

ArCADia SYSTEM

User Manual



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Introduction

1. INTRODUCTION

Introduction

1.1. The ArCADia BIM System description

The ArCADia BIM system is a tool for supporting project work in the construction industry. ArCADia is modular software allowing to design the building from scratch, in objects, that is the architectonic design, through gas, water-sewage, electric or heating installations, up to creating reinforcement drawings in the slab or the pole or improving the distribution board design. Apart from the building itself the software allows to equip it with necessary utilities, connect it to external sewage, electrical or telecommunication networks. An option to introduce all systems, or networks at the building, enables verification of collisions both in a given industry and between industries. On the basis of designs, (projections), additional views are created automatically: sections, axonometries, expanded views, profiles of systems etc. Also, lists are automatically introduced to the project, and they can be exported in RTF or CSV formats or transferred to the Ceninvest cost estimate software. In addition, ArCADia assists in drawing escape and fire fighting plans. At surveying, it allows to connect the rangefinder that introduces projections already at in the measured building.

Projects made in the ArCADia BIM system are intelligent three-dimensional models containing the information in every single element which is used for calculations, selection of elements, specifications, or transferred to other programs. The thermal model of the building, created automatically on the basis of the architectonic design, is transferred to the ArCADia-TERMO software with one icon in order to prepare power certificates and thermal audits. Connection of ArCADia-ARCHITECTURE module and ArCADia-RAMA software (in the version R3D3-Rama 3D) provides an excellent tool for cooperation between the architect and the constructor. All this happens on the basis of one model.

Projects can also be imported and exported in the IFC format (ArCADia-IFC RVT module), which enables combining work of designers using various applications also offered by other companies (communication with software: Revit, Allplan or ArchiCAD). Transferred projects may be further improved e.g., by other industries.0, collisions may be verified.

The ArCADia BIM system works on various graphic engines: ArCADia LT, ArCADia (PLUS).

1.2. Using the ArCADia BIM system

You can work with the ArCADia BIM system 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 a project has been started using an empty file, the first step may be to choose the right tool, e.g., wall, pipe, distribution board etc.
- If you receive a project created with another CAD application, for example AutoCAD, we start with the choice of the view, setting the building and levels (see [Building section](#)), and then "trace" the 2D underlay with elements of the ArCADia system and we enter e.g., elements of the installation on the underlay.

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- If the project was downloaded from ArCon, it is automatically converted into ArCADia system elements, and such a project should have detail added by the definition of wall layers, adding symbols to windows and doors, i.e., you must proceed as in the case of working with the next stage of a project created in the 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 an 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., assign levels) on your own.

NOTE: *This manual describes only the elements concerning the whole management system, libraries and creation of the project. Particular options of industry modules are described in their help files.*

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.

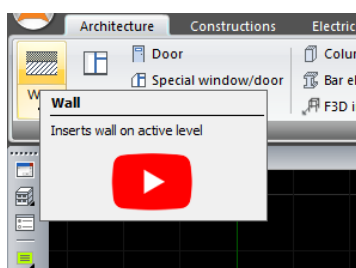


Fig. 1. An example of an icon with the transition to the instructional video

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 floating window next to the cursor or in the command area.

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1.3. Construction of the system

ArCADia BIM has built-in functions for drawing the building together with internal installations. These options can be extended with individual industry modules enabling calculations and reports, generation of cross-sections, diagrams (axonometry, developments), selection of elements and a number of helpful tools defined for specific industries. The ArCADia system includes the following modules: ArCADia-ARCHITECTURE, ArCADia-LANDSCAPE ARCHITECTURE, ArCADia-3D MAKER, ArCADia-IFC RVT, ArCADia-CEILINGS TERIVA, ArCADia-ESCAPE ROUTES, ArCADia-ELECTRICAL INSTALLATIONS, ArCADia-POWER NETWORKS, ArCADia-DISTRIBUTION BOARDS, ArCADia-TELECOMMUNICATIONS NETWORKS, ArCADia-WATER SUPPLY INSTALLATIONS, ArCADia-SEWAGE INSTALLATIONS, ArCADia-GAS INSTALLATIONS, ArCADia-EXTERNAL GAS INSTALLATIONS, ArCADia-HEATING INSTALLATIONS, ArCADia-VENTILATION SYSTEMS, ArCADia-LIGHTNING PROTECTION INSTALLATIONS, ArCADia-REINFORCED CONCRETE SLAB, ArCADia-REINFORCED CONCRETE COLUMN, ArCADia-REINFORCED CONCRETE COMPONENT and ArCADia-SURVEYOR.

When you first start the program, you can choose the user menu that will be most similar to your own preferences. The template options can be modified by enabling or disabling additional command icons. For more information, see the chapter [Menu configurator](#).

NOTE: all references and option locations in this manual are listed with respect to the **Full ArCADia BIM System** template menu.

Regardless of the selected menu template, on the left side of the screen there are toolbars with the most frequently used options: management and display. In addition, there are auxiliary elements such as auxiliary lines, measurement of length, area and perimeter as well as options for refreshing, zooming in, zooming out and rotating the drawing.



Fig. 2. Toolbars

Below, is a breakdown of the options on the ribbons relative to the [Full ArCADia BIM System](#) template.

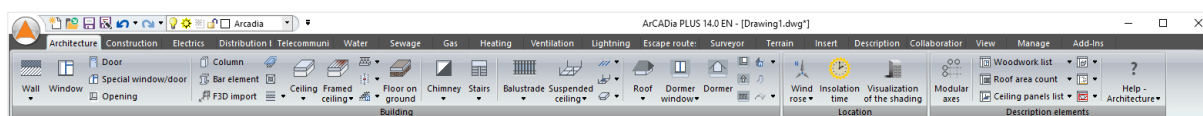


Fig. 3. Architecture ribbon

The [Architecture](#) ribbon contains basic architectural functions to create a model of a building and it contains the ArCADia-ARCHITECTURE industry module options. More information, description of the versions and all options can be found in the help file for the ArCADia-ARCHITECTURE module placed under the last icon of the ribbon.

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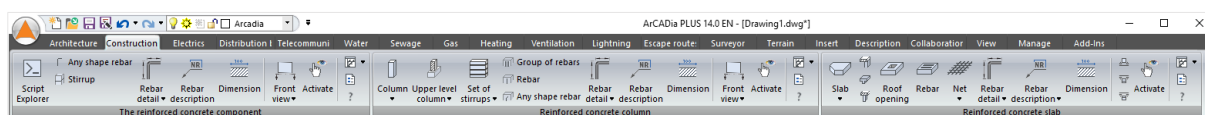


Fig. 4. Construction ribbon

The **Constructions** ribbon includes options from: ArCADia-REINFORCED CONCRETE COLUMN, ArCADia-REINFORCED CONCRETE SLAB and ArCADia-REINFORCED CONCRETE COMPONENT modules which are described in the modules' help files.

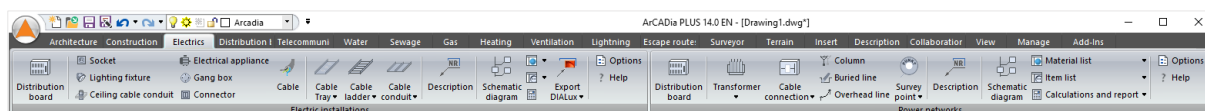


Fig. 5. Electrics ribbon

The **Electrics** ribbon contains basic options for electrical installations drawing and industry modules: ArCADia-POWER NETWORKS, ArCADia-ELECTRIC INSTALLATIONS and ArCADia-ELECTRIC INSTALLATIONS PLUS. The description of the functions can be found in the help file for each module.

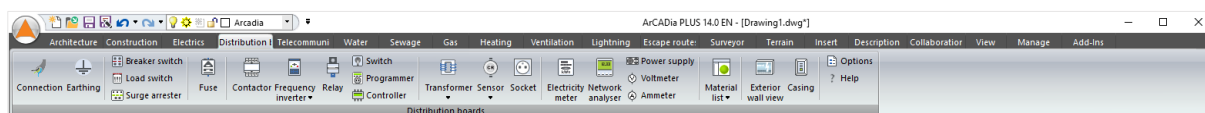


Fig. 6. Distribution ribbon

The **Distribution** ribbon contains options of the ArCADia-DISTRIBUTION BOARDS industry module that are installed along with the program in the demo version. The description of the functions can be found in the help file of the module.

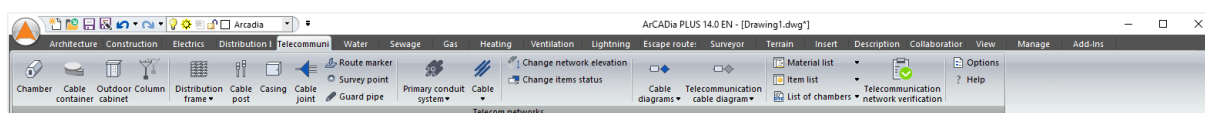


Fig. 7. Telecommunication ribbon

The **Telecommunication** ribbon contains options of ArCADia-TELECOMMUNICATION NETWORKS module that are installed along with the program in the demo version. The description of the functions can be found in the help file of the module.

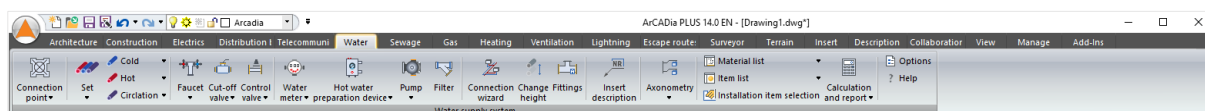


Fig. 8. Water ribbon

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The **Water** ribbon contains basic program options to draw a water installation and options of the ArCADia-WATER SUPPLY INSTALLATIONS industry module. The description of the functions can be found in the help file of the module.

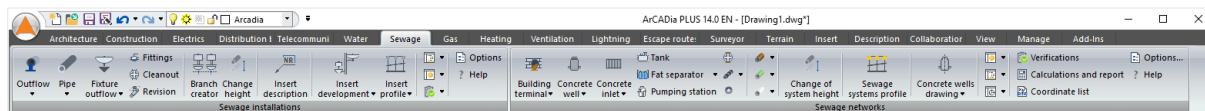


Fig. 9. Sewage ribbon

The **Sewage** ribbon contains basic program options to draw a sewage installation inside the building. Additionally, functions of ArCADia-SEWAGE INSTALLATIONS and ArCADia-SEWAGE SYSTEMS that are installed along with the program in the demo version are also located on the ribbon. The description of the functions can be found in the help file of the module.

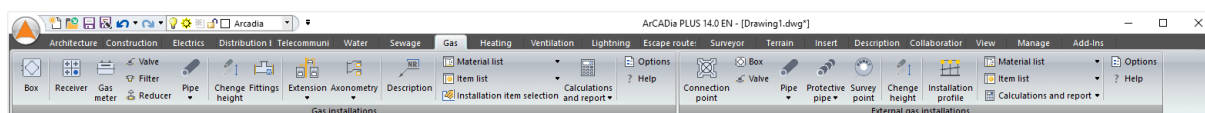


Fig. 10. Gas ribbon

The **Gas** ribbon contains basic functions of the ArCADia system in the scope of drawing internal gas installations and options of ArCADia-GAS INSTALLATIONS and ArCADia-EXTERNAL GAS INSTALLATIONS modules that are installed along with the program in the demo version. The description of the functions can be found in the help file of the module.

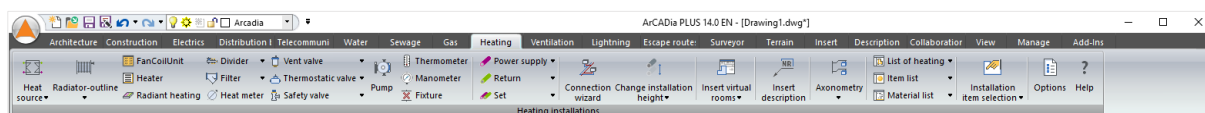


Fig. 11. Heating ribbon

The **Heating** ribbon contains basic functions of the ArCADia system in the scope of drawing internal heating installations and options of ArCADia-HEATING INSTALLATIONS module, which are installed along with the demo version of the program. The description of the functions can be found in the help file of the module.

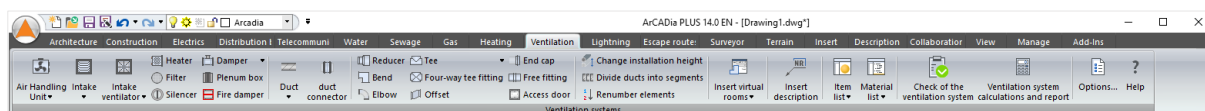


Fig. 12. Ventilation Ribbon

The **Ventilation** ribbon is comprised of the basic program options that allow you to draw the ventilation system inside the building as well as the functions of the ArCADia-VENTILATION SYSTEMS industry

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module, which are installed together with the program in the demo version. The description of the functions can be found in the module help file.

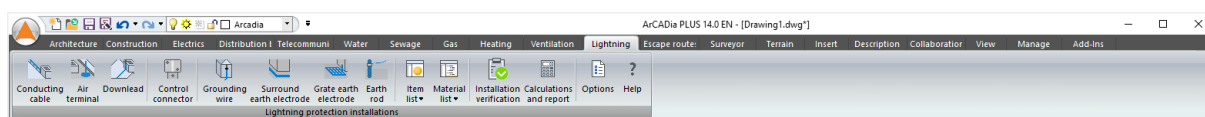


Fig. 13. Lightning protection ribbon

The **Lightning protection** ribbon contains options of the ArCADia-LIGHTING PROTECTION INSTALLATION module, a description of its functions can be found in the help file for this module.

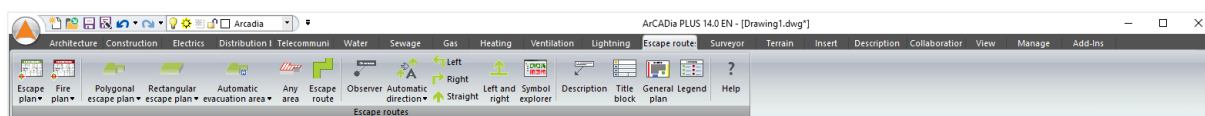


Fig. 14. Escape ribbon

The **Escape** ribbon contains options of the ArCADia-ESCAPE ROUTES that are installed along with the program in the demo version. The description of the functions can be found in the help file of the module.

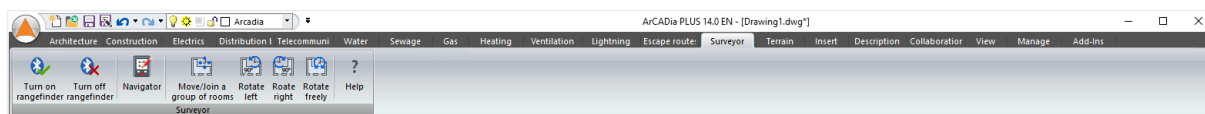


Fig. 15. Surveyor ribbon

The **Surveyor** ribbon contains options of the ArCADia-SURVEYOR module that are described in the help file for the module.

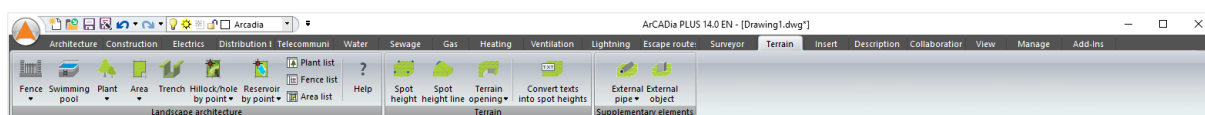


Fig. 16. Terrain ribbon

The **Terrain** ribbon contains the basic options of the ArCADia BIM system for the terrain relief creation and functions of the ArCADia-LANDSCAPE ARCHITECTURE module, the description of the elements is in the help available on this ribbon

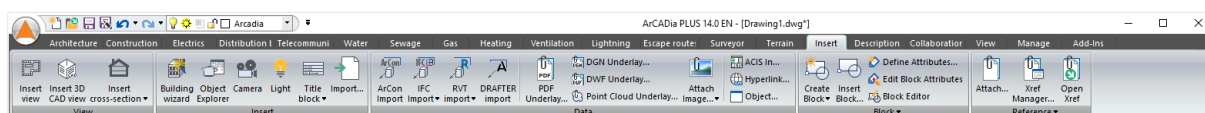


Fig. 17. Insert Ribbon

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The *Insert* ribbon contains the options of the ArCADia system enabling the introduction of 2D and 3D objects from the program library, tables describing drawings, subsequent views, a 3D model, e.g., a mesh model shown in the drawing or cross-sections available in the ArCADia-ARCHITECTURE module. In addition, there are options for importing data from other programs, raster underlays, pdf and external references.

IFC Import, RVT Import – ArCADia-IFC RVT module options enabling loading the building model from files in IFC format (e.g., from the Revit or ArchiCAD software) and RVT (Revit file). The description of the options is in the module help file.

DRAFTER import – option of the ArCADia-SURVEYOR module, which allows for entering the contour of the measured room or building into the project of ArCADia system from the ArCADia-DRAFTER application. Detailed description in the help module.

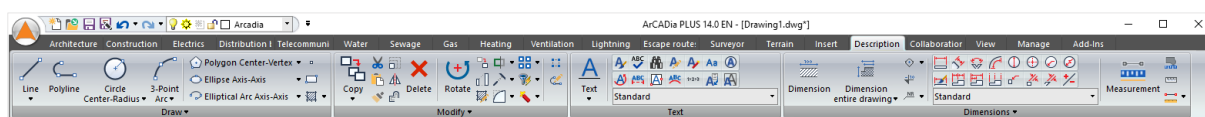


Fig. 18. Description ribbon

The *Description* ribbon contains options for detailing drawings created in the ArCADia system, for its describing and dimensioning. Some of the options such as automatic dimensioning, spot height or element layer description are functions of the ArCADia-ARCHITECTURE industry module. The remaining options are available in the base version of the program.

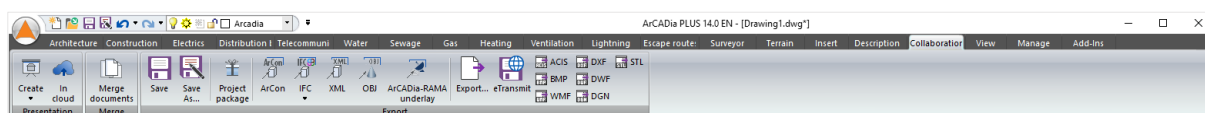


Fig. 19. Collaborate ribbon

The *Collaborate* ribbon contains options for saving and exporting data from ArCADia. The basic options of the ArCADia BIM system and the functions of the ArCADia-ARCHITECTURE module are available in this ribbon.

XML – export of the project to the XML format.

Project pack – packs templates, objects and textures not being part of the standard library to the folder that should be transferred along with the project. The catalogue will have the same name and will be placed in the same location as the project. A detailed description of the functions is included in the *Saving the project with the template* chapter.

Create, Save data to ArCADia-3D VIEWER and In cloud – ArCADia-3D MAKER module options, saving the building model along with a browser (or without it) allowing watching it regardless of the ArCADia software e.g., on mobile devices. A detailed description of the functions is included in the *Project presentation saving* chapter.

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IFC – ArCADia-IFC RVT module options allowing you to export the project or parts of it to the IFC format.

Other communication options (**OBJ**, **ArCADia-RAMA 3D underlay**) belong to ArCADia-ARCHITECTURE licences and are described in the help file for this program.

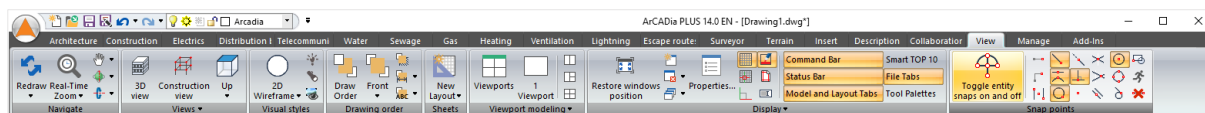


Fig. 20. View ribbon

The **View** ribbon contains options for enabling and disabling program window elements, 3D and construction views. In addition, it allows you to manage the zoom in, zoom out, move and refresh the drawing.

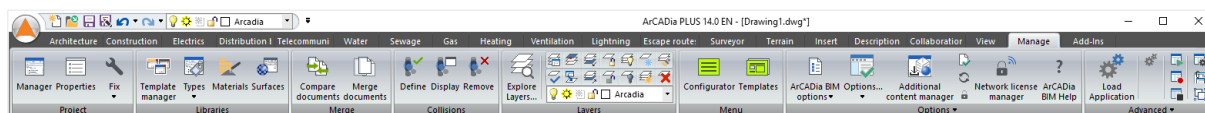


Fig. 21. Manage ribbon

The **Manage** ribbon provides options for managing the program, licenses, project, and drawing. Among others, there are basic options of the ArCADia BIM system such as **Project Manager**, template, type and surfaces libraries, options for collision checking, merging and comparing documents, menu configurator and access to settings of individual industry modules. The ribbon also includes the **Additional Content Manager** and the **Network License Manager**. In addition, there are functions for managing CAD layers, program and drawing settings, and advanced options, e.g., loading LISP applications.

NOTE: Tables with module options are at the end of the manual in the Command Tables chapter.

1.4. Menu configurator

When you start ArCADia for the first time, the **Choose a menu appearance template** will appear, in which you can select the default program appearance. Depending on the selected appearance, only the arrangement of the ribbons and the options on them will be changed.

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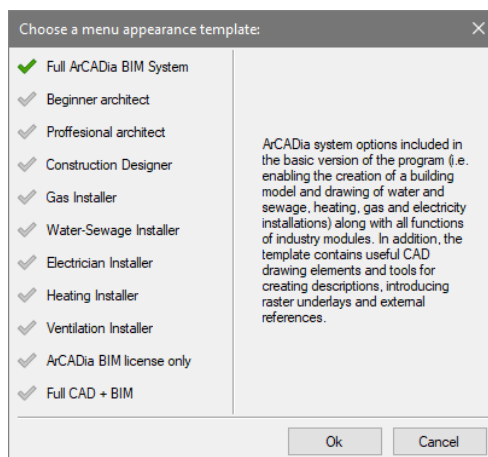


Fig. 22. Choose a menu appearance template window

The following templates are available:

Beginner architect – the basic options for creating a building model with the possibility of introducing descriptions and auxiliary lines.

Professional architect – the architectural model of the building from the foundations to the roof, with the option of introducing cross-sections, creating lists and automatic dimensioning. In addition, the template contains useful CAD drawing elements and tools for creating descriptions, introducing raster underlays and external references.

Construction Designer – the reinforcement models of reinforced concrete elements: slab, column and component along with full dimensioning and description of elements on individual views. The options allowing you to create a building model. In addition, the template contains useful CAD drawing elements and tools for creating descriptions, introducing raster underlays and external references.

Gas Installer – the model of the gas installation in a building and the connections with options for the selection of elements, the branch creator, and the possibility of creating axonometry or the installation profile. The options allowing you to create a building model. In addition, the template contains useful CAD drawing elements and tools for creating descriptions, introducing raster underlays and external references.

Water-Sewage Installer – the water and sewage system model inside the building: external installation and sewage network together with the ability of creating axonometry, profile or developments as well as calculating and checking the installation. The options allowing you to create a building model. In addition, the template contains useful CAD drawing elements and tools for creating descriptions, introducing raster underlays and external references.

Electrician Installer – the model of electrical installation inside the building and on the building, electrical and telecommunication networks, as well as distribution boards along with schematics, calculations and installation checks. The options allowing you to create a building model. In addition,

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the template contains useful CAD drawing elements and tools for creating descriptions, introducing raster underlays and external references.

Heating Installer – the model of the heating system inside the building with options for the selection of elements, the branch creator and the possibility of creating axonometry or the installation profile. The options allowing you to create a building model. In addition, the template contains useful CAD drawing elements and tools for creating descriptions, introducing raster underlays and external references.



ArCADia BIM license only – only the ArCADia system options found in the basic version of the program (ArCADia BIM license) are available, that is those allowing you to create a building model and to draw a water, sewage, heating, gas and electricity installation. In addition, the template contains useful CAD drawing elements and tools for creating descriptions, introducing raster underlays and external references.

Full ArCADia BIM System – ArCADia system options included in the basic version of the program (i.e. enabling the creation of a building model and drawing of water and sewage, heating, gas and electricity installations) along with all functions of industry modules. In addition, the template contains useful CAD drawing elements and tools for creating descriptions, introducing raster underlays and external references.

Full CAD + BIM – options for creating CAD drawings, entering descriptions, dimensioning, raster underlays and external references. In addition, the template has all ArCADia system options included in the basic version of the program (that is, enabling the creation of a building model and drawing of water and sewage, heating, gas and electric installations) along with all functions of industry modules.



The select *Menu appearance template* window can be activated from the *Manage* ribbon or from the toolbar on the left hand side of the program window.

Activation:

- *Manage* ribbon ⇒ logical group *Menu* ⇒  *Templates*
- *ArCADia-SYSTEM Mini* toolbar ⇒  *Menu templates*

After selecting one of the templates, the program ribbons will be adapted to the selected menu, which can be further changed in the *Menu configurator* window.

Activation:

- *Manage* ribbon ⇒ logical group *Menu* ⇒  *Configurator*
- *ArCADia-SYSTEM* toolbar ⇒  *Show\Hide Menu configurator*

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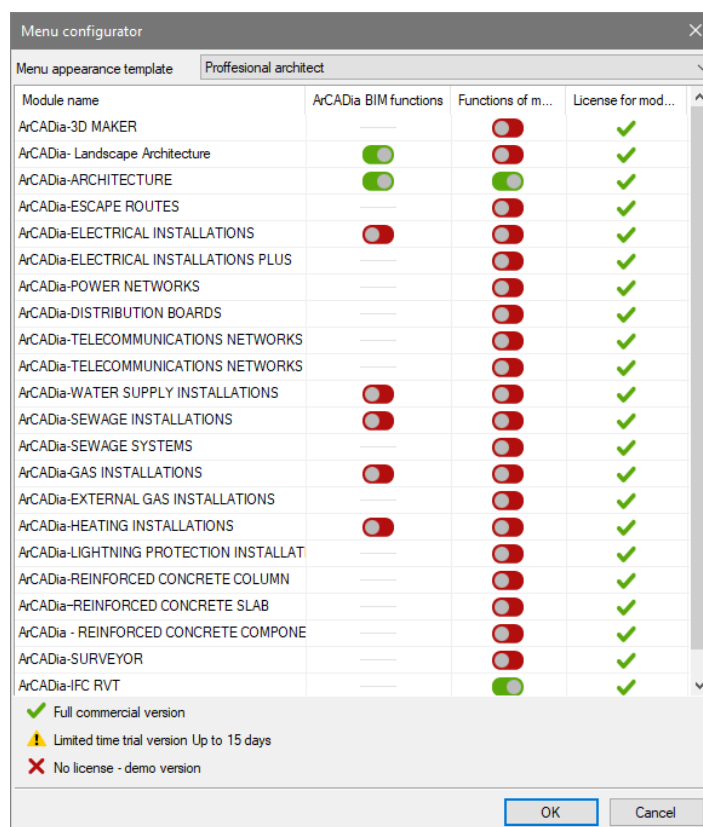




Fig. 23. Menu template manager window for the Beginner Architect template

Menu appearance template – list of default templates.

ArCADia BIM functions – options available in the basic version of the program.

Functions of module – extended industry module options.

Licence for module – information on the license availability: permanent or the time remaining until the end of the trial version.

In the *ArCADia BIM Functions* and *Functions of module* columns <you can enable  or disable  basic or advanced (paid) options of a certain industry module

1.5. Additional content

From version 14 of the ArCADia system, the content of the program elements in the installation file downloaded from the website has changed. Setup installs program files, 2D objects, and a material and type library. The ArCADia-DLCInstaller module has been added to the system, which is responsible for installing additional content. Currently, this additional content is 3D objects and the entire surfaces library. All of these items are still under the program's base license, but due to the expansion of the setup file, these items had to be removed from the setup file. They can be downloaded automatically at the first start of the program or at any free time.

Introduction

At the first launch, after asking for updates, the program will display the following window.

