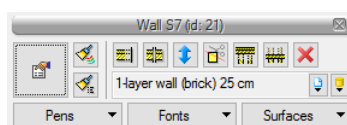









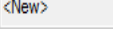



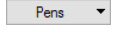
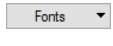



Fig. 213. Wall editing window

Tab. 23 Available wall editing tools

	<i>Go to Properties dialog box</i>	Opens <i>Properties</i> dialogue box.
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	<i>Font and pen painter</i>	Takes over the settings of the pens (thickness and type of the line), as well as the size and type of the font.
	<i>Type painter</i>	Takes over the wall type, structure and thickness of the layers and transfer them to the selected walls.
	<i>Extend/trim wall</i>	Changes length of the selected wall.
	<i>Split wall</i>	Splits wall in the selected location.
	<i>Reverse layer order</i>	Changes layer positions.
	<i>Cancel element trim to roof</i>	Removes trim of the wall, e.g. to floor slab or roof.
	<i>Extend up to this wall</i>	Extends selected walls to the primary selected wall.
	<i>Shorten to this wall</i>	Shortens the indicated walls to the originally marked one, by shorter sections going beyond the marked
	<i>Delete marked objects</i>	Removes the selection.
	<i>Type</i>	Save set of features common for many objects of the same type (elements template defined by the user).
	<i>Project library</i>	Compliant with the selected template and created together with the development of the drawing while new types are saved.
	<i>Global library</i>	Type library is provided with the software and extended by <i>User library</i> where the user can save and store element types created by him for use in future projects.
	<i>Close</i>	Exits the options without changing the element.
	<i>Pens</i>	Definition of the type of the line used to draw the inserted element.
	<i>Fonts</i>	Definition of the size and type of the font describing the element.
	<i>Surfaces</i>	Assigning materials or textures to the particular areas of the inserted element.

Since version 3.9, *Use as template* option which copies data of selected wall in order to paste it as the settings of the next wall being inserted has been introduced into the Application. This option was available on the taskbar as an option, now it is permanently activated and it is not visible on this toolbar any more.

The editing of walls is available when you choose an element which after selection displays the edit window with described above options and the wall insertion direction.

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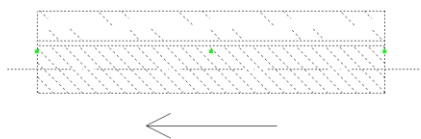


Fig. 214. Wall selected on the projection

The walls may be also edited, deleted, copied, rotated, moved and their thickness or number of layers may be modified. The last option is accessible from the *Object properties: Wall* window. When changing the number of the layers or their thicknesses, it is necessary to check whether the wall is not going to be moved to a wrong place. If a wall has been inserted with its construction axis, then *Distance of the insertion line from the right edge of the wall* is equal to the distance between the right edge and this axis. This distance is not modified automatically, so when modifying layers, it is necessary to check whether it is correct and change it if necessary before closing the window.

One of the wall modification options is extending a few walls at a time. The option is activated from the editing window of the wall to which other walls will be extended.

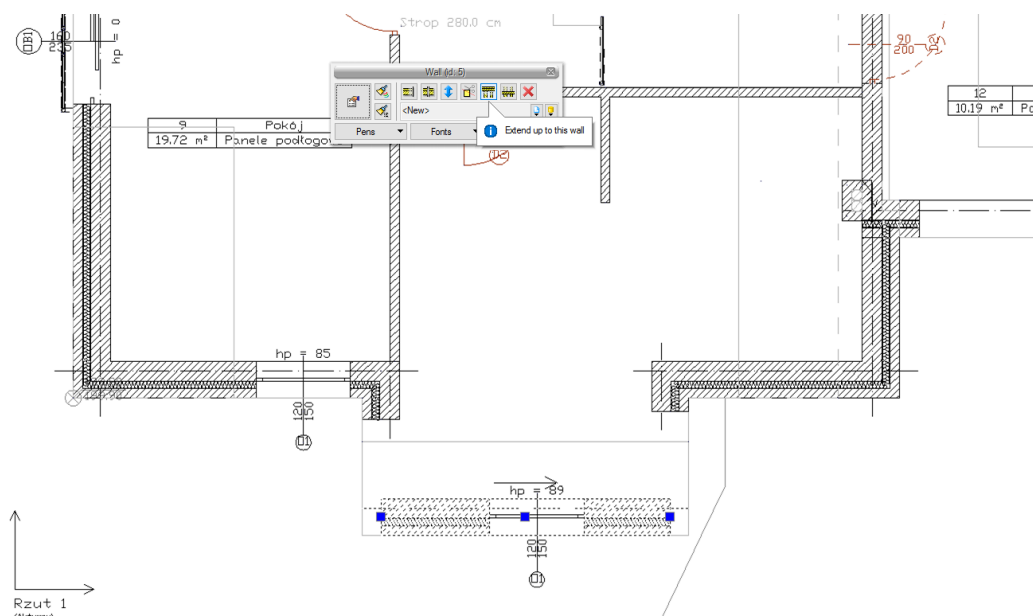



Fig. 215. Extending walls – selecting the wall to which other walls will be extended

From the editing window you have to select  *Extend up to this wall* and select (by clicking on the area or by clicking on each of the walls) walls that should be extended.

Walls

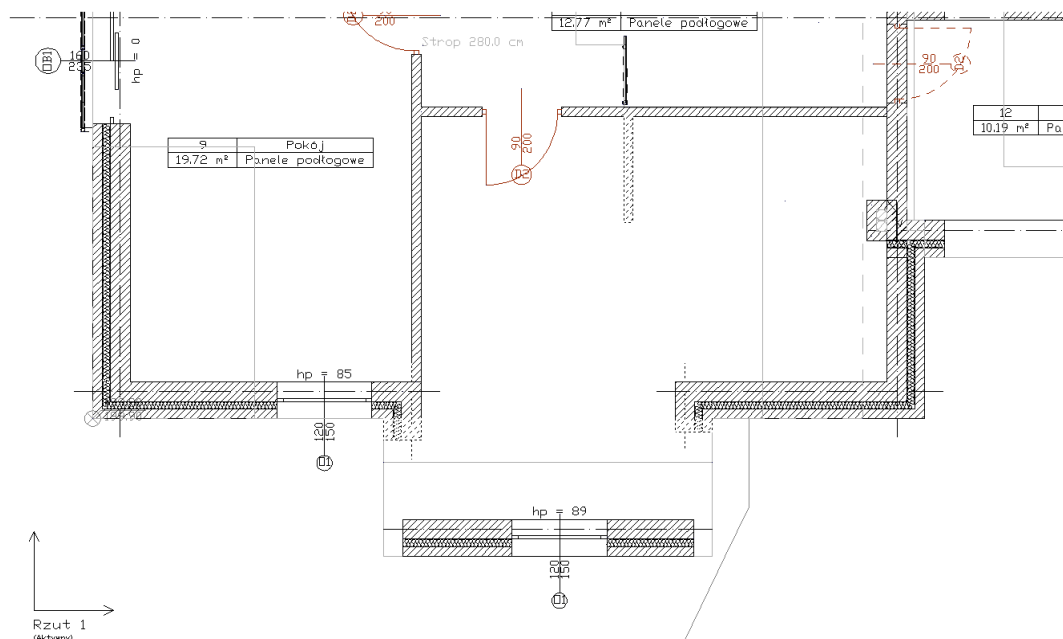


Fig. 216. Extending walls – selecting the walls which will be extended

Confirm the selection by clicking the right mouse button or by pressing **Enter**.

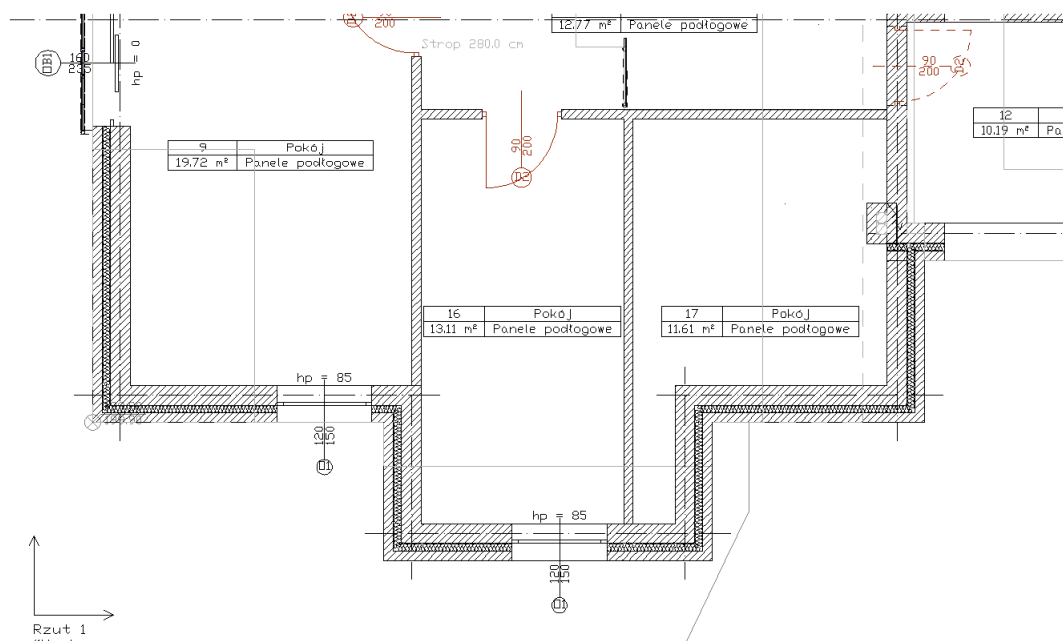


Fig. 217. Extending walls – final effect

The option of shortening walls to the marked one acts similarly and is also triggered from the edition window. The marked wall will trim all walls indicated for shortening, eliminating shorter sections.

Mark the wall to shorten the marked walls passing through it.

Walls

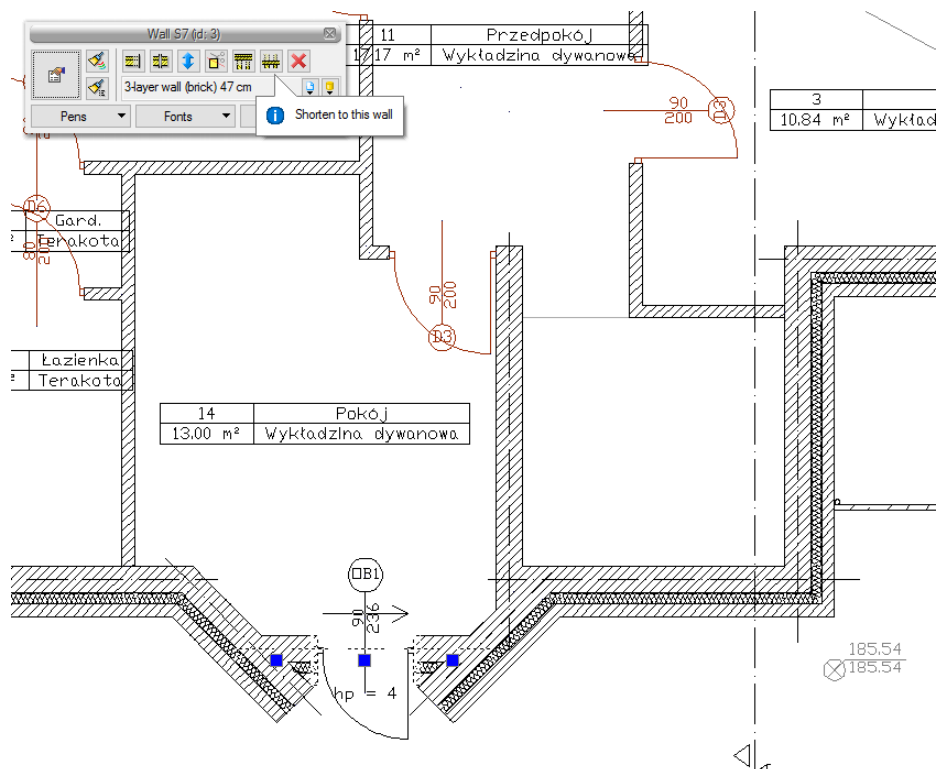


Fig. 218. Shortening the wall should – marking the wall

From the edition window select the *Shorten to this wall* option and, subsequently, mark the walls which are to be trimmed.

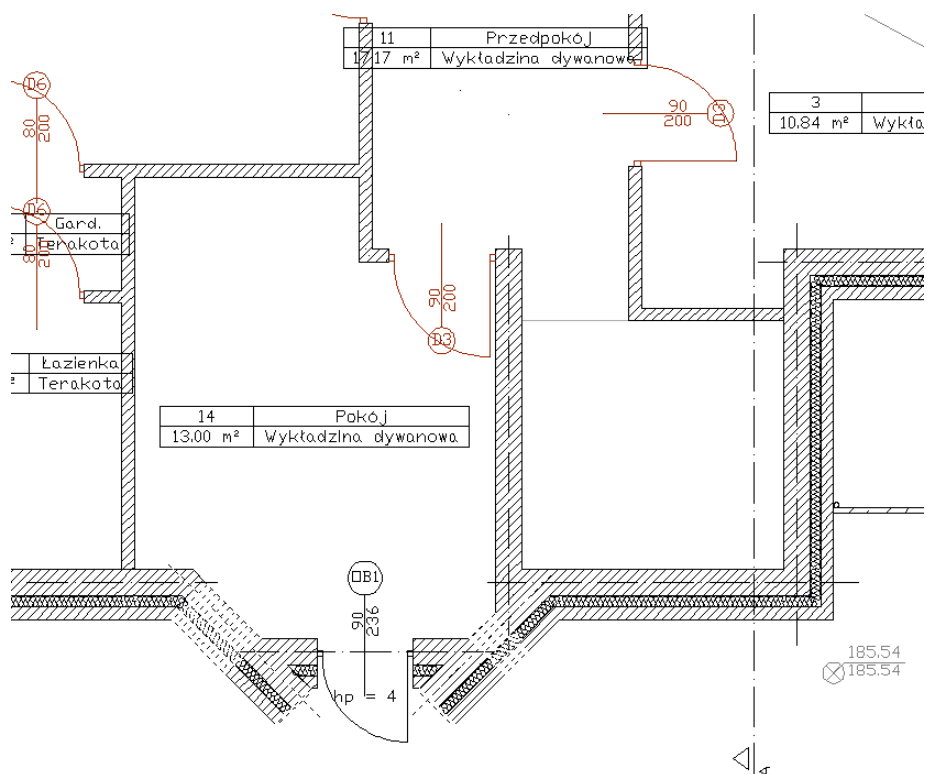


Fig. 219. Wall shortening – marking the walls for shortening

Walls

Confirm the selection of the walls for shortening. Walls are trimmed in such a way that the longer wall sections remain.

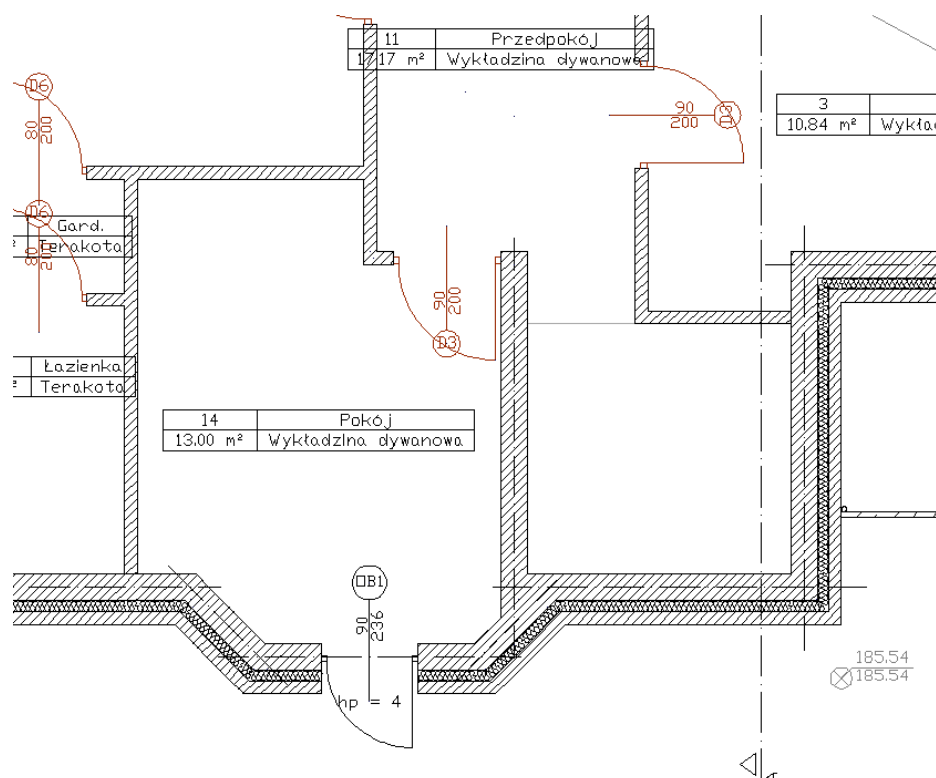


Fig. 220. Wall shortening – wall shortening effect

5.2. Virtual walls

5.2.1. Inserting virtual walls

The rooms in ArCADia Application are created automatically while you draw a wall and when the Application detects a closed outline of the room. The virtual walls are used for additional, manual control of creation and partition of the rooms.

Activation:

- **Architecture** ribbon \Rightarrow logical group **Building** \Rightarrow **Virtual wall**
- **ArCADia-ARCHITECTURE** toolbar \Rightarrow **Insert virtual wall**

Inserting a virtual wall into the existing room will cause its splitting.

NOTE: The ends of the virtual wall should be in contact with the edges of the border wall.

The rooms may be also created with the use of virtual walls through drawing them with the outline.

During insertion of the virtual wall the following functions are accessible from Insert window, **Report dialog box** or Command area:



Walls

- *Tracking axes* – this option detects points and edges of the inserted elements and sets vertical and horizontal axes from them against the screen or, in case it is e.g. wall edge, displays the extension of such line.
- *Tracking angles* – this option selects the angles given in the window above, setting them from previously inserted elements, e.g. from the edges of the drawn walls.
- *Detection* – this option detects edges, axis, corners, and points of the elements inserted to the project, making possible to precisely set the cursor on the drawn objects.
- *Element insertion options* – opens the window to set tracking and underlay.
- *Reference* – allows to insert the virtual wall at a given distance from the specified point (available only before inserting the first segment of wall).
- *Between points (centre)* – starts drawing of the wall from the middle of the specified distance (distance is entered by selecting two points).
- *Between points (percentage)* – starts drawing of the wall based on the percentage division of the specified distance (distance is entered by selecting two points).
- *Parallel* – allows to insert an element parallel to the specified one.
- *Continue* – allows to continue the virtual wall drawing on the extension of the previous segment.
- *Back* – withdraws the previously inserted segment of the virtual wall.
- *Angle* – inserts segment of the virtual wall at the predefined angle.
- *Length* – inserts segment of the virtual wall of the predefined length.
- *Element properties* – closes the drawn outline by guiding the virtual wall to the start point and terminates the command.
- *Cancel* – interrupts the operation of the function.
- *Apply* – terminates the insertion of virtual wall.

5.3. Converting line to wall

If you want to convert DWG drawing created using lines and polylines into ArCADia project, simply choose *Convert line into wall* option, select, for example, a polyline, select an anchor (drawing line: edge or axis) and set the appropriate parameters for the wall.

Activation:

- *Architecture* ribbon ⇒ logical group *Building* ⇒  *Convert line into wall*
- *ArCADia-ARCHITECTURE* toolbar ⇒  *Convert line into wall*

Walls

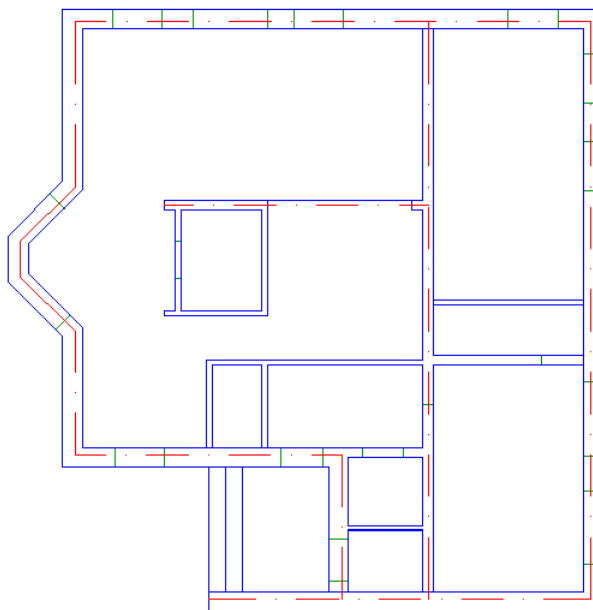


Fig. 221. Converting a polyline into a wall – sample projection drawn by means of polylines

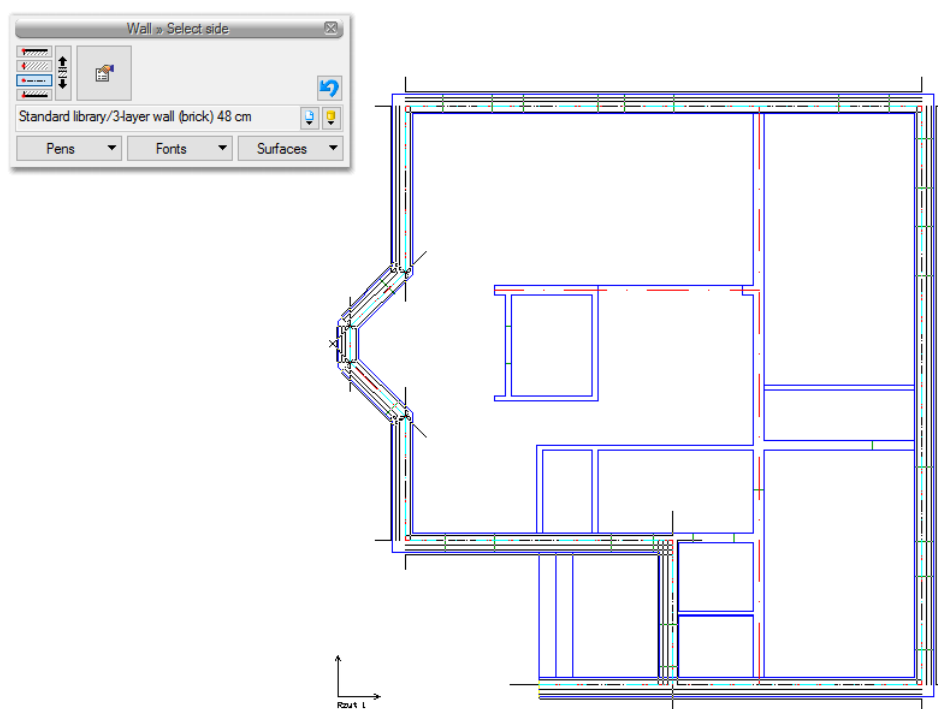


Fig. 222. Reshaping the polyline in the wall – selecting the polyline

Walls

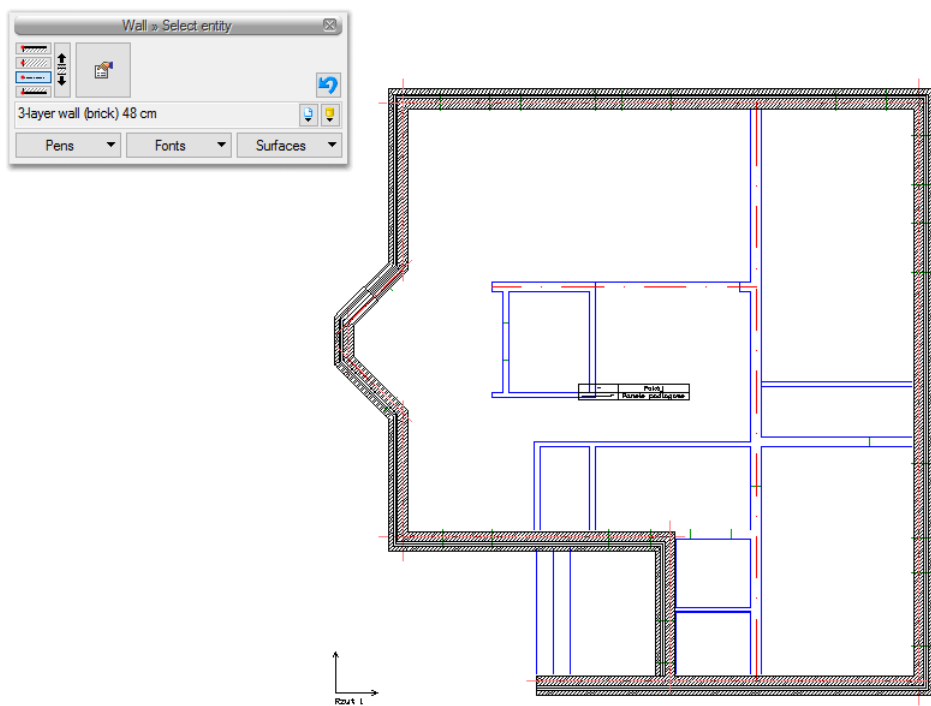


Fig. 223 Reshaping the polyline – final effect

5.4. Convert line into virtual wall

This option converts a line or polyline into a virtual wall dividing the project area and featuring all the options of the virtual wall.

Activation:

- *Architecture* ribbon ⇒ logical group *Building* ⇒  *Convert line into virtual wall*
- *ArCADia-ARCHITECTURE* toolbar ⇒  *Convert line into virtual wall*

Window and door woodwork

6. WINDOW AND DOOR WOODWORK

Window and door woodwork

When entering windows, doors, holes, or scripted doors, insertion options and windows are almost identical. Starting from the version 5.6 ArCADia system has the possibility to insert e.g. tree windows at the same time. It makes working over drawn documentation faster, as instead of inserting three windows one by one with given reference value user can do it with a single move. Since version 6.6, ArCADia enables stating the height of the windowsill or the threshold for elements without entering the properties window. This value is stated from the lower edge of the wall, so you have to remember to add the set floor thickness.

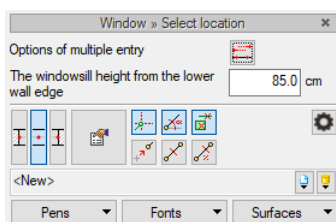


Fig. 224. Window insertion window

Multiple insertion window is active after clicking the icon  opening the following window.

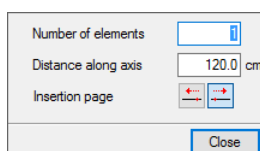


Fig. 225. Multi window insertion window, i.e. the possibility to insert many windows at the same time with a given distance between them

Number of elements – number of windows, holes or doors inserted at the same time.

Distance along axis – distance between the inserted elements, measuring against the axis symmetry.

Insertion page – direction of inserting subsequent elements.

To confirm selected values, click *Close* and select wall where the elements will be inserted. Before clicking the wall (i.e. before inserting the values) walls or doors underlay will be displayed. If the underlay of the joinery will be drawn in a different direction, then the expected one you can always return to the window and select different *Side of insertion* icon.

Warning: if one of the given windows, doors, or holes meet with the connection of walls, or other joinery element, it will not be inserted. Remaining elements will be distanced in such a way as if the missing element was present.

6.1. Windows



6.1.1. Inserting windows

ArCADia Application allows you to insert the user-defined window openings into the Layout of the walls (single or multi-layer) (with or without jamb), with appropriate window description in the

Window and door woodwork

“description” and indication of the window ledge height. At least one existing wall is required to use the function that allows you to insert the window layout into the drawing.

Activation:

- *Architecture* ribbon ⇒ logical group *Building* ⇒  *Window*
- *ArCADia-ARCHITECTURE* toolbar ⇒  *Insert window*

When you select *Switching to Properties* dialogue box from Insert window, the following dialogue box appears: *Object properties: Window*:

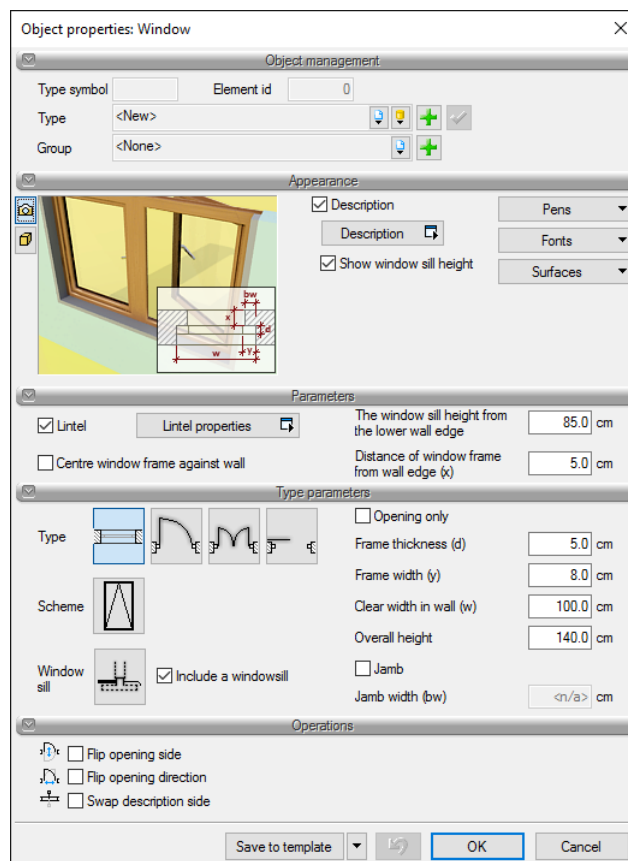


Fig. 226. Window properties dialog box

When you insert a window, you can define the following parameters:

Appearance — description (definition of description bubble elements), displaying the window sill height. Moreover, *Fonts* — description font size *Pens* — definition of line thickness and type, and *Surface* — enables assigning both colour and texture (*bmp* file) to the selected element.

Operations — inverts the opening side of the window (parameter available during editing of the window inserted into the drawing).

Parameters

Lintel — inserted along with the window; shown in the Section. The lintel can be inserted only above the windows, doors and wall openings from *Object properties: window/door/opening* dialogue box.

Window and door woodwork

The window sill height from the lower wall edge — height of the window sill, measured by default from the bottom edge of the wall (measured from the finished floor when inserted in a room with the floor defined).

Centre window frame against wall — allows you to insert a window in the middle of wall thickness.

Distance of window frame from wall edge — enables to insert a window in the specified position relative to the wall thickness. This option is useful not only for window with jamb.

Type— single, double, triple casement window, single and double balcony door.

Scheme — opens the dialogue box that allows to select a scheme which will appear on the woodwork list.

Windowsill — opens the window with settings of thickness of the windowsill and the depth, i.e. protrusion beyond the wall.

Enable windowsill — enables and disables the windowsill inserted along with the window.

Opening only — cuts an opening in wall without drawing a frame.

Frame thickness — thickness of window frame.

Frame width — width of window frame.

Clear width in wall — clear width of window

Overall height — window clear height.

Jamb — window with or without jamb.

Jamb width — width of a jamb.

Save to template — saves pen settings, selected style and other parameters of the element to the template.

When you press *OK* button, the window drawing mode will be activated. The window drawing process involves indication of its location in the wall, noting the "cursor" appearing at the insertion point of the window. During drawing the following functions are accessible from the Insert window, Report dialogue box or Command area:

- *Tracking axes* — this option detects points and edges of the inserted elements and sets vertical and horizontal axes from them against the screen or, in case it is e.g. wall edge, displays the extension of such line.
- *Tracking angles* — this option selects the angles given in the window above, setting them from previously inserted elements, e.g. from the edges of the drawn walls.
- *Detection* — this option detects edges, axis, corners, and points of the elements inserted to the project, making possible to precisely set the cursor on the drawn objects.
- *Element insertion options* — opens the window to set tracking and underlay.

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- **Reference** — allows you to insert a window at a given distance from the specified point (this distance is calculated along the wall on which the "cursor" is currently located).
- **Between points (centre)** — starts drawing of the wall from the middle of the specified distance (distance is entered by selecting two points).
- **Between points (percentage)** — starts drawing of the wall based on the percentage division of the specified distance (distance is entered by selecting two points).
- **Cancel** — interrupts the function without inserting a window.
- **Back** — deletes previously inserted window.
- **Apply** — terminates the insertion of window.

When you activate the Insert window command, you can insert multiple identical windows (this command is automatically repeated).

After insertion of the window, you will get the following drawing:

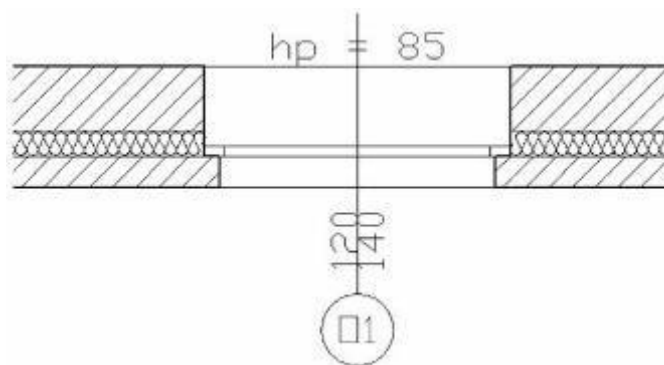


Fig. 227. Example of window on the projection drawing

NOTE: Depending on the layout, the height of the window sill may be given as measured from the lower edge of the wall or finished floor. If you insert the window into the wall, which limits the room with the floor undefined, then the window sill height is calculated and displayed as measured from the bottom edge of the wall. If the room where the wall with inserted window is located contains a floor, then e.g. the value is measured from the floor.

6.1.2. Editing windows

The selected window may be moved, copied, deleted. You can also change its properties and direction of descriptions. In order to make changes you can use the taskbar or anchors (blue points) located on the element.

In addition, the following modification options are available:

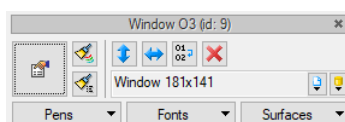








Fig. 228. Window editing window

Window and door woodwork

Tab. 24 Window modifications window

	<i>Go to Properties dialog box</i>	Opens <i>Properties</i> dialogue box.
	<i>Font and pen painter</i>	Takes over the settings of the pens (thickness and type of the line), as well as the size and type of the font.
	<i>Type painter</i>	Takes over the wall type, structure and thickness of the layers and transfer them to the selected walls.
	<i>Swap opening side</i>	Changes the window swing direction and moves the description to the opposite edge of the wall.
	<i>Swap opening direction</i>	Changes the window swing direction.
	<i>Re-index windows type symbols</i>	Allows for automatic indication of <i>Type symbols</i> (01,02 etc.) for all windows and special windows inserted in the project.
	<i>Type</i>	Save set of features common for many objects of the same type (elements template defined by the user).
	<i>Project library</i>	Compliant with the selected template and created together with the development of the drawing while new types are saved.
	<i>Global library</i>	Type library is provided with the software and extended by <i>User library</i> where the user can save and store element types created by him for use in future projects.
	<i>Delete marked objects</i>	Removes the selection.
	<i>Pens</i>	Definition of the type of the line used to draw the inserted element.
	<i>Fonts</i>	Definition of the size and type of the font describing the element.
	<i>Surfaces</i>	Assigning materials or textures to the particular areas of the inserted element.

Since version 3.9, *Use as template* option which copies selected window data in order to paste it as the settings of the next window being inserted has been introduced into the Application. This option was available on the taskbar as an option, now it is permanently activated and it is not visible on this toolbar any more.

Anchors on the objects may be used, for example, for moving the description (window dimensions), reducing or extending the description line and moving the entire window by the specified distance.

The option *Reindex window type symbols* allows for checking and saving *Type symbols* one by one.

Window and door woodwork

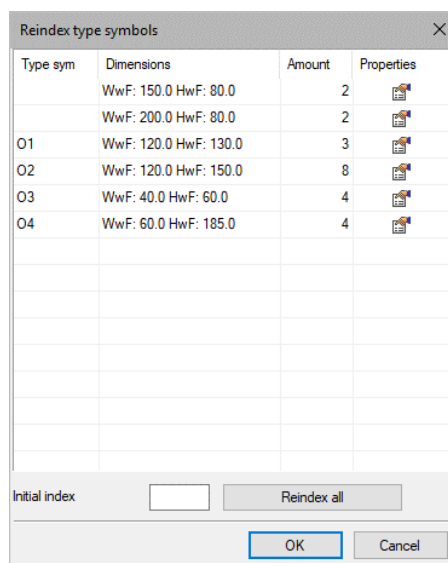



Fig. 229. Renumbering window of windows from a sample project.

When inserting elements, *the Type symbol* number is always counted consecutively, the next one after the last assigned. The consequence of such numbering of symbols is that if we remove a symbol from the project, its number will not be used anymore, and in the list and in the above window *the Type symbol* numbers will not go one by one. Therefore, it is a good idea to use the option *Reindex window type symbols*, at the end of the project.

If the window was not saved or after saving was modified without being overwritten, then it has no *Type symbol*, i.e the field in this column will remain empty. The program compares the element properties and if it finds several of the same properties, it will group them. Properties can be reviewed by clicking on the  icon.

Window and door woodwork

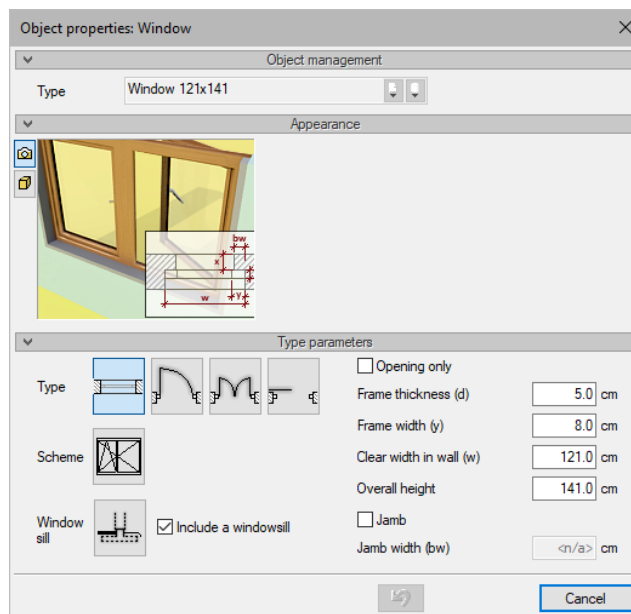


Fig. 230. Sample window properties

It is not possible to change or save such a window in the above properties. If we find windows on the projection, then of course we can save them and set the *Type symbol* ourselves. Otherwise it will be inserted automatically, after in the *Reindex type symbols* window, in the *Initial index* field the data will be entered and the *Reindex all* button will be clicked.

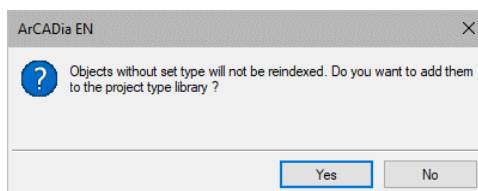


Fig. 231. Information about finding windows without a saved type and for which this type is to be assigned.

The above window is shown only if some of the elements do not have a saved type (either due to the modification and type not having been saved or due to type not having been saved).

Yes – the program will automatically save types for unsaved elements, assigning to them the appropriate *Type symbol*, and entering in the name the width and height of the element.

No –exits the option and allows for the return to the project and for saving the next elements by yourself and assigning to them the appropriate *Type symbols*.



Window and door woodwork

6.2. Doors

6.2.1. Inserting doors

The ArCADia Application allows you to insert the user-defined door openings with frames, lintels and relevant description into the layouts of walls (single or multi-layer). Features that allows you to insert a door layout into the drawing (requires prior presence of at least one wall in the drawing) are invoked from the toolbar by *Door* command.

Activation:

- *Architecture* ribbon ⇒ logical group *Building* ⇒  *Door*
- *ArCADia-ARCHITECTURE* toolbar ⇒  *Insert door*

When you select the *Go to Properties dialog box* option from the *Insert* window, the following dialogue box appears: *Object properties: Door*:

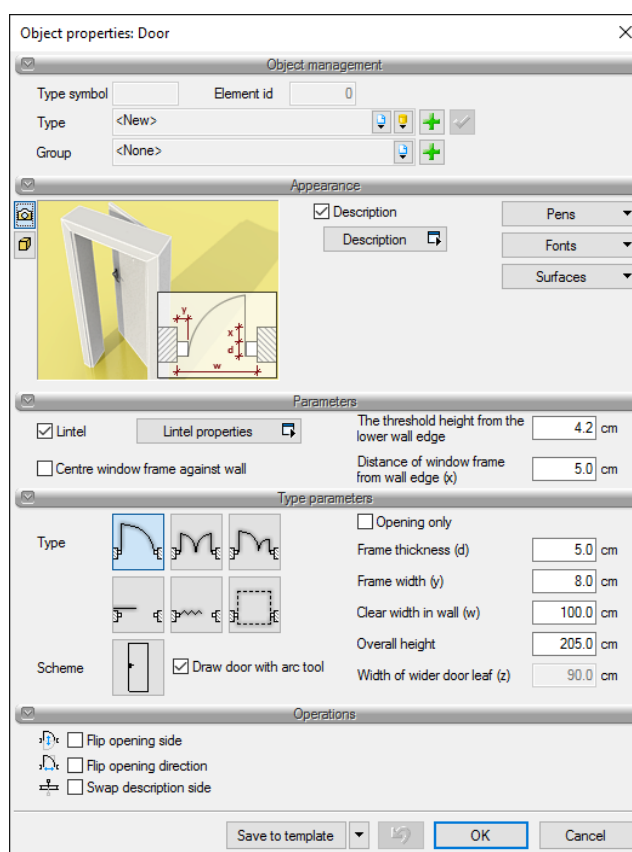


Fig. 232. Doors properties window

When you insert a window, you can define the following parameters:

Appearance — description (definition of description bubble elements). Moreover, *Fonts* — description font size, *Pens* — definition of line thickness and type, and *Surface* — enables assigning both colour and texture (BMP file) to the selected element.

Window and door woodwork

Operations — inverts the opening side of the door; inverts the opening direction (parameters available during editing of doors inserted previously into the drawing).

Lintel — inserted along with the door; shown in the Section. The lintel can be inserted only above the windows, doors and wall openings from *Object properties: window/door/opening* dialogue box.

The threshold height from the lower wall edge — height of the inserted door window, measured by default from the bottom edge of the wall (measured from the finished floor when inserted in a room with the floor defined).

Centre door frame against wall — allows you to insert a door in the middle of wall thickness.

Distance of door frame from wall edge — enables to insert a door in the specified position relative to the wall thickness.

Type — single-leaf, double-leaf symmetrical, double-leaf asymmetrical, sliding, folding and garage doors.

Scheme — opens the dialogue box that allows to select a scheme which will appear on the woodwork list.

Opening only — cuts an opening in wall without drawing a frame.

Frame thickness — thickness of door frame.

Width frame — width of door frame.

Clear width in wall — clear width of door.

Overall height — door overall height.

Width of wider door leaf — width of the wider leaf of the asymmetrical double-leaf door.

Save to template — saves pen settings, selected style and other parameters of the element to the template.

When you press *OK* button, the door drawing mode will be activated. The door drawing process involves indication of its location in the wall, noting the "cursor" appearing at the insertion point of the door. During drawing the following functions are accessible from the Insert window, Report dialogue box or Command area:

- *Tracking axes* – this option detects points and edges of the inserted elements and sets vertical and horizontal axes from them against the screen or, in case it is e.g. wall edge, displays the extension of such line.
- *Tracking angles* – this option selects the angles given in the window above, setting them from previously inserted elements, e.g. from the edges of the drawn walls.
- *Detection* – this option detects edges, axis, corners, and points of the elements inserted to the project, making possible to precisely set the cursor on the drawn objects.
- *Element insertion options* – opens the window to set tracking and underlay.

Window and door woodwork

- **Reference** — allows you to insert a door at a given distance from the specified point (this distance is calculated along the wall on which the "cursor" is currently located).
- **Between points (centre)** — starts drawing a wall in the middle of a specified distance (distance is entered by selecting two points).
- **Between points (percentage)** — starts drawing a wall based on percentage division of the specified distance (distance is entered by selecting two points).
- **Cancel** — interrupts the function.
- **Back** — deletes previously inserted doors.
- **Apply** — terminates the insertion of doors.

When you activate the Insert door command, you can insert multiple identical doors (this command is automatically repeated).

After insertion of the door, you will get the following drawing:

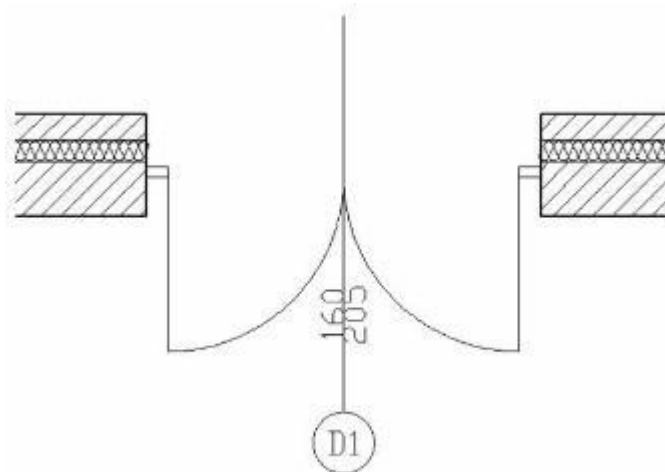


Fig. 233. Example of doors on the projection

NOTE: Depending on the layout, the height of the doorstep may be given as measured from the lower edge of the wall or finished floor. If you insert the door into the wall which limits the room with the floor undefined, then the doorstep height is calculated and displayed as measured from the bottom edge of the wall. If the room where the wall with inserted door is located contains a floor, then the doorstep height is measured from the floor.

6.2.2. Editing doors

The selected door may be moved, copied, deleted. You can also change its properties, opening direction and direction of descriptions. In order to make changes you can use **Edit** toolbar or anchors (blue points) located on the element. The taskbar provides the following options:

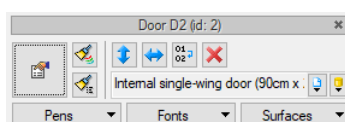


Fig. 234. Doors editing window

Window and door woodwork

Tab. 25 Listing of the editing tools for doors.

	<i>Go to Properties dialog box</i>	Opens <i>Properties</i> dialogue box.
	<i>Font and pen painter</i>	Takes over the settings of the pens (thickness and type of the line), as well as the size and type of the font.
	<i>Type painter</i>	Takes over the wall type, structure and thickness of the layers and transfer them to the selected walls.
	<i>Swap opening side</i>	Changes the door opening direction and moves the description to the opposite edge of the wall.
	<i>Swap opening direction</i>	Changes the swing direc
	<i>Re-index door type symbols</i>	Allows for automatic assigning of <i>Type symbols</i> (01,02 etc.) for all windows and special windows inserted in the project.
	<i>Type</i>	Save set of features common for many objects of the same type (elements template defined by the user).
	<i>Project library</i>	Compliant with the selected template and created together with the development of the drawing while new types are saved.
	<i>Global library</i>	Type library is provided with the software and extended by <i>User library</i> where the user can save and store element types created by him for use in future projects.
	<i>Delete marked objects</i>	Removes the selection.
	<i>Pens</i>	Definition of the type of the line used to draw the inserted element.
	<i>Fonts</i>	Definition of the size and type of the font describing the element.
	<i>Surfaces</i>	Assigning materials or textures to the particular areas of the inserted element.

Since version 3.9, *Use as template* option which copies selected door data in order to paste it as the settings of the next window being inserted has been introduced into the Application. This option was available on the taskbar as an option, now it is permanently activated and it is not visible on this toolbar any more.

Anchors on the objects allows, for example, to move the description (door dimensions), reduce or extend the description line and move the entire door by the specified distance.

The Option *Re-index door type symbols* allows for checking and saving the *Type symbol* one by one.

Window and door woodwork

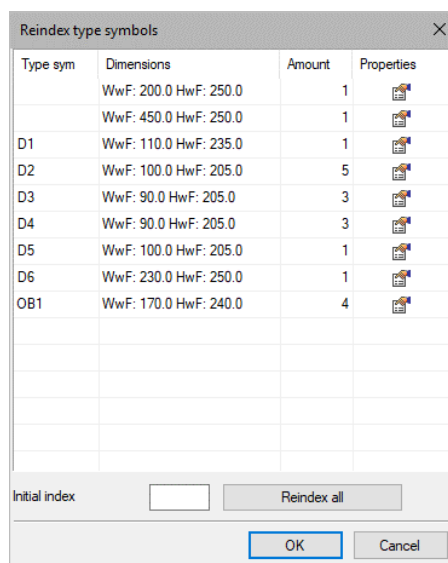



Fig. 235. Door renumbering window from a sample project

While inserting elements, the *Type symbol* number is always counted consecutively, next after the last assigned. The consequence of such numbering of symbols is that if we remove a symbol from the project, its number will not be used anymore, and in the list and in the above window the *Type symbol* numbers will not go one by one. Therefore, it is a good idea to use the option *Re-index door type symbols*, at the end of the project.

If the door was not saved or after saving was modified without being overwritten, then it has no *Type symbol*, i.e. the field in this column will remain empty. The program compares the element properties and if it finds several with the same properties, it will group them. Properties can be reviewed by clicking on the  icon.

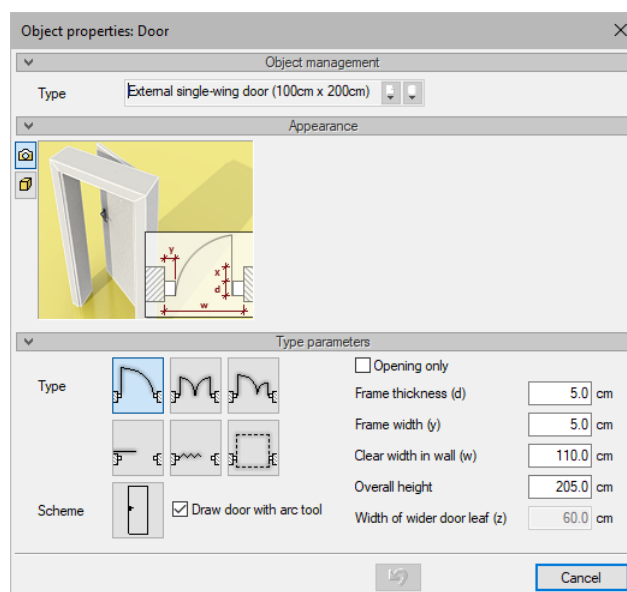


Fig. 236. Door sample properties

Window and door woodwork

It is not possible to change or save such a door in the above window. If we find doors on the projection, then of course we can save them and set the *Type symbol* ourselves. Otherwise it will be inserted automatically, after in the *Reindex type symbols* window, in the *Initial index* field the data will be entered and the *Reindex all* button will be clicked.

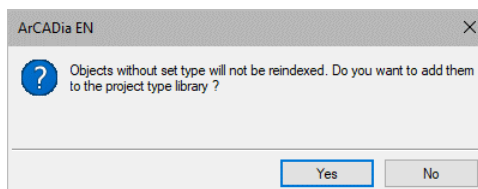


Fig. 237. Information about finding doors without a saved type and to which this type is to be assigned.

The above window is shown only if some of the elements do not have a saved type (either due to modification and type not being saved or due to not saving).

Yes – the program will automatically save types for unsaved elements, assigning them the appropriate *Type symbol*, and entering in the name the width and height of the element.

No – exits the option and allows for the return to the project and for saving the next elements yourself and assigning to them the appropriate *Type symbols*.

6.3. Special doors and windows

6.3.1. Introduction

ArCADia-ARCHITECTURE provides options that allows you to insert a rectangular- shaped windows and doors. In order to provide more convenient designing the Application has been enriched with *Special windows/doors*, whose shapes depend on the parameters selected in *Object properties: Special door/window*.

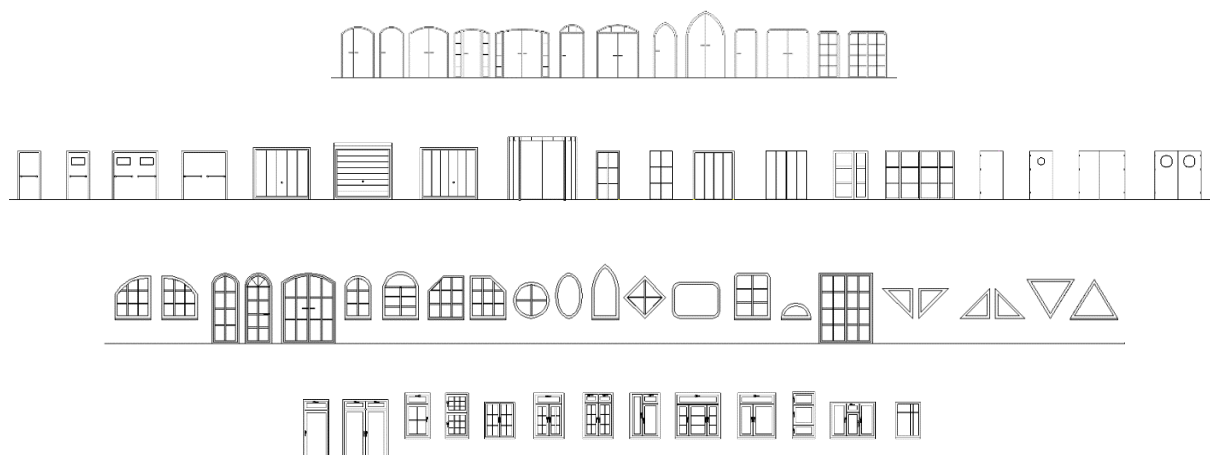




Fig. 238. Special windows/doors

Window and door woodwork

Activation:

- *Architecture* ribbon ⇒ logical group *Building* ⇒  *Special window/door*
- *ArCADia-ARCHITECTURE* toolbar ⇒  *Insert special window/door*

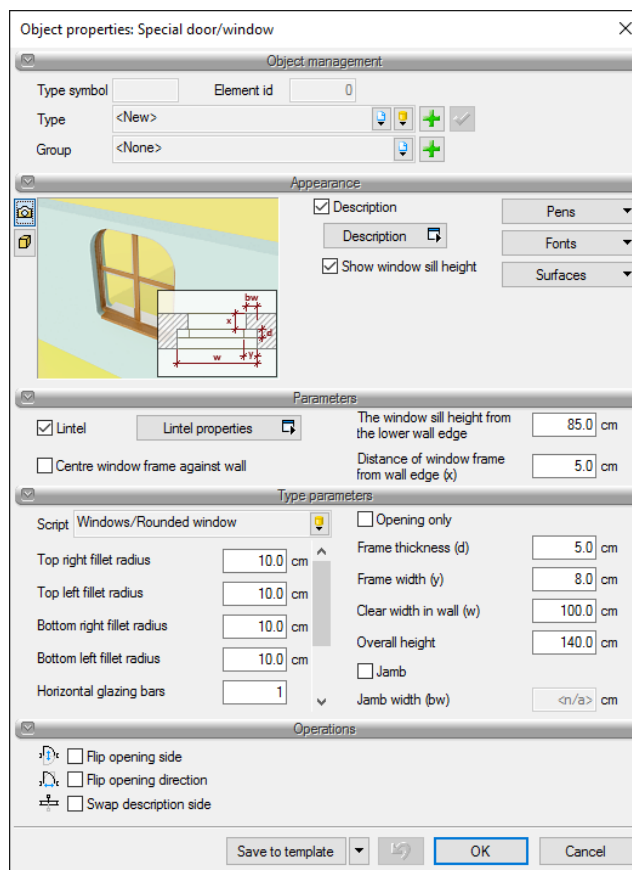


Fig. 239. Properties window for windows and scripted doors.

When you insert a special door/window, you can define the following parameters:

Appearance — description (definition of description bubble elements), displaying the window sill height. Moreover, *Fonts* — description font size, *Pens* — definition of line thickness and type, and *Surfaces* — enables assigning both colour and texture (*bmp* file) to the selected element.

Operations — inverts the opening side of the window (parameter available during editing of the window inserted into the drawing).

Lintel — inserted along with the window; shown in the Section. The lintel can be inserted only above the windows, doors and wall openings from *Object properties: window/door/opening* dialogue box.

The window sill height from the lower wall edge — height of the window sill (doorstep), measured by default from the bottom edge of the wall (measured from the finished floor when inserted in a room with the floor defined).

Centre window frame against wall — allows you to insert a window in the middle of wall thickness.

Window and door woodwork

Distance of window frame from wall edge — enables to insert a window in the specified position relative to the wall thickness. This option is useful not only for window with jamb.

Type parameters

Below is a list of parameters available in each script type window and door:

Opening only — the parameters entered cut out only an opening in the wall without inserting the window element itself.

Frame thickness — thickness of window frame.

Frame width — width of window frame.

Clear width in wall — width of wall opening.

Overall height — window clear height, height including an arch if any exist.

Jamb — window with or without jamb.

Jamb width — width of a jamb.

The list of parameters which varies depending on selected script type window or door is presented below:

Script — type of element, by default divided into:

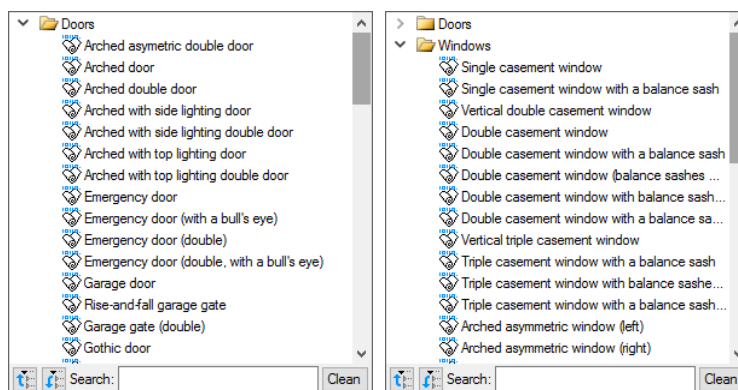


Fig. 240. Windows and scripted doors list

Arc height — height of the upper arch, i.e. the end of the window.

Horizontal glazing bars — muntins, horizontal partition of window.

Vertical glazing bars — muntins, vertical partition of window.

Glazing bar thickness — thickness of horizontal and vertical muntins.

Height on right side — for asymmetrical window — height of the window on the right side, the left side is then specified in *Overall height* box.

Window and door woodwork

Height on left side — for asymmetrical window — height on the left side, the right side is then specified in *Overall height* box.

Arch offset — for asymmetrical or lancet window — height of the arch measured from the start and end line of the arch.

Number of glazing bars — for semicircular (window) — muntins, radially partitioned semicircular (window).

Glazing bar diameter — thickness of radially partitioned window muntins.

Inner circle radius — for semicircular (window) — the inner circle enclosing the start point of muntins radial partition.

Bevel width — for bevelled windows (designed for attic) — width of bevelled corner.

Bevel height — for bevelled windows (designed for attic) — height of bevelled window corner.

Glazing bars — for elliptical windows — vertical and horizontal partition of window.

Vent height — height of the upper tilting leaf of the window.

Upper leaf height — height of the upper tilting leaf of the window opened in the same direction as the lower window.

Leftward window — changes direction of wind opening from the right to the left.

Right leaf width — width of one of the leaves which, when set to a different value than a half of the window width will give an asymmetric window.

Horizontal vent transoms — bolection, horizontal division of the vent.

Vertical vent transoms — bolections, vertical division of the vent.

Vent over the left leaf — division of the left leaf, adding a vent, that is a tilting leaf above the window.

Vent over the right window — division of right leaf, adding a vent, that is a tilting leaf above the window.

Upper leaf height — height of the first leaf from the top, opened in the same direction as the lower leaves.

Lower leaf height — height of the first leaf from the bottom, opened in the same direction as the top leaves.

Middle leftward window — change of opening direction of the middle leaf.

Left leaf height — width of the right leaf in a three-leaf window.

Vent over the middle leaf — division of the middle leaf in the three-leaf windows, adding a vent, that is a tilting leaf above the window.

Window and door woodwork

Distance of the horizontal transom from the door frame – the distance of the first division counted from the bottom.

Spacing of horizontal transoms – distance between a horizontal division.

Distance of the vertical transom from the door frame – the distance of the first division starting from the left.

Spacing of vertical transoms – distance between a horizontal division.

Top right fillet radius – for rounded window (door) – fillet value of window upper corner.

Top left fillet radius – for rounded window (door) – fillet value of window upper corner.

Bottom right fillet radius – for rounded window – fillet value of window bottom corner.

Bottom left fillet radius – for rounded window – fillet value of window bottom corner.

Glazing bars – for triangle window – transverse partition of window.

Width of wider door leaf – for asymmetrical door – width of the wider door leaf.

Door width – for doors with sidelights – door width, *Clear width in wall* includes the width of door and sidelights on the right and left side.

Door height – for doors with transom windows – width of the door leaf, *Overall height* includes the height of door and transom window located above the door.

Anti-panic level – height of the "handle" of escape door from the door opening side (height of the anti-panic handle may be set between 80 and 120 cm).

Door handle – enabling/disabling the door handle on the other side of the escape door.

Bull-eye level – height of the "bull-eye" in the swing and escape door calculated to the lower bull-eye edge.

Bull-eye rounding radius – rounding radius of the "bull-eye" in the swing and escape door, a suitable value may create a round bull-eye.

Bull-eye width – width of the "bull-eye", along with a frame in the swing and escape door leaf.

Bull-eye height – height of the "bull-eye", along with a frame in the swing and escape door leaf.

Bull-eye frame width – width of the frame surrounding the bull-eye in the swing and escape door.

Frame width – width of the frame surrounding the leaf and keeping the glass in the sliding door.

Frame thickness – thickness of the frame surrounding the leaf and keeping the glass in the sliding door.

Gate height – height of the leaf of garage door lifted up and shown on the projection with intermittent line.

Window and door woodwork

Cassette width – width of the cassette in which the garage door leaf is wound.

Cassette height – height of the cassette in which the garage door leaf is wound.

Guide width – width of the guide in which the garage door leaf goes to the cassette. The guide is placed on the wall, at the door opening edge.

Guide depth – depth of the guide in which the garage door leaf goes to the cassette.

Number of leaves – the number of leaves in revolving door, two-, three- and four-leaf doors are available.

Stand height – height of the upper part of the revolving door where ventilation is placed most often.

Post thickness – thickness of the vertical elements of the revolving door stand.



Post thickness – width of vertical elements of the revolving door stand.

Passage width – width between revolving door posts providing access to the revolving door space.

Leaf width – width of the door leaf sliding on the side non-opened leaf in the sliding door with additional lighting.

Draw door with arc tool – for doors – determines a scheme of door being drawn.

Window sill – inserts (or not) a window sill element.

Most of the architectural elements have the preview window with the possibility of Views switching. It may be an overview drawing including a diagram explaining the data that needs to be entered or 3D View of object with live update of changes made in the properties dialogue box. You can switch between the Views using the icons located to the left of the preview:  *3D View*,  *Overview drawing*.

Save to template – saves pen settings, selected style and other parameters of the element to the template.

When you press *OK* button, the window drawing mode will be activated. The window drawing process involves indication of its location in the wall, noting the "cursor" appearing at the insertion point of the window. During drawing the following functions are accessible from the Insert window, Report dialog box or Command area:

- *Tracking axes* – this option detects points and edges of the inserted elements and sets vertical and horizontal axes from them against the screen or, in case it is e.g. wall edge, displays the extension of such line.
- *Tracking angles* – this option selects the angles given in the window above, setting them from previously inserted elements, e.g. from the edges of the drawn walls.
- *Detection* – this option detects edges, axis, corners, and points of the elements inserted to the project, making possible to precisely set the cursor on the drawn objects.
- *Element insertion options* – opens the window to set tracking and underlay.

Window and door woodwork

- **Reference** — allows you to insert a window at a given distance from the specified point (this distance is calculated along the wall on which the "cursor" is currently located).
- **Between points (centre)** — starts drawing of the wall from the middle of the specified distance (distance is entered by selecting two points).
- **Between points (percentage)** — starts drawing of the wall based on the percentage division of the specified distance (distance is entered by selecting two points).
- **Cancel** — interrupts the function without inserting a window.
- **Back** — deletes previously inserted window.
- **Apply** — terminates the insertion of window.

When you activate the Insert window command, you can insert multiple identical windows (this command is automatically repeated).

After insertion of the window, you will get the following drawing:

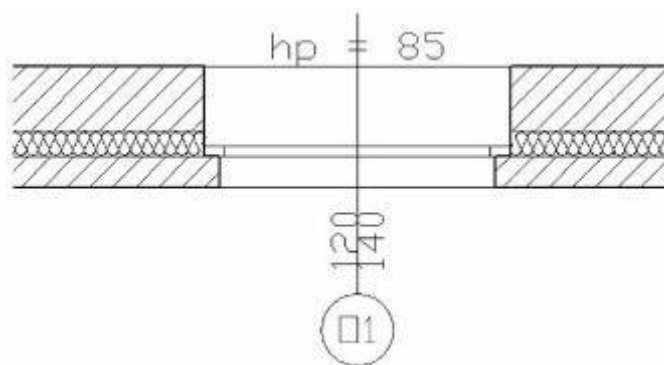


Fig. 241. Example of scripted doors on the projection

NOTE: Depending on the layout, the height of the window sill (doorstep) may be given as measured from the lower edge of the wall or finished floor. If you insert the window (door) into the wall which limits the room with the floor undefined, then the window sill (doorstep) height is calculated and displayed as measured from the bottom edge of the wall. If the room where the wall with inserted window (door) is located contains a floor, then the height value is measured from the floor.

6.3.2. Editing

The selected window may be moved, copied, deleted. You can also change its properties and direction of descriptions. In order to make changes you can use the taskbar or anchors (blue points) located on the element.

In addition, the following modification options are available:

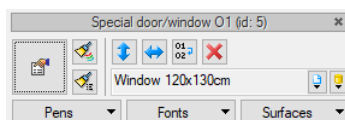















Fig. 242. Windows and scripted doors editing window

Window and door woodwork

Tab. 26 Modification tools for windows and scripted doors

	<i>Go to Properties dialog box</i>	Opens <i>Properties</i> dialogue box.
	<i>Font and pen painter</i>	Takes over the settings of the pens (thickness and type of the line), as well as the size and type of the font.
	<i>Type painter</i>	Takes over the wall type, structure and thickness of the layers and transfer them to the selected window.
	<i>Swap opening side</i>	Changes the window swing direction and moves the description to the opposite edge of the wall.
	<i>Swap opening direction</i>	Changes the window swing direction.
	<i>Re-index windows/door scripting type symbols</i>	Allows for the automatic assigning of <i>Type symbols</i> (01, 02 etc.) for all windows/doors and special windows/doors inserted in the project. Windows and special windows will be considered simultaneously, similarly doors and special doors.
	<i>Type</i>	Save set of features common for many objects of the same type (elements template defined by the user).
	<i>Project library</i>	Compliant with the selected template and created together with the development of the drawing while new types are saved.
	<i>Global library</i>	Type library is provided with the software and extended by <i>User library</i> where the user can save and store element types created by him for use in future projects.
	<i>Delete marked objects</i>	Removes the selection.
	<i>Pens</i>	The line type definition used to draw the element being inserted.
	<i>Fonts</i>	Definition of the size and type of the font that describes the element.
	<i>Surfaces</i>	Assigning materials or textures to selected areas of the element being inserted.

Since version 3.9, *Use as template* option which copies selected element data in order to paste it as the settings of the next element being inserted has been introduced into the Application. This option was available on the taskbar as an option, now it is permanently activated and it is not visible on this toolbar any more.

Anchors on the objects may be used, for example, for moving the description (window dimensions), reducing or extending the bubble and moving the entire window by the specified distance.

Window and door woodwork

The option *Reindex the window/door type symbols* allows for checking and saving the *Type symbols* one by one.

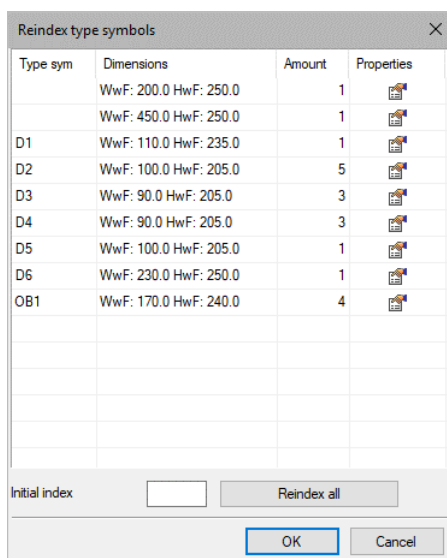



Fig. 243. Door renumbering window from a sample project.

While inserting elements, the *Type symbol* number is always counted consecutively, next after the last assigned. The consequence of such numbering of symbols is that if we remove a symbol from the project, its number will not be used anymore, and in the list and in the above window the *Type symbol* numbers will not go one by one. Therefore, it is a good idea to use the option *Re-index window/door scripting type symbols*, at the end of the project.

If the special windows/doors were not saved or after saving were modified without being overwritten, then they have no *Type symbol*, i.e. the field in this column will remain empty. The program compares the element properties and if it finds several of the same properties, it will group them. Properties can be reviewed by clicking on the  icon.

Window and door woodwork

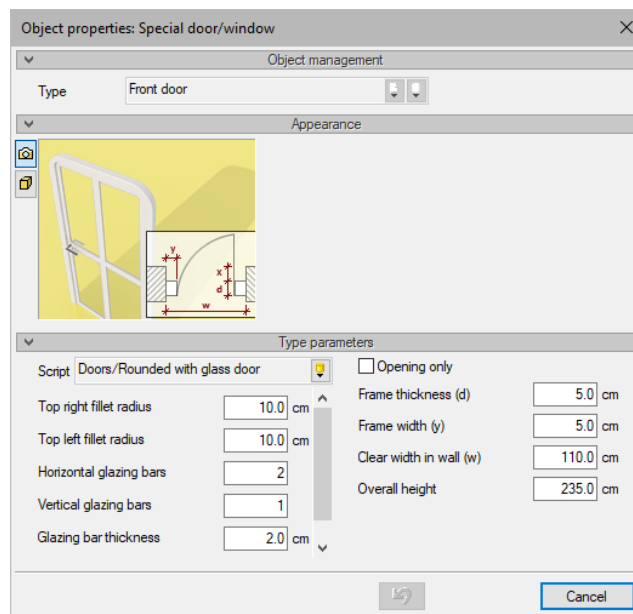


Fig. 244. Sample properties of special windows

It is not possible to change or save such windows/doors in the above window. If we find elements on the projection, then of course we can save them and set the *Type symbol* ourselves. Otherwise it will be inserted automatically, after in the *Reindex type symbols* window, in the *Initial index* field the data will be entered and the *Reindex all* button will be clicked.

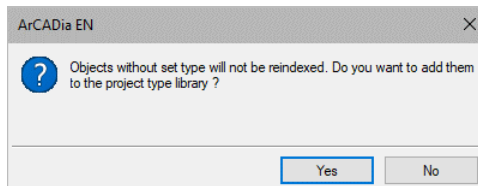


Fig. 245. Information about finding window/door without a saved type and to which this type is to be assigned

The above window is shown only if some of the elements do not have a saved type (either due to the modification and type not being saved or due to type not having been saved)

Yes – the program will automatically save types for unsaved elements, assigning them the appropriate *Type symbol*, and entering in the name the width and height of the element.

No – exits the option and allows for the return to the project and for saving the next elements yourself and assigning them the appropriate *Type symbol*.

NOTE: Special windows and doors will be placed among ordinary windows and doors in the *Type symbol* renumbering window.

Wall openings

7. WALL OPENINGS



Wall openings

7.1. Openings and recesses in walls

7.1.1. Introduction

ArCADia allows you to insert user-defined openings into the Layouts of walls (single or multi-layer) that start at the floor level, are located above the floor level, as well as extends across the entire wall height. Features that allows you to insert an opening layout into the drawing (requires prior presence of at least one wall in the drawing) are invoked from the toolbar by *Insert opening* command.

Activation:

- *Architecture* ribbon ⇒ logical group *Building* ⇒  *Opening*
- *ArCADia-ARCHITECTURE* toolbar ⇒  *Insert Opening*

When you select *Go to Properties dialogue box* option from Insert window, the following dialogue box appears: *Object properties: Opening*:

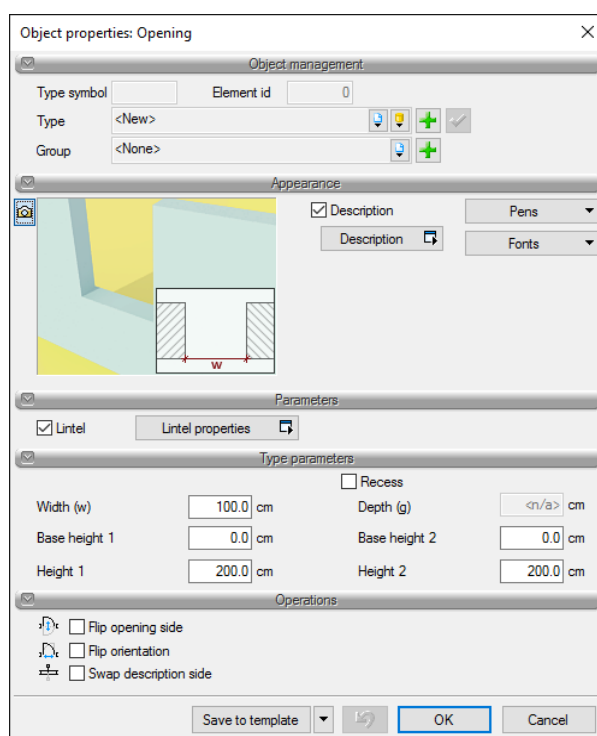


Fig. 246. Opening in a wall properties window

When you insert an opening into the wall, you can define the following parameters:

Appearance

Description – definition of match description elements.

Fonts – description font size.

Parameters

Wall openings

Lintel — inserted along with the opening into the door; shown in the Section. The lintel can be inserted only above the windows, doors and wall openings from *Object properties: window/door/opening* dialogue box.

Type parameters

Width — clear opening width.

Base height 1 — height of the face beginning of opening 1 measured from the bottom edge of the wall.

Height 1 — the face height of the opening 1.

Recess — creates a recess in the wall instead of an opening.

Depth — depth of the recess created in the wall

Base height 2 — height of the face beginning of opening 2 measured from the bottom edge of the wall.

Height 2 — the face height of the opening 2.

Operations

Inverts opening side; Change orientation (parameters available during edition of the openings inserted previously into the drawing).

Save to template — saves pen settings, selected style and other parameters of the element to the template.

Press *OK* button to switch to the opening drawing mode. The opening drawing process involves indication of its location in the wall, noting the "cursor" appearing at the insertion point of the opening. During drawing the following functions are accessible from the Insert window, Report dialogue box or Command area:

- *Tracking axes* — this option detects points and edges of the inserted elements and sets vertical and horizontal axes from them against the screen or, in case it is e.g. wall edge, displays the extension of such line.
- *Tracking angles* — this option selects the angles given in the window above, setting them from previously inserted elements, e.g. from the edges of the drawn walls.
- *Detection* — this option detects edges, axis, corners, and points of the elements inserted to the project, making possible to precisely set the cursor on the drawn objects.
- *Element insertion options* — opens the window to set tracking and underlay. A more detailed description can be found in the *Options* chapter.
- *Reference* — allows you to insert a opening at a given distance from the specified point (this distance is calculated along the wall on which the "cursor" is currently located).
- *Between points (centre)* — starts drawing of the wall from the middle of the specified distance (distance is entered by selecting two points).
- *Between points (percentage)* — starts drawing of the wall based on the percentage division of the specified distance (distance is entered by selecting two points).

Wall openings

- *Cancel* — interrupts the function without inserting an opening.
- *Back* — removes previously inserted opening.
- *Apply* — ends insertion of openings.

When you activate the Insert opening command, you can insert multiple identical openings into the walls (automatically repeatable command).

After insertion of the door, you will get the following drawing:

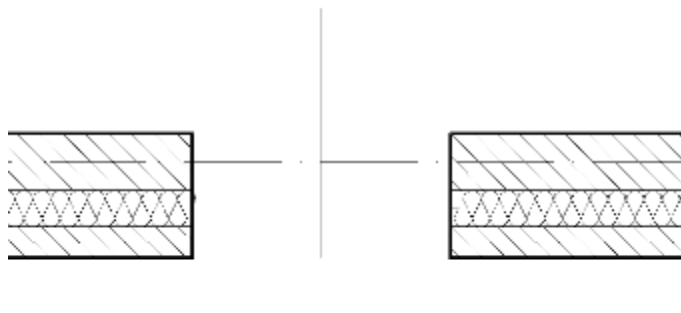


Fig. 247. Example of opening in a wall on the level projection

To insert a recess, select it in the following dialogue box: *Object properties: Opening* and specify its depth. After you have inserted an opening, you will get the following drawing.