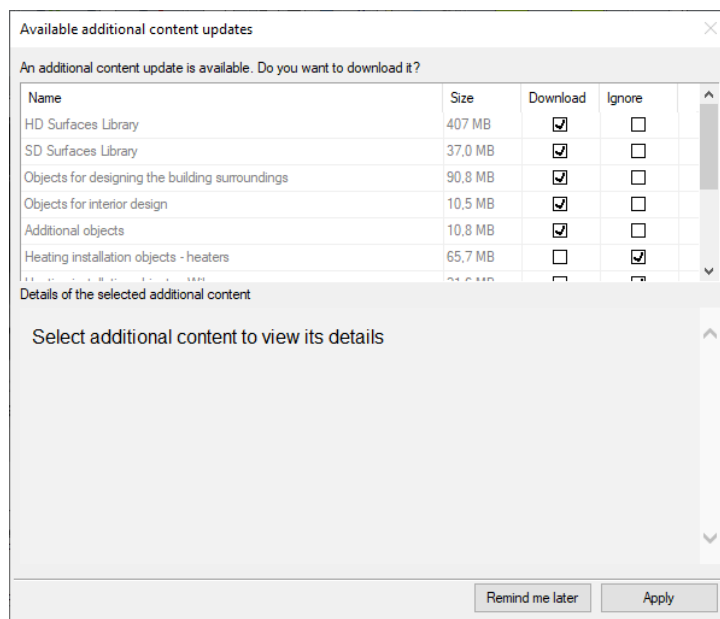


Fig. 24. Additional content download window

By default, some of the available libraries are selected, but in the *Download* and *Ignore* columns you can freely define which of the available packages will be installed. It is enough to click on a row of a given library in the appropriate column.

After clicking the *Apply* button, the libraries will be downloaded. At the end, the following window will appear.

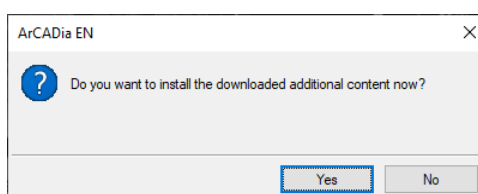


Fig. 25. Additional content installation window

If the *No* button is clicked, the above message will disappear and will be displayed again when the program is launched. *Yes*, it will turn off ArCADia and turn on the installation of downloaded add-ons.

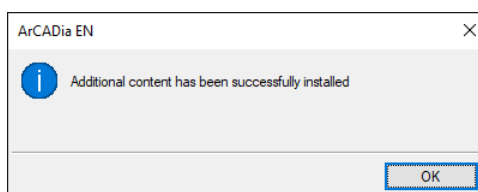


Fig. 26. The window confirming the completion of the installation of additional content

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After confirming the window, the ArCADia program will be restarted.

If you click the Remind me later button in the *Available additional content updates window* this window will be displayed the next time you start the program. However, in the course of your work, you should expect a lack of surfaces and textures, which can manifest itself in the following way:

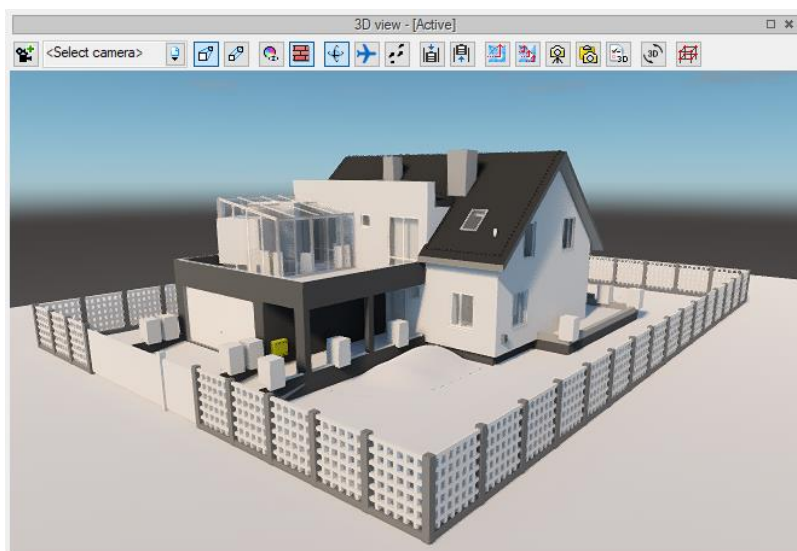


Fig. 27. A sample project with no additional content downloaded

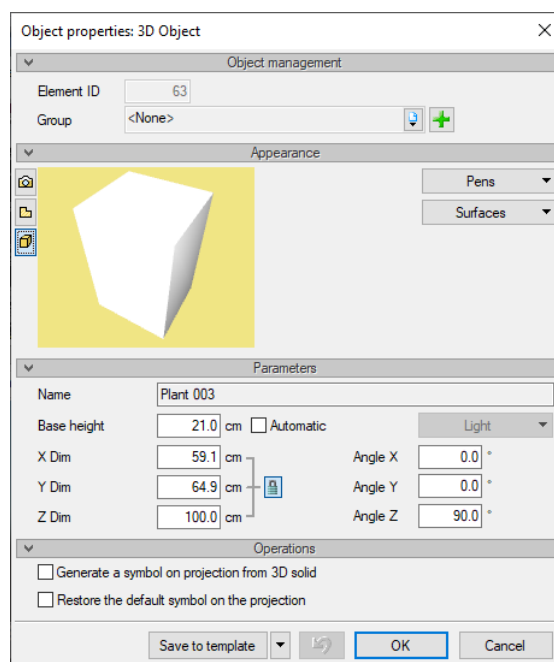


Fig. 28. Properties of the 3D object before downloading additional content

Introduction

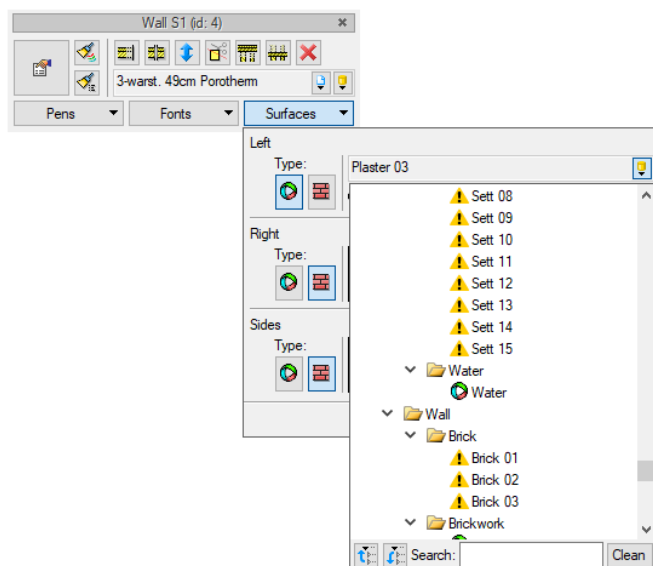


Fig. 29. Surface library (before downloading additional content) available from program elements, e.g., walls

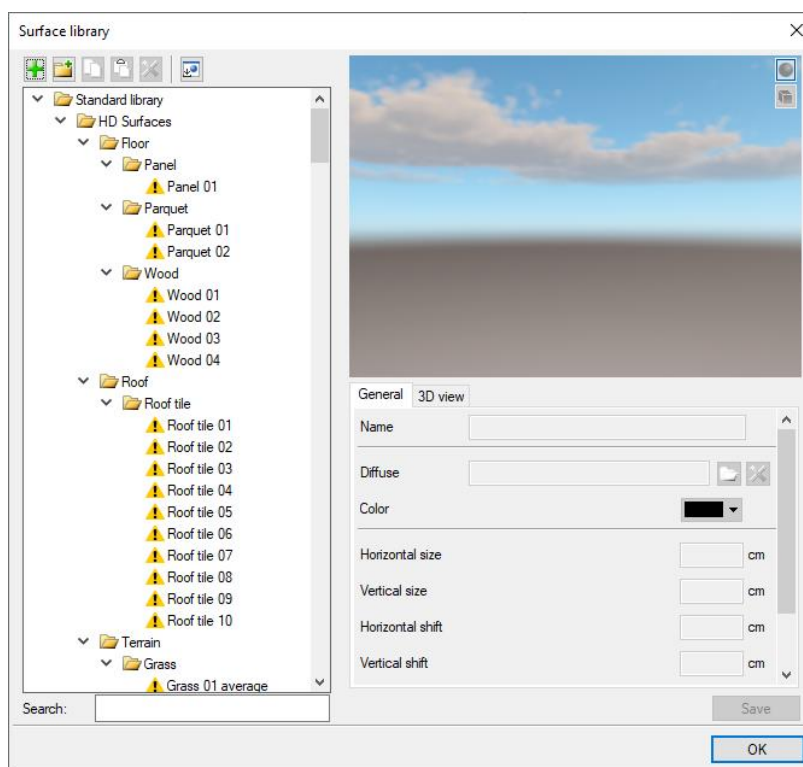


Fig. 30. Surfaces library prior to downloading

Introduction

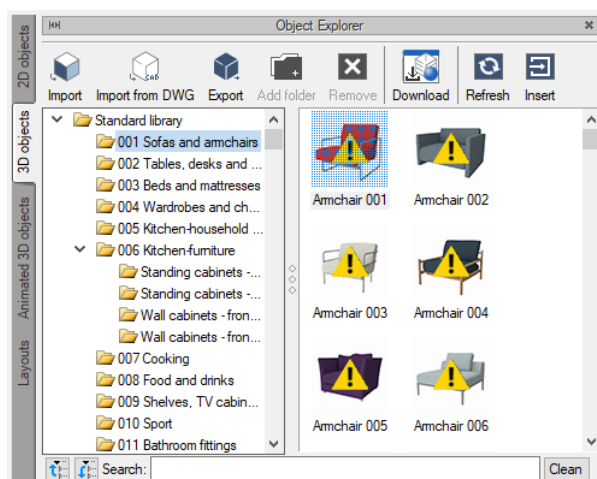


Fig. 31. Object library immediately after installing the program

In this case, the additional content can be downloaded by double-clicking on any object or area in the library window, then the *Additional content manager* window will be displayed. This window can also be called from the *Manage* ribbon.

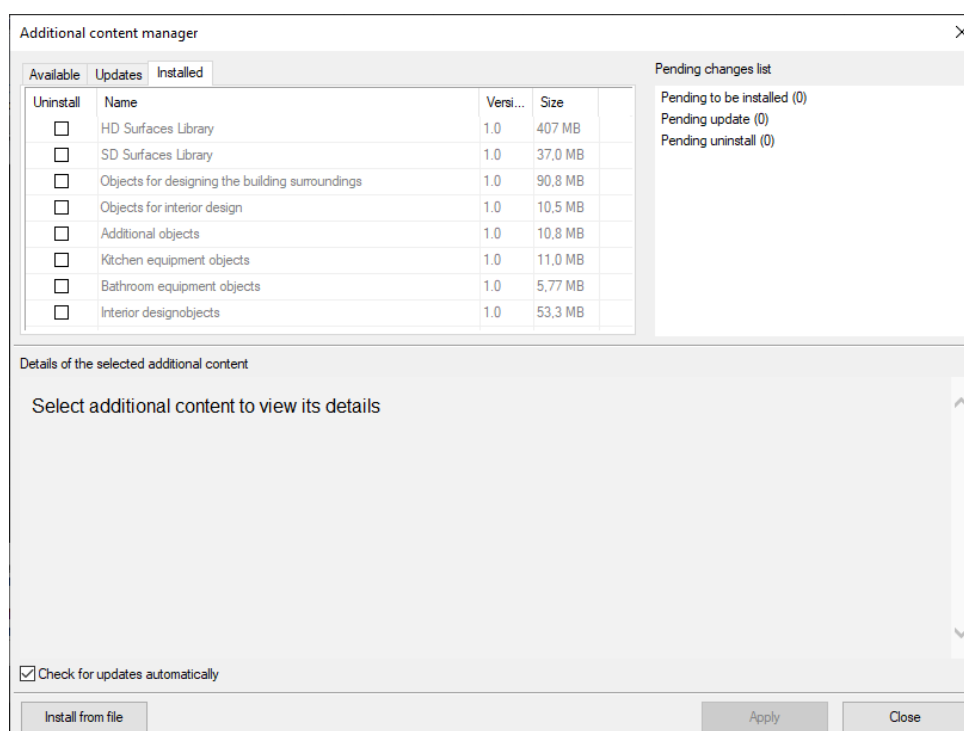


Fig. 32. The additional content management window

The *Available* tab shows those packages with additional content that are on the server but have not yet been downloaded. If some libraries are selected and installed, they will disappear from the *Available* tab and will be visible in the rest. *Updates* is a tab that will be completed when modifying a packet of additional content. Then the changed library will be visible both in the *Available* and *Updates* tabs. *Installed* is a tab that informs you which additional content packages have already been

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downloaded and installed. Additionally, in the Uninstall column you can select and mark the package and remove it from the program.

Basics of Application operation

2. BASICS OF APPLICATION OPERATION



Basics of Application operation

2.1. 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 RVT 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:

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

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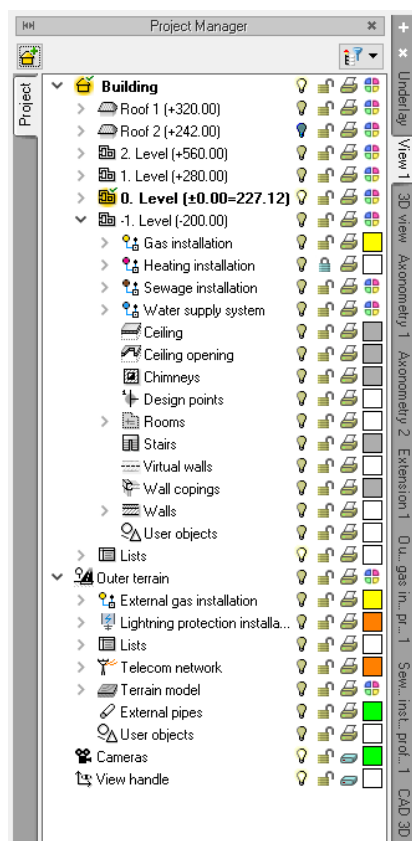


Fig. 33. Sample project Project Manager window

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 becomes 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.

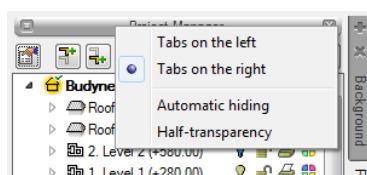



Fig. 34. Visibility options of the Manager window

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.

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The software also features *Industry 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*.

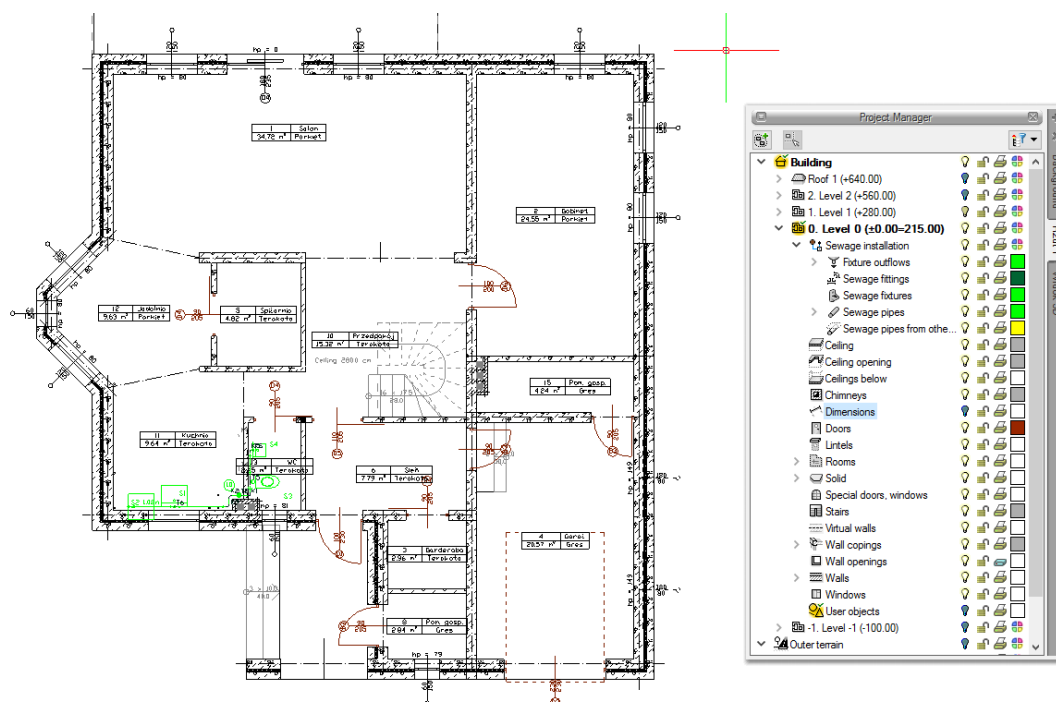


Fig. 35. Level projection with all the items visible

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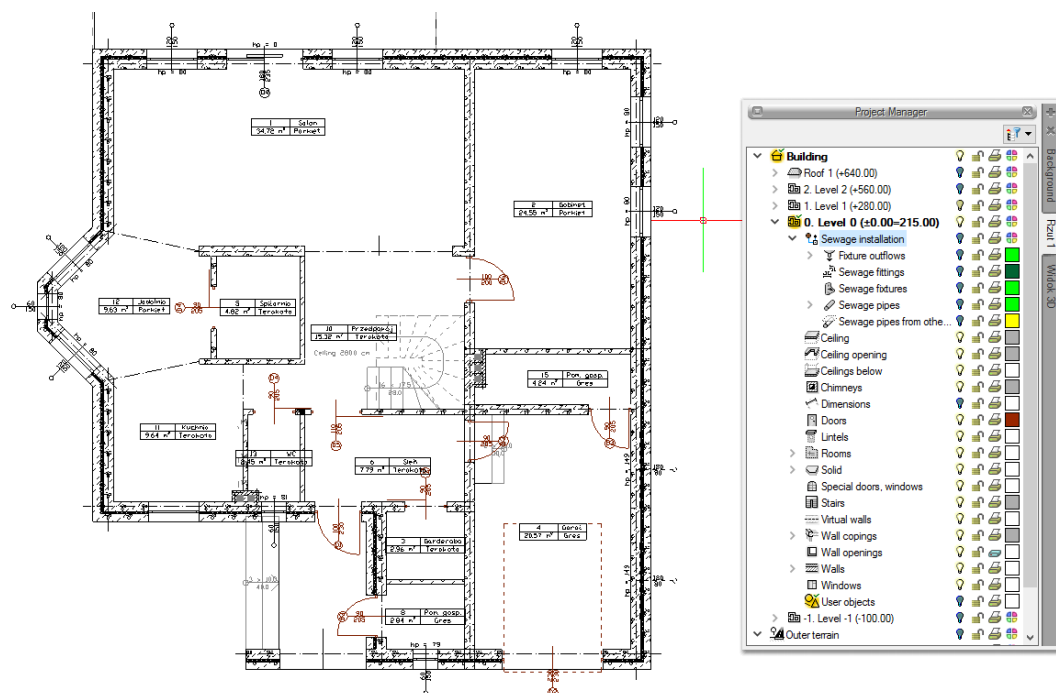


Fig. 36. Level projection with sewage system objects turned off

The *Project Manager* also enables copying selected items or branches. The *Multi-clipboard* also enables selecting an item from one or several branches.

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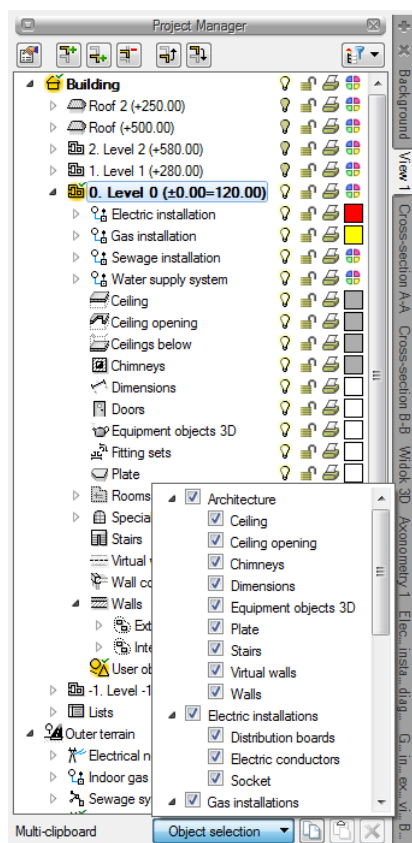


Fig. 37. List of branches and elements of the building that can be copied

NOTE: The Multi-clipboard option works only on the ArCADia system elements, and not on the imported IFC i 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. 1. 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.

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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 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.

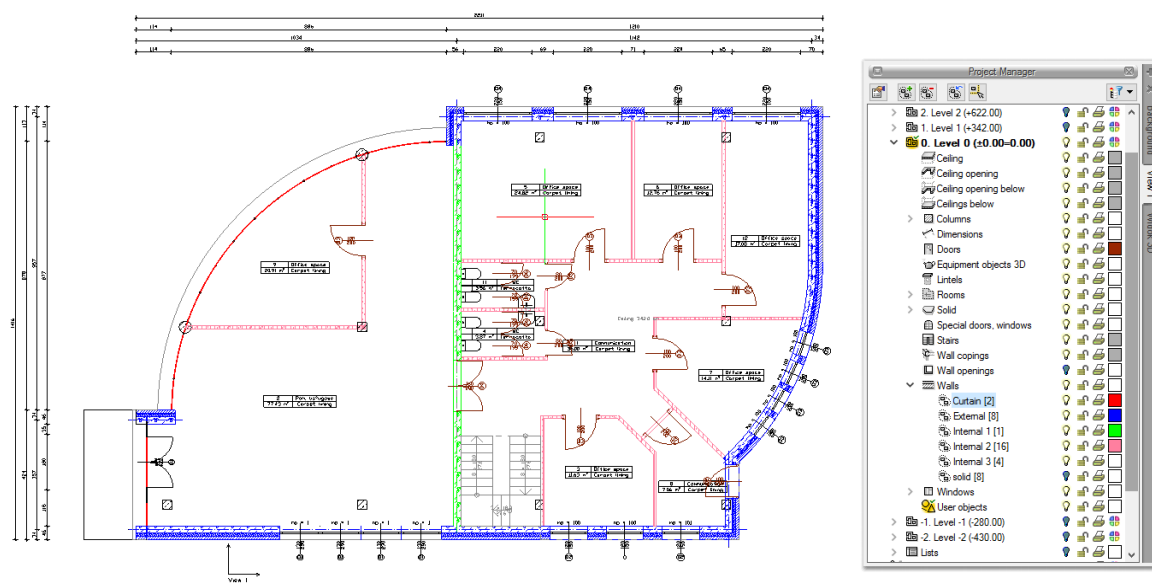



Fig. 38. Example of the project with walls divided into groups

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.

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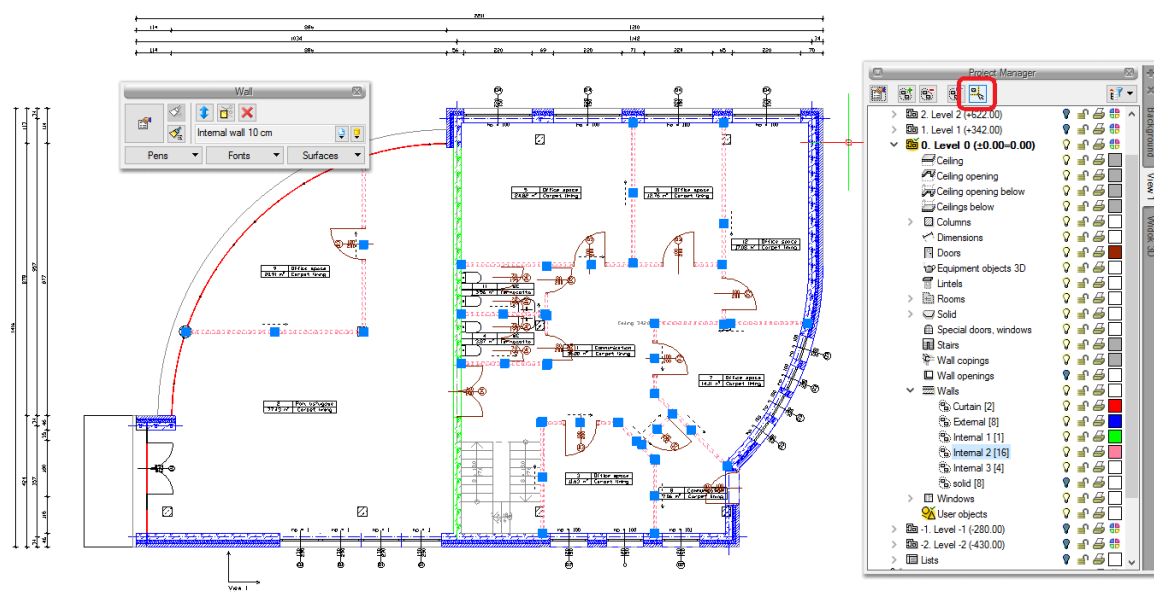


Fig. 39. Marking the group from the Project Manager window

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

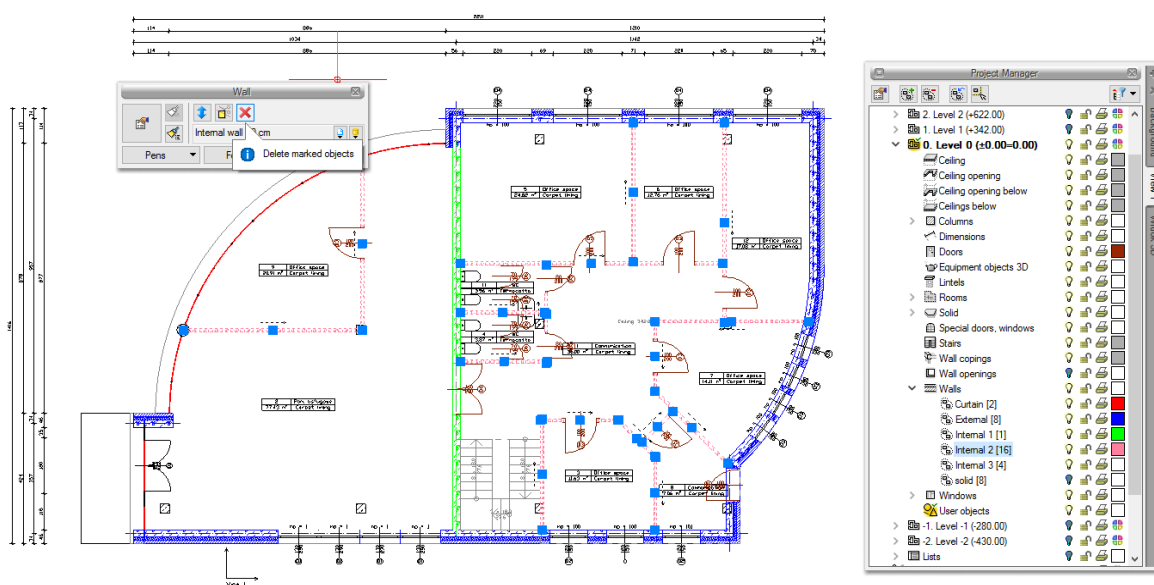


Fig. 40. Modification of the elements form the selected group

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

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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.

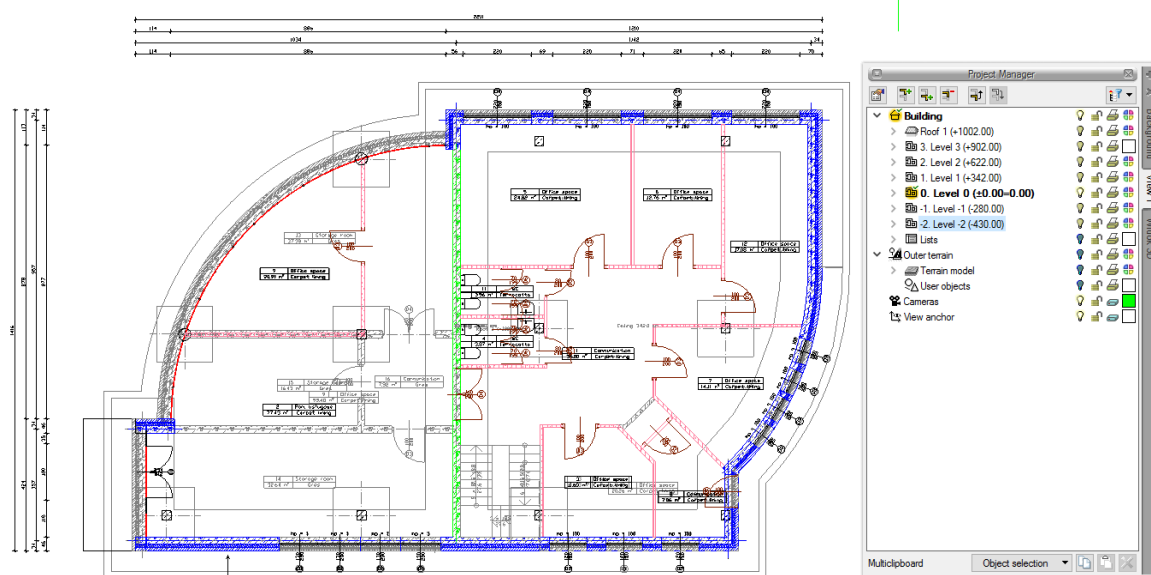


Fig. 41. A projection of the ground floor with a preview of the other levels in the project

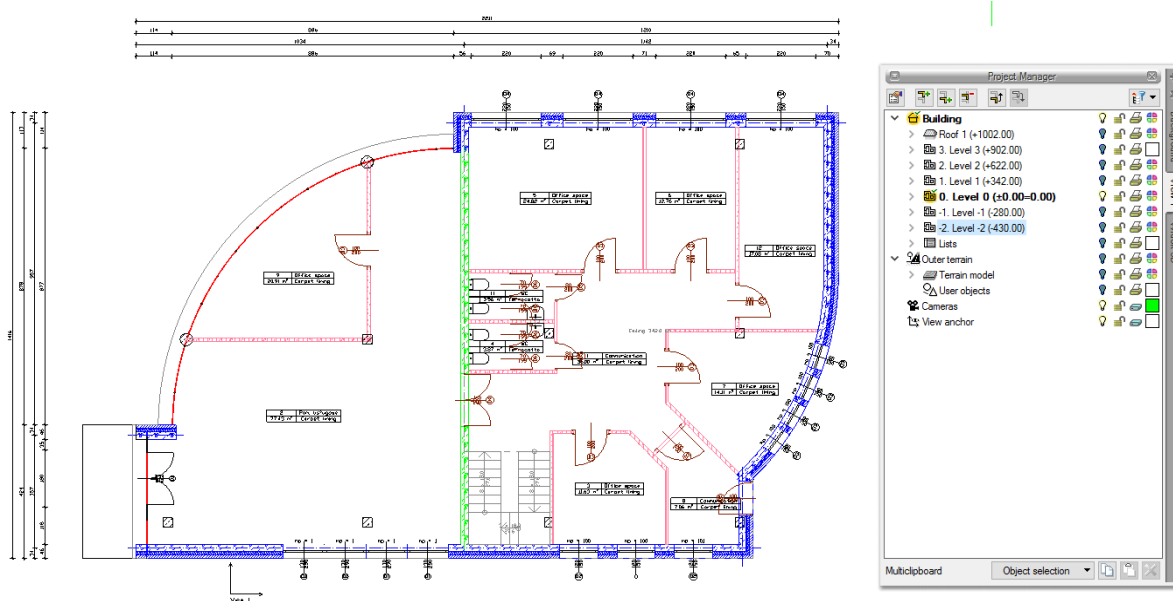


Fig. 42. Projection of the ground floor level

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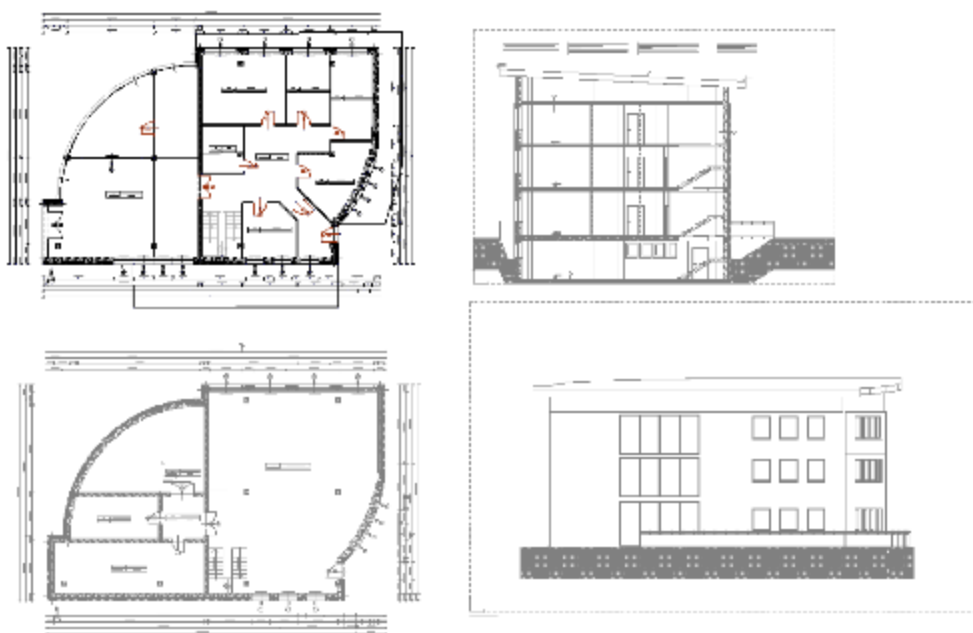



Fig. 43. Views with only one level enabled in each view

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**.

2.2. 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

Basics of Application operation

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.

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).

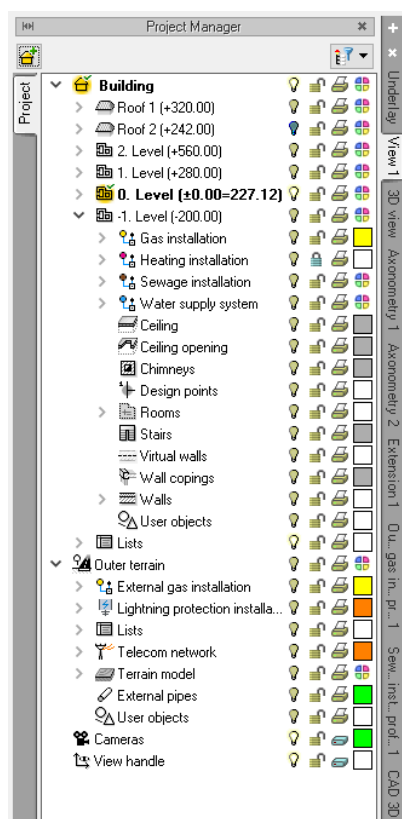


Fig. 44. Project Manager window

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

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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.

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.

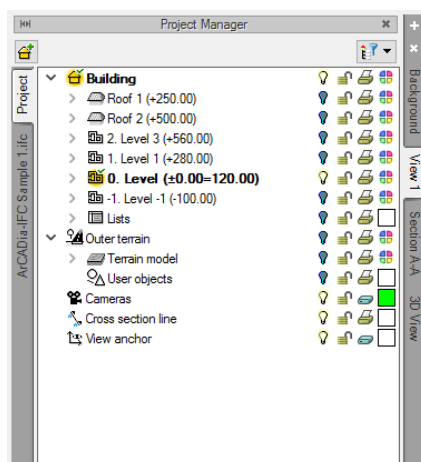


Fig. 45. Project Manager window after importing the IFC model

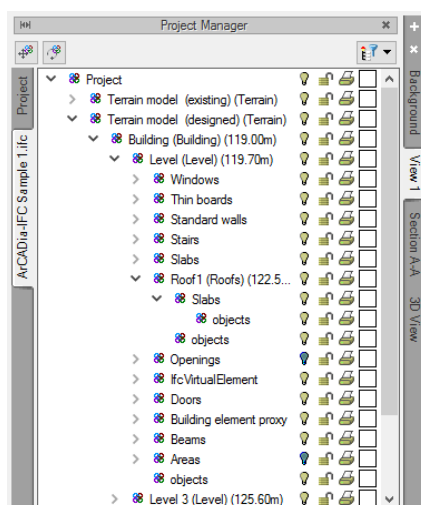


Fig. 46. Sample IFC model tree

2.2.1. View 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 Average level of detail. These parameters can be changed at any time after the view is created.

Activation:

- [Project Manager](#) window ⇒ right mouse button on the view tab ⇒ [View properties](#)

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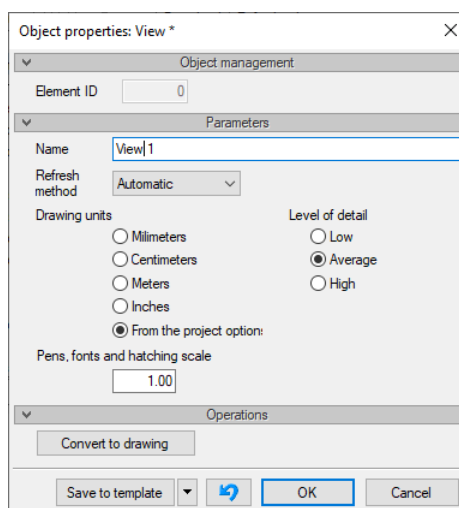


Fig. 47. Properties window of selected view

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.

2.2.2. 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.

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Activation:

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

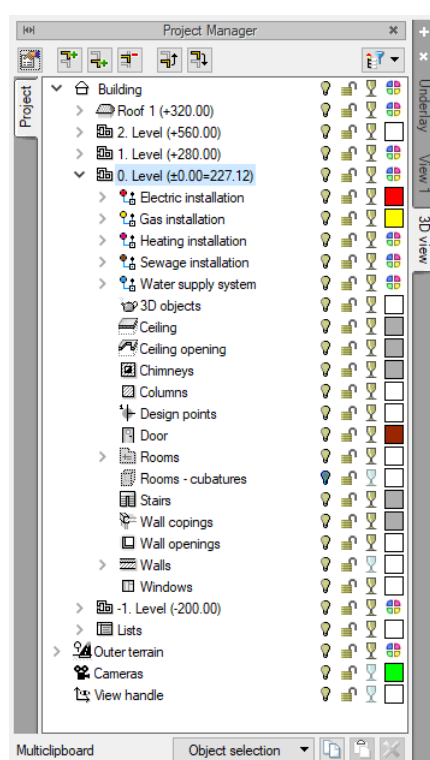




Fig. 48. Project Manager window

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.


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.

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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.

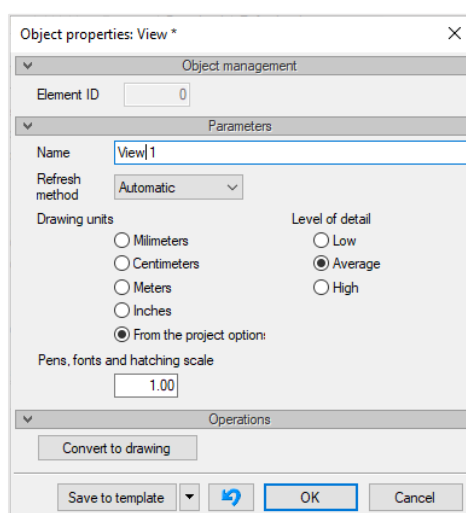


Fig. 49. Properties window of elected view

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.

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2.2.3. 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.

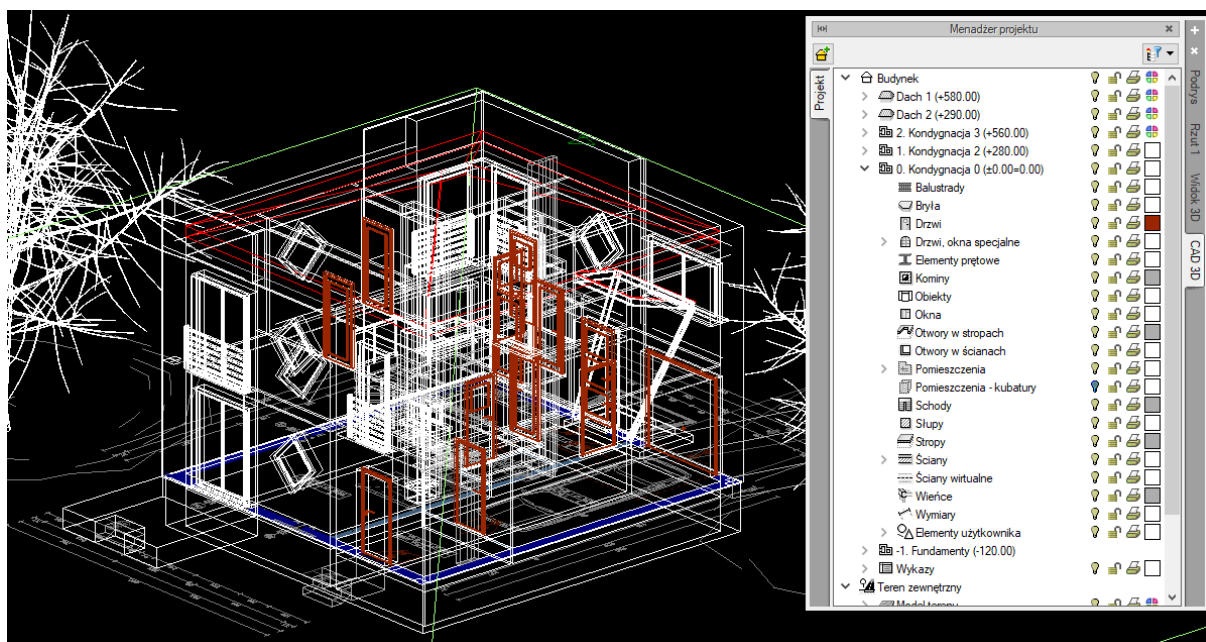


Fig. 50. Sample project in the CAD 3D view

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.

2.2.4. 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).

2.2.4.1. Adding straight Section

Activation:

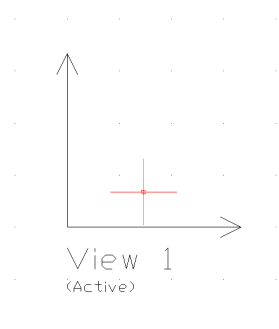
- **Project Manager** ⇒ ⇒ **Insert Section**

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- *Insert* ribbon ⇒ logic group *View* ⇒  *Insert cross-section*
- *ArCADia-SYSTEM* toolbar ⇒  *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 Bon 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.

Basics of Application operation

After inserting the section, it is an inactive view, work still goes on in the projection. To switch to the section, click its tab in the *Project Manager* with or double-click to select the section handle.

2.2.4.3. 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.

2.2.5. Axonometry

Axonometry is introduced to the project while working in ArCADia-WATER SUPPLY INSTALLATIONS, ArCADia-GAS INSTALLATIONS and ArCADia-HEATING INSTALLATIONS modules. The view is introduced to similarly to the Projection view, i.e. you indicate or specify the point of inserting the handle, and the view is copied automatically.

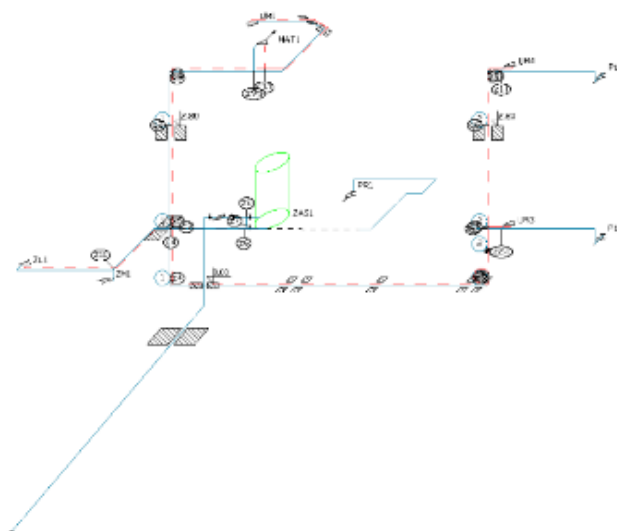


Fig. 51. Example of axonometry of a water supply installation in a detached house

After inserting the view, the software switches to it automatically.

2.2.6. Profile

The profile view is introduced in modules: ArCADia-SEWAGE INSTALLATIONS and ArCADia-EXTERNAL GAS INSTALLATIONS. This view is introduced by choosing the initial element, the path of the main profile and the profile path.

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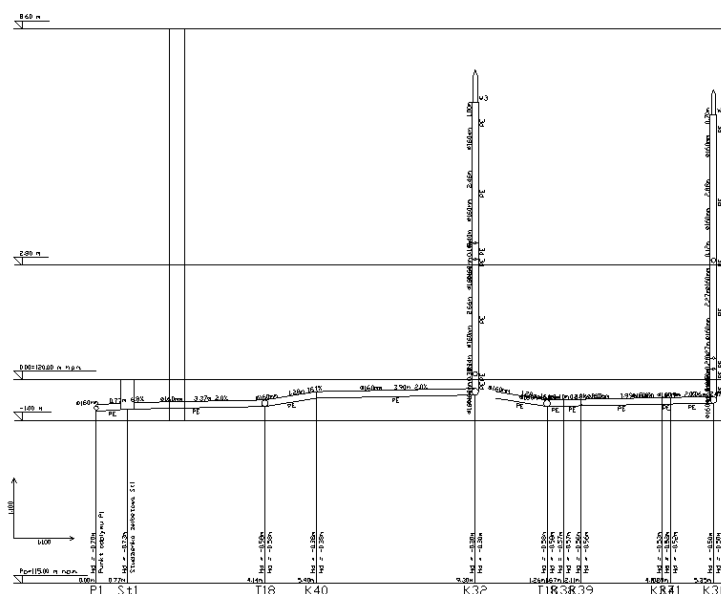


Fig. 52. Example of the sewage installation profile

After inserting the view, the software switches to it automatically.

2.2.7. Expanded view

The expanded view is introduced in modules: ArCADia-SEWAGE INSTALLATIONS and ArCADia-GAS INSTALLATIONS. The view is introduced by indicating the place of introducing the expanded view.

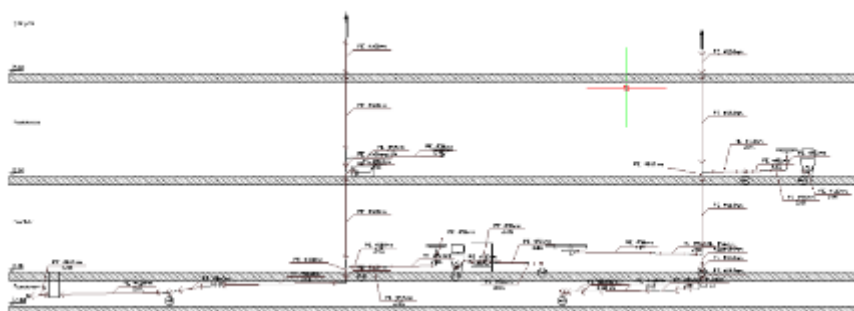


Fig. 53. Sample expanded view of t sewage installation

After inserting the view, the software switches to it automatically.

2.2.8. (Schematic) diagrams

The view of diagrams is introduced in modules: ArCADia-ELECTRIC INSTALLATIONS, ArCADia-POWER NETWORKS AND ArCADia-TELECOMMUNICATION NETWORKS.

Basics of Application operation



Fig. 54. Fibre-optic cable diagram

After inserting the view, the software switches to it automatically.

2.2.9. 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: The ArCADia system for each view has a separate project tree placed on the tab of the given view. This means that the 3D view 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. This will not change the visibility in other views.

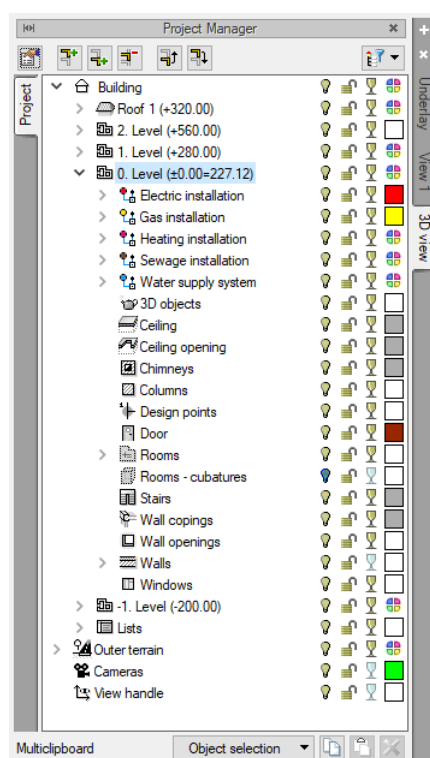





Fig. 55. Window Project Manager with elements tree for sample document for 3D view

Basics of Application operation

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:

- **View** ribbon \Rightarrow logical group **Views** \Rightarrow  **3D View**
- **ArCADia-SYSTEM Mini** toolbar \Rightarrow  **Show/Hide 3D View**

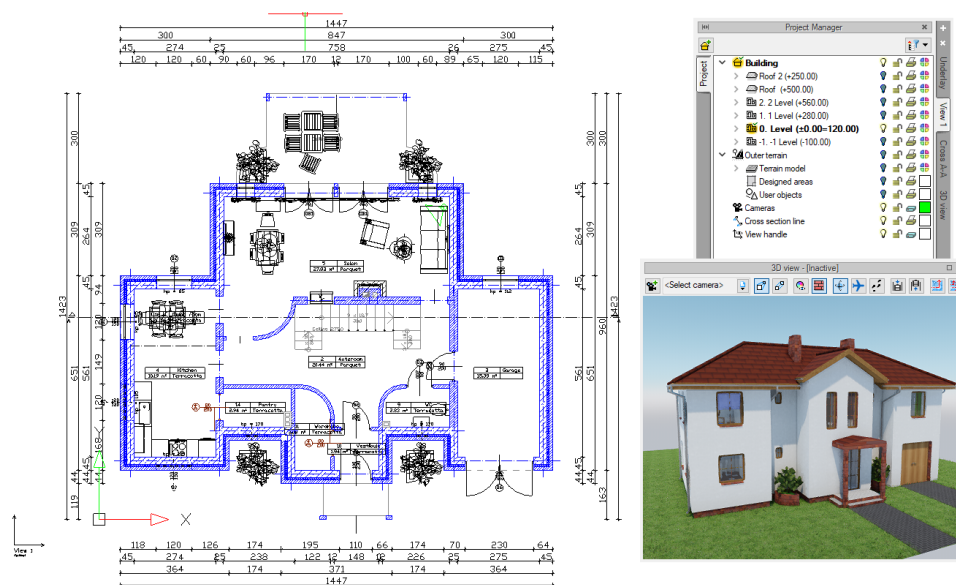


Fig. 56. Example with active view 1 and the view from the new 3D engine

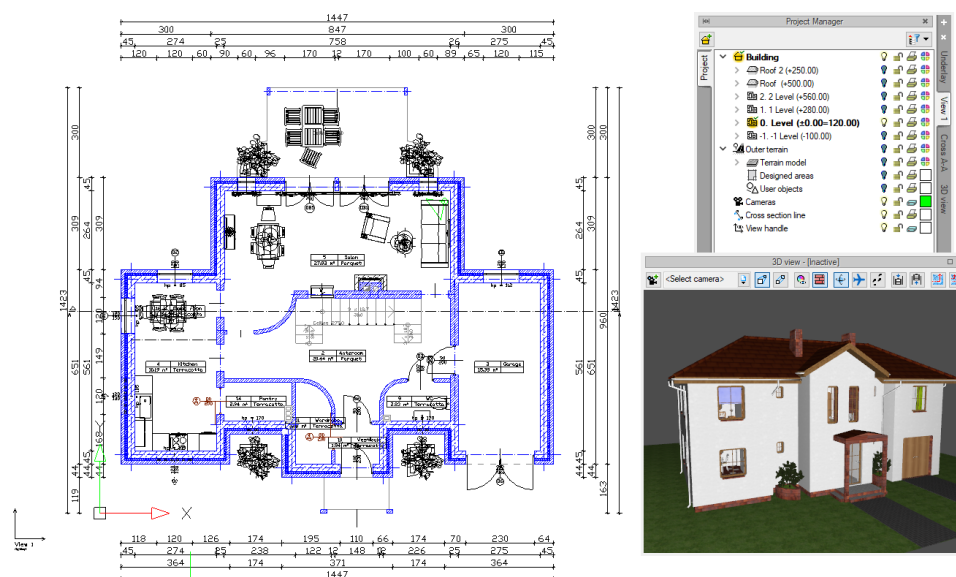


Fig. 57. Example with active view 1 and the view from the old 3D engine

Basics of Application operation

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.

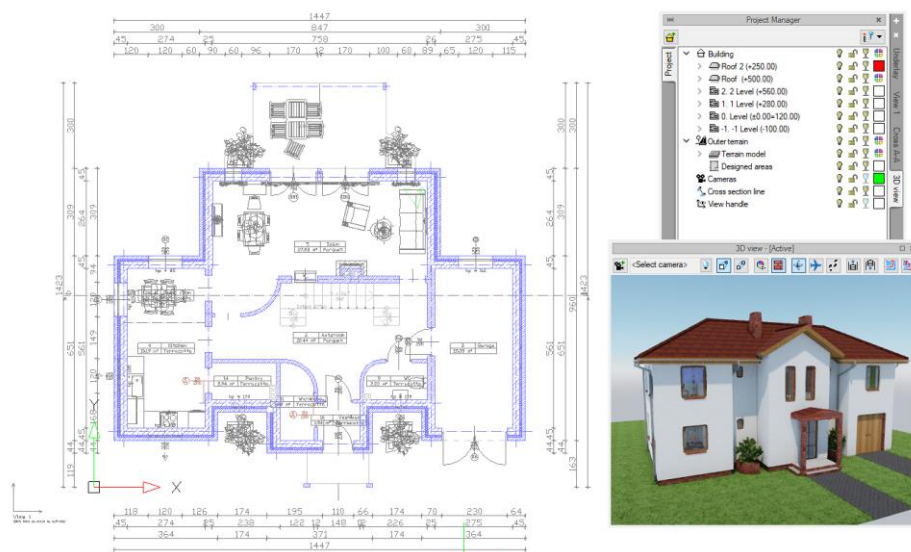


Fig. 58. Active 3D View sample in the new engine

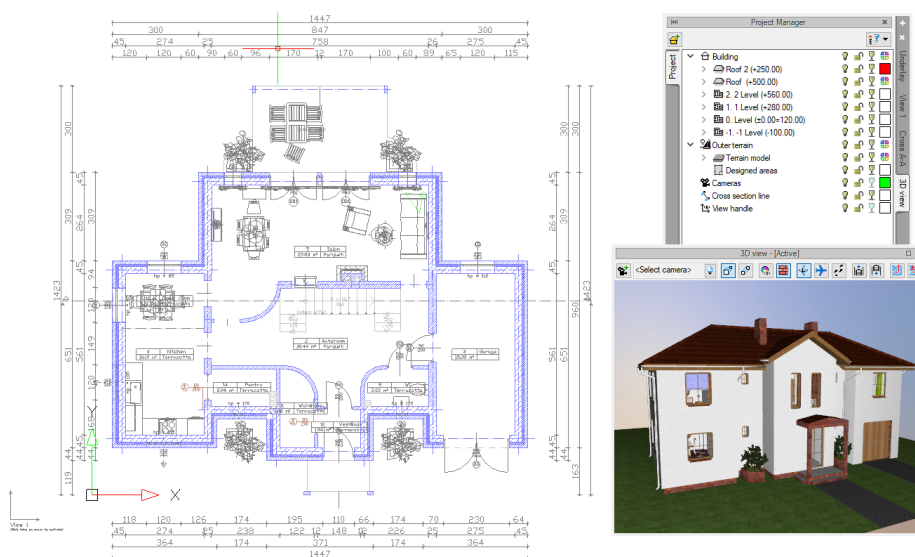


Fig. 59. Active 3D View sample in the old engine

Basics of Application operation

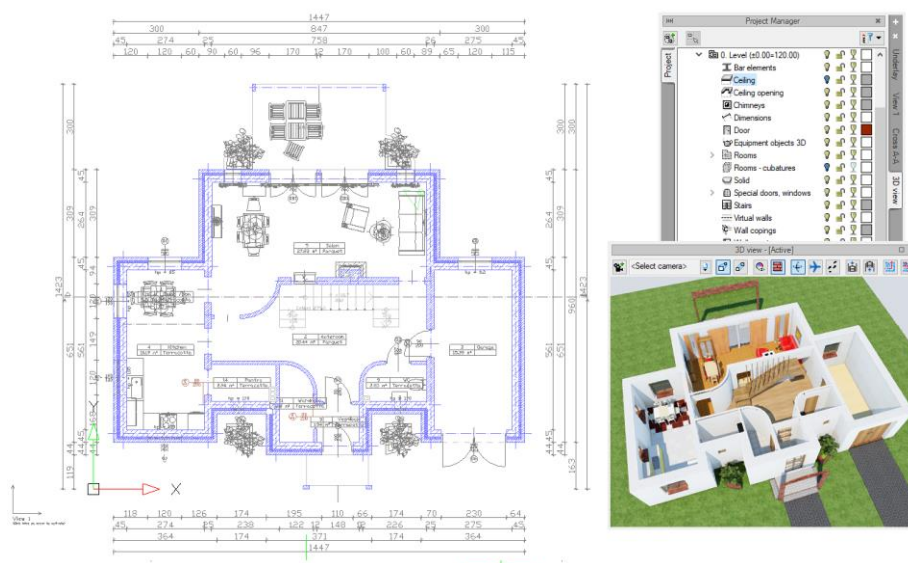


Fig. 60. Active 3D view sample using the new engine and visibility of elements defined for it

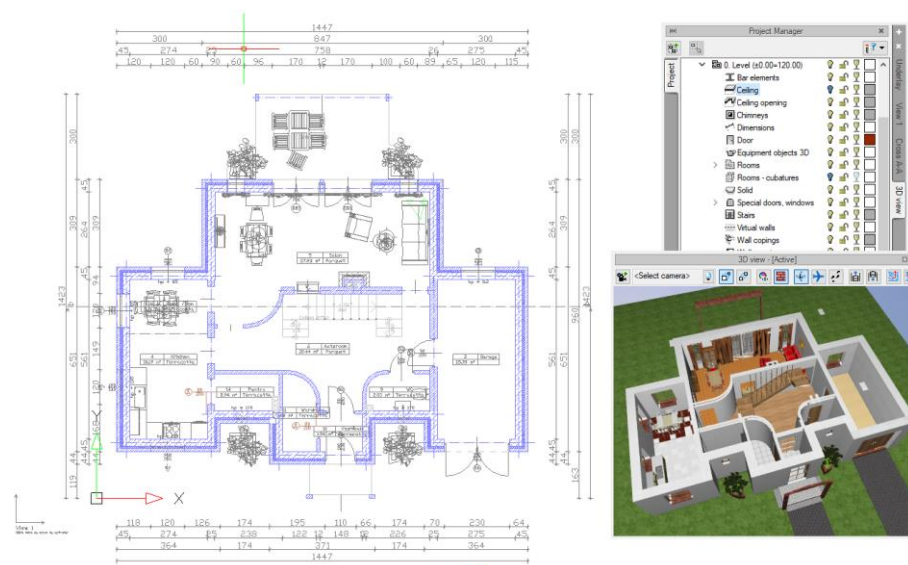




Fig. 61. Active 3D view sample using the old engine and visibility of elements defined for it

The objects removal feature ⇒  *Remove marked objects*) is transferred from the *3D view* window to the action bar, 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.