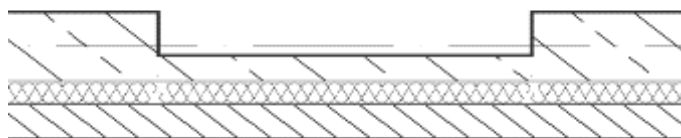


Fig. 248. Example of niche in a wall on the level projection

7.1.2. Editing

When you select an opening, it can be moved, copied, deleted. You can also change its insertion direction. In order to make changes you can use the taskbar or anchors (blue points) located on the element. The taskbar provides the following options:

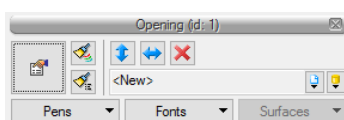





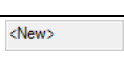





Fig. 249. Opening in a wall editing window

Wall openings

Tab. 27 Opening in a wall modification tools

	<i>Go to Properties dialog box</i>	Opens <i>Properties</i> dialogue box.
	<i>Font and pen painter</i>	Takes over the settings of the pens (thickness and type of the line), as well as the size and type of the font.
	<i>Type painter</i>	Takes over the wall type, structure and thickness of the layers and transfer them to the selected walls.
	<i>Swap opening side</i>	Changes the window swing direction and moves the description to the opposite edge of the wall.
	<i>Swap opening direction</i>	Changes the window swing direction.
	<i>Type</i>	Save set of features common for many objects of the same type (elements template defined by the user).
	<i>Project library</i>	Compliant with the selected template and created together with the development of the drawing while new types are saved.
	<i>Global library</i>	Type library is provided with the software and extended by <i>User library</i> where the user can save and store element types created by him for use in future projects.
	<i>Delete marked objects</i>	Removes the selection.

Since version 3.9, *Use as template* option, which copies selected opening data in order to paste it as the settings of the next opening being inserted, has been introduced into the Application. This option was available on the taskbar as an option, now it is permanently activated and it is not visible on this toolbar any more.

Columns

8. COLUMNS



Columns

8.1. Columns

8.1.1. Inserting columns

ArCADia allows you to insert rectangular and round reinforced concrete columns. This option is invoked from the toolbar, by using *Insert column* function.

Activation:

- *Architecture* ribbon ⇒ logical group *Building* ⇒  *Column*
- *ArCADia-ARCHITECTURE* toolbar ⇒  *Insert column*

When you select *Go to Properties dialog box* option from the *Insert* window, the following dialogue box appears: *Object properties: Column*:

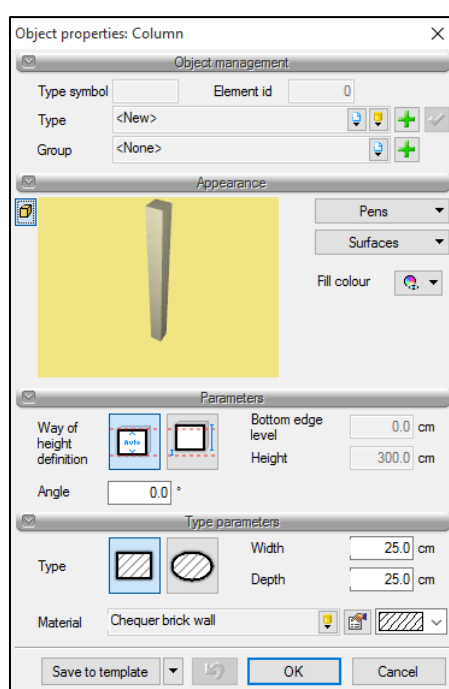


Fig. 250. Column properties window

The Application allows you to insert an elliptical column, by setting appropriate parameters for the width and depth.

In *Parameters* box you can define *Height* of the inserted column, which may be different than the level height and base height (bottom edge of the object) which also may not be assigned to the level.

Save to template — saves pen settings, selected style and other parameters of the element to the template.

Since version 4.0 you can define the texture separately for the sides of the column and for its top and bottom area. The material of the column can be either *BMP* file or colour provided by the operating system.

Columns



Press **OK** button to go back to the drawing and column insertion. To insert an element, select its location. During drawing the following functions are accessible from Insert window, Report dialogue box or Command area:

- **Insert with rotation** – the option allows you to indicate the angle when inserting element.
- **Tracking axes** – this option detects points and edges of the inserted elements and sets vertical and horizontal axes from them against the screen or, in case it is e.g. wall edge, displays the extension of such line.
- **Tracking angles** – this option selects the angles given in the window above, setting them from previously inserted elements, e.g. from the edges of the drawn walls.
- **Detection** – this option detects edges, axis, corners, and points of the elements inserted to the project, making possible to precisely set the cursor on the drawn objects.
- **Element insertion options** – opens the window to set tracking and underlay. A more detailed description can be found in the **Options** chapter.
- **Reference** – allows you to insert a column at a given distance from the specified point.
- **Between points (centre)** – starts drawing a wall in the middle of a specified distance (distance is entered by selecting two points).
- **Between points (percentage)** – starts drawing a wall based on percentage division of the specified distance (distance is specified by selecting two points).
- **Cancel** – interrupts the function without inserting a column.
- **Back** – deletes previously inserted column.
- **Apply** – terminates insertion of columns.

8.1.2. Inputting bar elements

From version 7.0 of ArCADia-ARCHITECTURE software, the possibility of inputting bar elements has been introduced. The option differs from *Insert pole*, among others, in the fact that you can insert in it a vertical and inclined steel pole, as well as a horizontal beam. In the inserting window, there are three ways of introducing the bar element.

Activation:

- **Architecture** ribbon ⇒ logical group **Building** ⇒  **Bar element**
- **ArCADia-ARCHITECTURE** toolbar ⇒  **Insert structural bar element**

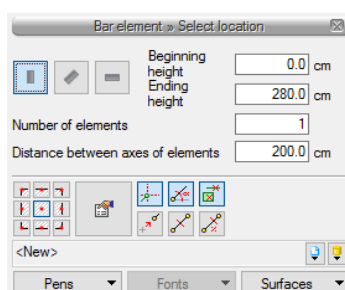





Fig. 251. Steel column insertion window

Columns

Tab. 28 Methods of inserting steel elements

	<i>Inserts vertically</i>	Inserts a vertical steel column of given dimensions and cross-section. In the insertion window base and end height of the column can be defined.
	<i>Insert tilted element</i>	Inserts steel element under specified during the insertion angle. In the insertion window base and end height of the column can be defined, and the angle is the result of the spacing between the selected points.
	<i>Insert horizontally</i>	Inserts a horizontal steel element in the insertion window base height of the column can be introduced.
	<i>Beginning height</i>	Location of the element, that is the height of its lower edge.
	<i>Ending height</i>	Location the upper edge of the pole.
	<i>Number of elements</i>	Number of elements introduced in one line.
	<i>Distance between axes of elements</i>	Distance between elements of one line measured in axes.

After selecting the option *Transition to the Properties* from the insert window, the window *Object properties: Steel column* will be displayed:

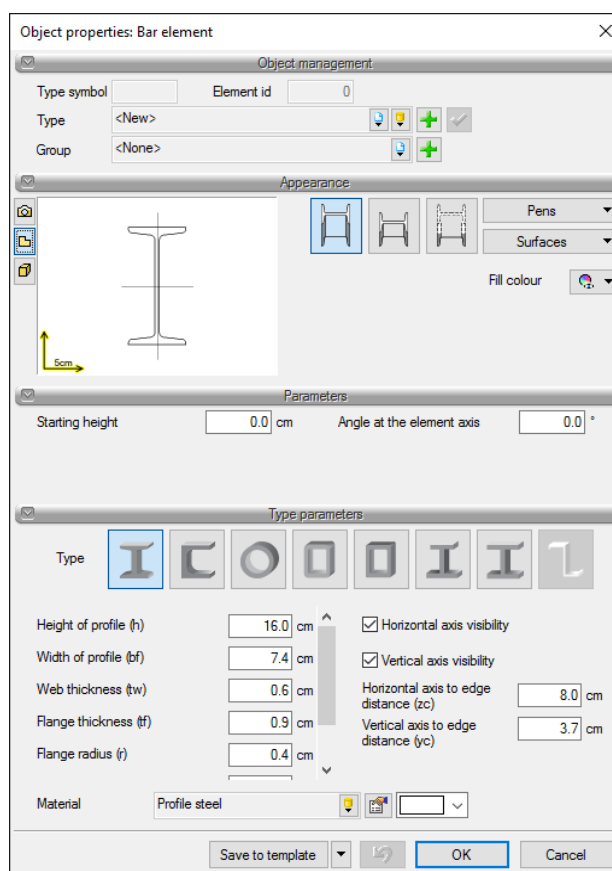


Fig. 252. Steel element properties window

Columns

Parameters

Panel defining location of the pole and its possible rotation relative to the axis. This field is changed after inserting the element depending on the type of the bar (horizontal, vertical or inclined).

Starting height – height, on which the vertical or horizontal bar element will be introduced. Beginning height of the inclined bar element.

Angle in the element axis – rotation of the length of the in the element axis.

Type parameters

The software permits entering various sections for the pole and the bar element. Icon of the last type (section) of the bar element is active only at edition of the bar element imported from the ArCADia-RAMA program (v. R3D3-Rama 3D). Other sections are then unavailable. Depending on the type selection, we will have various parameters available:

Height of profile (h) – total height of the profile.

Width of profile (bf) – total width of the profile.

Web thickness (tw) – width of the vertical element connecting the shelves.

Flange thickness (tf) – height of the profile shelves.

Edge round radius (r1) – radius of the rounding between the middle and the shelf.

Flange radius (r) – rounding radius of the shelf.

Flange slope – slope of the shelf – if it is equal to 0 then the shelf is simple horizontal element.

Distance of the horizontal axis from the edge (zc) – axis distance from lower edge of the cross-sections.

Distance of the vertical axis from the edge (zc) – axis distance from left edge of the cross-sections.

Profile diameter (h) – diameter of the circular profiles.

Wall thickness (t) – circular and rectangular profile's wall thickness.

Up flange width (bf1) – width of the top shelf in the welded I-sections.

Down flange width (bf2) – width of the bottom shelf in the welded I-sections.

Up flange height (tf1) – height of the top shelf in the welded I-sections.

Down flange height (tf2) – height of the bottom shelf in the welded I-sections.

Columns

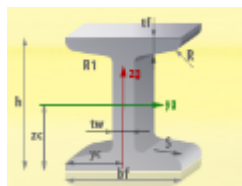


Fig. 253. Example of type parameters preview

Save to template — saves the pen settings, selected styles, and miscellaneous parameters of the element into the temple.

For a bar element, single material can be introduced for the whole element.

Pressing the *OK* button allows for returning to the drawing and inserting the bar element. Inserting vertical column is done by selecting its location. You insert the bar element by marking its starting point and ending point on the projection (you have heights of the points available in the insertion window). Horizontal element is inserted in a similar way, but it has both starting and ending point marked on the same height.

The following functions are available, from the insertion toolbar, reporting window, or command area, during the drawing:

- *Tracking axes* – this option detects points and edges of the inserted elements and sets vertical and horizontal axes from them against the screen or, in case it is e.g. wall edge, displays the extension of such line.
- *Tracking angles* – this option selects the angles given in the window above, setting them from previously inserted elements, e.g. from the edges of the drawn walls.
- *Detection* – this option detects edges, axis, corners, and points of the elements inserted to the project, making possible to precisely set the cursor on the drawn objects.
- *Element insertion options* – opens the window to set tracking and underlay.
- *Reference* – allows for inserting the bar element in a given distance from selected point.
- *Between points (middle)* – starts the drawing of the element in the middle of a given distance (distance is introduced by selecting to points).
- *Between points (percentage)* – starts the drawing of the element in a given percentage of the distance introduced (the distance is introduced by selecting two points).
- *Cancel* – aborts the action without inserting the bar element.
- *Undo* – deletes the last bar element inserted.
- *Ready* – ends inserting the bar element.

Columns

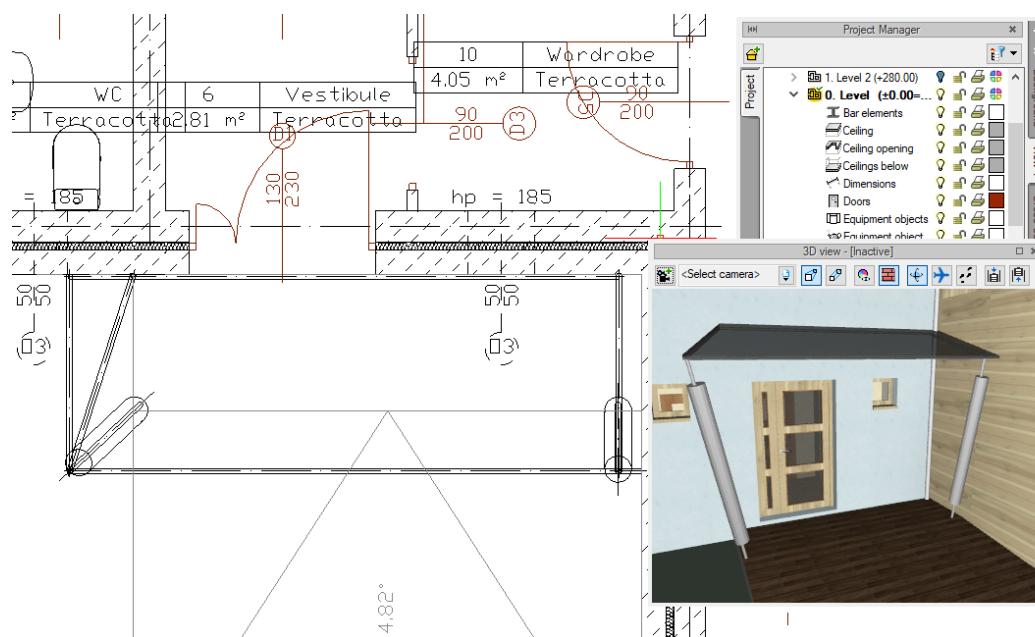


Fig. 254. Example of bar elements inserted to the project

If in the inserting window, you have set more than one element to insert, after clicking on the screen (inserting the vertical element or starting inserting the inclined or horizontal element) the options of positioning of the introduced elements are blocked. If e.g. it is a vertical element, after the first clicking, i.e. inserting the first element, you will see the view of next elements placed on the line, which moves after your cursor. Show the page for introducing the lines of bar elements and click it to confirm the inserting angle.

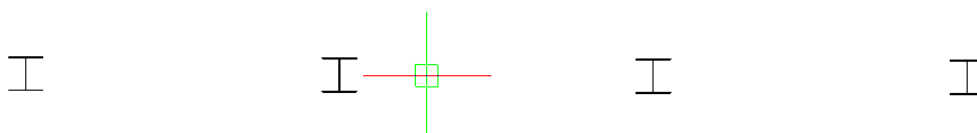
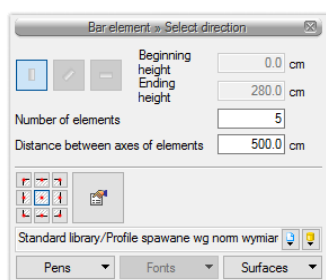


Fig. 255. Example of introducing vertical bar elements

Columns

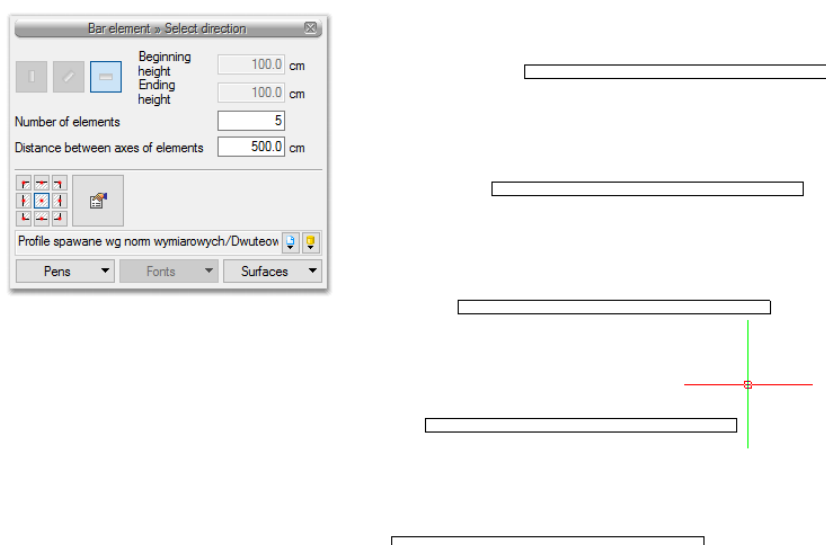


Fig. 256. Example of multi-introduction of horizontal bar elements

8.1.3. Editing columns

Selected column or bar element may be moved, copied, deleted. You can also change its properties. Some of these options are accessible only through the taskbar:

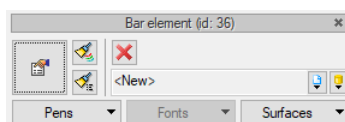




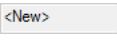




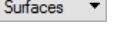


Fig. 257. Bar element editing window

Tab. 29 Modification tools for bar element.

	<i>Go to Properties dialog box</i>	Opens <i>Properties</i> dialogue box.
	<i>Font and pen painter</i>	Takes over the settings of the pens (thickness and type of the line), as well as the size and type of the font.
	<i>Type painter</i>	Takes over the wall type, structure and thickness of the layers and transfer them to the selected walls.
	<i>Cancel element trim to roof</i>	Removes trim of column to floor slab or roof.
	<i>Type</i>	Save set of features common for many objects of the same type (elements template defined by the user).

Columns

	<i>Project library</i>	Compliant with the selected template and created together with the development of the drawing while new types are saved.
	<i>Global library</i>	Type library is provided with the software and extended by <i>User library</i> where the user can save and store element types created by him for use in future projects.
	<i>Delete marked objects</i>	Removes the selection.
	<i>Pens</i>	The line type definition used to draw the element being inserted.
	<i>Surfaces</i>	Assigning materials or textures to selected areas of the element being inserted.

Since version 3.9, *Use as template* option which copies selected element data in order to paste it as the settings of the next element being inserted has been introduced into the Application. This option was available on the taskbar as an option, now it is permanently activated and it is not visible on this toolbar any more.

Possibilities of modification of the bar element in the properties window depend on its type, that is the method of inserting. The horizontal levels the vertical element will have different options. *Type parameters* of the element do not change, only *Parameters* change, i.e. location, rotation and length.

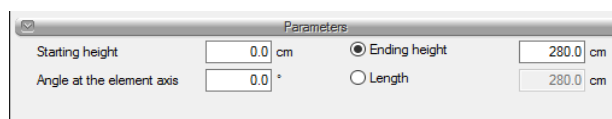


Fig. 258. Parameters of the vertical bar element

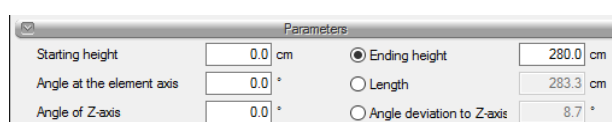


Fig. 259. Parameters of the tilted bar element

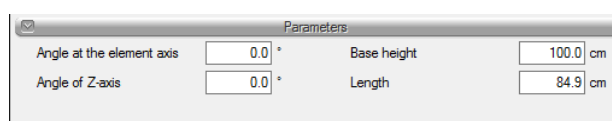


Fig. 260. Parameters of the horizontal bar element

NOTE: 2D view of the steel element (in the window of its properties) does not respond to modifications of the element in axes, this view shows only the section of the bar element and changes defined in it.

After inserting the element e.g. horizontally, it cannot be changed to vertical and vice versa.

Binding joists

9. BINDING JOISTS

Binding joists

9.1. Binding joist

9.1.1. Introduction

Since version 6.0, ArCADia-ARCHITECTURE allows you to insert binding joists. This option is invoked from the toolbar by using *Insert binding joist* option.

Activation:

- *Architecture* ribbon ⇒ logical group *Building* ⇒ *Binding joist*
- *ArCADia-ARCHITECTURE* toolbar ⇒ *Insert binding joist*

When you select *Go to Properties dialog box* option from the *Insert* window, the following dialogue box appears: *Object properties: Binding joist*:

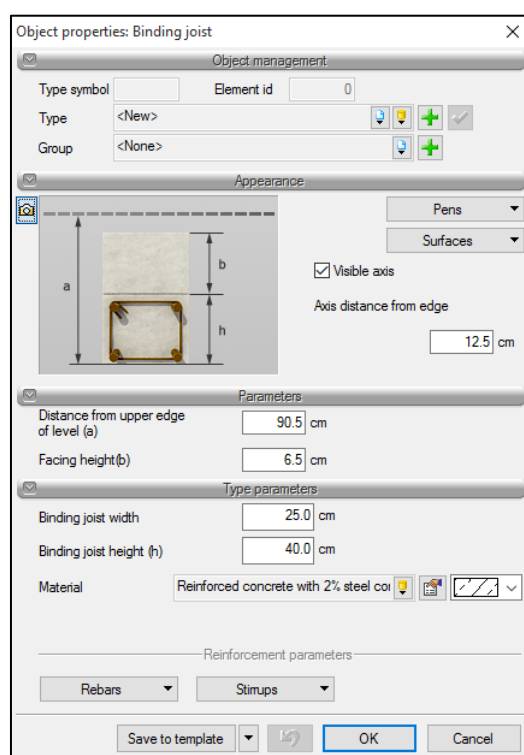


Fig. 261. Binder properties window

When you insert a binding joist, you can define the following parameters:

Appearance — definition of visibility and location of the supporting structure axis. *Pens* — definition of thickness and type of the line, and *Surfaces* — enables assigning both colour and texture (*bmp* file) to the selected element.

Distance from upper edge of level — location of the binding joist relative to the level (its upper edge).

Facing height — height of unreinforced part of the binding joist.

Binding joist width — width of the element.

Height — height of the reinforced part of the element.

Binding joists

Material — creates a recess in a wall instead of an opening.

Additionally, **Rebars** and **Stirrups** buttons are available in the lower part of the dialogue box that allows you to define individual elements of the reinforcement.

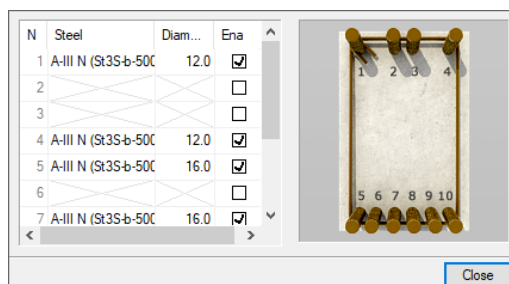


Fig. 262. Rebar parameters

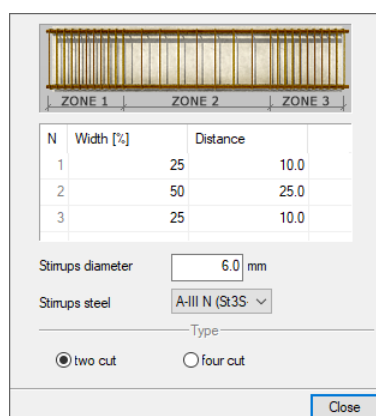


Fig. 263. Stirrups parameters

Save to template — saves pen settings, selected style and other parameters of the element to the template.

Press **OK** button to switch to the opening drawing mode. Drawing of binding joists is analogous to drawing of walls. During drawing the following functions are accessible from Insert window, Report dialogue box or Command area:

- **Tracking axes** — this option detects points and edges of the inserted elements and sets vertical and horizontal axes from them against the screen or, in case it is e.g. wall edge, displays the extension of such line.
- **Tracking angles** — this option selects the angles given in the window above, setting them from previously inserted elements, e.g. from the edges of the drawn walls.
- **Detection** — this option detects edges, axis, corners, and points of the elements inserted to the project, making possible to precisely set the cursor on the drawn objects.
- **Element insertion options** — opens the window to set tracking and underlay.
- **Reference** — allows you to insert a binding joist at a given distance from the specified point (this distance is calculated along the wall on which the "cursor" is currently located).
- **Between points (centre)** — starts drawing a binding joist in the middle of a specified distance (distance is entered by selecting two points).

Binding joists

- *Between points (percentage)* — starts drawing a binding joist based on percentage division of the specified distance (distance is entered by selecting two points).
- *Cancel* — interrupts the function without inserting a binding joist.
- *Back* — deletes previously inserted part of the binding joist.
- *Apply* — terminates insertion.

When you invoke the Insert binding joist command, the element is drawn one by one. The command is completed by pressing right mouse button or the *ESC* key.

9.1.2. Editing

The binding joists inserted into the Layout can be modified using the following options:




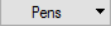
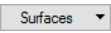


Fig. 264. The binding editing window

Tab. 30 Modification tools for binding

	<i>Go to Properties dialog box</i>	Opens <i>Properties</i> dialogue box.
	<i>Font and pen painter</i>	Takes over the settings of the pens (thickness and type of the line), as well as the size and type of the font.
	<i>Type painter</i>	Takes over the joist type, structure and thickness of the layers and transfer them to the selected walls.
	<i>Lengthen/Shorten binding joist</i>	Changes length of selected binding joist.
	<i>Split binding joist</i>	Splits binding joist in the selected location.
	<i>Cancel element trim to roof</i>	Removes trim to floor slab or roof.
	<i>Extend up to this binding joist</i>	Extends the indicated binding joists to the originally marked one. You extend only the binding joists which will meet the joist to which they are extended.
	<i>Shorten to this binding joist</i>	Shortens the indicated binding joists to the originally marked one, by shorter sections going beyond the marked binding joist.
	<i>Type</i>	Save set of features common for many objects of the same type (elements template defined by the user).
	<i>Project library</i>	Compliant with the selected template and created together with the development of the drawing while new types are saved.

Binding joists

	<i>Global library</i>	Type library is provided with the software and extended by <i>User library</i> where the user can save and store element types created by him for use in future projects.
	<i>Delete marked objects</i>	Removes the selection.
	<i>Type</i>	Element type.
	<i>Pens</i>	The line type definition used to draw the element being inserted.
	<i>Surfaces</i>	Assigning materials or textures to selected areas of the element being inserted.

Chimneys and chimney shafts

10. CHIMNEYS AND CHIMNEY SHAFTS



Chimneys and chimney shafts

10.1. Chimneys

10.1.1. Inserting chimneys

You can insert ventilation chimneys into the layout drawn with ArCADia.

Activation:

- *Architecture* ribbon ⇒ logical group *Building* ⇒  *Chimney*
- *ArCADia-ARCHITECTURE* toolbar ⇒  *Insert chimney*

When you select *Go to Properties dialog box* option from the *Insert* window, the following dialogue box appears: *Object properties: Chimney*:

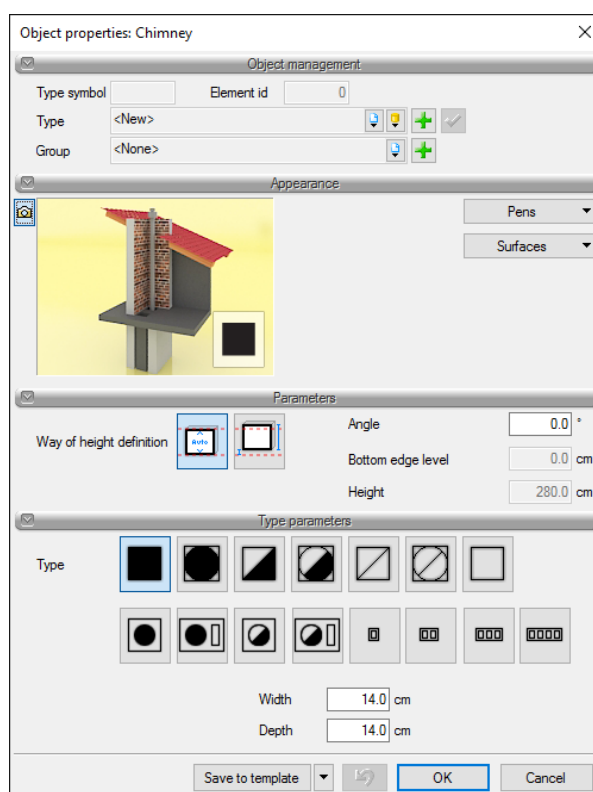


Fig. 265. Chimney properties window

Press **OK** button to go back to the drawing and chimney insertion. To insert an element, select its location in the existing wall. If the chimney will be inserted regardless of the wall, it can be considered as a chimney block. During drawing the following functions are accessible from the insert window, Report dialogue box or Command area:

- *Insert with rotation* – the option allows you to indicate the angle when inserting element.
- *Tracking axes* – this option detects points and edges of the inserted elements and sets vertical and horizontal axes from them against the screen or, in case it is e.g. wall edge, displays the extension of such line.
- *Tracking angles* – this option selects the angles given in the window above, setting them from previously inserted elements, e.g. from the edges of the drawn walls.
- *Detection* – this option detects edges, axis, corners, and points of the elements inserted to the project, making possible to precisely set the cursor on the drawn objects.

Chimneys and chimney shafts

- *Element insertion options* – opens the window to set tracking and underlay.
- *Reference* – allows you to insert a chimney at a given distance from the specified point.
- *Between points (centre)* – starts drawing a wall in the middle of a specified distance (distance is entered by selecting two points).
- *Between points (percentage)* – starts drawing a wall based on percentage division of the specified distance (distance is specified by selecting two points).
- *Cancel* – interrupts the function operation without inserting a chimney.
- *Back* – deletes previously inserted chimney.
- *Apply* – terminates insertion of chimneys.

After you have inserted a chimney, you will get the following drawing:

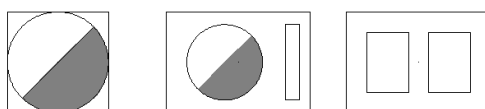


Fig. 266. Example chimney flues on the projection

10.1.2. Editing chimneys

Selected chimney may be moved, copied, deleted. You can also change and copy its parameters using *Type painter*. The following options are available from the taskbar:

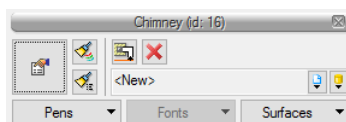


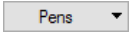



Fig. 267. Chimney editing window

Tab. 31 List of chimney modification tools

	<i>Go to Properties dialog box</i>	Opens <i>Properties</i> dialogue box.
	<i>Font and pen painter</i>	Takes over the settings of the pens (thickness and type of the line), as well as the size and type of the font.
	<i>Type painter</i>	Takes over the chimney type (its size and type) and transfer them to the selected chimney.
	<i>Insert chimney flue</i>	Inserts information about chimney flues and inlets of vent stacks into the <i>Layout</i> .
	<i>Type</i>	Save set of features common for many objects of the same type (elements template defined by the user).
	<i>Project library</i>	Compliant with the selected template and created together with the development of the drawing while new types are saved.

Chimneys and chimney shafts

	<i>Global library</i>	Type library is provided with the software and extended by <i>User library</i> where the user can save and store element types created by him for use in future projects.
	<i>Delete marked objects</i>	Removes the selection.
	<i>Pens</i>	The line type definition used to draw the element being inserted.
	<i>Surfaces</i>	Assigning materials or textures to selected areas of the element being inserted.



Since version 3.9, *Use as template* option which copies selected chimney data in order to paste it as the settings of the next element being inserted has been introduced into the Application. This option was available on the taskbar as an option, now it is permanently activated and it is not visible on this toolbar any more.

10.2. Chimney shafts

10.2.1. Inserting chimney shafts

It is possible to insert a chimney shaft into the floor plan.

Activation:

- *Architecture* ribbon ⇒ logical group *Building* ⇒  *Chimney shaft*
- *ArCADia-ARCHITECTURE* toolbar ⇒  *Insert chimney shaft*

By default, this option inserts a single element of the chimney, but this can be changed in *Object properties: Chimney shaft* dialogue box:

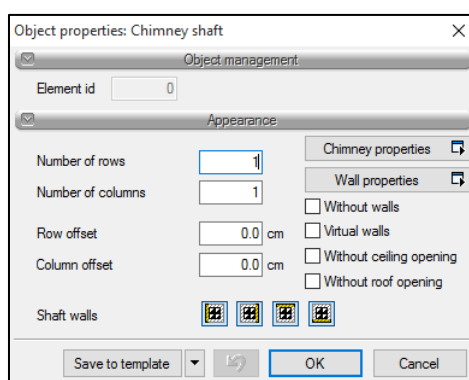


Fig. 268. Chimney shaft insertion window

The above dialogue box allows you to define the number of chimney flues of the inserted shaft (*number of rows* and *columns*), and their spacing, if any. In addition, the chimney unit can be outlined with walls thickness and material of which may be specified in *Wall properties* dialogue box. The type of flue (one

Chimneys and chimney shafts

for the entire unit) can be defined in *Chimney properties* dialogue box. After inserting the chimney shaft you can modify a single flue by assigning to it e.g. different type.

The *Shaft wall* icons allow to enable and disable individually introduced walls around the shaft. You can e.g. disable one or two walls, thanks to which the shaft can be set at the room corner.

Save to template — saves pen settings, selected style and other parameters of the element to the template.

Press *OK* button to go back to the drawing and chimney shaft insertion. To insert an element, select its location. During insertion of element the following functions are accessible from Insert dialogue box, Report dialogue box or Command area:

- *Tracking axes* — this option detects points and edges of the inserted elements and sets vertical and horizontal axes from them against the screen or, in case it is e.g. wall edge, displays the extension of such line.
- *Tracking angles* — this option selects the angles given in the window above, setting them from previously inserted elements, e.g. from the edges of the drawn walls.
- *Detection* — this option detects edges, axis, corners, and points of the elements inserted to the project, making possible to precisely set the cursor on the drawn objects.
- *Element insertion options* — opens the window to set tracking and underlay.
- *Reference* — allows you to insert a chimney at a given distance from the specified point.
- *Between points (centre)* — starts drawing a wall in the middle of a specified distance (distance is entered by selecting two points).
- *Between points (percentage)* — starts drawing a wall based on percentage division of the specified distance (distance is specified by selecting two points).
- *Apply* — terminates insertion of chimneys.

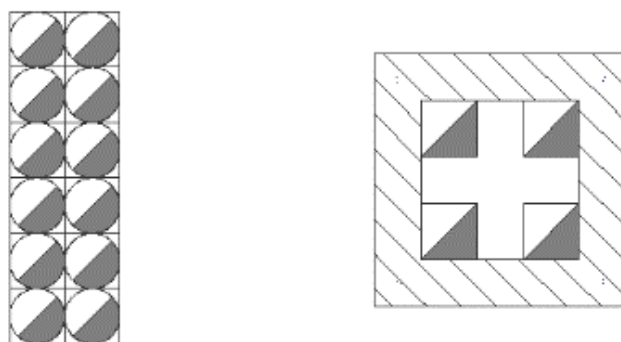


Fig. 269. Example of inserting chimney shafts

Shaft inserted as the chimney blocks, without spaces and surrounding walls, and shaft surrounded by the walls with predefined distance between the flues.

Chimneys and chimney shafts

10.2.2. Editing chimney shafts



The chimney shaft exists only when it is inserted and it is interpreted by the Application as the group of chimney flues surrounded or not by the walls. The inserted group may be edited element by element, i.e. walls and chimneys. Their editing is described in the following subsections: [Editing walls](#) and [Editing chimneys](#).

10.3. Chimney ducts

10.3.1. Inserting chimney ducts

In order to correctly mark the chimney flue on the Layout, it is possible to Insert chimney flues.

Activation:

- [Architecture](#) ribbon ⇒ logical group [Building](#) ⇒  [Chimney flue](#)
- [ArCADia-ARCHITECTURE](#) toolbar ⇒  [Insert chimney flue](#)

The parameters of the inserted ducts are available through the insert window via [Go to Properties dialog box](#) option:

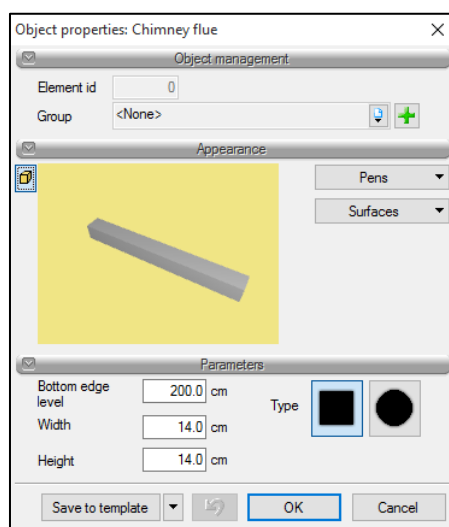


Fig. 270. Chimney flues properties window

In the above dialogue box you can set [Bottom edge level](#), its type (round or rectangular), size.

Once you confirm the data by clicking on [OK](#) button, the chimney duct is inserted into the Layout analogously to inserting the walls (during drawing you can select edge or axis as the insertion element).

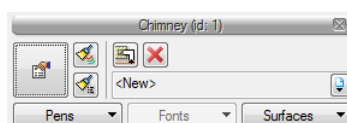


Fig. 271. Chimney editing and inserting chimney flues window

Chimneys and chimney shafts

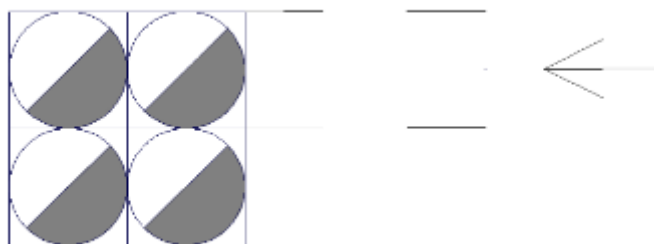


Fig. 272. Example of chimney flues

10.3.2. Editing chimney ducts

The chimney duct editing can be made in a graphical manner, in the drawing, where you can move the duct anchors or in *Properties* dialogue box, where you can change the level, type and size of the duct. The taskbar provides the following options:

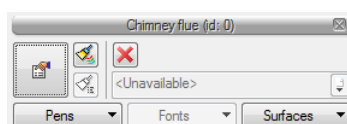


Fig. 273. Chimney flues editing window

Tab. 32 Chimney flues modification tools

	<i>Go to Properties dialog box</i>	Opens <i>Properties</i> dialogue box.
	<i>Font and pen painter</i>	Takes over the settings of the pens (thickness and type of the line), as well as the size and type of the font.
	<i>Delete marked objects</i>	Removes the selection.
	<i>Pens</i>	The line type definition used to draw the element being inserted.
	<i>Surfaces</i>	Assigning materials or textures to selected areas of the element being inserted.

Stairs

11. STAIRS

Stairs

A novelty in the 8.0 version of ARCADIA-ARCHITECTURE is a possibility to introduce monolithic stairs and wooden stringer stairs. The type of stairs depends on the set parameters, so the method of selection and introduction has not changed.

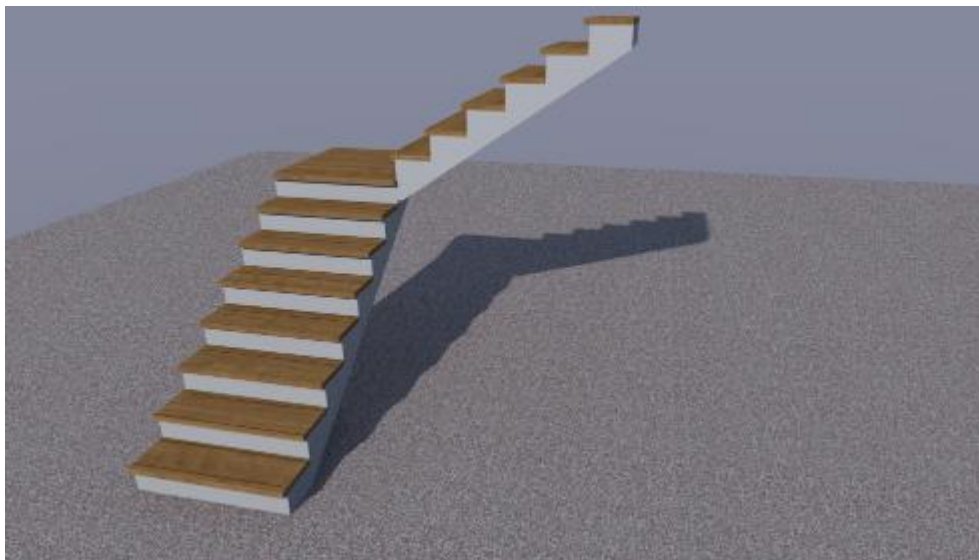


Fig. 274. Example of monolithic stairs

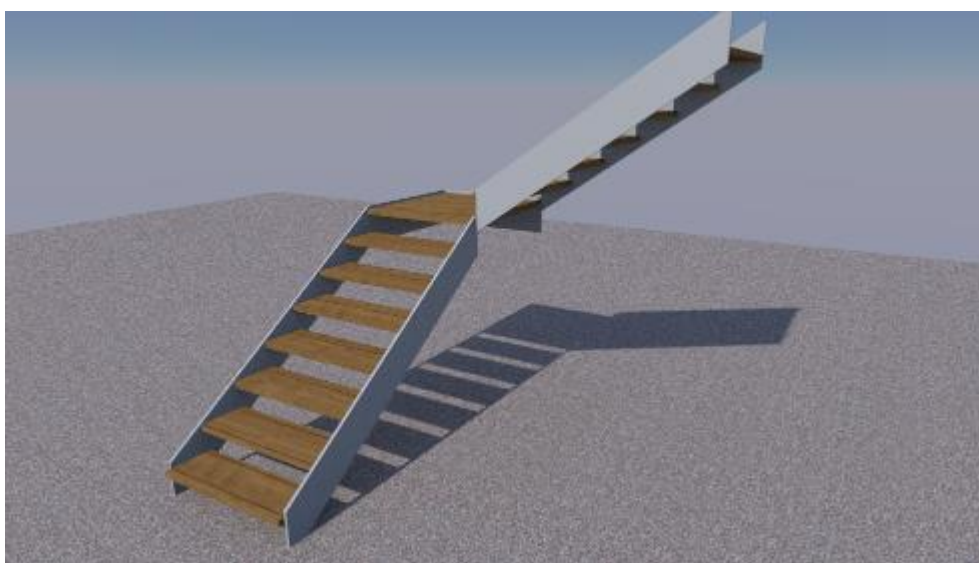


Fig. 275. Example of wooden stringer stairs

Stairs

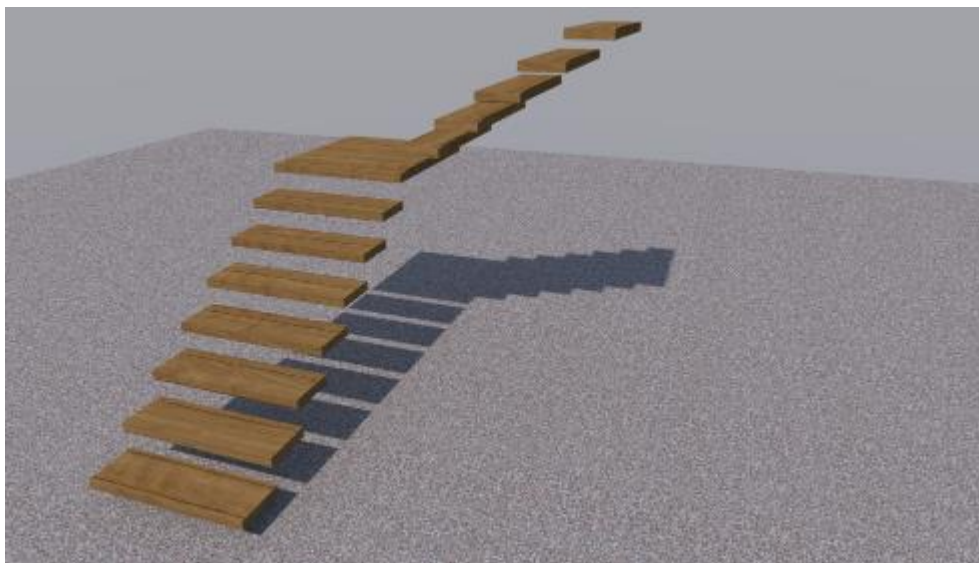


Fig. 276. Example of openwork stairs

The software offers single- and multi-flight stairs, landing stairs, winding stairs and ramp. Of course, they connect particular stairs with each other, it is also possible to obtain other stair types, and each type of stairs can be presented in the ways presented above.

Introduction of stairs has been slightly changed. Already at the introduction stage, it is possible to define the level of stairs insertion and their height. These options are available for all stair types.

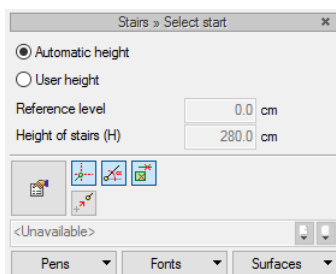


Fig. 277. Stairs insertion window

Automatic height – stairs are introduced on a default zero level of a given level and with a default height.



User height – possibility of setting the level of introduced stairs and their height without the need to enter the properties window.

11.1. Inserting one-flight stairs and multiple-flight stairs

ArCADia allows you to insert one-flight stairs or multi-flight stairs into the drawing. The number of flights is defined when introducing the stairs.

Stairs

Activation:

- *Architecture* ribbon ⇒ logical group *Building* ⇒  *Stairs*
- *ArCADia-ARCHITECTURE* toolbar ⇒  *Insert multi-flight stairs*

When you select *Go to Properties dialog box* option from the insert window, the following dialogue box appears: *Object properties: Stairs*:

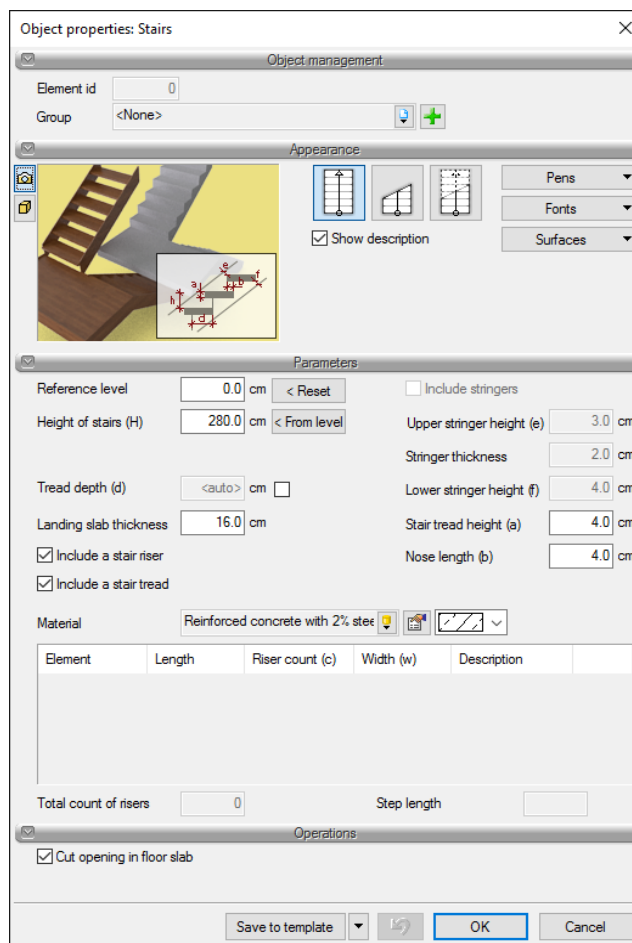


Fig. 278. Stairs properties window before inserting them

During stairs insertion, you may define the following parameters:

Show description — allows to show/hide description of each flight of stairs.

Reference level — the base height of stairs.

Reset — this button is used to reset the value of the reference level.

Height of stairs — overall height of stairs (by default, equal to the level height).

From level — this button is used to change the stairs height at the current level height.

Landing slab thickness — the thickness of landing slab, by default set to 16 cm.

Stairs

Tread depth — depth of the single step, by default set to 29 cm. If **Tread depth** box is checked, then automatic adjustment will be changed to the specified value.

Include a stair riser — the step of the stairs, if the risers is enabled, if it is inserted, it is the step under the finishing slab (board). The option is available interchangeably with enabled **Include stringers**.

Include stringers — structural elements of wooden stairs holding the steps or the riser. The option is available interchangeably with enabled **Include a stair riser**.

Stringer thickness — width of the structural board holding the steps of wooden stairs. Option available only at **Include stringers** option selected.

Upper stringer height — the distance between the upper edge of the stringer and the top corner of the step or the riser (without the nose protrusion) calculated perpendicularly to the stringer edge. Option available only at **Include stringers** option selected.

Lower stringer height — the distance between the lower edge of the stringer and the lower corner of the step or the riser calculated perpendicularly to the stringer edge. Option available only at **Include stringers** option selected.

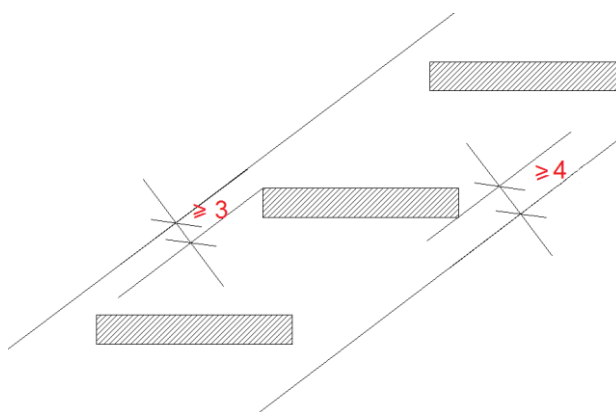


Fig. 279. Scheme of distances of stair seating on stringers

Include a stair tread — it introduces the finishing slab (the board) laid on the step.

Stair tread height — height of the finishing slab (plank) calculated from the upper edge of the step downwards.

Nose length — length of suspension of the finishing slab (board) (riser) over the stair riser.

Cut opening in floor slab — automatically cuts an opening in the floor slab, assigned to the stairs. This opening is moved and deleted along with the stairs.

Save to template — saves pen settings, selected style and other parameters of the element to the template.

Press **OK** button to switch to the stairs drawing mode. Drawing of the stairs involves the indication of the first flight of stairs, determining the direction and then the width of the flight of stairs. During

Stairs

drawing of stairs, the Stairs parameters dialogue box is displayed where the current dimensions of the drawn part of the stairs are shown, i.e. the flight of stairs or landing. After inserting the first flight of stairs, you can insert the landing or finish insertion of the stairs. After inserting the landing, you can introduce another flight of stairs on either side of the landing. Once the flights of stairs are inserted, you can finish drawing or insert another landing, etc.

NOTE: If, in the given outline of the stairs, you cannot insert the previously defined riser, the software will display the message that, after confirming, will introduce the stairs without the riser. If you close the message window with the No button, then the stairs are not introduced and you can, again, define the parameters and input the stairs from the beginning.

As you draw, the following functions are accessible from the insert window, Report dialogue box or Command area:

- **Tracking axes** – this option detects points and edges of the inserted elements and sets vertical and horizontal axes from them against the screen or, in case it is e.g. wall edge, displays the extension of such line.
- **Tracking angles** – this option selects the angles given in the window above, setting them from previously inserted elements, e.g. from the edges of the drawn walls.
- **Element and section detection** – this option detects edges, axis, corners, and points of the elements inserted to the project, making possible to precisely set the cursor on the drawn objects.
- **Element insertion options** – opens the window to set tracking and underlay.
- **Reference** – allows you to insert stairs at a given distance from the specified point.
- **Parallel** – allows to insert an element parallel to the specified one.
- **Cancel** – interrupts the function operation without inserting stairs.
- **Apply** – terminates insertion of stairs.

Depending on the selection of the stairs appearance, you will receive one of the following drawings:

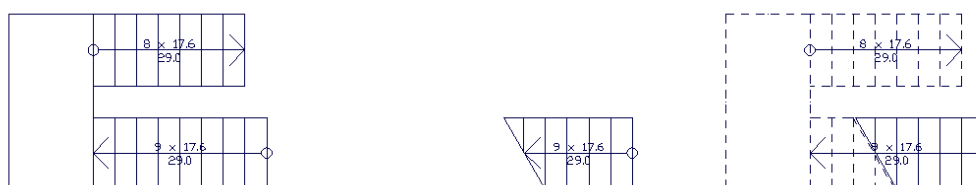


Fig. 280. Stairs in three variants for preview

NOTE: The opening in the ceiling is created together with the stairs and has the exact shape of the stairs. You can modify its outline or remove and insert a new cut-out in the steps. You should, however, remember that the opening in the ceiling on the floor above displays the image of the stairs, if you remove it and introduce an ordinary opening, it will know nothing about the stairs and will not copy them in "its perspective".

11.1.1. The example of one-flight stairs

Inserting one-flight stairs of level height. It will be located by the wall of the room.

1. Click on **Stairs**  icon.

Stairs

2. Select the first insertion point on the edge of the wall at the point where the first step is to be located.

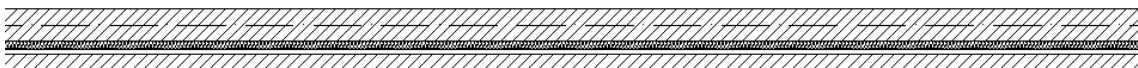
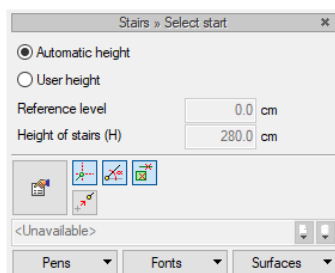


Fig. 281. Inserting stairs – setting the starting point

3. Next, select the end point of the stairs. The steps are inserted by default every 29 cm, therefore it can be assumed that 16 steps are needed in case of level height of 280 cm, i.e. the length of flight will be 464 cm. During drawing of the stairs, a number of steps as well as their depth are shown, therefore it is easy to enter the appropriate number of steps.

Stairs

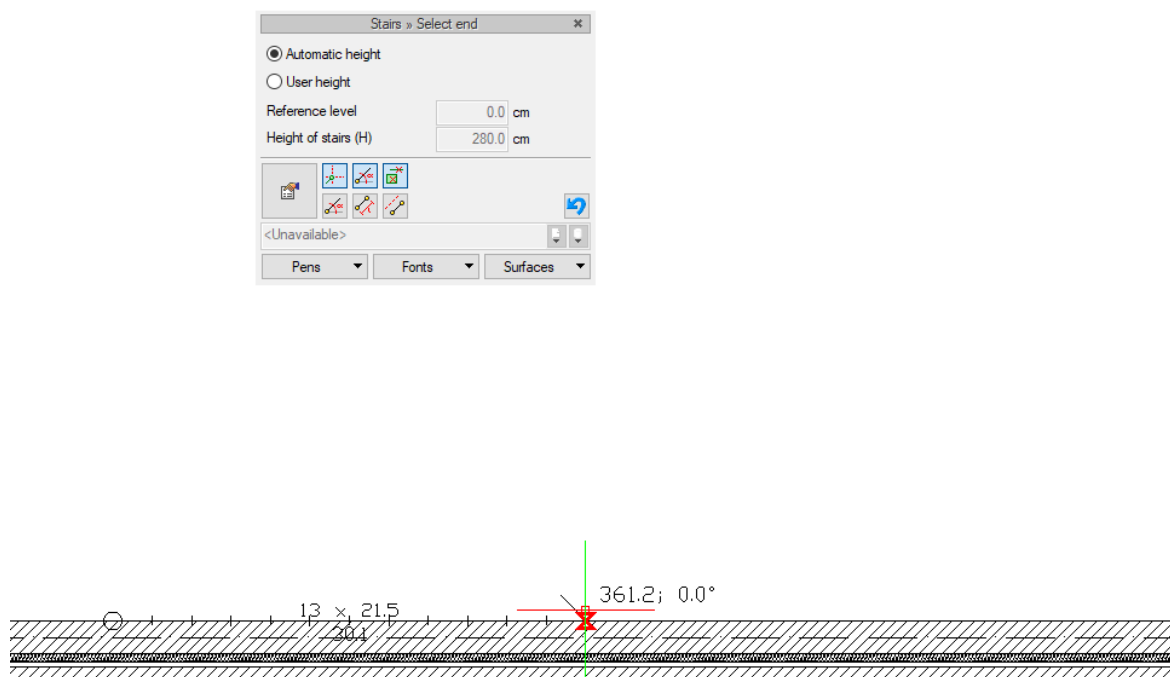



Fig. 282. Inserting stairs – setting the ending point of the first flight of stairs

4. Once the length of stair flights has been drawn, it is necessary to determine the width of the stairs. It can be Selected from Stairs => Select width dialogue box, and then it is necessary to choose  *Width* icon and enter 100 cm.

Stairs

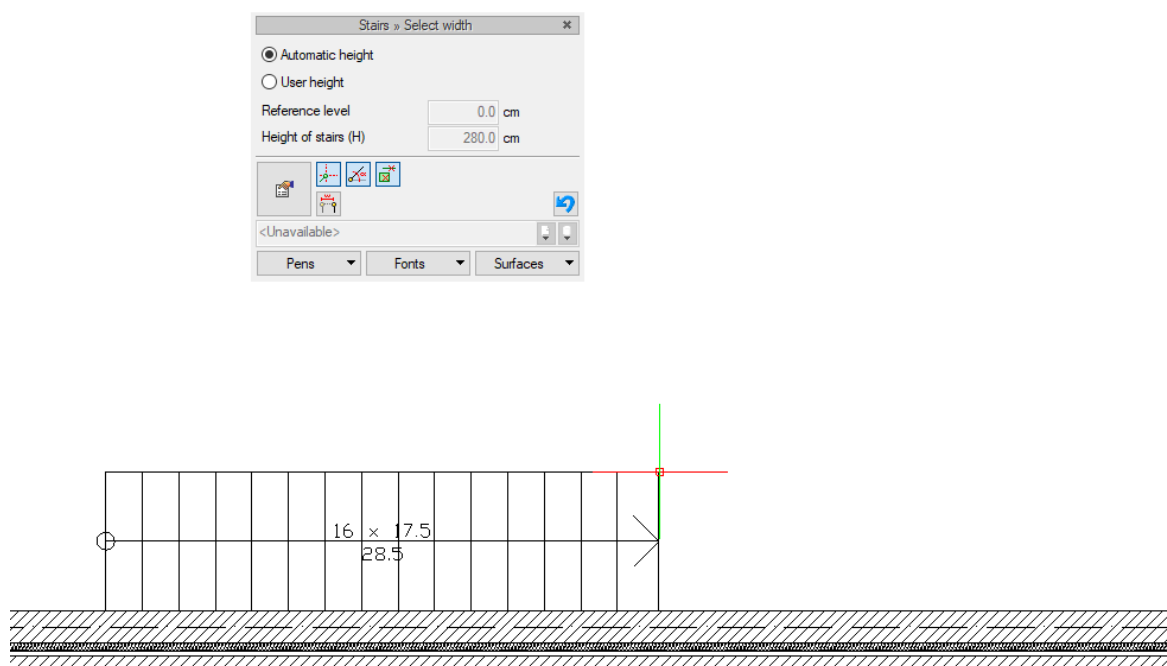


Fig. 283. Inserting stairs – giving the width of the flight of stairs

5. When you set the first flight of stairs, leave the options by clicking right mouse button.

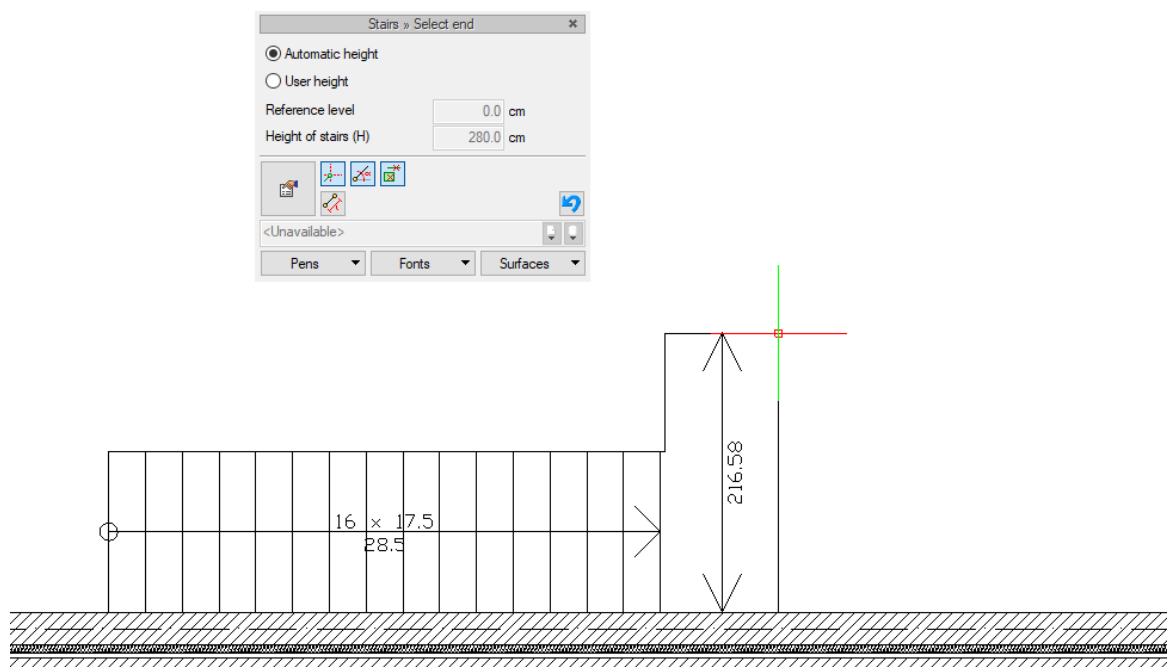


Fig. 284. Inserting stairs – ending

6. The stairs have been inserted.

Stairs

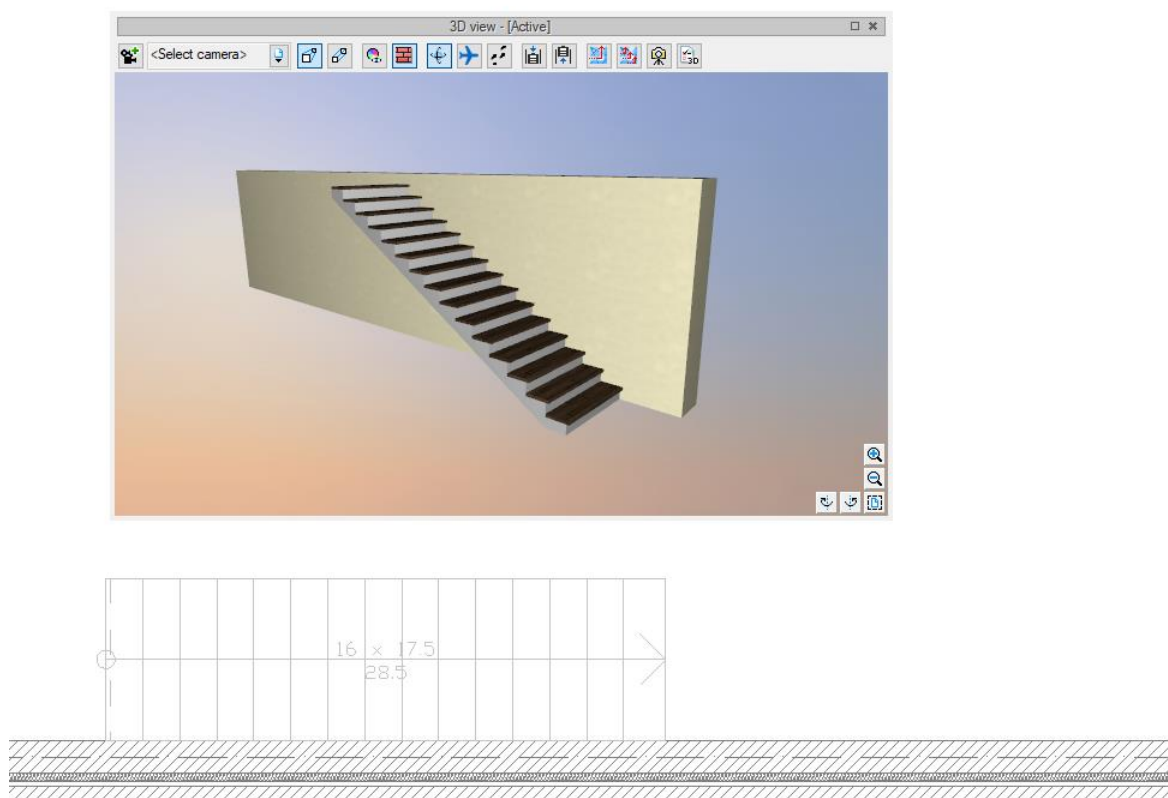


Fig. 285. Inserting stairs – final effect

11.1.2. The example of quarter landing stairs insertion

Now, the L-shaped quarter landing stairs will be inserted. The stairs will run to the next level and they will be located at the corner of the room.

If you want to insert stairs with a flight width of 100 cm and a square landing of 100 x 100 cm, you should start with a sketch that will help you to insert the stairs.

1. Insert lines along the inner edge of the walls.

Stairs

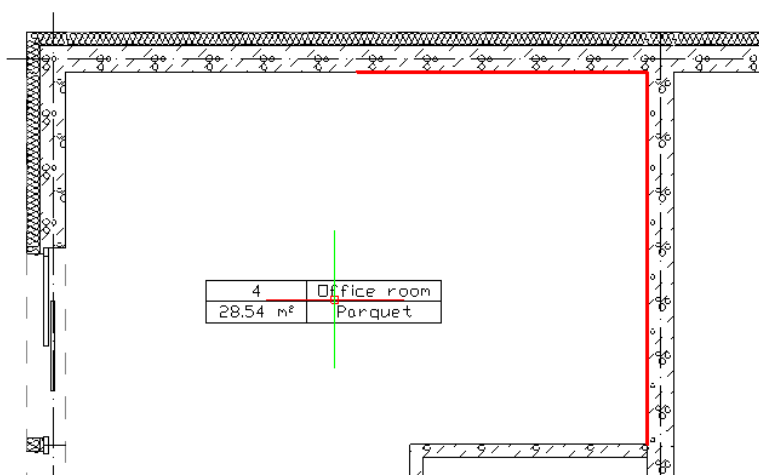


Fig. 286. Inserting stairs - supporting elements diagram

2. Then activate **Offset** option and enter the value of 100 cm. Confirm the value, point successively inserted lines and offset direction (to the centre of the room).

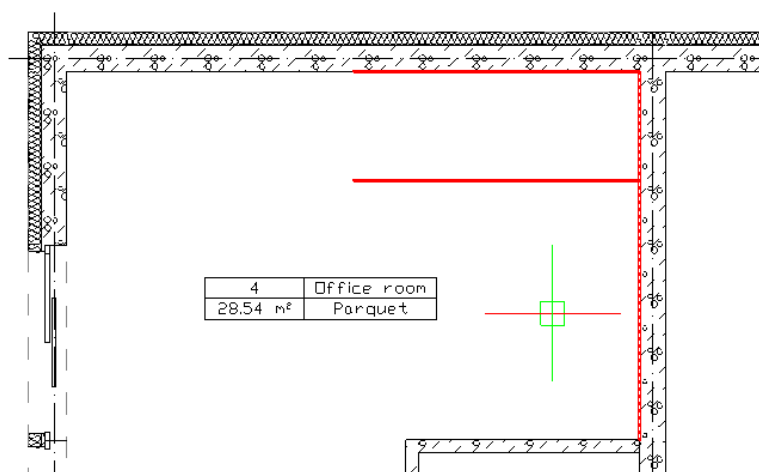



Fig. 287. Inserting stairs - supporting elements diagram

The location of the stairs will be sketched. Therefore, you can start to insert stairs.

3. Click on **Stairs**  icon.
4. Select the first insertion point on the edge of the wall at the point where the first step is to be located.

Stairs

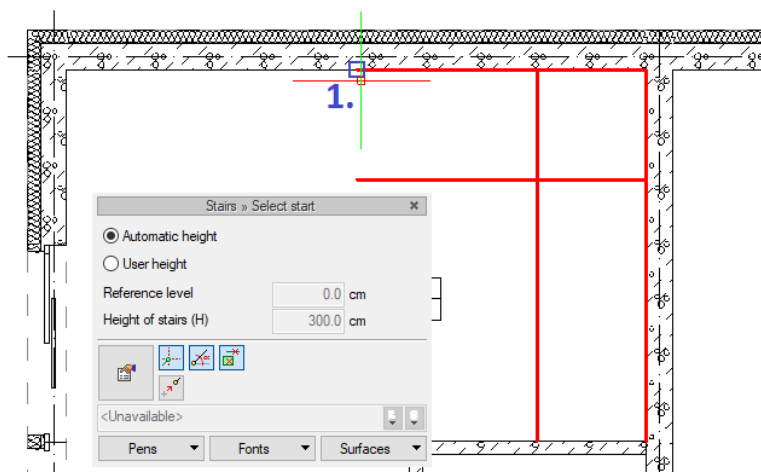


Fig. 288. Inserting stairs – setting the starting flight of the stairs

5. The end of the first flight of stairs is located on the sketched line at the point marked with number 2.

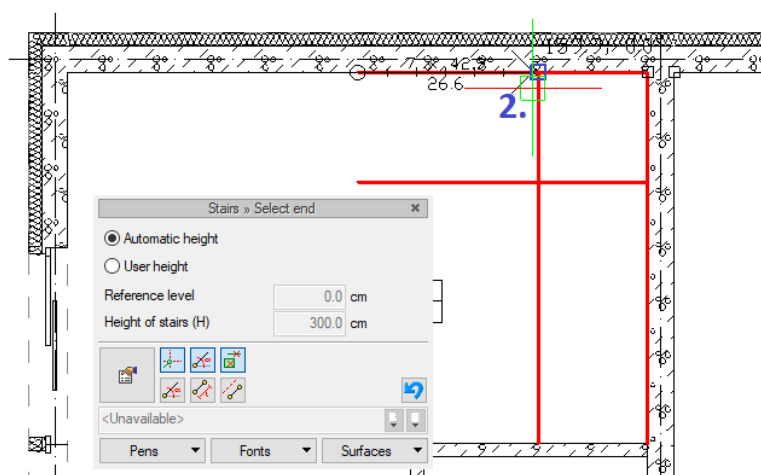


Fig. 289. Inserting stairs – setting the end point of the flight of stairs

6. Once the length of stair flights has been drawn, it is necessary to determine the width of the stairs. It can be pointed out on the sketch at the point marked with number 3.

Stairs

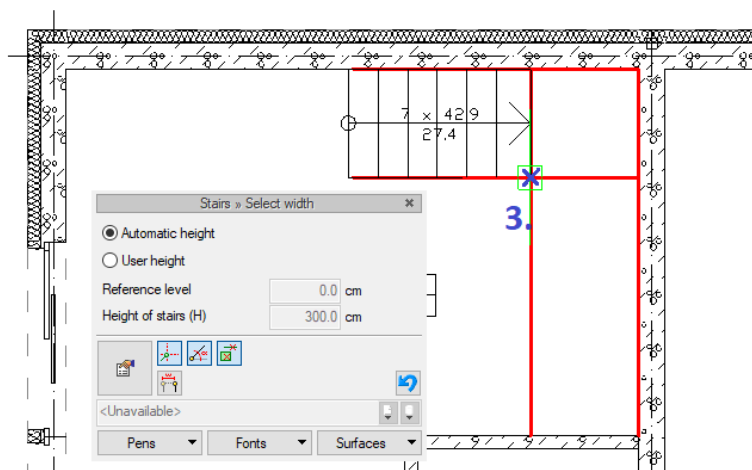


Fig. 290. Inserting stairs – setting the width of the flight of stairs

7. Then, you can define the shape of the landing. Again, you can use the sketch of the lines and draw a square landing by clicking on the point marked with number 4.

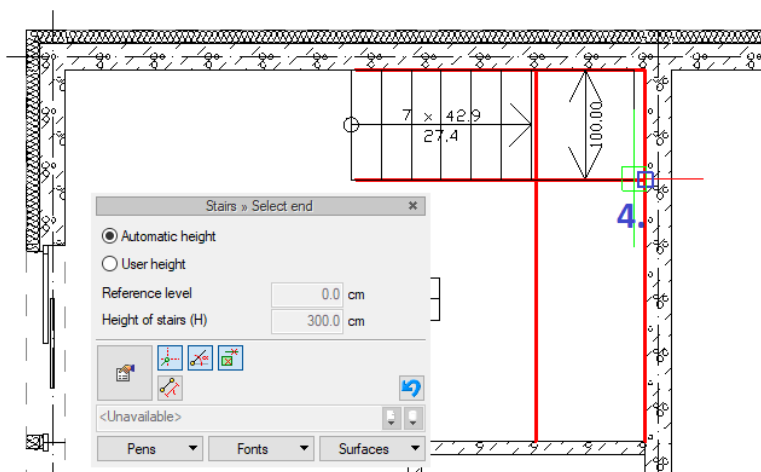


Fig. 291. Inserting stairs – setting the width of the flight of stairs

8. To designate the second flight of stairs, indicate its end (point 5).

Stairs

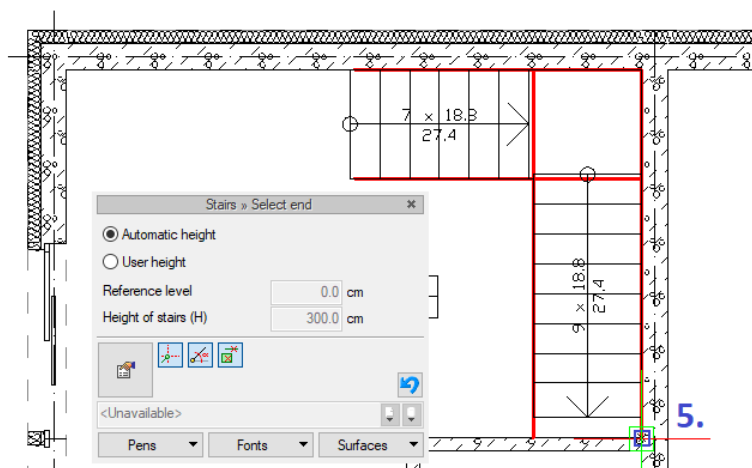


Fig. 292. Inserting stairs – setting the second flight of the stairs

9. The stairs will have no more flights, so finish their insertion by clicking right mouse button.

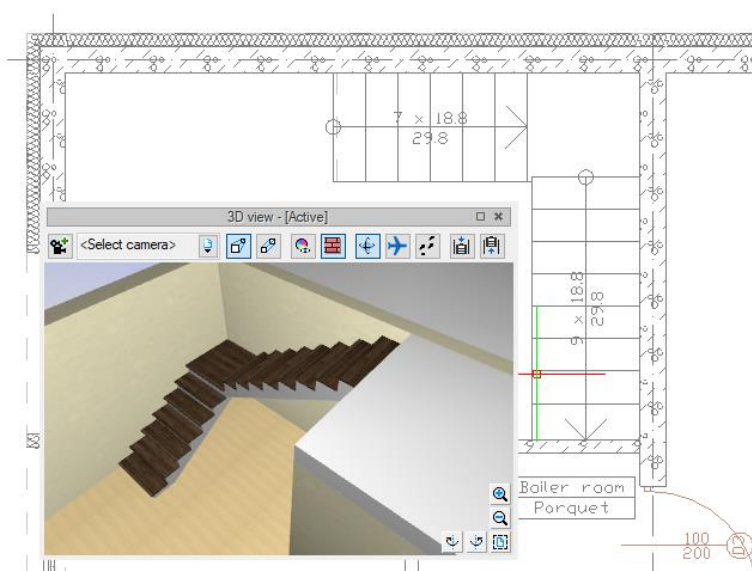


Fig. 293. Inserting stairs – final effect

11.2. Inserting winder stairs

In addition to the multi-flight stairs, the application provides several types of stairs including winder stairs. These are the only stairs in which, during their insertion, you can change the edge, e.g. from the inner to the outer one.

Activation:

- *Architecture* ribbon ⇒ logical group *Building* ⇒ *Winder stairs*
- *ArCADia-ARCHITECTURE* toolbar ⇒ *Insert winding stairs*

When you select *Switching to Properties dialog box* option from Insert window, the following dialogue box appears: *Object properties: Stairs*.