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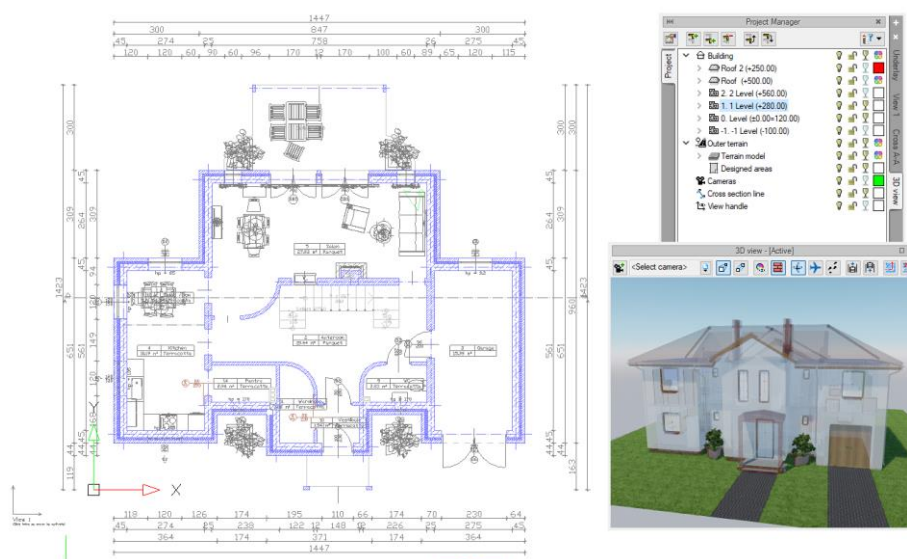


Fig. 62. Showing the transparency of elements in the new engine

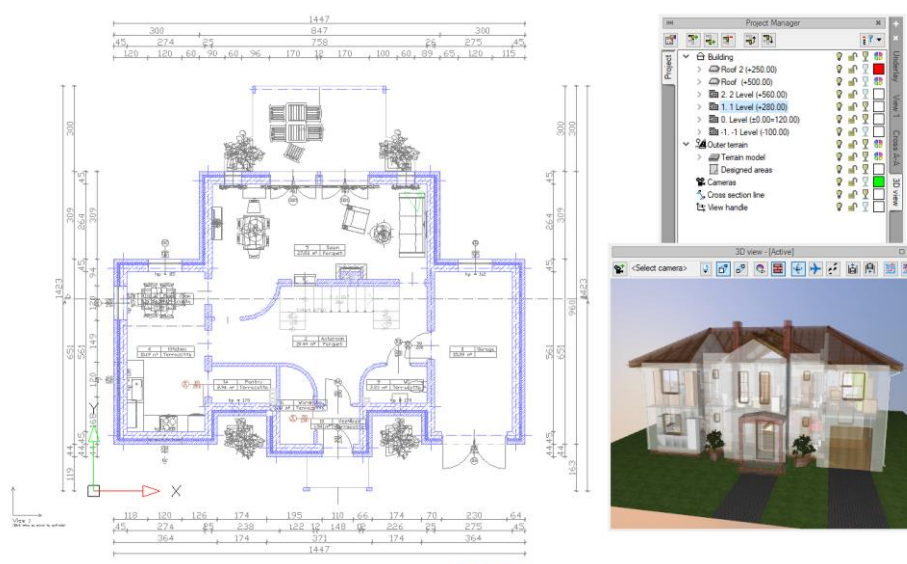



Fig. 63. Showing the transparency of elements in the old engine

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.

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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 façades, the 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.

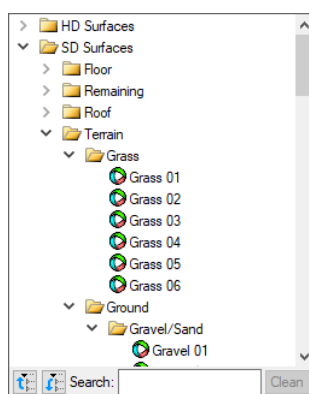


Fig. 64. Sample material in the standard library with additional content downloaded

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:

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Fig. 65. 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:

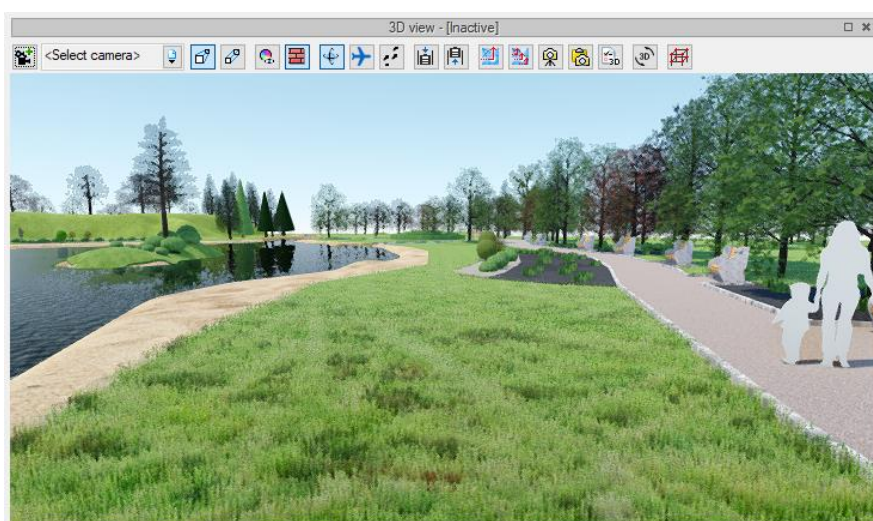


Fig. 66. Sample project using Water 02 and Grass 01long material

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.

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Fig. 67. 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.



Fig. 68. Sample of tiles texture used from a single file

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Fig. 69. Sample of tiles texture used from a few files



Fig. 70. Tiles materials used in the design shown above

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.

2.2.9.1. 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.

Basics of Application operation

Activation:

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

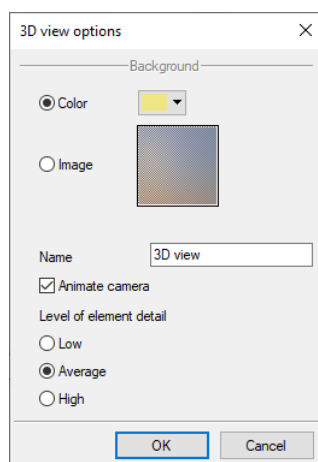


Fig. 71. The 3D view options window of the simplified mode

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

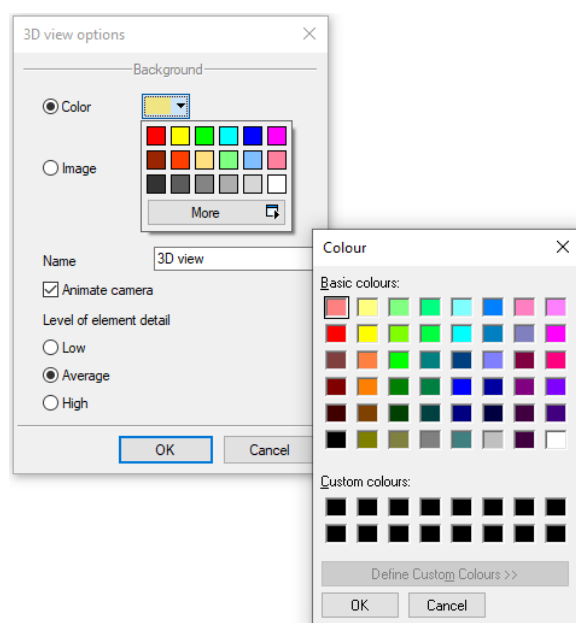


Fig. 72. Changing the background color of the 3D view

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.

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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.

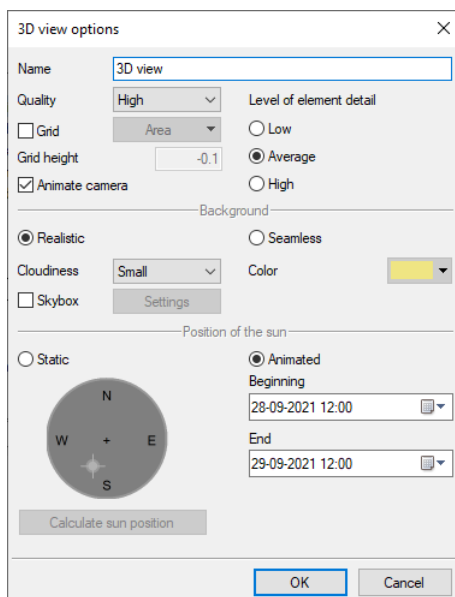


Fig. 73. Parameter window of the advanced 3D mode

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

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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.

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).

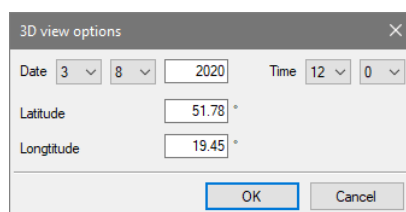




Fig. 74. The geographic location of the project and the date and time, set the position of the sun

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.

2.2.9.2. 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*.

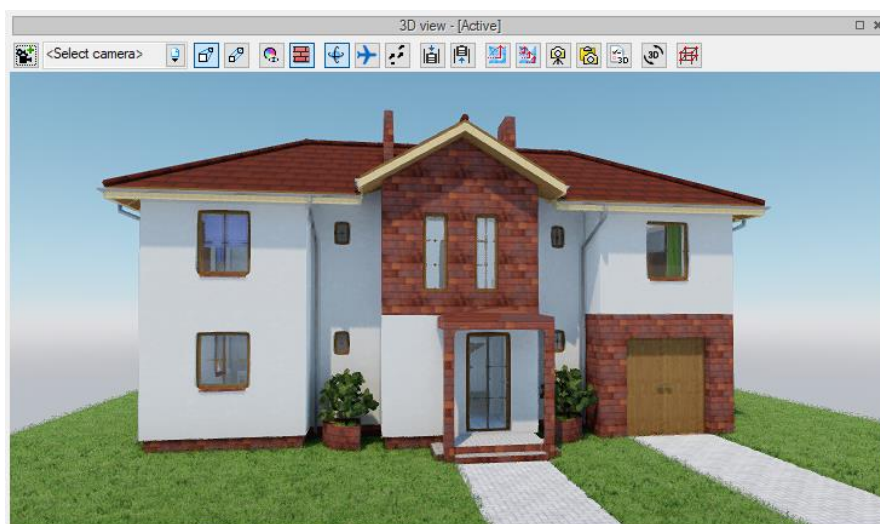


Fig. 75. Sample of window with the new 3D View engine

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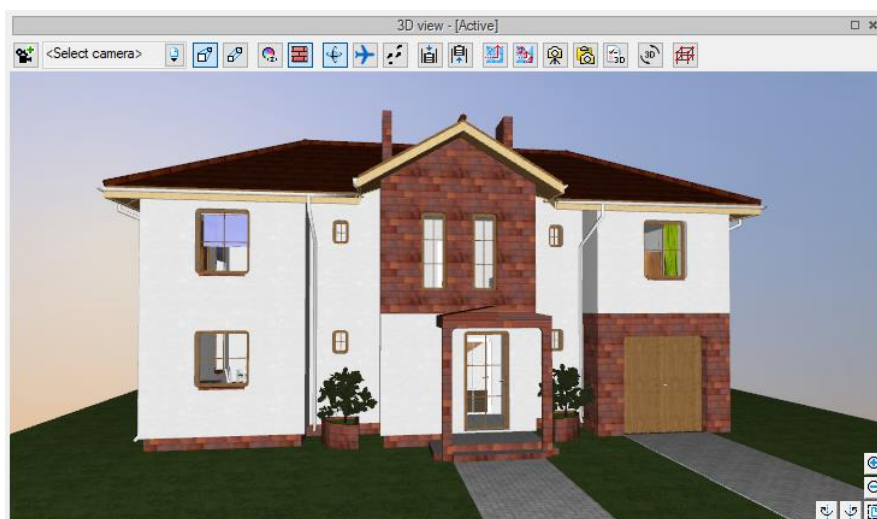




















Fig. 76. Sample of window with the old 3D View engine

Tab. 2. 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>Walk mode</i>	Project display mode where the camera may be located inside the project.
	<i>Rendering</i>	Creates a photo-realistic (2D) image of the designed building. Option available in the ArCADia-ARCHITECTURE module.
	<i>Multi rendering</i>	Saves photorealistic views for the cameras defined in the project. Option available in the ArCADia-ARCHITECTURE module.
	<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 3D view window.
	<i>Switch the 3D View mode</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.

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		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 *Ctrl* key and the left mouse button on a given object. Clicking anywhere will unmark 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.

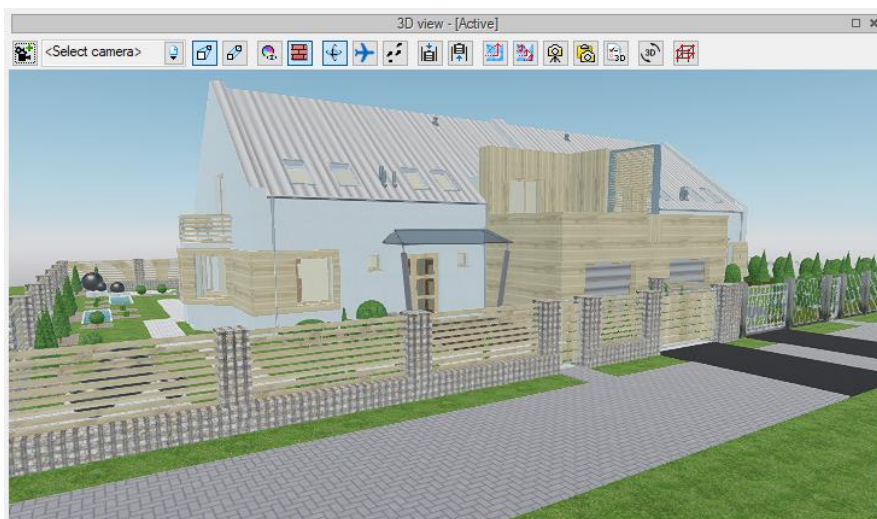





Fig. 77. Sample project in the lowest display quality



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Fig. 78. Sample project in the highest display quality

Watching the project in the view window, by default, is presented in  the *Orbit 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 must 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 and 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.

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Fig. 79. Building seen in the new engine in a view with surfaces defined in elements

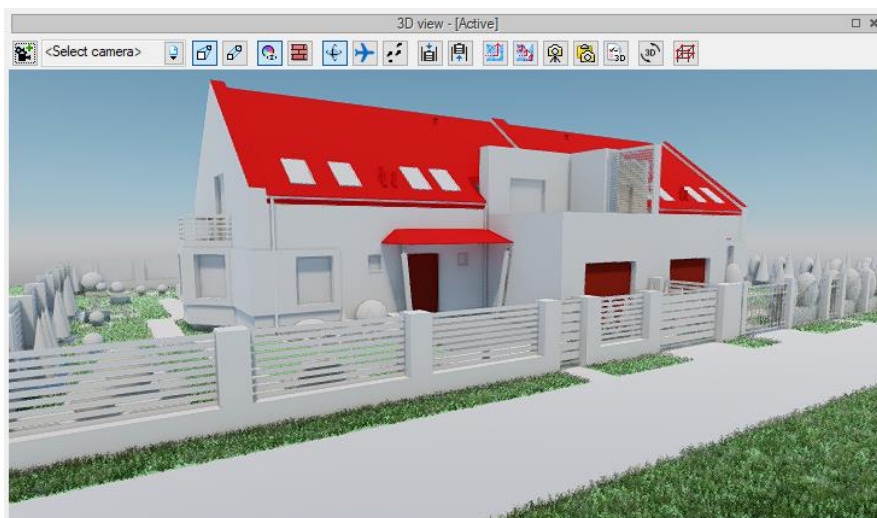


Fig. 80. Building seen with the new engine in the layers color view from the Project Manager



Fig. 81. Building seen with the old engine in a view with surfaces defined in elements

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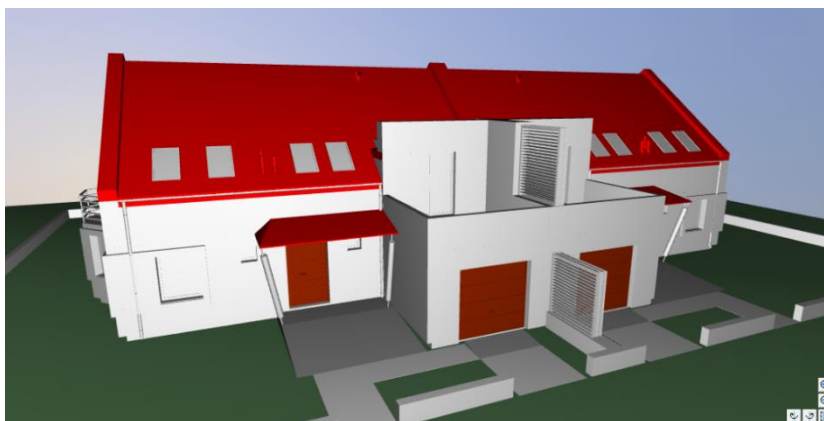


Fig. 82. Building seen with the old engine in the layers color view from the Project Manager

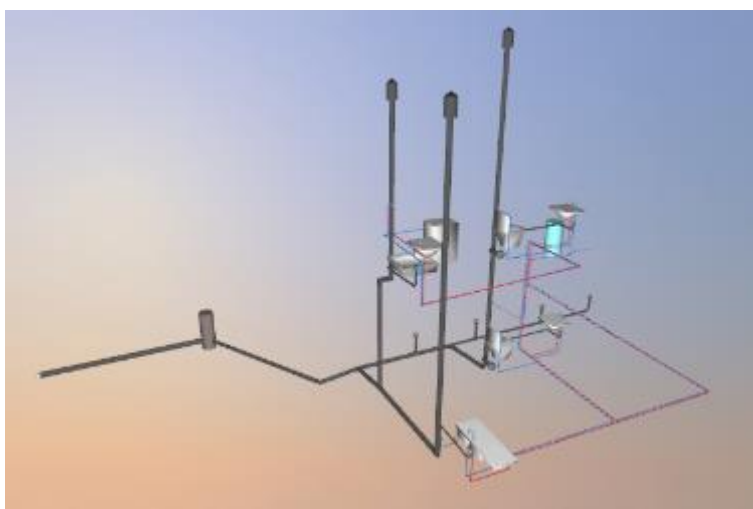


Fig. 83. Water-sewage installation. in the view with surfaces defined in elements

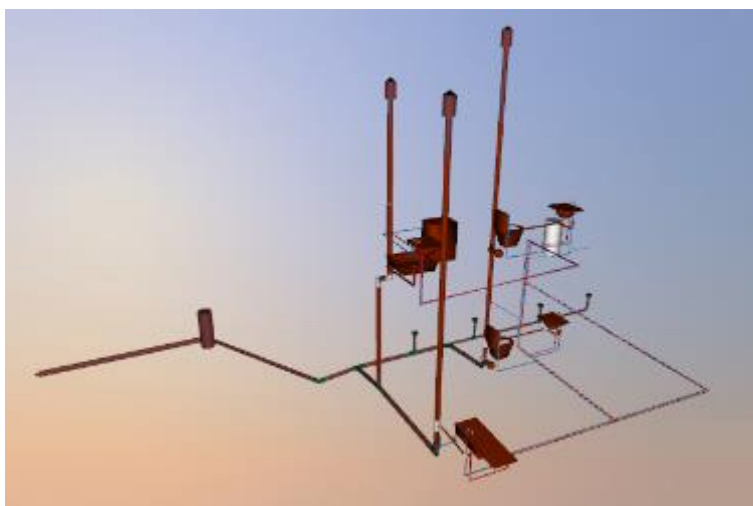


Fig. 84. Water-sewage installation. in the view of colour of layers from the Project Manager window

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2.2.9.3. 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.

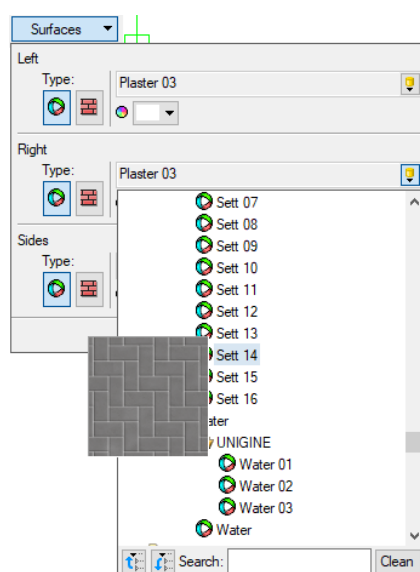






Fig. 85. Part of the list of materials available in the software

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.

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.

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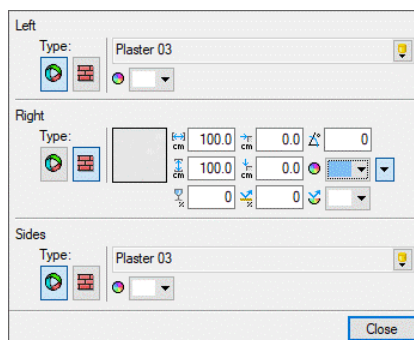


Fig. 86. Example of adding textured material

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. 87. Textured area without changing of the colour



Fig. 88. Textured area with blue as a texture modifying colour

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Fig. 89. 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 then white. In such case the objects may look much darker or have different colours then before. That is why modifying colour should be checked and if need be it should be changed into white.*

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

2.2.9.4. Surfaces editor

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

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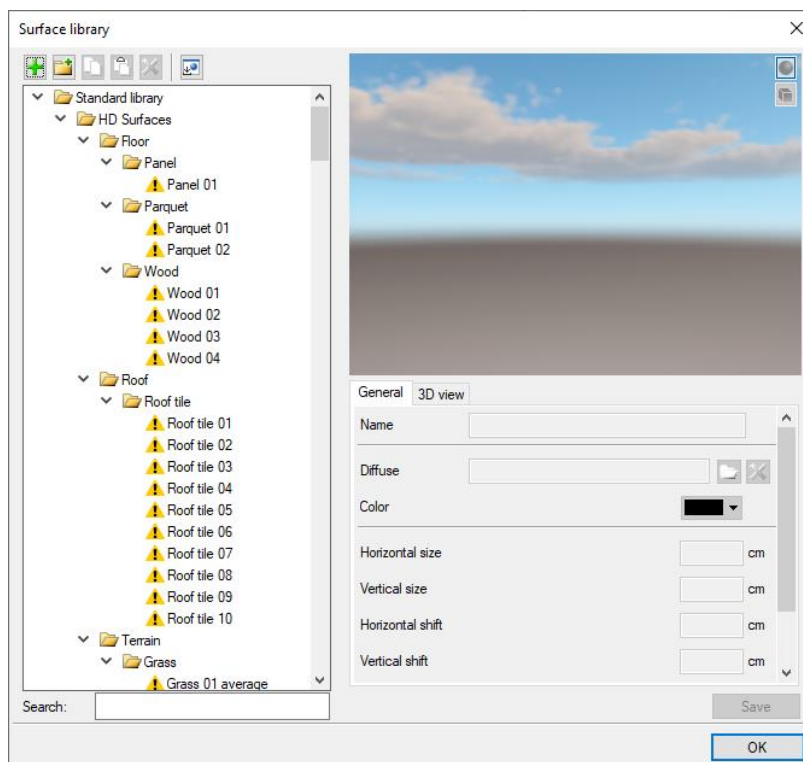





Fig. 90. The library window before downloading the content

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

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:

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

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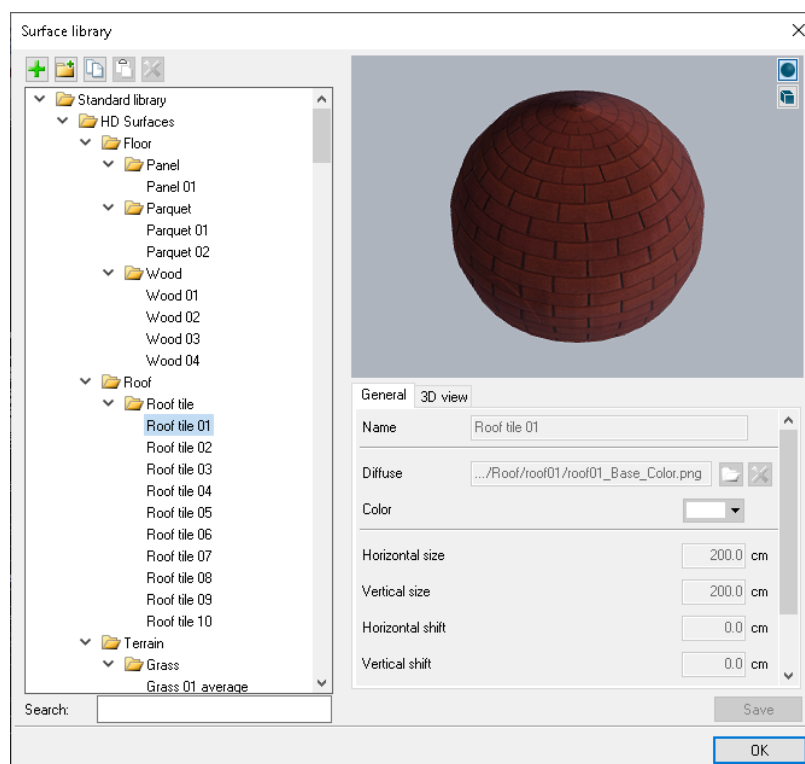


Fig. 91. Surfaces editor window

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.

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Angle of rotation – texture rotation angle.

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

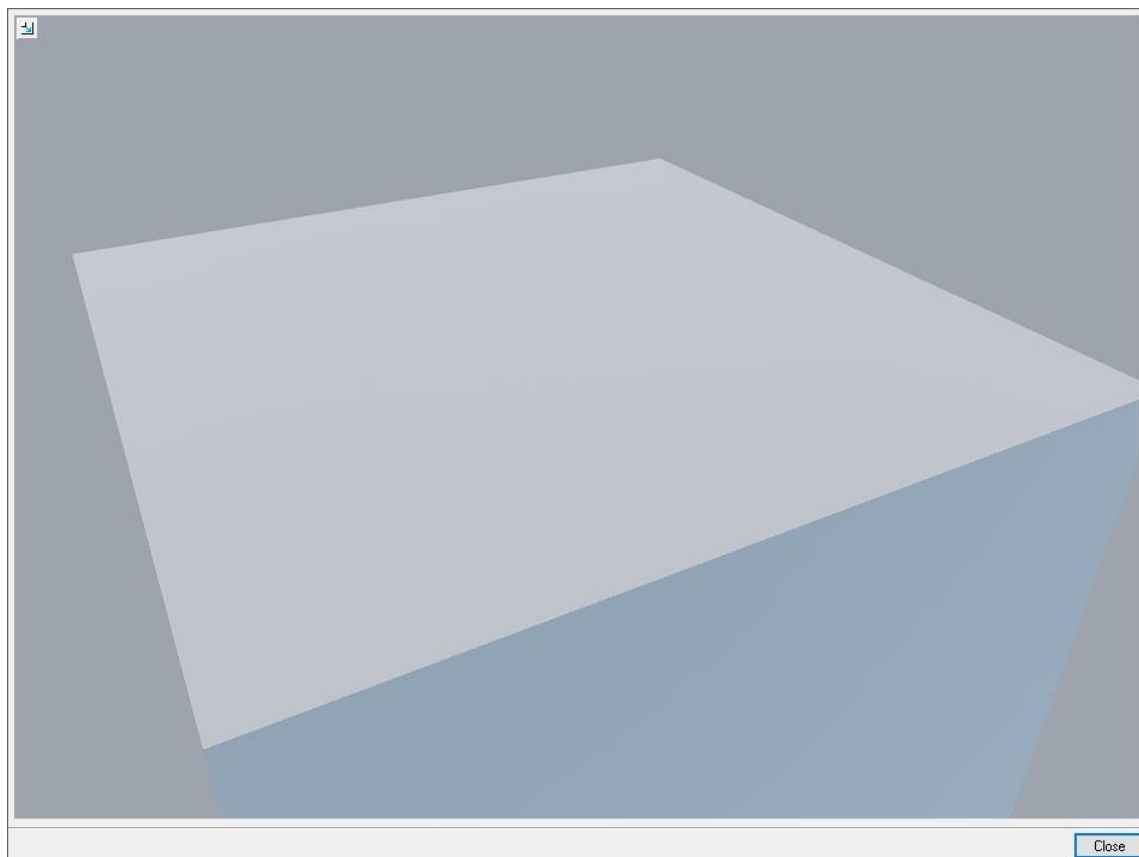


Fig. 92. Preview of the surface before entering the texture file

We add the texture *Diffuse*.

Basics of Application operation



Fig. 93. 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

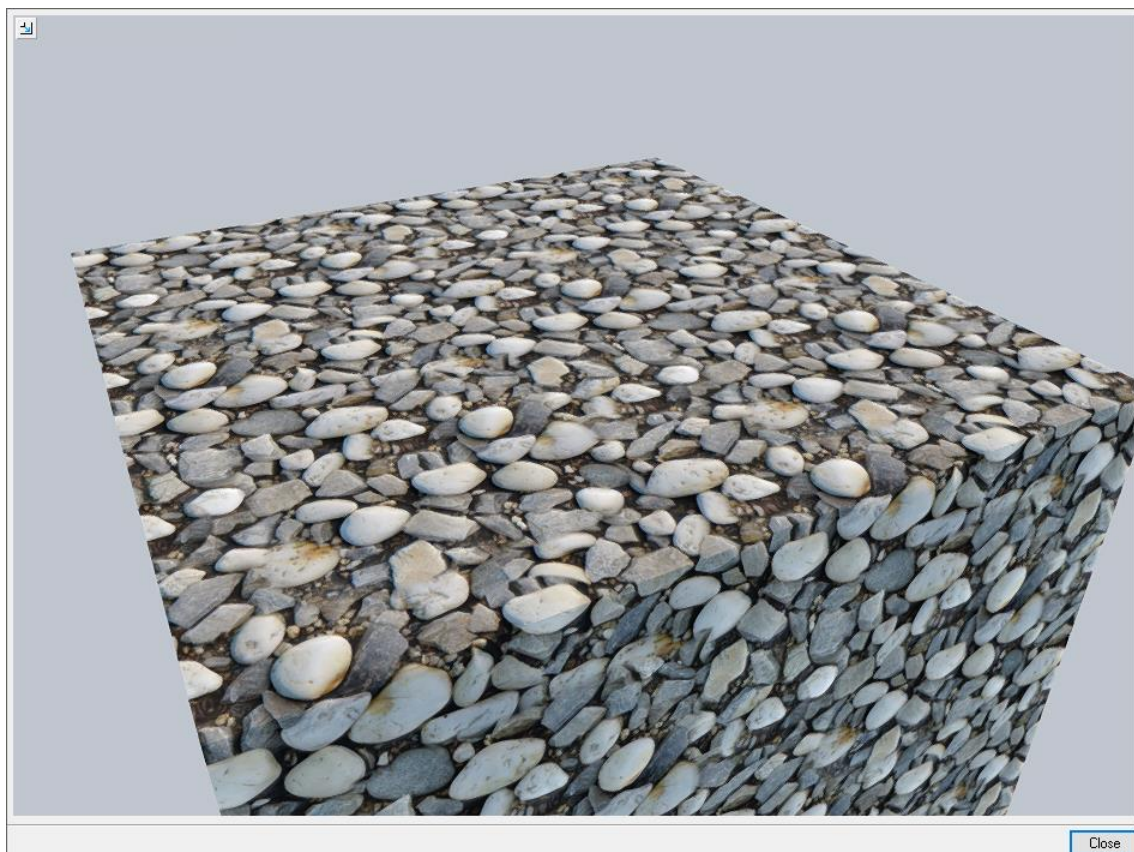


Fig. 94. Surface preview with *Normal* file loaded

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



Fig. 95. 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

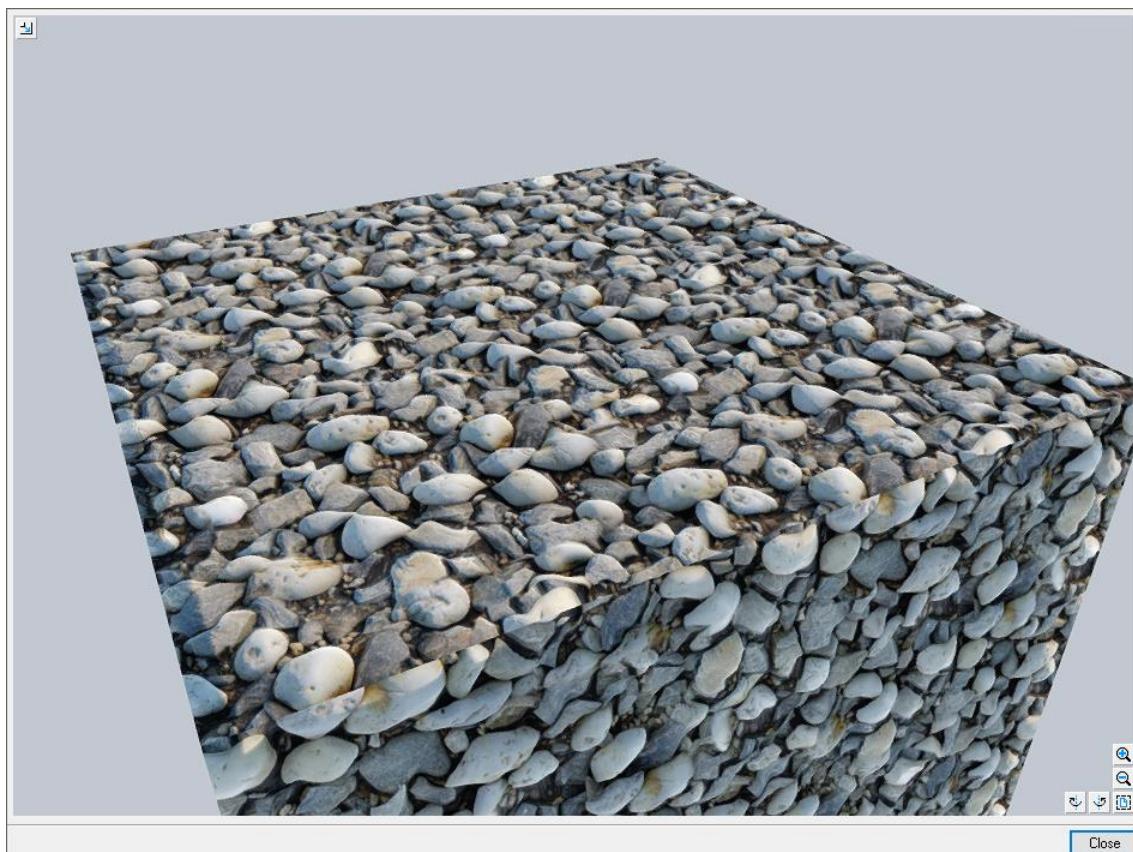


Fig. 96. Preview of the surface with the height file loaded (Parallax)

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



Fig. 97. 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. 98. 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*.

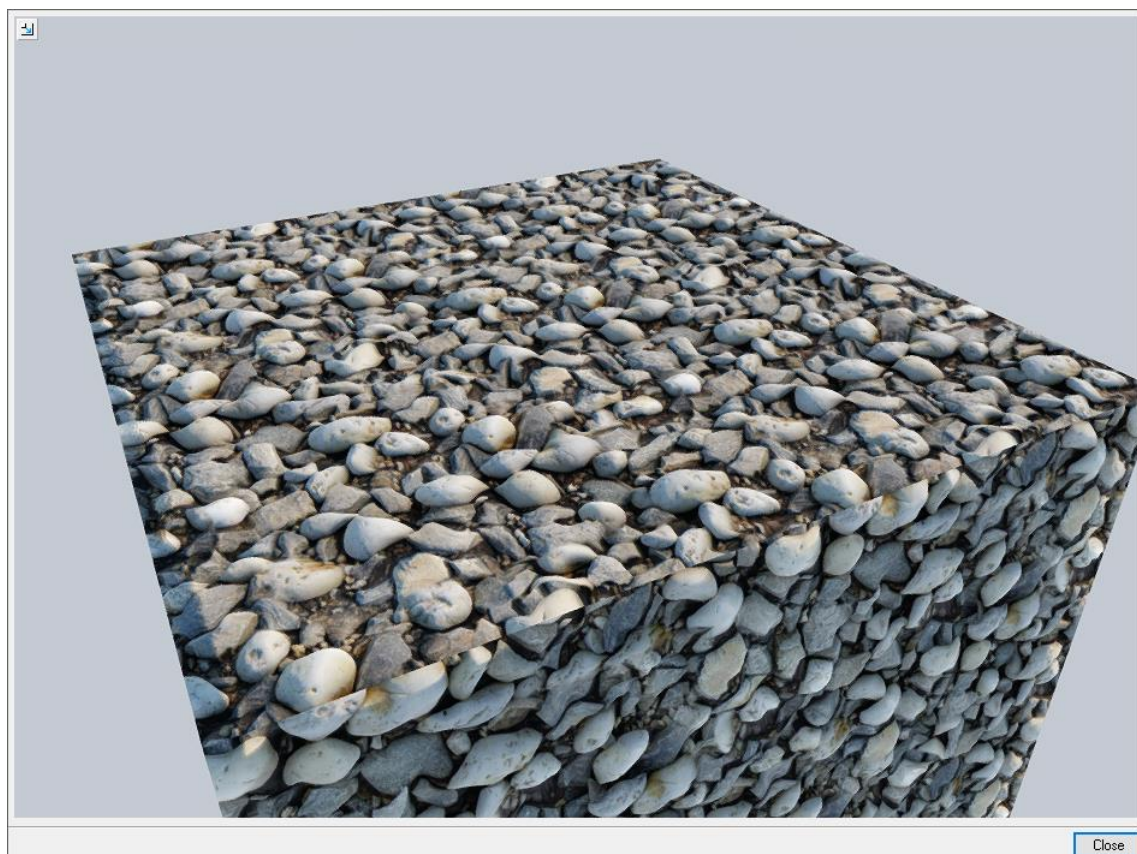


Fig. 99. Preview of the surface with the Ambient occlusion file loaded

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. 100. 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.

2.2.10. Construction View

In ArCADia BIM 12.0, a *Construction view* has been added, which if available, if ArCADia-RAMA (R3D3-Rama 3D) 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:

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

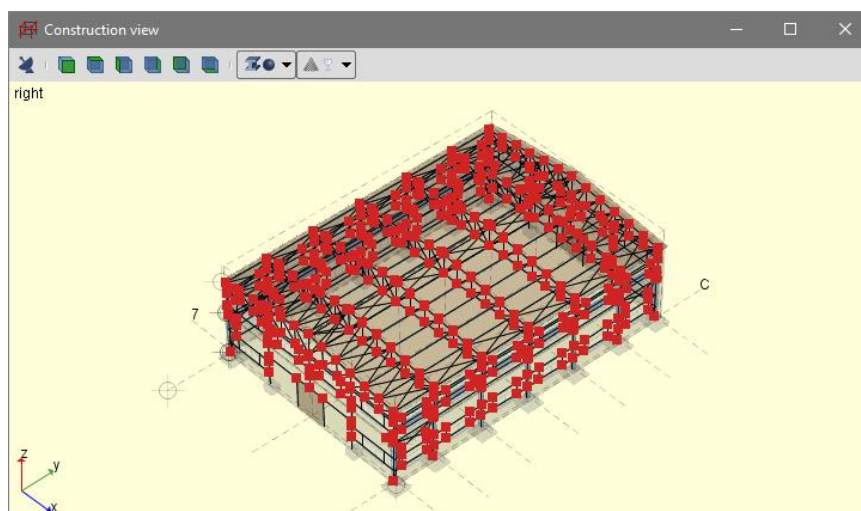


Fig. 101. Construction view of a hall design sample

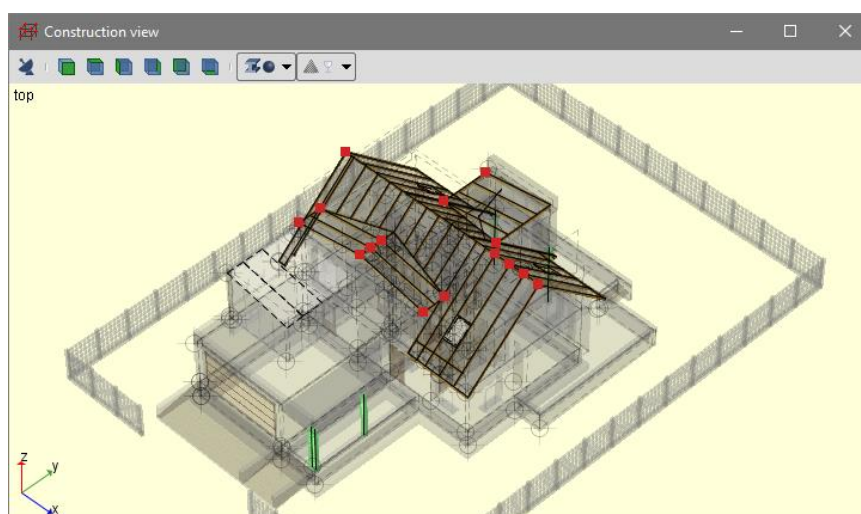















Fig. 102. Construction view of a designed single-family building sample

Basics of Application operation



Tab. 3. Construction view options

	<i>ArCADia-RAMA</i>	The icon that transfers the project to the ArCADia-RAMA program (in the 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.

2.2.11. Camera

The *3D view*, 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.

Activation:

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

If the option is selected from 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.

Basics of Application operation

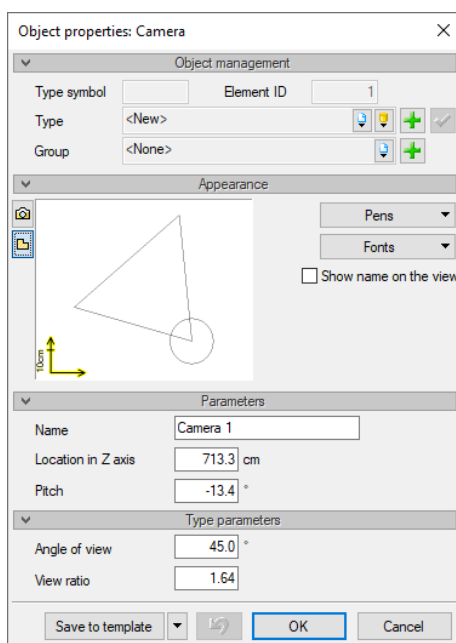


Fig. 103. Camera attributes window

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).

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 visualisation 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.

Basics of Application operation

2.2.12. Saving view from 3D preview

The ArCADia BIM Application 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. 104. 3D view window in the new 3D engine



Fig. 105. Saved file from the 3D view window using the new engine

Basics of Application operation



Fig. 106. 3D View window in the old 3D engine



Fig. 107. Save from the 3D view window

2.2.13. Rendering

The ArCADia system has the [Rendering](#) option, which enables creation of a photorealistic view of the designed building. This option is available in the ArCADia-ARCHITECTURE module and is described in the help file to this module.

2.2.14. Movie recording

From version 12 in the ArCADia system, you can save a movie showing, for example, a walk around the designed building. This option is only available in the [Advanced](#) 3D View mode.

Basics of Application operation



Fig. 108. Film recording options

Recording options are available at the bottom of the 3D window after moving the cursor over it.

Tab. 4. Movie saving options

		The date and time field is completed by default with the project creation date The change is available from Sun Animation Settings or 3D View Options .
⚙️	Sun animation settings	The 3D view options window in which the sun animation time, effects for the background and the quality of the settings of the displayed scene are defined.
●	Record film	Clicking on the icon starts the video recording. The option records moving around the project, zooming in, zooming out, walking and changing cameras.
⏮️	Rewind	Changes the direction of the sun animation, e.g., to reverse time to the beginning.
▶️ / ⏸️	Resume/stop sun animation	This option starts playing the sun animation or stops it at the given time.
■	Stop sun animation	The option ends the movie recording, after entering the name, it saves the MP4 file.
⏭️	Forward	Speeds up the animation of the sun.
🔄	Repeat sun animation	This option allows you to loop the sun animation at the time specified by the user.

Before starting to record a movie, switch the [Quality](#) of the 3D view to the one you want, if you want to see the animation of the sun in the movie, you should also start it before saving. The size of the movie (resolution) will be the same as the preview size of the project in the [3D View](#) window.

Basics of Application operation


After switching on the recording, if the camera is not changed or the view is not moved in relation to the designed building, we will obtain a static film showing the play of light on and around the building. If we turn on the walk option or we move in orbit mode, each change of the scene will be remembered and later saved to the movie.

The movie is rendered after specifying a name for the file. You then should wait while the MP4 file is saved.

2.3. Project properties

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

Activation:

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

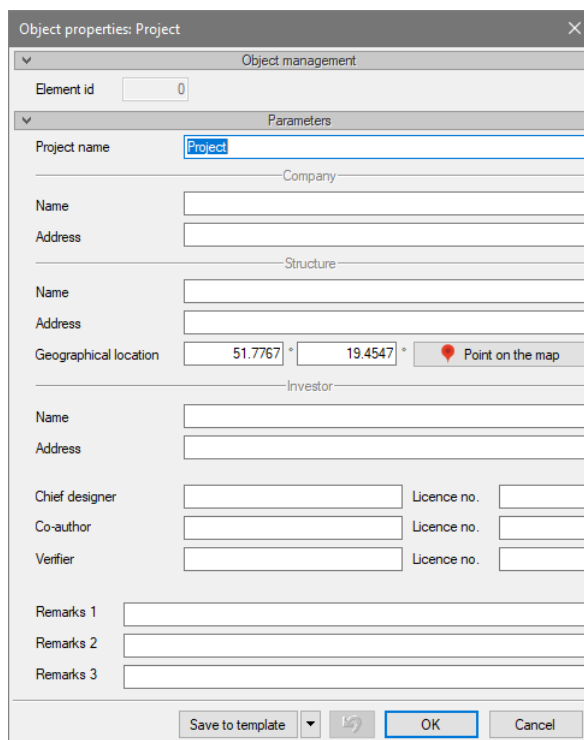


Fig. 109. Project properties window

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.

Basics of Application operation

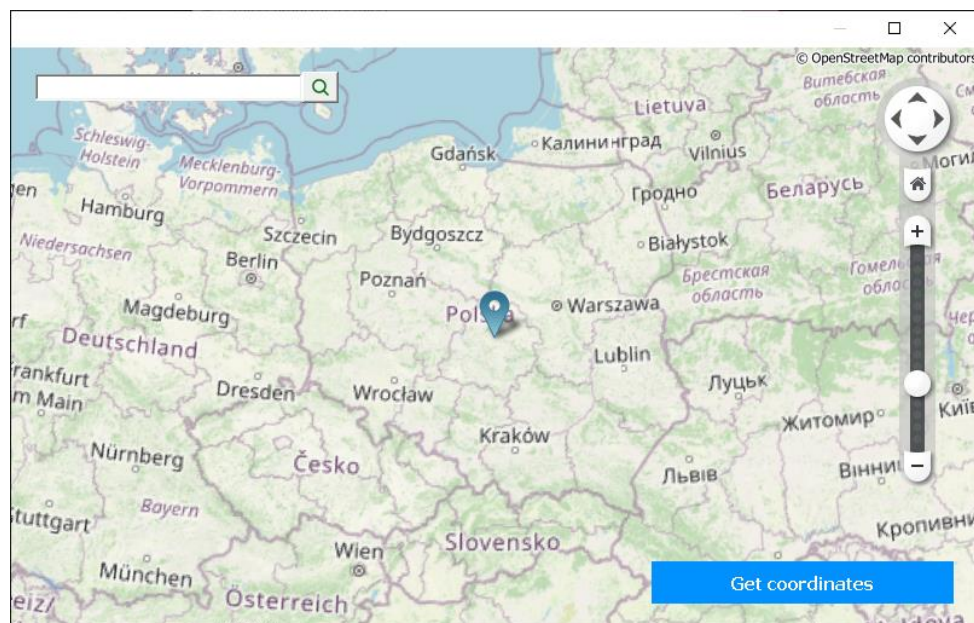


Fig. 110. Default project location window

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

2.4. 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.

HINT: 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:

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

Basics of Application operation

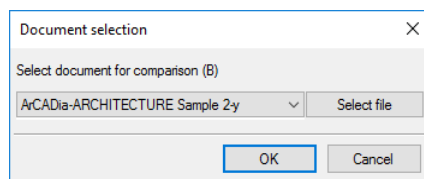


Fig. 111. Second compared document selection window

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.

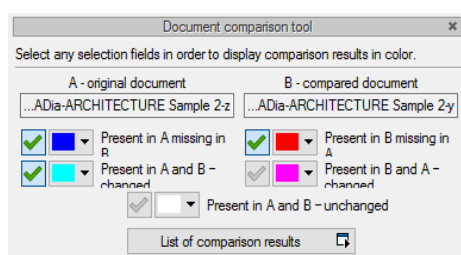


Fig. 112. Comparing documents window

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.

Basics of Application operation

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.