Stairs

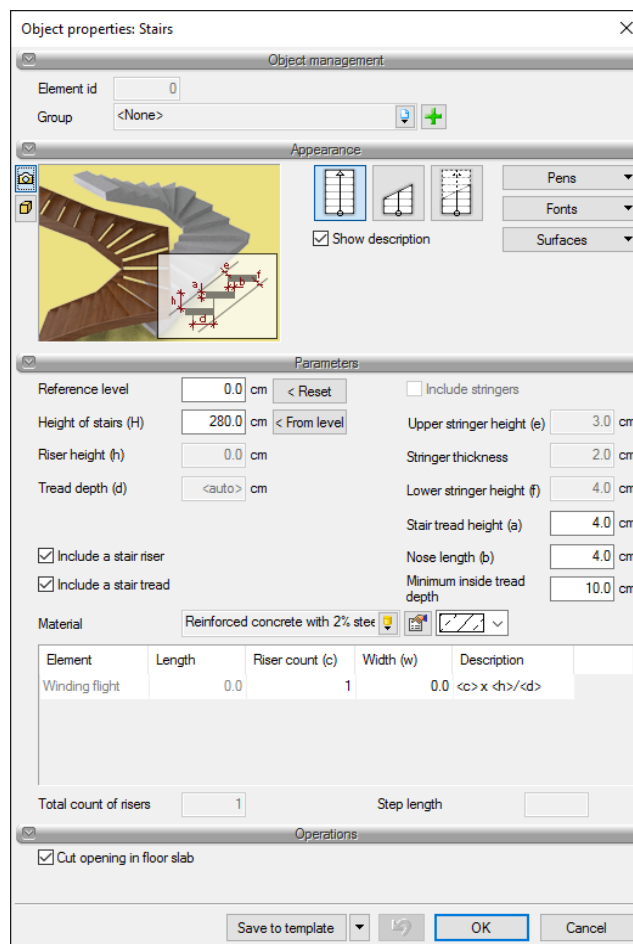


Fig. 294. Window of stairs properties before inserting

During winder stairs insertion you may define the following parameters:

Show description — allows to show/hide description of each flight of stairs.

Reference level — the base height of stairs.

Reset — this button is used to reset the value of the reference level.

Height of stairs — overall height of the stairs (by default, equal to the level height).

From level — this button is used to change the stairs height at the current level height.

Minimum inside tread depth — inner depth of the winder tread which according to the standards shall not be less than 10cm.

Include a stair riser — the step of the stairs, if the risers is enabled, if it is inserted, it is the step under the finishing slab (board). The option is available interchangeably with *Include stringers* enabled.

Include stringers — structural elements of wooden stairs holding the steps or the riser. The option is available interchangeably with *Include a stair riser enabled*.

Stairs

Stringer thickness – width of the structural board holding the steps of wooden stairs. Option available only at the **Enable stringers** option selected.

Upper stringer height – the distance between the upper edge of the stringer and the top corner of the step or the riser (without the nose protrusion) calculated perpendicularly to the stringer edge. Option available only at the **Include stringers** option selected.

Lower stringer height – the distance between the lower edge of the stringer and the lower corner of the step or the riser calculated perpendicularly to the stringer edge. Option available only at the **Enable stringers** option selected.

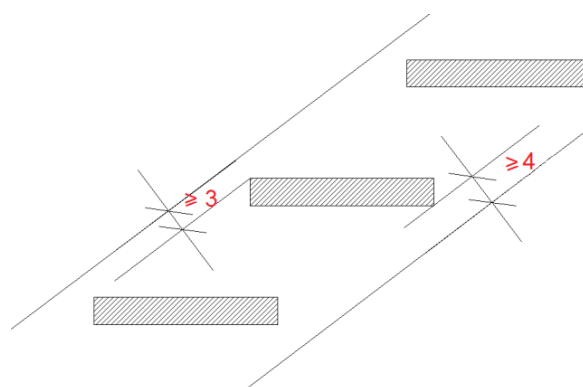


Fig. 295. Scheme of distances of stair seating on stringers

Enable a stair tread – it introduces the finishing slab (the board) laid on the step.

Stair tread height – height of the finishing slab (plank) calculated from the upper edge of the step downwards.

Nose length – length of suspension of the finishing slab (board) (riser) over the stair riser.

Cut opening in floor slab – automatically cuts an opening in the floor slab, assigned to the stairs. This opening is moved and deleted along with the stairs.

Save to template – saves pen settings, selected style and other parameters of the element to the template.

Press **OK** button to switch to the stairs drawing mode.

When you insert a stairs, in addition to the initial settings, you can also change, for example, the height of the stairs. You can also define which edge will be used to draw the stairs (inner or outer). After you draw the first part of the flight of stairs, to the first „curve“, **Anchor** box will be activated in **Insert** dialogue box, where you can select the edge which will be used to insert the stairs. Therefore, you can easily match the stairs to the existing wall Layout.

Stairs

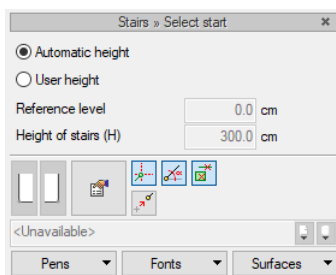


Fig. 296. Steering stairs insertion window with possibility of changing the insertion edge

Drawing of the stairs consists in indication of the start point of the first part of the flight, its width and successive "curves". The description on the first flight of stairs changes during the stairs drawing, indicating the current number of steps, their height and depth.

As you draw, the following functions are accessible from Insert window, Report dialogue box or Command area:

- **Tracking axes** – this option detects points and edges of the inserted elements and sets vertical and horizontal axes from them against the screen or, in case it is e.g. wall edge, displays the extension of such line.
- **Tracking angles** – this option selects the angles given in the window above, setting them from previously inserted elements, e.g. from the edges of the drawn walls.
- **Element and section detection** – this option detects edges, axis, corners, and points of the elements inserted to the project, making possible to precisely set the cursor on the drawn objects.
- **Element insertion options** – opens the window to set tracking and underlay.
- **Reference** – allows you to insert a stairs at a given distance from the specified point.
- **Parallel** – allows to insert an element parallel to the specified one.
- **Cancel** – interrupts the function operation without inserting stairs.
- **Apply** – terminates insertion of stairs.

NOTE: If, in the given outline of the stairs, you cannot insert the previously defined riser, the software will display the message that, after confirming, will introduce the stairs without the riser. If you close the message window with the No button, then the stairs are not introduced and you can, again, define the parameters and input the stairs from the beginning.

The example of the winder stairs drawn in three views.

Stairs

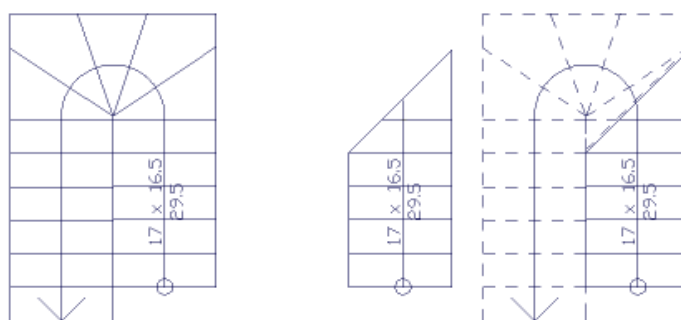






Fig. 297. Steering stairs in three views

NOTE: The opening in the ceiling is created together with the stairs and has the exact shape of the stairs. You can modify its outline or remove and insert a new cut-out in the steps. You should, however, remember that the opening in the ceiling on the floor above displays the image of the stairs, if you remove it and introduce an ordinary opening, it will know nothing about the stairs and will not copy them in "its perspective".

11.3. Inserting spiral stairs

The Application provides two methods of spiral stairs insertion: using the centre and radius or 3 points along the outline.

Activation:

- *Architecture* ribbon \Rightarrow logical group *Building* \Rightarrow  *Spiral stairs* or  *Spiral stairs by 3 points*
- *ArCADia-ARCHITECTURE* toolbar \Rightarrow  *Insert spiral stairs* or  *Insert spiral stairs by 3 points*

When you select *Go to Properties dialog box* option from Insert window, the following dialogue box appears: *Object properties: Stairs*:

Stairs

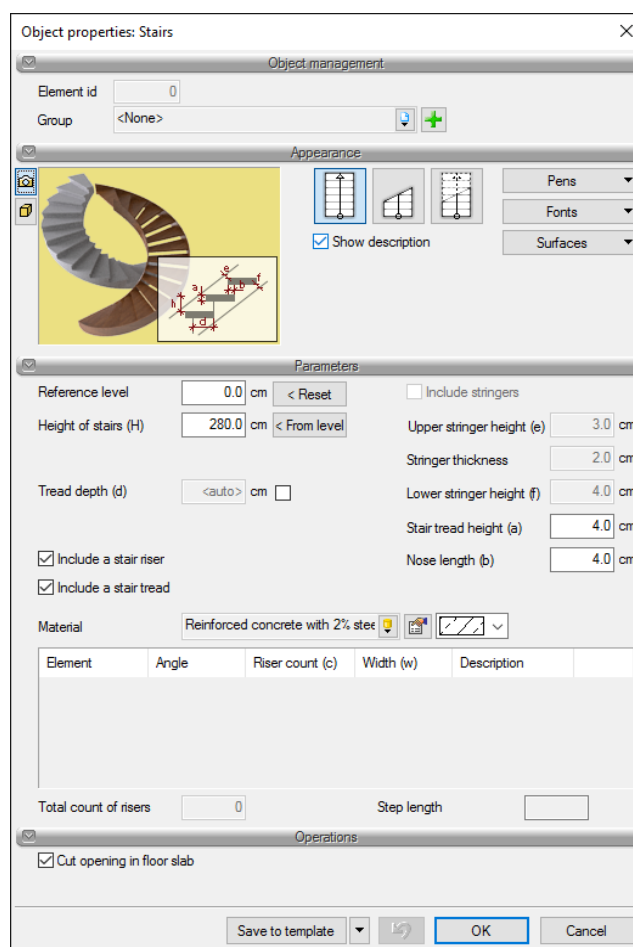


Fig. 298. Window of stairs properties before inserting

When you insert spiral stairs, you can define the following parameters:

Show description — allows to show/hide description of each flight of stairs.

Reference level — the base height of stairs.

Reset — this button is used to reset the value of the reference level.

Height of stairs — overall height of the stairs (by default, equal to the level height).

From level — this button is used to change the stairs height at the current level height.

Include a stairs riser — the step of the stairs, if the risers are enabled, if it is inserted, it is the step under the finishing slab (board). The option is available interchangeably with *Include stringers*.

Include stringers — structural elements of wooden stairs holding the steps or the riser. The option is available interchangeably with *Include a stairs riser*.

Stringer thickness — with of the structural board holding the steps of wooden stairs. Option available only at the *Include stringers* option selected.

Stairs

Upper stringer height – the distance between the upper edge of the stringer and the top corner of the step or the riser (without the nose protrusion) calculated perpendicularly to the stringer edge. Option available only at **Include stringers** option selected.

Lower stringer height – the distance between the lower edge of the stringer and the lower corner of the step or the riser calculated perpendicularly to the stringer edge. Option available only at the **Include stringers** option selected.

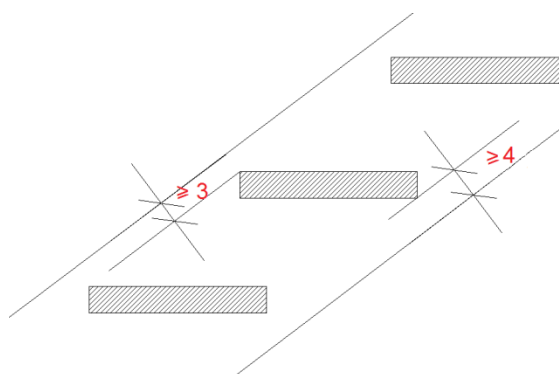


Fig. 299. Scheme of distances of stair seating on stringers

Include stairs tread – it introduces the finishing slab (board) laid on the step.

Stair tread height – height of the finishing slab (board) calculated from the upper edge of the step downwards.

Nose length – length of suspension of the finishing slab (board) (riser) over the stair riser.

Cut opening in floor slab – automatically cuts an opening in the floor slab, assigned to the stairs. This opening is moved and deleted along with the stairs.

Save to template – saves pen settings, selected style and other parameters of the element to the template.

Press **OK** button to switch to the stairs drawing mode.

As you draw, the following functions are accessible from Insert window, Report dialogue box or Command area:

- **Tracking axes** – this option detects points and edges of the inserted elements and sets vertical and horizontal axes from them against the screen or, in case it is e.g. wall edge, displays the extension of such line.
- **Tracking angles** – this option selects the angles given in the window above, setting them from previously inserted elements, e.g. from the edges of the drawn walls.
- **Element and section detection** – this option detects edges, axis, corners, and points of the elements inserted to the project, making possible to precisely set the cursor on the drawn objects.
- **Element insertion options** – opens the window to set tracking and underlay.
- **Reference** – allows you to insert a stairs at a given distance from the specified point.

Stairs

- *Cancel* — interrupts the function operation without inserting stairs.
- *Apply* — terminates insertion of stairs.

NOTE: *If, in the given outline of the stairs, you cannot insert the previously defined riser, the software will display the message that, after confirming, will introduce the stairs without the riser. If you close the message window with the No button, then the stairs are not introduced and you can, again, define the parameters and input the stairs from the beginning.*

For example, stairs drawn using the centre and radius:

1. Inserting stairs begins with indicating the centre of the stairs.
2. Select or enter radius (100 cm) of the stairs edge. At this stage, you do not have to decide whether it is inner or outer edge.

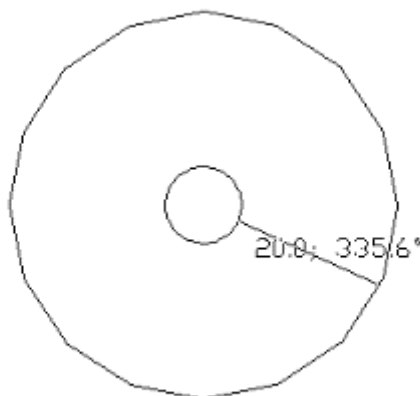


Fig. 300. Inserting spiral stairs – defining the radius of the circle of the stairs

3. Then, select or enter the second radius that determines the flight width. This radius can be either smaller than the first one or greater, i.e. it can be an outer or inner edge of the stairs. In this case, the second edge will be the inner edge. The radius will be e.g. 10cm. The location of the cursor indicates the start point of the stairs.

Stairs

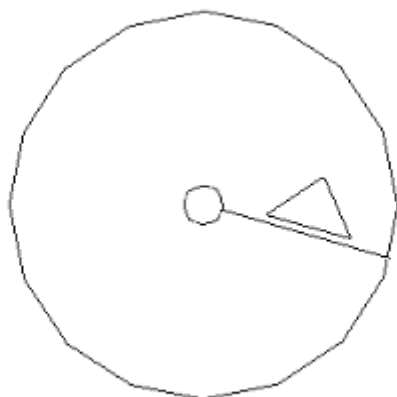


Fig. 301. Inserting spiral stairs – defining the second radius of the stairs circle

4. Single selection allows you to specify the width and the starting point of the stairs, now you need to decide on the direction of the insertion. To this end, you need to use the displayed arrow and specify the direction and length of the stairs.

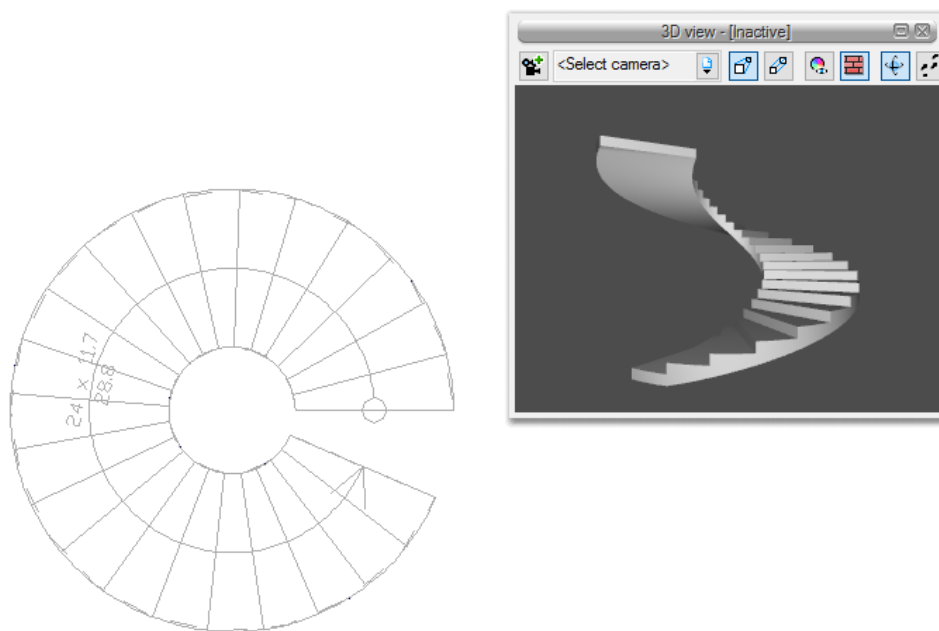


Fig. 302. Example of spiral stairs

For example, the stairs drawn by selecting 3 points located along the outline.

1. To insert stairs you should select points on one of the edges (inner or outer).

Stairs

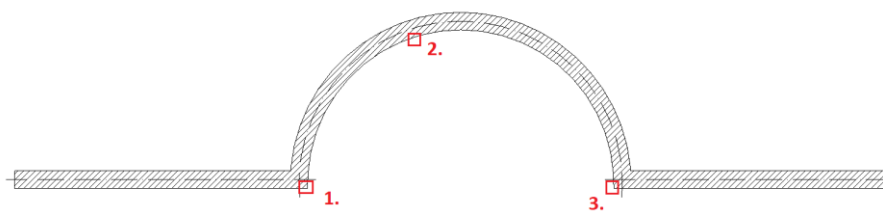


Fig. 303. Inserting stairs – defining subsequent points of insertion

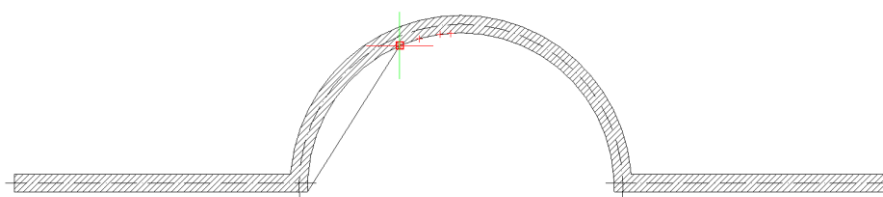


Fig. 304. Inserting stairs – second insertion point

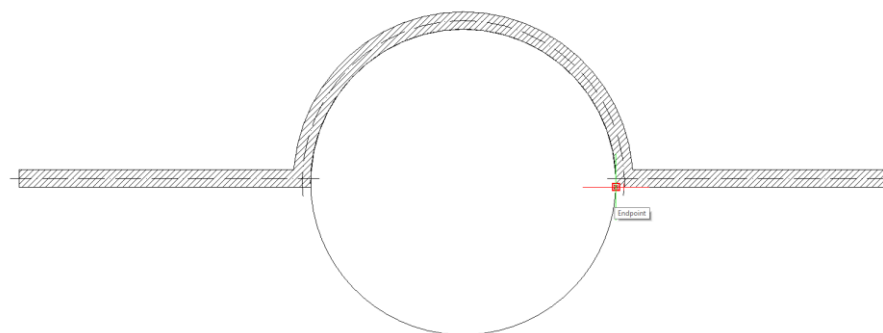


Fig. 305. Inserting stairs – third insertion point

2. Next, select or enter the flight width and starting point for the steps. One selection allows you to specify the width and the starting point of the stairs.

Stairs

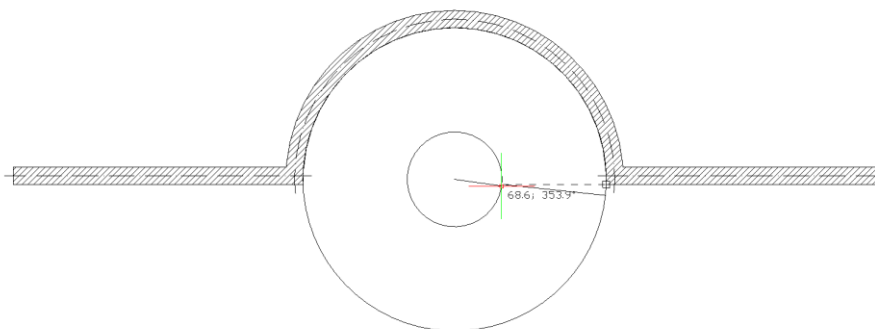


Fig. 306. Inserting stairs – giving the width of the flight of stairs

3. After selecting the beginning of the stairs, define its direction and specify the length of the stairs.

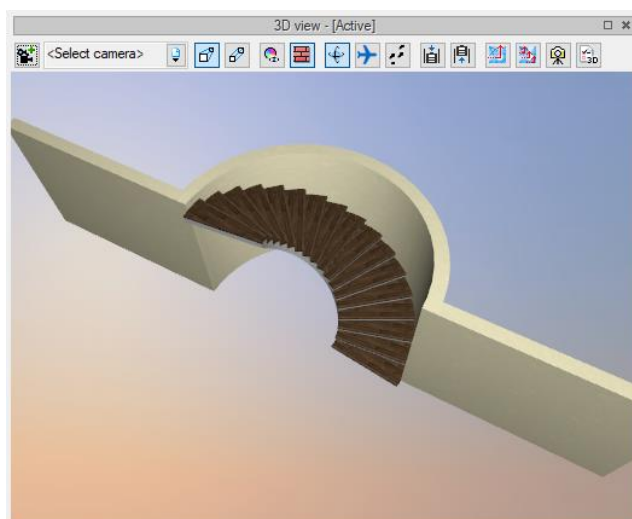




Fig. 307. Inserting stairs – final effect

When the spiral stairs is inserted, their angle can be less than or equal to 360° . If the stairs are supposed to have a greater angle, then it should be changed in [Properties dialogue box](#).

11.4. Inserting ramp

Besides the stairs, ArCADia-ARCHITECTURE also allows you to insert a [Ramp](#).

Activation:

- [Architecture](#) ribbon \Rightarrow logical group [Building](#) \Rightarrow  [Ramp](#)
- [ArCADia-ARCHITECTURE](#) toolbar \Rightarrow  [Insert ramp](#)

When you select [Go to Properties dialog box](#) option from Insert window, the following dialogue box appears: [Object properties: Stairs](#):

Stairs

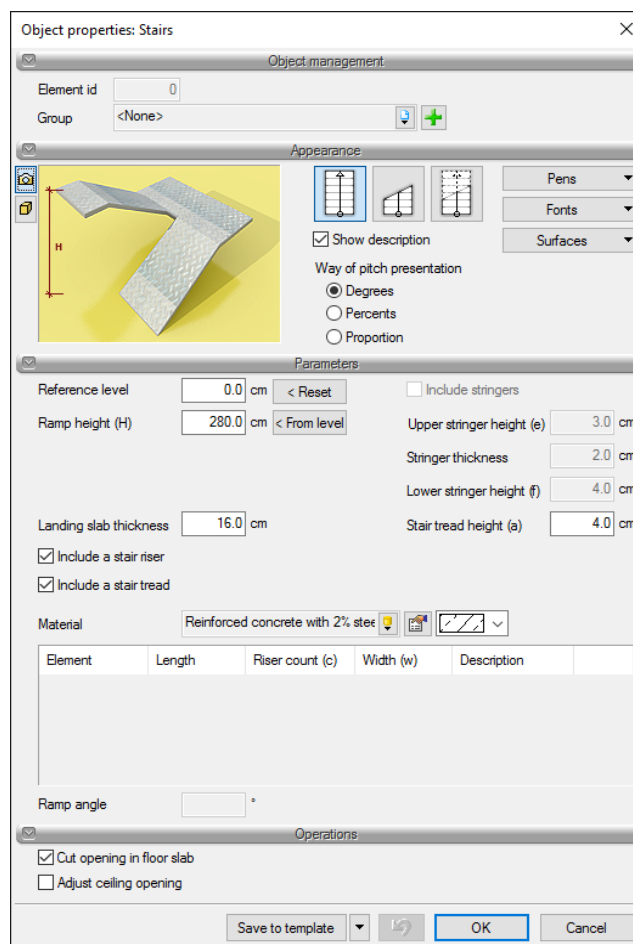


Fig. 308. Stairs properties before inserting window

During ramp insertion, you may define the following parameters:

Show description — allows to show/hide description (inclination angle), that appears on the ramp layout.

Reference level — the base height of the ramp.

Reset — this button is used to reset the value of the reference level.

Ramp height — the overall height of the ramp (by default, equal to the level height).

From level — this button is used to change the ramp height at the current level height.

Landing slab thickness — the thickness of landing slab, by default set to 16 cm.

Include a stair riser — ramp slab on which you can introduce finishing in the form of the riser. The option is available interchangeably with **Include stringers**.

Include stringers — structural elements of the wooden ramp holding the ramp. The option is available interchangeably with **Include a stair riser**.

Stairs

Stringer thickness – width of the structural board holding the steps in a wooden ramp. Option available only at the *Include stringers* option selected.

Include a stair tread – it introduces the finishing slab (board) laid on the board.

Stair tread height – height of the finishing slab (board) calculated from the upper edge of the step downwards.

Cut opening in floor slab – automatically cuts an opening in the floor slab, assigned to the ramp. This opening is moved and deleted along with the ramp.

Save to template – saves pen settings, selected style and other parameters of the element to the template.

Press **OK** button to switch to the ramp drawing mode. Drawing of the ramp consists in indication of the first flight/approach start point, determining its direction and then the width. After inserting the first flight/approach of the ramp, you can insert the landing or terminate the insertion. After inserting the landing, you can introduce another flight/approach on either side of the landing. Once the flight/approach is inserted, you can finish drawing or insert another landing, etc.

As you draw, the following functions are accessible from Insert window, Report dialogue box or Command area:

- *Tracking axes* – this option detects points and edges of the inserted elements and sets vertical and horizontal axes from them against the screen or, in case it is e.g. wall edge, displays the extension of such line.
- *Tracking angles* – this option selects the angles given in the window above, setting them from previously inserted elements, e.g. from the edges of the drawn walls.
- *Element and section detection* – this option detects edges, axis, corners, and points of the elements inserted to the project, making possible to precisely set the cursor on the drawn objects.
- *Element insertion options* – opens the window to set tracking and underlay.
- *Reference* – allows you to insert a stairs at a given distance from the specified point.
- *Parallel* – allows to insert an element parallel to the specified one.
- *Cancel* – interrupts the operation of the function without inserting a ramp.
- *Apply* – ends insertion of ramp.

11.5. Editing stairs and ramps

The stairs can be moved, copied, deleted. You can also change width of the individual flights/approaches and landings, add or remove steps from the flight, define the height of stairs, steps and landings. Some of the modification options are available in *Properties dialogue box* of the stairs, the others are carried out directly on the drawing. The edit window allows you to select the following options:

Stairs

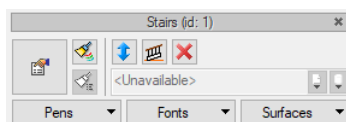


Fig. 309. Stairs and ramp editing window

Tab. 33 Stairs and ramp modification tools

	<i>Go to Properties dialog box</i>	Opens <i>Properties</i> dialogue box.
	<i>Font and pen painter</i>	Takes over the settings of the pens (thickness and type of the line), as well as the size and type of the font.
	<i>Invert stairs direction</i>	Changes direction of the stairs inserted by swapping the entrance and exit of the stairs.
	<i>Insert safety railing to stairs</i>	Inserts railing on the left or right stairs edge, placing railing posts on every step.
	<i>Delete marked objects</i>	Removes the selection.
	<i>Pens</i>	The line type definition used to draw the element being inserted.
	<i>Fonts</i>	Definition of the size and type of the font that describes the element.
	<i>Surfaces</i>	Assigning materials or textures to selected areas of the element being inserted.

Inserting the railing on the stairs can be done by selecting the stairs and turning on the option *Insert safety railing to stairs* or selecting from the *Architecture* ribbon, the *Railing on the stairs* option and marking the selected stairs. Further on, the options work identically and are described in the chapter *Railing on the stairs*.

In all types of stairs, the *Operations* field is identical and is responsible for creating the opening in the ceiling over the inserted stairs and its adjustment or lack of it, after any modifications of flights. At modifications on the projection of the opening, remember that the stairs on the floor above are visible only in the outline of this opening, but only hole introduced along with the stairs. If you disable this opening and introduce a different one (sometimes it is faster to do this than to modify with subsequent vertices), you need to remember that in this opening the stairs on the floor above will not be visible.

In all types of stairs in the *Parameters* panel, new options are set. The parameters available in this part of the window change depending on the type of stairs - monolithic (with the riser and the stair riser) or openwork (with or without stringers).

After selecting the *Include a stair tread* option, you will activate parameters of the riser thickness and the nose length. Disabling the *Include a stair riser* option activates the *Include stringers* option, which

Stairs

after selecting will provide their sizes and placement in respect of their step edges: *Stringer thickness*, *Upper stringer height* and *Lower stringer height*.

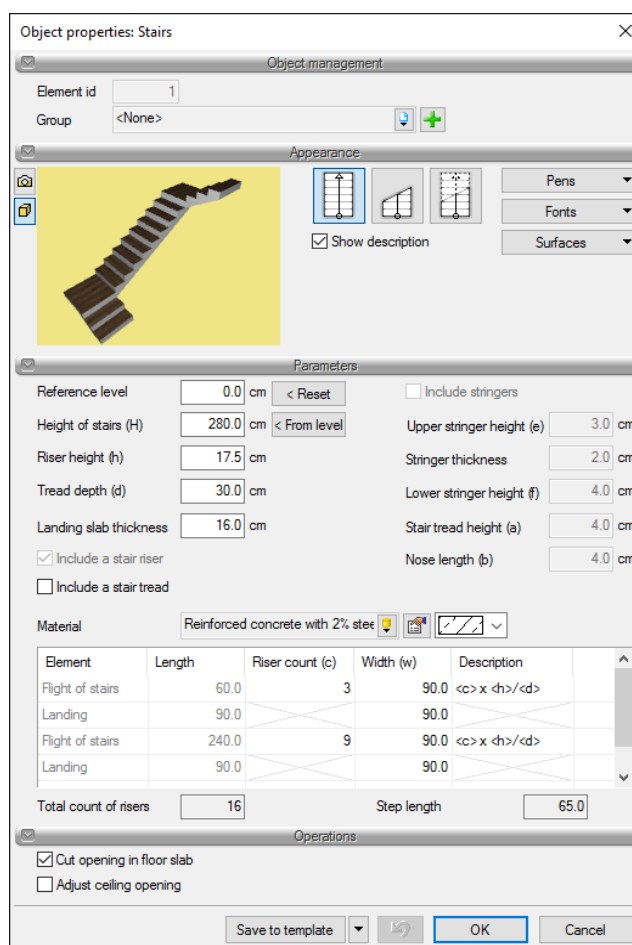


Fig. 310. Stairs properties after insertion window

Object properties: Stairs dialogue box for one- flight and multi-flight stairs inserted in the project:

Appearance — choice of presentation of the stairs in the layout: entire stairs visible, sectioned stairs, sectioned stairs with flight above. Moreover, you can define whether the stairs description will be visible or not, and what type of font will be used.

Operations — creation of opening in the floor slab above the currently inserted stairs and its adjustment when all the modifications of the flights of stairs are already completed.

Parameters — dimensions of the individual elements (height, width and thickness), on the basis of which the length of the stride is calculated. The number of steps in the stairs flight is available in the table. The flight width is not modified in the properties window, only on the projection by means of blue handles available after selecting the stairs.

The other modification options (e.g. change of flight width) are accessible from the drawing.

Stairs

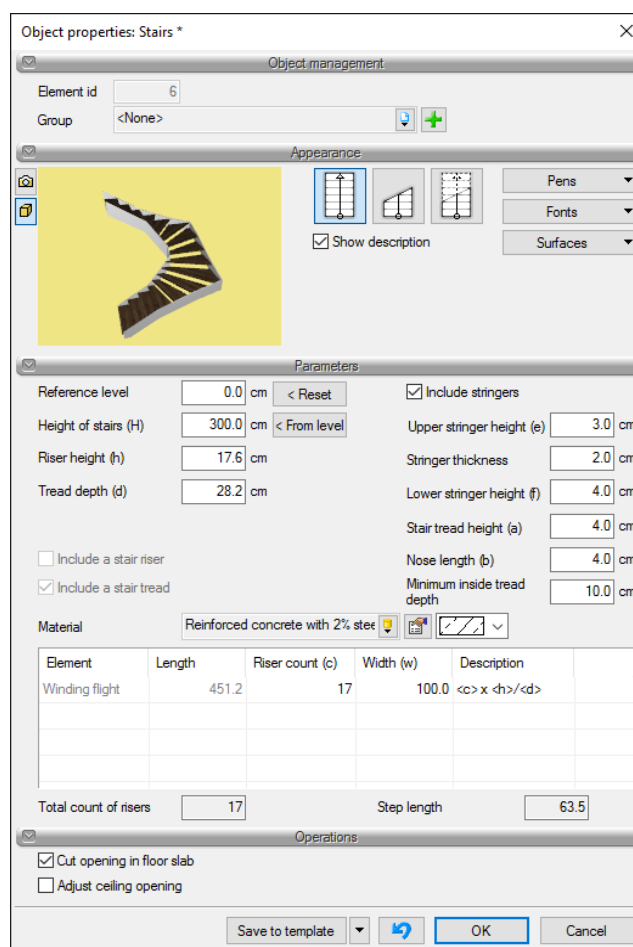


Fig. 311. Stairs properties after insertion window

Object properties: Stairs dialogue box for the winder stairs:

Appearance — choice of presentation of the stairs in the layout: entire stairs visible, sectioned stairs, sectioned stairs with flight above. Moreover, you can define whether the stairs description will be visible or not, and what type of font will be used.

Operations — creation of opening in the floor slab above the currently inserted stairs and its adjustment when all the modifications of the flights of stairs are already completed.

Parameters — dimensions of the individual elements (height, width and thickness), on the basis of which the length of the stride is calculated. The Tread depth in its symmetry axis is calculated to the stride length, while the information of minimum depth facilitates to set the appropriate space between the steps. The number of steps in the stairs flight is available in the table, as well as the flight width, which in this type of stairs flight cannot be changed in the Layout but in the *Properties* dialogue box.

The other modification options (e.g. change of shape of the inserted stairs layout) are available from the drawing level.

Stairs

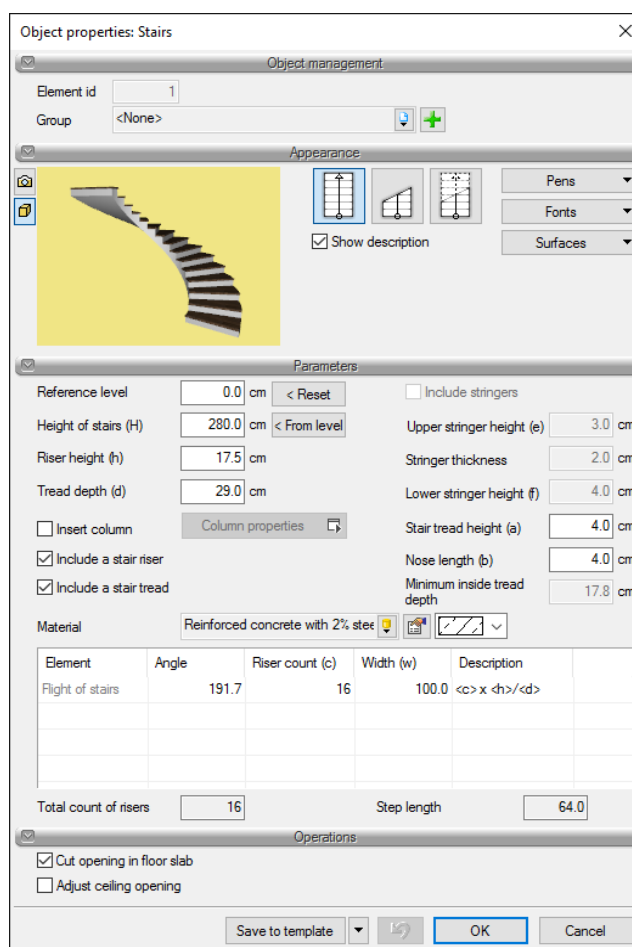


Fig. 312. Steering stairs properties after insertion window

Object properties: Stairs dialogue box for the spiral stairs:

Appearance — choice of presentation of the stairs in the layout: entire stairs visible, sectioned stairs, sectioned stairs with flight above. Moreover, you can define whether the stairs description will be visible or not, and what type of font will be used.

Operations — creation of opening in the floor slab above the currently inserted stairs and its adjustment when all the modifications of the flights of stairs are already completed.

Parameters — dimensions of the individual elements (height, width and thickness), on the basis of which the length of the stride is calculated. For the stairs, there is a possibility to insert a column into a stairwell. The minimum tread depth is only available as an information and cannot be changed. The number of steps in the flight of stairs is available in the table, as well as the angle of the stairs.

Change of width of the stairs flight is accessible from the drawing.

Stairs

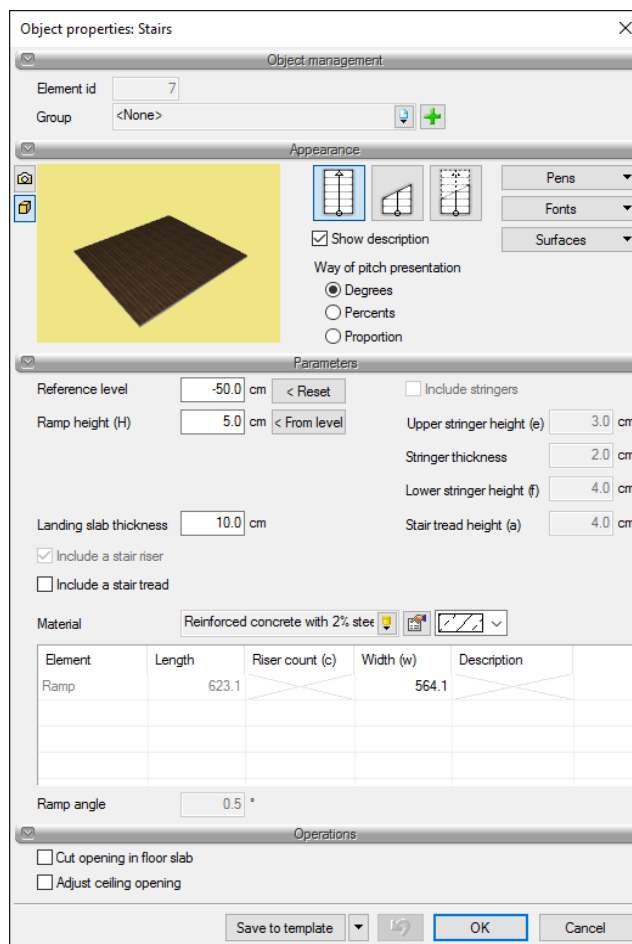


Fig. 313. Ramp properties window after insertion of the ramp

Object properties: Stairs dialogue box for the ramp:

Appearance — choice of presentation type of the ramp in the Layout: entire ramp visible, sectioned ramp, sectioned ramp with flight/approach above. Moreover, you can define whether the ramp description will be visible or not, and what type of font will be used.

Operations — creation of opening in the floor slab above the currently inserted ramp and its adjustment after all modifications.

Parameters — foundation level, height and thickness of the landing.

The other modification options, e.g. change of flight/approach width are accessible from the drawing.

Balustrades

12. BALUSTRADES



Balustrades

The new version of the ArCADia-ARCHITECTURE program introduces the *Balustrade on the stairs* options, which can be placed manually or automatically on the stairs, terraces, balconies, etc. This option is created similarly to special doors and windows that can be personally written in the LUA language. The individual parts of the railings are also based on scripts that you can create by yourself and add to the list.

12.1. Railing

This option allows for the insertion of the railing by indicating its beginning, subsequent flight and the end. During insertion, you can detect the heights of stairs and ceilings or insert the element horizontally.

Activation:

- *Architecture* ribbon ⇒ logical group *Building* ⇒  *Balustrade on the stairs*
- *ArCADia-ARCHITECTURE* toolbar ⇒  *Insert balustrade on the stairs*

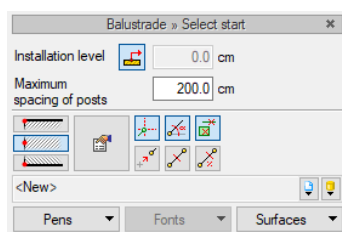


Fig. 314. Railing insertion window

Installation level – the option checks whether the indicated starting point or subsequent outline corners are on the stairs or the ceiling. If a click falls on one of the mentioned objects, the railing will read the height and inserts itself on the upper edge of the element (or step). After turning off the option, you can indicate the height yourself.

Maximum spacing of posts – distance, which the program will not exceed while inserting posts between the subsequent outline points (shape) of the railing. The spacing will be adjusted to subsequent railing sections, so that it will be the same in the next sections, if possible.

After selecting the option *Go to the Properties dialogue box* the window *Object properties: Balustrade* will appear.

Balustrades

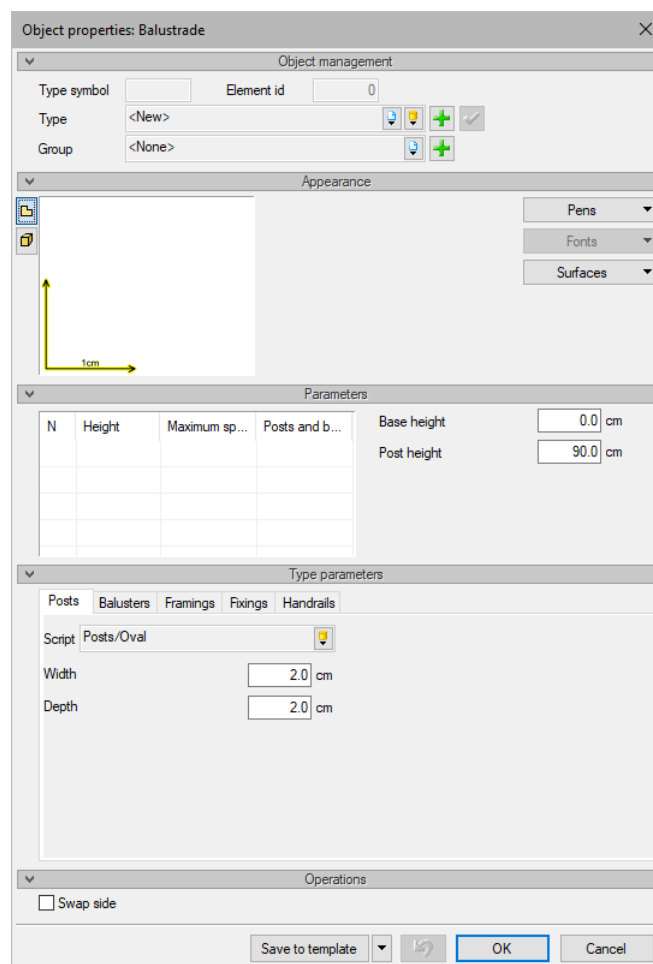


Fig. 315. Railing properties window

When inserting the railing, we do not have all of its parameters available, a part will be available only after inserting the railing to the projection. The following parameters are available:

Object management

A panel that allows to save the element type to the *Project library* or *Global library* or finding in the library a previously saved element and using it in the current document. Additionally, you can select or indicate the group, to which the given element will belong.

Appearance

Panel in which pens and surfaces are defined. After inserting the railing, the information about posts and fillings will be available on the left part of the panel.

Parameters

Base height – the height of the railing relative to zero level (this value is given for the first post and from it the **Height** values are given in the table on the left, of course only after inserting the railing).

Balustrades

Post height – post height, on them sits the handrail and in the height of the posts the filling together with the framing must fit.

Type parameters

In this part of the window you can define individual elements of the railing, their appearance and parameters. The railing is divided into 5 main parts: **Posts**, **Balusters**, **Framings**, **Fixings** and **Handrails**, placed on separate tabs. Each tab is divided into two parts, the left one, in which there are variable parameters depending on the chosen script and the right one which manages the position of the element. The data on the right of the tabs are saved, the scripts and their data after selecting from the list, always return to the original setting. Some of the tabs, e.g. **Posts** have only script data, and the right side of the tab is empty.

NOTE: Turning off individual railing elements is done by selecting an empty element from the script list. For example, to turn off the posts you have to select the **Empty posts** script. If there should be no Filling between the posts, you select **Empty filling** script.

Options available for scripts of individual posts:

Depth – for posts: oval, rectangular and rectangular with round decor – post size calculated along the railing.

Width – for posts: oval, rectangular and rectangular with round decor – post size calculated across the railing.

Rounding radius – for posts: rectangular – possibility of rounding edges.

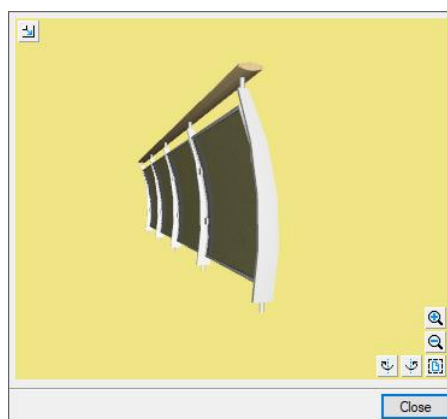


Fig. 316. Profiled post

Arch advancement – extending the profile beyond the post axis.

Lower width – width of the post profile in its lower edge.

Central width – width of the post profile in its middle part.

Upper width – width of the post profile in its upper part.

Thickness – post size calculated across the railing.

Balustrades

Height of the lower fixing – height at which the post profile starts, i.e. height of the round fixture.

Height of the upper fixing – the height at which the post ends, i.e. height of the upper round in the post cross-section.

Base distance – horizontal distance between the post axis and the lower fixation axis.



Fig. 317. Decorative round posts.

Diameter – diameter of the main post.

Widened diameter – diameter of the decor, the post widening.

Center height – height of the decor position calculated from the post bottom to the decor center.

Balustrades

Height of decor – height of the entire decorative element.

Decor ball diameter – in the posts in which there is a ball element in the decor, you can indicate separately the diameter for it.

Height of upper decor – for the posts that have a double or asymmetrical decor, you can separately indicate heights for a given decor part.

Height of lower decor – for the posts that have a double or asymmetrical decor, you can separately indicate heights for a given decor part.

Width – in the square posts with decoration, it is both the width and the depth of the profile, because in this case the posts have their basic cross-section square.

Balusters

Space from framing top – distance of the space from the framing calculated from the framing axis.

Space from framing bottom – distance of the filling from the framing calculated from the framing axis.

Space from framing edges – distance of the filling from the framing calculated from the framing axis to the first post axis.

Options available for individual Balusters scripts:

Filling scripts are divided into those that match the profiled posts and they are in the *Matching to posts* catalog and the other scripts that will match all remaining posts. Parameters for these fillings work similarly in the straight and profiled posts.

Cross-section width – the cross-section thickness of the main filling elements calculated across the railing.

Cross-section height – cross-section height of the main filling elements.

Cross-section fillet radius – the possibility of rounding the edge.

Amount of arches – number of decorative filling elements.

Ridge height – the size of the arcs` curvature shown as a percentage.

Spacing (in axes) – spacing of the filling elements, e.g. in the filling *Grid (at angle)*.

Offset – offset of the beginning of the filling.

Angle – angle of the inserted filling elements, e.g. in the filling *Grid (at angle)*.

Decor cross-section width – the cross-section thickness of the decorative filling elements calculated across the railing.

Decor cross-section height – the cross-section height of the decorative filling elements.

Balustrades

Maximum spacing – the maximum distance between the filling posts counted in axes. The program checks by itself the filling length and inserts the posts at equal interval between each other, not exceeding the given value.

Decor level – the height of the decorative element center counted from the post bottom or from the bottom and the top in the fillings, alternately.

Every which post – choice, on every which post the decorative element should be placed.

Diameter – diameter of the main filling elements.

Thickness – width of the filling panel.

Offset – offset of the rectangular filling decors in scripts. Rectangles, two or three frames.

Framings

Space from rail top – distance between the framing axis and the handrail axis.

Space from bottom – distance counted from the posts bottom to the framing axis.

Space from post axis – distance from the post axis to the framing axis.

Options available for individual scripts of Framings:

Width – value calculated across the railing.

Height – Height of the framing.

Rounding radius – possibility of rounding the framing edge.

Fixing

Number of upper fixing – the numer of fixtures between the handrail and the framing.

Number of lower fixing – number of fixtures inserted from the railing lower edge to the framing.

Number of vertical fixing – number of side fixtures fixed between the post and the framing.

Horizontal fixing spacing – distance between the axes of lower and upper fixations.

Vertical fixing spacing – distance between the axes of side fixations.

Horizontal fixing offset (from axis) – shift of fixations from the segment axis.

Vertical fixing offset (from axis) – shift of fixations in relation to the vertical center of the framing.

Options available for individual Fixings scripts:

Height/width – height of the side rectangular fixtures and width of the lower and upper fixtures.

Vertical length – length of the side rectangular fixtures.

Balustrades

Upper length – length of the upper rectangular fixture, i.e. the element going from the handrail to the framing.

Lower length – length of lower rectangular fixtures.

Clamping ring thickness – thickness of the rectangular fixing element.

Mill depth – the depth at which the filling goes onto the rectangular fixation.

Diameter – embracing filling diameter in the circular fixture.

Length – embracing filling length in the circular fixture.

Clamping ring diameter – diameter of the filling handle in the circular fixture.

Clamping ring thickness – handle thickness to mill filling.

Mill depth – depth to which the filling enters the fixture.

Options available for individual Handrail scripts:

Width – value calculated across the railing.

Height – handrail height.

Initial extension – handrail lengthening before the first post (value calculated from the post axis).

Final extension – handrail lengthening behind the last post (value calculated from the post axis).

Rounding radius – the possibility of the handrail edge rounding.

Horizontal offset (from axis) – horizontal position of the second handrail, the value is given from axis to axis.

Vertical offset (from axis) – vertical position of the second handrail, the value is given from axis to axis.

Railing offset (from axis) – distance between the second and third handrail.

NOTE: if any of the railing elements is to be turned off, then in the script list we should find the following: **Without posts, Without balusters, Without framing, Without fixings or Without handrail.**

Operations

Swap side – swaps the direction of the elements relative to the balustrade. This option is useful, e.g. while filling in with the alternating scripts, so that the filling posts are positioned symmetrically on both sides of the stairs.

Save to template – saves pen settings, selected style and other parameters of the element to the template.

Balustrades

After confirming the settings, you can proceed with drawing the railing by indicating or specifying the coordinates of its subsequent sections (turns). In the indicated sections, the program will insert posts with spacing similar to the entered one, we should remember that the program will adjust the post insertion, so that their division is even in a given section.



Fig. 318. An example of a railing insertion on a terrace

After insertion, in the properties window, options will be made available e.g for switching off individual posts or fillings. More information can be found in the chapter [Railing modifications](#).

12.2. Railing on the stairs

The option allows for inserting a railing on the selected stairs. The option is available directly from *the Architecture* ribbon and edit window for each stairs type, after selecting them.

Activation:

- *Architecture* ribbon ⇒ logical group *Building* ⇒  *Balustrade on the stairs*
- *ArCADia-ARCHITECTURE* toolbar ⇒  *Insert balustrade to stairs*

After executing the command, you should select the stairs on which the railing is to be inserted and confirm the selection with the right mouse button or [Enter](#).

Balustrades

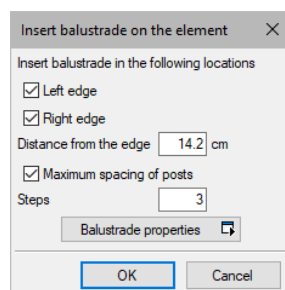


Fig. 319. Railing insertion window

Left/Right edge – marking at which edge the railing is to be inserted.

Distance from the edge – distance of the railing axis from the stairs edge. A positive value inserts a railing on the flight of the stairs, the negative extends it beyond.

Balustrade properties – access to the railing properties window, which is described in the *Balustrades* chapter .

After entering the data in the above window, and possibly in the properties, after clicking *OK* the railing will be inserted.

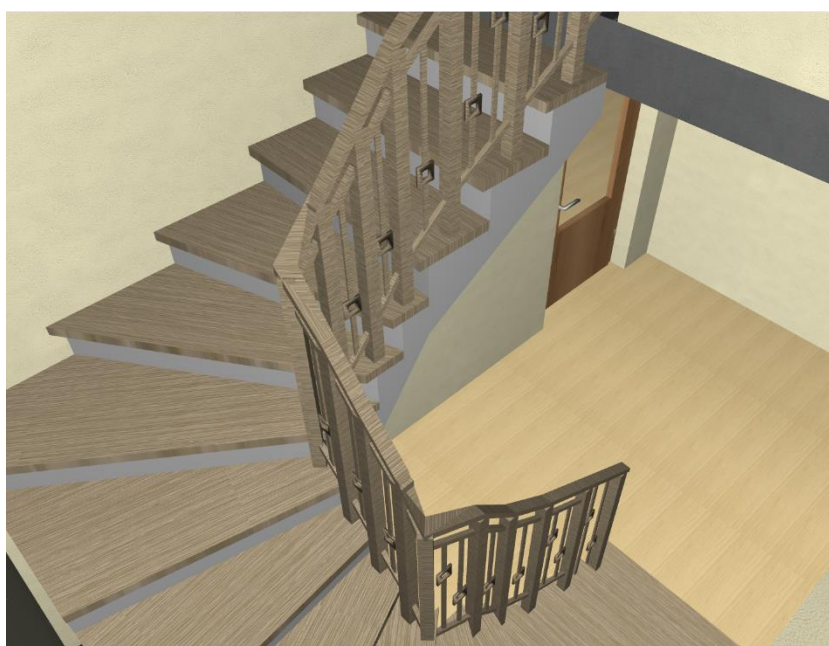


Fig. 320. A sample railing on the stairs

In the properties window of the inserted railing you can for example, turn off specific posts, but their overall spacing will remember the center of the step depth.

Balustrades

12.3. Railing modifications

The inserted railing regardless of whether inserted on the stairs or floor level can be copied, mirrored, shifted or deleted. With these listed modification operations, the railing is copied with all settings, scripts of individual elements, heights and post position, it means that the shifted or copied railing from the stairs will not adjust automatically to other stairs or e.g terrace.

In addition to the abovementioned modification options, we have in the insertion window:

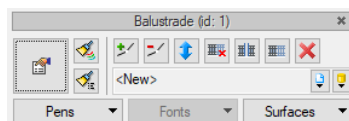
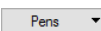
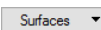


Fig. 321. Stairs and ramp edit window

Tab. 34 Balustrade modification tools

	<i>Go to Properties dialog box</i>	Opens <i>Properties</i> dialogue box.
	<i>Font and pen painter</i>	Copies pens settings (line thickness and type) and type of the defined description font.
	<i>Type painter</i>	Takes over the railing type and moves it to the selected railing
	<i>Add point</i>	Adds a point (which can be another corner) on the railing outline that allows for modifying its shape.
	<i>Remove point</i>	Removes the indicated corner of the railing.
	<i>Swap side</i>	Changes the filling side. This option is useful e.g while filling in with the alternating scripts so that the filling posts would be symmetrically positioned on both sides of the stairs.
	<i>Remove balustrade segment</i>	Removes the railing segment, i.e one of the sections of the inserted railing.
	<i>Divide the balustrade</i>	Divides the railing at the indicated point.
	<i>Lengthen/shorten the balustrade</i>	Changes the length of selected railing without changing its angle in the Z axis.
	<i>Delete marked objects</i>	Removes the selection.
	<i>Type</i>	Save set of features common for many objects of the same type (elements template defined by the user).
	<i>Project library</i>	Compliant with the selected template and created together with the development of the drawing while new types are saved.
	<i>Global library</i>	Type library is provided with the software and extended by <i>User library</i> where the user can save and store element types created by him for use in future projects.

Balustrades

	<i>Pens</i>	Definition of the type of the line used to draw the inserted element.
	<i>Surfaces</i>	Assigning materials or textures to the particular surfaces of the inserted element.

Railings, like the stairs, before insertion do not have all property options available.

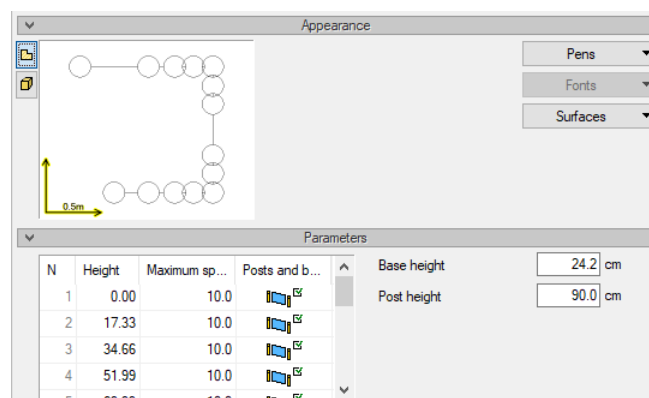



Fig. 322. Options available only after inserting the railing, on the example of a winding stairs railing.

In the *Appearance* panel, a 2D preview of the inserted railing is available, which considerably simplifies using the table in the *Parameters* panel. The principle is similar to the roof properties window and its modifications. Marking a segment on the preview selects the appropriate row in the table.

Parameters

Node – main posts forming a railing. With horizontal railings, these posts are usually inserted at the railing turns. On the stairs, the main posts are inserted at the beginning and end of the step flight, in case of winder stairs, these posts are inserted on each step.

Height – position of the main posts in relation to the first one. Its position is given on the right in the *Base Height*.

Maximum spacing of posts – distance between the posts, which will not be exceeded. It depends on the segment length and its division into equal parts. On the railing on the stairs it may not be easy to change because the program blocks the post position on the steps. You can „rip the post off“ the step by clicking the first icon  in the *Posts and Balusters* column and selecting the *Use saved information about steps* Option.

Posts and Balusters – this column enables switching off the individual posts or fillings.

Balustrades

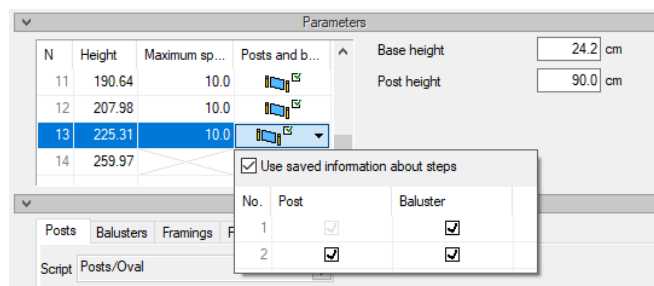


Fig. 323. Additional options for switching on and off the posts and fillings

Ceilings

13. CEILINGS

Ceilings

13.1. Ceiling

The level can accommodate several ceilings located at different heights. However, they cannot overlap one each other.

13.1.1. Insert ceiling automatically

In order to close the level, you can automatically insert a floor slab into the level Layout. This function draws a floor slab on the outer outline of the specified level Layout. By default the floor slab is inserted at the closure of the level, i.e. above it. The upper edge of the floor slab is taken from *Object properties: Level* dialogue box and entered as the foundation height of the inserted element (its upper edge).

To insert a floor slab, click on *Ceiling automatically* command available on the toolbar.

Activation:

ArCADia and ArCADia PLUS

- *Architecture* ribbon \Rightarrow logical group *Building* \Rightarrow *Ceiling automatically*
- *ArCADia-ARCHITECTURE* toolbar \Rightarrow *Insert ceiling automatically*

ArCADia LT

- *Ceiling* ribbon \Rightarrow logical group *Monolithic* \Rightarrow *Ceiling automatically*

When you select *Go to Properties dialog box* option from Insert window, the following dialogue box appears: *Object properties: Ceiling*.

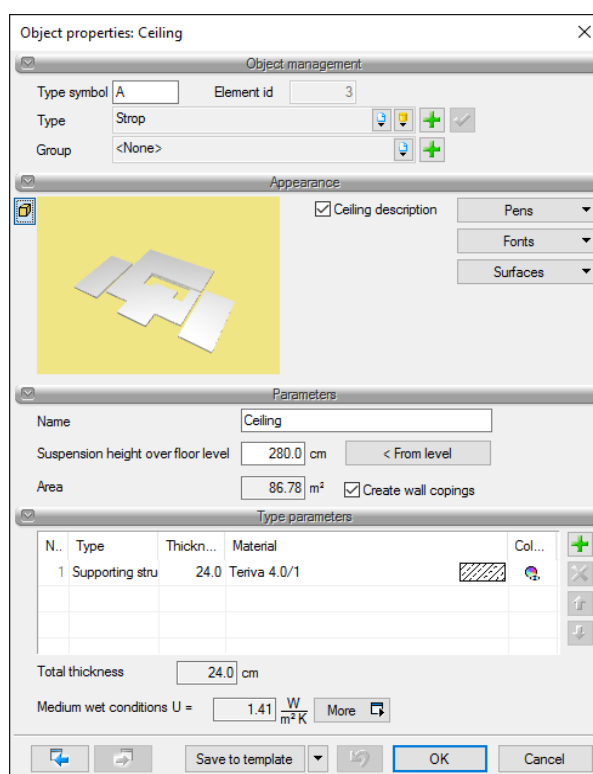


Fig. 324. Ceiling properties window

Ceilings

When you insert floor slab, you can define the following parameters:

Name – name for the ceiling, for faster finding of the ceiling on the projection, now, you can differentiate between them, by setting other names.

Suspension height over floor level — height at which the floor slab will be inserted. This value is by default taken from the floor height and determines the upper edge of the floor slab.

From the level – height of placing the ceiling taken from height of the given storey. After changing the height of ceiling suspending, the value is saved, which means that another ceiling will be introduced on the saved height. If you need the upper edge of the storey again, it is enough to press the button one you do not have to remember the height of all storeys.

Area – ceiling height loaded from the model calculated without rims.

Create a wall copings – in the *Load-carrying structure* layer of the walls, a rim is inserted whose data may be changed on the section.

The material available from the most commonly used materials, divided into groups: Hollow core roof slab DKZ, Reinforced concrete roof slab, Prestressed ceiling, Composite ceiling ZPS, Wooden floors, Monolithic floors, Monolithic-prefabricated floors, Steel beam floor, Prefabricated floors, Steel beam monolithic reinforced concrete floors.

Since version 4.0, *Heat-transfer coefficient* is calculated for the floors. By default, the value of the coefficient calculated for the internal walls and medium-humidity conditions is displayed. The other values are shown in *Heat-transfer coefficient* dialogue box.

Save to template — saves pen settings, selected style and other parameters of the element to the template.

Press *OK* button to switch to the drawing mode, in which you can automatically insert level by selecting any point within the floor plan. The Application will outline the outer contour which should be accepted by click.

Ceilings

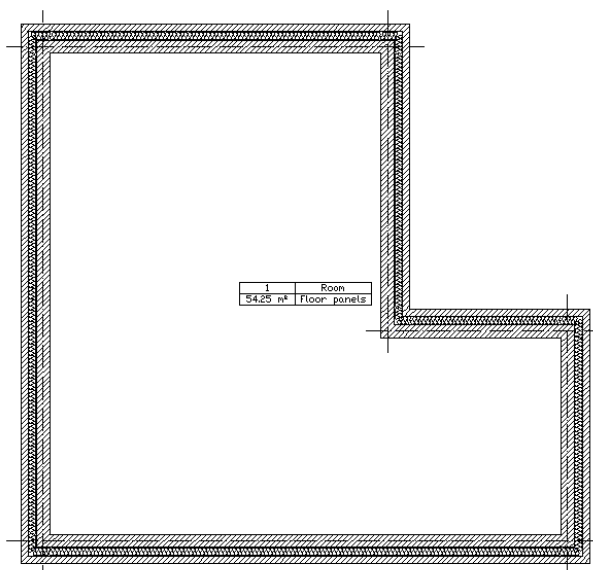


Fig. 325. Automatic ceiling insertion

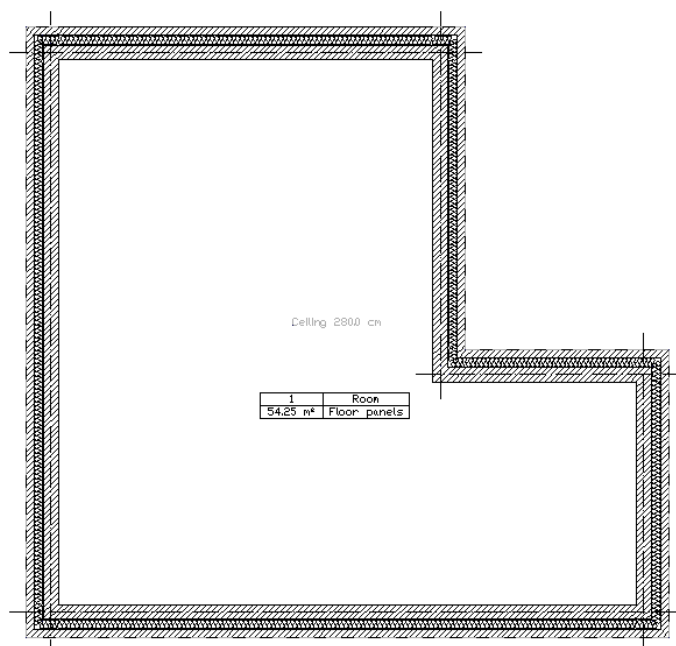


Fig. 326. Ceiling inserted on a projection of a level

To facilitate the selection of the floor slab, a description is inserted in the middle of the floor, which can be switched off in *Object properties: Ceiling* dialogue box.

13.1.2. Inserting floor slab of any type



In case you need to define a floor plan of any type, which does not coincide fully with the outline of the walls, you can insert a floor slab of any type by selecting its consecutive corners.

To insert a floor slab, click on *Ceiling* command.


Ceilings

Activation:

ArCADia and ArCADia PLUS

- *Architecture* ribbon ⇒ logical group *Building* ⇒  *Ceiling*
- *ArCADia-ARCHITECTURE* toolbar ⇒  *Insert ceiling*

ArCADia LT

- *Ceiling* ribbon ⇒ logical group *Monolithic* ⇒  *Ceiling*

When you select *Go to Properties dialog box* option from Insert window, the following dialogue box appears: *Object properties: Floor slab* which is described in *Automatic insertion of ceiling* section.



When you specify the foundation height and type of the floor slab, the level Layout is inserted according to the selected corners. After you have the shape defined, the floor slab is marked, by default, with a dashed line located on the outer edge of the level Layout. The description with an indication of the foundation height is inserted in the middle of the floor slab in order to facilitate the selection of the element to be edited.

13.1.3. Insert floor slab with rectangle tool

To quickly insert a rectangular outline of the floor slab, use *Ceiling with rectangle* command.

Activation:

ArCADia and ArCADia PLUS

- *Architecture* ribbon ⇒ logical group *Building* ⇒  *Ceiling with rectangle*
- *ArCADia-ARCHITECTURE* toolbar ⇒  *Insert ceiling with rectangle*

ArCADia LT

- *Ceiling* ribbon ⇒ logical group *Monolithic* ⇒  *Ceiling with rectangle*

Before inserting the floor slab, you can define the material and level of suspension of the floor slab in *Object properties: Ceiling* dialogue box. After accepting the data, the floor slab is inserted by selecting three points. The first two specify the length of one side of the floor slab, while the next one, its width. The insertion of rectangular outline by selecting three points allows you to draw this outline at any angle.

Ceilings

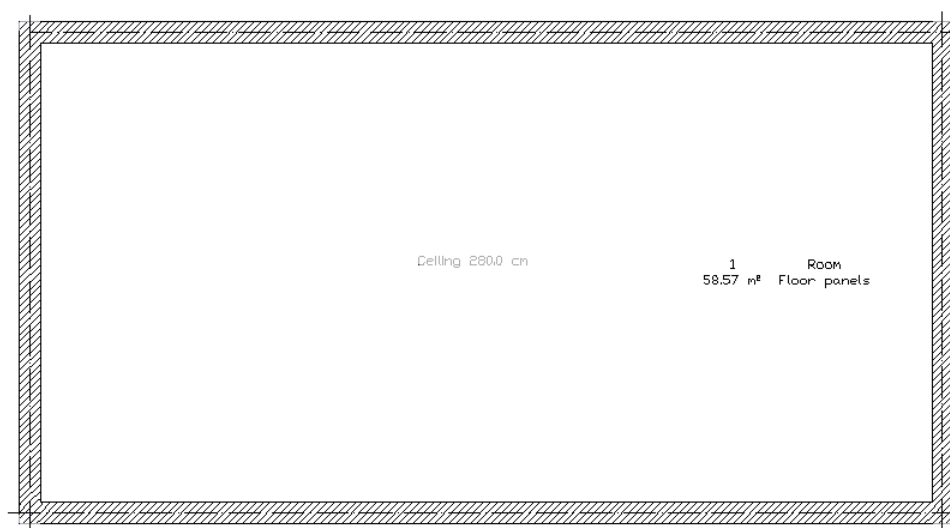


Fig. 327. Example of the rectangular contour of the ceiling

The example of a rectangular outline of the floor slab.



13.1.4. Floor on ground

For the enclosed rooms of the floor plan, you can insert a floor on the ground. It is inserted at the bottom line of the level and have "upper" finishing layers which are inserted above the level line and "lower" ones which are inserted below. This division gives you the possibility of withdrawing from inserting the level below and defining at this level the floor slab, which was replacing the floor on the ground.

Ground floor option can be activated in two ways, from the toolbar or from the taskbar of the selected room. The first method introduces the floor for the entire level, in all its rooms, while the second one only in selected rooms.

Activation:

ArCADia and ArCADia PLUS

- *Architecture* ribbon ⇒ logical group *Building* ⇒  *Ground floor*
- *ArCADia-ARCHITECTURE* toolbar ⇒  *Insert ground floor*

ArCADia LT

- *Ceiling* ribbon ⇒ logical group *Monolithic* ⇒  *Ground floor*

After choosing *Ground floor* option from the toolbar, it is inserted under the level. No message appears nor dialogue box is displayed. To define the parameters of the floor, select one or several rooms and specify respective layers in *Properties* dialogue box.

Ceilings

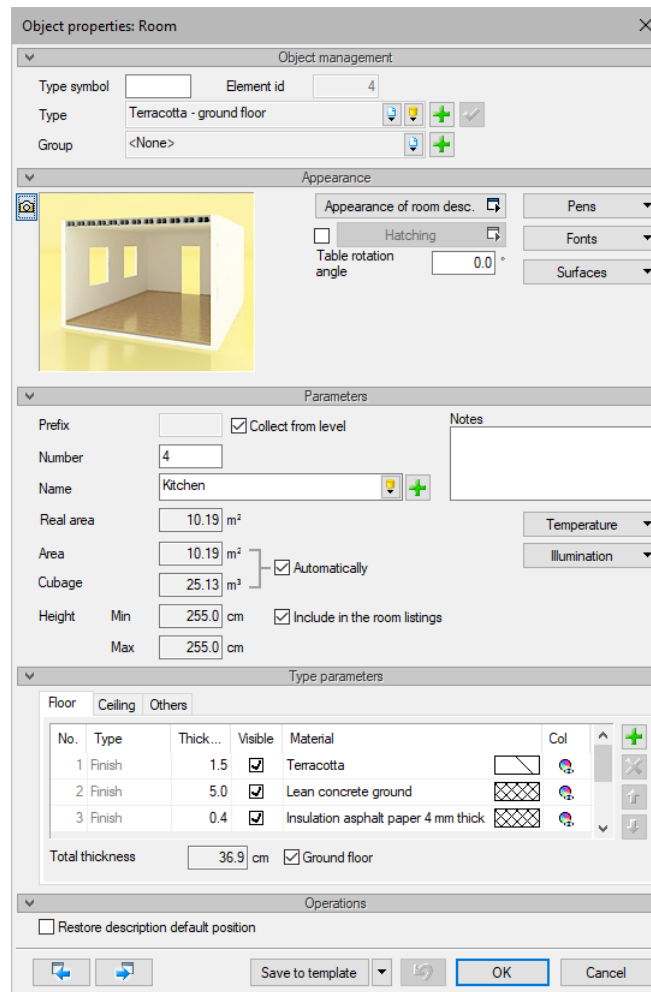


Fig. 328. Room properties window with visible floors floor layers on the ground

The *Floor* tab of the *Type parameters* panel corresponds now (if *Ground floor* box is selected) to the parameters of the floor on the ground.

The layers are inserted analogously to the layers in the wall, floor slab, floor and ceiling. The only difference is that all the layers located below *Bottom boundary of level* text will be structural layers located below the floor slab. The finishing layers inserted between the walls of the room will be located above *Bottom boundary of level*.

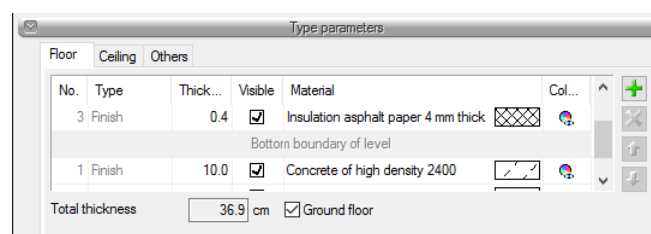


Fig. 329. Floor layers division line

Ceilings

If it is necessary to move the floor on the ground above or below the edge of the level (e.g. due to lowering of the part of the building), then the floor on the ground can be accordingly adjusted by moving respectively the layers above or below the *Bottom boundary of level*.

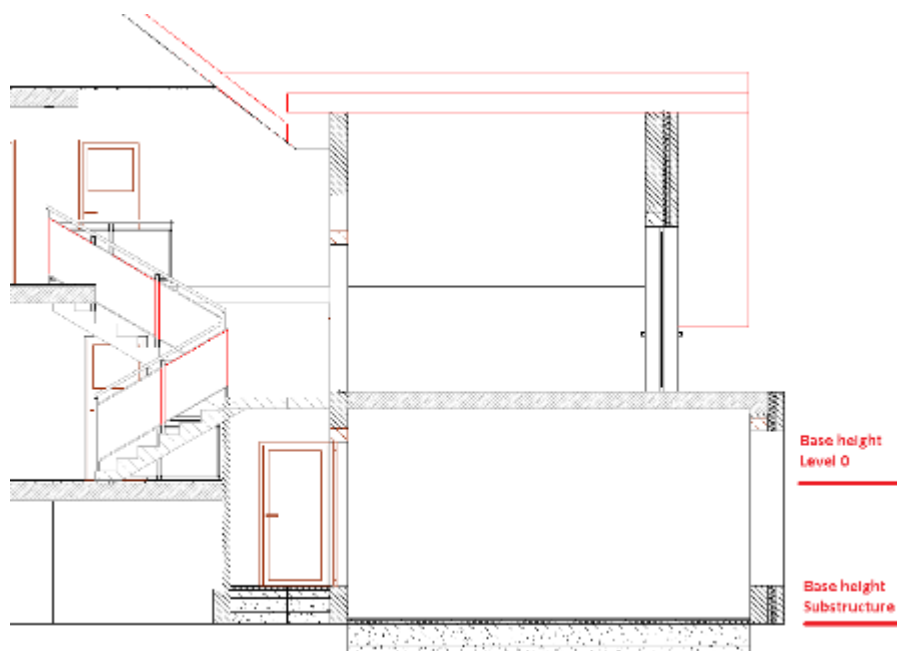


Fig. 330. Default floor inserted on ground

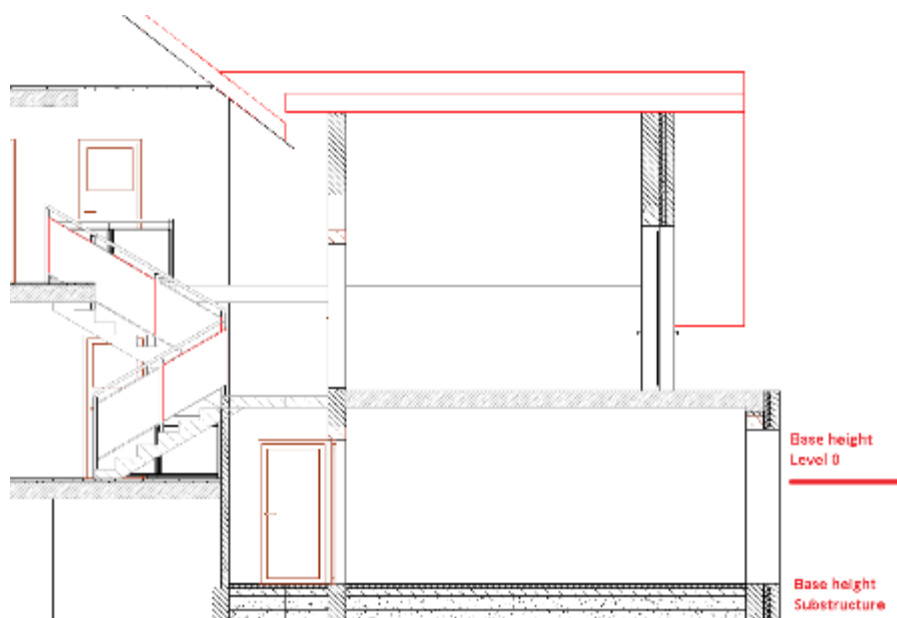


Fig. 331. Floor modified by inserting layers over the lower edge of the substructures level

Ceilings

13.1.5. Editing ceiling

Each inserted ceiling can be further modified, regardless of whether it was inserted automatically or by selecting consecutive corners. In addition to the standard modification options, such as: copy, move, delete, the following options are still available:

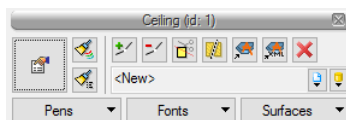







Fig. 332. Ceilings editing window

Tab. 35 Ceiling modification tools


	<i>Go to Properties dialog box</i>	Opens <i>Properties</i> dialogue box.
	<i>Font and pen painter</i>	Takes over the type of the floor slab and transfer it to the selected slabs.
	<i>Type painter</i>	Takes over the chimney type (its size and type) and transfer them to the selected chimney.
	<i>Add point</i>	Adds a point (corner) on the outline of the floor slab allowing to modify the layout.
	<i>Remove point</i>	Removes selected corner of the floor slab.
	<i>Cancel element trim to roof</i>	Cuts wall and columns to fit the inserted ceiling (layer types must be defined for walls).
	<i>Divide ceiling by line</i>	Divides the ceiling into two parts through the cut line given.
	<i>Export to ArCADia-REINFORCED CONCRETE SLAB</i>	Opens <i>New project</i> in ArCADia-REINFORCED CONCRETE SLAB module allowing for inserting a reinforcement in a selected ceiling. The option is available when the user has a license for ArCADia-REINFORCED CONCRETE SLAB module.
	<i>Export to ArCADia-REINFORCED CONCRETE SLAB through XML file</i>	Saves the project of the ceiling, which can be opened in ArCADia-REINFORCED CONCRETE SLAB module. The option is available when the user has a license for ArCADia-REINFORCED CONCRETE SLAB module.
	<i>Type</i>	Save set of features common for many objects of the same type (elements template defined by the user).
	<i>Document library</i>	Compliant with the selected template and created together with the development of the drawing while new types are saved.