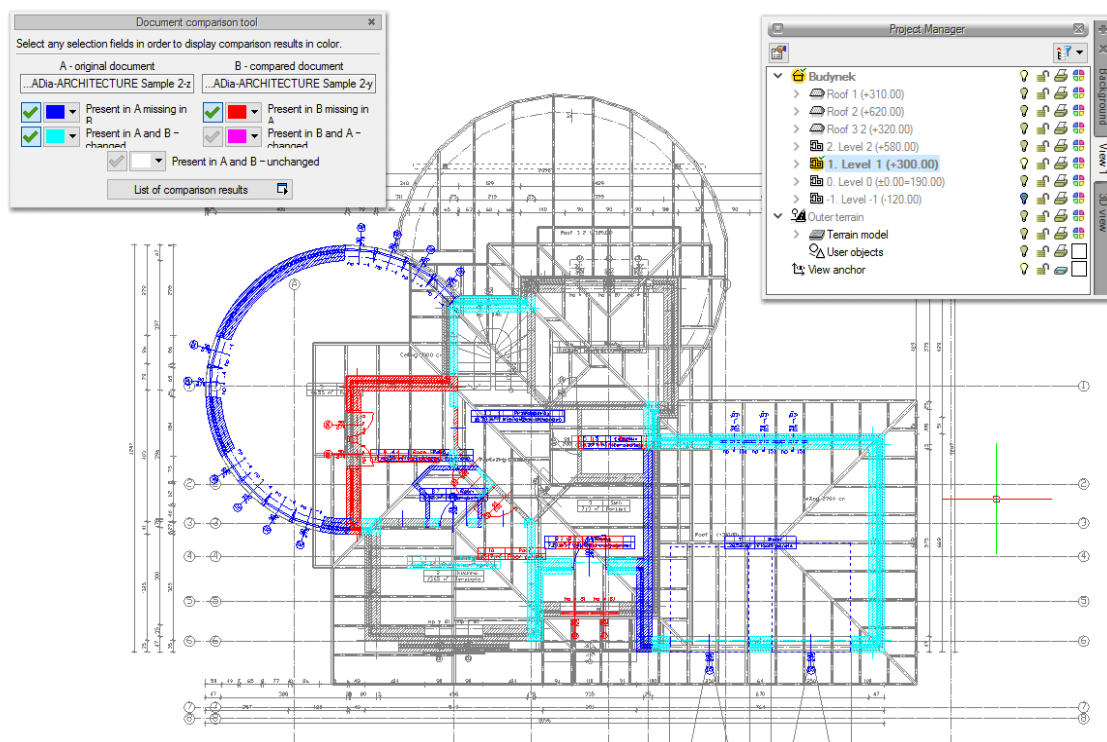


Fig. 113. Example of comparing documents

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. 114. 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

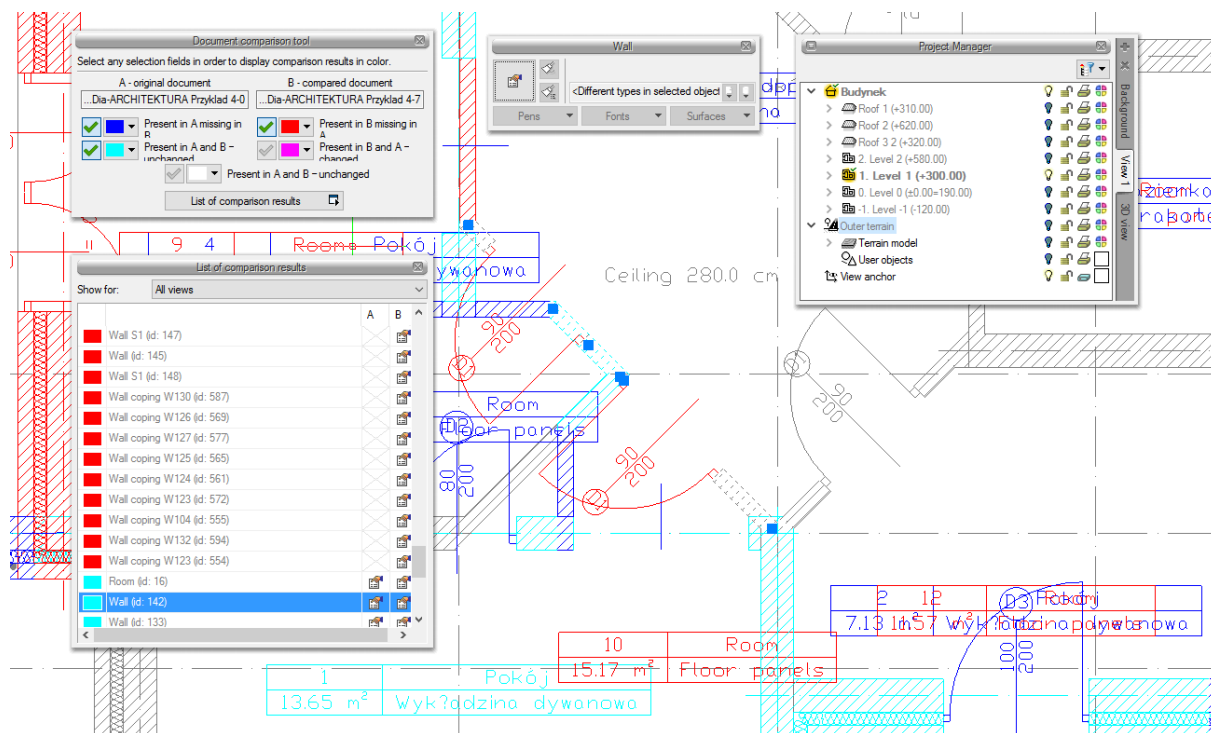


Fig. 115. Sample selection from the list and automatic centering of the drawing

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

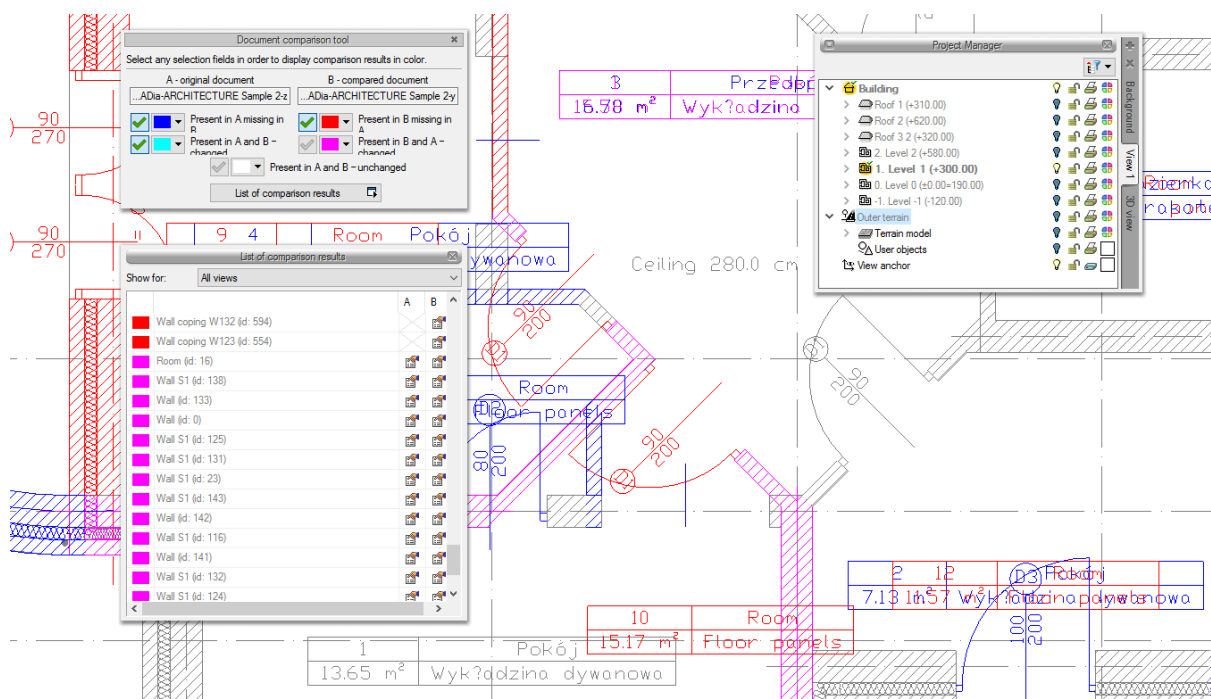


Fig. 116. Compared documents with changes from the document 2 visible

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

HINT: Only the elements of the ArCADia-BIM are compared now. 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.

Basics of Application operation



Fig. 117. 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.

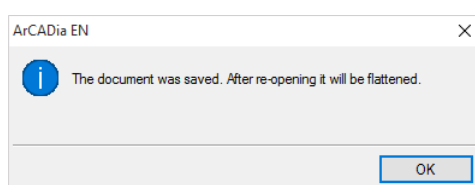


Fig. 118. Autosave information

2.5. 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 a new option in ArCADia BIM system. This option is helpful for merging projects within a branch and checking the collisions between them, and during the design,

Basics of Application operation

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

Activation:

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

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

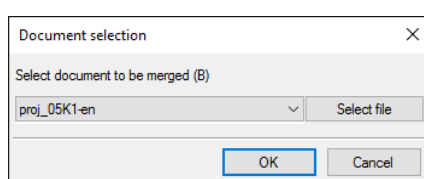


Fig. 119. Selecting documents for merging window

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**.

HINT: 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 crated basing 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.

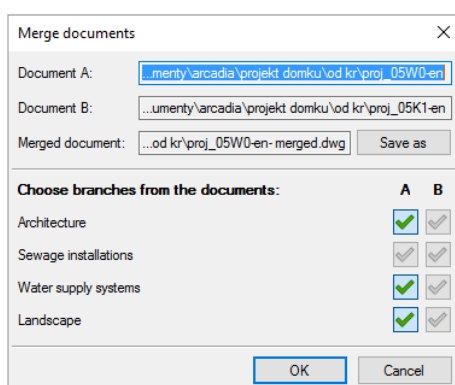


Fig. 120. Merging documents window with default settings

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: ✓.

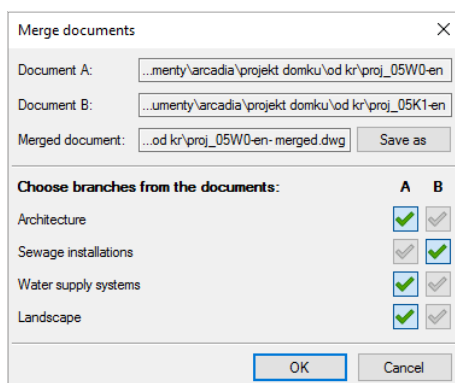


Fig. 121. Change of branches is done in the merging documents window

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.

2.6. Collisions

ArCADia enables checking of collisions of between elements of the whole ArCADia system.

2.6.1. Call of collisions and crossovers

Activation:

- **Manage** ribbon ⇒ logical group **Collisions** ⇒ **Define**
- **ArCADia-COLLISIONS** toolbar ⇒ **Set collisions/crossovers**

After calling **Set collisions/crossovers** option, **Setting collisions/crossovers** dialog box appears

Basics of Application operation

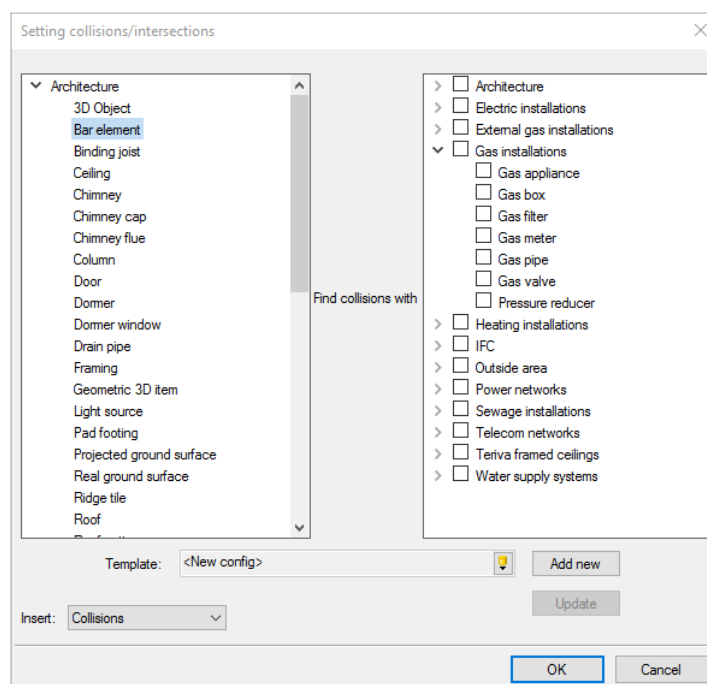


Fig. 122. Setting collisions/intersections properties window

Program allows for creation and saving of own templates for *Collisions* and *Crossovers*.

To do this, you should select object (or whole field) in left tree and in right tree mark what is selected object/field to collide with.

Similarly we act for *Crossovers*, previously changing in lower left corner of the dialog box in field *Insert*:⇒ *Crossovers*.

To add new template, we click *Add new* and set any name for it.

Program consists *Template: ALL*, which can be modified and saved by clicking *Update*.

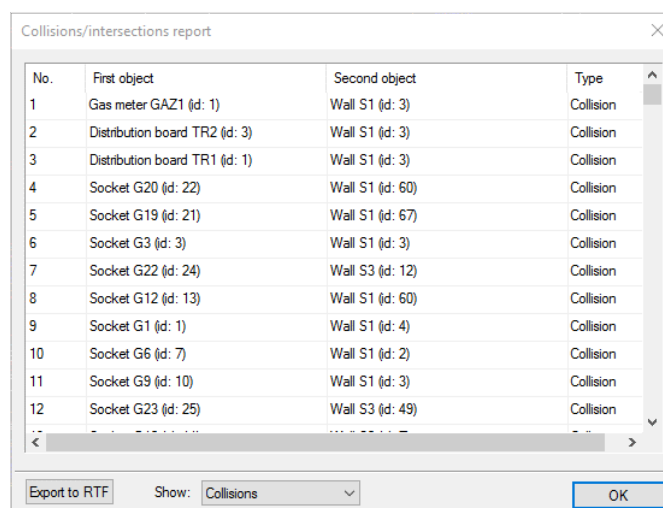
Clicking *OK* confirms changes and displays set collisions as orange balls on projection and in 3D view. Symbol for crossovers is red parallelogram.

2.6.2. Collisions/crossovers report

Activation:

- *Manage* ribbon ⇒ logical group *Collisions* ⇒  *Display*
- *ArCADia-COLLISIONS* toolbar ⇒  *Display collisins/intersections*

Basics of Application operation



No.	First object	Second object	Type
1	Gas meter GAZ1 (id: 1)	Wall S1 (id: 3)	Collision
2	Distribution board TR2 (id: 3)	Wall S1 (id: 3)	Collision
3	Distribution board TR1 (id: 1)	Wall S1 (id: 3)	Collision
4	Socket G20 (id: 22)	Wall S1 (id: 60)	Collision
5	Socket G19 (id: 21)	Wall S1 (id: 67)	Collision
6	Socket G3 (id: 3)	Wall S1 (id: 3)	Collision
7	Socket G22 (id: 24)	Wall S3 (id: 12)	Collision
8	Socket G12 (id: 13)	Wall S1 (id: 60)	Collision
9	Socket G1 (id: 1)	Wall S1 (id: 4)	Collision
10	Socket G6 (id: 7)	Wall S1 (id: 2)	Collision
11	Socket G9 (id: 10)	Wall S1 (id: 3)	Collision
12	Socket G23 (id: 25)	Wall S3 (id: 49)	Collision

Fig. 123. Collisions/intersections report

Report displays list of two colliding or crossing elements. In lower part of *Collisions/intersections report* dialog box we have possibility to choose which list of relations between elements is to be displayed (*Collisions/Intersections or Collisions and intersections*). There is also possibility of report export to .rtf file using *Export to RTF* button.


2.6.3. Delete collisions and crossovers

Deletes all occurrences of collisions and crossovers in project

Activation:

- *Manage* ribbon ⇒ logical group *Collisions* ⇒  *Remove*
- *ArCADia-COLLISIONS* toolbar ⇒  *Remove collision/intersections*

2.7. Buildings

Drawing an architectural or services 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:

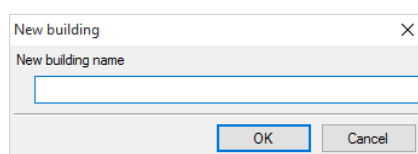









Fig. 124. New building window

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

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Tab. 5. 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>Add new 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.

2.7.1. Building wizard

New version of the ArCADia BIM system software 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:

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

After executing the command the following window will be displayed:

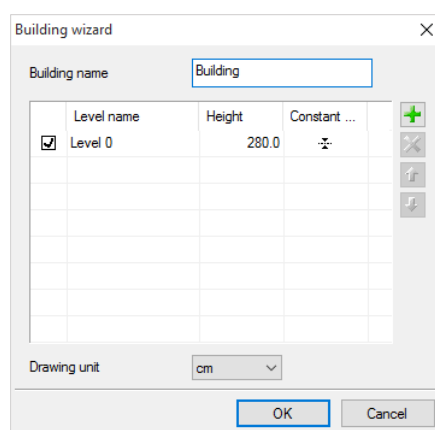


Fig. 125. Window creating a building by means of defined levels

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 **Top** (↑).

Delete (X) – deletes the selected levels.

Top (↑) – moves levels one level above.

Bottom (↓) – 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.

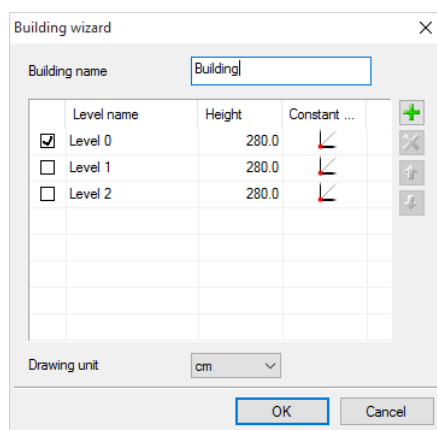


Fig. 126. Sample task with three levels with different location of constant points in the creator window

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

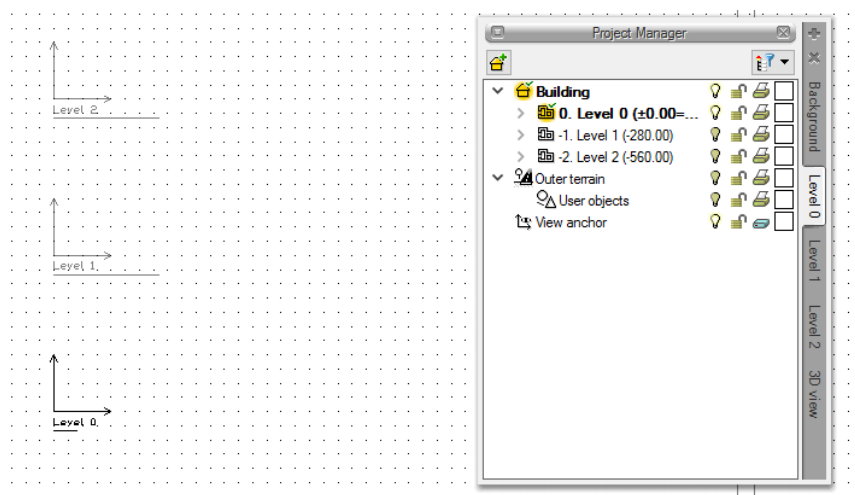


Fig. 127. Sample task with three levels with different location of constant points

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.

2.7.2. 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.

Basics of Application operation

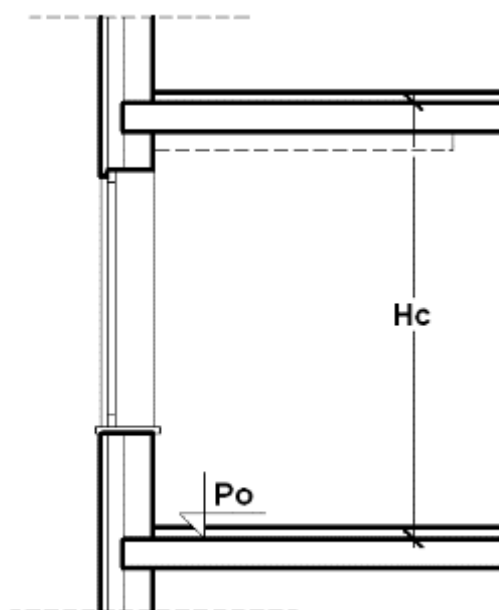



Fig. 128. Level data diagram

Level data diagram, where H_c is the level overall height, and P_o is the 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.

2.7.2.1. 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 280 cm. 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.

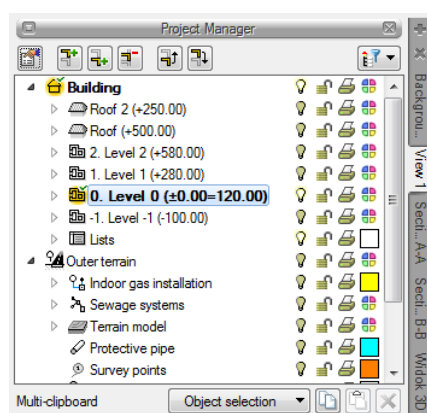


Fig. 129. Selecting the level from the manager window

Basics of Application operation

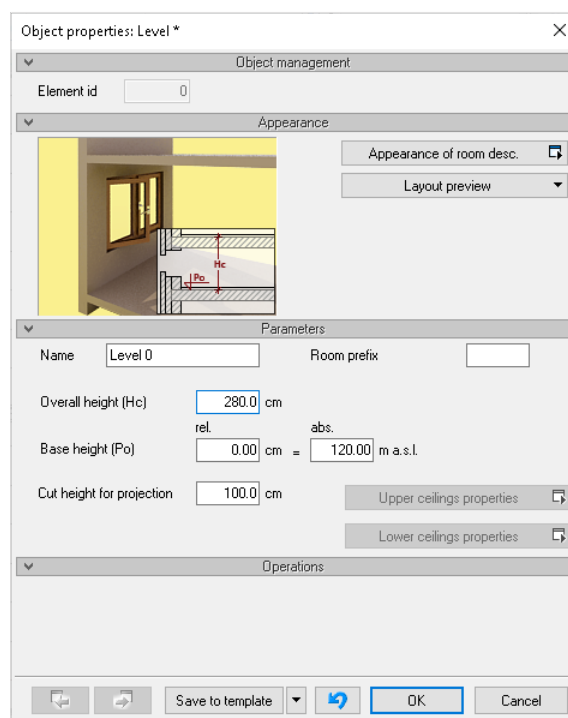


Fig. 130. Level properties window

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.

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.

2.7.2.2. 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.

Basics of Application operation

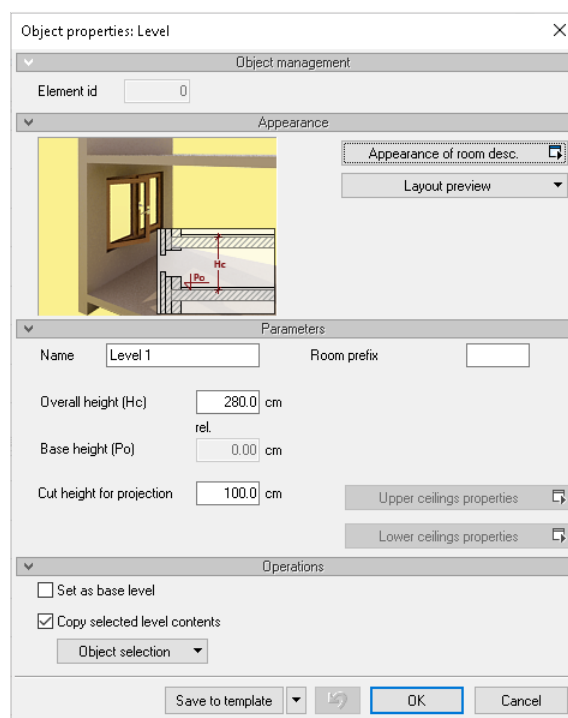


Fig. 131. New level above active level properties window

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.

Basics of Application operation

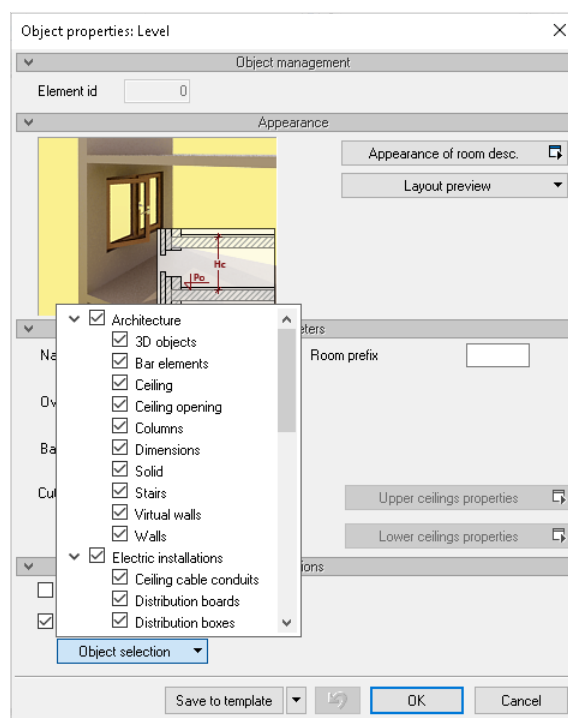



Fig. 132. Copyable list of elements used on the active level

2.7.2.3. 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.

2.7.2.4. 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.

Basics of Application operation

2.7.2.5. Deleting levels

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

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

2.7.3. Rooms

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

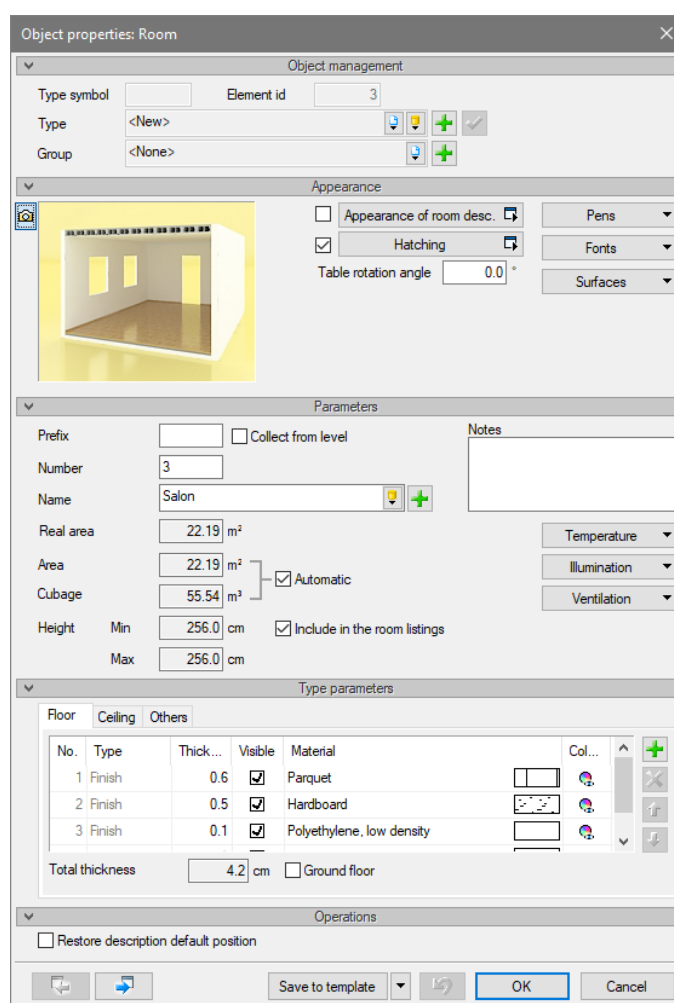



Fig. 133. Sample room properties window

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

Basics of Application operation

the room name from the available list, the temperature placed under the button on the right side will 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.

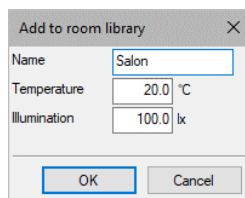


Fig. 134. Window of adding room to program library

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).

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](#).

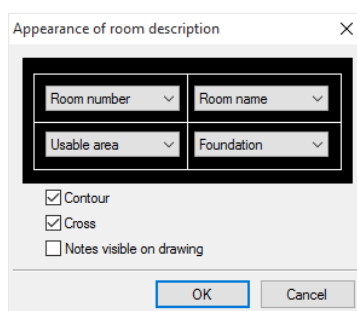


Fig. 135. Room table appearance window

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

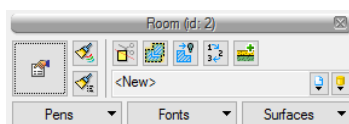











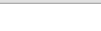



Fig. 136. Room editing window

Basics of Application operation

Tab. 6. 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.
	<i>Join rooms</i>	Joins selected rooms, adding the surface 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>Renumber 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 surfaces of the inserted element.
	<i>Type</i>	Element types and icons <i>Global library</i> and <i>Document library</i> .

2.8. Terrain

To make the project more visible, both in the *3D view* and the cross-section, or to show the network design, you can insert a ground surface by spot heights or by spot height lines. These options give you the possibility to freely shape the terrain relief by accurately reflecting the designed and actual conditions of the site where the designed building is to be placed.

As of now, ArCADia BIM system 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 new version of the program, the terrain initially inserted by spot height or by spot height lines can be further edited, as well as pools, vegetation and ponds can be added. These options are available

Basics of Application operation

in the ArCADia-LANDSCAPE ARCHITECTURE module. These options are described in the ArCADia-LANDSCAPE ARCHITECTURE help file.

Activation:

- *Terrain* ribbon ⇒ logical group *Terrain* ⇒  *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.

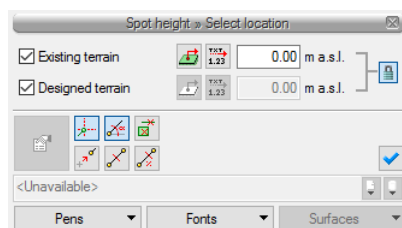



Fig. 137. Inserting Benchmarks dialog box

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.

From area – 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 surface 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 surface, 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).

Basics of Application operation

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.

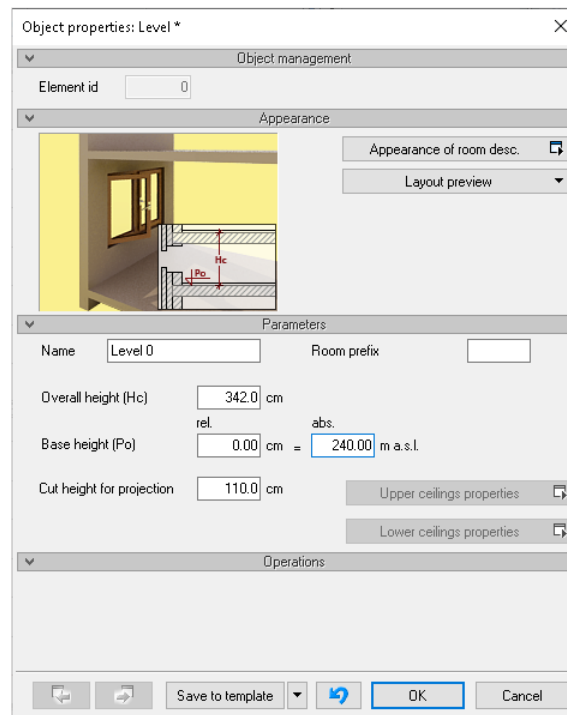


Fig. 138. Level properties dialog box

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

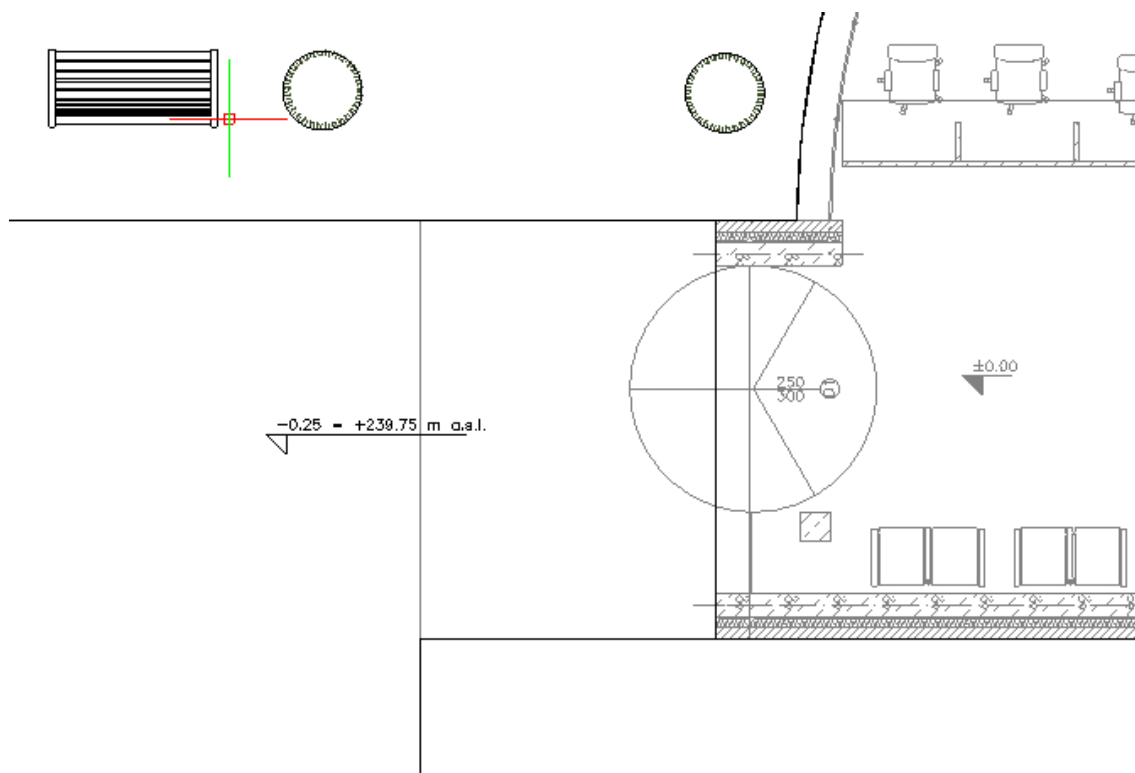




Fig. 139. Sample project with height description

2.8.1. Inserting spot height

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

Activation:

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

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

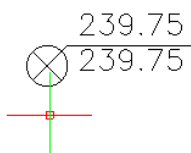


Fig. 140. Benchmark for on the drawing

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.

Basics of Application operation

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

Each spot height may be re-edited, changing its height or e.g., panning it. Below you can see the [Item properties: Spot height](#) window.

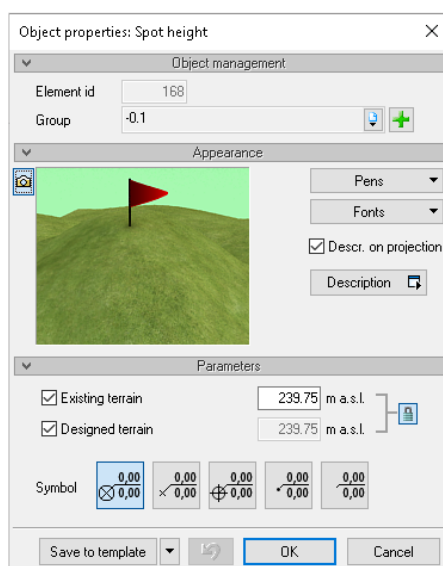


Fig. 141. Spot height properties window

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).

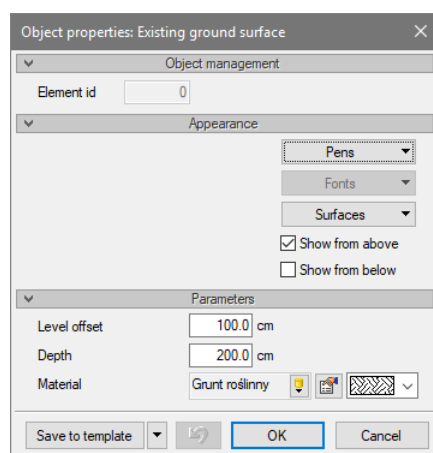




Fig. 142. Terrain properties window

Basics of Application operation

2.8.2. 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.

Activation:

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

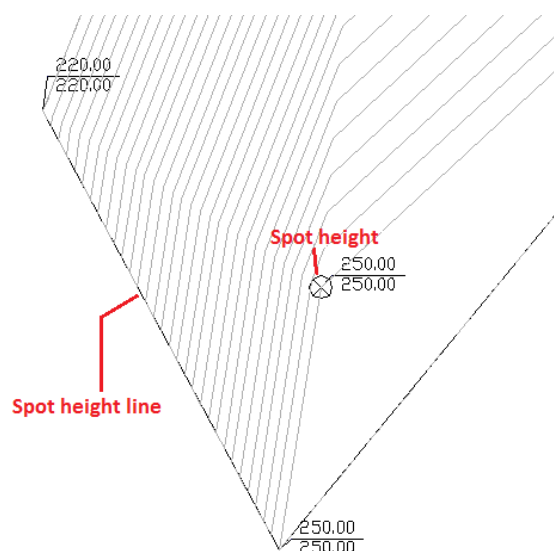


Fig. 143. Terrain elements on the projection

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.

Basics of Application operation

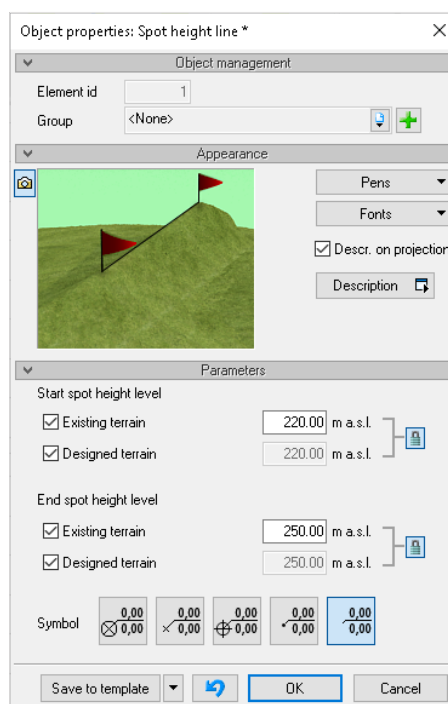



Fig. 144. Spot height line properties window

NOTE: When you enter the second spot height line, the terrain plane (existing, planned, 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).

2.8.3. 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:

- **Terrain** ribbon ⇒ logical group **Terrain** ⇒  **Automatic cut in the field**
- **ArCADia-TERRAIN** toolbar ⇒  **Insert automatic cut in the field**

2.8.4. 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.

Basics of Application operation

2.8.4.1. 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:

- *Terrain* ribbon ⇒ logical group *Supplementary elements* ⇒  *Outside pipe*
- *ArCADia-TERRAIN* toolbar ⇒  *Insert outside pipe*

2.8.4.2. 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:

- *Terrain* ribbon ⇒ logical group *Supplementary elements* ⇒  *Outside object*
- *ArCADia-TERRAIN* toolbar ⇒  *Insert outside object*

2.9. Inserting ArCADia system objects

New to the version is the data entry box pinned to the cursor. Thanks to which values and options selected are entered more clearly.

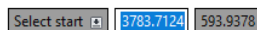




Fig. 145. Floating data entry window

Activation:

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

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.

2.9.1. 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*:

Basics of Application operation

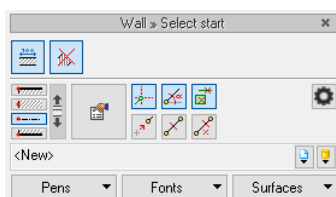


Fig. 146. Example of window displayed during the insertion of the Wall

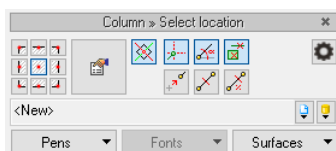


Fig. 147. Window displayed during chimney insertion

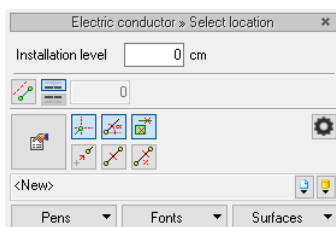


Fig. 148. Example of window displayed during the insertion of the Electric Wire

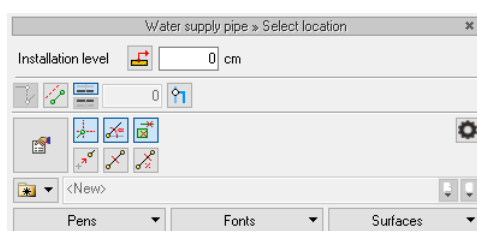








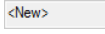



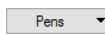
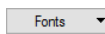
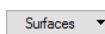
Fig. 149. Example of window displayed during the insertion of the Water Pipe

A detailed description of the functions is included in the help files available in modules, below there is a description of the options present when introducing most elements of the system.

Tab. 7. Options located in the inserting window

	<i>Go to Properties dialogue box</i>	Opens the <i>Properties</i> window for an item, e.g., <i>Wall</i> , <i>Electric Wire</i> , <i>Water Pipe</i> .
	<i>Insert with rotation</i>	The option enabled by default allows you to indicate the angle when inserting elements: <i>columns</i> , <i>chimneys</i> , <i>2D</i> and <i>3D objects</i> , <i>lighting fixtures</i> , etc. 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 and edge of the inserted element it will display a straight line extending the detected edge.

Basics of Application operation

	<i>Tracking angles</i>	This option displays the selected angles set from the existing elements in the project.
	<i>Detecting elements</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>Type</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 surfaces of the inserted element.

Additional options to facilitate drawing are available after launching the option of inserting an element (eg *Insert a wall*, *Insert window*, etc.) in the insert window, in the prompt box or in the command area. These options are available for all architectural elements.

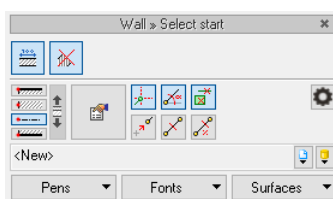


Fig. 150. Insertion window

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



Fig. 151. Floating data entry window

Basics of Application operation

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.

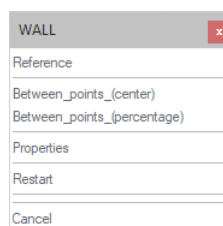


Fig. 152. Prompt Box disabled by default

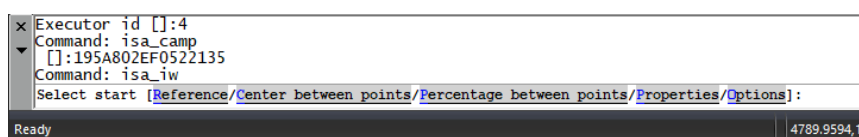


Fig. 153. Command Area

In the command area, selected letters and numbers, commands, aliases and keyboard shortcuts are entered.

2.9.1.1. 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 *Window*, then you select or determine the type and click *Reference* located in the insertion toolbar, the reporting window or command area.

Basics of Application operation

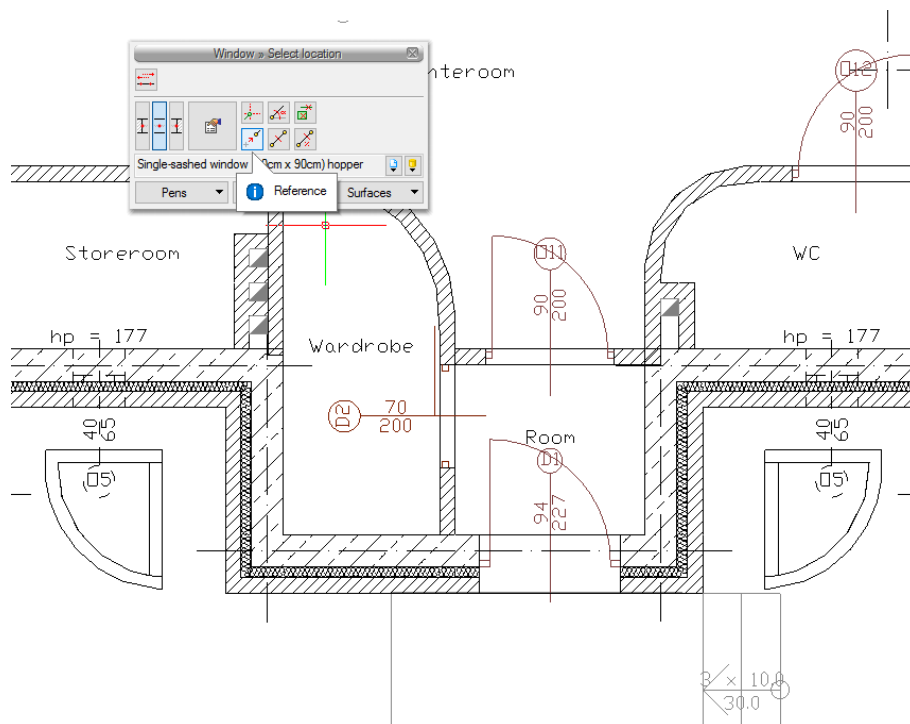


Fig. 154. Enabling the reference options

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

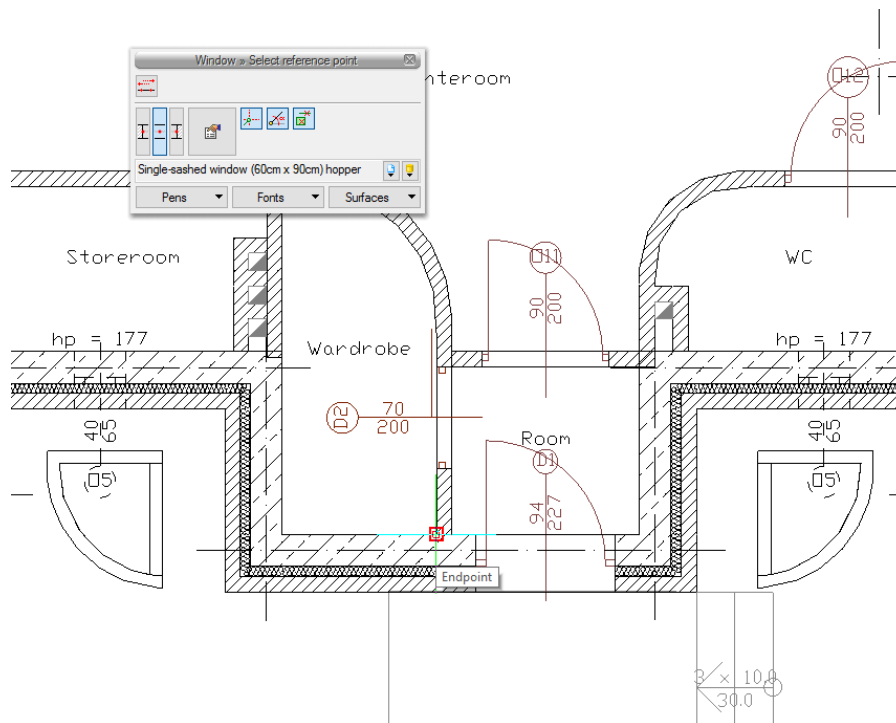


Fig. 155. Setting the reference point

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.

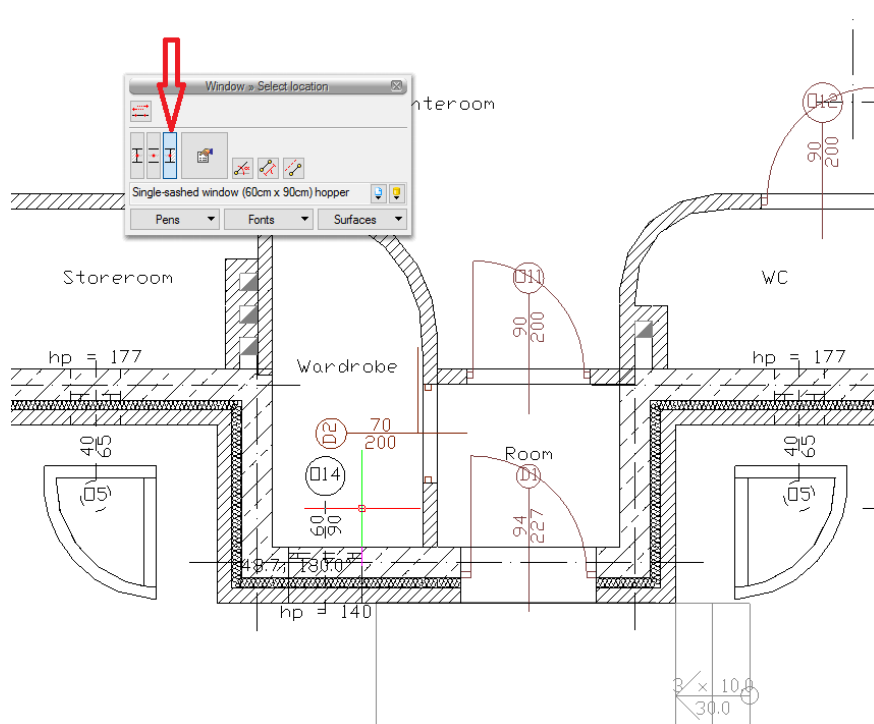


Fig. 156. Setting the direction and the edges of the inserted window

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

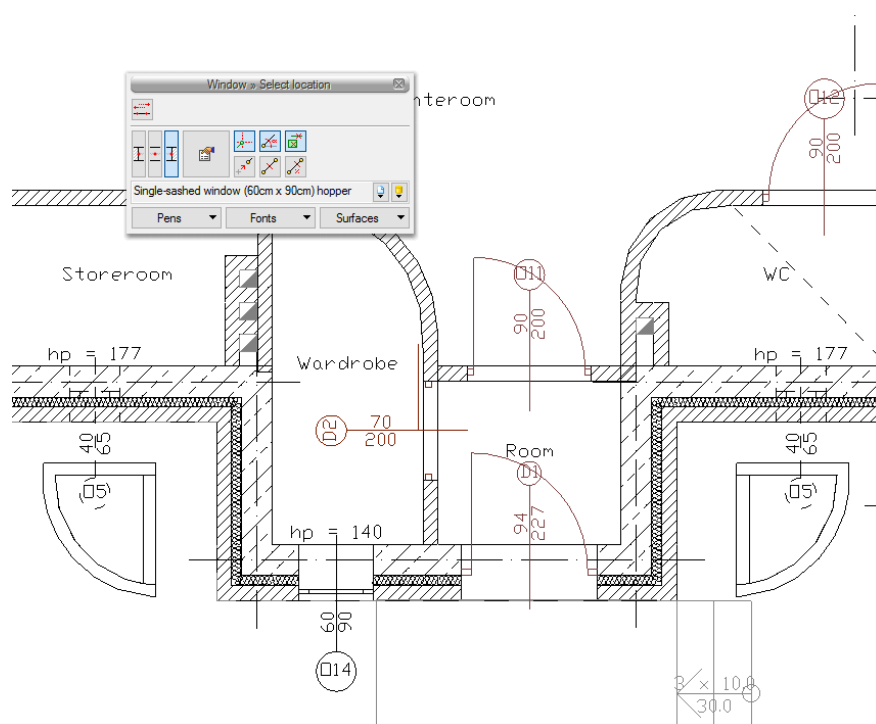


Fig. 157. Inserted window

2.9.1.2. 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 *Insert window* options (balcony door) you need to select *Between points (centre)* in the insertion toolbar, in the reporting window or in the command area and indicate the beginning and end of the wall.

2.9.1.3. 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 *Insert window* option, defining the window type and selecting the *Between points (percentage)* option in the insertion toolbar.

Basics of Application operation

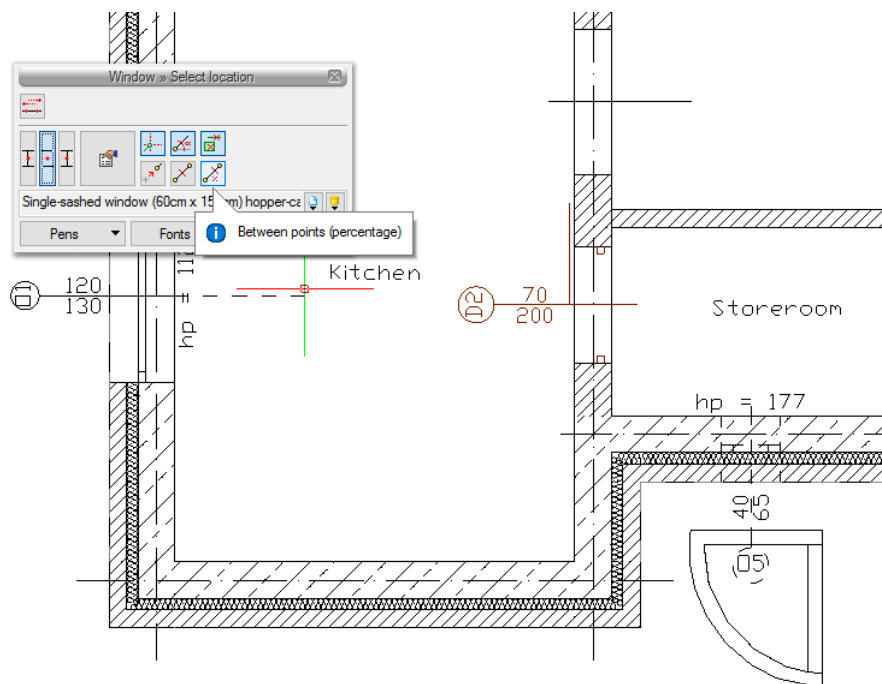


Fig. 158. Selection of inserting options

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.

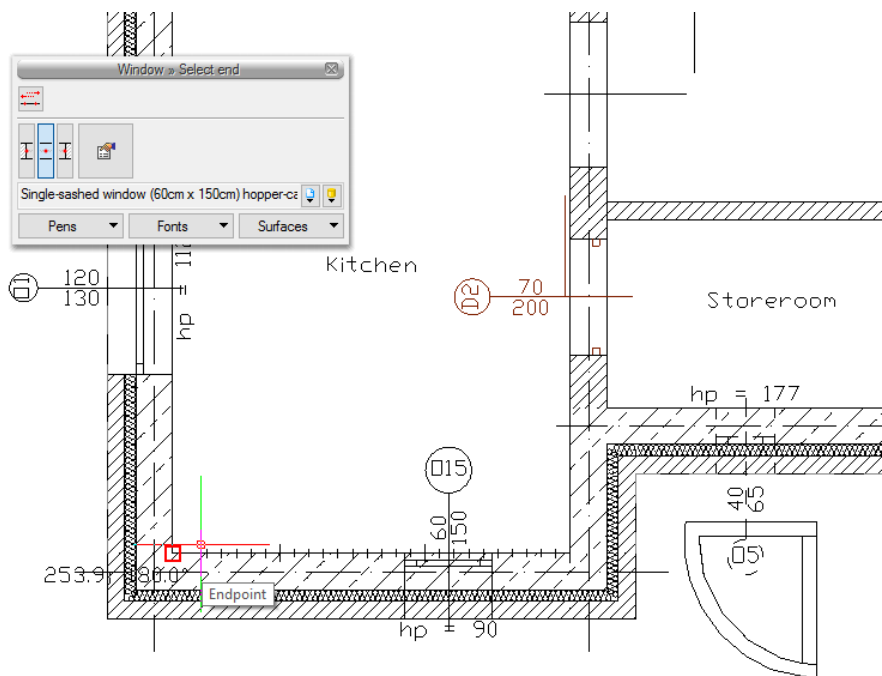


Fig. 159. Designating the insertion section

Basics of Application operation

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.

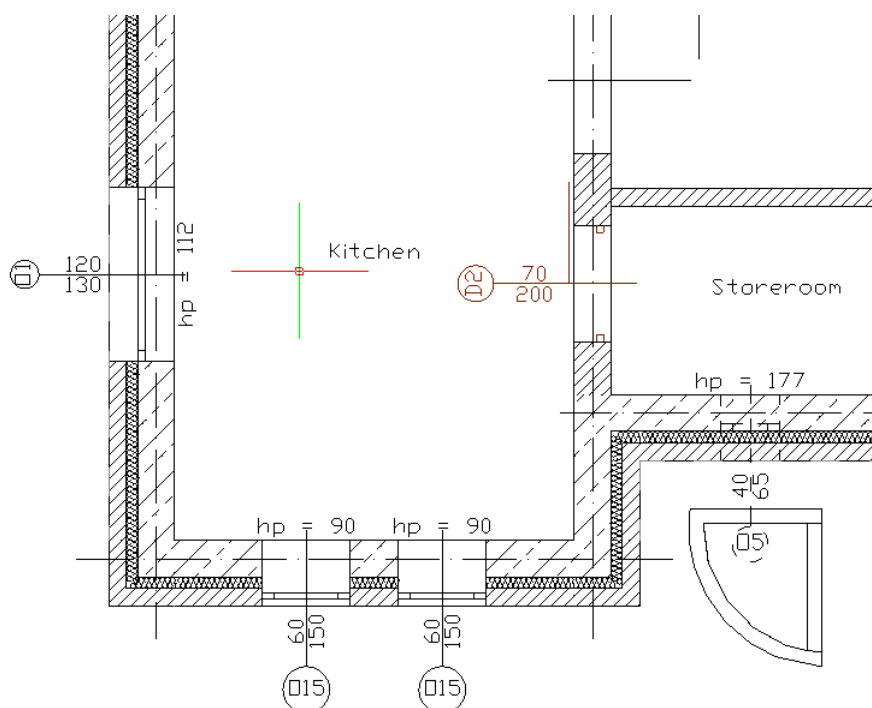


Fig. 160. Inserted Windows

2.9.1.4. 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 toolbar.