Ceilings

	<i>Global library</i>	Type library is provided with the software and extended by <i>User library</i> where the user can save and store element types created by him for use in future projects.
	<i>Delete marked objects</i>	Removes the selected object.
	<i>Pens</i>	The line type definition used to draw the element being inserted.
	<i>Fonts</i>	Definition of the size and type of the font that describes the element.
	<i>Surfaces</i>	Assigning materials or textures to selected areas of the element being inserted.

Since version 3.9, *Use as template* option which copies selected element data in order to paste it as the settings of the next element being inserted has been introduced into the Application. This option was available on the taskbar as an option, now it is permanently activated and it is not visible on this toolbar any more.

The above options of solid modification are available when the solid is selected.

To add a corner on the outline of the floor slab, select  *Add point* option and specify its location. The Application has no limitation on quantity of the points inserted both on one of the sides and on the outline. In case of using *Remove point* option, the procedure is similar, i.e. changes the layout by removing the specified corner.

The partition of the floor slab occurs by determining the dividing line. The line does not have to pass completely through the floor slab, you just have to specify its direction.

13.1.6. Editing floor on ground

Editing of the floor on the ground takes place in *Object properties: Room* dialogue box.



13.2. Opening in ceiling

13.2.1. Inserting ceiling opening

It is possible to insert any type of opening into the ceiling in the project. Its shape is defined by selecting subsequent corners.

Activation:

ArCADia and ArCADia PLUS

- *Architecture* ribbon ⇒ logical group *Building* ⇒  *Ceiling opening*
- *ArCADia-ARCHITECTURE* toolbar ⇒  *Insert opening in ceiling*

Ceilings

ArCADia LT

- *Ceiling* ribbon ⇒ logical group *Monolithic* ⇒  *Ceiling opening*

When you select *Go to Properties dialog box* option from Insert window, the following dialogue box appears: *Object properties: Stairs ceiling opening*.

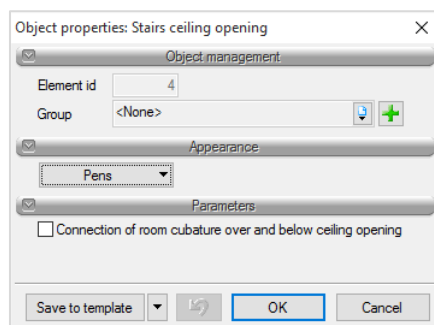


Fig. 333. Opening in a ceiling properties window

13.2.2. Editing floor slab opening

The opening inserted in the floor slab can be modified by changing the location of the corners, adding and removing the corners and standard modification options, such as: copy, move, delete. Additionally the following options are available:

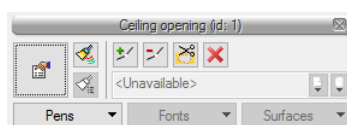









Fig. 334. Opening in a ceiling editing window

Tab. 36 Opening in a ceiling modification tools

	<i>Go to Properties dialog box</i>	Opens <i>Properties</i> dialogue box.
	<i>Font and pen painter</i>	Takes over the settings of pens (thickness and type of the line), as well as the size and type of font.
	<i>Add point</i>	Adds a point (corner) on the outline of the ceiling allowing to modify the layout.
	<i>Remove point</i>	Removes selected corner of the ceiling.
	<i>Cut ceiling with opening</i>	Changes the shape of the floor slab by modifying its contour through the opening adjacent to the edge.
	<i>Delete marked objects</i>	Removes the marked object.
	<i>Pens</i>	The line type definition used to draw the element being inserted.

Ceilings

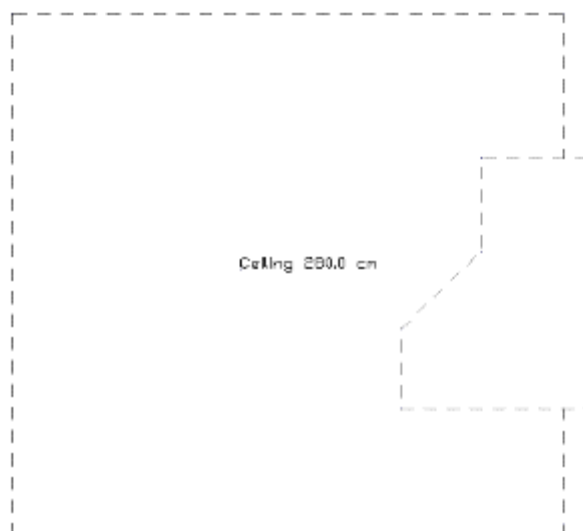



Fig. 335. Ceiling with an opening moved partially outside of the ceiling contour

If in the above case, where the inserted opening extends beyond its contour, it is necessary to modify the floor slab shape on the floor plan, so that it looks like the following drawing, choose  *Trim floor slab* option from the taskbar after selecting the opening.

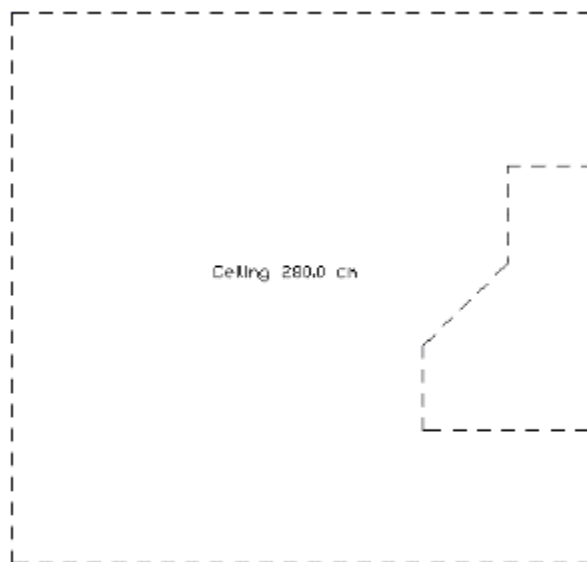


Fig. 336. Ceiling with a opening partially cut to the ceiling contour

Suspended ceiling

14. SUSPENDED CEILING

Suspended ceiling

The new version of the program introduces the *Suspended ceiling* option. It can be inserted automatically, that is, all ceiling elements will create one object, in which the layout for *Main beams* and *Cross beams* can be separately assigned. In this layout, the panels will be inserted, and the *Side panels* will be inserted on visible edges (edges not lying on the room walls). Automatically you can also insert a suspended ceiling which is a full board, e.g. of gypsum-board panel. For such ceilings it will not be possible to change the position of individual beams, but it is possible to separate elements of such a suspended ceiling or insert it with individual elements, then any layout and appearance is absolutely possible.

14.1. Automatic



A suspended ceiling, which will be one object, that can find a room (depending on the insertion option) can be inserted by one of the following options: *Suspended ceiling*, *Suspended rectangle ceiling*, *Suspended ceiling in room*. These options differ only in the insertion method.

14.1.1. Inserting a suspended ceiling

If the ceiling being suspended in a given room, will have completely different shape to the room, it can be inserted by indicating subsequent corners of the polygon that will shape it.

Activation:

ArCADia and ArCADia PLUS

- *Architecture* ribbon ⇒ logical group *Building* ⇒  *Suspended ceiling*
- *ArCADia-ARCHITECTURE* toolbar ⇒  *Insert suspended ceiling*

ArCADia LT

- *Ceiling* ribbon ⇒ logical group *Suspended ceiling* ⇒  *Suspended ceiling*

After selecting in the insertion window the *Go to Properties dialogue box*, the *Object properties: Suspended ceiling* window will appear:

Suspended ceiling

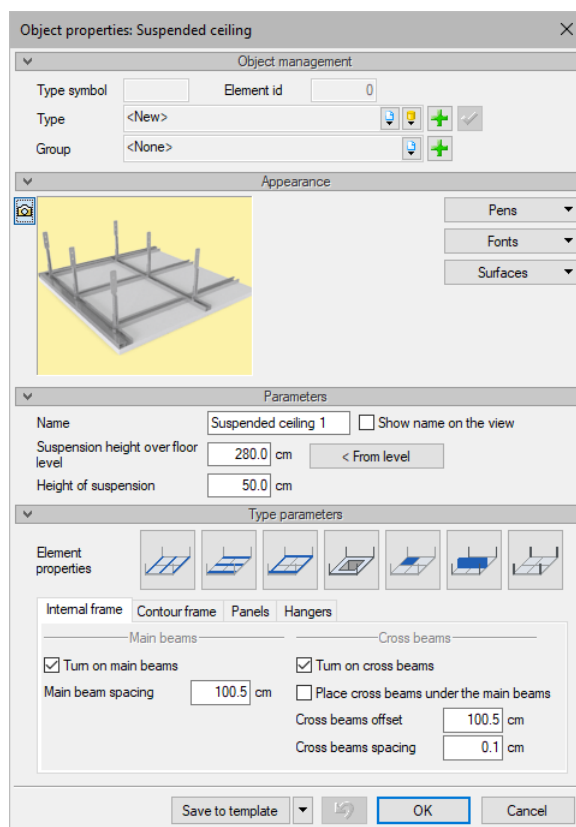


Fig. 337. Window of suspended ceiling

While inserting the ceiling, we can define the following parameters:

Object management

A panel allowing to save the element type to the *Project Library* or *Global Library*, or to find in the Library the previously saved element and use it in the current document. Additionally, you can choose or indicate the group to which the given element will belong.

Parameters


Name – the name for the object to be inserted, which is especially important, if we insert more than one ceiling into the project, by default the name is not visible on the projection. It will be shown after selecting the option *Show name on the view*.







Suspension height over floor level – usually it is the level height, but depending on the project it can be the distance between the suspended ceilings. This value will be the hangers height of a given ceiling. If we do not remember the defined level height, we can use the *<From level* button, and the value will be entered automatically.

Height of suspension – the level of the lower edge of the ceiling, the beams or panels (depending on which element is placed lower) counted to the given *Suspension height over the floor level*.

Type parameters

Suspended ceiling

Elements properties – access to the properties of individual components of the suspended ceiling: 

Main beams,  *Cross beams*,  *External frame*,  *Opening finishing*,  *Panels*,  *Side panels* and  *Hangers*.

Internal frame – this tab is responsible for the layout of the main and cross beams. In addition, you can define the cross beam position (over or in-between the main beams) and the cross beam spacing between the individual elements, the distance in which the main beams are located. The beam spacing is calculated in the element axes and the size of the suspended ceiling panels depends on it.

Contour frame – the possibility of inserting steel profiles on the ceiling edges, both those external and around possible openings.

Panels – the tab allows for inserting horizontal and vertical (side) panels. In addition, you can define the distance between panels or create a single board-panel ceiling.

Hangers – the tab for turning on and off the elements holding the ceiling from above. In addition, you can define the hanger layout position.

Save to template – saves pen settings, selected style and other parameters of the element to the template.

Below the individual parts properties window of the automatic suspended ceiling, where you can select the cross-section (for profile elements) and indicate the element appropriate size parameters.

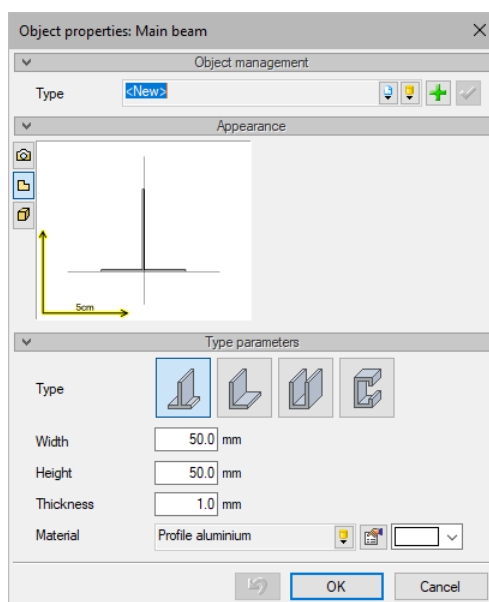


Fig. 338. The main beams property window

Suspended ceiling

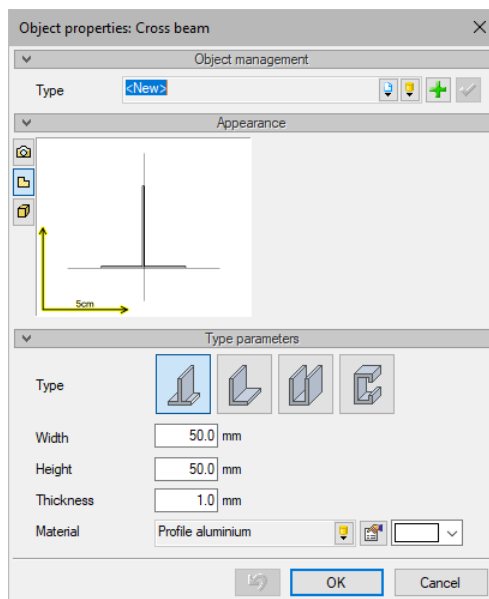


Fig. 339. The cross beam property window

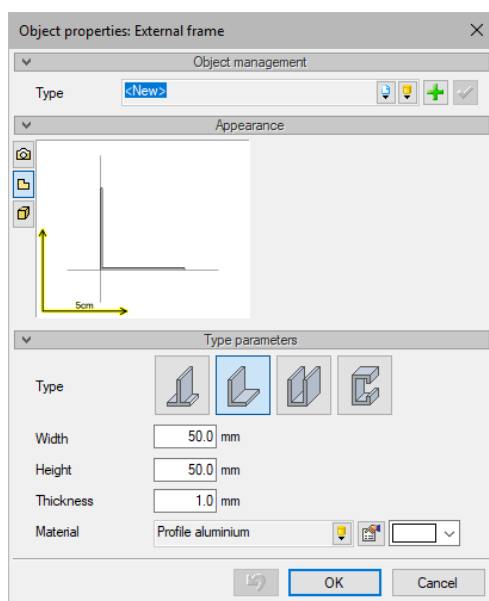


Fig. 340. The external frame property window

Suspended ceiling

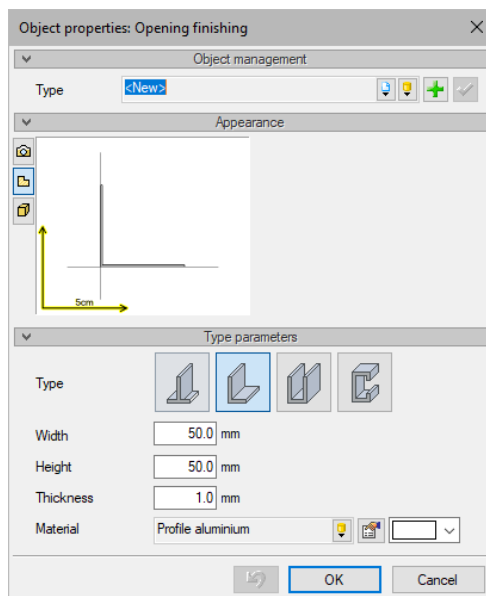


Fig. 341. Property window of the ceiling opening finishing

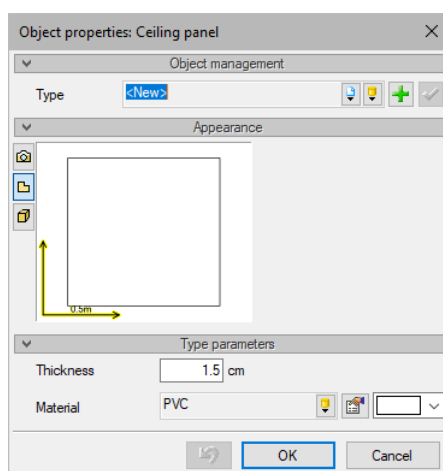


Fig. 342. The ceiling panel property window

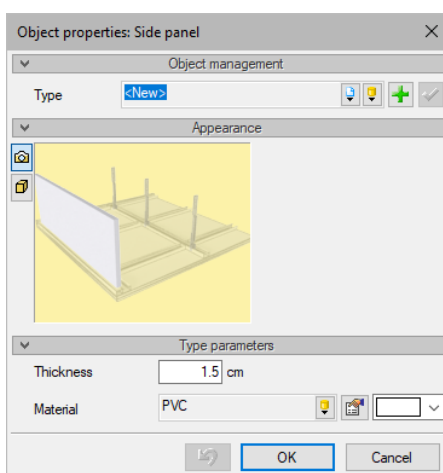


Fig. 343. The side panel property window

Suspended ceiling

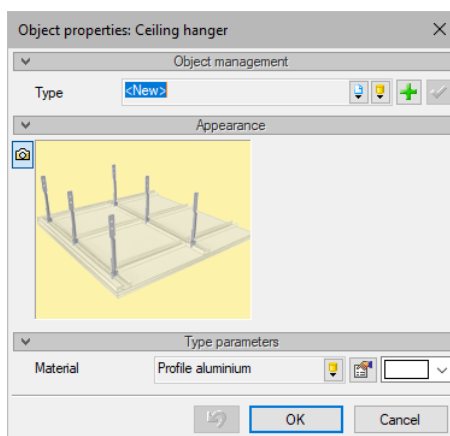


Fig. 344. The Ceiling hanger property window

Pressing the **OK** button allows for switching to the drawing mode, where the ceiling is inserted by indicating its subsequent corners. After drawing the outline and clicking the right mouse button to complete the insertion, the beginning of the rack mesh should be indicated, and in the next step, its angle.

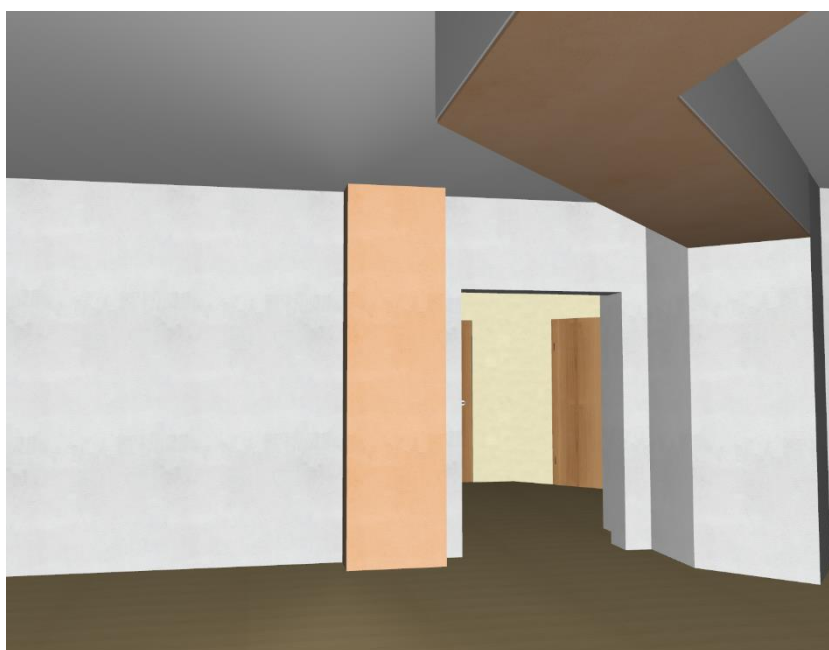


Fig. 345. A sample shape of suspended ceiling with selected Single board ceiling option

14.1.2. Insertion of suspended rectangle ceiling

If the suspended ceiling has a simpler shape than the one described in the previous chapter, you can use the *Suspended rectangle ceiling* option.

Activation:

ArCADia and ArCADia PLUS

- *Architecture* ribbon ⇒ logical group *Building* ⇒ *Suspended rectangle ceiling*
- *ArCADia-ARCHITECTURE* toolbar ⇒ *Insert suspended rectangle ceiling*

Suspended ceiling

ArCADia LT

- *Ceiling* ribbon ⇒ logical group *Suspended ceiling* ⇒  *Suspended rectangle ceiling*

After selecting in the insertion window *Go to Properties dialogue box*, the *Object properties: Suspended ceiling* window will appear, which is described in the chapter *Insertion of suspended ceiling*.

After defining the suspended ceiling parameters, it is inserted by three outline points i.e. the ceiling length and width. After assigning the shape, as in the case of the suspended ceiling, the beginning of the frame mesh and its angle should be indicated.




Fig. 346. An example of an inserted ceiling

14.1.3. Inserting the suspended ceiling in room

If the suspended ceiling is to take up the entire surface of the room, so the best option for inserting it will be *Suspended ceiling in room*.

Activation:

ArCADia and ArCADia PLUS

- *Architecture* ribbon ⇒ logical group *Building* ⇒  *Suspended ceiling in room*
- *ArCADia-ARCHITECTURE* toolbar ⇒  *Insert suspended ceiling in the room*

ArCADia LT

- *Ceiling* ribbon ⇒ logical group *Suspended ceiling* ⇒  *Suspended ceiling in room*

After selecting in the insertion window the *Go to Properties dialogue box*, the *Object properties: Suspended ceiling* window will appear, which is described in the chapter *Insertion of suspended ceiling*.

After defining the parameters, the ceiling is inserted by clicking in a given room, the program then outlines the shape for which the beginning of the frame mesh and its angle should be given.

Suspended ceiling



Fig. 347. A sample suspended ceiling

14.1.4. Edition of an automatic suspended ceiling

The ceiling inserted with options *Suspended ceiling*, *Suspended rectangle ceiling*, *Suspended ceiling in room* can be copied, shifted, rotated and mirror-copied. You can also modify the ceiling shape by moving the corner hangers. Then, the indicated beginning point of the frame mesh will remain at the originally set place. In addition, in the edit window there are options available only for the given selected ceiling.

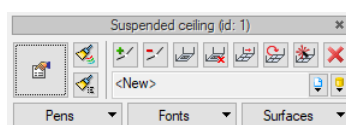











Fig. 348 The edit window of the suspended ceiling

Tab. 37 Tools for modifying the suspended ceiling

	<i>Go to Properties dialog box</i>	Opens <i>Properties</i> dialogue box.
	<i>Font and pen painter</i>	Takes over the type of the floor slab and transfer it to the selected slabs.
	<i>Type painter</i>	Takes over the chimney type (its size and type) and transfer them to the selected chimney.
	<i>Add point</i>	Adds a point (corner) on the outline of the ceiling allowing to modify the layout.
	<i>Remove point</i>	Removes selected corner of ceiling.
	<i>Insert opening</i>	Creates an opening in the ceiling with the shape indicated on the view by points.
	<i>Remove opening</i>	Removes the opening in the ceiling indicated on the view, completes the frame and panels accordingly.
	<i>Move frame</i>	Allows for shifting the beginning of the frame mesh to another place without moving the openings and outside edges.

Suspended ceiling

	<i>Rotate frame</i>	Changes the angle of the inserted frame in relation to the earlier indicated mesh beginning.
	<i>Split into elements</i>	Separates the automatically inserted ceiling into individual elements: main and cross beams, external framing and opening's finish, panels, side panels and hangers.
<New>	<i>Type</i>	Save set of features common for many objects of the same type (elements template defined by the user).
	<i>Document library</i>	Compliant with the selected template and created together with the development of the drawing while new types are saved.
	<i>Global library</i>	Type library is provided with the software and extended by <i>User library</i> where the user can save and store element types created by him for use in future projects.
	<i>Delete marked objects</i>	Removes the selected object.
	<i>Pens</i>	The line type definition used to draw the element being inserted.
	<i>Fonts</i>	Definition of the size and type of the font that describes the element.
	<i>Surfaces</i>	Assigning materials or textures to selected areas of the element being inserted.

To add a corner on the outline of the ceiling, select the  *Add point* option and specify its location on the outline of the element. The Application has no limitation on the quantity of points inserted both on one of the sides and on the outline. The added point can be shifted in the next step, just like the other hangers on the object outline. In case of using *Remove point* option, the procedure is similar, i.e. changes the layout by removing the specified corner. The automatically inserted ceiling can be separated into the elements, then each element can be edited separately.

14.2. Free shape



In addition to the options for inserting the suspended ceiling in a given frame layout, it is possible to insert the ceiling with any spacing between the profiles, with any number of levels indicated for individual elements and with any shape. By inserting subsequent elements, we have access to more parameters in the property windows, in comparison to the elements from the automatic ceiling.

14.2.1. Inserting the main beams

The main beams are the basic element of the suspended ceiling.

Activation:

ArCADia and ArCADia PLUS

- *Architecture* ribbon ⇒ logical group *Building* ⇒  *Main beam*
- *ArCADia-ARCHITECTURE* toolbar ⇒  *Insert the main beam*

Suspended ceiling

ArCADia LT

- *Ceiling* ribbon ⇒ logical group *Suspended ceiling* ⇒  *Main beam*

After selecting in the insertion window *the Go to Properties dialogue box*, *the Object properties: Main beam* window will appear:

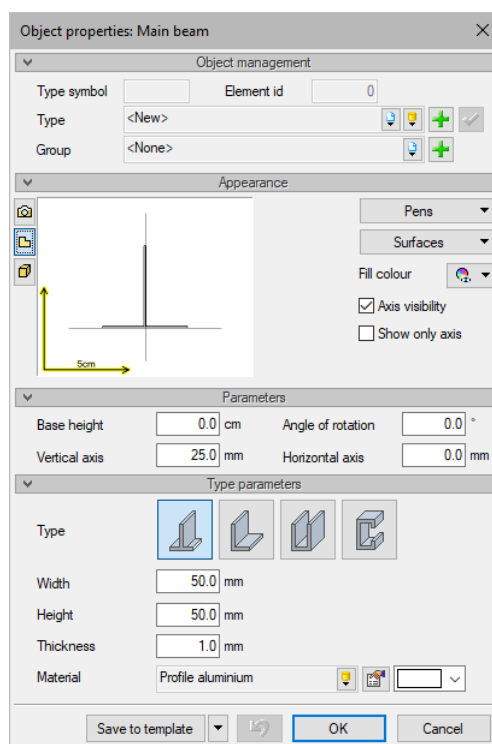


Fig. 349. Main beam property window

While inserting the main beam, it is possible to define the following parameters:

Object management

A panel allowing to save the element type to *the Project Library* or *Global Library*, or to find in the Library the previously saved element and use it in the current document. Additionally, you can choose or indicate the group to which the given element will belong.

Appearance

A panel in which the pens and element surfaces are defined, as well as the object appearance on the view. The beam can be inserted together with the axis or for the readability of the drawing only as an axis.

Parameters

Base height – height calculated from the zero level (i.e the upper edge of the raw ceiling) to the main beam horizontal axis, which is defined by default on the beam lower edge.

Suspended ceiling

Vertical axis – axis that enables to insert the element on the view and is visible only on the projection. By default, it is defined at the center of the element.

Angle of rotation – rotation angle of the beam cross-section.

Horizontal axis – axis that defines the position height of the inserted beam, and it is taken into account at the base height. By default, this axis is on the beams' lower edge and it is an axis that cannot be seen in any view.

Type parameters

The panel allows for selecting the beams' defined cross-sections and assigning the appropriate sizes to them.

Save to template — saves pen settings, selected style and other parameters of the element to the template.

Pressing the *OK* button allows for switching to the drawing mode, where the beam is inserted by it's beginning and end.

During drawing the following functions are accessible from Insert window, Report dialogue box or Command area:


- *Edge, Symmetry axis, Edge* – selection of the beam insertion line on the view.
- *Tracking axes* – this option detects points and edges of the inserted elements of suspended ceiling and sets vertical and horizontal axes from them against the screen or, in case it is e.g. a beam, displays the extension of such line.
- *Tracking angles* – this option selects the angles given in the window above, setting them from previously inserted elements of suspended ceiling, e.g. from the edges of the drawn beams.
- *Element and section detection* – this option detects edges, axis, corners, and points of the elements inserted to the project, making possible to precisely set the cursor on the drawn objects.
- *Element insertion options* – opens the window to set tracking and underlay.
- *Reference* — allows you to insert a beam at a given distance from the specified point.
- *Between points (centre)* — starts drawing a wall in the middle of a specified distance (distance is entered by selecting two points).
- *Between points (percentage)* — starts drawing a wall based on percentage division of the specified distance (distance is specified by selecting two points).
- *Parallel* — allows to insert an element parallel to the specified one.
- *Back* — Removes the last point indicated.
- *Cancel* — interrupts the function operation without inserting the suspended ceiling.

14.2.2. Inserting the cross beam

Cross beams are usually placed perpendicular to the main beams, in-between or below them, thus reinforcing the suspended ceiling construction.

Activation:

ArCADia and ArCADia PLUS

- *Architecture* ribbon ⇒ logical group *Building* ⇒  *Cross beam*

Suspended ceiling

- *ArCADia-ARCHITECTURE* toolbar ⇒  *Insert cross beam*

ArCADia LT

- *Ceiling* ribbon ⇒ logical group *Suspended ceiling* ⇒  *Cross beam*

After selecting in the insertion window *the Go to Properties dialogue box*, *the Object properties: Cross beam* window will appear:

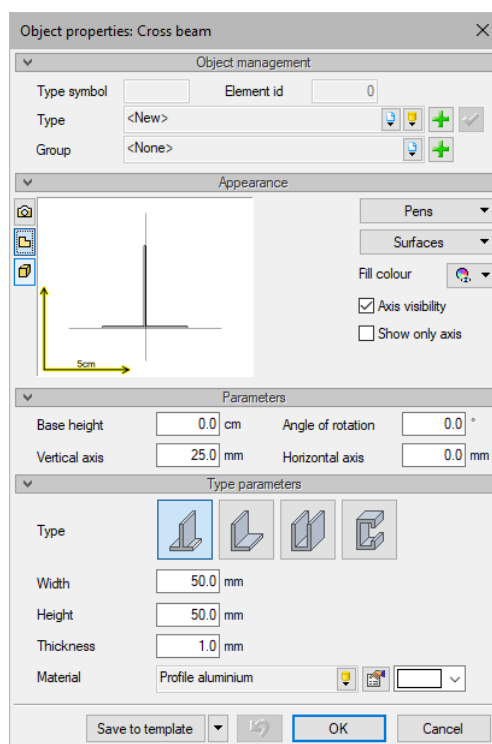


Fig. 350. Cross beam property window

While inserting the main beam, it is possible to define the following parameters:

Object management

A panel allowing to save the element type to *the Project Library* or *Global Library*, or to find in the Library the previously saved element and use it in the current document. Additionally, you can choose or indicate the group to which the given element will belong.

Appearance

A panel in which the pens and element surfaces are defined, as well as the object appearance on the view. The beam can be inserted together with the axis or for the readability of the drawing only as an axis.

Parameters

Base height – height calculated from the zero level (i.e the upper edge of the raw ceiling) to the cross beam horizontal axis, which is defined by default on the beam lower edge.

Suspended ceiling

Vertical axis – axis that enables to insert the element on the view and is visible only on the projection. By default, it is defined at the center of the element.

Angle of rotation – rotation angle of the beam cross-section.

Horizontal axis – axis that defines the position height of the inserted beam, and it is taken into account at the base height. By default, this axis is on the beams' lower edge and it is an axis that cannot be seen in any view.

Type parameters

The panel allows for selecting the beams' defined cross-sections and assigning the appropriate sizes to them.

Save to template — saves pen settings, selected style and other parameters of the element to the template

Pressing the *OK* button allows for switching to the drawing mode, in which subsequent ceiling hangers are inserted by indicating or providing the coordinates of the point.

During drawing the following functions are accessible from Insert window, Report dialogue box or Command area:

- *Edge, Symmetry axis, Edge* – selection of the beam insertion line on the view.
- *Tracking axes* – this option detects points and edges of the inserted elements of suspended ceiling and sets vertical and horizontal axes from them against the screen or, in case it is e.g. a beam, displays the extension of such line.
- *Tracking angles* – this option selects the angles given in the window above, setting them from previously inserted elements of suspended ceiling, e.g. from the edges of the drawn beams.
- *Element and section detection* – this option detects edges, axis, corners, and points of the elements inserted to the project, making possible to precisely set the cursor on the drawn objects.
- *Element insertion options* – opens the window to set tracking and underlay.
- *Reference* — allows you to insert a beam at a given distance from the specified point.
- *Between points (centre)* — starts drawing a wall in the middle of a specified distance (distance is entered by selecting two points).
- *Between points (percentage)* — starts drawing a wall based on percentage division of the specified distance (distance is specified by selecting two points).
- *Parallel* — allows to insert an element parallel to the specified one.
- *Back* — Removes the last point indicated.
- *Cancel* — interrupts the function operation without inserting the suspended ceiling.



14.2.3. Inserting the external frame

The External frame is inserted on the suspended ceiling outline. The option inserts the individual outline elements as separate profiles, even though it draws them one after the other, treating the end of the profile as the beginning of the next one. Completion of inserting is done by exiting the option.

Activation:

ArCADia and ArCADia PLUS

Suspended ceiling

- *Architecture* ribbon ⇒ logical group *Building* ⇒  *External frame*
- *ArCADia-ARCHITECTURE* toolbar ⇒  *Insert external frame*

ArCADia LT

- *Ceiling* ribbon ⇒ logical group *Suspended ceiling* ⇒  *External frame*

After selecting in the insertion window the *Go to Properties dialogue box*, the *Element properties: External frame* window will appear:

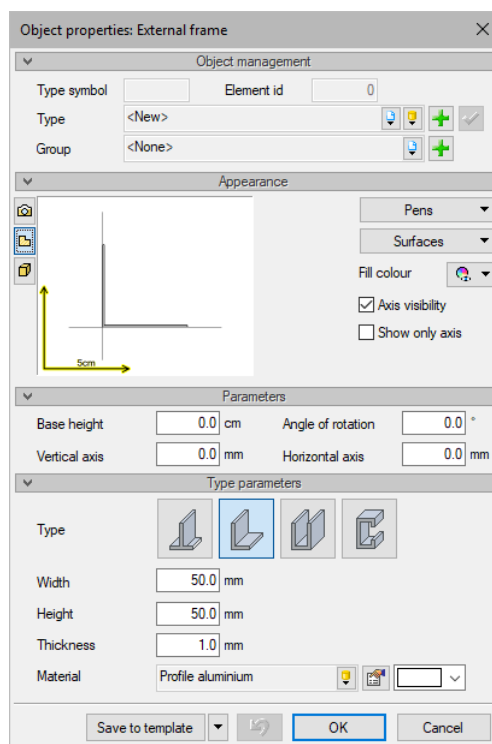


Fig. 351. The frame property window

While inserting the external frame, it is possible to define the following parameters:

Object management

A panel allowing to save the element type to the *Project Library* or *Global Library*, or to find in the Library the previously saved element and use it in the current document. Additionally, you can choose or indicate the group to which the given element will belong.

Appearance

A panel in which the pens and element surfaces are defined, as well as the object appearance on the view. The beam can be inserted together with the axis or for the readability of the drawing only as an axis.

Parameters

Suspended ceiling

Base height – height calculated from the zero level (i.e the upper edge of the raw ceiling) to the external frame horizontal axis, which is defined by default on the beam lower edge.

Vertical axis – axis that enables to insert the element on the view and is visible only on the projection. By default, it is defined at the center of the element.

Angle of rotation – rotation angle of the beam cross-section.

Horizontal axis – axis that defines the position height of the inserted beam, and it is taken into account at the base height. By default, this axis is on the beams' lower edge and it is an axis that cannot be seen in any view.

Type parameters

The panel allows for selecting the beams' defined cross-sections and assigning the appropriate sizes to them.

Save to template — saves pen settings, selected style and other parameters of the element to the template

Pressing the *OK* button allows for switching to the drawing mode, where by indicating the beginning and end of the element, it is inserted. At the same time by default, this elements' end is the beginning of the next one until you exit the option.

During drawing the following functions are accessible from Insert window, Report dialogue box or Command area:

- *Edge, Symmetry axis, Edge* – selection of the beam insertion line on the view.
- *Tracking axes* – this option detects points and edges of the inserted elements of suspended ceiling and sets vertical and horizontal axes from them against the screen or, in case it is e.g. a beam, displays the extension of such line.
- *Tracking angles* – this option selects the angles given in the window above, setting them from previously inserted elements of suspended ceiling, e.g. from the edges of the drawn beams.
- *Element and section detection* – this option detects edges, axis, corners, and points of the elements inserted to the project, making possible to precisely set the cursor on the drawn objects.
- *Element insertion options* – opens the window to set tracking and underlay.
- *Reference* — allows you to insert a beam at a given distance from the specified point.
- *Between points (centre)* — starts drawing a wall in the middle of a specified distance (distance is entered by selecting two points).
- *Between points (percentage)* — starts drawing a wall based on percentage division of the specified distance (distance is specified by selecting two points).
- *Parallel* — allows to insert an element parallel to the specified one.
- *Back* — Removes the last point indicated.
- *Cancel* — interrupts the function operation without inserting the suspended ceiling.



Suspended ceiling

14.2.4. Inserting the opening finishing.

The option similar to the external frame, inserted only as the opening finishing in the suspended ceiling. The opening finishing also inserts individual outline elements as separate profiles, although it draws them one after the other.

Activation:

ArCADia and ArCADia PLUS

- *Architecture* ribbon ⇒ logical group *Building* ⇒  *Opening finishing*
- *ArCADia-ARCHITECTURE* toolbar ⇒  *Insert the opening finishing*

ArCADia LT

- *Ceiling* ribbon ⇒ logical group *Suspended ceiling* ⇒  *Opening finishing*

After selecting in the insertion window the *Go to Properties dialogue box*, the *Object properties: Opening finishing* window will appear:

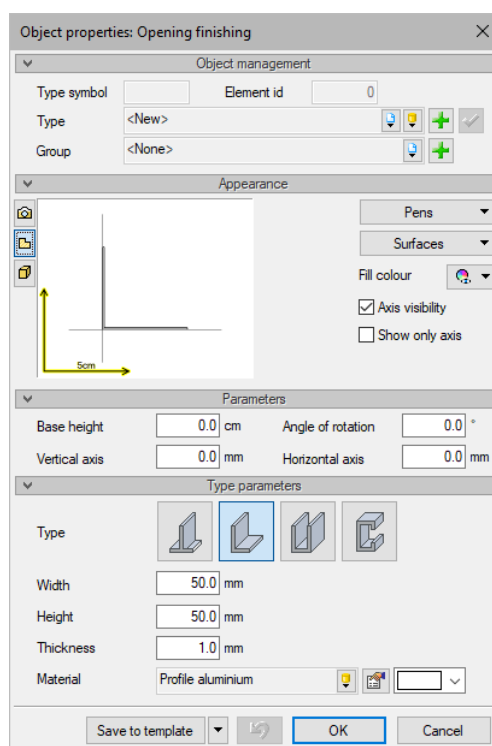


Fig. 352. The frame property window

While inserting the opening finishing, it is possible to define the following parameters:

Object management

A panel allowing to save the element type to the *Project Library* or *Global Library*, or to find in the Library the previously saved element and use it in the current document. Additionally, you can choose or indicate the group to which the given element will belong.

Appearance

Suspended ceiling

A panel in which the pens and element surfaces are defined, as well as the object appearance on the view. The beam can be inserted together with the axis or for the readability of the drawing only as an axis.

Parameters

Base height – height calculated from the zero level (i.e the upper edge of the raw ceiling) to the opening finishing horizontal axis, which is defined by default on the beam lower edge.

Vertical axis – axis that enables to insert the element on the view and is visible only on the projection. By default, it is defined at the center of the element.

Angle of rotation – rotation angle of the beam cross-section.

Horizontal axis – axis that defines the position height of the inserted beam, and it is taken into account at the base height. By default, this axis is on the beams' lower edge and it is an axis that cannot be seen in any view.

Type parameters

The panel allows for selecting the beams' defined cross-sections and assigning the appropriate sizes to them.

Save to template — saves pen settings, selected style and other parameters of the element to the template.

Pressing the *OK* button allows for switching to the drawing mode, where by indicating the beginning and end of the element, it is inserted. At the same time by default, this elements' end is the beginning of the next one until you exit the option.

During drawing the following functions are accessible from Insert window, Report dialogue box or Command area:

- *Edge, Symmetry axis, Edge* – selection of the beam insertion line on the view.
- *Tracking axes* – this option detects points and edges of the inserted elements of suspended ceiling and sets vertical and horizontal axes from them against the screen or, in case it is e.g. a beam, displays the extension of such line.
- *Tracking angles* – this option selects the angles given in the window above, setting them from previously inserted elements of suspended ceiling, e.g. from the edges of the drawn beams.
- *Element and section detection* – this option detects edges, axis, corners, and points of the elements inserted to the project, making possible to precisely set the cursor on the drawn objects.
- *Element insertion options* – opens the window to set tracking and underlay.
- *Reference* — allows you to insert a beam at a given distance from the specified point.
- *Between points (centre)* — starts drawing a wall in the middle of a specified distance (distance is entered by selecting two points).
- *Between points (percentage)* — starts drawing a wall based on percentage division of the specified distance (distance is specified by selecting two points).
- *Parallel* — allows to insert an element parallel to the specified one.

Suspended ceiling

- [Back](#) — Removes the last point indicated.
- [Cancel](#) — interrupts the function operation without inserting the suspended ceiling.

14.2.5. Inserting ceiling panels

Suspended ceiling consists of a frame and horizontal and vertical panels. The horizontal ones lie on the profiles or are fixed to them from the bottom. The vertical ones, i.e side panels show the outer ceiling edges and possible openings.

Horizontal panels for the designed ceiling can be inserted in three ways: by indicating the next corners of the polygonal shape, by drawing the panel with the rectangle and by inserting the specific „ceiling tile” (or cassette) in the given layout.

Regardless of which drawing method you choose, the element properties are always the same and are accessible from the insertion window by selecting *the [Go to Properties dialogue box](#)*.

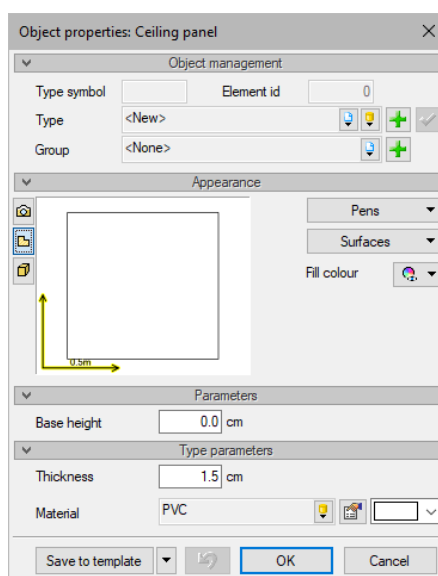


Fig. 353. Ceiling panel property window

While defining the ceiling panels, you can assign the following parameters:

[Object management](#)

A panel allowing to save the element type to *the [Project Library](#) or [Global Library](#)*, or to find in the Library the previously saved element and use it in the current document. Additionally, you can choose or indicate the group to which the given element will belong.

[Appearance](#)

A panel in which the pens and element surfaces are defined, as well as the object appearance on the view. The beam can be inserted together with the axis or for the readability of the drawing only as an axis.

[Parameters](#)

Suspended ceiling

Base height – height calculated from the zero level (i.e the upper edge of the raw ceiling) to the panel lower edge.

Type parameters

The panel allows for defining the element thickness and indicating the material, it is composed of.

Save to template — saves pen settings, selected style and other parameters of the element to the template.



Pressing the *OK* button allows for switching to the drawing mode, which is dependant on the selected insertion option.

14.2.5.1. Ceiling panel

Option allows for inserting the ceiling panels of any shape.

Activation:

ArCADia and ArCADia PLUS

- *Architecture* ribbon ⇒ logical group *Building* ⇒  *Ceiling panel*
- *ArCADia-ARCHITECTURE* toolbar ⇒  *Insert ceiling panel*

ArCADia LT

- *Ceilings* ribbon ⇒ logical group *Suspended ceiling* ⇒  *Ceiling panel*

After executing the option on the insertion window (apart from the possibility of accessing *the Properties*), the following options are also available:

- *Edge, Symmetry axis, Edge* – selection of the beam insertion line on the view.
- *Tracking axes* – this option detects points and edges of the inserted elements of suspended ceiling and sets vertical and horizontal axes from them against the screen or, in case it is e.g. a beam, displays the extension of such line.
- *Tracking angles* – this option selects the angles given in the window above, setting them from previously inserted elements of suspended ceiling, e.g. from the edges of the drawn beams.
- *Element and section detection* – this option detects edges, axis, corners, and points of the elements inserted to the project, making possible to precisely set the cursor on the drawn objects.
- *Element insertion options* – opens the window to set tracking and underlay.
- *Reference* – allows you to insert a beam at a given distance from the specified point.
- *Between points (centre)* – starts drawing a wall in the middle of a specified distance (distance is entered by selecting two points).
- *Between points (percentage)* – starts drawing a wall based on percentage division of the specified distance (distance is specified by selecting two points).
- *Angle* – blocks inserting the panel edges at a given angle.
- *Length* – inserts the panel Edge with the length indicated by the user.
- *Parallel* – allows to insert an element parallel to the specified one.
- *Close* – closes the outline being drawn, moving the outline to the starting point and ends the command.
- *Back* – Removes the last point indicated.
- *Cancel* – interrupts the function operation without inserting the suspended ceiling.

Suspended ceiling



The panel is inserted by indicating or giving the coordinates of the successive polygonal outline corners.

14.2.5.2. Rectangle ceiling panel

Option allows for inserting the rectangular ceiling panels.

Activation:

ArCADia and ArCADia PLUS

- *Architecture* ribbon ⇒ logical group *Building* ⇒  *Rectangle ceiling panel*
- *ArCADia-ARCHITECTURE* toolbar ⇒  *Insert rectangle ceiling panel*

ArCADia LT

- *Ceiling* ribbon ⇒ logical group *Suspended ceiling* ⇒  *Insert rectangle ceiling panel*

After executing the option on the insertion window (apart from the possibility of accessing the *Properties*), the following options are also available:

- *Edge, Symmetry axis, Edge* – selection of the beam insertion line on the view.
- *Tracking axes* – this option detects points and edges of the inserted elements of suspended ceiling and sets vertical and horizontal axes from them against the screen or, in case it is e.g. a beam, displays the extension of such line.
- *Tracking angles* – this option selects the angles given in the window above, setting them from previously inserted elements of suspended ceiling, e.g. from the edges of the drawn beams.
- *Detection* – this option detects edges, axis, corners, and points of the elements inserted to the project, making possible to precisely set the cursor on the drawn objects.
- *Reference* – allows you to insert a beam at a given distance from the specified point.
- *Between points (centre)* – starts drawing a wall in the middle of a specified distance (distance is entered by selecting two points).
- *Between points (percentage)* – starts drawing a wall based on percentage division of the specified distance (distance is specified by selecting two points).
- *Angle* – blocks inserting the panel edges at a given angle.
- *Length* – inserts the side of the panel with the length indicated by the user.
- *Parallel* – allows to insert an element parallel to the specified one.
- *Width* – allows for indicating the width of the inserted panel.
- *Cancel* – interrupts the function operation without inserting the suspended ceiling.

The panel is entered by indicating or giving the coordinates of one side panel length and then the width, i.e. the second side length. The rectangular panel can be inserted at any angle.

14.2.5.3. Ceiling panel with given dimensions

Option allows for inserting several or a dozen panels simultaneously. All elements are of the same size, are inserted in the given size and the indicated direction.

Activation:

ArCADia and ArCADia PLUS

- *Architecture* ribbon ⇒ logical group *Building* ⇒  *Ceiling panel with given dimensions*
- *ArCADia-ARCHITECTURE* toolbar ⇒  *Insert Ceiling panel with given dimensions*

Suspended ceiling

ArCADia LT

- *Ceiling* ribbon ⇒ logical group *Suspended ceiling* ⇒  *Ceiling panel with given dimensions*

After the command is executed, the insertion window is available:

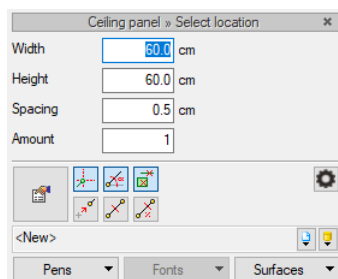





Fig. 354. Insertion window of panel with a given size

Tab. 38 Options in the insertion window

	<i>Width</i>	The length of the horizontal ceiling panel side, which in this case is always a square.
	<i>Height</i>	Thickness of the suspended ceiling panel board.
	<i>Spacing</i>	Spacing in-between the panels.
	<i>Amount</i>	Number of inserted panels in a row, column or indicated direction. All panels are counted, inclusive of the first one.
	<i>Go to Properties dialog box</i>	Opens <i>Properties</i> dialogue box.
	<i>Tracking axes</i>	The option displays horizontal and vertical straight lines directed from the detected points to the inserted elements. If the option will detect an edge of the inserted element it will display a straight line extending the detected edge.
	<i>Tracking angles</i>	This option displays the selected angles set from the existing elements in the project.
	<i>Element and section detection</i>	This option detects edges and points of the inserted elements.
	<i>Element insertion options</i>	Opens the track and underlay settings window. More detailed description of the window is in the <i>Options</i> chapter.
	<i>Reference</i>	Enables inserting a selected element in the selected distances from the indicated point.
	<i>Between points (centre)</i>	Enables inserting an element in the middle of the indicated distance.
	<i>Between points (percentage)</i>	Enables inserting elements with a percentage division of the selected section.
	<i>Type</i>	Save set of features common for many objects of the same type (elements template defined by the user).
	<i>Document library</i>	Compliant with the selected template and created together with the development of the drawing while new types are saved.
	<i>Global library</i>	Type library is provided with the software and extended by <i>User library</i> where the user can save and store element types created by him for use in future projects.

Suspended ceiling

	<i>Close</i>	Exists the options without inserting an element.
	<i>Pens</i>	The line type definition used to draw the element being inserted.
	<i>Surfaces</i>	Assigning materials or textures to selected areas of the element being inserted.

After specifying the size, spacing and number of inserted elements, you can proceed to indicate the first panel location. (it is inserted by its center point).

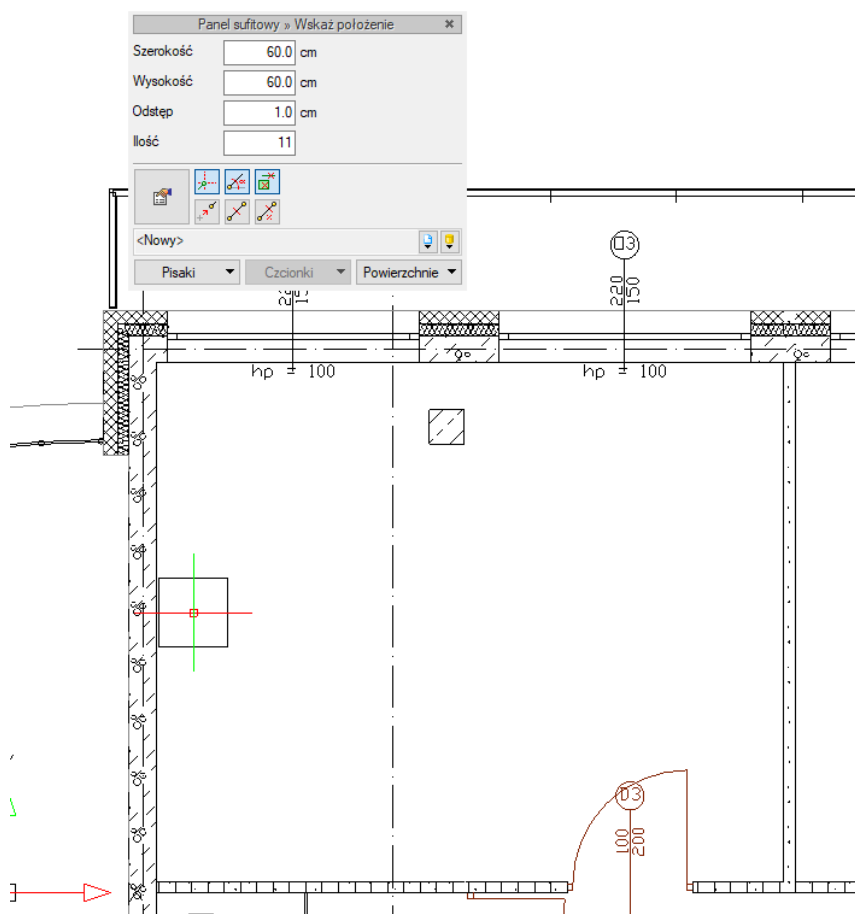


Fig. 355. An example of inserting panels with given dimensions

The second point is to indicate the direction of the position of subsequent panels.

Suspended ceiling

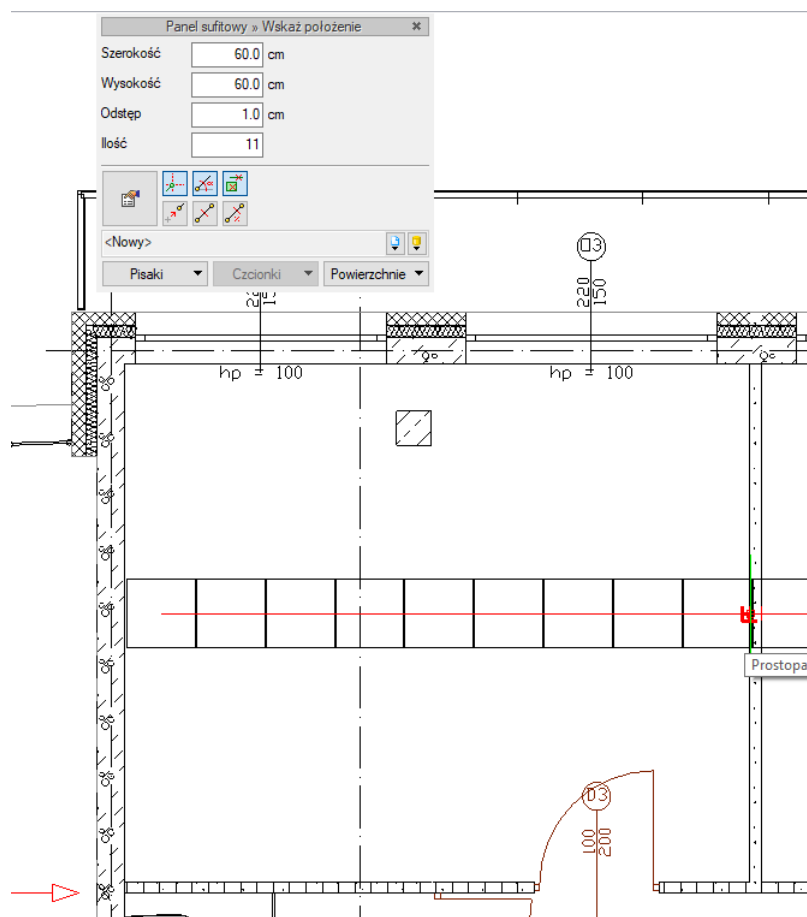


Fig. 356. Indication of direction while inserting panels of given dimensions



You can insert the panels on the existing frame or draw it in later.

14.2.6. Inserting hangers

The hangers are the elements that hold the suspended ceiling beams. They are not assigned to them. Hangers can be inserted independent of the ceiling construction, although of course, the best would be to insert them into the right places, i.e. suspending with them the main beams.

Activation:

ArCADia and ArCADia PLUS

- *Architecture* ribbon ⇒ logical group *Building* ⇒  *Ceiling hanger*
- *ArCADia-ARCHITECTURE* toolbar ⇒  *Insert ceiling hanger*

ArCADia LT

- *Ceiling* ribbon ⇒ logical group *Suspended ceiling* ⇒  *Ceiling hanger*

After selecting in the insertion window the *Go to Properties dialogue box*, the *Element properties: Opening finishing* window will appear:

Suspended ceiling

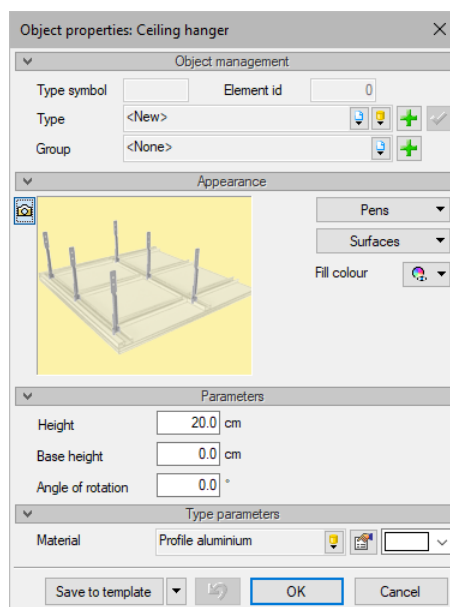


Fig. 357. Ceiling hanger property window

Object management

A panel allowing to save the element type to the *Project Library* or *Global Library*, or to find in the Library the previously saved element and use it in the current document. Additionally, you can choose or indicate the group to which the given element will belong.

Appearance

A panel in which the pens and element surfaces are defined, as well as the object appearance on the view. The beam can be inserted together with the axis or for the readability of the drawing only as an axis.

Parameters

Height – height hanger.

Base height – height calculated from the zero level (i.e the upper edge of the raw ceiling) to the hanger lower edge.

Angle of rotation – The angle of rotation when inserting the hanger, which should be the same as the angle of the frame of the inserted mesh on the view.

Type parameters

The panel allows for defining the material of which the hanger consists.

Save to template — saves pen settings, selected style and other parameters of the element to the template.

Suspended ceiling

Pressing the [OK](#) button allows for switching to the drawing mode, in which subsequent ceiling hangers are inserted by indicating or providing the coordinates of the point.

14.2.7. Inserting the side panels

Side panels can cover the ceiling construction both on the ceiling edges and in any openings. They can be inserted in two ways: by drawing a panel with its length or by inserting several panels simultaneously with a given distance and direction indicated.

Regardless of which drawing method is chosen, the element properties are always the same and are accessible from the insertion window by selecting the [Go to Properties](#) dialogue box.

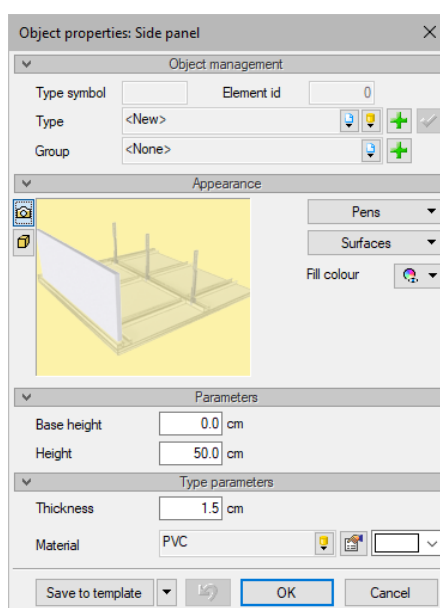


Fig. 358. Ceiling panel property window

[Object management](#)

A panel allowing to save the element type to the [Project Library](#) or [Global Library](#), or to find in the Library the previously saved element and use it in the current document. Additionally, you can choose or indicate the group to which the given element will belong.

[Appearance](#)

A panel in which the pens and element surfaces are defined, and in addition the selected materials' hatching color.

[Parameters](#)

[Base height](#) – height calculated from the zero level (i.e the upper edge of the raw ceiling) to the main beam panel lower edge.

[Height](#) – the height of side panel, usually equal to the size of the suspended ceiling lowering.

Suspended ceiling

Type parameters

The panel allows for selecting the beams' defined cross-sections and assigning the appropriate sizes to them.

Save to template — saves pen settings, selected style and other parameters of the element to the template.



Pressing the *OK* button allows for switching to the drawing mode, in which subsequent ceiling hangers are inserted by indicating or providing the coordinates of the point.

14.2.7.1. Side panel

This option allows for inserting the side panels by indicating their beginning and end, where the end is also the beginning of the next panel.

Activation:

ArCADia and ArCADia PLUS

- *Architecture* ribbon ⇒ logical group *Building* ⇒  *Side panel*
- *ArCADia-ARCHITECTURE* toolbar ⇒  *Insert side panel*

ArCADia LT

- *Ceiling* ribbon ⇒ logical group *Suspended ceiling* ⇒  *Side panel*

Drawing the side panels is done by indicating their beginnings and ends. Each such section is one panel. The panels are drawn one after another, i.e. the end of the first panel is the beginning of the second one.

14.2.7.2. Side panel with given size.

Option inserts panels of a specific length, of a given number and direction.

Activation:

ArCADia and ArCADia PLUS

- *Architecture* ribbon ⇒ logical group *Building* ⇒  *Side panel with given dimensions*
- *ArCADia-ARCHITECTURE* toolbar ⇒  *Insert side panel with given dimensions*

ArCADia LT

- *Ceiling* ribbon ⇒ logical group *Suspended ceiling* ⇒  *Side panel with given dimensions*

Suspended ceiling

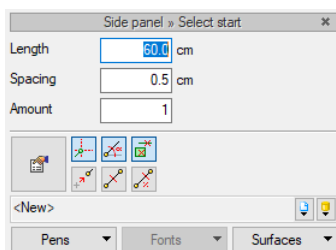


Fig. 359. Insertion window of the side panel with given dimensions

Tab. 39 Options in the insertion window.

	Length	Length of the side ceiling panel.
	Spacing	Spacing in-between the panels.
	Amount	The number of panels being inserted in the indicated direction. All panels are counted, inclusive of the first one.
	Go to Properties dialog box	Opens the Properties window for an item, e.g.
	Tracking axes	The option displays horizontal and vertical straight lines directed from the detected points to the inserted elements. If the option will detect an edge of the inserted element it will display a straight line extending the detected edge.
	Tracking angles	This option displays the selected angles set from the existing elements in the project.
	Element and section detection	This option detects edges and points of the inserted elements.
	Element insertion options	Opens the track and underlay settings window. More detailed description of the window is in the Options chapter.
	Reference	Enables inserting a selected element in the selected distances from the indicated point.
	Between points (centre)	Enables inserting an element in the middle of the indicated distance.
	Between points (percentage)	Enables inserting elements with a percentage division of the selected section.
	Type	Save set of features common for many objects of the same type (elements template defined by the user).
	Project library	The saved set of features saved for many items of the same style (user defined element template).
	Global library	Type library is provided with the software and extended by User library where the user can save and store element types created by him for use in future projects.
	Close	Exists the options without inserting an element.
	Pens	Definition of the type of the line used to draw the inserted element.
	Surfaces	Assigning materials or textures to the particular areas of the inserted element.

After indicating the length, spacing and number of elements being inserted, you can start to indicate the beginning of the first panel, and in the second step, the direction for inserting the elements.

Suspended ceiling

14.2.8. Editing the elements of any given suspended ceiling

Any ceiling element, that has been manually inserted or created by splitting into elements the automatically inserted ceiling, can be copied, shifted, rotated and deleted. In addition, each element has its own modification options available in the edit window, accessible after selecting the element.

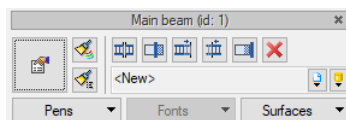


Fig. 360. Main beam edit window

Tab. 40 Modification tools for the main, cross beams, external frame and opening finishing



	<i>Go to Properties dialog box</i>	Opens <i>Properties</i> dialogue box.
	<i>Font and pen painter</i>	Takes over the type of the floor slab and transfer it to the selected slabs.
	<i>Type painter</i>	Takes over the element type transferring it to the indicated element or elements.
	<i>Divide beam</i>	Splits the selected element into two parts in the indicated place.
	<i>Cut by beam</i>	Divides the ceiling panels (horizontal), which cross the selected beam.
	<i>Lengthen beam</i>	Extends the indicated beams to the selected one, exactly to its axis.
	<i>Shorten beam</i>	Shortens the beams to the one selected, by indicating which part of the shortened beams are to be removed.
	<i>Stretch panel</i>	Finds in the indicated panels, the edges parallel to the selected beam and allows for extending these panel sides to the indicated place, e.g. to the beam edge.
	<i>Type</i>	Save set of features common for many objects of the same type (elements template defined by the user).
	<i>Document library</i>	Compliant with the selected template and created together with the development of the drawing while new types are saved.
	<i>Global library</i>	Type library is provided with the software and extended by <i>User library</i> where the user can save and store element types created by him for use in future projects.
	<i>Delete marked objects</i>	Removes the selected object.
	<i>Pens</i>	The line type definition used to draw the element being inserted.
	<i>Surfaces</i>	Assigning materials or textures to selected areas of the element being inserted.

In addition, the program has two different option sets for modifying all the elements of any suspended ceiling and also for the automatically split into elements ceiling.

Suspended ceiling

Activation:

ArCADia and ArCADia PLUS

- *Architecture* ribbon ⇒ logical group *Building* ⇒  *Cut ceiling element*
- *ArCADia-ARCHITECTURE* toolbar ⇒  *Cut ceiling element*



ArCADia LT

- *Ceiling* ribbon ⇒ logical group *Suspended ceiling* ⇒  *Cut ceiling element*

The option allows for cutting the suspended ceiling inserted by you, by clicking out on it (then the opening will be cut out) or on its edge (then it will be cut) a polygon, that cuts the elements on its outline. This means that if such cutting is inserted inside the ceiling, it will cut out the opening in it by modifying the shape of all elements in its outline, and such opening cannot be removed, each element will need to be modified separately, by extending or in case of panels, changing its shape.

Activation:

ArCADia and ArCADia PLUS

- *Architecture* ribbon⇒ logical group *Building* ⇒  *Cut ceiling element by line*
- *ArCADia-ARCHITECTURE* toolbar ⇒  *Cut ceiling element by line*

ArCADia LT

- *Ceiling* ribbon ⇒ logical group *Suspended ceiling* ⇒  *Cut ceiling element by line*

The option allows for dividing any created ceiling into two parts by showing the cut line. This can be useful, e.g. if you want to differentiate the ceiling levels or to remove an unnecessary fragment.

Solids

15. SOLIDS

Solids

15.1. Solid

Function of insertion of any of the rectangular solids into the project may be very useful. By means of this option you can insert any of the balcony slabs, terraces, mezzanines, stairs with steps of sophisticated shape, binding joists, beams, etc.



Fig. 361. The example of use of the solid as an element of the balustrade at the balcony window

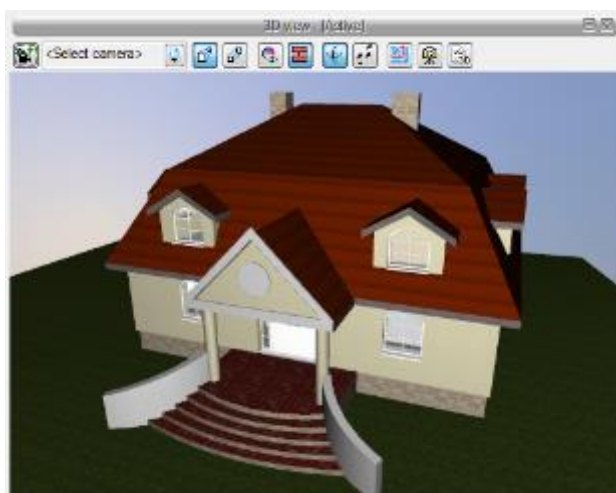


Fig. 362. The example of use of the solid as the entrance stairs

Solids





Fig. 363. Example of application of the solid to create the fireplace

15.1.1. Inserting solid

The *Solid* function is very useful in order to provide more detailed project. The element of any layout shape and specified height may allow for insertion of any horizontal structures, e.g.: terraces, mezzanines, balconies, etc.

Activation:

- *Architecture* ribbon ⇒ logical group *Building* ⇒  *Solid*
- *ArCADia-ARCHITECTURE* toolbar ⇒  *Insert solid*

Before inserting the solid, you can define its parameters in dialogue box *Properties*:

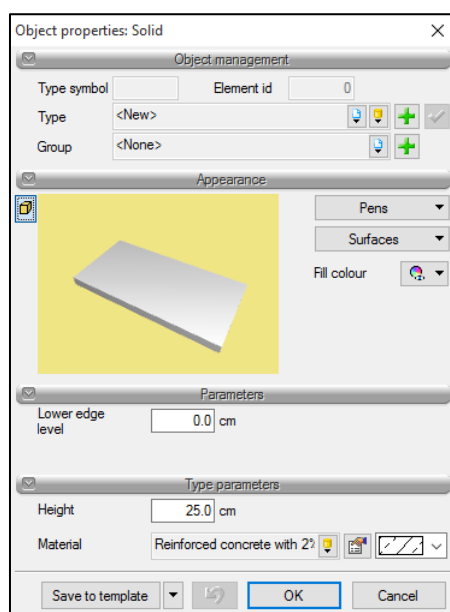


Fig. 364. Plate properties window

Solids

When you insert the solid, you can define the following parameters:

Appearance — method of drawing (thickness and type of line) and 3D representation (applying texture or colour to the respective areas).

Parameters — height at which the solid is inserted.

Type parameters — height of the solid and material from which it was defined.

Save to template — saves pen settings, selected style and other parameters of the element to the template.

During drawing the following functions are accessible from Insert window, Report dialogue box or Command area:

- *Tracking axes* – this option detects points and edges of the inserted elements and sets vertical and horizontal axes from them against the screen or, in case it is e.g. wall edge, displays the extension of such line.
- *Tracking angles* – this option selects the angles given in the window above, setting them from previously inserted elements, e.g. from the edges of the drawn walls.
- *Element and section detection* – this option detects edges, axis, corners, and points of the elements inserted to the project, making possible to precisely set the cursor on the drawn objects.
- *Element insertion options* – opens the window to set tracking and.
- *Reference* — allows you to insert an object at a given distance from the specified point.
- *Parallel* — inserts an element parallel to the specified one.
- *Cancel* — interrupts the operation of the function without inserting an object.
- *Back* — removes previously inserted object.
- *Apply* — ends insertion of object.

The shape of the solid is introduced by selecting consecutive corners of the element.

15.1.2. Inserting rectangular solid using axis or edge tool

ArCADia-ARCHITECTURE allows you to insert elements that symbolise binding joists and beams.

Activation:

- *Architecture* ribbon ⇒ logical group *Building* ⇒  *Rectangular solid – axis or edge*
- *ArCADia-ARCHITECTURE* toolbar ⇒  *Insert rectangular solid picking axis or edge*

The following parameters are available before inserting the solid:

Solids

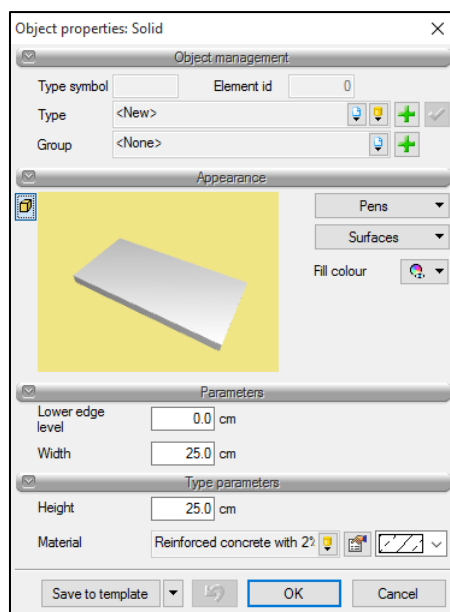


Fig. 365. Plate properties window

Appearance — method of drawing (thickness and type of line) and 3D representation (applying texture or colour to the respective areas).

Parameters — height at which the solid is inserted as well as its width.

Type parameters — height of the solid and material from which it was defined.

During drawing the following functions are accessible from Insert window, Report dialogue box or Command area:

- *Tracking axes* – this option detects points and edges of the inserted elements and sets vertical and horizontal axes from them against the screen or, in case it is e.g. wall edge, displays the extension of such line.
- *Tracking angles* – this option selects the angles given in the window above, setting them from previously inserted elements, e.g. from the edges of the drawn walls.
- *Element and section detection* – this option detects edges, axis, corners, and points of the elements inserted to the project, making possible to precisely set the cursor on the drawn objects.
- *Element insertion options* – opens the window to set tracking and underlay.
- *Reference* – allows you to insert an object at a given distance from the specified point.
- *Cancel* – interrupts the operation of the function without inserting an object.
- *Parallel* – inserts an element parallel to the specified one.
- *Back* – removes previously inserted object.
- *Apply* – ends insertion of object.

Save to template — saves pen settings, selected style and other parameters of the element to the template.

The solid is inserted similarly to the walls, for which you may define the insertion edge or axis.

Solids

15.1.3. Inserting rectangular solid by selecting three points

There is a function available to quickly insert a solid of rectangular shape by using three points.

Activation:



- *Architecture* ribbon ⇒ logical group *Building* ⇒  *Rectangular solid length and width*
- *ArCADia-ARCHITECTURE* toolbar ⇒  *Insert rectangular solid picking length and width*

The parameters that can be defined before the insertion are similar to *Properties* of *Solid* option. The only difference is the insertion, where first the first side is selected (by using two points: start and end) and then the width of the rectangular outline of the solid

15.1.4. Editing solid

Opening can be made in an existing plate.

Activation:

- *Architecture* ribbon ⇒ logical group *Building* ⇒  *Opening*
- *ArCADia-ARCHITECTURE* toolbar ⇒  *Insert opening in the solid*

After executing the command opening points are selected. The opening does not have any limitations and can stretch outside of the plate.







Solid option is modified with standard options: copying, moving, and deleting, irrespectively from the method of insertion. Moreover, the editing window gives access to the following options:

Regardless of insertion method, *Solid* option can be modified by standard options: copy, move or delete. In addition, the edit toolbar provides the following capabilities:

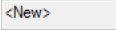







Fig. 366. Plate editing options


Tab. 41 Plate modification tools


	<i>Go to Properties dialog box</i>	Opens <i>Properties</i> dialogue box.
	<i>Font and pen painter</i>	Takes over the settings of pens (thickness and type of the line), as well as the size and type of font.
	<i>Type painter</i>	Takes over the wall type, structure and thickness of the layers and transfer them to the selected solid.
	<i>Add point</i>	Adds a point (corner) on the outline of the solid allowing to modify its layout.
	<i>Remove point</i>	Removes selected corner of the floor slab.
	<i>Divide a solid</i>	Divides a plate into two halves.

Solids

	<i>Type</i>	Save set of features common for many objects of the same type (elements template defined by the user).
	<i>Project library</i>	Compliant with the selected template and created together with the development of the drawing while new types are saved.
	<i>Global library</i>	Type library is provided with the software and extended by <i>User library</i> where the user can save and store element types created by him for use in future projects.
	<i>Delete marked objects</i>	Removes the selected objects.
	<i>Pens</i>	The line type definition used to draw the element being inserted.
	<i>Surfaces</i>	Assigning materials or textures to selected areas of the element being inserted.

The above options for modifying the solid are available when you select it.

To add a corner on the outline of the solid, select  *Add point* option and specify its location. The Application has no limitation on quantity of the points inserted both on one of the sides and on the outline. In case of using Remove point option, the procedure is similar, i.e. the layout is changed by removing the specified corner.

The existing plate can also be divided, option  *Divide a solid* allows for cutting the existing contour into two parts with a line. Each of the plates will be a separate object which can be edited separately.

Roofs

16. ROOFS

Roofs

16.1. Roof



The coping of the building is a roof which can have any fanciful form. ArCADia allows to introduce multi-slope roofs that after the modification can be changed into single or double-slope roofs. The height of knee walls, roof pitch may be different for each of the subsequent slope. The only thing that should be remembered during insertion of the roof is the setting height. The roof must be inserted on the floor, on which it actually would be implemented.

For example: the bungalow will not have a roof inserted on the ground floor, because the ground floor is topped with the floor slab. Above the ground floor is another floor – attic, on which the roof is inserted. Otherwise, in case of the usable attic, the roof is inserted on this attic, but only if the roof pitch should appear at the attic, and not above it.

16.1.1. Inserting roof of any type

The covering of the building with the roof can take place through, automatic insertion of the roof (matched to the outline of the floor) which is defined by selecting consecutive corners.

Activation:

- *Architecture* ribbon ⇒ logical group *Building* ⇒  *Roof*
- *ArCADia-ARCHITECTURE* toolbar ⇒  *Insert roof*

The following dialogue box appears when you select this option.

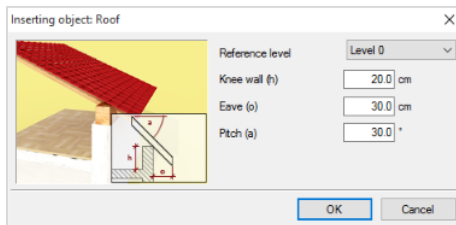


Fig. 367. Roof insertion window

Reference level — floor on which the roof is inserted. By default, the active floor is given, but it is possible to change the floor.

Knee wall — foundation height of the roof measured from zero of the reference floor (on which it is inserted).

Eave — the roof overhang which surrounds the outer edge of the wall.

Pitch — pitch of each roof slope. After inserting the roof, it is possible to change the pitch of all or selected roof slopes.





Before introduction, the properties window is available, in which you can define, additionally, materials from which the roof will be introduced.

Roofs

Object properties: Roof

Object management

Type symbol Element id

Type <New>    

Appearance

Way of pitch presentation ☒ degrees ☐ percents ☐ proportion

☐ Roof description

Pens Fonts Surfaces

Parameters

Parameters of tract (click on the header to set for all)

N..	Eave (o)	Pitch (a)	Knee wall (h)	Gable wall	Area

Total plane area m²

Roof name



Roof no.

Reference level

☐ Vertical roof constraint (p) cm

Type parameters

Roof external layers Roof internal layers

No.	Type	Thick...	Material	Col...
1	Finish	1.5	Ceramic plane tile	
2	Warm	25.0	Granular mineral wool 80	

Total thickness cm

Medium wet conditions U = $\frac{W}{m^2K}$

Fig. 368. Roof properties window

Before inserting, the roof has no view nor roof slope table filled, it will be supplemented after setting the projection. Before, you can enter the name and the number, set the materials which will be shown in lists and the introduced element descriptions.

NOTE: Thickness of layers set from the materials is calculated vertically (in relation to axis Z), and not perpendicular to the roof slope pitch.

After approving the data by means of **OK** button, you may move to drawing the roof, that is indicating subsequent points of its outline.

When setting the outline, you can only use options of tracking, refer and inserting the point in the centre of the set out distance.

Roofs

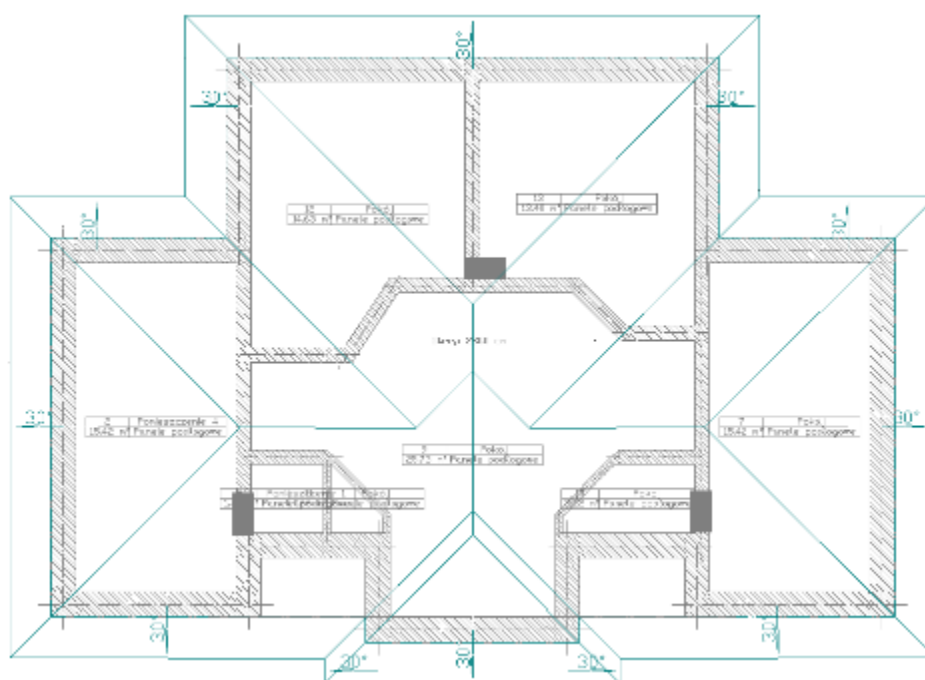


Fig. 369. Example of inserting a roof



After inserting the roof, you can trim existing walls, ceilings and columns to the inserted roof (for detailed description refer to [Editing roof](#) section).

The description of the roof which appears with its outline can be disabled in *Object properties: Roof* dialogue box

16.1.2. Inserting rectangular roof

To quickly insert a rectangular shaped roof, you can use *Insert roof with rectangular tool* option.

Activation:

- *Architecture* ribbon ⇒ logical group *Building* ⇒  *Rectangle roof*
- *ArCADia-ARCHITECTURE* toolbar ⇒  *Insert roof with rectangle*

After you select this option, specify parameters of inserted roof (height of the knee wall, size of the eave and pitch of the roof slope). Then, by selecting the length of one of the eaves with two points, specify the width of the roof. This method of inserting the outline will provide the possibility to insert a rectangular outline of the roof at any angle.

Roofs

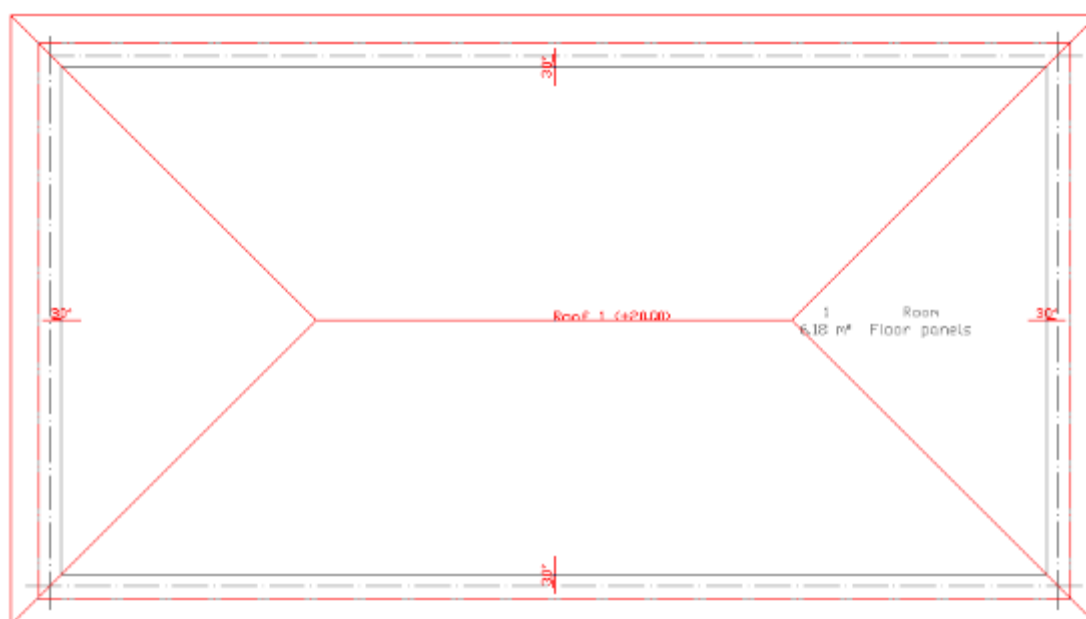




Fig. 370. Example roof inserted by means of rectangular contour

16.1.3. Automatic insertion of roof

You can insert the roof of the same Layout as the floor on which the roof is to be applied, without specifying consecutive corners. For this purpose, you can use *Automatic roof* option.

Activation:

- *Architecture* ribbon ⇒ logical group *Building* ⇒  *Auto roof*
- *ArCADia-ARCHITECTURE* toolbar ⇒  *Insert auto roof*

After triggering the command and settings the parameters of the corner wall height, inclination, hood, as well as materials for layers, it is enough to click inside the outline of all storeys, and the roof will be adapted to the projection.

Roofs

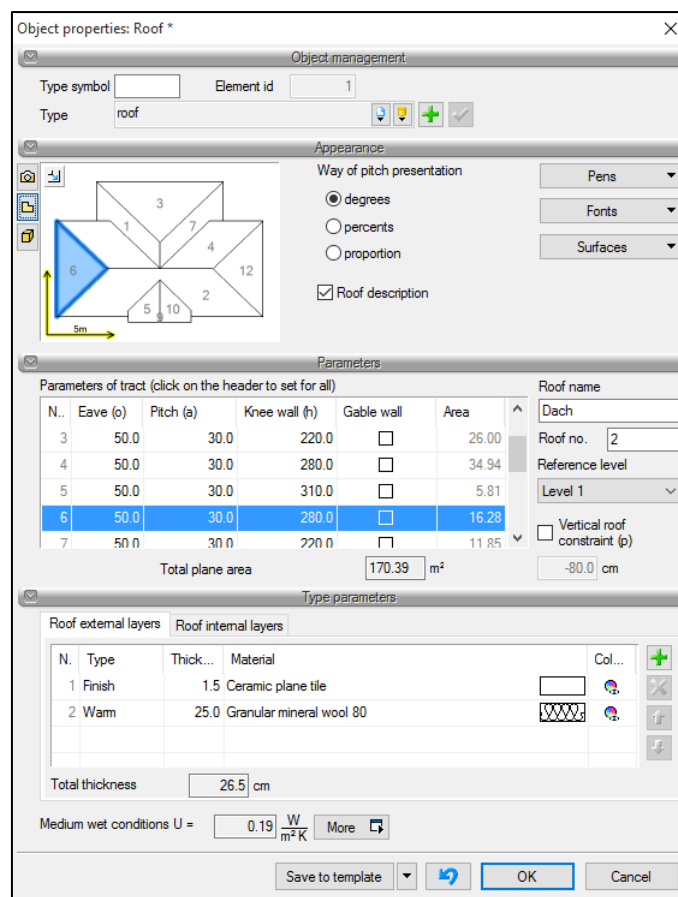


Fig. 371. Inserted roof properties window

Since version 6.0, this option provides interactive preview that makes it easy to find the desired roof slope. When you click on selected roof slope, it will be highlighted in blue, both on the preview and in the table below, where the list will be shifted and the corresponding roof slope will be highlighted for editing.

For faster editing, you can change value of the entire column, e.g. for all eaves. To this end simply click on the column name (*Eave* in this case) and enter a new value in the box

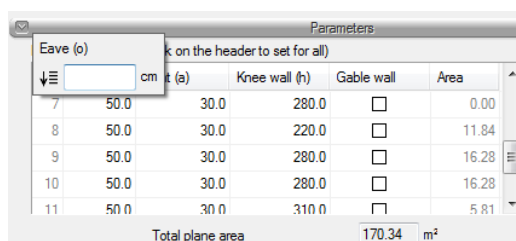


Fig. 372. Inserting values for all roof pieces area

Starting from version 6.2 ArCADia-ARCHITECTURE has in *Properties* window of the inserted roof the option of *Vertical roof constraint*. This option allows for cutting the roof on a given height, e.g. for creating a dormer roof (made up of two roofs).

Roofs

16.1.4. Editing roof

The inserted roof can be edited as required by changing the parameters of subsequent roof slopes.

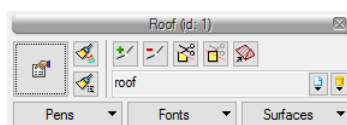


Fig. 373. Roof editing window

Tab. 42 Roof modification tools

	<i>Go to Properties dialog box</i>	Provides possibility to change the parameters of the roof for all or selected roof slopes.
	<i>Font and pen painter</i>	Takes over the type of the floor slab and transfer it to the selected slabs.
	<i>Type painter</i>	Takes over the chimney type (its size and type) and transfer them to the selected chimney.
	<i>Add point</i>	Adds a point (corner) on the outline of the roof allowing to modify the layout.
	<i>Remove point</i>	Removes selected corner of the roof.
	<i>Cut object</i>	Trims walls, ceilings, columns, etc., to inserted roof.
	<i>Reset cut object</i>	Removes previously set trim by restoring the original shape of the trimmed elements.
	<i>Edit roof framing</i>	Transfers the selected roof to the ArCADia-RAMA program (v. R3D3-Rama 3D) in which the wooden structure is created automatically, inserted element-by-element or modified.
	<i>Type</i>	Save set of features common for many objects of the same type (elements template defined by the user).
	<i>Project library</i>	Compliant with the selected template and created together with the development of the drawing while new types are saved.
	<i>Global library</i>	Type library is provided with the software and extended by <i>User library</i> where the user can save and store element types created by him for use in future projects.
	<i>Remove marked objects</i>	Deletes marking
	<i>Pens</i>	The line type definition used to draw the element being inserted.
	<i>Fonts</i>	Definition of the size and type of the font that describes the element.
	<i>Surfaces</i>	Assigning materials or textures to selected areas of the element being inserted.

Roofs

Since version 6.2 of the ArCADia-ARCHITECTURE, it is possible to cut-off horizontally the roof, which results in merging two roofs and creation of the new dormer roof. This option is available in the Roof properties dialogue box below the Name and Reference floor boxes.

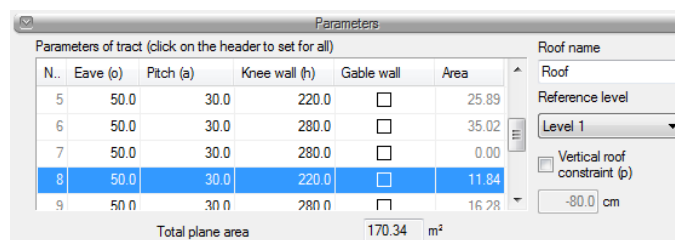


Fig. 374. Part of roof properties window with an information about the size of the roof pieces

This version also provides a read-out of the sizes of the roof slope and the entire roof.


In the new version of the software the roof gets its number upon insertion in order to make it easy to find it in the [Project Manager](#) tree. If the number should be deleted in the roof no field, then the name will not have the number as well

16.2. Roof truss

The ArCADia system does not have the option to create a roof truss, but after selecting the roof existing in the project, you can introduce wooden elements to it, which will be created in the ArCADia-RAMA program (v. R3D3-Rama 3D). ArCADia-ARCHITECTURE exports the roof geometry with all windows, holes and dormers, and the ArCADia-RAMA software automatically creates the roof truss. You can stop here, but we propose modification of the created system (rafters and torsels), both by adding e.g. post, intermediate purlins etc. and the modifications of the existing layout. After finished definition of the roof truss, it is moved to the ArCADia system where you can insert the list of its elements (description in the [Lists](#) chapter) or describe it on the projection.

16.2.1. Introduction of roof truss

Activation:

- Edit window [Roof](#) ⇒  [Edit roof framing](#)

After marking the selected roof and clicking the above mentioned icon, this option launches the ArCADia-RAMA program (v. R3D3-Rama 3D) allowing you to create a roof truss in an automatic way or by insertion of consecutive elements of the wood structure. For a detail description of the procedure for creating a roof truss refer to the ArCADia-RAMA program help file.

NOTE: It is important to create the roof truss so that its elements are in the following bar groups: Rafters, Eave Beams, Ridges, Other Rafters, Replacements, Wall Plates, Dormers-Rafters, Dormers-Eave Beams, Dormers-Ridges, Dormers-Other Rafters, Dormers-Wall Plates, Dormers-Dormer Poles. Depending on the group, the ArCADia-ARCHITECTURE software treats it differently. For example: elements from the Wall Plates Group are automatically entered under the elements from the Rafters group. If necessary, automatic matching of elements to groups can be disabled in the roof truss properties window.

Roofs

When you finish defining the wooden structure, the 3D model of the roof truss is transferred to the ArCADia-ARCHITECTURE Application.

Two examples of generated roof truss are shown below.

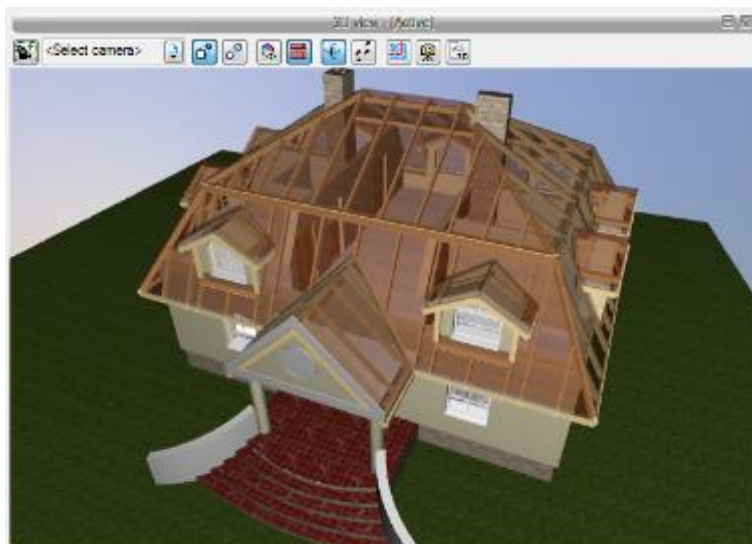


Fig. 375. Example of a roof with a framing

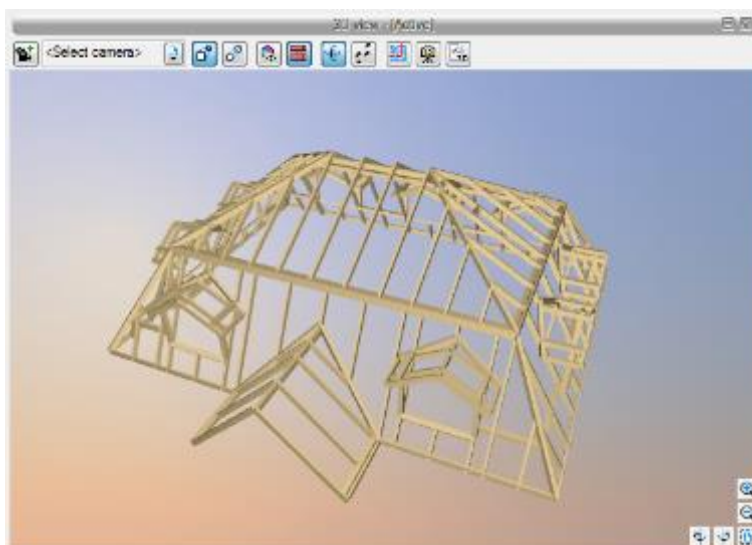


Fig. 376. Example of a roof with a framing

NOTE: Creation and edition of the roof truss, in the ArCADia-RAMA program (v. R3D3-Rama 3D) does not need the licensed software version. The trial version is enough. A license for the ArCADia-RAMA software is necessary if the created roof truss will have to be calculated and checked for its strength.

16.2.2. Roof truss edition

After inserting the roof truss to the program, it creates a three-dimensional model which is not edited. The roof truss is edited only in the ArCADia-RAMA program (v. R3D3-Rama 3D), to which you can return at any time with the previously defined roof truss. For this reason, we should leave creation of the roof truss does for last, when the roof is no longer edited.

Roofs

In the ArCADia-ARCHITECTURE software after selecting the created roof truss, you can display a description for it or for its selected fragment or enter the properties window and modify the way of its displaying and the material.

Additionally, the edition window has the following options:

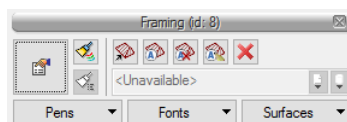


Fig. 377. Roof truss edition window

Tab. 43 Roof truss modification tools

	<i>Go to Properties dialog box</i>	It opens the <i>Properties</i> window.
	<i>Edit roof framing</i>	It opens the ArCADia-RAMA program (v. R3D3-Rama 3D) and transfers the selected roof truss to it for further modification.
	<i>Font and pen painter</i>	It takes over the marker settings (thickness and types of lines), as well as the size and the type of the font.
	<i>Insert rafter framing element descriptions automatically</i>	It opens the <i>Options of inserting descriptions of roof truss elements</i> window with selection of elements (rafters, torsels, etc.) at which the description will appear.
	<i>Show/hide the description of selected rafter framing elements</i>	Shows or hides the description of the roof rafter elements selected by clicking.
	<i>Edit rafter framing element description properties</i>	It opens the <i>Properties of the roof rafter</i> window, and allows to define in it the information that will show up for the selected element.
	<i>Delete marked objects</i>	Deletes the roof truss.
	<i>Pens</i>	Definition of the type the line used for drawing the introduced element.
	<i>Fonts</i>	Definition of the size and the type the font describing the element.
	<i>Surfaces</i>	Assignment of materials or textures for particular areas of the introduced element.

Roofs

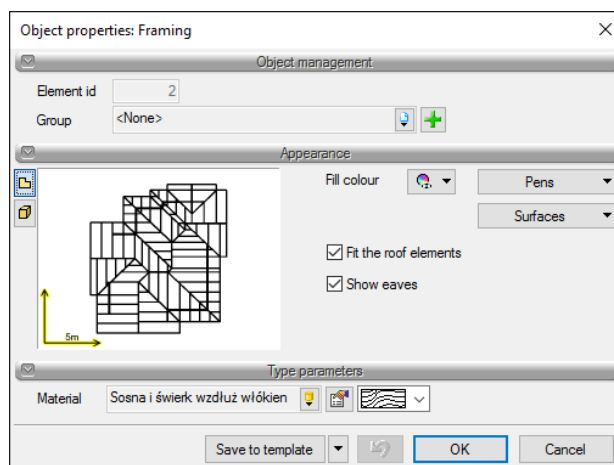


Fig. 378. The roof truss properties window

Fit the roof elements – the option changes the location of elements taken over adapting them to one another. In the ArCADia-RAMA program all elements are set axially, and when moving to ArCADia-ARCHITECTURE, after marking this option, some of them, e.g. rafter plates, are put under rafters.

Show eaves – the option enables and disables the visibility of hood beams.

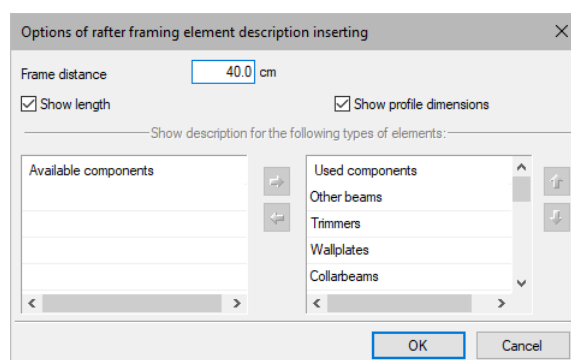


Fig. 379. The window for selecting description of elements for the indicated object of the roof truss

Frame distance – distance of the number from the described element.

Show element description – enables and disables description for the selected element.

Show length – under the description line, it displays the element's length.

Show profile dimension – over the description line, it displays the section size.

The structure element description has two handles, one located on the element and moved along it, and the other at the description frame. This handle it makes it possible to move the frame, shorten and extend the location of the description.



Roofs

16.3. Dormer openings

16.3.1. Introduction

Dormer opening can be inserted into the existing roof projection.

Activation:

- *Architecture* ribbon ⇒ logical group *Building* ⇒  *Dormer*
- *ArCADia-ARCHITECTURE* toolbar ⇒  *Insert dormer*

After activating the command *Dormer* will be displayed.

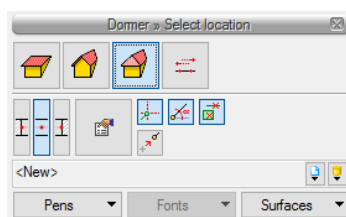


Fig. 380. Dormer insertion window

The above window you can define the type of the dormer (One-, two-or three-pitched) and enter the *Properties* window. The *Multiple Introduction Options* icon opens the window, where you can specify the number, distance and the side of inserting several dormers at the same time

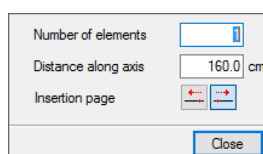


Fig. 381. Dormer multi-inserting window

Under the dormer type icons there are also *Handles*, with which the dormer will be introduced (left, middle or right side of the dormer) and the access to settings markers and area of the introduced dormer.

Roofs

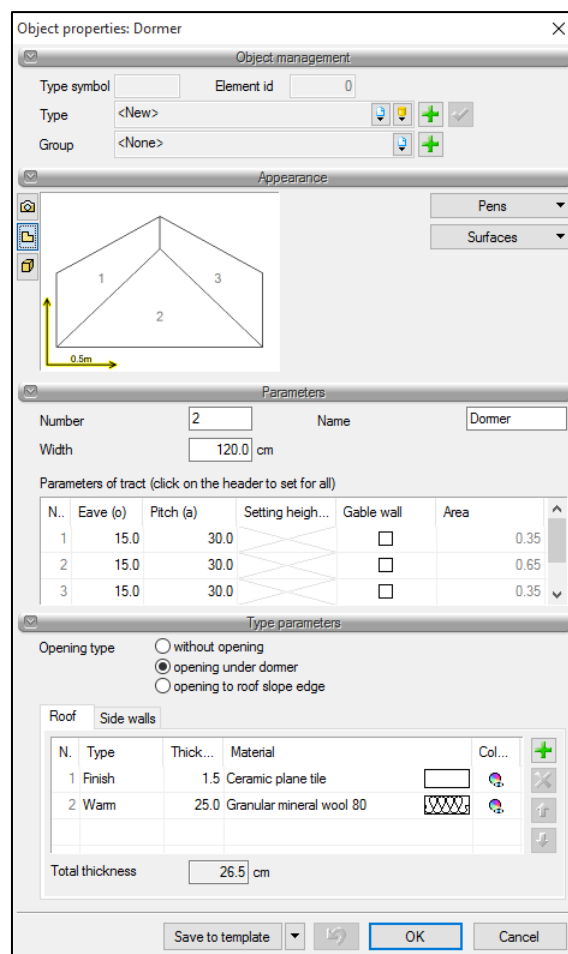


Fig. 382. Dormer properties window before insertion

Before inserting the dormer you can define:

Name – to make recognition of dormer on the list easier it is possible to define custom name for it.

Number – to make recognition of dormer on the list easier it is automatically numbered.

Eave – bulge of roof around the outer edge of the wall.

Pitch – slope of all roof pieces. After inserting a roof there is a possibility of changing the slant of all or just selected roof pieces.

Gable wall – disabling roof pieces and creating a gable wall.

Width – width of the external contour of the dormer

Without opening – top mounted dormer which do not cut an opening in a roof.

Opening under the dormer – slope opening cut automatically under the contour of the dormer.

Opening to roof slope edge – opening cut under the dormer and extended to the eave edges, in such a way that the gable wall of the dormer is not cut with roof pieces.

Roofs

Save to template — saves the pen settings, selected styles, and miscellaneous parameters of the element into the temple.

After inserting the dormer you can additionally insert the *Mounting height* i.e. height of the knee wall of the dormer roof piece.

After inserting the dormers you have to remember that inserting them do not insert dormer's gable wall. Front wall will be either taken from the project, if the dormer will be inserted on the outer edge of the wall, or needs to be placed manually.

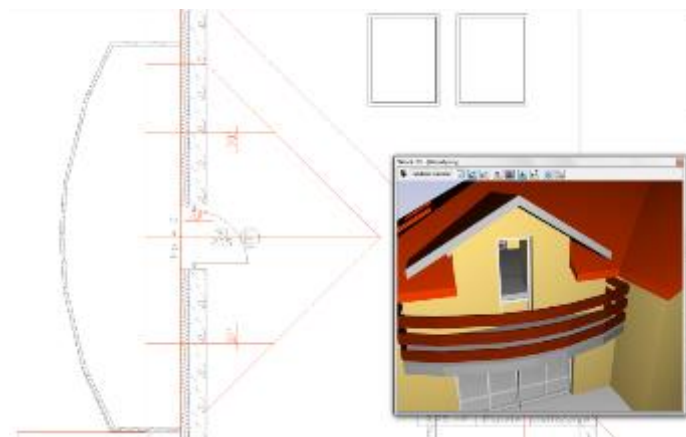


Fig. 383. Example of inserted dormer with eave niche.

Example dormer inserted on the outer edge of the wall. The wall under the roof was cut in order to fit also the dormer, the window is placed in this wall and due to the opening in the roof piece (selected in the dormer options) also a balcony doors could be inserted into the end of the eave.

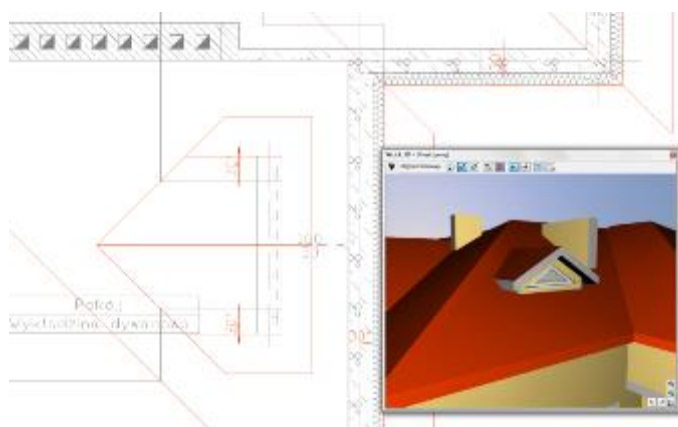


Fig. 384. Example of inserted dormer

Example of a dormer which was inserted on one of the roof pieces. After inserting the dormer wall was inserted starting from the roof piece and not from the floor of the attic. Special window was inserted in the wall.

Roofs

16.3.2. Editing dormers

Dormers can be modified through copying, sliding, and deleting. Additionally, editing window as the following modification options:

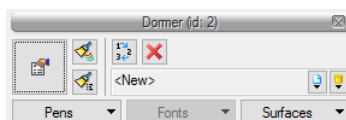


Fig. 385. Dormer editing window

Tab. 44 Dormer modification tools

	<i>Go to Properties dialog box</i>	Opens the <i>Properties</i> window.
	<i>Fonts and pens painter</i>	Takes over the settings of pens (thickness and line types) and the size, and the type of the font.
	<i>Type painter</i>	Takes over the element type, its diagram and sizes, transmitting them to a selected element.
	<i>Dormer renumbering</i>	This option allows for giving number to each of the subsequently selected dormers. Default numbers are given are always subsequent numbers, if the dormer is deleted its number is unused. It may happen that in a single list there will be Dormer 1, Dormer 10, and Dormer 11. In such case, they should be re-numerated as Dormers 1, 2, and 3.
	<i>Type</i>	Save set of features common for many objects of the same type (elements template defined by the user).
	<i>Document library</i>	Compliant with the selected template and created together with the development of the drawing while new types are saved.
	<i>Global library</i>	Type library is provided with the software and extended by <i>User library</i> where the user can save and store element types created by him for use in future projects.
	<i>Delete marked objects</i>	Deletes marked objects
	<i>Pens</i>	Definition of type of the lines with which the inserted element is drawn.
	<i>Surfaces</i>	Assigning materials or textures for specific types of areas of inserted element.



Additionally, in the *Object properties: Dormer* window the size of the eave, the roof pieces slant and mounting height of each roof piece can be modified. Also, the width, dormer type, and the roof coverage material can be changed.

Roofs

16.4. Roof opening**16.4.1. Inserting a roof opening**

An opening, which can go through any number of roof pieces, can be inserted in the existing roof. Its shape is inserted by selecting subsequent points.

Activation:

- *Architecture* ribbon ⇒ logical group *Building* ⇒  *Roof opening*
- *ArCADia-ARCHITECTURE* toolbar ⇒  *Insert roof opening*

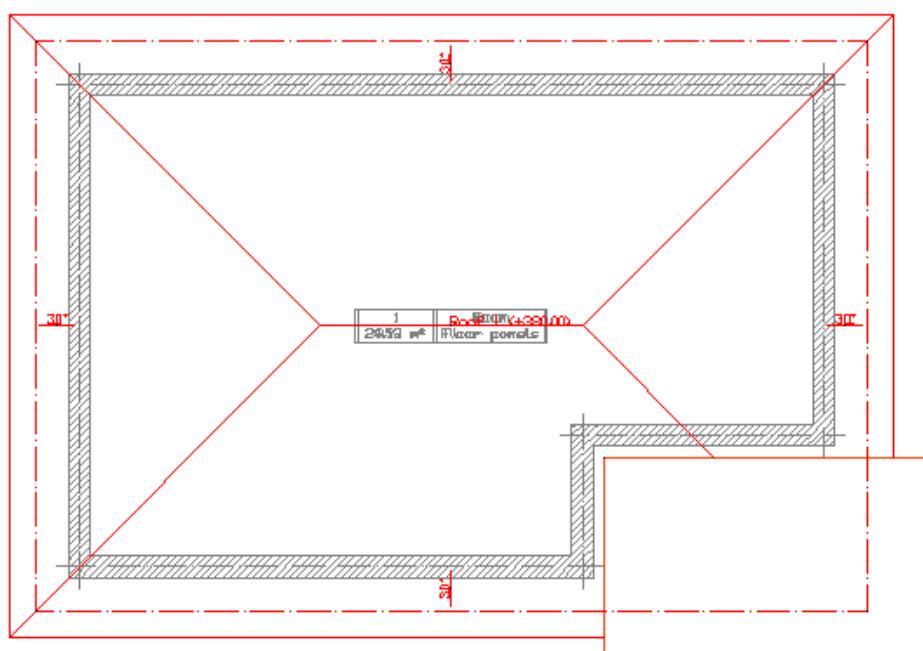


Fig. 386. Example of the roof projection with an opening on the edge

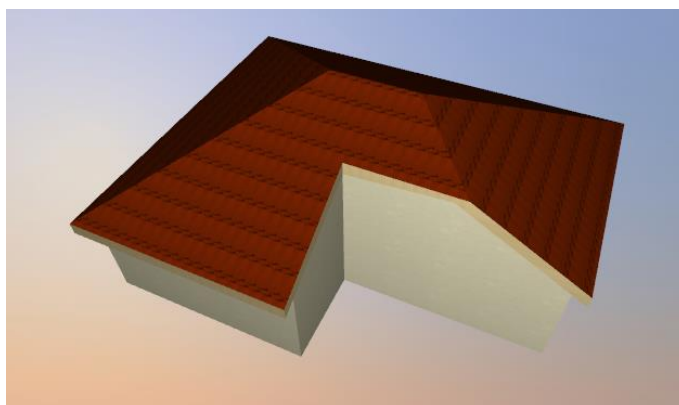


Fig. 387. Example of the preview of the roof with an opening on the edge

Roofs

16.4.2. Editing a roof opening

Aside from the standard modification options: copying, sliding, deleting, the following options are available:

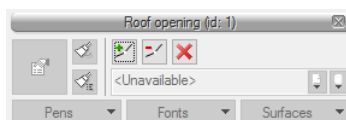


Fig. 388. Roof opening editing window

Tab. 45 Tool for modifying the roof opening

	<i>Add point</i>	Adds a point () on the contour of the opening that allows for modifying its projection.
	<i>Remove point</i>	Deletes the selected point of the opening.
	<i>Delete marked objects</i>	Deletes marking.

16.5. Roof windows

16.5.1. Inserting roof windows

ArCADia-ARCHITECTURE software allows for inserting roof windows into the roof existing in the project.

Activation:

- *Architecture* ribbon ⇒ logical group *Building* ⇒ *Roof window*
- *ArCADia-ARCHITECTURE* toolbar ⇒ *Insert roof window*

After executing the option *Passage to properties dialog* from the *Object insertion* window, the window *Object properties: Dormer window* will be displayed:

Roofs

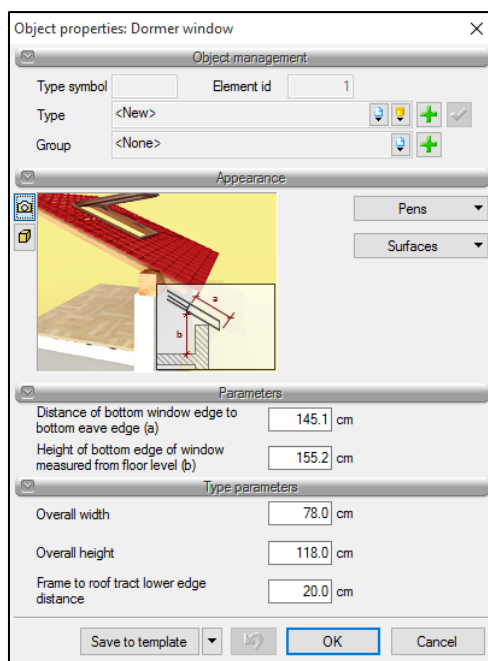


Fig. 389. Roof window properties before insertion window

When inserting the roof window you can define the following parameters:

Overall width — window's width.

Overall height — window's height.

Frame to roof tract lower edge distance — embedment of the window with respect to the lower edge of the roof.

Save to template — saves the pen settings, selected styles, and miscellaneous parameters of the element into the temple.

After confirming the date, you can insert the roof windows one by one or in bulk after giving the quantity, direction and distance between the windows.

During the drawing the following functions are available, from the insertion window, reports window or command area:

- *Tracking axes* — this option detects points and edges of the inserted elements and sets vertical and horizontal axes from them against the screen or, in case it is e.g. wall edge, displays the extension of such line.
- *Tracking angles* — this option selects the angles given in the window above, setting them from previously inserted elements, e.g. from the edges of the drawn walls.
- *Element and section detection* — this option detects edges, axis, corners, and points of the elements inserted to the project, making possible to precisely set the cursor on the drawn objects.
- *Element insertion options* — opens the window to set tracking and underlay.
- *Reference* — allows for inserting an object in a given distance from the selected point.

Roofs

- *Cancel* — aborts the action without inserting the object.
- *Undo* — deletes last object inserted.
- *Ready* — ends inserting of the object.

16.5.2. Editing roof windows

Roof windows can be modified by sliding and deleting them. Additionally, Edit window has the following modification options:

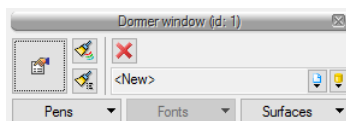


Fig. 390. Roof windows editing window

Tab. 46 Roof windows modification tools

	<i>Go to Properties dialog box</i>	Opens the <i>Properties</i> window.
	<i>Fonts and pens painter</i>	Takes over the settings of pens (thickness and line types) and the size, and the type of the font.
	<i>Type painter</i>	Takes over the element type, its diagram and sizes, transmitting them on a selected element.
	<i>Type</i>	Save set of features common for many objects of the same type (elements template defined by the user).
	<i>Project library</i>	Compliant with selected template and created together with the development of the drawing while new types are saved.
	<i>Global library</i>	Type library is provided with the software and extended by <i>User library</i> where the user can save and store element types created by him for use in future projects.
	<i>Delete marked objects</i>	Deletes marking
	<i>Pens</i>	Definition of type of the lines with which the inserted element is drawn.
	<i>Surfaces</i>	Assigning materials or textures for specific types of areas of inserted element.

In the *Properties* window there are additional options available for inserted windows:

Distance of bottom window edge to bottom eave edge – distance of the lower edge of the roof window from the edge of the eave.



Height of bottom edge of window measured from floor level — roof window height calculated from the “0” level.

Roofs

16.6. Roof hatch**16.6.1. Roof hatch insertion**

ArCADia-ARCHITECTURE software allows for inserting roof windows into the roof existing in the project.

Activation:

- *Architecture* ribbon ⇒ logical group *Building* ⇒  *Roof hatch*
- *ArCADia-ARCHITECTURE* toolbar ⇒  *Insert roof hatch*

After activating the option passage to properties dialogue from the *Object insertion* window, the window *Object properties: Roof hatch* will be displayed:

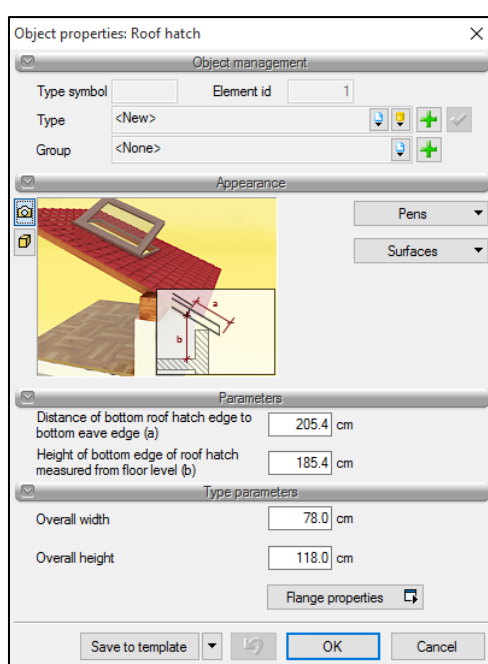


Fig. 391. Roof hatch properties before inserting

When inserting the roof hatch, you can define the element size:

Overall width — hatch's width.

Overall height — hatch's height.

Flange properties — the window of a size of the flange around the roof hatch.

Save to template — saves the pen settings, selected styles, and miscellaneous parameters of the element into the temple.

Roofs

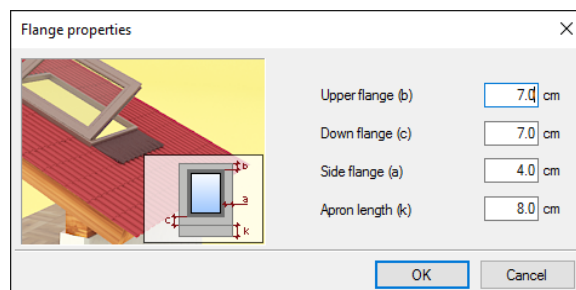


Fig. 392. Roof hatch flange properties window

After confirming the date, you can insert roof hatches one by one or in built after defining the quantity, direction, and distances between them.

During the drawing the following functions are available, from the insertion window, reports window or command area:

- **Tracking axes** – this option detects points and edges of the inserted elements and sets vertical and horizontal axes from them against the screen or, in case it is e.g. wall edge, displays the extension of such line.
- **Tracking angles** – this option selects the angles given in the window above, setting them from previously inserted elements, e.g. from the edges of the drawn walls.
- **Element and section detection** – this option detects edges, axis, corners, and points of the elements inserted to the project, making possible to precisely set the cursor on the drawn objects.
- **Element insertion options** – opens the window to set tracking and underlay.
- **Reference** – allows for inserting an object in a given distance from the selected point.
- **Cancel** – aborts the action without inserting the object.
- **Undo** – deletes last object inserted.
- **Ready** – ends inserting of the object.

16.6.2. Editing the roof hatches

Roof hatches can be modified by sliding and deleting them. Additionally, editing window has the following modification options:

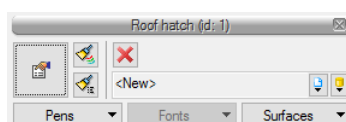





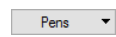
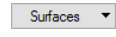


Fig. 393. Roof hatch editing window

Tab. 47 Roof hatches modification tools

	<i>Go to Properties dialog box</i>	Opens the <i>Properties</i> window.
	<i>Fonts and pens painter</i>	Takes over the settings of pens (thickness and line types), and the size, and the type of the font.

Roofs

	<i>Type painter</i>	Takes over the element type, its diagram and sizes, transmitting them on a selected element.
	<i>Type</i>	Save set of features common for many objects of the same type (elements template defined by the user).
	<i>Project library</i>	Compliant with the selected template and created together with the development of the drawing while new types are saved.
	<i>Global library</i>	Type library is provided with the software and extended by <i>User library</i> where the user can save and store element types created by him for use in future projects.
	<i>Delete marked objects</i>	Deletes marking.
	<i>Pens</i>	Definition of type of the lines with which the inserted element is drawn.
	<i>Surfaces</i>	Assigning materials or textures for specific types of areas of inserted element.

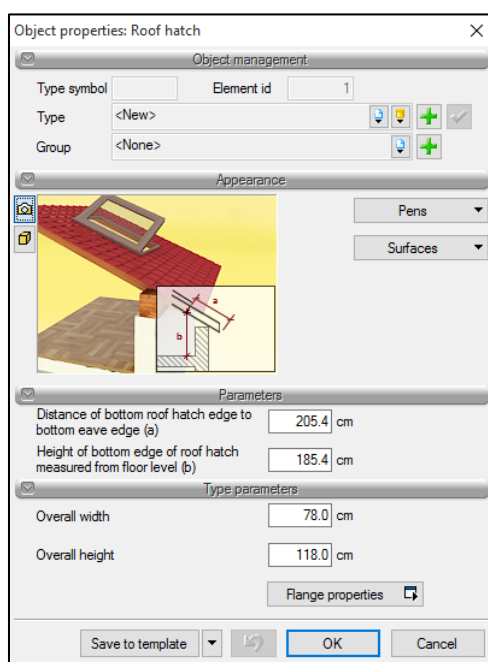


Fig. 394. Roof hatch properties window

In the *Properties* window after selecting the hatch you can modify not only its size but also its location.

Distance of bottom roof hatch edge to bottom eave edge – distance of the lower edge of the roof hatch from the edge of the eave.



Height of bottom edge of roof hatch measured from floor level — roof hatch height calculated from the “0” level.

Roofs

16.7. Solar collector**16.7.1. Introducing the solar collector**

The ArCADia-ARCHITECTURE software enables introduction of the solar collector roof slope.

Activation:

- *Architecture* ribbon ⇒ logical group *Building* ⇒  *Collector*
- *ArCADia-ARCHITECTURE* toolbar ⇒  *Insert solar collector*

After triggering, from the object inserting window, the option *Moving to properties dialog box*, you will see *Element properties: Solar collector*.

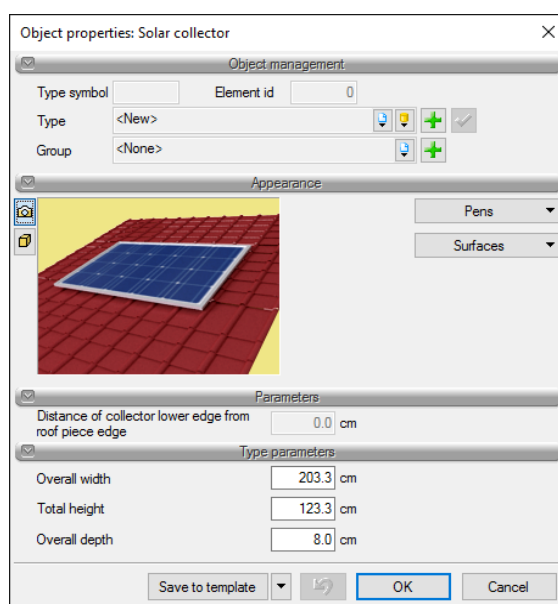


Fig. 395. Properties window for the solar collector before its inserting

When inputting the collector, we have the possibility of defining the collector size and, e.g., save it in the library.

After approving the data, you may introduce on collector individually or several at the same time after setting the number, direction and distances between them.

During drawing, from the level of the inserting window, the notification window or the command area, the following functions are available:

- *Tracking axes* – the option detects points and edges of the introduced elements, conducting from the horizontal and vertical axes in relation to the screen or, if it is e.g., the edge of the wall, it also shows the extension of such a line.
- *Tracking angles* – the option indicates the angles set in the above window, setting them from the previously introduced elements, e.g. the edge of drawn walls.
- *Element and section detection* – the option detects edges, axes, corners and points of elements already introduced to the project, enabling therefore precise fixing of the cursor on the drawn objects.

Roofs

- *Element insertion options* – opens the window to set tracking and underlay.
- *Reference* – enables inserting the object in the set distance from the selected point.
- *Cancel* – aborts the function without inserting the object.
- *Back* – removes the recently inserted object.
- *Ready* – finishes inserting the object.

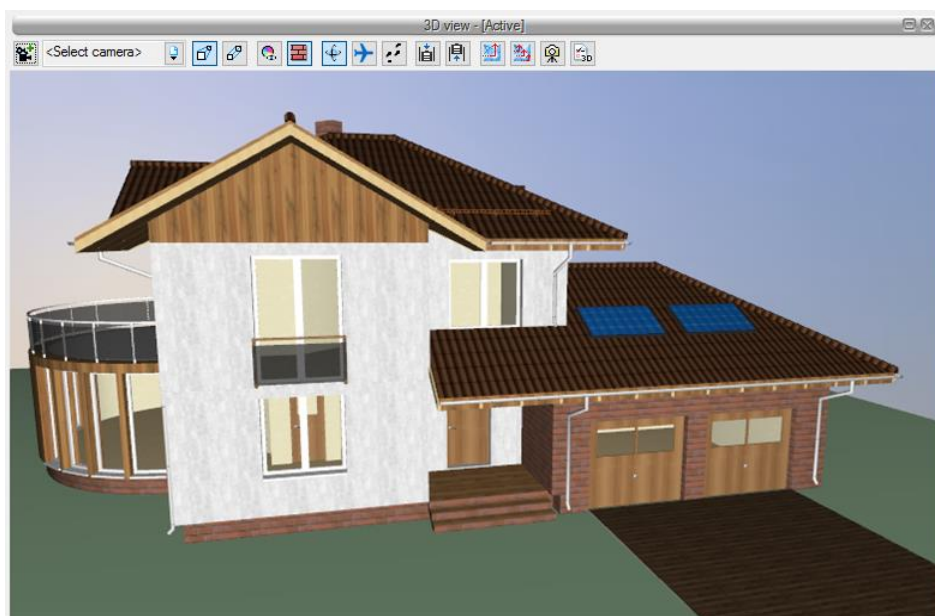


Fig. 396. Example of the inserted collector

16.7.2. Edition of the solar collector

The solar collector can be modified by moving and removing. Additionally, the edition window has the following modification options.

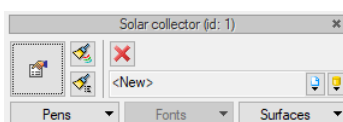



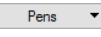
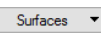


Fig. 397. Collector edition window

Tab. 48 Roof window modification tools

	<i>Go to Properties dialog box</i>	It opens the <i>Properties</i> window.
	<i>Font and marker painter</i>	It takes over the marker settings (thickness and types of lines), as well as the size and the type of the font.
	<i>Type painter</i>	It takes over the type of element, its scheme and sizes, moving them to the indicated element or elements.
	<i>Type</i>	The saved set of common features for many objects of the same type (template elements defined by the user).

Roofs

	<i>Project library</i>	Consistent with the selected template and created along with the development of the drawing when saving next types.
	<i>Global library</i>	Type library provided along with the software and extended by the <i>User library</i> where you can save own types of elements for their use in next projects.
	<i>Delete marked objects</i>	Deletes the selected elements.
	<i>Pens</i>	Definition of the type the line used for drawing the introduced element.
	<i>Surfaces</i>	Assignment of materials or textures for particular areas of the introduced element.

In the *Properties* window, for the already inserted collector, an additional option is available:

Distance of the lower edge of the collector from the roof slope hood edge – distance of the lower edge of the collector from the hood edge.



16.8. Roof gutters

Roof gutters are new addition in this version, they can be added in three ways: automatically – on all roof and dormer eaves, manually – by selecting the eave, and manually by selecting the eave and defining the length of the gutter.

16.8.1. Automatic insertion of the roof gutters

This option allows for inserting the roof gutters on the already existing roof project on all eaves at the same time. The gutters are inserted on the eaves of the roof and the dormers.

Activation:

- *Architecture* ribbon ⇒ logical group *Building* ⇒  *Auto gutters*
- *ArCADia-ARCHITECTURE* toolbar ⇒  *Insert auto gutters*

After selecting this option the following window is displayed:

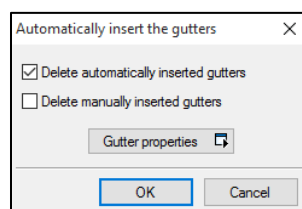


Fig. 398. Automatic insertion of roof gutters window

Delete automatically inserted gutters – before another insertion of the gutters automatically inserted ones are deleted from all eaves.

Roofs

Delete manually inserted gutters – before another insertion of the gutters manually inserted or modified ones are deleted from all eaves.

Gutter properties – pressing the button open a transition to the properties window.

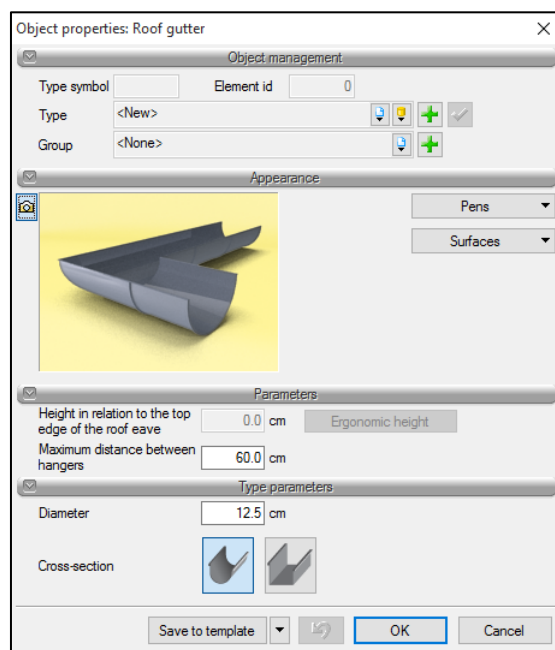


Fig. 399. Roof gutter before insertion properties window

Maximum distance between hangers – the distance between the automatically placed hangers, which will not be bigger than the value given.

Diameter – radius or width (for rectangular cross-sections) of the roof gutter.

Cross-section – selection of the gutter cross-section.

Save to template – saves the pen settings, selected styles, and miscellaneous parameters of the element into the temple.

16.8.2. Manual insertion of roof gutters

This options allows for inserting a gutter on an eave marked by clicking on it (both roof eave and dormer eave). The gutter is then placed on the whole length of the eave.

Activation:

- *Architecture* ribbon ⇒ logical group *Building* ⇒ *Gutter*
- *ArCADia-ARCHITECTURE* toolbar ⇒ *Insert gutter*

During the drawing the following functions are available, from the insertion window, reports window, or command area:

- *Reference* – allows for inserting an object in a given distance from the selected point.



Roofs

- *Between points (middle)* – starts the drawing of the wall in the middle of given distance (distance is introduced by selecting to points).
- *Between points (percentage)* – starts the drawing of the wall in a given percentage of the distance introduced (the distance is introduced by selecting two points).
- *Cancel* — aborts the action without inserting the object.
- *Undo* – deletes last object inserted.
- *Ready* – ends inserting of the object

16.8.3. Inserting gutters through two points

The option allows for inserting the gutter on a portion of an eave. After activating the command you select the eave and mark the place of the beginning of the gutter insertion and click the second time to mark the end of the gutter.

Activation:

- *Architecture* ribbon ⇒ logical group *Building* ⇒  *Gutters start-end*
- *ArCADia-ARCHITECTURE* toolbar ⇒  *Insert gutters start-end*

16.8.4. Editing gutters

Irrespectively from the insertion method modifications are always the same and are available from the editing window:

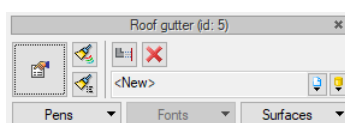








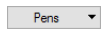
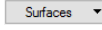


Fig. 400. Roof gutters editing window

Tab. 49 Gutters modification tools

	<i>Go to Properties dialog box</i>	Opens the <i>Properties</i> window.
	<i>Fonts and pens painter</i>	Takes over the settings of pens (thickness and line types), and the size, and the type of the font.
	<i>Type painter</i>	Takes over the element type, its diagram and sizes, transmitting them on a selected element.
	<i>Lengthen/shorten the roof gutter</i>	Extends or shortens the marked chute without the necessity of using the handle.
	<i>Type</i>	Save set of features common for many objects of the same type (elements template defined by the user).
	<i>Document library</i>	Compliant with the selected template and created together with the development of the drawing while new types are saved.
	<i>Global library</i>	Type library is provided with the software and extended by <i>User library</i> where the user can save and store element types created by him for use in future projects.

Roofs

	<i>Delete marked objects</i>	Deletes marked objects
	<i>Pens</i>	Definition of type of the lines with which the inserted element is drawn.
	<i>Surfaces</i>	Assigning materials or textures for specific types of areas of inserted element.

Inserted gutters can be modified by changing their location height and length on the inserted eave.



NOTE: If you change the length of the automatically inserted gutter it will be transferred to manually inserted gutters group. Therefore before you insert gutters next time make sure which gutter you remove in order to avoid overlapping of old and new elements.

16.9. Drain pipes

Inserting drain pipes into the selected gutter is a new feature of this version.

16.9.1. Inserting drain pipes

Activation:

- *Architecture* ribbon ⇒ logical group *Building* ⇒  *Drain pipe*
- *ArCADia-ARCHITECTURE* toolbar ⇒  *Insert drain pipe*

After activating the option passage to properties dialogue from the *Object insertion* window, the window *Object properties: Drain pipe*:

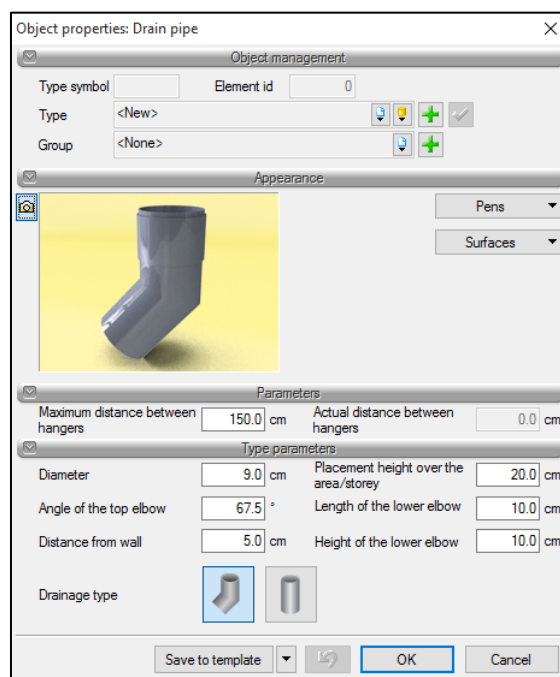


Fig. 401. Drain pipe properties window

Roofs

Maximum distance between hangers – the distance between the automatically placed hangers, which will not be bigger than the defined value.

Actual distance between hangers – information about the inserted by the software actual distance between the hangers.

Diameter – radius or width (for rectangular cross-sections) of the drain pipe.

Angle of the upper elbow – the angle of the drain pipe between the gutter and the wall and down along the wall.

Distance from wall – the distance of the pipe from the contour of the roof, it may happen (if the contour of the roof is not done on the outer edge of the wall) that the pipe will need to be moved from inside the wall or moved back, if the contour goes outside of the building's walls.

Height over the terrain/level – by default drain pipe ends about 20 cm above the terrain or if the terrain is not inserted 20 cm above the zero of the project, i.e. the base level of the building.

Length of the lower elbow – length of the lower, diagonal section of the pipe. The option is available only with bent outflow type.

Height of the lower elbow – height of the diagonal outflow of the drain pipe. The option is available only with bent outflow type.

Drainage type – selection between bent and straight ending of the drain pipes.

Save to template – saves the pen settings, selected styles, and miscellaneous parameters of the element into the template.

During the drawing the following functions are available, from the insertion window, reports window, or command area:

- *Tracking axes* – this option detects points and edges of the inserted elements and sets vertical and horizontal axes from them against the screen or, in case it is e.g. wall edge, displays the extension of such line.
- *Tracking angles* – this option selects the angles given in the window above, setting them from previously inserted elements, e.g. from the edges of the drawn walls.
- *Element and section detection* – this option detects edges, axis, corners, and points of the elements inserted to the project, making possible to precisely set the cursor on the drawn objects.
- *Element insertion options* – opens the window to set tracking and underlay.
- *Reference* – allows for inserting an object in a defined distance from the selected point.
- *Between points (middle)* – starts the drawing of the wall in the middle of given distance (distance is introduced by selecting to points).
- *Between points (percentage)* – starts the drawing of the wall in a given percentage of the distance introduced (the distance is introduced by selecting two points).
- *Cancel* – aborts the action without inserting the object.
- *Undo* – deletes last object inserted.

Roofs

- *Ready* – ends inserting of the object.

16.9.2. Editing drain pipes

Drain pipes can be modified by sliding (only in the area of the gutter where they were placed) and deleting them. Additionally editing window has the following modification options:

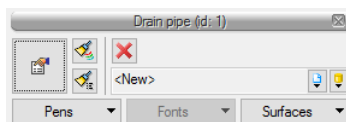


Fig. 402. Drain pipes editing window

Tab. 50 Drain pipes modification tools

	<i>Go to Properties dialog box</i>	Opens the <i>Properties</i> window.
	<i>Fonts and pens painter</i>	Takes over the settings of pens (thickness and line types), and the size, and the type of the font.
	<i>Type painter</i>	Takes over the element type, its diagram and sizes, transmitting them on a selected element.
	<i>Type</i>	Save set of features common for many objects of the same type (elements template defined by the user).
	<i>Project library</i>	Compliant with the selected template and created together with the development of the drawing while new types are saved.
	<i>Global library</i>	Type library is provided with the software and extended by <i>User library</i> where the user can save and store element types created by him for use in future projects.
	<i>Delete marked objects</i>	Deletes marking.
	<i>Pens</i>	Definition of type of the lines with which the inserted element is drawn.
	<i>Surfaces</i>	Assigning materials or textures for specific types of areas of inserted element.

16.10. Ridge tiles

In the ArCADia-ARCHITECTURE software, the tiles can be inserted automatically or manually, on a selected gable or corner.

16.10.1. Automatic insertion of the ridge tiles

After activating, the tile is inserted automatically on all convex (gables and corners) edges, both on the roof and on the dormers located on the roof.

Roofs

Activation:

- *Architecture* ribbon ⇒ logical group *Building* ⇒ *Auto ridge tile*
- *ArCADia-ARCHITECTURE* toolbar ⇒ *Insert auto ridge tile*

After selecting this option the following window is displayed:

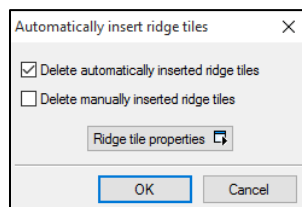


Fig. 403. Ridge tile automatic insertion window

Delete automatically inserted ridge tiles – before another insertion of the ridge tiles on the corners and gables all automatically inserted ridge tiles are deleted.

Delete manually inserted ridge tiles – before another insertion of the ridge tiles on the corners and gables all manually inserted ridge tiles are deleted.

Ridge tile properties – pressing the button open a transition to the properties window.

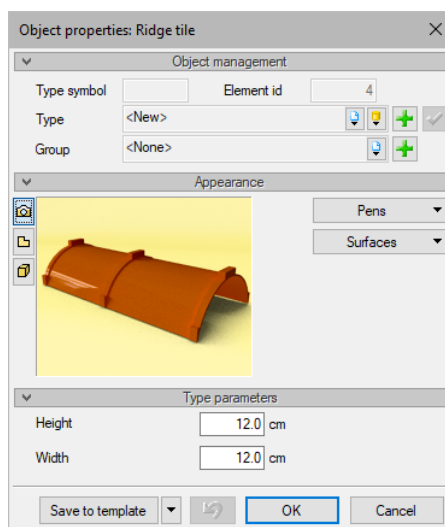


Fig. 404. Ridge tile properties window

In the *Type parameters* the size of the tile is defined.



Save to template — saves the pen settings, selected styles, and miscellaneous parameters of the element into the temple

16.10.2. Inserting ridge tiles

For specific gables or corners tiles can be inserted manually, e.g. on the dormer where the tiles where inserted automatically. After activating the option you need to click on an appropriate edge of the roof and the tile will be inserted.

Roofs

Activation:

- *Architecture* ribbon ⇒ logical group *Building* ⇒  *Ridge tile*
- *ArCADia-ARCHITECTURE* toolbar ⇒  *Insert ridge tile*

16.10.3. Editing ridge tiles

Tiles can be deleted and their size can be modified in the properties window. Additionally editing toolbar has the following modification options:

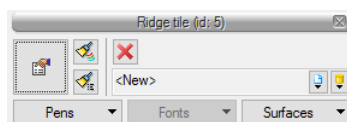











Fig. 405. Ridge tile editing window

Tab. 51 Ridge tiles modification tools

	<i>Go to Properties dialog box</i>	Opens the <i>Properties</i> window.
	<i>Fonts and pens painter</i>	Takes over the settings of pens (thickness and line types), and the size, and the type of the font.
	<i>Type painter</i>	Takes over the element type, its diagram and sizes, transmitting them on a selected element.
	<i>Type</i>	Save set of features common for many objects of the same type (elements template defined by the user).
	<i>Project library</i>	Compliant with the selected template and created together with the development of the drawing while new types are saved.
	<i>Global library</i>	Type library is provided with the software and extended by <i>User library</i> where the user can save and store element types created by him for use in future projects.
	<i>Delete marked objects</i>	Deletes marked elements
	<i>Pens</i>	Definition of type of the lines with which the inserted element is drawn.
	<i>Surfaces</i>	Assigning materials or textures to specific types of areas of inserted element.

16.11. Chimney cowl



Chimney cowl can be inserted in arbitrary placed of the roof pieces. They cannot be inserted on the dormers and in the roof holes. Two types of cowl are available: ventilation and fumes.

16.11.1. Inserting chimney cowl

This option allows for inserting the cowl into the selected place by clicking the place on the roof piece.

Roofs

Activation:

- *Architecture* ribbon ⇒ logical group *Building* ⇒  *Chimney cowl*
- *ArCADia-ARCHITECTURE* toolbar ⇒  *Insert chimney cowl*

After activating the option *Passage to properties dialogue* from the *Object insertion* window, the window *Object properties: Chimney cowl* will be displayed:

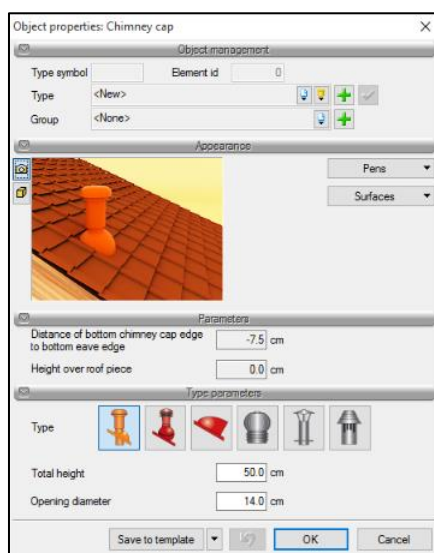


Fig. 406. Chimney cowl properties before insertion window

Options of the *Parameters* panel are available for changing after the insertion of the cowl on the roof.

Type – cowls have two type standards: *Ventilation cowl* and *Fumes cowl*. Additionally for each of the types there are three different appearances of the elements.

Overall height – cowl's height calculated from the roof piece.

Diameter of the opening – diameter of the opening cut in the roof piece.

Save to template — saves the pen settings, selected styles, and miscellaneous parameters of the element into the temple.

During the drawing the following functions are available, from the insertion window, reports window, or command area:

- *Tracking axes* – this option detects points and edges of the inserted elements and sets vertical and horizontal axes from them against the screen or, in case it is e.g. wall edge, displays the extension of such line.
- *Tracking angles* – this option selects the angles given in the window above, setting them from previously inserted elements, e.g. from the edges of the drawn walls.
- *Element and section detection* – this option detects edges, axis, corners, and points of the elements inserted to the project, making possible to precisely set the cursor on the drawn objects.
- *Element insertion options* – opens the window to set tracking and underlay.

Roofs

- *Reference* – allows for inserting an object in a defined distance from the selected point;
- *Between points (middle)* – starts the drawing of the wall in the middle of given distance (distance is introduced by selecting to points).
- *Between points (percentage)* – starts the drawing of the wall in a given percentage of the distance introduced (the distance is introduced by selecting two points).
- *Cancel* — aborts the action without inserting the object.
- *Undo* – deletes last object inserted.
- *Ready* – ends inserting of the object.

16.11.2. Editing chimney cowl

Chimney cowl can be modified through copying, sliding over a single roof piece, or deleting. Additionally editing window has the following modification options:

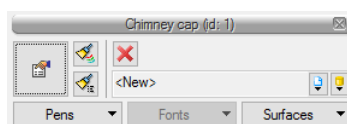


Fig. 407. Chimney cowl editing window

Tab. 52 Cowl modification tools

	<i>Go to Properties dialog box</i>	Opens the <i>Properties</i> window.
	<i>Fonts and pens painter</i>	Takes over the settings of pens (thickness and line types), and the size, and the type of the font.
	<i>Type painter</i>	Takes over the element type, its diagram and sizes, transmitting them to a selected element.
	<i>Type</i>	Save set of features common for many objects of the same type (elements template defined by the user).
	<i>Document library</i>	Compliant with the selected template and created together with the development of the drawing while new types are saved.
	<i>Global library</i>	Type library is provided with the software and extended by <i>User library</i> where the user can save and store element types created by him for use in future projects.
	<i>Delete marked objects</i>	Deletes marking
	<i>Pens</i>	Definition of type of the lines with which the inserted element is drawn.
	<i>Surfaces</i>	Assigning materials or textures to specific types of areas of inserted element.

In the *Properties* window there are additional options available for inserted cowl:

Distance from lower edge of the cowl to the eave edge – distance from the edge of the opening cut in the roof piece by the cowl to the eave.

Roofs

Cowl height above the roof – possibility of raising the cowl above the roof, e.g. to place it on the chimney. The cowl can be placed on the chimney only if the chimney does not cut a opening in the roof piece.



16.12. Snow guard

The possibility to insert a snow guard on a roof piece is new feature in this version of the software, it secures the roof from the uncontrolled sliding of the snow from it.

16.12.1. Inserting snow guards

This option allows for inserting snow guards on a given roof piece parallel to the eave edge. The option is available only for the roof pieces, it is not inserted on the dormers. After activating the command you mark the start beginning and the end of the guard.

Activation:

- *Architecture* ribbon ⇒ logical group *Building* ⇒  *Snow guard*
- *ArCADia-ARCHITECTURE* toolbar ⇒  *Insert snow guard*

After activating the option *Passage to properties dialogue* from the *Object insertion* window, the window *Object properties: Snow guard*:

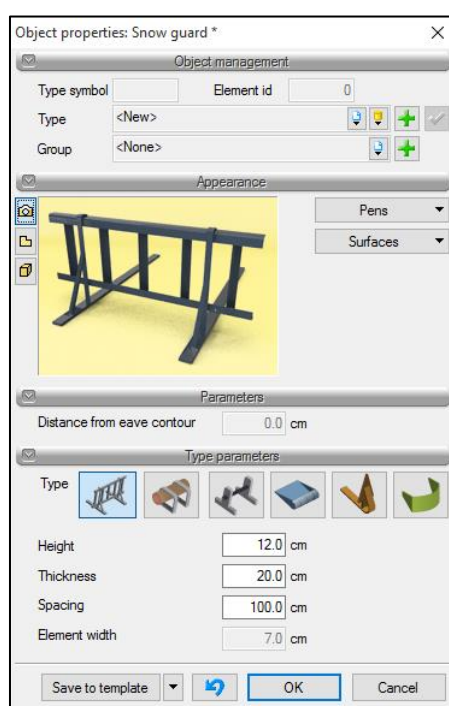


Fig. 408. Roof guard properties window before insertion

Options on the *Parameters* panel are available only after you insert the barrier on the roof.

Type – you have 6 types of barriers available (snow fences, wooden beams, steel beams, lying gutters, snow crushers, and stoppers).

Roofs

Height – guard's height calculated from the roof piece.

Thickness – thickness of the snow guard structural elements.

Spacing – distance between the elements (e.g.. stoppers) or between the construction elements from the guard (element fixing the fences)

Save to template – saves the pen settings, selected styles, and miscellaneous parameters of the element into the temple.

During the drawing the following functions are available, from the insertion window, reports window, or command area:

- *Tracking axes* – this option detects points and edges of the inserted elements and sets vertical and horizontal axes from them against the screen or, in case it is e.g. wall edge, displays the extension of such line.
- *Tracking angles* – this option selects the angles given in the window above, setting them from previously inserted elements, e.g. from the edges of the drawn walls.
- *Element and section detection* – this option detects edges, axis, corners, and points of the elements inserted to the project, making possible to precisely set the cursor on the drawn objects.
- *Element insertion options* – opens the window to set tracking and underlay.
- *Reference* – allows for inserting an object in a defined distance from the selected point.
- *Between points (middle)* – starts the drawing of the wall in the middle of given distance (distance is introduced by selecting to points).
- *Between points (percentage)* – starts the drawing of the wall in a given percentage of the distance introduced (the distance is introduced by selecting two points).
- *Cancel* – aborts the action without inserting the object.
- *Undo* – deletes last object inserted.
- *Ready* – ends inserting of the object.

16.12.2. Editing snow guards

Snow guards can be modified through copying, sliding over a single roof piece, or deleting. Additionally editing window has the following modification options:

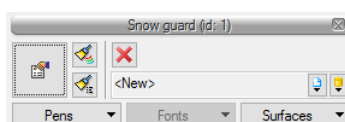










Fig. 409. Snow guard editing window

Tab. 53 Snow guard modification tools

	<i>Go to Properties dialog box</i>	Opens the <i>Properties</i> window.
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Roofs

	<i>Fonts and pens painter</i>	Takes over the settings of pens (thickness and line types), and the size, and the type of the font.
	<i>Type painter</i>	Takes over the element type, its diagram and sizes, transmitting them to a selected element.
	<i>Type</i>	Save set of features common for many objects of the same type (elements template defined by the user).
	<i>Project library</i>	Compliant with the selected template and created together with the development of the drawing while new types are saved.
	<i>Global library</i>	Type library is provided with the software and extended by <i>User library</i> where the user can save and store element types created by him for use in future projects.
	<i>Delete marked objects</i>	Deletes marking
	<i>Pens</i>	Definition of type of the lines with which the inserted element is drawn.
	<i>Surfaces</i>	Assigning materials or textures to specific types of areas of inserted element.

In the *Properties* window there are additional options available for inserted cowls:

Distance from eave contour – the distance of the guard from the edge of the eave.

Footings

17. FOOTINGS

Footings

17.1. Footings

The footing creation options in the ArCADia-ARCHITECTURE software are pad footings and strip footings. These elements can be inserted both below and above of zero level. Additionally together with strip footing a foundation wall was introduced and a column was introduced with pad footings. Their parameters are available during the insertion. After the insertion they are not connected with substructure elements anymore.

The appearance of footings was also changed, footings were given axes, which can be disabled in there is a need for it.



17.1.1. Pad footings

Pad footings are, by default, inserted together with a column, which fits its height to the level height. After inserting the pad footings the column becomes an independent element and can be modified on its own, what means that e.g. it is not move together with the footing.

17.1.1.1. Inserting of pad footing

The option allows for inserting the substructures in selected place on any height of the “0” level.

Activation:

- *Architecture* ribbon ⇒ logical group *Building* ⇒  *Pad footing*
- *ArCADia-ARCHITECTURE* toolbar ⇒  *Insert pad footing*

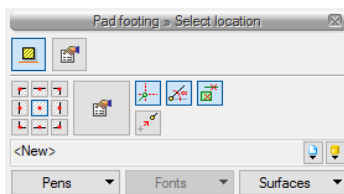




Fig. 410. Substructures insertion window

Tab. 54 Additional tools for insertion of the footing

	<i>Insert column</i>	This option inserts a column on substructure footing. It is a default value of the icon, which can be disabled.
	<i>Column properties</i>	Transition to the column properties window.

Before or after inserting the substructures we can define its basic parameters in *Object properties: Pad footing* dialog box:

Footings

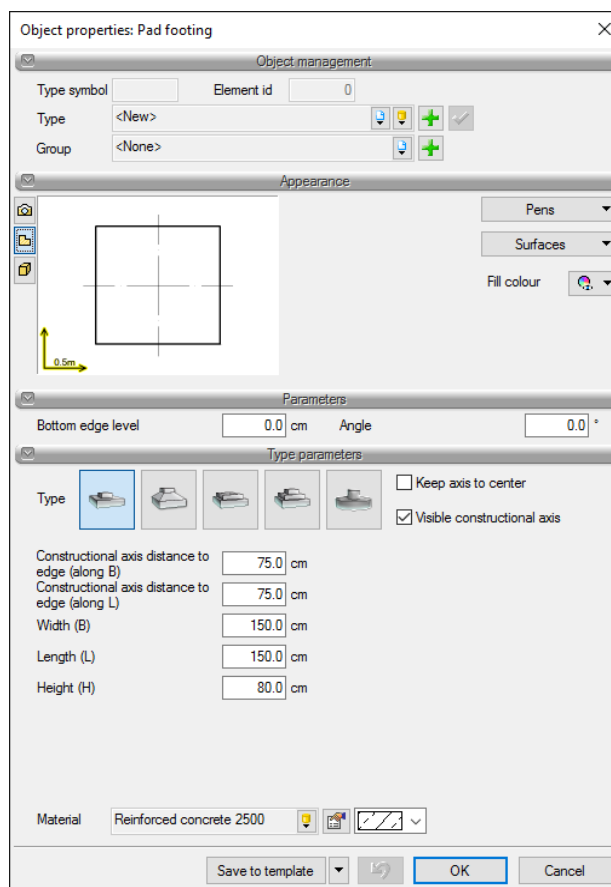


Fig. 411. Pad footing properties window

In the *Parameters* panel *Lower edge level* of the substructures and insertion *Angle* are defined.

First you have to select the type of the inserted substructure and later on define its basic geometric parameters available for a given substructure:

Axis with regard to the middle of the base – this option holds the vertical and horizontal axes in the middle of given base parameters

Visible construction axis – this option presents or hides the visibility of both axes.

Cuboid substructure

Constructional axis distance to edge (along B) – the distance of the vertical axis from the top footing edge.

Constructional axis distance to edge (along L) – the distance of the horizontal axis from the right footing edge.

Width (B) – footing width.

Length (L) – footing length.

Height (H) – footing height.

Footings

Additional parameters of the *trapezoidal footing*

Width (B1) – the width of the substructure narrowing.

Length(L1) – the length of the substructure narrowing.

Height – footing base height.

Additional parameters of the *Cup substructure*

Width (B1) – substructure step width.

Length (L1) – substructure step length.

Height (H1) – footing base height.

Width (B2) – width of the upper edge of the bell.

Length(L2) – length of the upper edge of the bell.

Height (H2) – bell height.

Height (B3) – bell narrowing width counted from the edge of the bell to its interior.

Length (L3) – bell narrowing length counted from the edge of the bell to its interior.

Additional parameters of the *step substructure*

Width (B1) – substructure's first step width.

Length (L1) – substructure's first step length.

Height (H1) – substructure's first step height.

Width (B2) – substructure's second step width.

Length (L2) – substructure's second step length.

Height (H2) – substructure's second step height.

Additional parameters of the *circular substructure*

Diameter (P) – the diameter of the substructure.

Save to template — saves the pen settings, selected styles, and miscellaneous parameters of the element into the template.

Footings

During the drawing the following functions are available, from the insertion window, reports window, or command area:

- *Tracking axes* – this option detects points and edges of the inserted elements and sets vertical and horizontal axes from them against the screen or, in case it is e.g. wall edge, displays the extension of such line.
- *Tracking angles* – this option selects the angles given in the window above, setting them from previously inserted elements, e.g. from the edges of the drawn walls.
- *Element and section detection* – this option detects edges, axis, corners, and points of the elements inserted to the project, making possible to precisely set the cursor on the drawn objects.
- *Element insertion options* – opens the window to set tracking and underlay.
- *Reference* – allows for inserting an object in a defined distance from the selected point.
- *Cancel* – aborts the action without inserting the object.
- *Undo* – deletes last object inserted.
- *Ready* – ends inserting of the object.

Pressing the OK button allows for Passage to the drawing mode and inserting the pad footing.

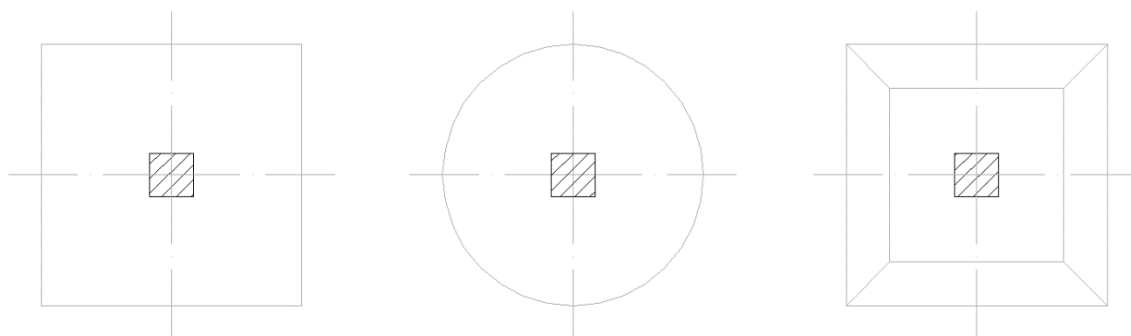


Fig. 412. Example of inserting different types of pad footings on the projection

17.1.1.2. Editing pad footings

Substructures can be modified through copying, sliding, rotating, and deleting. Additionally, irrespectively from the substructure type, editing window has the following modification options:

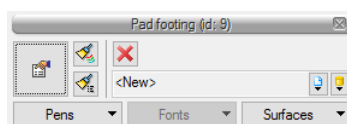


Fig. 413. Substructure editing window

Footings

Tab. 55 Substructures modification tools

	<i>Go to Properties dialog box</i>	Opens the <i>Properties</i> window.
	<i>Fonts and pens painter</i>	Takes over the settings of pens (thickness and line types), and the size, and the type of the font.
	<i>Type painter</i>	Takes over the element type, its diagram and sizes, transmitting them on a selected element.
	<i>Type</i>	Save set of features common for many objects of the same type (elements template defined by the user).
	<i>Document library</i>	Compliant with the selected template and created together with the development of the drawing while new types are saved.
	<i>Global library</i>	Type library is provided with the software and extended by <i>User library</i> where the user can save and store element types created by him for use in future projects.
	<i>Delete marked objects</i>	Deletes marking.
	<i>Pens</i>	Definition of type of the lines with which the inserted element is drawn.
	<i>Surfaces</i>	Assigning materials or textures to specific types of areas of inserted element.

17.1.2. Strip footing

Strip footings are, by default, inserted together with a foundation wall, which height is matched to the level height. After inserting the footing and the walls they are separate and independent elements and are edited each on its own, that means that they are e.g. not moved together.

17.1.2.1. Inserting strip footings

This option allows for inserting strip footings on any height from the “0” level. After inserting you can select the edge or axis as an insertion line. Construction axis will remain on the drawing of the footing, unless its visibility will be unmarked in the properties window.

Activation:

- *Architecture* ribbon ⇒ logical group *Building* ⇒ *Strip footing*
- *ArCADia-ARCHITECTURE* toolbar ⇒ *Insert strip footing*

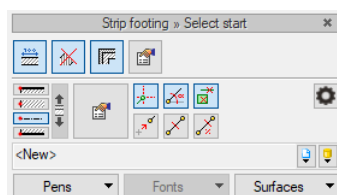


Fig. 414. Strip footings insertion window

Footings

Tab. 56 Additional tools for insertion of strip footing

	<i>Show/Hide auxiliary dimension</i>	When entering e.g. walls, the length of an inserted wall is shown along it.
	<i>Show/Hide auxiliary cross</i>	The underlay auxiliary line shows the insertion line of e.g. walls. Next to the cursor there is another auxiliary line, which is perpendicular and forms the auxiliary cross.
	<i>Insert foundation wall</i>	This option inserts a wall on the strip footing. It is a default value of the icon, which can be disabled.
	<i>Foundation wall properties</i>	Transition to the wall properties window.

Before or after inserting the substructures you can define its basic parameters in the *Properties window: Strip footing* dialog box:

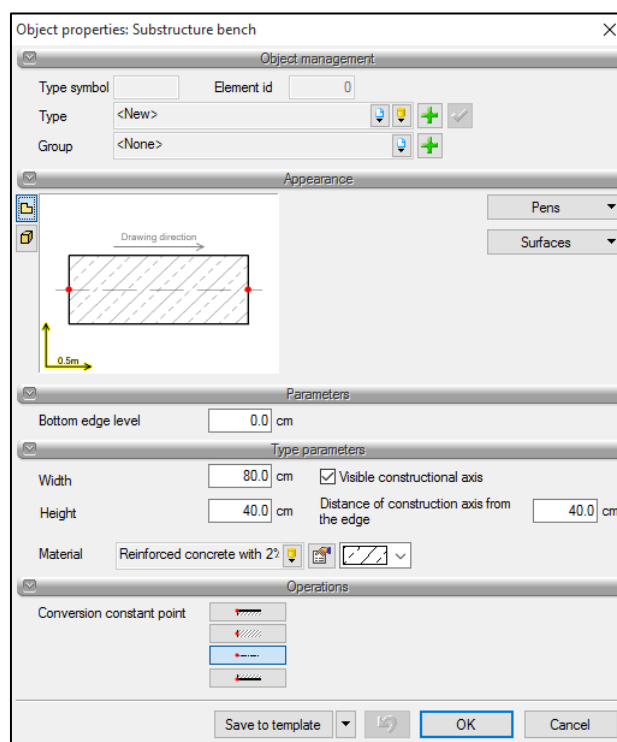


Fig. 415. Strip footing dialog box

In the *Parameters* panel you can define the *Lower edge level* of the inserted footing.

In the *Type parameters* panel you can define the size of the footing, visibility, and location of the construction axis.

Operations panel shows selected line which when changing the width of the footing will remain in the same place on the drawing.

Footings

Save to template — saves the pen settings, selected styles, and miscellaneous parameters of the element into the temple.

Pressing the *OK* button allows for transition to the footing drawing mode.

During the drawing the following functions are available, from the insertion window, reports window, or command area:

- *Tracking axes* – this option detects points and edges of the inserted elements and sets vertical and horizontal axes from them against the screen or, in case it is e.g. wall edge, displays the extension of such line.
- *Tracking angles* – this option selects the angles given in the window above, setting them from previously inserted elements, e.g. from the edges of the drawn walls.
- *Element and section detection* – this option detects edges, axis, corners, and points of the elements inserted to the project, making possible to precisely set the cursor on the drawn objects.
- *Element insertion options* – opens the window to set tracking and underlay.
- *Reference* – allows for inserting an object in a defined distance from the selected point.
- *Between points (middle)* – starts the drawing of the wall in the middle of given distance (distance is introduced by selecting to points).
- *Between points (percentage)* – starts the drawing of the wall in a given percentage of the distance introduced (the distance is introduced by selecting two points).
- *Cancel* — aborts the action without inserting the object.
- *Undo* – deletes last object inserted.
- *Ready* – ends inserting of the object.

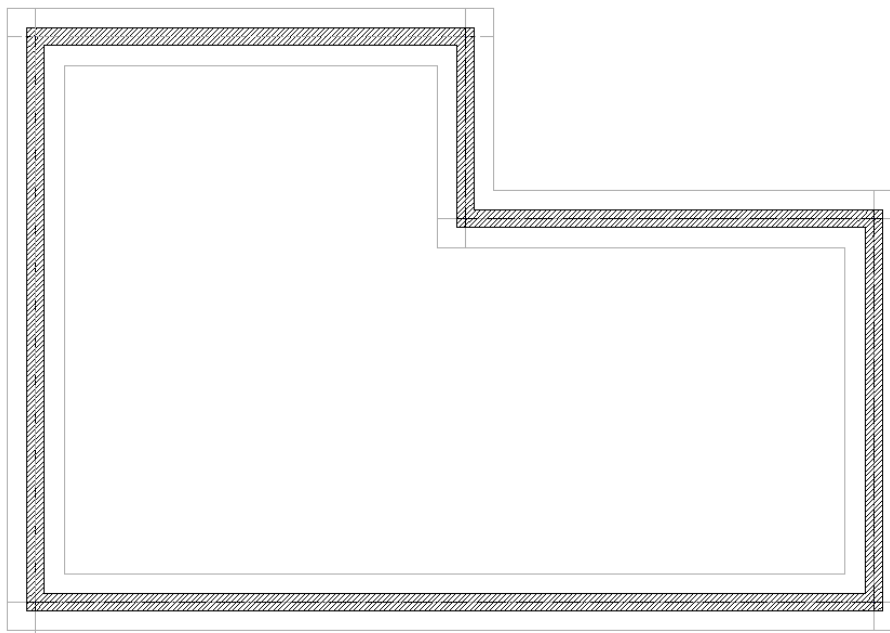




Fig. 416. Example of substructures inserted on a projection

Footings

17.1.2.2. Convert line into strip footing

Any drawing made using lines or polylines can be converted into ArCADia project. To change the lines or polylines into a substructure footing you have to select *Convert line to strip footing* option and select the insertion line (edge or axis) and confirm the insertion. The line will remain, and strip footing will be inserted.

Activation:

- *Architecture* ribbon ⇒ logical group *Building* ⇒  *Convert line to strip footing*
- *ArCADia-ARCHITECTURE* toolbar ⇒  *Convert line into strip footing*

17.1.2.3. Editing Strip footing

Strip footings can be modified through copying, rotating, sliding, and deleting. Additionally editing window has the following modification options:

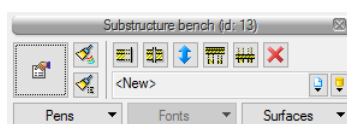
















Fig. 417. Strip footing editing window

Tab. 57 Strip footing modification tools

	<i>Go to Properties dialog box</i>	Opens the <i>Properties</i> window.
	<i>Fonts and pens painter</i>	Takes over the settings of pens (thickness and line types), and the size, and the type of the font.
	<i>Type painter</i>	Takes over the element type, its diagram and sizes, transmitting them to a selected element.
	<i>Lengthen/shorten a strip footing</i>	Changes the length of the selected strip footing.
	<i>Split strip footing</i>	Divides the footing in a selected place.
	<i>Reverse the order of the layers</i>	Inverts the footing against the construction axis.
	<i>Extend up to this substructure bench</i>	Extends the indicated strip footings to the originally marked one. You extend only the footings which meet the footing to which they are extended.
	<i>Shorten to this substructure bench</i>	Shortens the indicated strip footings to the originally marked one, by shorter sections going beyond the marked footing.
	<i>Delete marked objects</i>	Deletes marking.
	<i>Type</i>	Save set of features common for many objects of the same type (elements template defined by the user).
	<i>Document library</i>	Compliant with the selected template and created together with the development of the drawing while new types are saved.

Footings

	<i>Global library</i>	Type library is provided with the software and extended by <i>User library</i> where the user can save and store element types created by him for use in future projects.
	<i>Pens</i>	Definition of type of the lines with which the inserted element is drawn.
	<i>Surfaces</i>	Assigning materials or textures to specific types of areas of inserted element.

Objects

18. OBJECTS

Objects

In order to enrich the project with 2D symbols or 3D interior design elements, the Application has been equipped with the object library. In the ArCADia-ARCHITECTURE module also custom 2D symbols or 3D objects imported into the Application in 3ds, obj, dwg, dae, aco or o2c format.

18.2. 2D objects in the projection

18.2.1. Inserting 2D symbols


The ArCADia system enables the insertion of 2D symbols into the project, which are available in the library installed with the program. From version 6.7 the way objects are inserted was changed, since the insertion angle is already specified when entering an element. It is no longer necessary to enter the properties window before or after to rotate the inserted symbol.

Activation:

ArCADia and ArCADia PLUS

- *Insert* ribbon ⇒ logical group *Insert* ⇒  *Object Explorer* ⇒ tab *2D objects*
- *ArCADia-SYSTEM* toolbar ⇒  *Show 2D/3D Object Explorer* ⇒ tab *2D objects*

ArCADia LT

- *View* ribbon ⇒ logical group *Insert* ⇒  *Object Explorer* ⇒ tab *2D objects*

On activation the below object file selection window will be displayed:

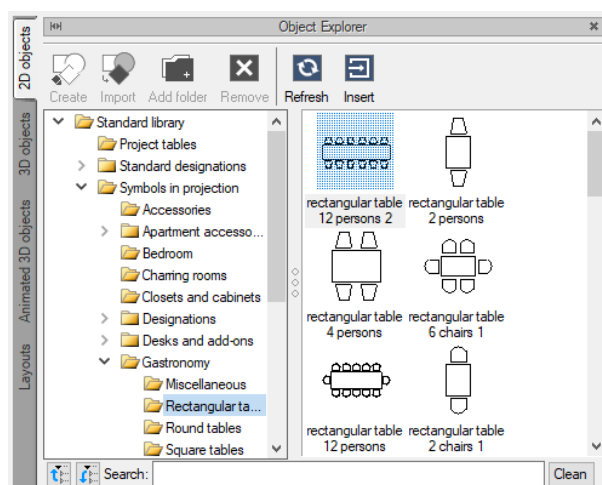


Fig. 418. Software library, 2D objects tab

When the object is selected, switch back to the drawing and click on *Insert* to insert the object. Insertion of the object involves pointing of its localization and angle.

Objects

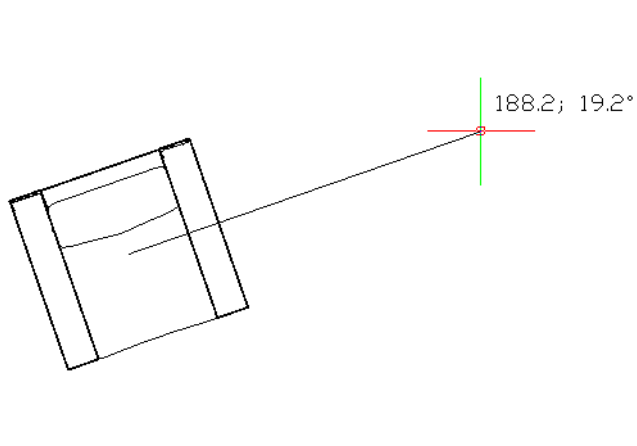


Fig. 419. Introducing the 2D object

NOTE: *Insert with rotation* can be found in the 2D element insertion window. This option is enabled by default and allows you to indicate the angle while inserting. After disabling this option, the object is inserted after clicking at the default angle.

The easier method of location is to choose the insertion point (anchor) from *Object* window:

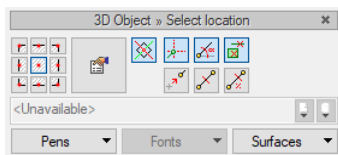


Fig. 420. Object insertion window

Before and after inserting the object, the *Object properties* window can be activated:

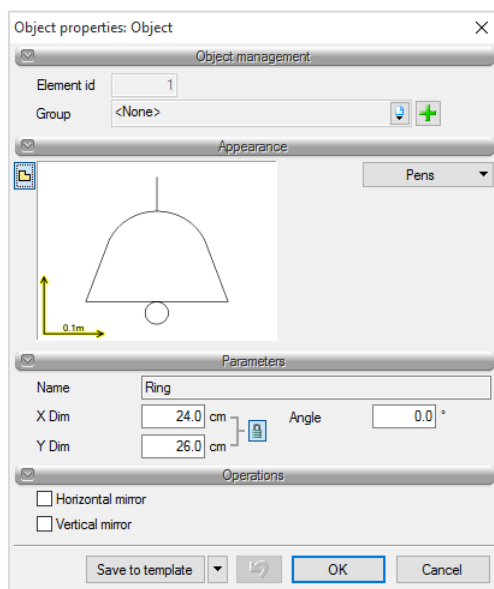


Fig. 421. 2D objects properties window

The following parameters can be defined in the window:

Objects

X Dim — object width in the object coordinate system.

Y Dim — object height in the object coordinate system.

Angle — rotation angle of the inserted object.

Horizontal mirror — object mirroring against Y axis (the option is unavailable during edition of the object inserted into the drawing previously).

Vertical mirror — object mirroring against X axis (the option is unavailable during edition of the object inserted into the drawing previously).

Save to template — saves pen settings, selected style and other parameters of the element to the template.

While drawing, the following functions are available from the insertion window, notification window or command area level:

- *Insert with rotation* – this option allows you to indicate the angle when entering the element.
- *Tracking axes* – this option detects points and edges of the inserted elements and sets vertical and horizontal axes from them against the screen or, in case it is e.g. wall edge, displays the extension of such line.
- *Tracking angles* – this option selects the angles given in the window above, setting them from previously inserted elements, e.g. from the edges of the drawn walls.
- *Element and section detection* – this option detects edges, axis, corners, and points of the elements inserted to the project, making possible to precisely set the cursor on the drawn objects.
- *Element insertion options* – opens the window to set tracking and underlay.
- *Reference* — enables to insert an object at a set distance from a selected point.
- *Between points (centre)* — starts drawing of the wall from the middle of the specified distance (distance is entered by selecting two points).
- *Between points (percentage)* — starts drawing of the wall based on the percentage division of the specified distance (distance is entered by selecting two points).
- *Cancel* — terminates a function without inserting an object.
- *Back* — removes the last inserted object.
- *Apply* — completes object insertion.

When the object insertion command is active, plenty of identical objects may be inserted (the command is repeated automatically).

18.2.2. 2D symbol editing

2D elements may be modified by copying, moving or deleting. Additionally, the following are available on the edit toolbar:

Objects

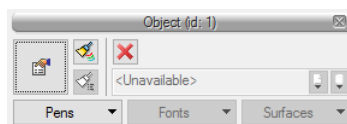


Fig. 422. 2D object editing window

Tab. 58 2D object modification tools

	<i>Go to Properties dialog box</i>	Opens <i>Properties</i> dialogue box.
	<i>Font and pen painter</i>	Takes over the type of the floor slab and transfer it to the selected slabs.
	<i>Delete marked objects</i>	Removes the selection.
	<i>Pens</i>	Definition of type of the lines with which the inserted element is drawn.

18.2.3. Saving of user-defined 2D objects

In order to extent the symbol library, the option *Create 2D object* is provided, which allows the drawing part (lines, circles and arcs) to be saved as 2D object.

Activation:

- *Object explorer* window ⇒ tab *2D objects* ⇒ *Create*

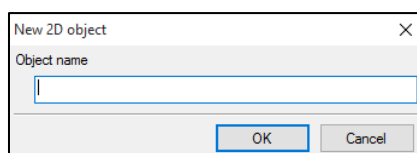


Fig. 423. Creating new 2D object window

On activation of user-defined 2D objects option, specify the new object name and then select the elements which are to be included in the symbol

NOTE: If the new symbol is to be saved in a directory other than the default one, then in the **Object Explorer** window, before running the **Create 2D object** option, select the appropriate directory or the **Add folder** icon.


18.2.4. Import of 2D objects

To enlarge the symbol library in the new version of the program, the option to import the .xobject object has been added. Own 2D objects are saved in this format, so to transfer your own elements between computers or colleagues you have the option of quickly entering them permanently into the library.

Activation:

- *Object Explorer* Window ⇒ tab *2D objects* ⇒ *Import*

Objects

Before clicking the  **Import** you need to icon select the directory in which the files to be found or to be placed. After calling the command in the window that appears, point to the file or files and press the **Open**. If there is an object with the same name in the given folder, then the program will ask if it should be overwritten. If we choose option **Yes** the imported object will replace existing one. If we choose the option **No**, then the new element will receive an additional 0 in its name, thanks to which it will not modify the existing one.

NOTE: 2D objects of the ArCADia system consist of two files: .xobject and .png. When importing, both files should be in the same place. We indicate the .xobject file. If the preview file is not available in the library then the following image will be shown in above the name.



Fig. 424. Substitute preview of the 2D object

18.3. 3D objects

You can introduce static and animated 3D objects into the project. In **Simplified** 3D View mode, only static objects are available (animated objects will be shown as a cube). In **Advanced** mode, all 3D objects are visible.

NOTE: 3D objects are not installed together with ArCADia, they must be additionally downloaded.

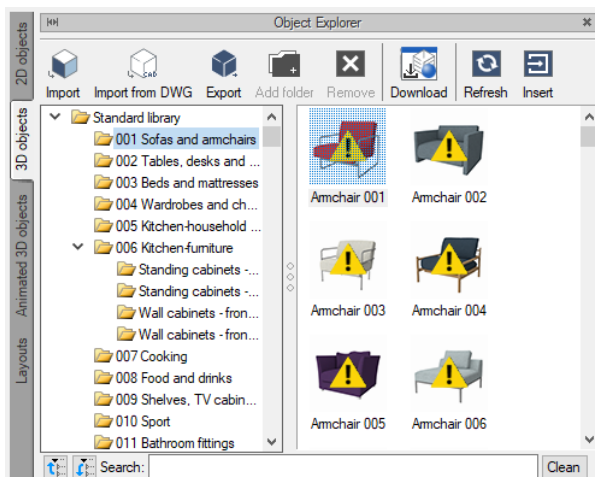




Fig. 425. 3D objects prior to downloading

Objects can be downloaded in accordance with the instructions in the **Additional content** chapter or by clicking on the  **Download** or double-click on any object. In the **Additional content manager** window, select the required package or all and click **Apply**. Then the program will download and install the libraries).

Objects

18.3.1. Inserting static 3D objects


After inserting in the level View 3D objects are visible in the rest of the views (in 3D, CAD model and cross section). Objects are inserted from the *Object explorer* activated with the icon  *Object Explorer* from one of its tabs.

Activation:

ArCADia and ArCADia PLUS

- *Insert* ribbon ⇒ logical group *Insert* ⇒  *Object Explorer* ⇒ tab *3D objects*
- *ArCADia-SYSTEM* toolbar ⇒  *Show 2D/3D Object Explorer* ⇒ tab *3D objects*

ArCADia LT

- *View* ribbon ⇒ logical group *Insert* ⇒  *Object Explorer* ⇒ tab *3D objects*

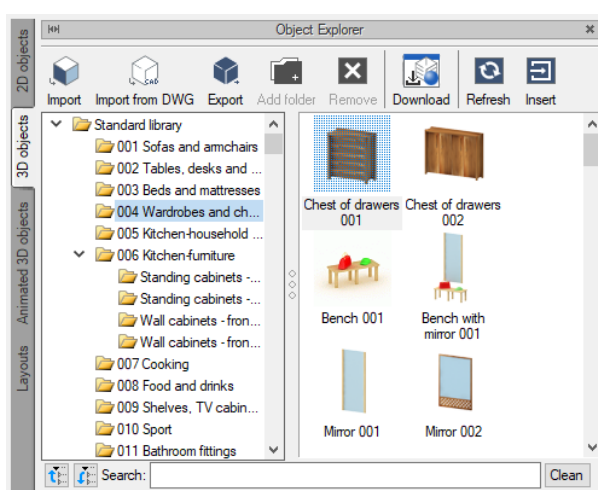


Fig. 426. Software library, 3D Objects tab

The selected element is highlighted by indication and then inserted in the Layout with the *Insert* button. The location and the angle of insertion on the projection is shown.

NOTE: *Insert with rotation* can be found in the 3D element insertion window. This option is enabled by default and allows you to indicate the angle while inserting. After disabling this option, the object is inserted after clicking at the default angle.

In the ArCADia 6.7 system, the option of collating the introduced 3D objects has been added, it is described in the help file for the ArCADia-ARCHITECTURE module.

3D objects are available in the following views: 3D, CAD model, projections and cross sections. In the mentioned view, 3D objects are turned off by default, after turning them on, a view of each element is created. Due to the complexity of the element, this process may take up to several minutes.

18.3.2. Introducing animated 3D objects

Animated objects are not available in all views. In the projection, the object will be shown along with the transition path, in the cross-section as static silhouettes, in the *CAD 3D* view they will not appear, and in the *Advanced* 3D view mode they will move along a given path (which will not be visible). In the *Simplified* Mode, they will appear as a cube, that is, equivalent geometry.

Objects

Activation:

- *Insert* ribbon ⇒ logical group *Insert* ⇒  *Object explorer* ⇒ *Animated 3D objects*
- *ArCADia-SYSTEM* toolbar ⇒  *Show Object explorer* ⇒ *Animated 3D objects*

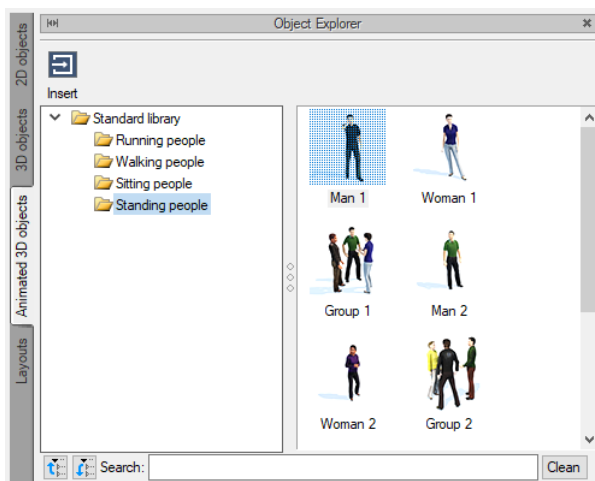


Fig. 427. Program library, animated objects

After selecting the object to be inserted, options are available in the insertion window by double-clicking on it (or clicking on the Insert button):

Insert by point – entering objects by indicating a point.

Insert by path – entering objects by indicating the path of passage.

Height

Automatic – terrain height detection while entering an object.

Manual – entering the height of the object's position when inserting.

From terrain

Existing – height of the location taken from the existing terrain.

Designed – the height of the location of the object taken from the designed area.

Switching to the Properties dialog – opens the object properties window, e.g. to change the angle of entering by point.

Element insertion options – Opens the track and underlay settings window. More detailed description of the window can be found in the *Options* chapter.

Objects

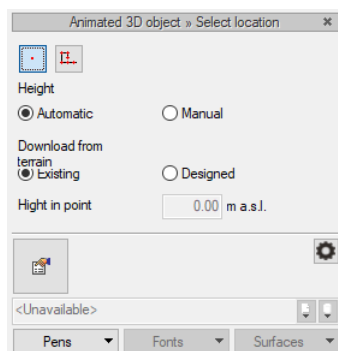


Fig. 428. Window for inserting 3D animated objects

If the *Insert by path* option is selected, then this path should be indicated by outlining. A path shape can only be a line and a polygon. The right mouse button ends the path input.

You can enter the properties window both before and after inserting an animated object.

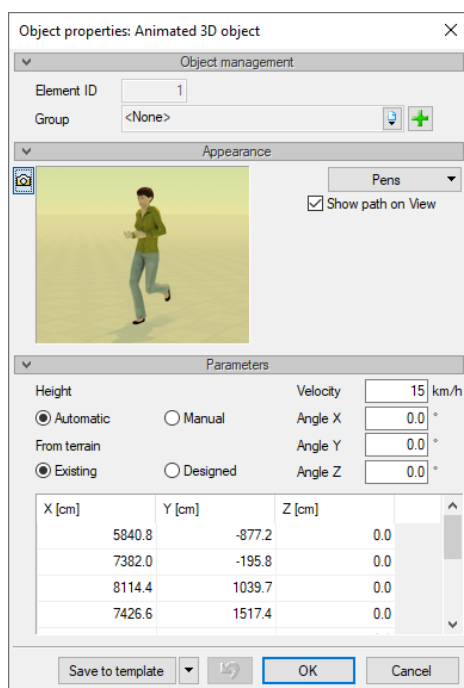


Fig. 429. The window of the animated object with a set path

Animated objects are not modified by resizing, and their texture cannot be changed. Once entered (or during the process), you can only define the angle for each axis and the animation playback speed.

All animated objects introduced into the project move all the time, there is no pause option. Their animation is looped, but when introducing people walking or running, you should draw a path that ends near the starting point. Otherwise, the animation will not be smooth. If an object is introduced, e.g. a standing or sitting person, it can also move or move around, although in this case in the small space in which it was introduced. This space is specified in the element properties window in the table. If it is an object that moves e.g. while walking, then the path will have as many rows filled in the table

Objects

as there are successive path segments. If the object is sitting or standing, only the first row of the table is filled.

With the object path, you can manually modify the height of each path segment, it can be especially useful when introducing an animated object on deformations of the ArCADia-LANDSCAPE ARCHITECTURE module.

18.3.3. Editing static 3D objects

3D static elements are modified similarly to 2D symbols.

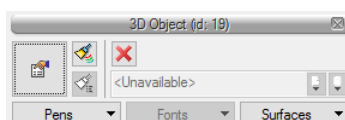


Fig. 430. 3D objects editing window

Tab. 59 3D objects modification tools

	<i>Go to Properties dialog box</i>	Opens <i>Properties</i> dialogue box.
	<i>Font and pen painter</i>	Takes over the settings of the pens (thickness and type of the line), as well as the size and type of the font.
	<i>Delete selected objects</i>	Removes the selection.
	<i>Pens</i>	Definition of type of the lines with which the inserted element is drawn.
	<i>Surfaces</i>	Assigning materials or textures to specific types of areas of inserted element.

The object size, insertion angle and height at which it is placed can be edited in *Properties* window of the 3D element inserted. From version 6.7 the software lets you rotate objects in axes X and Y, thanks to which e.g., it will be possible to adjust the car insertion angle to the driveway pitch.

Objects

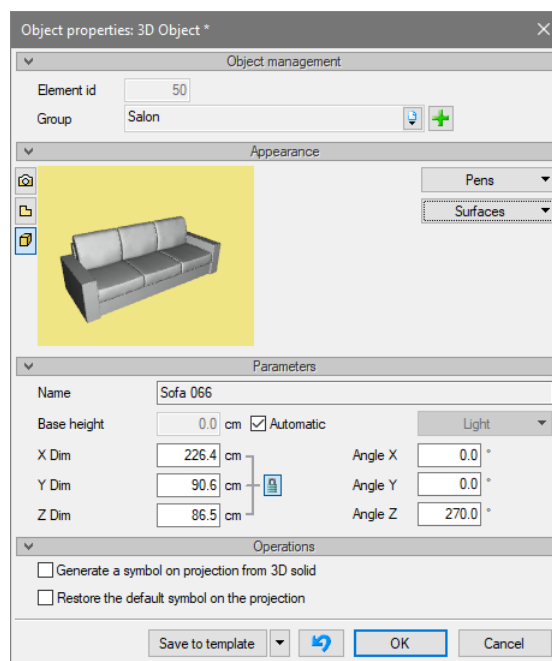


Fig. 431. 3D object properties window


The 3D objects properties window has changed, the options of vertical and horizontal reflections have been removed, as they are available from the level of the drawing (mirror), and two new options have been added:

Change element 2D appearance – enables loading of a 2D symbol other than the default one for the inserted 3D object. This symbol is selected from the library of 2D objects available in the program (both the program library and the user library).

Generate the symbol on the projection from the 3D solid – creates a new drawing for the 3D object, generating it at closing the window. When rotating elements in axes X and Y, their views are not updated, the symbol on the projection, by default, is not changed. The time of generating a new symbol is dependent on complication of the element and the computer's capacity.

Restore the default symbol on the projection – restores the default drawing of the object regardless of its rotation in axes X and Y.

After saving in the library, the user-defined objects inserted as 3ds, o2c or aco files can be additionally modified in the *Object Explorer* window through the option *Properties* of the context menu.

NOTE: To change the 3D object size only in one axis, e.g. height, click icon , letting you modify each value separately.

Own objects entered as .3ds, .obj, .o2c or .aco files, after saving them to the library, can be additionally modified in the *Objects Explorer* by selecting the *Properties* option from the context menu.

Objects

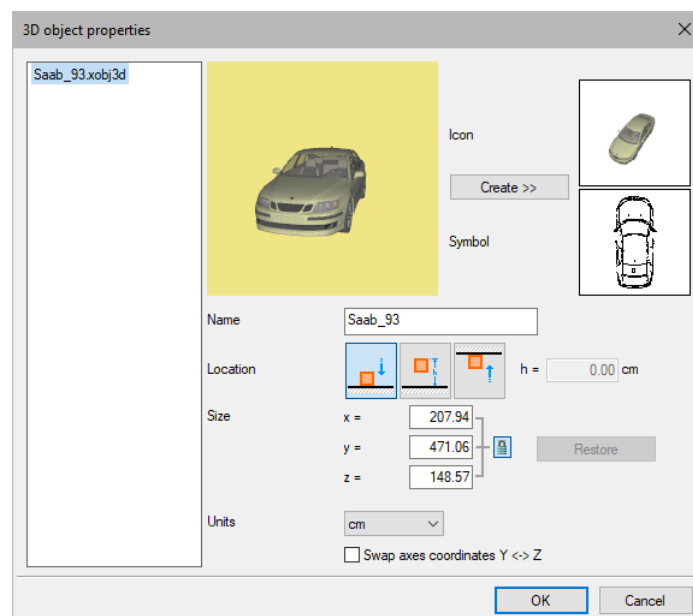


Fig. 432. The property window of the imported 3D object


The above window is similar to 3D object import window.

NOTE: After changing of 3D object name, the appearance of this object used in the previous projects is lost. Changes of the object size do not influence previous designs.

18.3.4. Saving the 3D objects

The ArCADia-ARCHITECTURE module offers the possibility of creating a static 3D object from the ArCADia system elements. This means that what we will create e.g., using the solid options, can be saved now not only as the *Layout*, which is a set of solids, but as one 3D object located in the user library and possible to be used in every project. The objects may be saved from all the ArCADia system objects and are subject to the same edition as the 3D objects imported or available by default in the software.

Activation:

- *Object Explorer* window ⇒ tab *3D objects* ⇒  *Export*

The option is activated after marking the *Use library* catalogue or other personally added catalogue, in the mentioned folder.

After selecting the option, mark the elements that are to create a new object and approve them by hitting *Enter* or right-clicking.

Objects

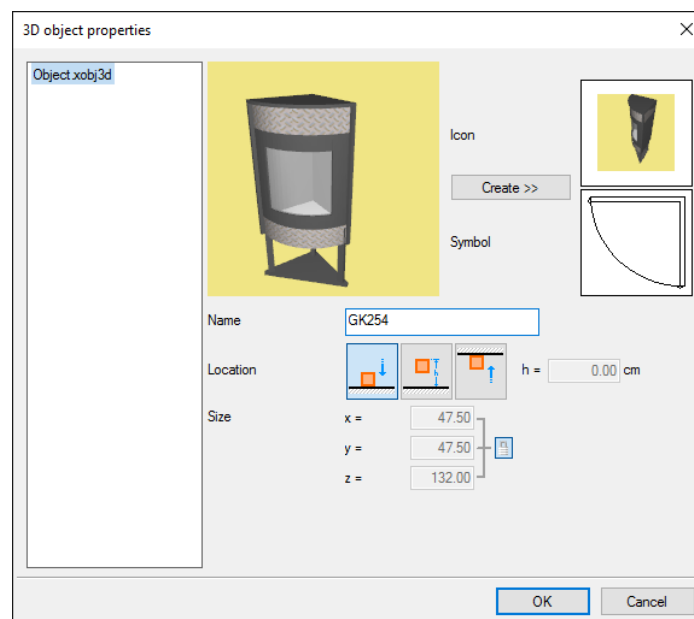


Fig. 433. Window of saving own object

Icon – image showing a new object, displayed in the library.

Symbol – the 2D symbol of a new object visible in the projection.

Create >> – re-activates icon creation (e.g. after rotating the object in the 3D view).

Name – Name of the new element.

Location – default location of the element after inserting, available options: on the floor, at the set height (upper edge of the element is given) or under the ceiling.


Size – information about the size of the created object.

After confirmation of the window, the software saves the object in the library. Since then these will be the same objects as the imported ones, i.e. in the properties window available from the library you can change the size, the default location or the icon

18.3.5. Importing objects

In order to extend the 3D object library, objects with the extension 3ds, ACO, or o2c, DWG, OBJ and XOBJ3D can be imported.

18.3.5.1. DWG Models

The ArCADia system is available on 3 graphics engines: ArCADia LT, ArCADia and ArCADia PLUS. The last two programs give the possibility to create 3D elements, although of course ArCADia PLUS is preferable because of the possibility of entering and editing ACIS solids. Models created in the three-dimensional ArCADia and ArCADia PLUS space can be imported into the system library by opening such a file and from *Object explorer* window by using the icon  *Import from DWG*.

Objects

NOTE: the DWG 3D Object Import icon is available after selecting the directory in which the object is to be found.

Activation:

- *Object explorer* window \Rightarrow tab *3D objects* \Rightarrow  *Import from DWG*

After calling the command, select the model to be added to the library and confirm the selection by *Enter*.

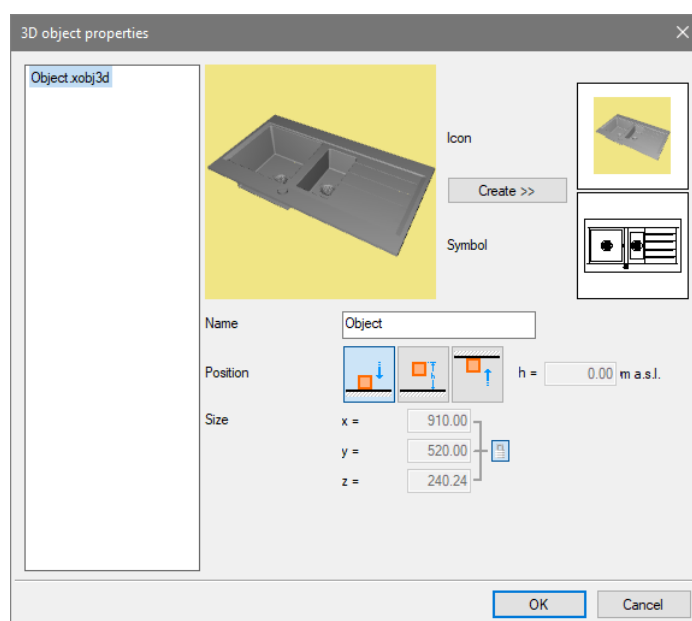


Fig. 434. A sample 3D object imported into a library

Icon – a preview image displayed in the program library. It is created automatically, but you can modify it by changing the object's setting in the preview window and pressing the button *Create >>*.

Create >> – creates a new preview of the imported object along with the 2D symbol shown on the project view.

Symbol – view of the imported object that will be available on the project view.

Name – name of the element.

Position – the default height of the imported object.

Size – information about the size of the imported object.


18.3.5.2. 3D objects

Unlike DWG files, we import objects with other extensions. 3DS, ACO, o2c, OBJ are files that we can, for example, download from the Internet. They are found on websites with 3D models and on the websites of furniture manufacturers or household appliances and electronics. While XOBJ3D objects are created in the ArCADia system by saving, for example, arbitrarily defined solids. After searching,

Objects

downloading such item or opening it from the *Project package*, first run the  *Import* option and then select the file to import.

Activation:

- *Object explorer* window \Rightarrow tab *3D objects* \Rightarrow  *Import*

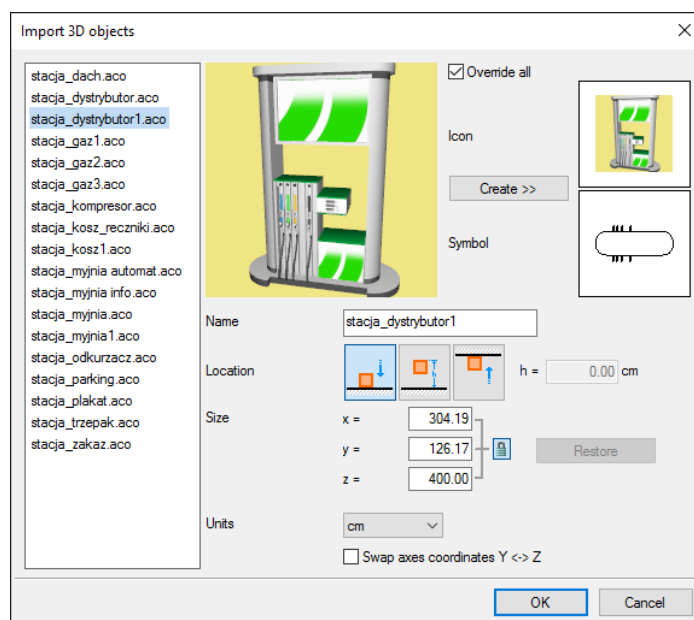


Fig. 435. 3D objects import window

Name — name of the object.

Location — determines behaviour of the inserted object: defines whether the object should be located on the floor, snapped to the roof or remain on a given level.

Size — dimensions of the inserted element, by default changed by percentage in each plane.

Units — definition of the unit used during drawing of the element.

Override all — when importing several objects at the same time 2D and 3D views can be counted for all imported elements at the same time.

Icon — 2D image saved as the inserted object preview, and to be stored in the library.

Create >> — the button saving the current setting of the 3D preview and top view of the element being inserted.

Symbol — object symbol displayed in the Layout (as a simplified element or the actual top View).

3ds, aco, o2c, obj and xobj3D objects can be imported into the Application with the use of the same function. The type of object to be inserted is selected in the *Select 3D objects* window.

Objects

NOTE: Prior to importing aco objects, one must indicate, in the Options⇒ Texture directories window, the texture paths for the objects being inserted. If the objects are stored in ArCon library, the path must be specified, e.g. c:/Program Files/INTERsoft/ArCon/Textures.
If the texture paths are not entered before importing objects, the new elements will be white (they will not have any texture assigned).

18.4. Saving a design with objects added to the library

If the object library contains user-defined 2D or 3D objects and these objects were used in the project which now must be copied to another computer, these own objects must be copied along with the project. To this end, after saving the project, you should use the *Project package* option and along with the file transfer the directory created of the same name as the project.

Activation:

ArCADia and ArCADia PLUS

- *Współpraca* ribbon ⇒ logical group *Eksport* ⇒  *Project package*
- *ArCADia-SYSTEM* toolbar ⇒  *Create project package*

ArCADia LT

- *Home* ribbon ⇒ logical group *Communication* ⇒  *Project package*

After moving the project on a different computer the files must be in the same location as the catalogue. Then, during the launching of the software, it will read the additional libraries, textures and templates opening the project together with the additional elements.

NOTE: Saved objects are seen only with the originally given project name. If it is changed, the name of the folder with objects should also be modified.

19. DESIGN TOOLS

Design Tools





19.1. Dimensioning

19.1.1. Measuring the length, circumference and area



The options of *Measurement* and *Area and perimeter* are temporary and active until right-clicked. Then they are turned off and the values that were displayed disappear.

Activation:

ArCADia and ArCADia PLUS

- *Description* ribbon \Rightarrow logical group *Dimensions* \Rightarrow  *Measurement* or  *Area and perimeter*
- *ArCADia-SYSTEM Mini* toolbar \Rightarrow  *Measurement* or  *Area and perimeter*

ArCADia LT

- *Architecture* ribbon \Rightarrow logical group *Drawing* \Rightarrow  *Measurement* or  *Area and perimeter*

To check the value, after activating the *Measurement* option, use the left button to indicate the beginning and the end of the measured segment. Another left click will start a new measurement. The previous one will remain displayed until you exit the option. Then all measured values will be turned off.



When selecting an area, the *Area and perimeter* option shows the length of each segment. After clicking at the end of the second segment, the area and perimeter values will appear in the middle of the determined triangle. They will be changed with every subsequent click of the left mouse button, i.e. with each change of the entered area. A right click exits the option and turns off the measurement display.

19.1.2. Inserting any dimension

"Any dimension" is a linear or parallel dimension if it is input as a single dimension. It may also be used as a serial size.



Activation:

ArCADia and ArCADia PLUS

- *Description* ribbon \Rightarrow logical group *Dimensions* \Rightarrow  *Dimension*
- *ArCADia-ARCHITECTURE* toolbar \Rightarrow  *Insert any dimension*

ArCADia LT

- *Architecture* ribbon \Rightarrow logical group *Description elements* \Rightarrow  *Dimension*

It is introduced by indicating two points (the beginning and the end) of the element to be dimensioned and the distance of the dimension line from the object. When indicating the dimensions you have the option to define the dimension type (whether it will be a line dimension  or a parallel dimension ). At any moment, both before inserting the dimensions and after, you can open the window *Object properties: Dimensioning* and set the necessary parameters: font size, number of decimal places or style of the dimensional line end.

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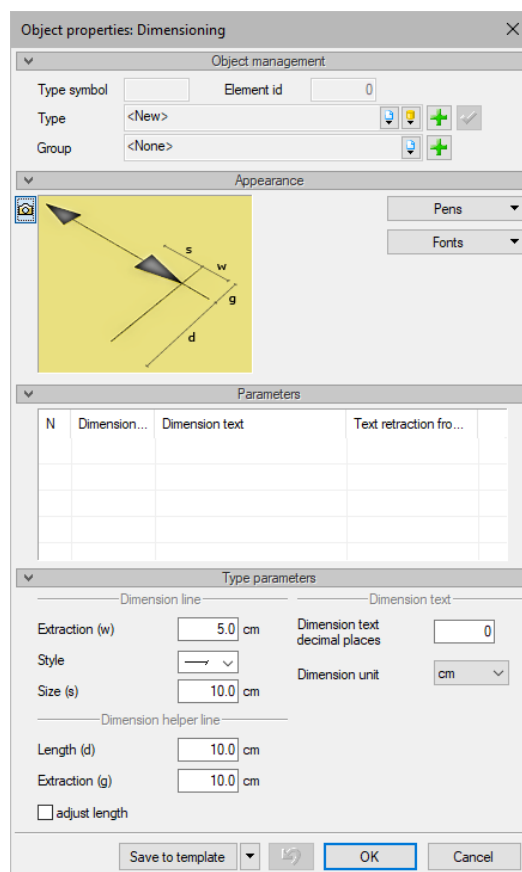


Fig. 436. Dimensioning properties window, before insertion

Dimension line – defining the dimension line appearance, the length of its *extraction* beyond the guide lines, end *style* (arrow, hatching, etc.) and its size.

Dimension helper line – the length of the line from the element to be dimensioned to the dimensioning line and beyond. You can also determine whether the dimension helper line has a *cropped length* or whether it extends from the element up to the dimension.

Dimension text – defining the size, text colour and the accuracy of its representation. Regardless of the drawing which is by default done in centimetres, you can change the *unit of measurement* (m, mm, cm). An additional element that is subject to editing is the numeric value that may be provided for any selected dimension.

Save to template — saves the pen settings, selected styles, and miscellaneous parameters of the element into the temple.

19.1.3. Angular dimension (Insert angular dimension)


In order to dimension any angles on the projection the *Angular dimension* option is available.

Activation:

ArCADia and ArCADia PLUS

- **Description** ribbon ⇒ logical group **Dimensions** ⇒  **Angular dimension**

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- [ArCADia-ARCHITECTURE](#) toolbar \Rightarrow  [Insert any Angular dimension](#)

ArCADia LT

- [Architecture](#) ribbon \Rightarrow logical group [Description elements](#) \Rightarrow  [Angular dimension](#)

After calling the option you need to "draw" the angle to be dimensioned.

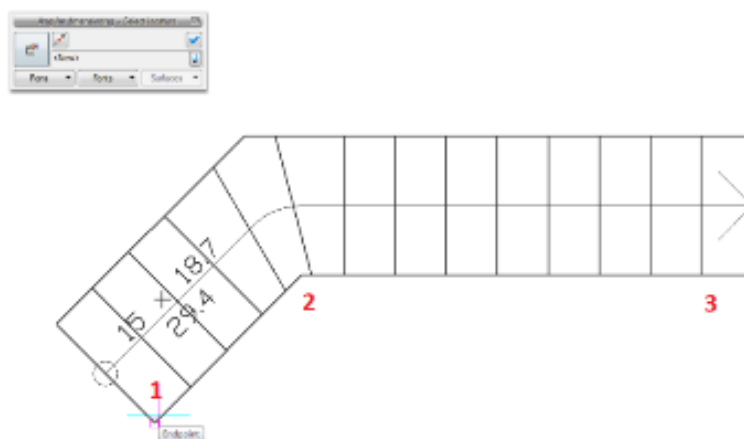


Fig. 437. Inserting angular dimension

Indicate its start, middle of the arc and the second arm of the angle and the location, where the dimensioning arc along with the dimensioned angle value will be displayed.

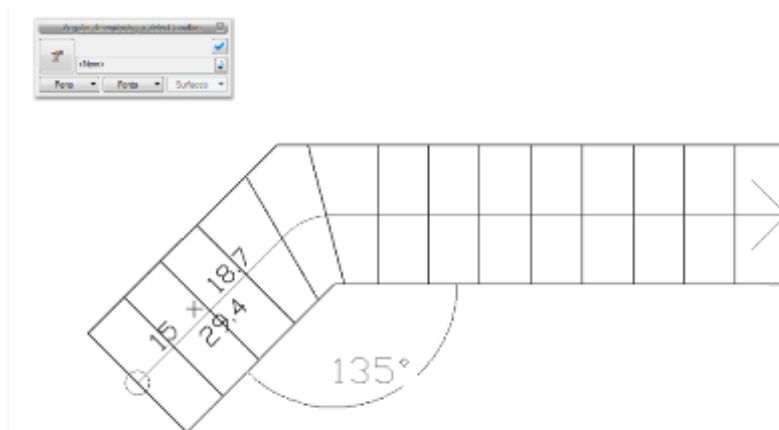


Fig. 438. Defining the location of the angular dimension

Below you can see stairs dimensioned with the [Angular dimension \(Insert angular dimension\)](#) feature.

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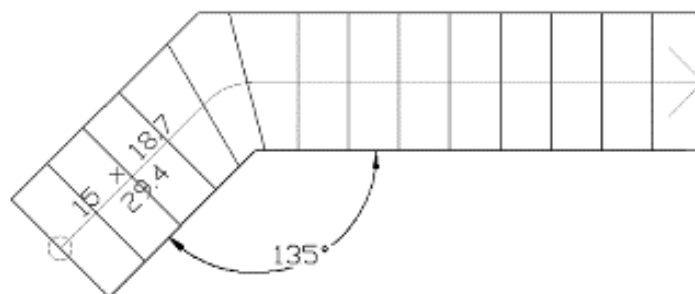


Fig. 439. Dimensioned element

19.1.4. Dimensioning of selected element

For quick dimensioning of ArCADia objects, the Application offers a special function of object dimensioning which changes the dimensions along with the element being dimensioned. This means that it moves along with moving a dimensioned wall or e.g. a window located in it, and disappears when the dimensioned element is removed.

Activation:

ArCADia and ArCADia PLUS

- *Description* ribbon \Rightarrow logical group *Dimensions* \Rightarrow  *Dimensions of selected objects*
- *ArCADia-ARCHITECTURE* toolbar \Rightarrow  *Dimensions selected objects*

ArCADia LT

- *Architecture* ribbon \Rightarrow logical group *Description elements* \Rightarrow  *Dimensions of selected objects*

After selection of the option, the application prompts the user to indicate the element to be dimensioned (e.g. the user may select a wall):

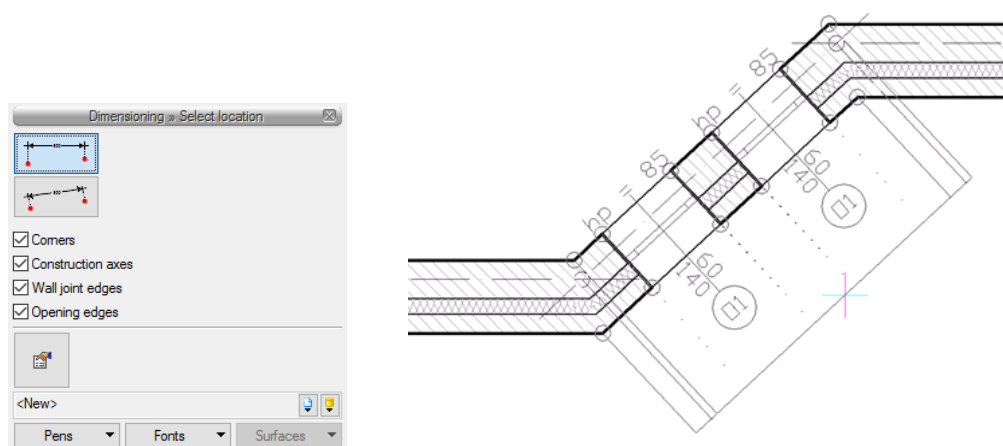


Fig. 440. Dimensioning of the selected element

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In the *Dimensioning* window the user defines the type (linear or parallel) and the dimension elements. If all the boxes are checked, the Application will select all the dimension points of the wall selected.

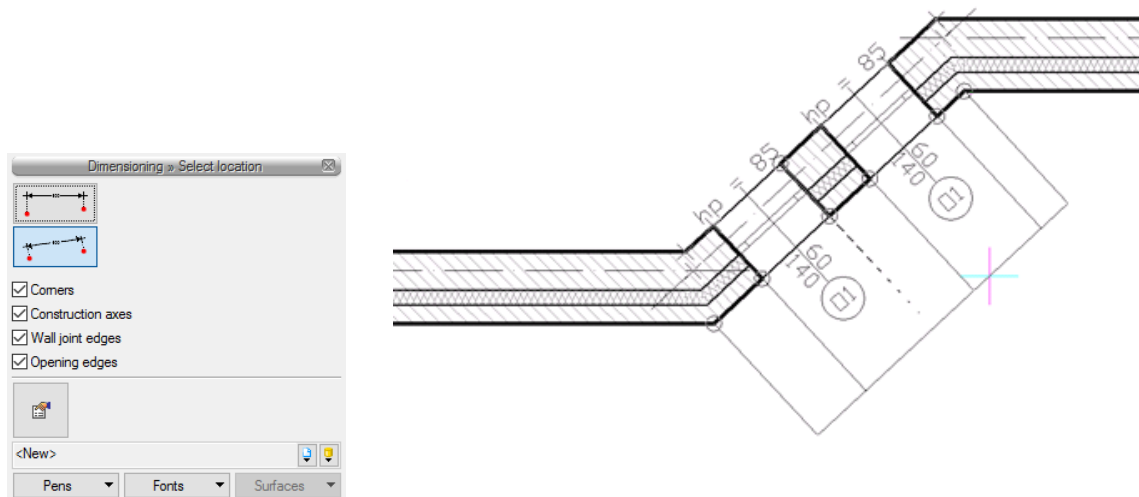


Fig. 441. Dimensioning of the selected element with chosen dimensioning points

By clicking on the points in circles the user can define graphically which elements of the object are to be dimensioned. The disabled points are marked with the cross.

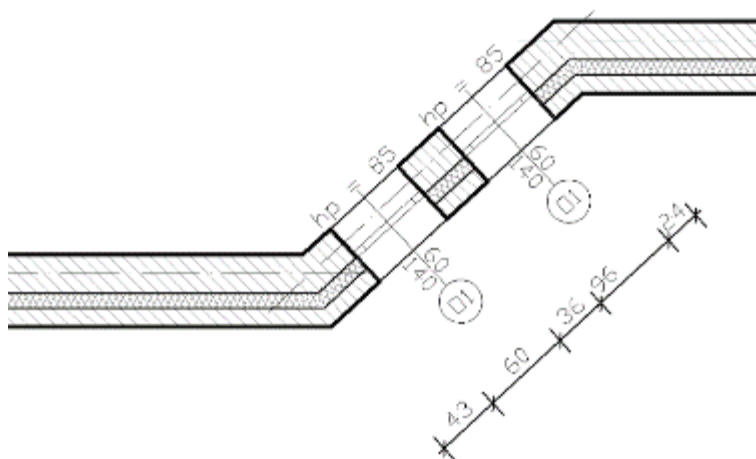


Fig. 442. Effects of dimensioning of a selected wall

19.1.5. Automatic drawing dimensioning

Another type of object dimensioning is *Dimensioning of entire drawing*.

Activation:

ArCADia and ArCADia PLUS

- *Description* ribbon ⇒ logical group *Dimensions* ⇒  *Dimensions for entire drawing*
- *ArCADia-ARCHITECTURE* toolbar ⇒  *Dimensioning entire drawing*

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ArCADia LT

- *Architecture* ribbon ⇒ logical group *Description elements* ⇒  *Dimensions for entire drawing*

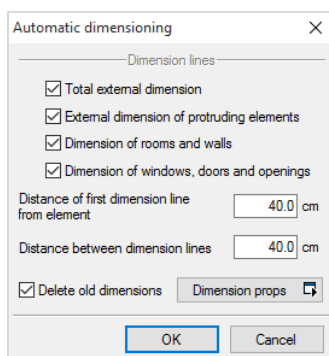


Fig. 443. Automatic dimension insertion window

The elements to be dimensioned can be selected in *Automatic dimensioning* window. If all the boxes are checked, the level drawing will be dimensioned on four dimension lines.

19.1.6. Dimension angularly marked elements

The dimensioning of angularly marked elements option enables the angle between the walls of the level's plan to be dimensioned. The option provides dimensioning of the relation between the locations of two walls and is subject to modification along with the walls if, for example, the angle of one of the walls is changed.

Activation:

ArCADia and ArCADia PLUS

- *Description* ribbon ⇒ logical group *Dimensions* ⇒  *Dimensions angularly objects*
- *ArCADia-ARCHITECTURE* toolbar ⇒  *Dimensions angularly marked elements*

ArCADia LT

- *Architecture* ribbon ⇒ logical group *Description elements* ⇒  *Dimensions angularly objects*

Activate the option and select two walls to be dimensioned, indicate the edges (1 and 2 in the below view) between which the dimension will be displayed and its location.

Design Tools

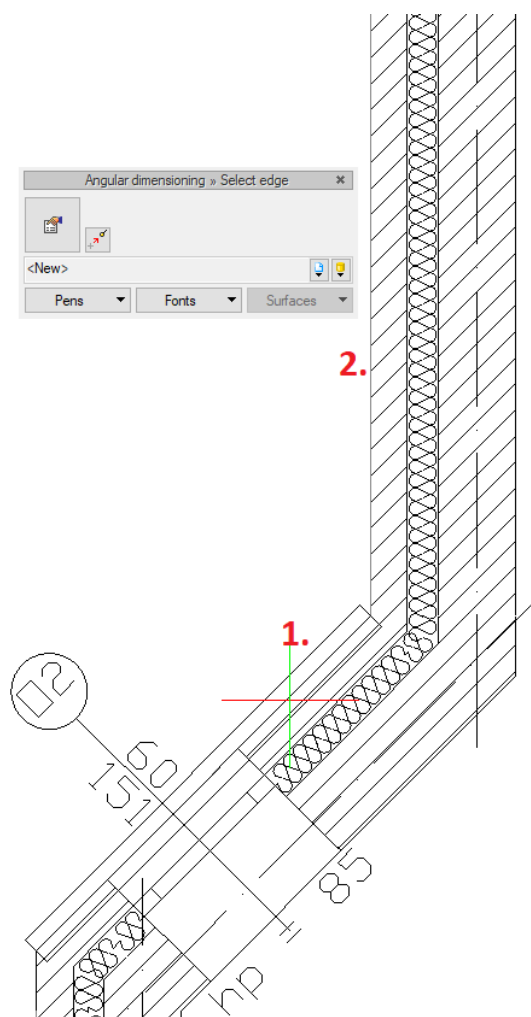


Fig. 444. Dimensioning angle between the walls with displaying other edges

Design Tools

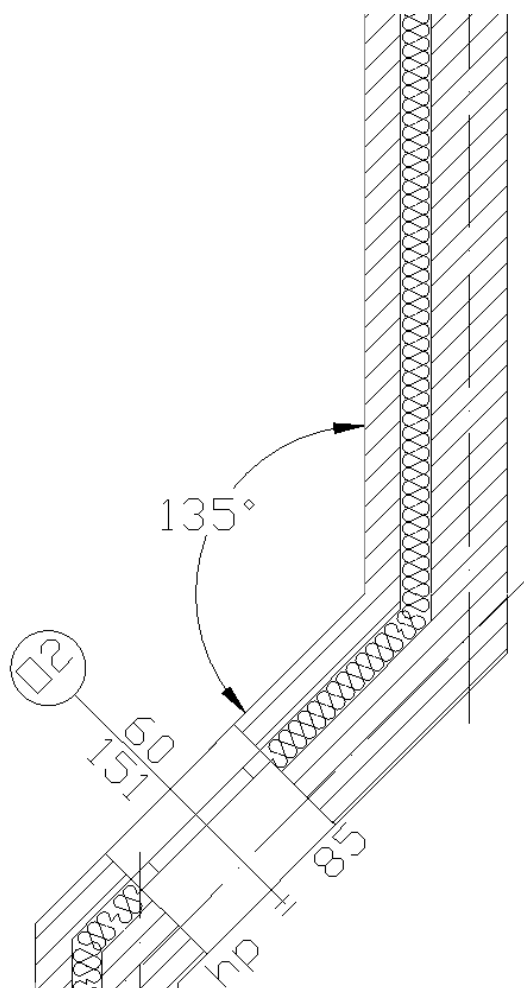




Fig. 445. Dimensioned angle between the walls

19.1.7. Dimension radius

Option for dimensioning curved walls.

Activation:

ArCADia and ArCADia PLUS

- *Description* ribbon ⇒ logical group *Dimensions* ⇒  *Dimension radius*
- *ArCADia-ARCHITECTURE* toolbar ⇒  *Dimension radius*

ArCADia LT

- *Architecture* ribbon ⇒ logical group *Description elements* ⇒  *Dimension radius*

In order to dimension a curved wall, the wall must be selected and the location of the dimension line must be indicated. Along with the radius, the middle of the curved wall is marked.

Design Tools

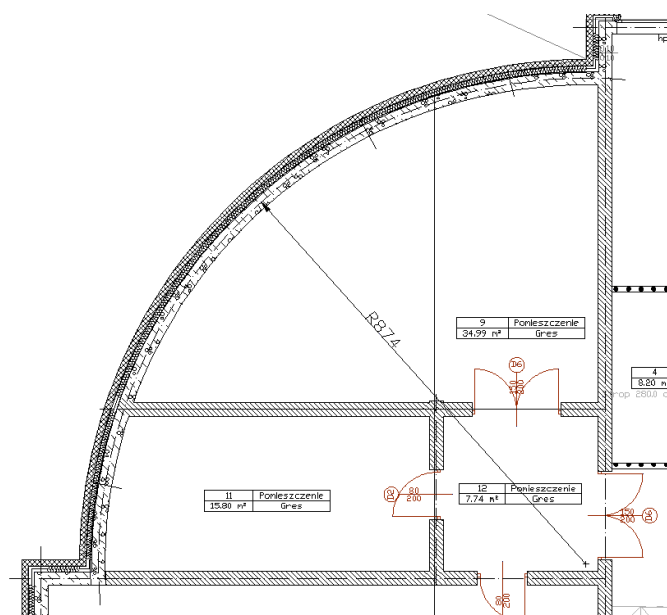




Fig. 446. Example of dimensioned arched wall

19.1.8. Insert spot height

The spot height can be inserted both in the level Layout and in the cross-section. After insertion, the spot height indicates the foundation altitude of the raw ceiling or ceiling finished with floor (depending on the selected option).

Activation:

ArCADia and ArCADia PLUS

- *Description* ribbon \Rightarrow logical group *Dimensions* \Rightarrow  Spot height
- *ArCADia-ARCHITECTURE* toolbar \Rightarrow  Insert spot height

ArCADia LT

- *Architecture* ribbon \Rightarrow logical group *Description elements* \Rightarrow *Spot height*

Before inserting the spot height, *Properties* box may be activated:

Design Tools

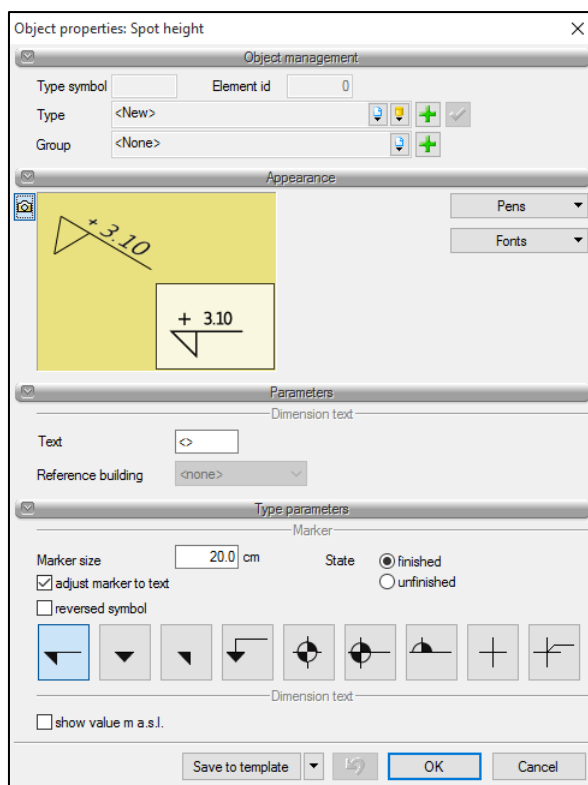


Fig. 447. Spot height properties window

When you insert a window, you can define the following parameters:

Appearance — font and pen settings for drawing the spot height symbol.

Marker — the size and type of the marker is different for raw and finished states.

Dimension text — it is possible to change the spot height value by inserting the value instead of the marks "< >". If spot height is inserted on the terrain it has additional selection list of the reference Building. This allows for displaying the height of the spot, from zero of the selected building.

NOTE: The new version of the ArCADia-ARCHITECTURE module has changed the options for inserting spot height into multiple ones, i.e. you can insert several elements without having to turn on the option after inserting each spot height.

From version 6.3 ArCADia-ARCHITECTURE has the feature of extended save of the spot height type. Aside from the size of the marker and displaying of the height above the sea level, now you can also save the **State** of the spot height in the type. It will allow for quick insertion of both finished and unfinished spot heights on the projection without the need to enter Properties window. It is enough to select previously saved type of spot height from the insertion window.

From the version 7.0 it is possible to replace the default spot height symbol with different available one in the properties window.

Design Tools

19.1.9. Displaying wall length

In order to check or display the wall length, you may use of *Show length* option. This option has been provided for displaying the length of curved walls mainly, but it may be also used to display the length of any wall if *Show length* option in the *Wall properties* box is checked.

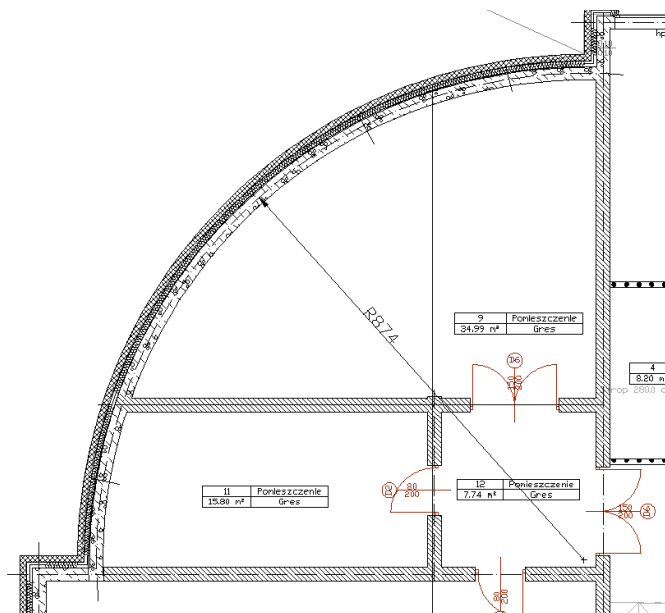


Fig. 448. Arched wall with described length

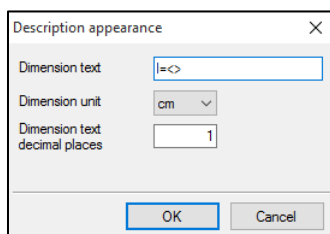


Fig. 449. Wall length description properties window

19.1.10. Editing dimensions

Regardless of the dimensioning selection: any, selected element dimensioning or whole drawing dimensioning, the edition of dimension elements is the same.

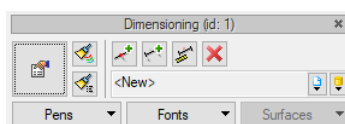










Fig. 450. Dimensions editing window

Design Tools

Tab. 60 Dimensions modification tools

	<i>Go to Properties dialog box</i>	Opens <i>Properties</i> dialogue box.
	<i>Font and pen painter</i>	Takes over the type of the floor slab and transfer it to the selected slabs.
	<i>Type painter</i>	Takes over the chimney type (its size and type) and transfer them to the selected chimney.
	<i>Add/delete dimension points</i>	Adds or deletes selected dimension points modifying the dimension line.
	<i>Add new dimension line</i>	Adds another dimension line parallel to the selected line, positioning it above or below this line.
	<i>Convert into dimension</i>	Icon available only for the object dimensions, assigned to system elements, introduced using options: <i>Dimension the whole drawing</i> or <i>Dimension elements</i> . The function detaches the dimension from the element, changing it into any dimension.
	<i>Delete marked</i>	Removes the selection.
	<i>Type</i>	Save set of features common for many objects of the same type (elements template defined by the user).
	<i>Document library</i>	Compliant with the selected template and created together with the development of the drawing while new types are saved.
	<i>Global library</i>	Type library is provided with the software and extended by <i>User library</i> where the user can save and store element types created by him for use in future projects.
	<i>Pens</i>	Definition of type of the lines with which the inserted element is drawn.
	<i>Fonts</i>	Definition of the size and type of the font that describes the element.

Design Tools

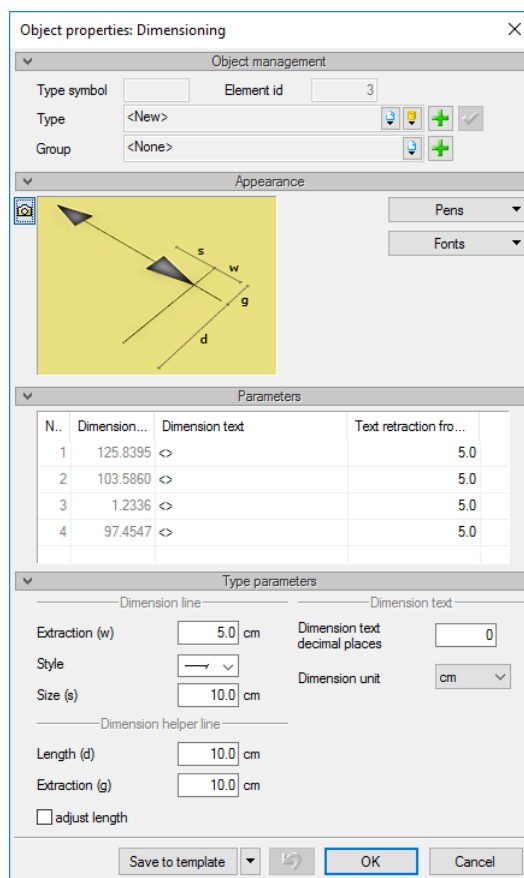


Fig. 451. Properties window of the inserted dimension

In the properties window you can change dimension fonts and pens, number of decimal places or the dimension elements size. In the *Parameters* panel, you can also modify the dimensional value, by substituting the <> characters with the necessary data. You will return to the automatic value after entering the <> characters. The right side of the table lets you define the distance between the text and the dimensional line. It can be defined for each value separately or changed for the entire dimensional line, after clicking *Moving the text away from the dimensional line*.

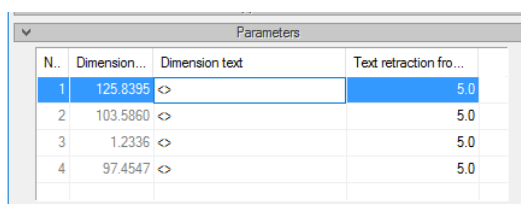


Fig. 452. Global change in the text's distance from the dimensional line

Adding and deleting of dimension points involves successive selection of points to be enabled or disabled. Below is the example of modification of the object dimension assigned to a wall:

Design Tools

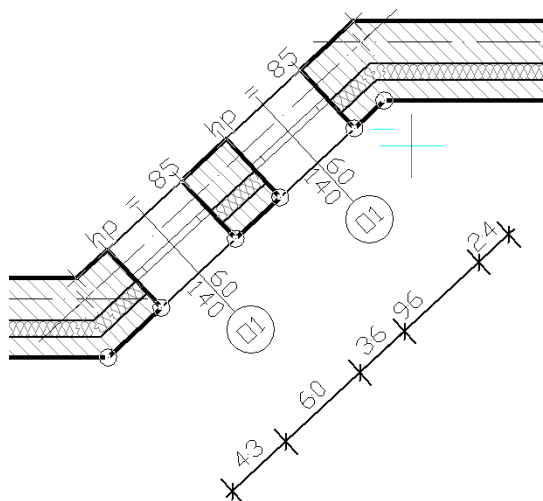


Fig. 453. Dimension modifications

Select the dimension line and indicate, changing at once the visible/invisible state, successive reference points for the dimension.

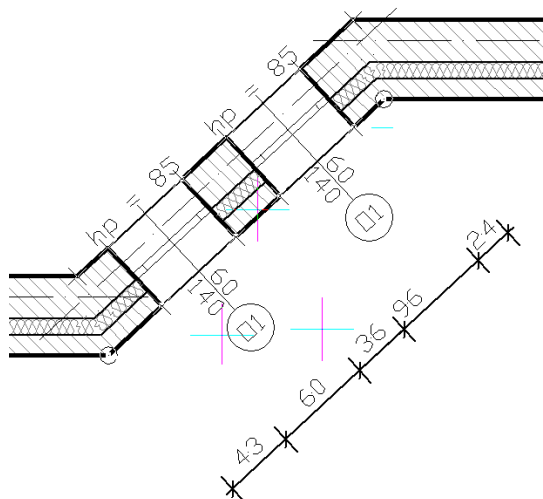


Fig. 454. Modification of the dimensions of only the dimensioned elements

In the above example, window placement points have been disabled and thus the below dimension has been obtained.

Design Tools

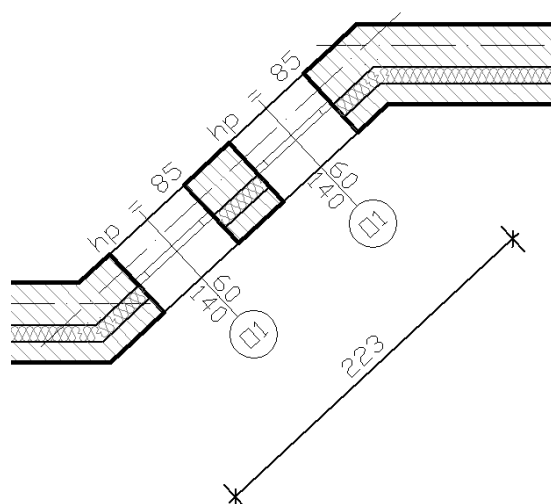


Fig. 455. Dimension modification effect

19.2. Element layer description

19.2.1. Introduction

Structural elements must be described both in the projection and in the cross-section.

Activation:

ArCADia and ArCADia PLUS

- *Description* ribbon ⇒ logical group *Dimensions* ⇒ *Element layer description*
- *ArCADia-ARCHITECTURE* toolbar ⇒ *Insert element layer description*

ArCADia LT

- *Architecture* ribbon ⇒ logical group *Description elements* ⇒ *Element layer description*

After triggering the command, the wall (ceiling or the roof slope) to be described is indicated. On it, insert the description "match", and the user inserts the description in the form of a "flag" with the list of materials. The option allows to describe several elements, that is insert descriptions for several indicated elements.

Design Tools

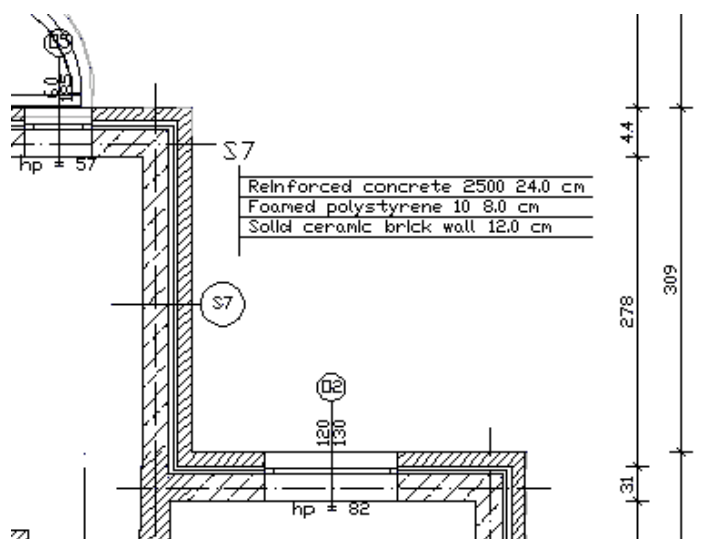


Fig. 456. Example of using the element description

Above is the example of a described wall. The description table location is arbitrary. If the user wants to insert just a description symbol, then after its insertion the BoM insertion may be cancelled and another description symbol may be inserted.

By default, in the description of elements, that is the specification on the material list, only materials visible on the projection and the section are visible. If any layer is invisible, by default, it will not be displayed in the material list.

19.2.2. Editing element layer description

The Item label bubble can be moved only within a wall, ceiling, floor on the ground, piece area for which it has been inserted. Additionally, the Application enables the following modifications to be made:

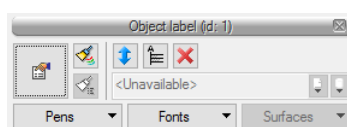





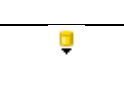



Fig. 457. Element layer description editing window

Tab. 61 Element description modification tools

	<i>Go to Properties dialog box</i>	Opens <i>Properties</i> dialogue box.
	<i>Font and pen painter</i>	Takes over the settings of the pens (thickness and type of the line), as well as the size and type of the
	<i>Type painter</i>	It takes over the type of element, its scheme and sizes, moving them to the indicated element or elements.
	<i>Change description side</i>	Changes the side of the description placement moving it to the opposite wall edge.

Design Tools

	<i>Insert material list</i>	Inserts the bill of materials (BoM) in the form of a flag.
	<i>Delete marked objects</i>	Removes the selection.
	<i>Type</i>	The saved set of common features for many objects of the same type (template elements defined by the user).
	<i>Document library</i>	Consistent with the selected template and created along with the development of the drawing when saving next types.
	<i>Global library</i>	Type library provided along with the software and extended by <i>the User library</i> where you can save own types of elements for their use in next projects.
	<i>Pens</i>	The line type definition used to draw the element being inserted.
	<i>Fonts</i>	Definition of the size and type of the font that describes the element.

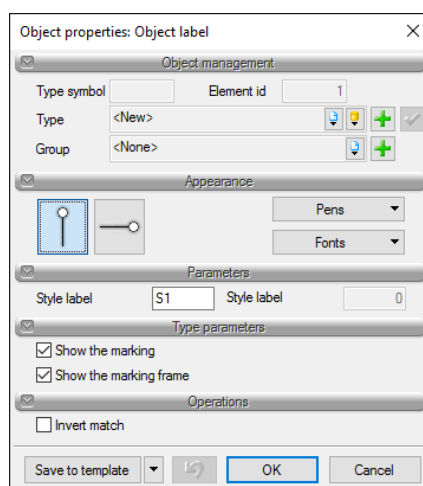


Fig. 458. Element description properties window

In the window *Object properties: Object label* you can modify the name (*Type designation*) taken over from the described element, change the orientation of the inputted match, enable/disable marking and its frame and define markers and fonts for it. Access to the above window is possible only for elements existing in the drawing. You cannot access it before introducing the match.

19.2.3. Editing Material List

The new version of the software has completely changed the options of the element list, permitting its full modification. You can add materials to the described elements, modify with sizes and materials used on these objects. In view of the above changes, the material list is not updated automatically and, by default, the materials from invisible layers are not shown. All this can be modified in the editing and properties window.

The Material list can be moved or deleted and can be additionally modified in the following way:

Design Tools

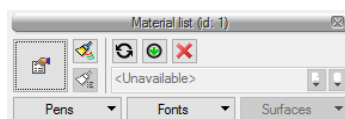


Fig. 459. Material list editing window

Tab. 62 Material list modification tools

	<i>Go to Properties dialog box</i>	Opens <i>Properties</i> dialogue box.
	<i>Font and pen painter</i>	Takes over the settings of the pens (thickness and type of the line), as well as the size and type of the font.
	<i>Update the list of automatic materials</i>	It refreshes the list of materials present in the element, leaving the added items.
	<i>Load the list of automatic materials again</i>	It refreshes the list of materials present in the element, removing all changes and added items.
	<i>Delete marked</i>	Removes the selection.
	<i>Pens</i>	The line type definition used to draw the element being inserted.
	<i>Fonts</i>	Definition of the size and type of the font that describes the element.

Additionally, in the *Object properties: Material list box* you may edit *Style label*, *Fonts* and *Pens* and the list content.

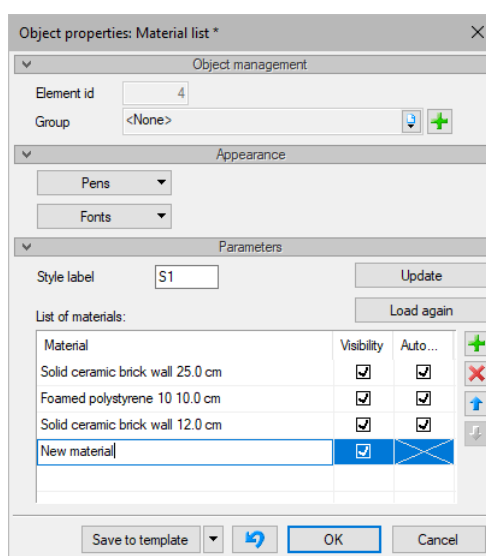


Fig. 460. Material lists properties window

Update – It refreshes the list of materials present in the element, deleting changes on the, moving them to the beginning of the list. The added items still remain in the description, but are moved down in the list.

Design Tools

Load again – removes the present list of materials and added items and it introduces once again the default materials from the described element.

Material list – in the table you can define whether a given material is visible or not (column *Visibility*), you can modify the set materials in the object by changing the name or e.g. the thickness (deselecting the *Automatically* field and change in the *Material* column). The *Add* icon enables to add to the element any layer and material, the *Delete* option enables deleting the material from the list. After selecting the material you can move it using blue arrows up or down.

19.3. Element description

This option allows the user to display data about the element or enter any description for it.

Activation:

ArCADia and ArCADia PLUS

- *Description* ribbon ⇒ logical group *Dimension* ⇒  *Inserts description*
- *ArCADia-VENTILATION INSTALLATIONS* toolbar ⇒  *Inserts description*

ArCADia LT

- The *Ventilation* ribbon ⇒ the *Ventilation installations* logical group ⇒  *Insert element description*

After indicating the element and the location of the description, select the insertion and then select the *Go to the Properties dialog box* option from the insertion window. The *Object properties: Description* window will appear.

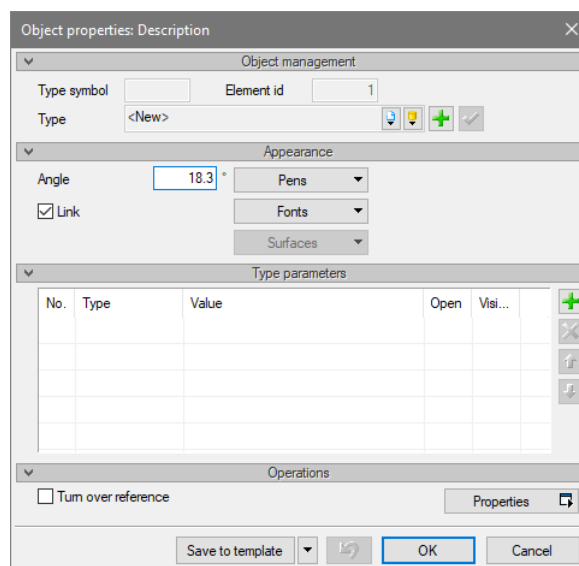



Fig. 461. The Description properties window

Add – enters the default text description. In the *Type* column, the user can select one of the description types: *Text*, *Properties*, *Address* or *File*. The first allows for entering any text in the *Value* column. The second one allows for the selection of data about the element. It is available from the list after entering

Design Tools

the  *Properties* icon in the *Open* column. The list in the properties window is different for each item. Two other options allow the user to add a website address or a file path, e.g. with a catalog card, to the described element.

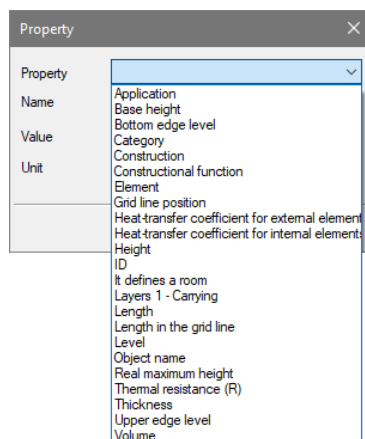


Fig. 462. Properties available for a bar element

Delete – deletes the selected description line.

Up – moves up the selected description line.

Down – moves down the selected description line.

To save a description and use it for other objects or in other projects, the *Object description* can be saved to the *Project library* or the *Global library*.

19.4. Title block



The ArCADia BIM system has the title block option, describing the created documentation drawings. You can introduce a table from the project library or define a new one, introduce it onto a projection or cross-section and save in the library to be used in subsequent drawings.

19.4.1. Inserting a table from the library


The feature is available from the toolbar as *Title block*.

Activation:

ArCADia and ArCADia PLUS

- *Insert* ribbon ⇒ logical group *Insert* ⇒  *Title block*
- *ArCADia-SYSTEM* toolbar ⇒  *Insert title block*

ArCADia LT

- *Draw* ribbon ⇒ logical group *Draw* ⇒  *Title block*

Once the feature is activated you can introduce a default table, select another from the library or open the *Object properties: Title block*.

Design Tools

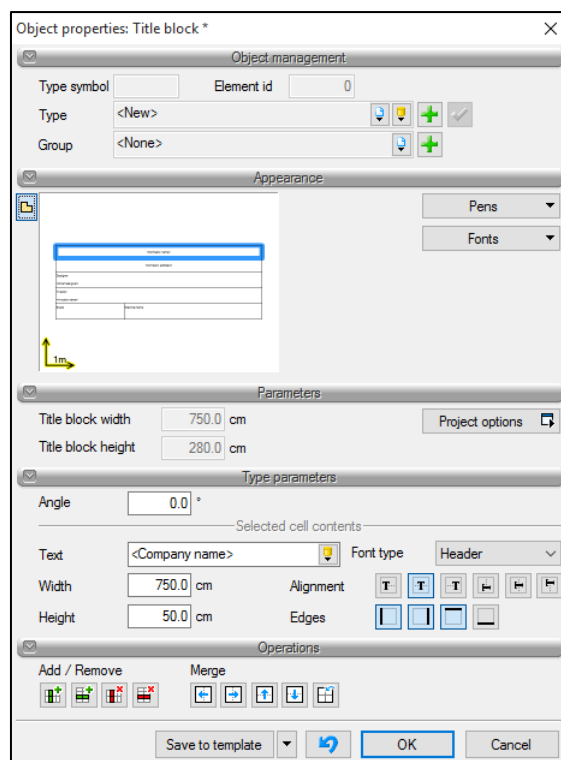


Fig. 463. Title blocks properties window



Since the *Insert title block* feature assumes inserting a default table, the properties window opens with the default table that you can re-edit. More detailed information is provided in the following chapter.

19.4.2. Designing a title block

The feature is available from the toolbar as *Design title block*.

Activation:

ArCADia and ArCADia PLUS

- *Insert* ribbon ⇒ logical group *Insert* ⇒  *Design title block*
- *ArCADia-SYSTEM* toolbar ⇒  *Design title block*

ArCADia LT

- *Draw* ribbon ⇒ logical group *Draw* ⇒  *Design title block*

Once the option is activated the *Design title block* window is displayed, where you can define the main contour, its size and number of divisions.

Design Tools

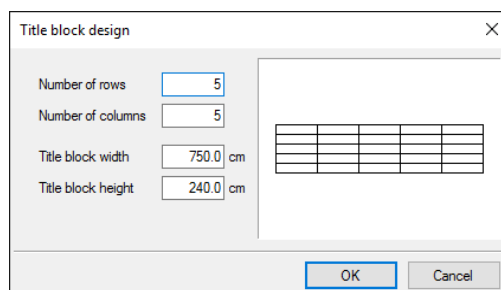


Fig. 464. Defining table window

Number of rows — corresponds to the number of horizontal title block cells.

Number of columns — corresponds to the number of vertical title block cells.

Title block width — general width, i.e. the total width of all columns.

Title block height — general height, i.e. the total height of all rows.

Once you click *OK*, the *Object properties: Title block* window is displayed.

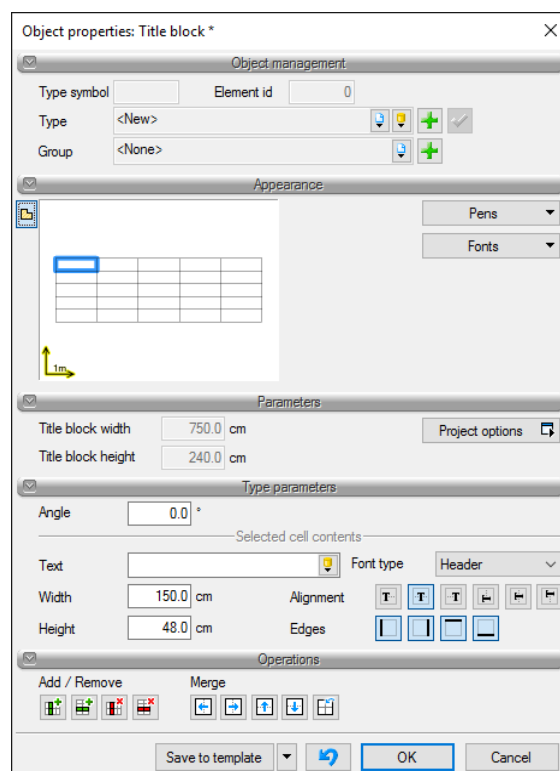


Fig. 465. Created table properties window

Appearance — title block preview that changes along with changing the parameter values. To facilitate moving between the title block it is enough to select a field on the preview, after which the field will receive a blue contour and the Type parameters panel will refer to this particular field. Apart from that, you can also use the *Pens* button, which defines the thickness and line type, as well as the *Fonts* button, which defines the description fonts and its colour.

The following parameters are available for the selected field:

Design Tools

Text — a field where you can input any text or select an *Automatic* or *Defined* text from the software resources.

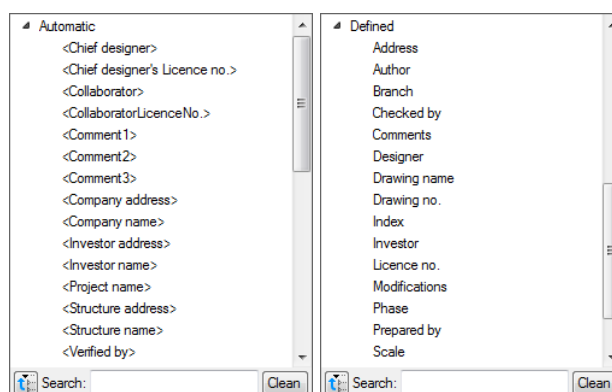


Fig. 466. List automatic and defined texts for insertion into the table

Automatic texts are data read from the *Project options* window and will be discussed below. *Defined* texts are standard wording included in title blocks for the various supporting structure branches, e.g. *Address*, *Branches*, *Drawing no.*, etc.

Font type — the fields in the title block may be divided into 3 types of fonts, where each can have a different font type and font size. It is enough to select one of the types for the relevant values in each field, e.g. the *Header* for project name, *Content 1* for the descriptive fields like *Date* and *Scale*. A typeface is defined for each type using the *Font* button.

Alignment — text alignment in the field window: left, right or centre.

Edges — for each cell you can disable its contour by selecting the appropriate edge. This will of course be reflected in the adjacent cell, which will appear as a single field in the title block.

Width — cell width.

Height — cell height.

You can set separate parameters for each field. You can move between the cells through the title block preview. Features allowing the merging and repeated division of cells, as well as inserting rows and columns, are available in the *Operations* panel.

NOTE: *The initial title block size changes along with changes in the cells (field width and height). This needs to be borne in mind when modifying the title block contents. The present value is indicated in the Parameters panel.*

A defined title block is introduced into the projection or cross-section so that you can still use it in subsequent projects (you need to save the Title block type to the global library).

NOTE: *An element type only saves data from the Type parameters panel. This means that e.g. the assigned font faces will be saved and their sizes will not be saved, since this option is outside of the scope of element type.*

Example of a title block definition

Design Tools

We will design an appropriate table with 6 columns and 13 rows. Since a cell can have more than one font type, the Scale 1:50 field will have to be divided into two cells (e.g. with the connecting edge disabled).

Define column width, row height and then you can start merging cells and disable additional edges. If a cell is merged you can input a single row of text with a single font type. If the field is not merged and only an edge is disabled, then in the projection it would seem to be a single cell, but you can input more text or e.g. change the font size.

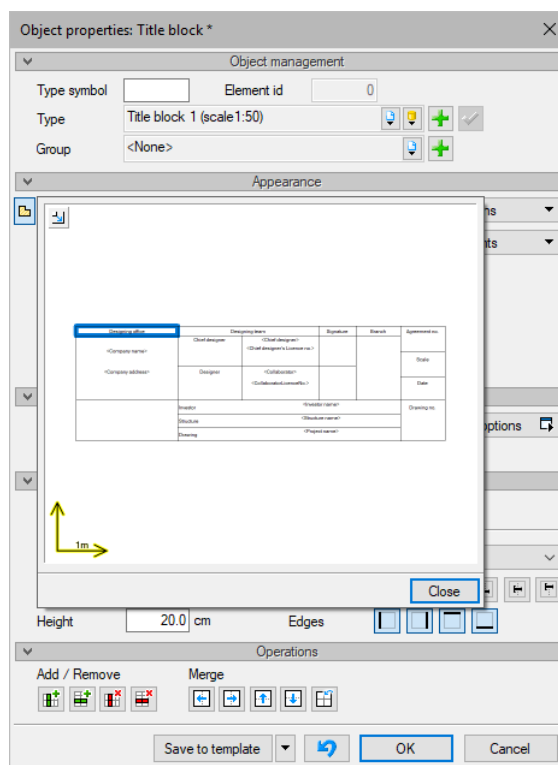


Fig. 467. Example title block in the view properties

Designing office	Designing team		Signature	Branch	Agreement no.
ArCADiasoft Sienkiewicza 85/87	Chief designer				Scale
	Designer				Date
	Investor	Projekt			Drawing no.
	Structure				
	Drawing				

Fig. 468. Table defined above inserted on the projection

Part of the information that is repeated may be input in the [Object properties: Project](#).

Design Tools

Fig. 469. Document properties window

Project name — name of the designed object.

Company — details of the design company.

Investor — investor details.

Once the window is filled, you can enter Automatic text in the table fields that will read data from the window above. For example, if a company name is to be entered into the cell where we're working, then you can select the *<Company Name>* from the *Automatic* texts and if you want to include the company address, you should select *<Company Address>*. Similarly, in order to insert the designer license number, you select the *<Chief Designer License No>*.

19.4.3. Editing title block

Designing and editing the title block are carried out with the same option and take place in the same window. However, the title block can also be edited in the Layout by moving successive line anchors joining the cells. This option is useful when the default title block drawn with lines is available. Then the user defines the number of cells, inserts the title block in the drawing (of existing 2D title block) and moves the row and column edges with the use of anchors. Next, the title block is saved in the global library.

19.5. Modular axes

19.5.1. Inserting modular axes

ArCADia Application enables to insert modular axes into the project.

Design Tools

Activation:

- *Architecture* ribbon ⇒ logical group *Description elements* ⇒  *Modular axes*
- *ArCADia-ARCHITECTURE* toolbar ⇒  *Insert modular axes*

On activation, the below window will be displayed:

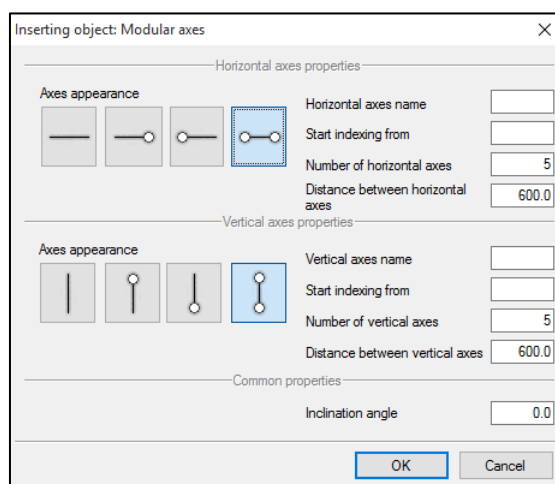


Fig. 470. Modular axes grid insertion window

While inserting modular axes the user can define the axis appearance and grid parameters.

Horizontal/Vertical axes name — name of the axis introduced in order to e.g. distinguish the inserted grids of modular axes.

Start indexing from — axis description given in the first data bit/index value.

Number of horizontal/vertical axes — number of horizontal/vertical axes constituting the grid.

Distance between horizontal/vertical axes — constant distance between horizontal or vertical axes.

Inclination angle — inclination angle of the overall modular grid.

Click on **OK** to switch to the drawing mode and insert the grid in accordance with the parameters set. The grid can be inserted using one of the anchors available in the window *Insert object: Modular axes*.

19.5.2. Modifying grid of modular axes

The inserted into the project grid of modular axes may be modified. To this end, the grid should be selected and the window *Object properties* activated. In the first step the below window will be displayed:

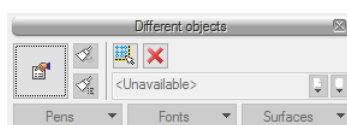


Fig. 471. Selected axis grid editing window

Design Tools

Tab. 63 Selected axis grid modifications tools

	<i>Go to Properties dialog box</i>	Opens <i>Properties</i> dialogue box.
	<i>Select all axes of the same grid</i>	Selects all the axes belonging to the grid.
	<i>Delete marked objects</i>	Removes the selection.

On clicking on *Properties*, the below box is displayed:

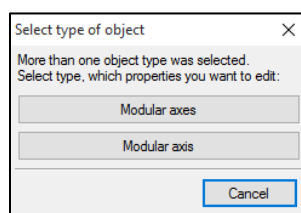


Fig. 472. Object selection window

19.5.2.1. Modifying Modular axes

On selection of *Select object type* — *Modular axes* option from the box, the below box will appear:

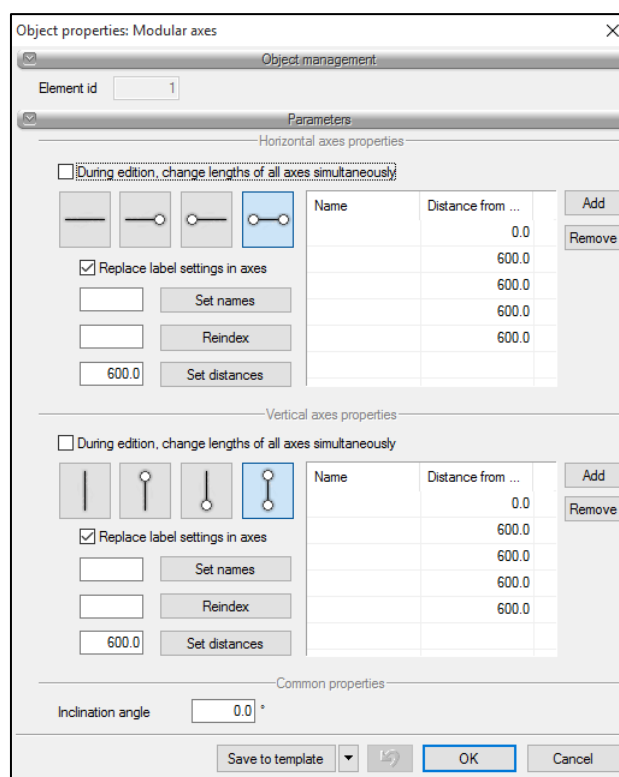


Fig. 473. Grid axis properties window

Design Tools

Grid editing changes the appearance of all axes, the method of their representation (line style and width), axes spacing and grid parameters.

Replace label settings in axes — selection of graphical representation of the axes available after checking the horizontal/vertical axes description edit box.

During edition change length of all axes simultaneously — enables to change the length of the axes inserted for all horizontal/vertical elements. The change of length is reflected in the drawing.

Distance from previous axis — information about the axes inserted is available in an editable window. It is possible to change individual (selected) names or axes spacing- this information is defined for single elements.

It is also possible to add or remove axes. The axes added are always placed after the last axis at a spacing defined while inserting the grid.

Grid parameters:

Set names — edit description of horizontal/vertical axes *Axis name*.

Reindex — axis description given in the first data bit/index value.

Set distances — distance between horizontal or vertical axes.

Inclination angle — inclination angle of the overall grid of modular axes.

Save to template — saves pen settings, selected style and other parameters of the element to the template.

19.5.2.2. Modifying modular axis

On selection from the window *Select object - Modular axis* the below window will appear:

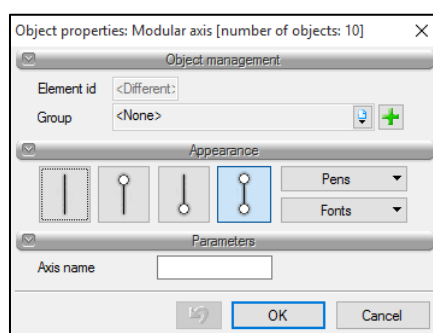


Fig. 474. Single grid axis properties window

For a single axis it is possible to modify its appearance, the method of its representation (line style and width), the name of the selected axis and the description font size.

A change of the length of a single axis is executed in the drawing by selecting a given axis and moving one of the outer grips.

Design Tools

NOTE: The option *Change of length of all horizontal/vertical axes in the Modular axis properties should be unchecked, otherwise all the axes will change by the defined length.*

After selection of the centre (inner) grip, a single axis will be moved. If it is required to move the axis by a defined value, this should be done in the window *Object properties: Modular axis* in the *Axes spacing* table.

19.6. Wind rose



19.6.1. Inserting the wind rose

From version 12, ArCADia has a project properties window with the information on the location data, the designed building, the investor and designers. A detailed description can be found in the *Project properties* chapter.

19.6.1.1. Inserting the wind rose with a point

It is possible to insert the *Wind rose* in the design being drawn. Its symbol can be introduced at any level, only once for each design. The north arrow inserted is visible at each level and its visibility can be modified.

Activation:

- *Architecture* ribbon ⇒ logical group *Location* ⇒  *Wind rose*
- *ArCADia-ARCHITECTURE* toolbar ⇒  *Insert wind rose through point*

After triggering the option, you can introduce the wind rose with the default location (in Łódź) or select another one after entering the window *Object properties: Wind rose*.

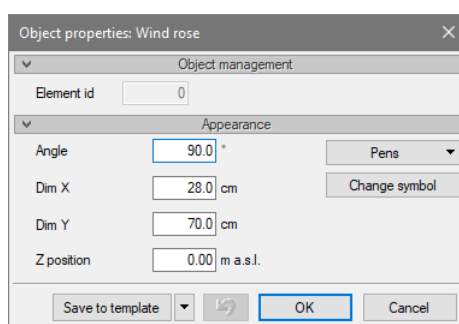


Fig. 475. Wind rose properties window

Angle – angle pointing at the northern direction.

Dim X – the size of the symbol (in axis X) of the wind rose on the projection and in 3D.

Dim Y – the size of the symbol (in axis Y) of the wind rose on the projection and in 3D.

Z position – location of the wind rose in relation to the absolute 0, if the building is located e.g. at the height of 190 m above sea level the wind rose also should be at this height.

Design Tools

Change symbol – 2D symbol shown on the projection.

After approving changes the wind rose is introduced, and its settings will be taken into consideration in the rendering options, the direction of the rose will also be transferred to the ArCADia-TERMO software.

19.6.1.2. Inserting wind rose with two points

The symbol of the wind rose is an arrow inserted by indicating two points: beginning and end of the arrow.

Activation:

- *Architecture* ribbon ⇒ logical group *Location* ⇒  *Wind rose by two points*
- *ArCADia-ARCHITECTURE* toolbar ⇒  *Insert wind rose through two points*

When inputting the wind rose in two points there is no access to the properties window before setting the angle and the size of the symbol. Data of the rose and location are changed only after it has been introduced to the project.

19.6.2. Editing Wind rose

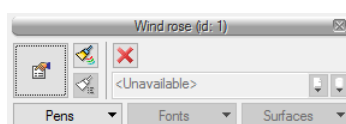



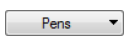


Fig. 476. Wind rose editing window

Tab. 64 Wind rose symbol modification tools

	<i>Go to Properties dialog box</i>	Opens <i>Properties</i> dialogue box.
	<i>Font and pen painter</i>	Takes over the settings of the pens (thickness and type of the line), as well as the size and type of the font.
	<i>Delete marked objects</i>	Removes the selection.
	<i>Pens</i>	The line type definition used to draw the element being inserted.

19.7. Insolation and shading

ArCADia-ARCHITECTURE in version 9 has a new option for calculating the insolation of rooms. This option displays a report for selected rooms calculated on a given date. In addition, it is possible to show the shading of buildings on a film or its individual frames.

Design Tools

19.7.1. Time of insolation

The option requires the wind rose inserted in the project, because it is in its properties that the user sets the direction of the north arrow, as well as gives or indicates the location of the project.

Activation:

- *Architecture* ribbon ⇒ logical group *Location* ⇒  *Insolation time*
- *ArCADia-ARCHITECTURE* toolbar ⇒  *Calculate insolation time in the room*

After choosing the command, the *Time of insolation in rooms* window will appear.

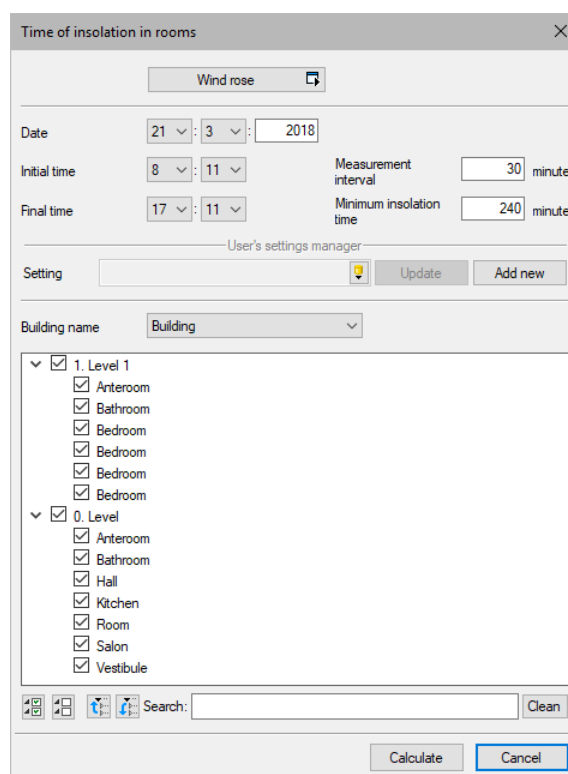


Fig. 477. Preparation of the room insolation report window

Wind Rose – displays the wind rose properties window.

In the upper part of the window we have access to the wind rose properties window and for giving the date of the report being created. The measurement of insolation takes place every few or dozens of minutes, the value is set in the *Measurement interval* field. Below we have access to changing the minimum required time of sunshine. The program will measure the insolation in selected rooms all the time from the initial to the final hour and give a continuous value and time segments, if they are any.

In the *User's settings manager* field there is a library of times, ie defined dates, to which of course you can add your own settings.

In the lower part of the window there is a list of available buildings, only from one building, in a given report, can you create a list. Below is a list of levels and rooms available in the building. The program does not segregate the rooms by the location, it shows them all and the user must define which rooms

Design Tools

will be in the report. Of course, you can leave all rooms selected or what is preferable to choose the right one. The entire level can be turned off as well.

NOTE: *hidden rooms are not taken into the report, ie those that are in the **Hidden rooms group**.*

After clicking on the [Calculate](#) button, a list will be calculated and an initial report will be shown, from which you can still switch off rooms that should not be included in the list.

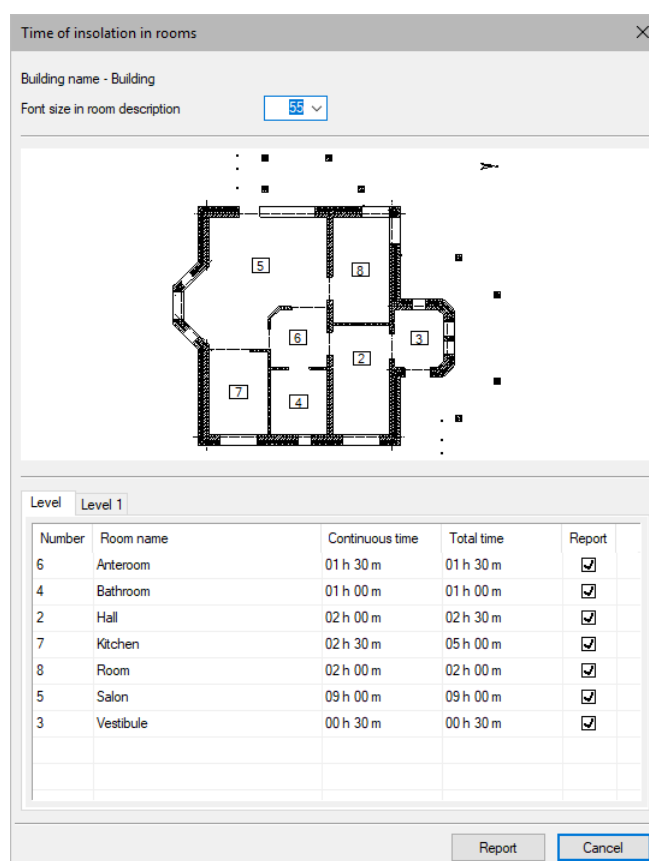


Fig. 478. Time of insolation in rooms report

If a room is clicked at the top of the window, it will be marked in the table below and the room marked in the table will be highlighted in blue on the preview. You can choose the rooms that will be selected for the report in the report column. In the above window, the calculation results cannot be modified.

After clicking on [Report](#), it will open by default in ArCADia-TEXT. The first page of the report will give the location of the building, date and time in which the insolation for the rooms was measured.



19.8. Visualization of the shading

The [Visualization of the shading](#) option was created to show the shading of the designed building or the influence of the shading of the designed building on the surrounding area. To simplify things you can for example insert a map as a texture in the solid options, and in this way show shading, but a

Design Tools

better option would be to insert schematic buildings next to it, which will accurately show the shadow movement on the model.

Activation:

- *Architecture* ribbon ⇒ logical group *Location* ⇒  *Visualization of the shading*
- *ArCADia-ARCHITECTURE* toolbar ⇒  *Generate visualization of the shading*

After selecting the command, the following window will be displayed.

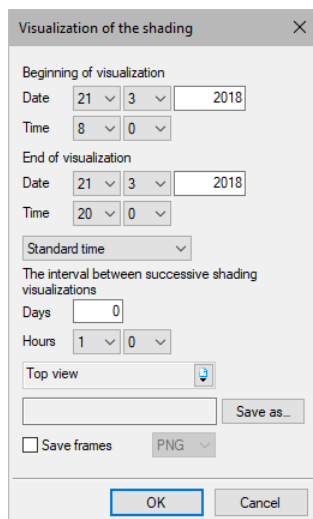


Fig. 479. Visualization of the shading window

Beginning/End of visualization – in the fields, enter the start and finish date of creating the shading visualization.

The time interval between successive shading visualizations – visualization of the shading can last one day, then, in days field we give 0, if it lasts few days, we change the default value. In this option the program saves the video in which frames are created every selected time interval in the *Hours* field.

Top view – it is the default camera set to record shading, but it can be any camera that is entered into the project.

Save as – shows location, provides name and chooses the type of shading visualization to be created.

Save frames – in addition to the movie, the program can save individual frames of the created movie.

NOTE: on the film and on the saved frames in the lower left corner there is always information about the date and time of the shadow of the building being shown.

Design Tools



Design Tools



Fig. 480. Examples of shading visualizations

The above example is a full project, but if you design one building, the neighbouring buildings can be treated as a general model and you do not have to accurately draw them.



Fig. 481. Another way to show the visualization of the shading

Design Tools

19.9. Lists

In the ArCADia software, various lists are created: building area, structure, net and gross of the storey and the building, cubic capacity, specification of rooms, used woodwork, materials, bar elements, roof areas, its accessories, as well as the roof truss. These statements can be introduced to the project at any time, since they are modified with changes on the projection.

19.9.1. Material list

The new version of the software has the list of materials used in walls, poles, floors, roofs, lintels and rims. The specification can be inserted in the design projection, and the lists may be later exported separately or collectively to the .rtf or .csv file. The material table may be introduced to the project, and at any time during work it will load the element data and refresh the list.

19.9.1.1. Inputting material list

Activation:

- *Architecture* ribbon ⇒ logical group *Description elements* ⇒  *Material list*
- *ArCADia-ARCHITECTURE* toolbar ⇒  *Insert material list for selected elements*

After triggering the command, you open the window, where you can choose elements for which the lists are to be introduced.

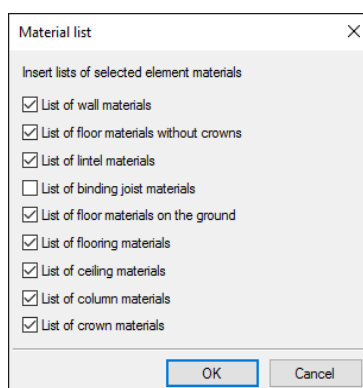


Fig. 482. The window for selection tables of materials introduced to the projection

After selecting the material tables, all are inserted to the design projection at the same time.

Design Tools

List of wall materials

Material name	Thickness [m]	Length with connections [m]	Mean height with connections [m]	Area with connections [m ²]	Volume with connections [m ³]	Real volume [m ³]	Correction factor [%]	Quantity [pieces/packages]
Level 0								
1-layer wall (brick) 12 cm								
Solid ceramic brick wall	0.120	24.74	2.80	2.97	8.31	8.31	5.00	4475.26 pcs. / 12.79 pallets
1-layer wall (cellular concrete) 49 cm								
Cellular concrete wall on thin-layer glueing mortar 600	0.490	17.62	2.80	8.63	24.17	24.17	5.00	13015.31 pcs. / 37.19 pallets
3-layer wall (reinforced concrete, face brick) 44 cm								
Foamed polystyrene 10	0.080	49.74	2.80	3.98	11.14	11.14	5.00	5999.82 pcs. / 17.14 pallets
Reinforced concrete 2500	0.240	50.56	2.80	12.13	33.98	33.98	5.00	18295.45 pcs. / 52.27 pallets
Solid ceramic brick wall	0.120	50.16	2.80	6.02	16.85	16.85	5.00	9074.81 pcs. / 25.93 pallets

Fig. 483. Examples of wall lists



By default, the lists are divided into storeys and materials collected for elements from the whole project. You can change it, choose the lists from one storey or without division, classify them by the element type or groups. These options are available for each table separately in the properties window available after inserting the specification.

19.9.1.2. Introduction of lists for selected elements

There is a possibility of introducing lists for selected elements, then it is not necessary to remove e.g. parts of the materials which you do not need in the specification.

Triggering the option starts from marking the elements.

Activation:

- *Architecture* ribbon ⇒ logical group *Description elements* ⇒  *List of materials for marked items*
- *ArCADia-ARCHITECTURE* toolbar ⇒  *Insert the selected elements material list for marked items*

19.9.1.3. Lists properties

The properties window is available after inserting from the edition window.

Design Tools

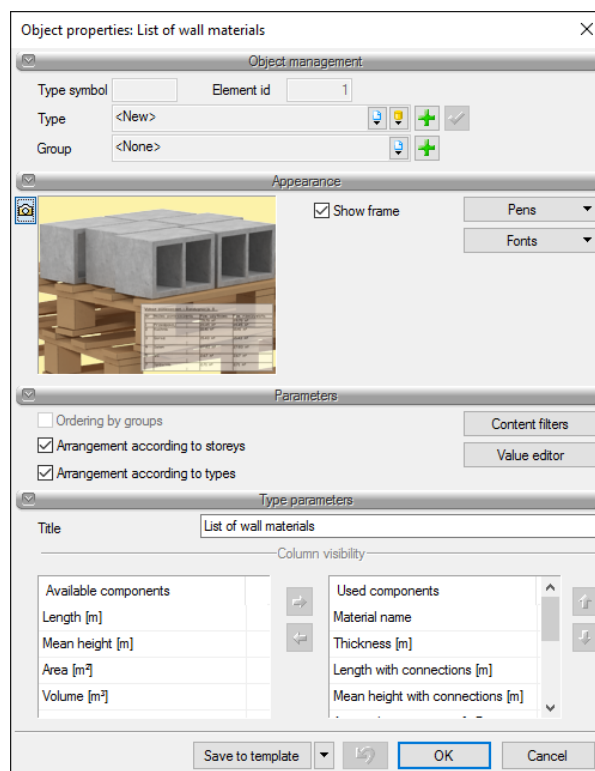


Fig. 484. Sample window of wall material lists

Object management – panel, which enables saving own type of statement and using it in next projects. In the type, column visibility settings are saved from the **Type parameters** panel.

Appearance – panel allowing modification of fonts and markers of the table, it gives also the possibility of disable the lists frame.

Parameters – panel allowing division of lists: **Ordering by groups**, **Ordering by storeys** and **Ordering by types**.

Content filter – the button opens the window, where you can select storeys or objects available in the project, which are to take part in the specification (you can e.g. select one or several walls, not taking account of other walls in the list).

Value editor – the button opens the window, where you can check the materials and select those which are to be shown in the table of lists. Materials in lists are counted from the project, and the values are not subject to modifications (the only exception are lintels). On the other hand, you can define which materials are in the specification.

NOTE: By default, the specification does not include materials on the layers disabled on the projection and the section. It means, e.g. that a room created by default has the ceiling disabled on the section, so the specification of ceiling materials will be introduced as empty. Only after entering the Value editor window it will be possible to enable ceiling materials.

Design Tools

[illegible]

Fig. 485. The window of the value editor for the walls

Thickness [m] – column showing the thickness of a given layer. Materials are divided mainly by layer thickness.

Width [m] – column showing the sum of the width of all walls (calculated between wall connections) with the same layer thickness.

Width with connections [m] – column showing the sum of the lengths of material layers with the same for walls along with the connections.

Average height [m] – height of the material is given in the 3D model from the volume quotient by areas (areas of the material layer length, without wall connections).

Average height with connections [m] – height of the material is given in the 3D model from the volume quotient by areas (areas of the material layer length along with wall connections).

Area [m2] – area occupied by a given material with specified thickness counted along the walls, without their connections.

Area with connections [m2] – area occupied by a given material with specified thickness counted with connections.

Volume [m3] – value taken from the 3D model of the building, not taking account of wall connections and possible holes.

Volume with connections [m3] – volume taken from the 3D model of the building taking account of wall lengths along with their connections. Not taking into account cut-outs in the walls.

Real volume [m³] – value taken from the 3D model of the building covering walls with connections and subtracting holes from these areas of (windows, doors etc.)

Correction coefficient [%] – value which can be freely modified, and which increases the result of the calculated material by the "safety coefficient", by default 5%.

Design Tools

Quantity [piece/package] – clicking the cells display the Package window, in which you can define its type (Pallet, Roll, Bucket or Pack) and the amount of content (e.g. the number of hollow bricks on a pallet, specifying the size of one hollow brick), that is the package size.

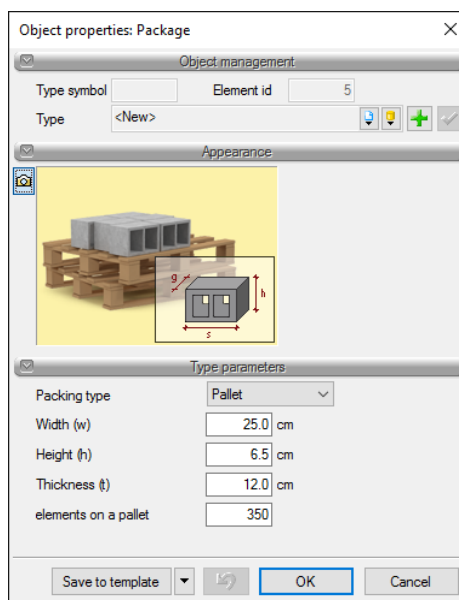


Fig. 486. Package window

Show/hide – hides a given material, removing it from the whole specification.

19.9.1.4. Saving lists to a file

The inserted specification can be exported to .rtf.csv files and to the Ceninvest software from the edition window, but with each table separately. If the lists are to be exported collectively into one file, use the option *Export lists to a file*.

Activation:

- *Architecture* ribbon ⇒ logical group *Description elements* ⇒ *Export of selected material lists*
- *ArCADia-ARCHITECTURE* toolbar ⇒ *Export of selected lists of material*

After triggering the command, mark the tables which are to have the exported materials and confirm the selection. Then, in the displayed window indicate the saving location and the file format.

19.9.2. Woodwork list

All windows and doors used in the project are listed in a table altogether with diagrams and defined values.

Activation:

- *Architecture* ribbon ⇒ logical group *Description elements* ⇒ *Woodwork list*
- *ArCADia-ARCHITECTURE* toolbar ⇒ *Insert woodwork list*

Design Tools

After inserting the woodwork you can enter *Object properties: Woodwork list* and there define the font type and the line thickness of the drawn table, as well as which doors and windows should be inserted to the list.

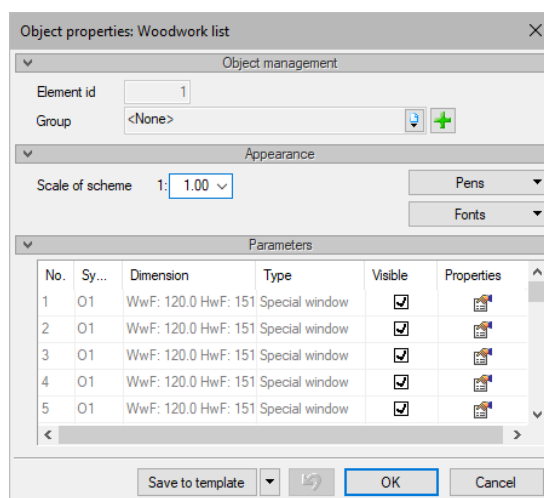


Fig. 487. Woodwork list properties window

Scale of scheme – by default set at 1:1, which is the scale in which the project is entered.

No. – subsequent number

Symbol – type of the symbol displayed in the item label (on the match).

Dimension – size of the window, doors, or opening in the wall.

Type – designation of the element type, whether it is a window or a door.

Visible – designation if given position (doors or window) is in the list. By default windows and door, for which only the opening is created are disabled from the list, but the user can change this settings.

Properties – transition to the window or door properties window.

Save to template — saves the pen settings, selected styles, and miscellaneous parameters of the element into the temple.

After confirmation of the data the woodwork list can be inserted with a few grips available in the window *Insert object: Woodwork list*.

The woodwork list can be placed anywhere in the view of one level.

Design Tools







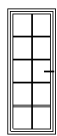
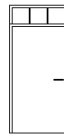

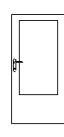
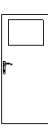
		Woodwork list						
Windows								
No.		1	2	3	4	5	6	7
Symbol		D1	D2	D3	D4	D5	D6	D81
Scheme								
Size	WwF	120.0	60.0	161.0	180.0	90.0	60.0	90.0
in wall	HwF	151.0	151.0	151.0	80.0	50.0	60.0	236.0
Size	W	104.0	44.0	145.0	164.0	74.0	44.0	80.0
in frame	H	135.0	135.0	135.0	64.0	34.0	44.0	226.0
Level -1		0	0	0	0	0	0	0
Level 1		5	5	2	0	0	1	1
Level 2		0	5	0	0	0	0	5
Level 3		0	0	0	1	1	0	0
Number		5	10	2	1	1	1	6
Comments								
Doors								
No.		1	2	3	4			
Symbol		D1	D2	D3	D4			
Scheme								
Size	WwF	110.0	110.0	100.0	90.0			
in wall	HwF	240.0	205.0	205.0	205.0			
Size	W	100.0	100.0	90.0	80.0			
in frame	H	235.0	200.0	200.0	200.0			
Door leaf type		L	R	L	R	L	R	R
Level -1		0	0	0	0	0	0	0
Level 1		1	0	0	1	1	1	1
Level 2		0	0	0	0	2	2	1
Level 3		0	0	0	0	0	0	0
Number		1	0	0	1	3	3	1
All		1	1	1	6	2	2	1
Comments								

Fig. 488. Woodwork list inserted on a projection

The woodwork list is refreshed automatically based on changes introduced in the level views.

NOTE: in ArCADia-ARCHITECTURE 9, amongst others, the division into levels has been added to the above listings.

19.9.3. Room list

As opposed to *Woodwork list* the *Room list* is generated separately for each level. In the new version of the program, a *Wall surface* column has been added to the room layout, which sums up the wall finishing surface in a given room.

Activation:

- *Architecture* ribbon ⇒ logical group *Description elements* ⇒  *Room list*
- *ArCADia-ARCHITECTURE* toolbar ⇒  *Insert room list*

Both before and after insertion of the room list, in the window *Object properties: Room list* the user can define the number of columns in the room list, specify which rooms will be included in the room list and whether they are to be sorted in accordance with their utility functions (defined in the window *Object properties: Room*).

Design Tools

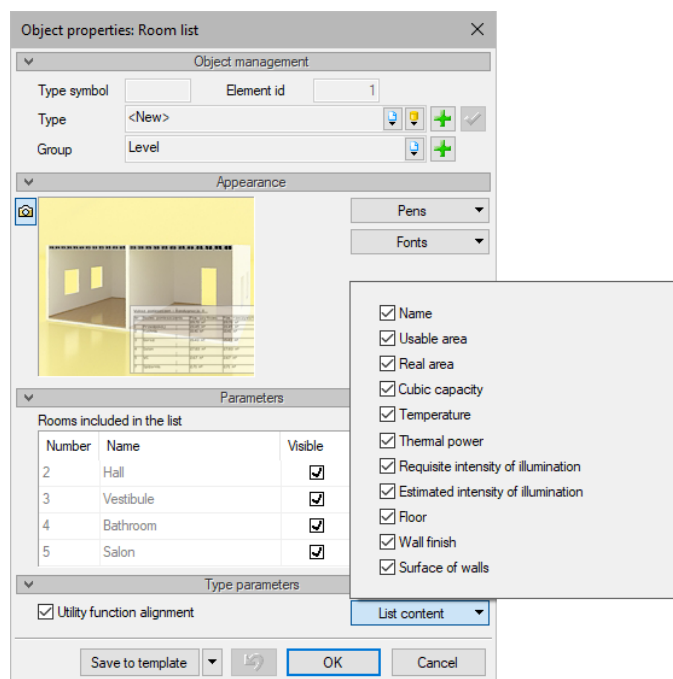


Fig. 489. Room list properties window

Room list: Building - Level _____

No.	Room name	Useable area	Floor	Walls surface
		79.28 m²		191.30 m²
2	Hall	11.81 m²	Terracotta	35.00 m²
3	Vestibule	5.34 m²	Terracotta	16.83 m²
4	Bathroom	7.00 m²	Terracotta	26.50 m²
5	Salon	27.82 m²	Carpet lining	36.46 m²
6	Anteroom	6.27 m²	Terracotta	16.49 m²
7	Kitchen	9.53 m²	Terracotta	27.04 m²
8	Room	11.51 m²	Carpet lining	32.98 m²
Total		79.28 m²		191.30 m²

Fig. 490. Example room list of the ground floor

Editing of the room list is mainly editing the fields and elements in the list. Modifications are defined in the properties window.

19.9.4. Cubic and area list

The *Area and cubic* list calculates basic areas for an active building and puts them in one table, showing the areas for the building and consecutive storeys.

The list contains the following areas: development, utility, net and gross of the storey, structural, functional, traffic and service. Additionally, you count the building cubic capacity, the minimum plot size and the information about the roof (height of the roof ridge and the roof pitch).

The **development areas** in ArCADia-ARCHITECTURE software mean the (automatically) counted sizes in the closed outline of the building in walls finished on the base storey, unless the storey below has closed rooms goint out of the base storey outline. Then, protraction adds them to the development area.

Design Tools

Development area is indicated by the user in the properties window for lists or rooms by setting the *Utility function* – *Utility* on the *Other* tab.

Total area is counted for each storey separately, and then totalled for the whole building. It gives the field of the external, closed outline of the storey in finished state.

Net area counted for each storey separately, and then totalled for the whole building. It is counted from all real areas of rooms (also hidden rooms).

Internal area of the storey also counted for each storey separately and totalled for the building. It contains the difference between the total area of the storey and the area occupied by external walls, counted in finished state (i.e. with all finishing layers, grids, plasters etc. – if they are set).

Area structure calculated for each storey separately and totalled for the building. It is created by the sum of areas of occupied by the walls and monolithic poles on a given storey. We add to it all the walls regardless of the type of layers (structural or partition walls).

Usable area is the same area as the one which appears in the windows of rooms, it is their sum for each storey separately and later the sum for the building. The usable area is calculated according to the standard selected in the *Options* properties window for the in ArCADia-ARCHITECTURE module. The usable area, by default, does not include hidden rooms.

Service area - the name might be a bit misleading, but it means rooms occupied by shafts, chimneys, ventilation systems and technical rooms e.g. with the electric system. Here, similarly to the area of the utility part, the rooms belonging to this area may be defined in the properties window for lists or rooms by setting the *Utility function* – *Service* on the *Other* tab. Automatically, rooms generated by the software at inserting shafts are added to this area (the rooms then have such a name).

Traffic area, that is the transport area which the user indicates similarly to the service and the utility area by selecting *Utility function* – *Traffic*.

Building cubic capacity includes closed areas of rooms, along with the surrounding walls, ceilings, floors and roofs. The cubic capacity will not include balconies, loggias and passageways, if they are not closed areas, i.e. rooms (even closed with virtual walls). The building cubic capacity does not include strip footings and spot footings.

Minimum dimensions of the plot are given after reading the building outline and adding relevant sizes to them (3 or 4 meters) depending on full or openwork walls on the outline.

Roof ridge height is the value measured from the set land level to the highest edges of the roof.

Roof pitch angle read from the roof properties window. If various pitch angles are set for one or several roof slopes belonging to the building, the software will specify the angle defined to the roof slope with the largest area.

NOTE: *If any space (passage, balcony etc.) is to be taken into account in calculating the area, it must be a room, which means that it should be surrounded by a virtual wall, which will create this room.*

Design Tools

Activation:

- *Architecture* ribbon ⇒ logical group *Description elements* ⇒  *Area and cubic*
- *ArCADia-ARCHITECTURE* toolbar ⇒  *Insert area and cubic capacity count*

Both before and after inserting the list you can define what information will be displayed on the drawing in the *Object properties* window.

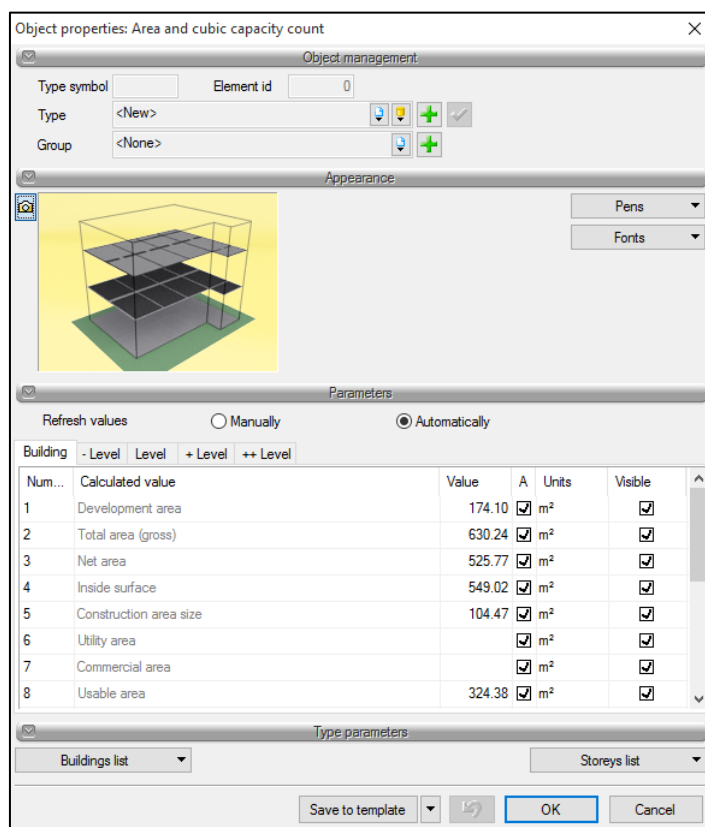


Fig. 491. Area and cubic capacity count properties window

Refresh values – definition of the list update type. All modification of the projections (sliding, inserting, and deleting the walls) and roofs will require recounting of the values in the inserted list each time, therefore with large files it is suggested to mark Manual value update mode or to insert list after all the modifications are done.

Building – lists available for active building, calculated for it (e.g. construction area) or summing the areas from all or only from selected levels (e.g. interior area).

Level tab – lists of areas for each of the levels are divided into tabs, the areas are added in the *Building* tab.

Both in the *Building* tab and in subsequent levels table of counted data is available.

Number – sequential number of calculated area, cubic capacity, or given angle, or roof height.

Calculated value – information how what is the type of the area, cubic capacity, or other parameters given in the subsequent columns.

Design Tools

Value – value of calculated data, by default area, cubic capacity, or other data of the list, read from the project. This value can be modified after unmarking the field next to it (in the **Automatic column**). If the value will be modified, then the changes to the project will not influence the value, unless until the field in the **Automatic** column will be marked.

Automatic – information about the mode of displaying the values of the area, cubic capacity, etc. By default all the fields are marked, because the values are read from the project. After unmarking specific field the value on the left from the field will be possible to modify.

Visible – the possibility to define, which area, cubic capacity. etc. is visible in the list. If in the Type parameters panel there will be some area **for services** unmarked on the list, e.g. **Building list** then in the column **Visible** it will be crossed out.

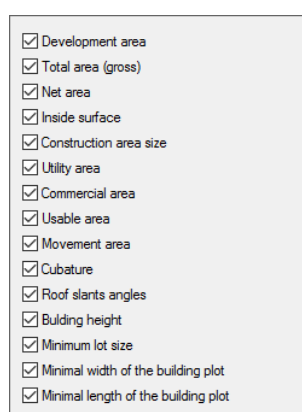


Fig. 492 Example of turning off the areas from the building lists

Select room – column available only for levels (it is not present in the building tab) and only for some of the areas, e.g. **Area charring rooms**, Areas for services, etc. This option allows for assigning the room to a specific type of area. For example, in order to make the charring rooms visible for the building you have to select the room or rooms for this type of the area e.g. the Garage.

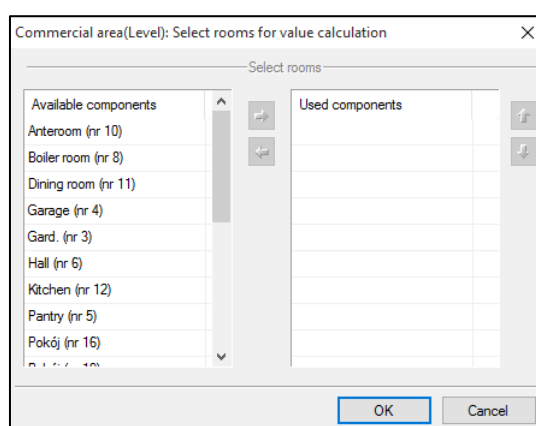
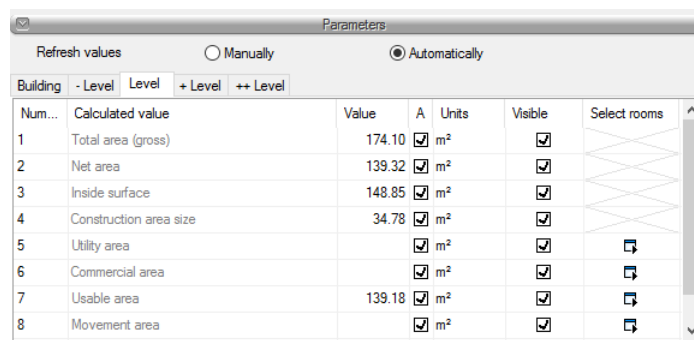


Fig. 493 Example assigned to the charring rooms area

Design Tools



Parameters							
Refresh values <input type="radio"/> Manually <input checked="" type="radio"/> Automatically							
Building - Level Level + Level ++ Level							
Num...	Calculated value	Value	A	Units	Visible	Select rooms	
1	Total area (gross)	174.10	<input checked="" type="checkbox"/>	m²	<input checked="" type="checkbox"/>		
2	Net area	139.32	<input checked="" type="checkbox"/>	m²	<input checked="" type="checkbox"/>		
3	Inside surface	148.85	<input checked="" type="checkbox"/>	m²	<input checked="" type="checkbox"/>		
4	Construction area size	34.78	<input checked="" type="checkbox"/>	m²	<input checked="" type="checkbox"/>		
5	Utility area		<input checked="" type="checkbox"/>	m²	<input checked="" type="checkbox"/>		
6	Commercial area		<input checked="" type="checkbox"/>	m²	<input checked="" type="checkbox"/>		
7	Usable area	139.18	<input checked="" type="checkbox"/>	m²	<input checked="" type="checkbox"/>		
8	Movement area		<input checked="" type="checkbox"/>	m²	<input checked="" type="checkbox"/>		

Fig. 494 Example of defined charring rooms area in the properties window

NOTE: If you want to disable specific level from the list, then you have to click on the top of the Visible column (on the caption) in its tab and then in the displayed window unmark the visibility of all areas for given level. If the sizes of a given level are not to be included in the overall size of the building, in the values, deselect **Automatic** and enter 0 for each area.

For charring, services, and transport areas the rooms will be assigned automatically, if they had the appropriate functions assigned in the *Type parameters* pane, the *Other* tab.

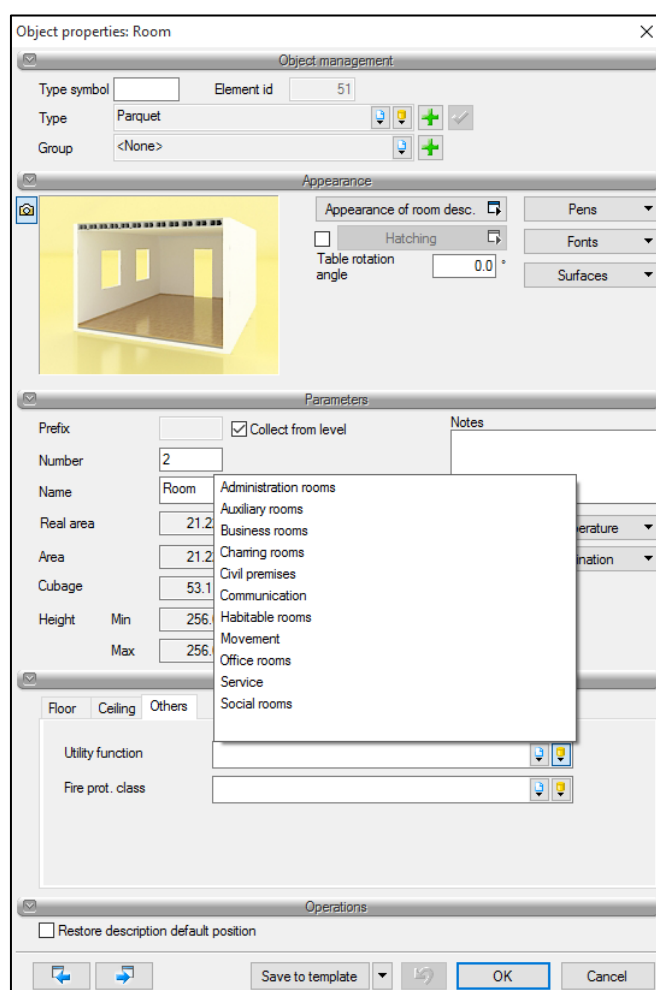


Fig. 495. Room with default software properties list properties window

Design Tools

Building list – list of all available data counted for the active building. If there is more than one building in the project then the list should be inserted separately for each building.

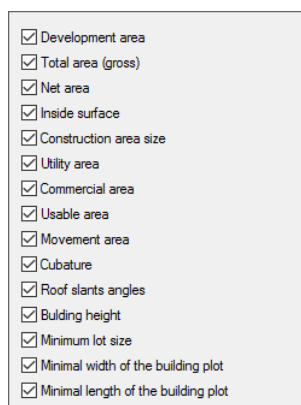


Fig. 496. Calculated data for building: areas, cubic capacity, roof and plot data

Storeys list – list of all available data counted for the levels. If any of the areas gets unmarked on the list, then it will not be available in the levels tab.

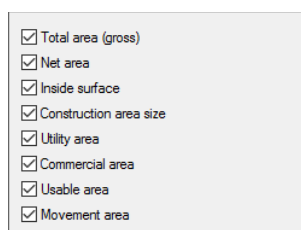


Fig. 497. Calculated areas for the level

Save to template — saves the pen settings, selected styles, and miscellaneous parameters of the element into the temple.

After confirming those data in the properties window the list is inserted by selecting its location on the projection.

Design Tools

Building: Area and cubic capacity count	
Development area	174.10m ²
Total area (gross)	630.24m ²
Net area	525.77m ²
Inside surface	549.02m ²
Construction area size	104.47m ²
Utility area	- m ²
Commercial area	- m ²
Usable area	324.38m ²
Movement area	- m ²
Cubature	1234.21m ³
Roof slants angles	25.00°
Building height	9.37m
Minimum lot size	1431.83m ²
Minimal width of the building plot	37.64m
Minimal length of the building plot	38.04m
++ Level	
Total area (gross)	136.72m ²
Net area	125.27m ²
Inside surface	125.69m ²
Construction area size	11.45m ²
Utility area	- m ²
Commercial area	- m ²
Usable area	66.44m ²
Movement area	- m ²
+ Level	
Total area (gross)	149.21m ²
Net area	118.89m ²
Inside surface	125.69m ²
Construction area size	30.32m ²
Utility area	- m ²
Commercial area	- m ²
Usable area	118.76m ²
Movement area	- m ²
Level	
Total area (gross)	174.10m ²
Net area	139.32m ²
Inside surface	148.85m ²
Construction area size	34.78m ²
Utility area	- m ²

Fig. 498. Example list of areas and cubic capacity

Editing of the list is mainly the editing of the fields and the elements in the list. Modifications are defined in the properties window.

19.9.5. List of bar elements

From version 7.0 ArCADia-ARCHITECTURE software has offered the possibility of inputting to the project bar elements with double-tee section, channel section etc. The new version of additionally allows to import bar elements from the ArCADia-RAMA (v. R3D3-Rama 3D) program and to put all introduced objects in one specification.

Activation:

- *Architecture* ribbon ⇒ logical group *Description elements* ⇒  *List of bar elements*
- *ArCADia-ARCHITECTURE* toolbar ⇒  *Insert a list of bar elements*

After triggering the option, the *List of bar elements* window opens, in which you select tables of lists divided into materials used in the inserted bar elements. After selecting the specification, introduce them to the projection.

Design Tools

List of bar elements (Profile steel)

Profile diagram	Profile	ID	Quantity (pieces)	Element length [m]	Total length [m]	Unit weight [kg/m]	Total weight [kg]
•	R 140 × 100 × 6	1	84	2.016	169.307	19.801	3352.429
•	R 140 × 100 × 6	2	84	2.000	168.000	19.801	3326.541
•	R 100 × 6	3	14	2.000	28.000	16.033	448.920
•	R 100 × 6	4	21	2.500	52.500	16.033	841.724
•	R 100 × 6	5	14	1.250	17.500	16.033	280.575
•	R 100 × 6	6	14	1.750	24.500	16.033	392.805
⌵	HE 200 B	7	4	0.350	1.400	62.106	86.948
•	R 100 × 6	8	16	6.000	96.000	16.033	1539.153
⌵	HE 200 B	9	4	1.500	6.000	62.106	372.636
•	R 100 × 6	10	80	1.450	116.000	16.033	1859.809
•	R 100 × 6	11	96	1.500	129.000	16.033	2068.236
•	R 100 × 6	12	14	3.010	42.146	16.033	675.713
•	R 100 × 6	13	14	2.828	39.598	16.033	634.868
•	R 100 × 6	14	14	2.236	31.305	16.033	501.907
•	R 100 × 6	15	14	2.358	33.019	16.033	529.387
⌵	HE 200 B	16	14	1.000	14.000	62.106	869.485
I	HE 400 B	17	14	5.000	70.000	157.317	11012.200
I	IPE 600	18	8	6.000	48.000	123.842	5944.397
I	IPE 600	19	4	5.000	20.000	123.842	2476.832
•	R 140 × 100 × 6	20	68	6.000	408.000	19.801	8078.743
•	R 140 × 100 × 6	21	34	5.000	170.000	19.801	3366.143
•	R 100 × 6	22	4	5.000	20.000	16.033	320.657
•	ø 22	23	8	6.500	52.000	2.842	147.768
•	ø 22	24	16	6.329	101.272	2.842	287.784
•	R 100 × 6	25	56	3.100	173.600	16.033	2783.301
•	R 100 × 6	26	32	0.950	30.400	16.033	487.398
⌵	HE 200 B	27	8	1.475	11.800	62.106	732.852
•	R 100 × 6	28	14	2.250	31.500	16.033	505.034
⌵	HE 200 B	29	4	0.650	2.600	62.106	161.476
⌵	HE 200 B	30	14	3.000	42.000	62.106	2608.455
I	HE 400 B	31	14	0.200	2.800	157.317	440.488
•	R 100 × 6	32	8	3.929	31.435	16.033	503.993
•	ø 22	33	48	5.391	258.766	2.842	735.336
•	R 100 × 6	34	4	5.900	23.600	16.033	378.378
⌵	HE 200 B	35	4	2.550	10.200	62.106	633.482
•	R 100 × 6	36	4	4.100	16.400	16.033	262.939
•	R 100 × 6	37	14	2.658	37.206	16.033	596.510
I	HE 400 B	38	14	0.900	12.600	157.317	1982.196
•	R 100 × 6	39	4	5.900	23.600	16.033	378.375
•	R 100 × 6	40	2	2.550	5.100	16.033	81.767
•	R 100 × 6	41	2	0.350	0.700	16.033	11.223
•	R 100 × 6	42	8	4.176	33.409	16.033	535.641
•	R 100 × 6	43	4	3.600	14.400	16.033	230.873
•	ø 22	44	4	5.590	22.361	2.842	63.542
•	R 100 × 6	45	4	1.900	7.600	16.033	121.850
•	R 100 × 6	46	8	1.562	12.496	16.033	200.353
Sum							63851.122
Addition(3%)							1915.534
Total sum							65766.656

Fig. 499. Example of bar element specification

After inserting the specification, the properties window is available in which you can modify the inserted specification.

Design Tools

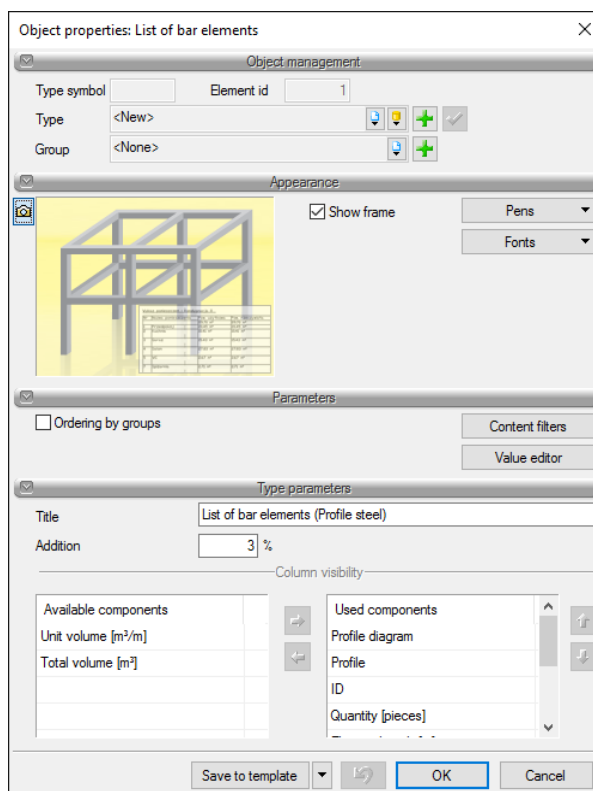


Fig. 500. Specification of bar elements properties window

19.9.6. Suspended ceiling elements list

ArCADia-ARCHITECTURE version 9 has options for inserting suspended ceilings, made of steel profile elements, ceiling panels and hangers. Each of these elements has an appropriate lists.

Activation:

ArCADia and ArCADia PLUS

- *Architecture* ribbon ⇒ logical group *Description elements* ⇒ *Ceiling panels list*
- *ArCADia-ARCHITECTURE* toolbar ⇒ *Insert ceiling panels list*

ArCADia LT

- *Ceilings* ribbon ⇒ logical group *Suspended ceilings* ⇒ *Ceiling panels list*

After selecting the option *Go to Properties dialog box*, *Object properties: Ceiling panels list* window will appear.

Design Tools

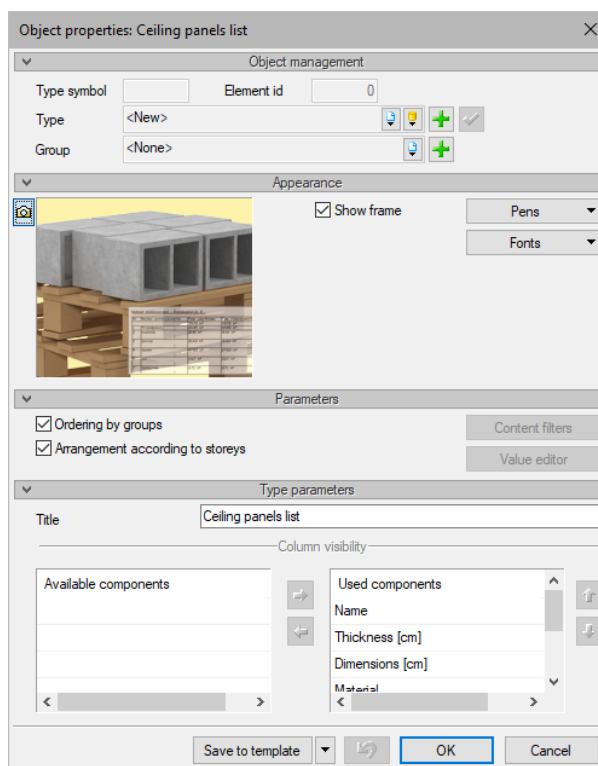


Fig. 501. Ceilings panels list window

Activation:

ArCADia and ArCADia PLUS

- *Architecture* ribbon ⇒ logical group *Description elements* ⇒ *Ceiling profiles list*
- *ArCADia-ARCHITECTURE* toolbar ⇒ *Insert ceiling profiles list*

ArCADia LT

- *Ceilings* ribbon ⇒ logical group *Suspended ceilings* ⇒ *Ceiling profiles list*

After selecting the option *Go to Properties dialog box*, *Object properties: Ceiling profiles list* window will appear.

Design Tools

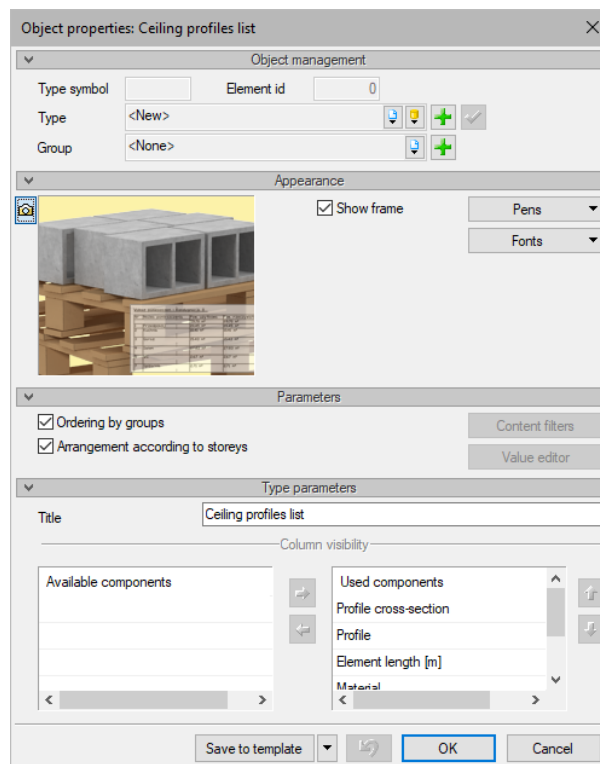


Fig. 502. Ceilings profiles list window

Activation:

ArCADia and ArCADia PLUS

- *Architecture* ribbon ⇒ logical group *Description elements* ⇒ *Ceiling hangers list*
- *ArCADia-ARCHITECTURE* toolbar ⇒ *Insert ceilings hangers list*

ArCADia LT

- *Ceilings* ribbon ⇒ logical group *Suspended ceilings* ⇒ *Ceiling hangers list*

After selecting the option *Go to Properties dialog box*, *Object properties: Ceiling hangers list* window will appear.

Design Tools

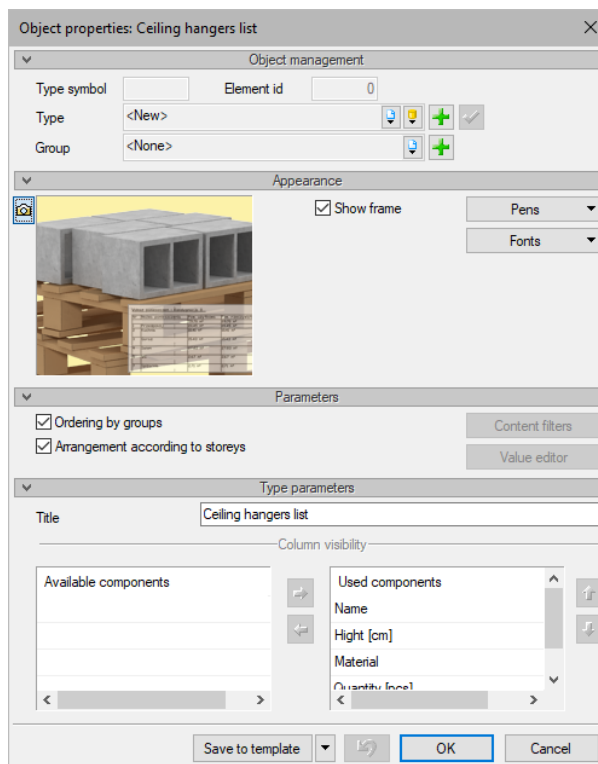


Fig. 503. Ceilings hangers list window

Object management – the field for saving the settings of a given element, i.e. the title of the listings and the contents of the columns.

Parameters – a panel in which, after inserting lists, there are options for organizing the lists, for example, selecting only one suspended ceiling from the entire project or showing a summary from the selected level.

Type parameters – a panel that allows you to define the content, that is, the columns of the listings.

Ceiling panels list

Name	Thickness [cm]	Dimensions [cm]	Material	Quantity [pcs]	Area [m²]
Level 0					
Ungrouped					
Ceiling panel	1.50	60x60	PVC	47	16.64
Ceiling panel	1.50	Not defined	PVC	19	6.71

Fig. 504. Example of a ceilings panels list

Design Tools

Ceiling profiles list


























Profile cross-section	Profile	Element length [m]	Material	Quantity [pcs]
Level 0				
Ungrouped				
	Main beam	531.09	Profile aluminium	1
	Main beam	503.69	Profile aluminium	1
	Main beam	470.56	Profile aluminium	1
	Main beam	430.58	Profile aluminium	1
	Main beam	383.02	Profile aluminium	1
	Main beam	325.59	Profile aluminium	1
	Main beam	255.58	Profile aluminium	1
	Main beam	166.83	Profile aluminium	1
	Main beam	45.17	Profile aluminium	1
	Cross beam	57.80	Profile aluminium	8
	Cross beam	60.30	Profile aluminium	39
	Cross beam	54.88	Profile aluminium	1
	Cross beam	26.64	Profile aluminium	1
	Cross beam	53.03	Profile aluminium	1
	Cross beam	11.91	Profile aluminium	1
	Cross beam	23.48	Profile aluminium	1
	Cross beam	24.93	Profile aluminium	1
	Cross beam	13.00	Profile aluminium	1
	Cross beam	41.46	Profile aluminium	1
	Cross beam	29.72	Profile aluminium	1
	External frame	21.03	Profile aluminium	1
	External frame	30.00	Profile aluminium	26
	External frame	22.74	Profile aluminium	1
	External frame	558.41	Profile aluminium	1
	External frame	564.69	Profile aluminium	1

Fig. 505. Example of a ceiling profiles list

Ceiling hangers list

Name	Hight [cm]	Material	Quantity [pcs]
Level 0			
Ungrouped			
Ceiling hanger	297.4	Profile aluminium	47



Fig. 506. Example of a ceiling hangers list

19.9.7. 3D objects list

ArCADia 6.7 has 2 new lists of 3D objects and selected 3D objects. If the *3D objects list* option is called on the active level, the list will show all objects entered into the building on all levels. If the terrain is active, then 3D objects inserted in the terrain will appear in the list.

Activation:

ArCADia and ArCADia PLUS

- *Architecture* ribbon ⇒ logical group *Description elements* ⇒  *3D objects list*
- *ArCADia-ARCHITECTURE* toolbar ⇒  *3D objects list*

Design Tools

ArCADia LT

- [View](#) ribbon ⇒ logical group [Insert](#) ⇒  [3D objects list](#)

After selecting the option [Go to Properties dialog box](#), an [Object properties: 3D objects list](#) window will appear.

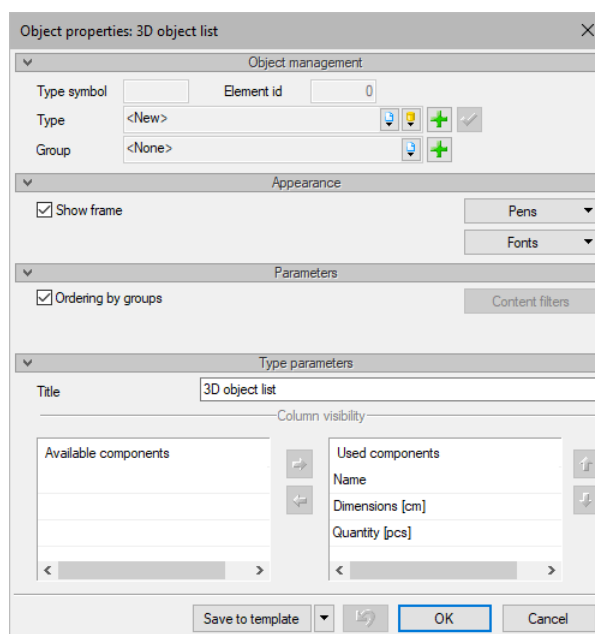


Fig. 507. 3D objects list window, after inserting

The property list window does not have access to all the options before entering the table. They are available after inserting the list.

[Object management](#)

A panel that allows you to save a list to the [Project Library](#) or the [Global Library](#) or to find in the library a previously saved element and use it in the current document. The name of the list and the visibility of the columns will be saved. Additionally, you can select or specify the group to which the list will belong.

[Appearance](#)

A panel in which pens, fonts and displaying of the lists frame are defined.

[Parameters](#)

[Ordering by groups](#) – this option allows you to segregate 3D objects by the groups in which they were entered. By turning off ordering elements, the items are organized alphabetically.

[Type parameters](#)

The panel allows you to define the name of the list and the number and quality of table columns.

Design Tools

Save to template – saves pen settings and fonts to the template.

The list is entered by indicating the point.

3D object list

Name	Dimensions [cm]	Quantity [pcs]
Kitchen		
l2blind60_white	121.00×5.28×79.42	1
bowl	29.50×29.50×10.29	1
bread	34.12×41.40×9.78	1
cooker_hood02	60.56×50.98×81.49	1
fridge02	59.11×63.71×207.00	1
haversack	29.72×25.06×14.56	1
kf2s_11cabinet60_82	59.06×60.04×84.65	4
kf2s_16cooker60_82	59.06×58.65×81.93	1
kf2s_23kitchen_sink90_82	138.00×60.04×86.27	1
kf2s_25cabinet90_82	80.00×60.04×84.65	1
kf2w_G10	59.06×29.00×70.88	4
kf2w_G12	80.00×29.00×70.88	2
kf2w_G12	30.00×29.00×70.88	2
lamp05	19.04×19.04×43.10	1
pot	28.57×24.99×20.67	1
tomatoes	8.70×10.17×4.48	4

Fig. 508. Example of 3D object list

If a table of selected elements (whether from a given level or terrain) is to be inserted into the project, select them and choose: *Selected 3D objects list* command.

Activation:

ArCADia and ArCADia PLUS

- *Architecture* ribbon ⇒ logical group *Description elements* ⇒  *Selected 3D objects list*
- *ArCADia-ARCHITECTURE* toolbar ⇒  *Selected 3D objects list*

ArCADia LT

- *View* ribbon ⇒ logical group *Insert* ⇒  *Selected 3D objects list*

After choosing the command, the table is inserted by the point.

19.9.8. Roof areas count

In the new version of the ArCADia-ARCHITECTURE software the option of inserting the lists of roofs areas, eaves length, corners and gables, was added.

Activation:

- *Architecture* ribbon ⇒ logical group *Description elements* ⇒  *Roof area count*
- *ArCADia-ARCHITECTURE* toolbar ⇒  *Insert roof area count*

Both before and after inserting the list you can define what information will be displayed on the list in the *Object properties* window.

Design Tools

Object properties: Roof area list

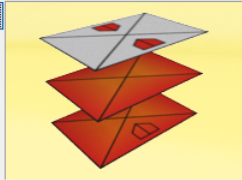
Object management

Type symbol: Element id:

Type:

Group:

Appearance



Pens: Fonts:

Parameters

Roof filter:

Roof1

Roof pieces					Dormer pieces					
Pie...	Slant [°]	A...	Surfaces...	A...	Name	Pie...	Slant [°]	A...	Surfaces...	A...
1	25.00	<input checked="" type="checkbox"/>	58.79	<input checked="" type="checkbox"/>						
2	25.00	<input checked="" type="checkbox"/>	44.74	<input checked="" type="checkbox"/>						
3	25.00	<input checked="" type="checkbox"/>	44.74	<input checked="" type="checkbox"/>						
4	25.00	<input checked="" type="checkbox"/>	58.01	<input checked="" type="checkbox"/>						

Roof surfaces												
Name	Surfa...	A...	Eave...	A...	Gable...	A...	Come...	A...	Bask...	A...	Top e...	A...
Roofs	206.28	<input checked="" type="checkbox"/>	54.94	<input checked="" type="checkbox"/>	2.00	<input checked="" type="checkbox"/>	37.93	<input checked="" type="checkbox"/>	0.00	<input checked="" type="checkbox"/>	5.26	<input checked="" type="checkbox"/>
Dormers	0.00	<input checked="" type="checkbox"/>	0.00	<input checked="" type="checkbox"/>	0.00	<input checked="" type="checkbox"/>	0.00	<input checked="" type="checkbox"/>	0.00	<input checked="" type="checkbox"/>	0.00	<input checked="" type="checkbox"/>
Summary	206.28	<input checked="" type="checkbox"/>	54.94	<input checked="" type="checkbox"/>	2.00	<input checked="" type="checkbox"/>	37.93	<input checked="" type="checkbox"/>	0.00	<input checked="" type="checkbox"/>	5.26	<input checked="" type="checkbox"/>

Type parameters

Roof pieces: Sums:

Save to template:

Fig. 509. Roof area list properties window

Roof filter – list of roofs of the active building, where you can select which roofs are visible in the list and which are not.

Roof tabs – roof tabs are divided into roof pieces and dormers. Areas of all the roof pieces are in separate tables, their numbering is related with the numbering of the roof pieces in the roof or dormer properties window. By default all the roof pieces are automatically calculated, after unmarking the **Automatic** field in the column, the value on the left from the field can be modified. Modified value will not be updated with the changes in the project.

Roofs area – table displaying and summing the areas, the lengths of eaves, gables, corners, and roof and dormer's top edges. By default all the roof pieces are calculated, after unmarking the field in the **Automatic** column the value left from the field can be modified. Modified value will not be updated with the changes in the project.

Roof pieces – selection of the column which will be displayed on the list.

Sums – selection of column which will be displayed in the list.

Save to template – saves the pen and fonts settings into the template.

Design Tools

After confirming those data in the properties window the list is inserted by selecting its location on the projection.

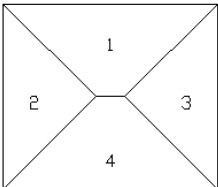
Roof pieces						
<div><div>Roof 1</div></div>	Piece no.	Slant [°]	Surfaces [m²]			
	1	25.00	58.79			
	2	25.00	44.74			
	3	25.00	44.74			
	4	25.00	58.01			
Roof surfaces						
	Surfaces [m²]	Eaves [m]	Gables [m]	Corners [m]	Baskets [m]	Top edges [m]
Roofs	206.28	54.94	2.00	37.93	0.00	5.26
Dormers	0.00	0.00	0.00	0.00	0.00	0.00
Summary	206.28	54.94	2.00	37.93	0.00	5.26

Fig. 510. Example of roof pieces list

Editing of the list is mainly the editing of the fields and the elements in the list.

19.9.9. Roof material list

Materials given for a roof and dormers can be inserted into the project as a table of Roof material lists. This list is generated for all roofs of the active building.

Activation:

- *Architecture* ribbon ⇒ logical group *Description elements* ⇒  *Roof material list*
- *ArCADia-ARCHITECTURE* toolbar ⇒  *Inesrt roof material list*

Both before and after inserting the list you can define how the table will look like and what information it will include in the *Object properties: Roof material list*.

Design Tools

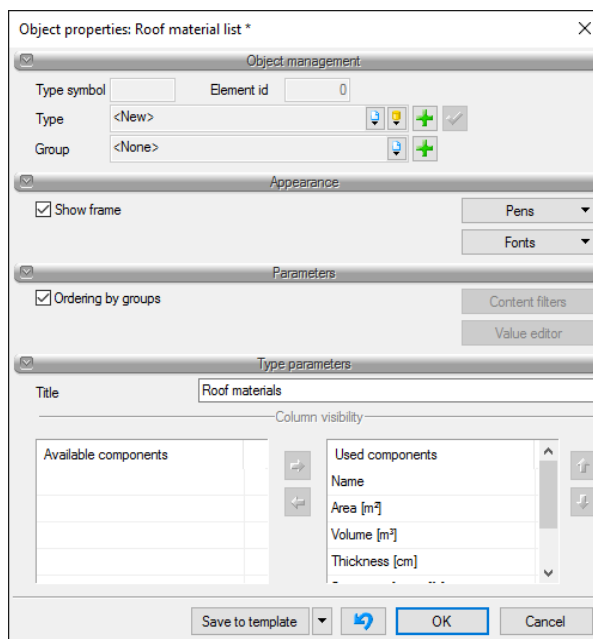


Fig. 511. Roof material list properties window before insertion

Appearance – the definition of fonts, pens, and visibility of the list frame.

Parameters

Ordering by groups – the button opens the window, where you can choose the groups available in the project which are to take part in the specification.

Content editor – table of materials defined for roofs and dormers. By default, all sizes are counted automatically, after deselecting the field in the Automatically column, you can modify the value to the left from that field. The modified value it will not be refreshed along with changes in the project. Correction coefficient [%] is the value which can be freely modified, and which increases the result of the calculated material by the "safety coefficient", by default 5%. Quantity [piece/package] shows the quantity of a given element in pieces and package. Clicking the cell displays the Package window in which you can define its type (Pallet, Roll, Bucket or Pack) and the amount of content (e.g. the number of hollow bricks on a pallet, specifying the size of one hollow brick), that is the package size.

The *Content filter* option is available after inserting the list.

Type parameters – panel that allows for defining the names of the table and selecting the columns displayed. Table *Available components* presents columns which may be displayed on the list. *Used elements* is a table of columns displayed on the list.

Roof materials			
Name	Area [m²]	Volume [m³]	Thickness [cm]
Ceramic plane tile	206.28	3.09	1.50
Granular mineral wool 80	206.28	51.57	25.00

Fig. 512. Example of roof materials list

Design Tools

Editing of the list is mainly the editing of the fields and the elements in the list. However only after the list is inserted the *Filter values* button, which allows for selecting of roof and dormers from which the materials will be used in the list, becomes available.

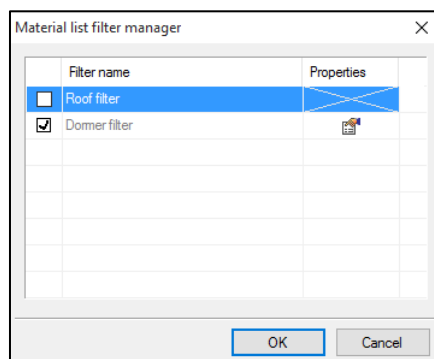


Fig. 513. Filter selection, i.e. roof or dormers, window

After selecting filter window will be displayed, where you can select a roof (dormers) which will be used for the list.

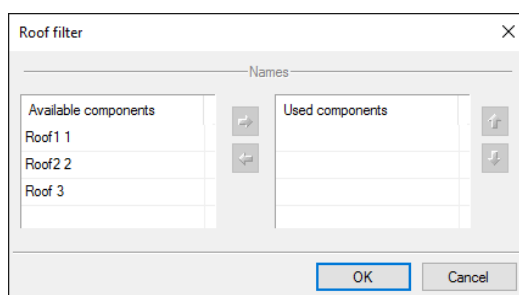


Fig. 514. Roof selection window, from which the materials for the list will be used

19.9.10. Roof accessories list

In the new version of ArCADia-ARCHITECTURE module roof may be “finished” by inserting ridge tiles, chimney cowl, gutters and drain pipes. After finishing the designing you can insert the list of all or only selected elements inserted on the roof.

19.9.10.1. Roof accessories list

Activation:

- *Architecture* ribbon ⇒ logical group *Description elements* ⇒  *Roof accessories*
- *ArCADia-ARCHITECTURE* toolbar ⇒  *Insert roof accessories list*

Both before and after inserting the list you can define how many columns will be included and which elements will be visible and how they will be sorted in the list by using the *Object properties: roof material list* window.

Design Tools

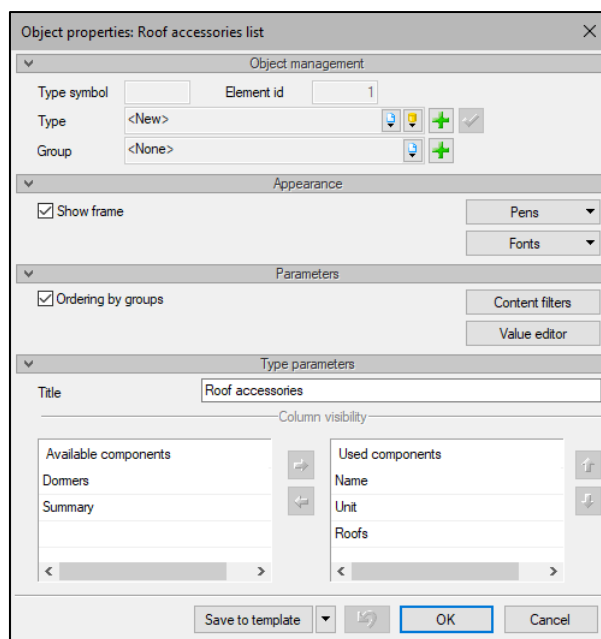


Fig. 515. Roof accessories list properties window

Appearance – the definition of fonts, pens, and visibility of the list frame.

Parameters

Ordering by groups – the button opens the window, where you can choose the groups available in the project which are to take part in the specification.

Content editor – table of accessories introduced on the roof and dormers. By default, all values are counted automatically, after deselecting the field in the Automatically column, you can modify the value to the left from that field. The modified value it will not be refreshed along with changes in the project.

The *Content filter* option is available after inserting the list.

Type parameters – panel that allows for defining the names of the table and selecting the columns displayed. Table *Available components* presents columns which may be displayed on the list. *Used elements* is a table of columns displayed on the list

Design Tools

Roof accessories

Name	Unit	Roofs	Dormers	Summary
Snow guards (fences)	m	6.29	0.00	6.29
Ridge tiles length	m	39.93	0.00	39.93
Ridge tile end caps	pcs.	4.00	0.00	4.00
Ridge tile joints (3)	pcs.	2.00	0.00	2.00
Chimney ventilation cowls (50.0)	pcs.	3.00	0.00	3.00
Length of the round roof gutters (125)	m	54.94	0.00	54.94
Roof gutter round hangers (125)	pcs.	94.00	0.00	94.00
Round roof gutter external corner (125/90.0°)	pcs.	4.00	0.00	4.00
Roof hatches (78x118)	pcs.	2.00	0.00	2.00

Fig. 516. Example of Roof accessories list

List table has hangers attached to every column. They allow for modifying the width of the columns on the projection.

W properties window of the list you can modify table content and use the button *Filter values*, which allows for selection of elements to be listed.

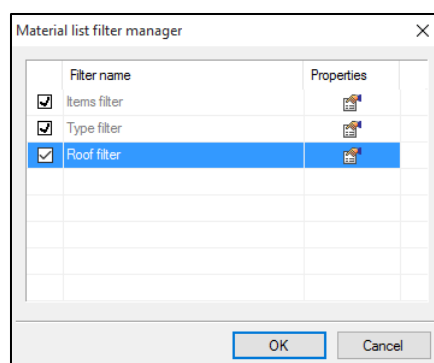


Fig. 517. List filter selection window

Items filter – this option allows for selection roof accessories on the projection which will be included in the list.

Type filter – displays a window which allows for selection of element types for the list, e.g. drain pipes (in such case only those elements will be included in the list).

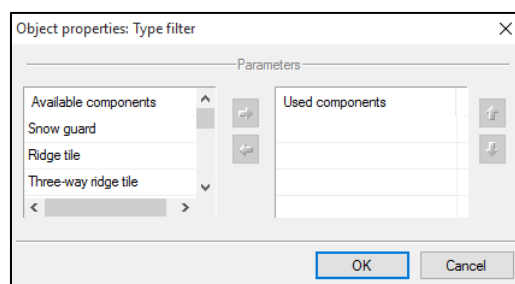


Fig. 518. Type filter window



Design Tools

Roof filter – displays a window which allows for selecting a roof from which the accessories will be counted.

19.9.10.2. Selected roof accessories list

This option allows for selecting elements which will be included in the list before inserting them.

Activation:



- *Architecture* ribbon ⇒ logical group *Supplementary elements* ⇒  *Selected roof accessories*
- *ArCADia-ARCHITECTURE* toolbar ⇒  *Insert list of elected roof accessories*

After activating the command you have to select the elements, which will appear in the list. After selecting and confirming them you can insert the table. Its further edition is the same as described above for the *Roof accessories list*.

19.9.11. Wooden construction list

The inserted roof framing, imported from the ArCADia-RAMA (v. R3D3-Rama 3D) program, creates a list of the wood used, which can be placed on the projection of the roof or exported to separate RTF file.

Activation:

- *Architecture* ribbon ⇒ logical group *Description elements* ⇒  *Wood list*
- *ArCADia-ARCHITECTURE* toolbar ⇒  *Insert wood list*

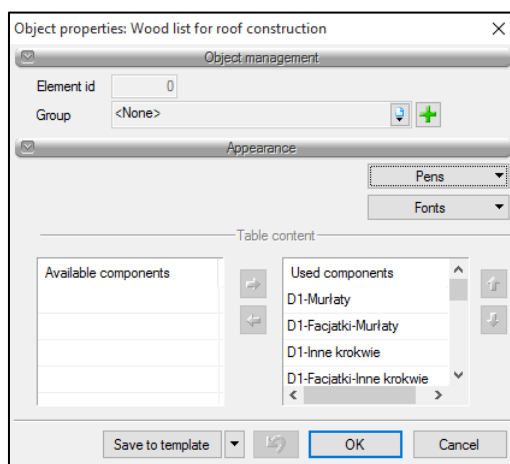


Fig. 519. Wood list properties window

Available components – list of framing elements, which will not take part in the list. By default all the elements are present in the list, but you can create a list of only for example rafters.

Used elements – list of elements, which will take part in the listing.

Design Tools

WOOD LIST – Roof1

Element		Section	Length	Amount	Volume
No.	Name				
1	D1-Murlaty	14.00 × 14.00	0.27 m	2	0.01 m³
2	D1-Murlaty	14.00 × 14.00	1.82 m	1	0.04 m³
3	D1-Murlaty	14.00 × 14.00	2.32 m	1	0.05 m³
4	D1-Murlaty	14.00 × 14.00	2.10 m	2	0.08 m³
5	D1-Murlaty	14.00 × 14.00	1.12 m	1	0.02 m³
6	D1-Murlaty	7.50 × 16.00	10.13 m	2	0.24 m³
7	D1-Murlaty	14.00 × 14.00	1.96 m	2	0.08 m³
8	D1-Murlaty	14.00 × 14.00	1.34 m	1	0.03 m³
9	D1-Murlaty	14.00 × 14.00	0.15 m	1	0.00 m³
10	D1-Murlaty	14.00 × 14.00	0.09 m	1	0.00 m³
11	D1-Murlaty	14.00 × 14.00	1.32 m	1	0.03 m³
12	D1-Murlaty	14.00 × 14.00	1.17 m	3	0.07 m³
13	D1-Murlaty	14.00 × 14.00	1.97 m	1	0.04 m³
14	D1-Murlaty	14.00 × 14.00	2.03 m	1	0.04 m³
15	D1-Murlaty	7.50 × 16.00	7.13 m	2	0.17 m³
Summary					0.90 m³
16	D1-Facjatki-Murlaty	14.00 × 14.00	1.06 m	18	0.37 m³
Summary					0.37 m³
17	D1-Inne krokwie	10.00 × 17.50	4.00 m	4	0.28 m³
18	D1-Inne krokwie	10.00 × 17.50	3.40 m	1	0.06 m³
19	D1-Inne krokwie	10.00 × 17.50	1.56 m	1	0.03 m³
20	D1-Inne krokwie	10.00 × 17.50	0.14 m	1	0.00 m³
21	D1-Inne krokwie	10.00 × 17.50	1.70 m	1	0.03 m³
Summary					0.40 m³
22	D1-Facjatki-Inne krokwie	10.00 × 17.50	1.56 m	14	0.38 m³
23	D1-Facjatki-Inne krokwie	10.00 × 17.50	0.28 m	1	0.00 m³
24	D1-Facjatki-Inne krokwie	10.00 × 17.50	0.38 m	3	0.02 m³

Fig. 520. Example of the portion of wood list inserted on roof's projection

Editing the list is defining the pens and type of the font used; defining what elements are to be shown in the list and possibility to save the list in a separate RTF file.

19.9.12. Editing lists

Modifications of the lists are mainly done by defining the appearance and content, what can be defined in the properties window of each list. From the editing window you can access:

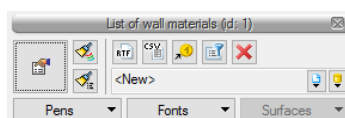


Fig. 521. Edition window for all tables of material list

Tab. 65 Material list modification tools

	Go to Properties dialog box	It opens the <i>Properties</i> window.
	Font and marker painter	It takes over the marker settings (thickness and types of lines), as well as the size and the type of the font.
	Type painter	It takes over the type of element, its scheme and sizes, moving them to the indicated element or elements.
	Saving to the text editor file (RTF)	Saves the list to a file in RTF format, opens the ArCADia-TEXT browser, which will let you edit, print or save the list.

Design Tools










	<i>Saving to the spreadsheet file (CSV)</i>	Saves the list to a file in CSV format. The list will be saved on the disk and the default software supporting the CSV format will be opened.
	<i>Export to Ceninwest software</i>	Exports data from the list to the Ceninwest cost estimation software (the icon appears in the window if the Ceninwest program is installed).
	<i>List filter manager</i>	Displays the window, where you select the storey or objects to take part in the specification.
	<i>Delete marked objects</i>	Deletes the selected elements.
	<i>Type</i>	The saved set of common features for many objects of the same type (template of elements defined by the user).
	<i>Document library</i>	Consistent with the selected template and created along with the development of the drawing when saving next types.
	<i>Global library</i>	Type library provided along with the software and extended by the <i>User library</i> where you can save own types of elements for their use in next projects.
	<i>Pens</i>	Definition of the type the line used for drawing the introduced element.
	<i>Fonts</i>	Definition of the size and the type the font describing the element.



Fig. 522. Edition window of the window and door woodwork list

All options available in this specification have been described above.

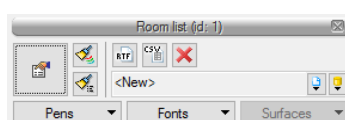


Fig. 523. Edition window of the list of rooms

All options available in this specification have been described above.

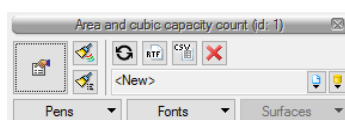



Fig. 524. Edition window of the list of areas and cubic capacities

Some of the options available for this list were described above.

Design Tools

Tab. 66 Cubic capacity and area list modification tools

	<i>Refresh values</i>	Recounts the size of the area, this option is especially helpful when <i>Manual updates</i> of values are enabled.
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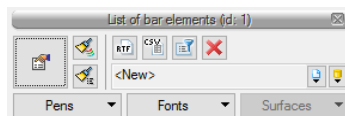


Fig. 525. Edition window of bar element lists

All options available in this specification have been described above.

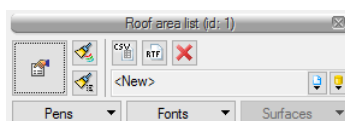


Fig. 526. Roof area list editing window

Options available for this list were described above.

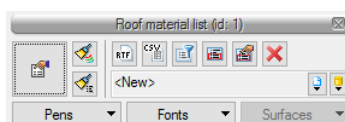




Fig. 527. Roof materials list editing window

Some of the options available for this list were described above.

Tab. 67 Roof materials list modification tools

	<i>Marking selected elements on the projection</i>	Displays the roof and (or) dormers where selected material is located. After activating the command you have to select the row with the material which you want to check in the table. Software will centre on the roof or dormer where the material was used.
	<i>Changing the properties of selected elements</i>	Opens element properties window, where material selected from the table is present. After activation of the command in the table you have to select the row with the material which you want to modify. If the material will be used in single element (e.g. the roof) then it will be displayed as roof properties. If the material is used in more than one element (e.g. roof and dormers) then it will be displayed as element selection window, and after selecting e.g. roof it will be displayed as its properties.

Design Tools

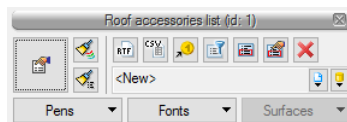




Fig. 528. Roof accessories list editing window

Some of the options available for this list were described above.

Tab. 68 Modification tools

	<i>Add elements to the list</i>	Allows for selecting on the projection of active roof those accessories which will be added to the list.
	<i>Remove elements from the list</i>	Deletes the selected elements from the active roof's list.

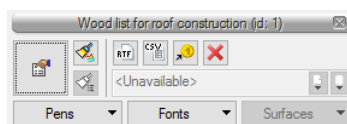


Fig. 529. Wood used for roof construction list editing window

Options available for this list was described above.

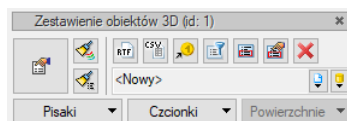


Fig. 530. 3D object list editing window

The options available in this list are described above.

Compatibility with other programs

20. COMPATIBILITY WITH OTHER PROGRAMS

Compatibility with other programs

20.1. Compatibility with ArCon

ArCon is a CAD program known to most Polish architects. It is dedicated for architects, interior designers, construction engineers, and furniture producers, who get, through the ArCon software, not only wonderful tool for planning but also an instrument of presenting their goods. ArCon is a tool for creating visualizations and preliminary documentation, which can be quickly and professionally completed in the ArCADia software.

NOTE: Depending on the version of the ArCon software it may be necessary to run both programs as Administrator on Windows Vista, 7, 8 and 10.



20.1.1. Import

All projects created in ArCon can be introduced to ArCADia-ARCHITECTURE by using [ArCon Import](#) command.

NOTE: Before importing project you have to select in the **Options**⇒**Texture** folders the paths of the textures of the imported objects. If the objects are in the ArCon's library then you have to specify the path, e.g. c:/Program Files/INTERsoft/ArCon/Tekstury. If the paths to the textures are not given before the import of the projects then all 3D objects captured from the ArCon will be white (they will not have any texture).

Activation:

ArCADia and ArCADia PLUS

- [Insert](#) ribbon ⇒ logical group [Data](#) ⇒  [ArCon import](#)
- [ArCADia-ARCHITECTURE](#) toolbar ⇒  [Import data from ArCon](#)

ArCADia LT

- [Home](#) ribbon ⇒ logical group [Communication](#) ⇒  [ArCon import](#)

Compatibility with other programs

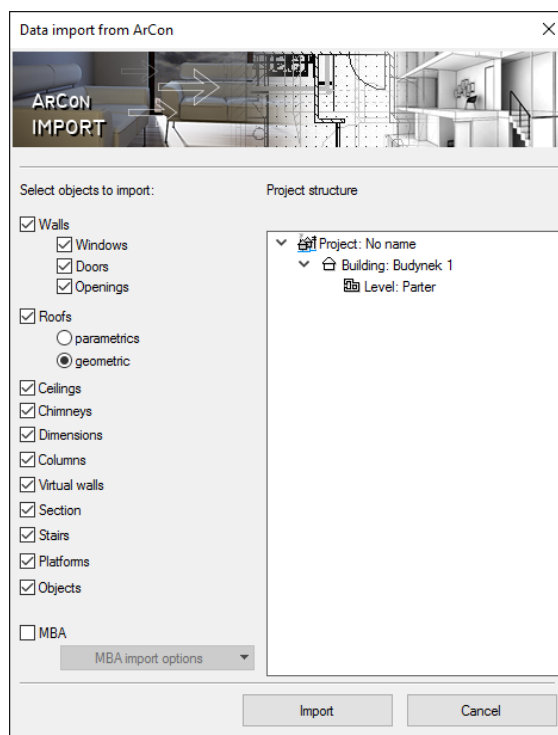


Fig. 531. Importing data from ArCon software window

NOTE: *It is required that ArCon and ArCADia are both running at the same time.*

From version 6.0 of ArCADia-ARCHITECTURE the objects captured from the ArCon software as 3D Objects are automatically added to the library. Therefore it is very important to define proper texture paths of the ArCon program before the first import. See information above.

After activating the command the software transmits whole projects as solid. If you are using ArCon program in version higher then 9, then aside from wall, window, doors, ceiling, roof, etc. elements (listed in the tree in the import window) also additional 2D elements are captured (through the MBA file) which are not present in the ArCADia software e.g. roof framing drawing. Those elements are shown in the [MBA import options](#) list.

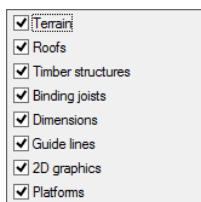


Fig. 532. List of elements imported as a 2D drawing.

NOTE: *Drawings created as mba import are available at import only on ArCADia-INTELLICAD 6 (2009) and ArCADia-START software.*

Cross-sections created in the ArCon software will be captured as cut line of the building and inserted once again in ArCADia-ARCHITECTURE software.

Compatibility with other programs

Structural elements from ArCon software such as: walls, windows, doors, chimneys, and columns are automatically captured as ArCADia elements and can be given appropriate properties such as layers for walls, or diagram for woodwork.

NOTE: In some cases, roofs created in ArCon or roofs that have been modified by means of macros, may not be taken over. Then it is necessary to attempt to import again, selecting the Geometric ⇒ roofs option in the import window.

20.1.2. Export

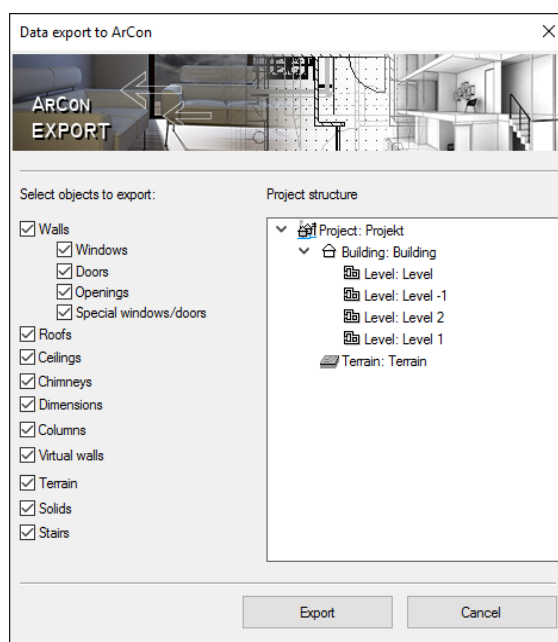




Fig. 533. ArCon software data export window

Modifications in elements transferred as ArCADia objects may be taken over into ArCon. To do that, use the command [ArCon Export](#).

Activation:

ArCADia and ArCADia PLUS

- [Collaborate](#) ribbon ⇒ logical group [Export](#) ⇒  [ArCon](#)
- [ArCADia-ARCHITECTURE](#) toolbar ⇒  [Export data from ArCon](#)

ArCADia LT

- [Home](#) ribbon ⇒ logical group [Communication](#) ⇒  [ArCon Export](#)

The export button transfers the entire project in to the ArCon software.

NOTE: When exporting a project to the ArCon software, the program should be started with no active document.

Compatibility with other programs



20.2. ArCADIA-RAMA

The ArCADia-ARCHITECTURE software offers a possibility of a broader communication with the ArCADia-RAMA (v. R3D3-Rama 3D) program from version 15 than only by creating a roof truss. From the ArCADia-RAMA software there is a possibility to import the bar structure and you can export to it all roofs of the project at the same time, along with the initial drawings of modular axis grids.

20.2.1. F3D file import

The option imports framework of the structure created in ArCADia-RAMA (v. R3D3-Rama 3D) program that, after loading, will be one object, but it can be split into single elements that can be edited. The framework is, by default, one object, but if in the project there are more than one storey, it will be divided into these storeys.

Activation:

- *Architecture* ribbon ⇒ logical group *Building* ⇒  *F3D Import*
- *ArCADia-ARCHITECTURE* toolbar ⇒  *Import a bar frame from F3D file*

After triggering the option, the window is opened in which you should indicate the file. Then you can introduce the framework, or even before inserting, enter the window: *Object properties: Bar frame structure*:

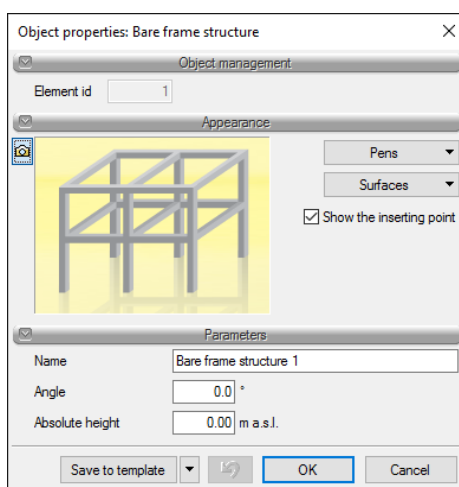


Fig. 534. Properties window for the introduced framework

Appearance – panel enabling definition of the type, colour and thickness of markers for the introduced element on the projection, in the 3D view, areas whose materials is set also in this panel will be shown. Additionally, by default, the Show inserting point option is marked and, when necessary, it can be disabled.

Name – name for the combined framework.

Angle – rotation angle of the structure inserted on the projection.

Absolute height – the height of location of the input structure.

Compatibility with other programs

Save to template – saves to the template the settings of the markers, the selected style and other parameters of the element.

Pressing the *OK* button lets you go back to the drawing and introduce the pole. Introduction of an element is done by indicating its location. During drawing, from the level of the inserting window, the notification window or the command area, the following functions are available:

- *Reference* – enables inserting the bar framework in the set distance from the selected point.
- *Between points (centre)* – starts drawing the element in the centre of the indicated distance (the distance is given by indicating two points).
- *Between points (as a percentage)* – starts drawing the element in the set percentage division of the indicated distance (the distance is given by indicating two points).
- *Cancel* – aborts the function without the inserted element.

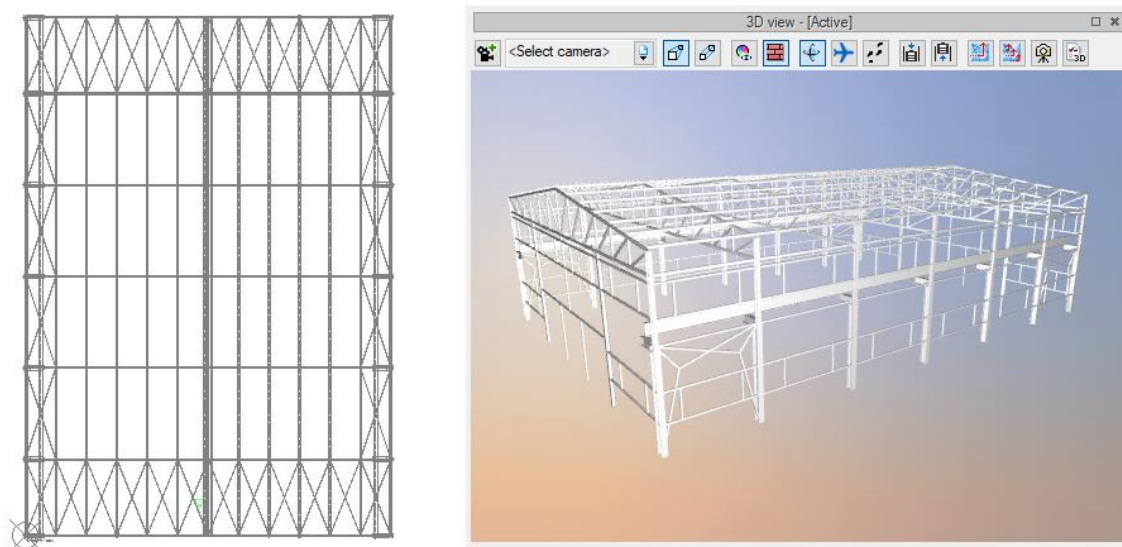


Fig. 535. Example of the framework structure imported to the software

20.2.1.1. Bar structure properties

After introducing, the structure is seen as one object which, in the properties window, has the same options as the before inserting. The framework can, however, be split, then each element will be subject to separate edition.

Compatibility with other programs

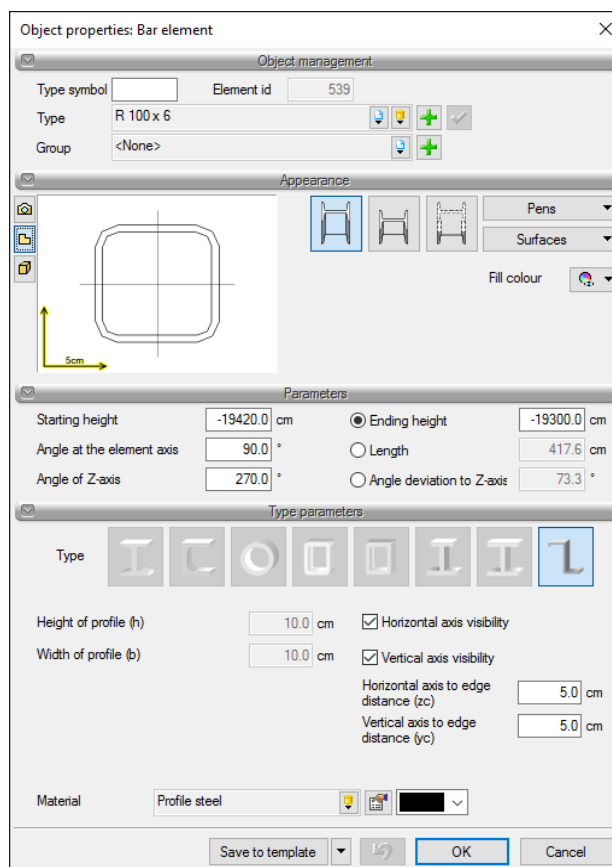


Fig. 536. Window of one of elements of the split framework of the imported bar structure

20.2.1.2. Bar structure edition

After selecting the bar structure (not split) it can be moved, copied, removed and you can change its properties. Some of these options are available only from the edition window level:

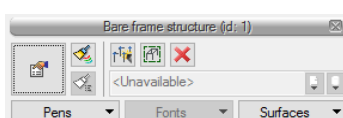

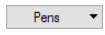
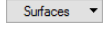


Fig. 537. Edition window of the bar structure framework

Tab. 69 Structure modification tools

	<i>Go to Properties dialog box</i>	It opens the <i>Properties</i> window.
	<i>Font and marker painter</i>	It takes over the marker settings (thickness and types of lines), as well as the size and the type of the font.
	<i>Break a bar frame</i>	Divides the imported structure into different part which from now on will be separate elements.
	<i>Show element properties in the bar frame</i>	Shows the properties window of the indicated structure element, without the need to split it.

Compatibility with other programs


	<i>Delete marked objects</i>	Deletes the marked structure.
	<i>Pens</i>	Definition of the type the line used for drawing the introduced element.
	<i>Surfaces</i>	Assignment of materials or textures for particular areas of t introduced element.

20.2.2. Initial drawing export to ArCADia-RAMA

To the ArCADia-RAMA (R3D3-Rama 3D) software from version 15 you can export the initial drawing of the structure from the ArCADia-ARCHITECTURE module. It moves the information about all modular axis grids and the geometry of introduced roofs. Modular grids are joined into one and projected at the base height of the building. In crossings of axes, vertical auxiliary elements are introduced, for easy introduction of structure elements in the in ArCADia-RAMA software. If, in the initial grid drawing, there is a roof, the modular axis grid will be copied on it, also for easy introduction of structures. The initial drawing goes to the in ArCADia-RAMA software without modification, i.e. not as in the case of transferring the roof truss, where, along with the roof geometry, the automatic roof truss is created automatically. Here, only initial drawings pass, and the structure is introduced by the user.

Activation:

ArCADia and ArCADia PLUS

- *Colaborate* ribbon ⇒ logical group *Export* ⇒  *ArCADia-RAMA underlay*
- *ArCADia-ARCHITECTURE* toolbar ⇒  *Trace export to ArCADia-RAMA*

ArCADia LT

- *Home* ribbon ⇒ logical group *Communication* ⇒  *ArCADia-RAMA underlay*

Initial drawing export does not save file, opens the ArCADia-RAMA software and moves axes and roofs.

Compatibility with other programs

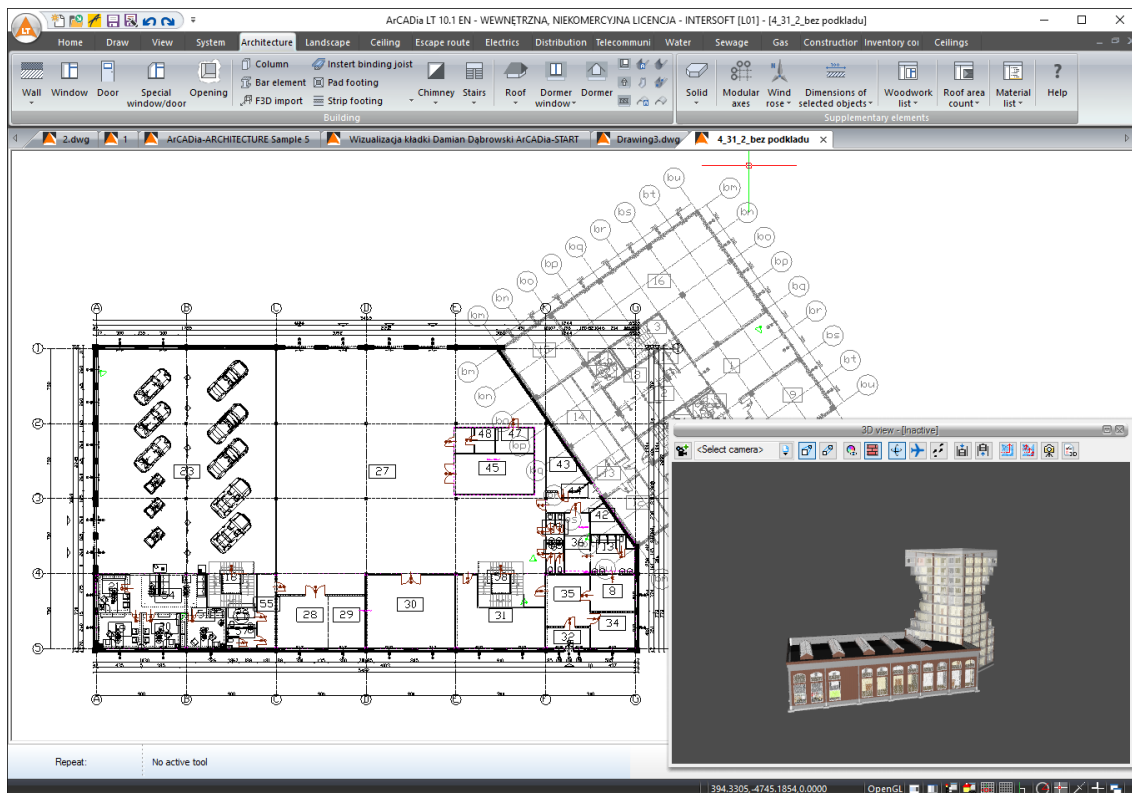


Fig. 538. Sample project exported to ArcADia-RAMA software

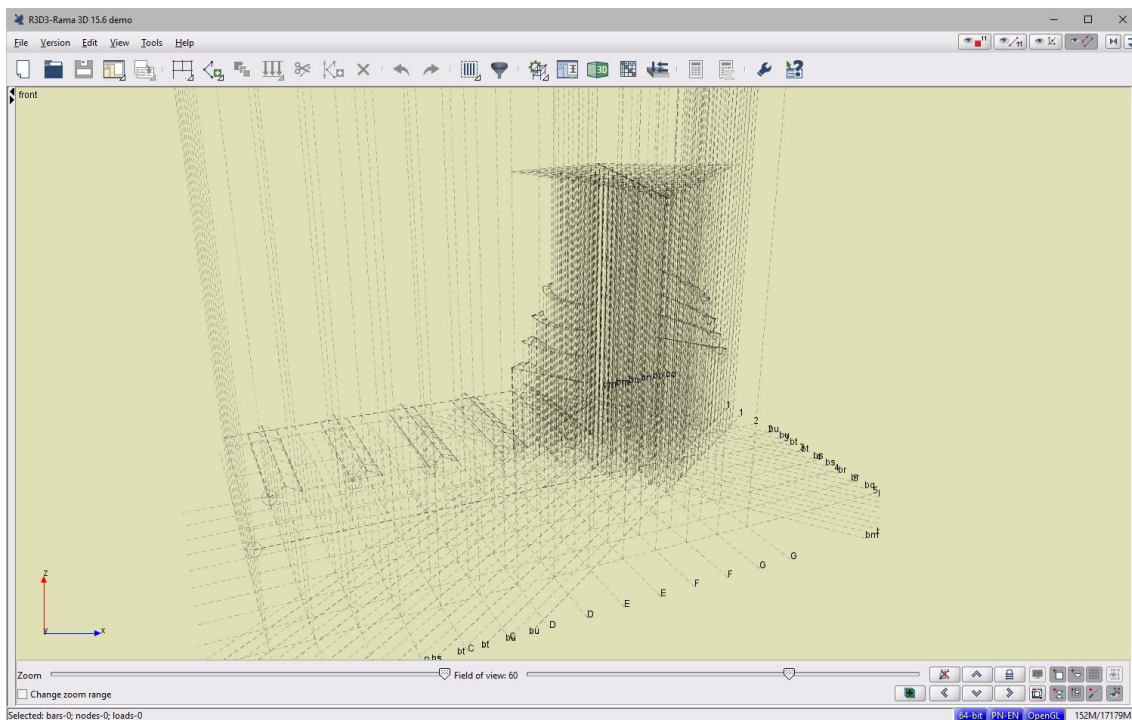



Fig. 539. Sample initial drawing in the ArcADia-RAMA software



Compatibility with other programs

20.2.3. Construction view

By switching to *Construction view*, the project is shown as it will appear in ArCADia-RAMA (R3D3-Rama 3D version). The icon  allows you to move the entire project, as it is shown in the construction view, to the ArCADia-RAMA program.

Activation:

ArCADia and ArCADia PLUS

- *View* ribbon ⇒ logical group *Views* ⇒  *Construction view*
- *ArCADia-SYSTEM* toolbar ⇒  *Show construction view*

ArCADia LT

- *View* ribbon ⇒ logical group *View* ⇒  *Construction view*

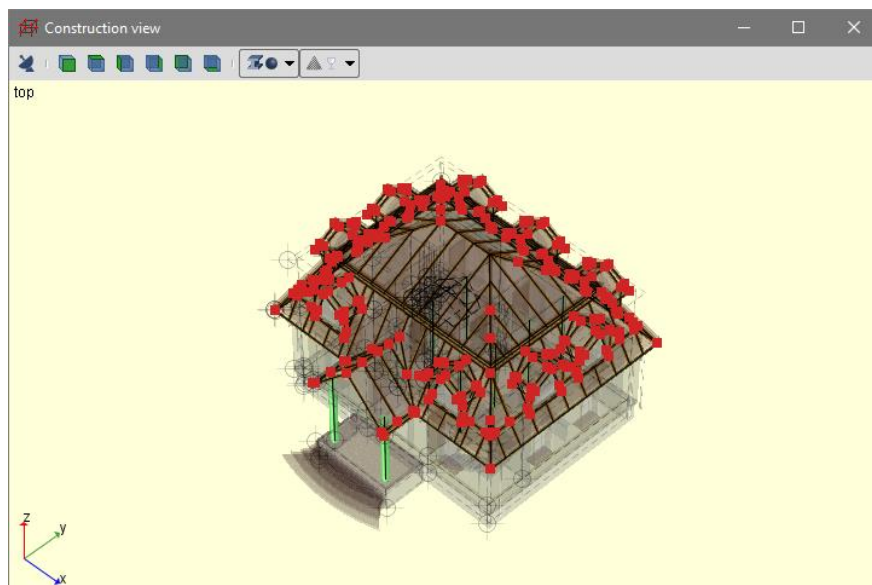


Fig. 540. A sample project in construction view

Compatibility with other programs

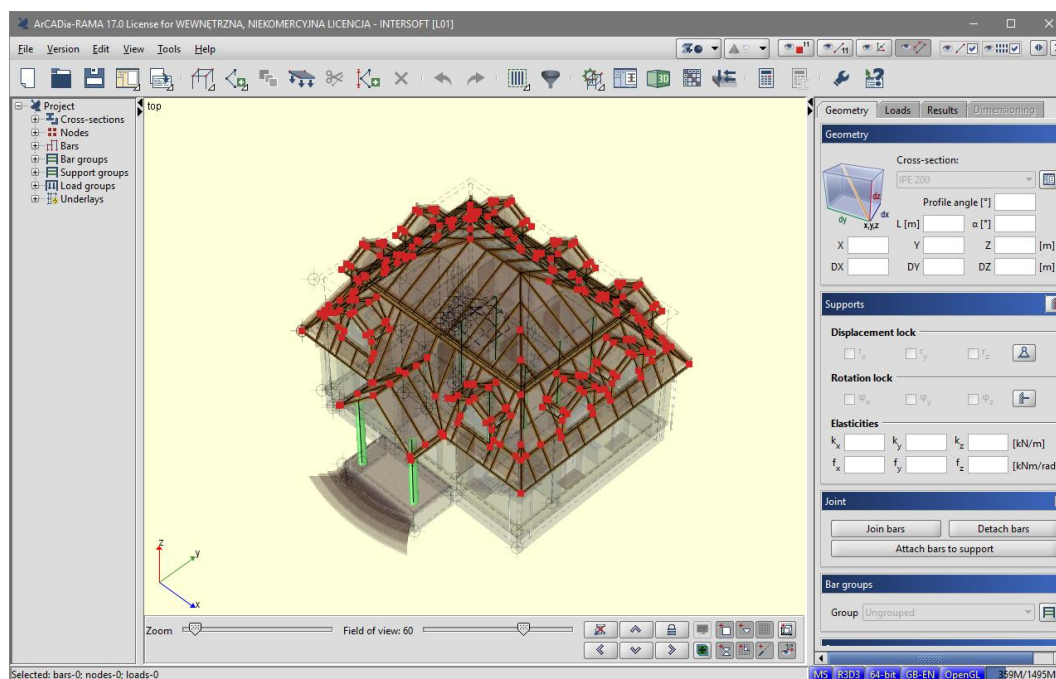


Fig. 541. Sample project after switching to the ArCADia-RAMA program

NOTE: The transition to ArCADia-RAMA from the construction view does not require a license for the program, but if the file had to be modified, it would have to be saved, and this is possible only if you have a license for ArCADia-RAMA.

20.3. Export project to OBJ format

A building designed in the ArCADia-ARCHITECTURE software may be transferred to advanced 3D visualization programs (Maja, 3D Studio). By using the *Project export to OBJ format*, the entire building, along with its 3D geometry, is transferred to software enabling full 3D editing and the option to create photorealistic visualizations.

Activation:

ArCADia and ArCADia PLUS

- *Colaborate* ribbon \Rightarrow logical group *Export* \Rightarrow *OBJ*
- *ArCADia-ARCHITECTURE* toolbar \Rightarrow *Export data to OBJ format*

ArCADia LT

- *Home* ribbon \Rightarrow logical group *Communication* \Rightarrow *OBJ*

Compatibility with other programs

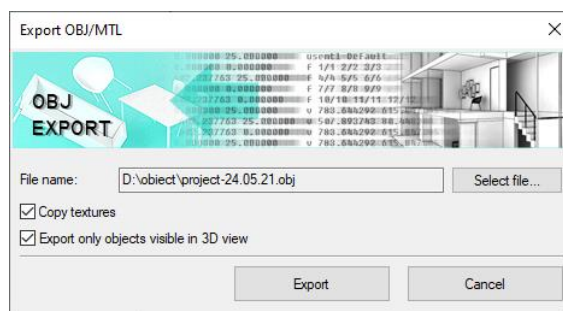


Fig. 542. OBJ file data export window

Copy textures – the option will save the textures used in the project.


Export only objects visible in 3D view – the option will save only those elements that are turned on in the 3D view, even if they are made transparent. It will not export items excluded from view

20.4. Lists export

Lists created in the ArCADia-SYSTEM software for a project may be exported into different programs and file types.


20.4.1. Export to Ceninwest software

Ceninwest allows for the comprehensive forecast of an investment project value, in line with the applicable regulations, which includes, among others, purchasing a plot, design and preparatory works, construction of standard objects, installations and equipment.

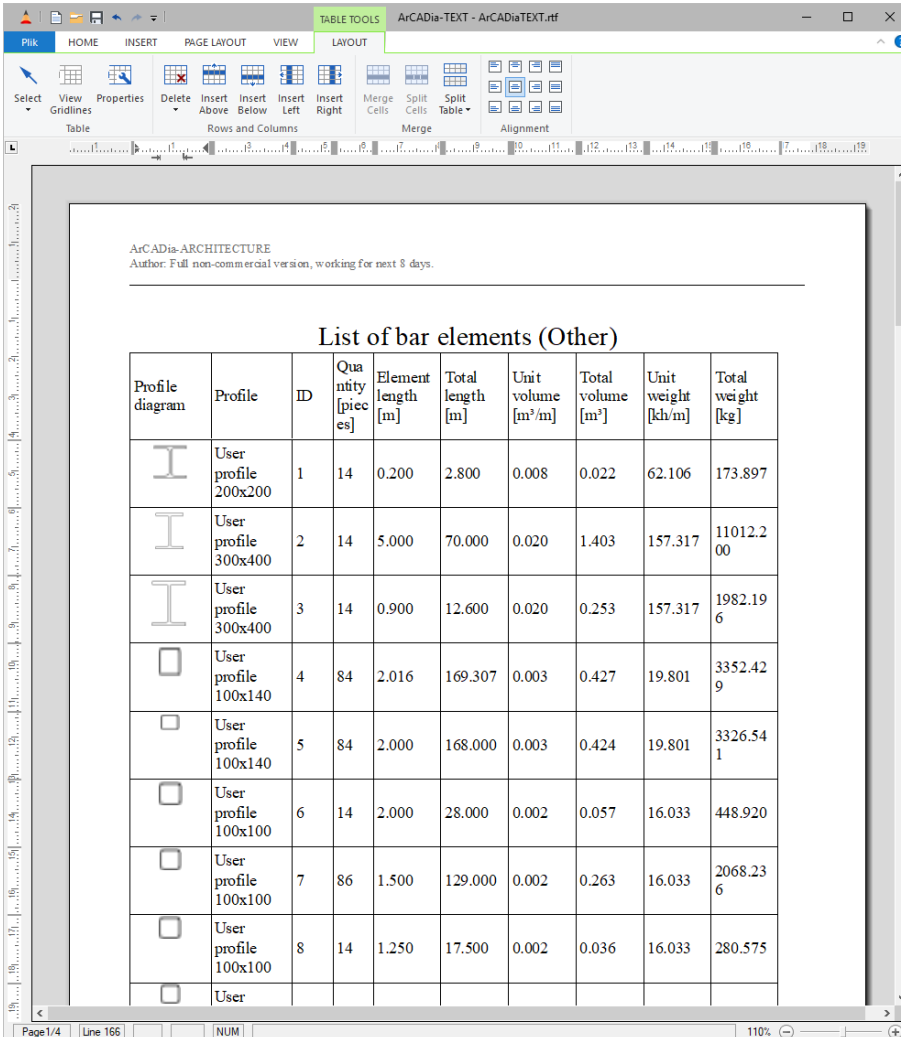
Lists covering woodwork, materials, wooden structural elements and roof accessories may be exported in ArCADia system into Ceninwest software. After selecting a list in the edition window, select the  *Export to Ceninwest software* icon and wait until the software is open and the data is transferred from the list.

20.4.2. Save RTF file

All the lists and tables from the ArCADia system (including ArCADia-ARCHITECTURE and the other branch modules) may be exported into RTF format.

After selecting a list in the edition window, select the  *Save to word processor file (RTF) then*, the ArCADia-TEXT editor will be opened. There you can correct the list, introduce e.g. logo in the form of a raster file (.bmp, .jpeg, .tif, .wmf, .png, .gif, .emf) or the page numbering. The editor allows to print or save in formats: .rtf, .doc, .docx, .txt, .pdf.

Compatibility with other programs



The screenshot shows the ArCADia-TEXT software window with a ribbon menu (File, HOME, INSERT, PAGE LAYOUT, VIEW, LAYOUT) and a toolbar. The main content area displays a table titled "List of bar elements (Other)". The table has 10 columns: Profile diagram, Profile, ID, Quantity [pieces], Element length [m], Total length [m], Unit volume [m³/m], Total volume [m³], Unit weight [kg/m], and Total weight [kg]. The table contains 8 rows of data for various steel profiles.











Profile diagram	Profile	ID	Quantity [pieces]	Element length [m]	Total length [m]	Unit volume [m³/m]	Total volume [m³]	Unit weight [kg/m]	Total weight [kg]
	User profile 200x200	1	14	0.200	2.800	0.008	0.022	62.106	173.897
	User profile 300x400	2	14	5.000	70.000	0.020	1.403	157.317	11012.200
	User profile 300x400	3	14	0.900	12.600	0.020	0.253	157.317	1982.196
	User profile 100x140	4	84	2.016	169.307	0.003	0.427	19.801	3352.429
	User profile 100x140	5	84	2.000	168.000	0.003	0.424	19.801	3326.541
	User profile 100x100	6	14	2.000	28.000	0.002	0.057	16.033	448.920
	User profile 100x100	7	86	1.500	129.000	0.002	0.263	16.033	2068.236
	User profile 100x100	8	14	1.250	17.500	0.002	0.036	16.033	280.575
	User								

Fig. 543. ArCADia-TEXT software window

20.4.3. Save CSV file

All the lists and tables from ArCADia system and branch modules may be exported into CSV format.

After selecting a list in the edition window, select the  **Save to spreadsheet file (CSV)** and save the file. Then wait until a software that can handle CSV files is started.

NOTE: the default separator for data exported into a CSV file (rows and columns separator) is a comma; this means that if the software that opens automatically has another separator defined, the data will not be parsed properly.

An example of a program that can handle CSV files is Microsoft Excel. The default column separator in this program is a *tabulation mark* and if the CSV file is exported from ArCADia and opened, it will not include division into columns.

In the above case, close the opened file (not the program) and select from the menu **File** ⇒ **Open** indicate the saved list.

Compatibility with other programs

After selecting a file the *Text import wizard* window will appear, where in step 2 the user should change the *Separator* from *Tabulation mark* into a Comma (first and third step in the conversion may simply be confirmed).








Commands table

21. COMMANDS TABLE

































Commands table

Below is a list of the commands available in the basic functions of the ArCADia system and ArCADia-ARCHITECTURE branch module.

Tab. 70 Table to commands available after installing the ArCADia system for ArCADia

Icons	Command	Option
	isa_tllv	<i>Project manager</i>
	isa_sdm	<i>Additional content manager</i>
	isa_pp	<i>Properties</i>
	isa_tv3d	<i>3D view</i>
	isa_cmp	<i>Compare documents</i>
	isa_merge	<i>Merge documents</i>
	isa_o	<i>ArCADia BIM options</i>
	isa_defaults	<i>Template manager</i>
	isa_tmdv	<i>Configurator</i>
	isa_mt	<i>Templates</i>
	isa_etl	<i>Type Library</i>
	isa_extempl	<i>Change type</i>
	isa_eml	<i>Material database</i>
	isa_fl	<i>Flatten</i>
	isa_fix	<i>Fix</i>
	isa_rdp	<i>Restore windows position</i>
?	isa_help*	<i>ArCADia-ARCHITECTURE Help</i>
§	isa_license	<i>Modules and licences</i>
	isa_ver	<i>About program...</i>
	isa_wizbld	<i>Building wizard</i>
	isa_iw2	<i>Wall</i>
	isa_iw	<i>Walls</i>
	isa_iaw	<i>Curved wall</i>
	isa_iwb3p	<i>Insert wall by 3 points</i>
	isa_ivw	<i>Virtual wall</i>
	isa_ibi	<i>Insert binding joist</i>
	isa_cltw	<i>Convert line into wall</i>
	isa_cltvw	<i>Convert line into virtual wall</i>
	isa_ip	<i>Column</i>


































Commands table

	isa_isp	<i>Bar element</i>
	isa_ispc	<i>F3D import</i>
	isa_eutr	<i>ArCADia-RAMA underlay</i>
	isa_iwn	<i>Window</i>
	isa_id	<i>Door</i>
	isa_ilo	<i>Special window/door</i>
	isa_ih	<i>Opening</i>
	isa_icl	<i>Ceiling</i>
	isa_ircl	<i>Ceiling with rectangle</i>
	isa_icla	<i>Ceiling automatically</i>
	isa_iclh	<i>Ceiling opening</i>
	isa_lsgf	<i>Ground floor</i>
	isa_idc	<i>Suspended ceiling</i>
	isa_idcre	<i>Suspended rectangle ceiling</i>
	isa_idcro	<i>Suspended ceiling in room</i>
	isa_imsec	<i>Main beam</i>
	isa_issec	<i>Cross beam</i>
	isa_iofsec	<i>External frame</i>
	isa_ihsec	<i>Opening finishing</i>
	isa_ipan	<i>Ceiling panel</i>
	isa_ipanre	<i>Rectangle ceiling panel</i>
	isa_ipansi	<i>Ceiling panel with given dimensions</i>
	isa_ispan	<i>Side panel</i>
	isa_ispansi	<i>Side panel with given dimensions</i>
	isa_isu	<i>Ceiling hanger</i>
	isa_dcce	<i>Cut ceiling element</i>
	isa_dccel	<i>Cut ceiling element by line</i>
	isa_ist	<i>Stairs</i>
	isa_iwst	<i>Winder stairs</i>
	isa_irst	<i>Ramp</i>
	isa_irdst	<i>Spiral stairs</i>
	isa_irdst2	<i>Spiral stairs by 3 points</i>
	isa_ibal	<i>Balustrade</i>





















Commands table

	isa_ibals	<i>Balustrade on the stairs</i>
	isa_ic	<i>Chimney</i>
	isa_ichs	<i>Chimney shaft</i>
	isa_if	<i>Chimney flue</i>
	isa_ip1	<i>Solid</i>
	isa_irp12	<i>Rectangular solid – axis or edge</i>
	isa_irp13	<i>Rectangular solid – length and width</i>
	isa_iplo	<i>Opening</i>
	isa_iro	<i>Roof</i>
	isairro	<i>Rectangle roof</i>
	isa_iroa	<i>Auto roof</i>
	isa_ido	<i>Dormer</i>
	isa_irh	<i>Roof opening</i>
	isa_irs1	<i>Dormer window</i>
	isa_irha	<i>Roof hatch</i>
	isa_isc	<i>Collector</i>
	isa_iccap	<i>Chimney cowl</i>
	isa_iash	<i>Snow guard</i>
	isa_irga	<i>Auto gutters</i>
	isa_irgsa	<i>Gutter</i>
	isa_irg	<i>Gutter start-end</i>
	isa_ids	<i>Drain pipe</i>
	isa_irdgall	<i>Auto ridge tile</i>
	isa_irdg	<i>Ridge tile</i>
	isa_is	<i>Pad footing</i>
	isa_isb	<i>Strip footing</i>
	isa_cltsb	<i>Convert line into strip footing</i>
	isa_oe	<i>Object Explorer</i>
	isa_io3dl	<i>3D objects list</i>
	isa_iso3dl	<i>Selected 3D objects list</i>
	isa_ils	<i>Light</i>
	isa_icam	<i>Camera</i>
	isa_igsb	<i>Spot height</i>

Commands table

	isa_igsbl	<i>Spot height line</i>
	isa_igsh	<i>Insert ground surface opening</i>
	isa_igsha	<i>Automatically cut in the field</i>
	isa_igsbft	<i>Convert texts into spot height</i>
	iu_op	<i>Outside pipe</i>
	iu_oi	<i>Outside object</i>
	isa_img	<i>Modular axes</i>
	isa_iwr1	<i>Wind rose</i>
	isa_iwr2	<i>Wind rose by two points</i>
	isa_sol	<i>Insolation time</i>
	isa_shad	<i>Visualization of the shading</i>
	isa_pd	<i>Measurement</i>
	isa_po	<i>Area and perimeter</i>
	isa_idm	<i>Dimension</i>
	isa_idfso	<i>Dimension of selected objects</i>
	isa_ida	<i>Dimensions entire drawing</i>
	isa_idam	<i>Angular dimension</i>
	isa_idas	<i>Dimensions angularly objects</i>
	isa_idrs	<i>Dimension radius</i>
	isa_ish	<i>Spot height</i>
	isa_ir	<i>Ruler</i>
	isa_ilab	<i>Insert object label</i>
	isa_iwl	<i>Woodwork list</i>
	isa_irl	<i>Room list</i>
	isa_igs1	<i>Area and cubic</i>
	isa_iral	<i>Roof area count</i>
	isa_irmsl	<i>Roof material list</i>
	isa_iracl	<i>Roof accessories</i>
	isa_israc1	<i>Selected roof accessories</i>
	isa_iwlst	<i>Wood list</i>
	isa_isplist	<i>List of bar elements</i>
	isa_ipal	<i>Ceiling panels list</i>
	isa_isel	<i>Ceiling profiles list</i>

Commands table

	isa_isl	<i>Ceiling hangers list</i>
	isa_ibml	<i>Material list</i>
	isa_isbml	<i>List of material for marked items</i>
	isa_eibml	<i>Export of selected lists of material</i>
	isa_itb	<i>Title block</i>
	isa_dtb	<i>Design title block</i>
	isa_iv	<i>Insert view</i>
	isa_ics	<i>Insert cross-section</i>
	isa_icad3dv	<i>Insert a 3D CAD view</i>
	isa_icszd	<i>Insert zero depth section</i>
	isa_render	<i>Rendering</i>
	isa_mrender	<i>Multi rendering</i>
	isa_idfa	<i>ArCon Import</i>
	isa_edta	<i>ArCon</i>
	isa_exporthj	<i>OBJ</i>
	isa_pxo	<i>XML</i>
	isa_cdb	<i>Project package</i>
	isa_coll_i	<i>Define</i>
	isa_coll_v	<i>Display</i>
	isa_coll_d	<i>Remove</i>