Basics of Application operation

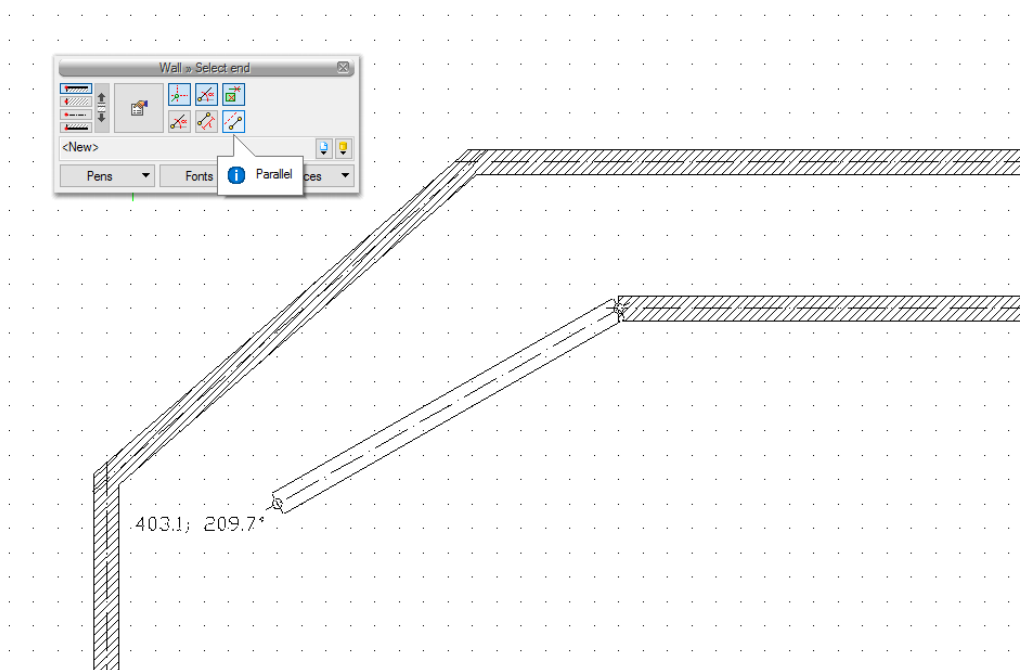


Fig. 161. Drawing a parallel wall

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

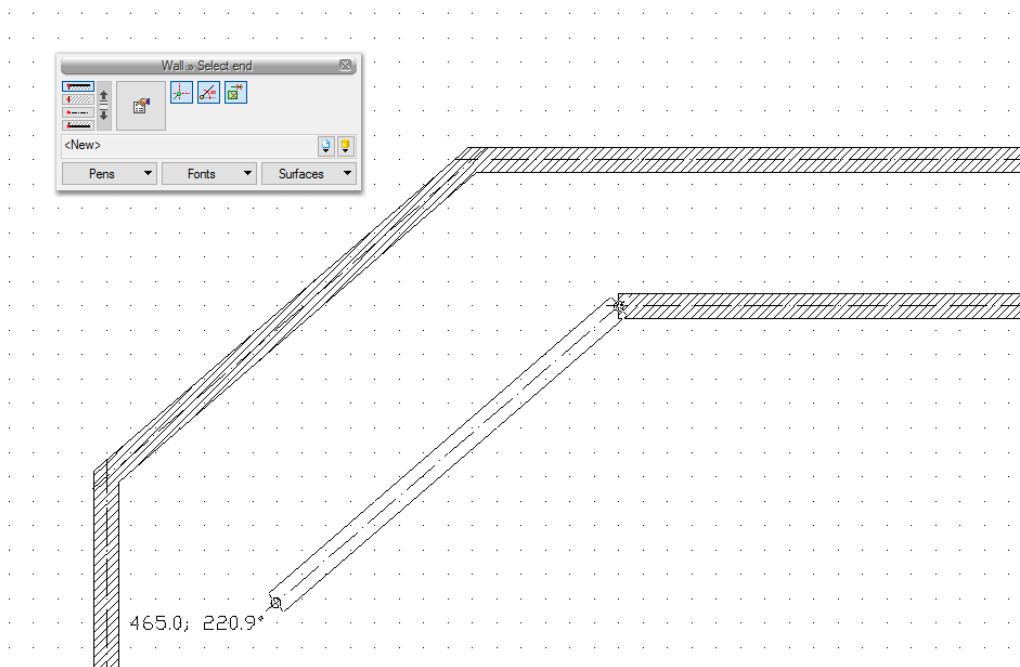


Fig. 162. Designating the parallel reference

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

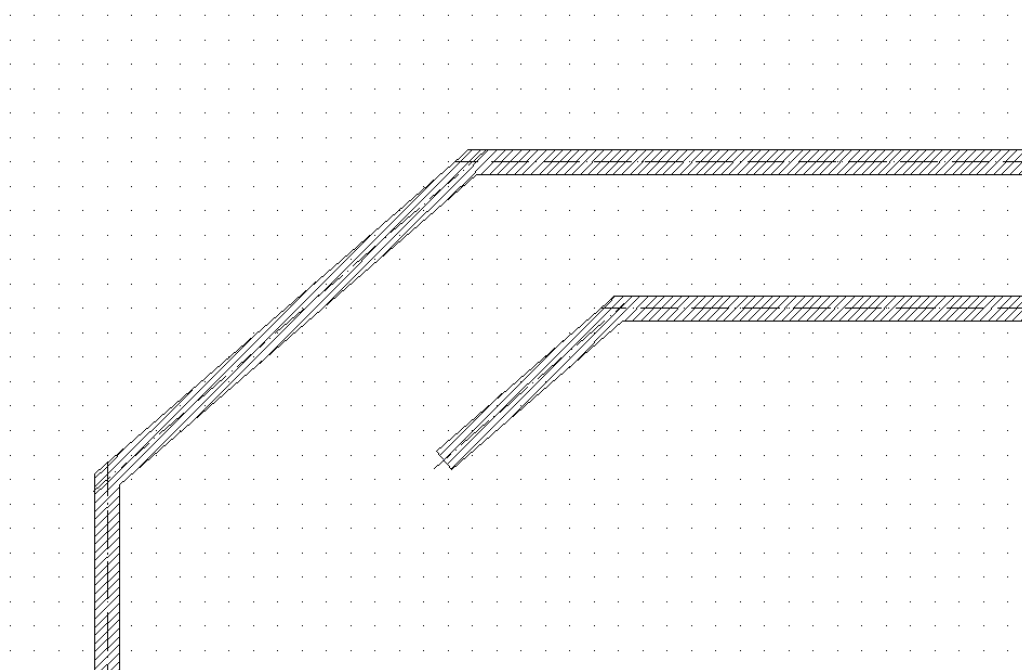


Fig. 163. Two Parallel walls

2.10. Edition window

Wall system elements introduced in the projection can be modified using the edition window option:




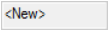



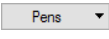
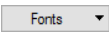
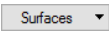


Fig. 164. Wall edition window

Tab. 8. Available wall edition tools

	<i>Properties</i>	It opens the <i>Properties</i> window.
	<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>Type painter</i>	It takes over the type of the wall, the layout and thickness of layers and moves them to the selected walls.
	<i>Extend/trim the wall</i>	Changes the length of the selected wall.
	<i>Split the wall</i>	Divides the wall at an indicated place.
	<i>Reversed layers order</i>	<i>Changes the locations of layers.</i>
	<i>Cancel element trimming to roof</i>	Removes wall trimming with the ceiling or roof.

Basics of Application operation

	<i>Extend up to this wall</i>	Extends the indicated walls to the originally marked one. You extend only the walls which meet the wall to which they are extended.
	<i>Shorten to this wall</i>	Shortens the indicated walls to the originally marked one, by shorter sections going beyond the marked wall.
	<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 przez 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>Close</i>	Leaves the option, not changing the element.
	<i>Markers</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 surfaces of the introduced element.

2.11. 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:

- *Document 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.

Basics of Application operation

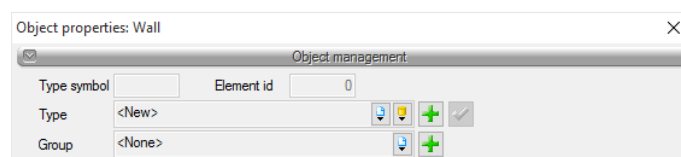


Fig. 165. Type manager when no type is active

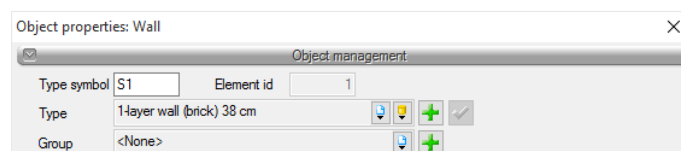


Fig. 166. Type manager when a type is active

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.

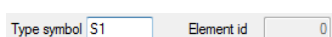


Fig. 167. Type symbol field



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**.

Basics of Application operation

2.11.1. Type Library

Activation:

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

Displays the *Type Library* dialogue box.

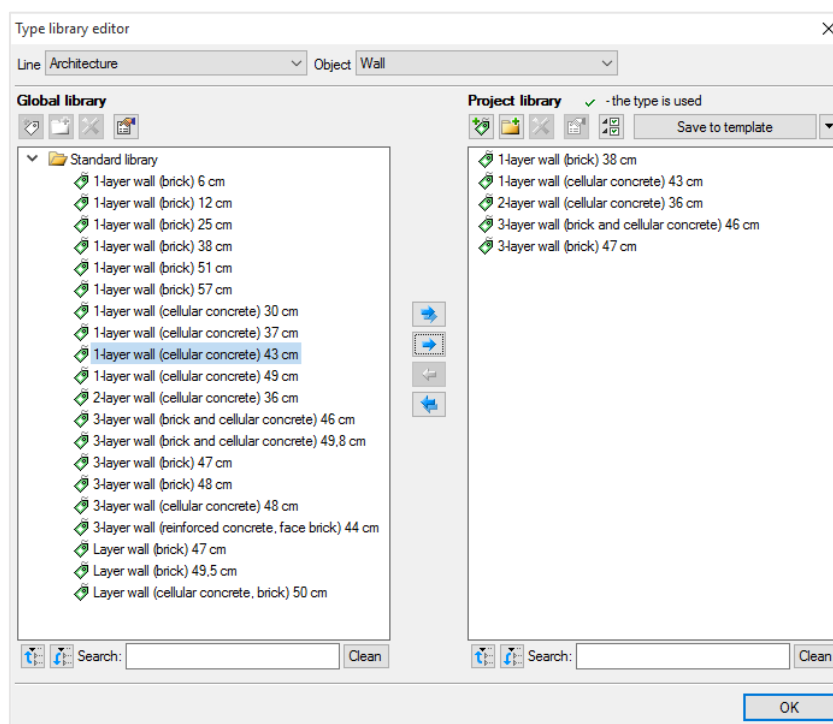


Fig. 168. Type library window

The *Type Library* is used to edit and introduce new item types into the ArCADia BIM 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 BIM are listed.

Basics of Application operation

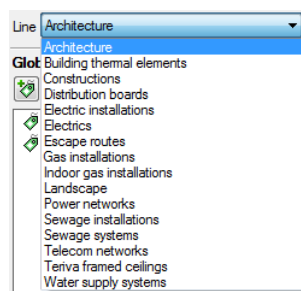


Fig. 169. Branch List

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

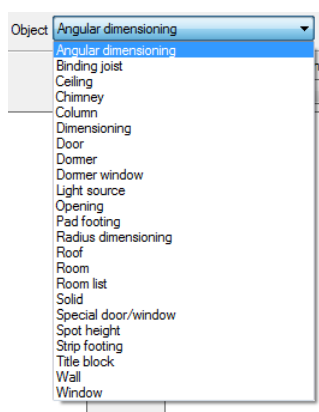


Fig. 170. Architecture branch element list

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.

Basics of Application operation

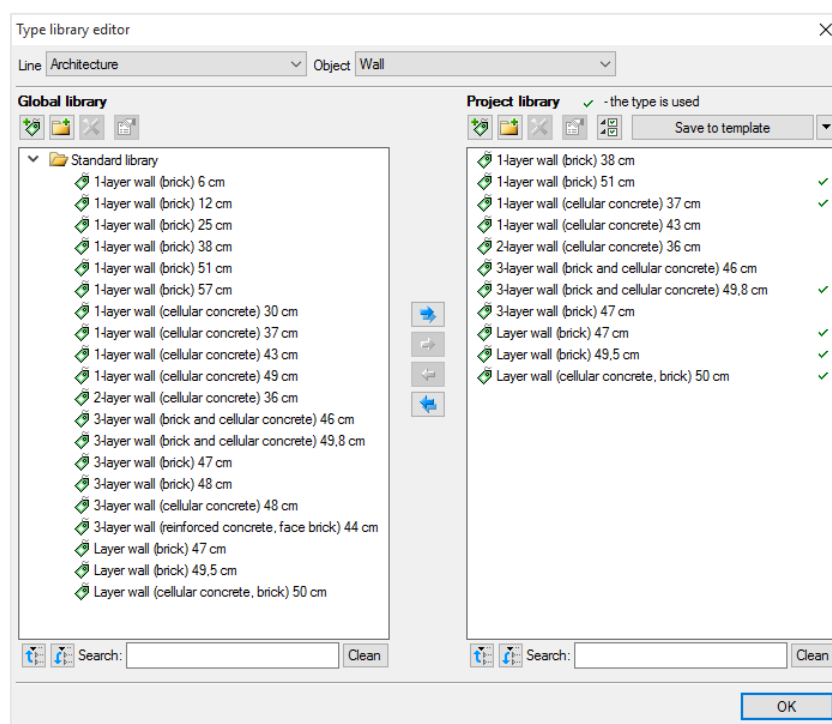


Fig. 171. Type library window

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.

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.

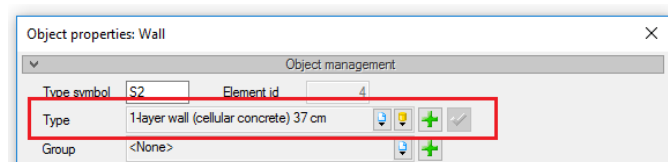


Fig. 172. Fragment of the properties window with the Type selection field marked

Basics of Application operation

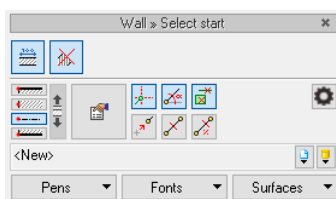







Fig. 173. The Insert window for a wall, where you can also get access to the project type library

Tab. 9. Tools for adding and editing types.

	<i>Add New Type</i>	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.
	<i>Add New folder</i>	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 <input type="button" value="OK"/> button in order to add the folder to the library or <input type="button" value="Cancel"/> to cancel the command.
	<i>Delete</i>	Deletes selected type (option unavailable in the <i>Global library</i> in <i>Standard library</i> part).
	<i>Type properties</i>	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>).
	<i>Leave only the types used in the project</i>	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

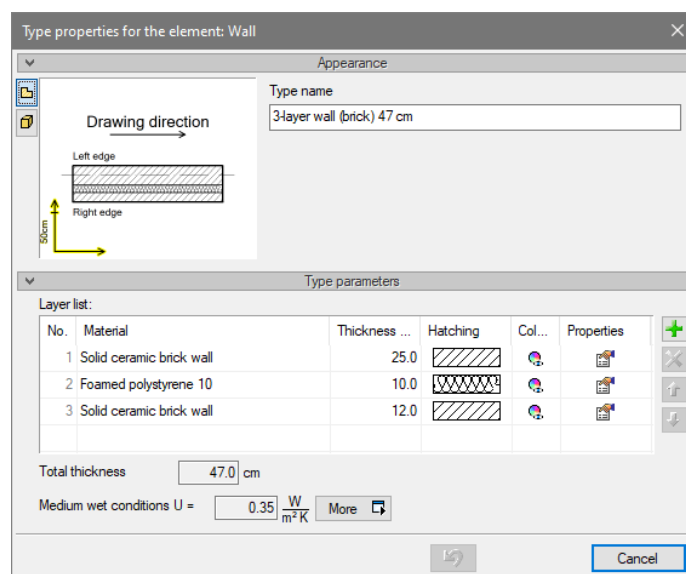


Fig. 174. Wall element type window

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.

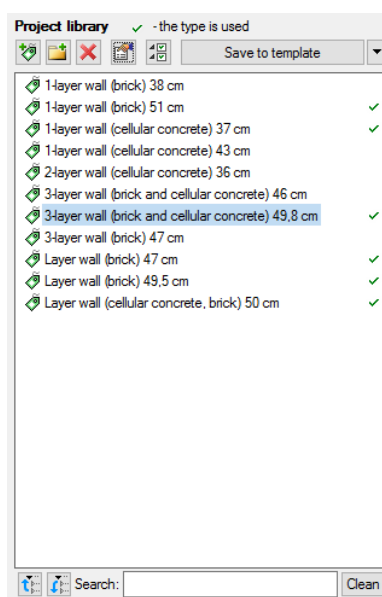



Fig. 175. List of defined wall types in the sample project

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.

Basics of Application operation

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.

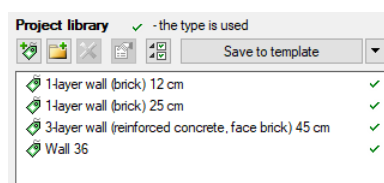







Fig. 176. List of wall types used in the sample project


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  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:

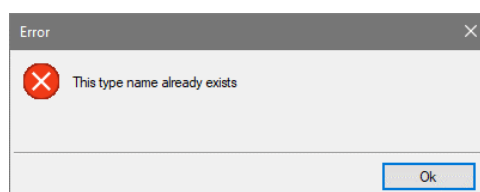


Fig. 177. Message about finding similar type

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.

Basics of Application operation

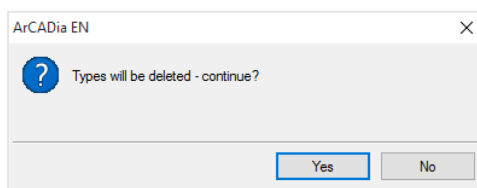


Fig. 178. Message confirming the deletion of the element types from the library

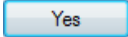
This message informs that the types marked by the user were removed. The  button confirms type deletion.





Fig. 179. This message informs that the layout of the project library was saved to a project template, e.g., ARCHITECTURE

2.11.1.1. Changing element type

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

Activation:

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

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

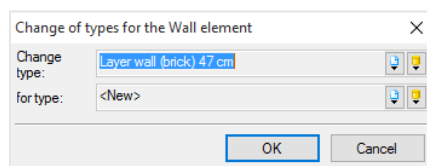


Fig. 180. Type change window for wall element

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.

Basics of Application operation

2.12. 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 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:

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

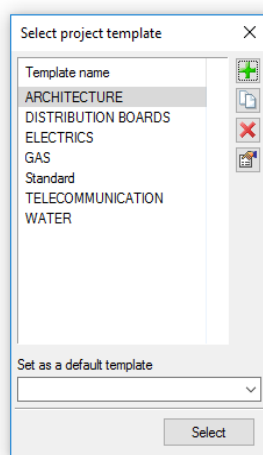






Fig. 181. Template selection window

Tab. 10. Template management options

	<i>Add template</i>	Adds a new template.
	<i>Create template copy</i>	Copies the template along with all the parameters.

Basics of Application operation

	Delete template	Removes the selected template.
	Template properties	Opens the Template properties window.

[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.

2.13. Setting drawing units

The drawings created with ArCADia BIM 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.

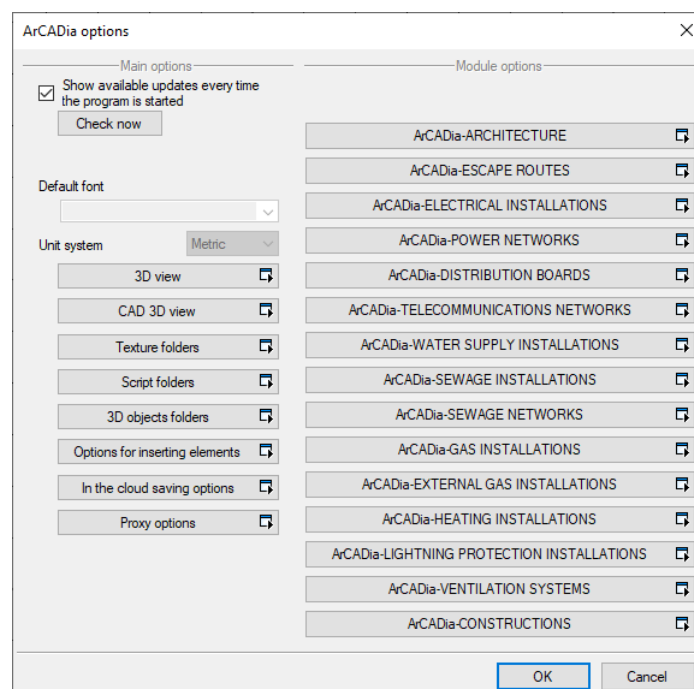


Fig. 182. Options window with metric system of units set

Basics of Application operation

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.

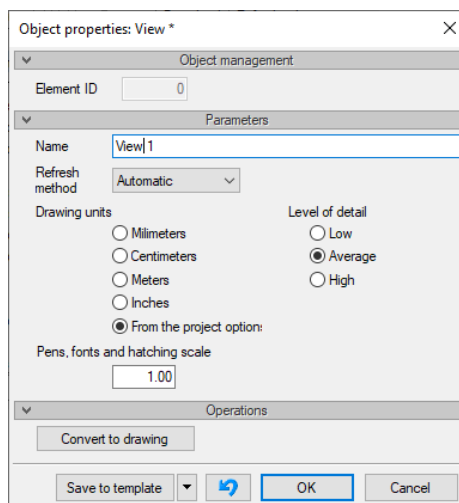


Fig. 183. View properties window

If the *Drawing Units* 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..

2.14. 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* ⇒ *Layouts* tab

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

Basics of Application operation

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.

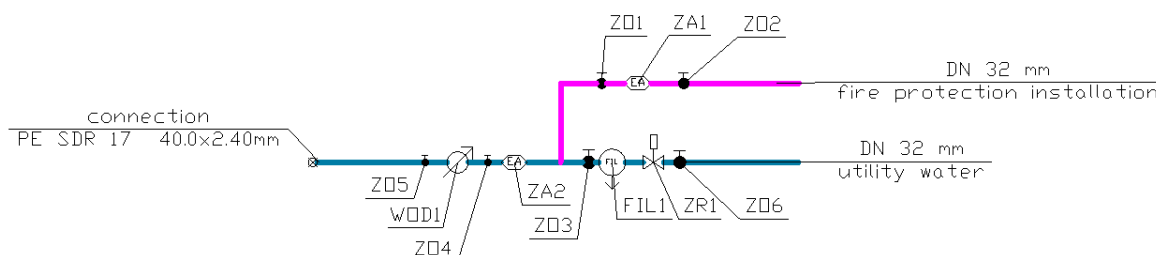


Fig. 184. Drawing elements before saving a layout

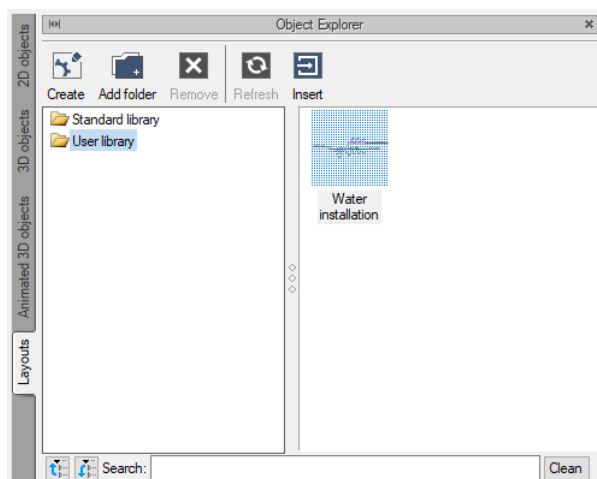


Fig. 185. Saved layout

2.14.1. In order to introduce the layout to the drawing

Activation:

- **Object explorer** => **Layouts** tab
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.

2.15. Pens

It is possible to assign colour, type and thickness of the line to each element of ArCADia BIM Application, i.e. type of pen. Pens can be assigned globally for the entire level, so that all the elements

Basics of Application operation

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 layer, supporting structure axis of wall and outline of trimmed wall, e.g., by the roof.

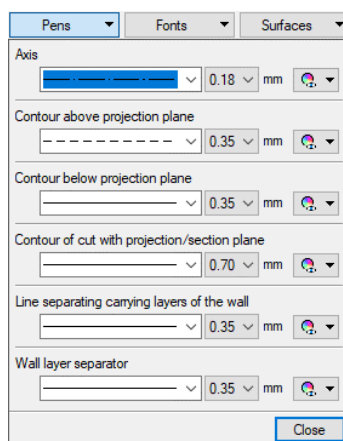


Fig. 186. List of pens for wall element

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.

Hatching pen thicknesses, i.e. the markings of materials, are available in the *Project Manager* window through the element group colour icon.

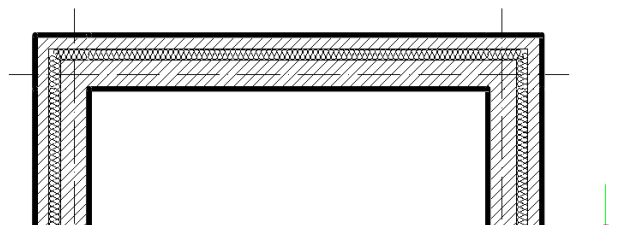


Fig. 187. Wall with the intersection outline pen with the projection/cross-section plane at 0.5 and the line separating the load-bearing layer of the wall at 0.18 (like other pens)

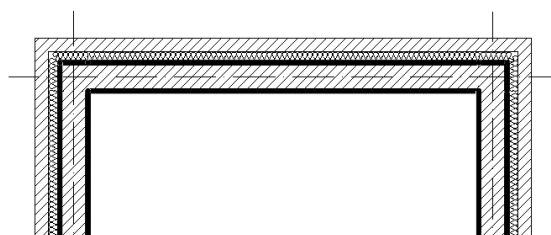


Fig. 188. Wall with the pen of line separating the wall load-bearing layer at 0.5 and the line separating the load-bearing layer of the wall at 0.18 (like other pens)

Basics of Application operation

Thicknesses of hatching pens, i.e., material markings are available in the *Project Manager* window from the element group colour element.

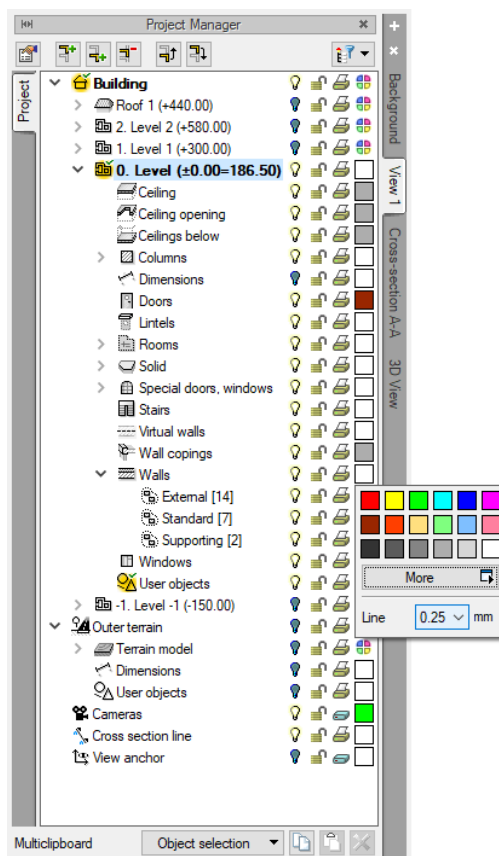


Fig. 189. Wall hatching pen thickness change

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

2.16. Fonts

Each element with a description, e.g., window – description bubble provides access to font settings in *Properties* dialogue box.

Basics of Application operation

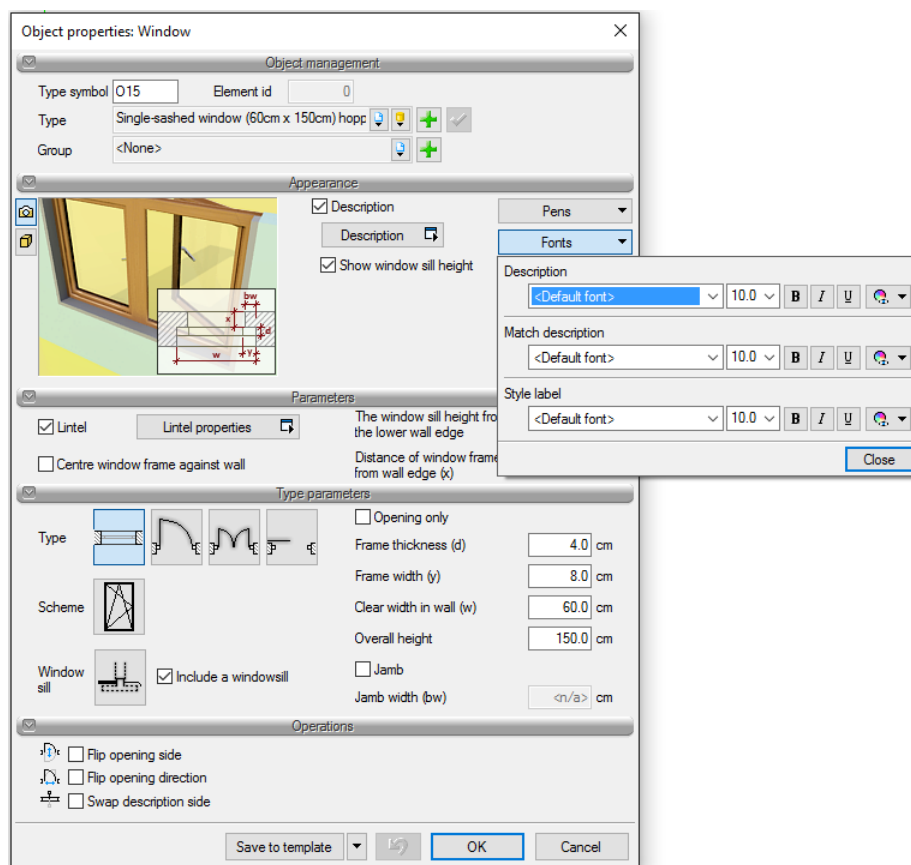


Fig. 190. Window properties dialog box with extended description fonts

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

Options



3. OPTIONS

Options

3.1. 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:

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

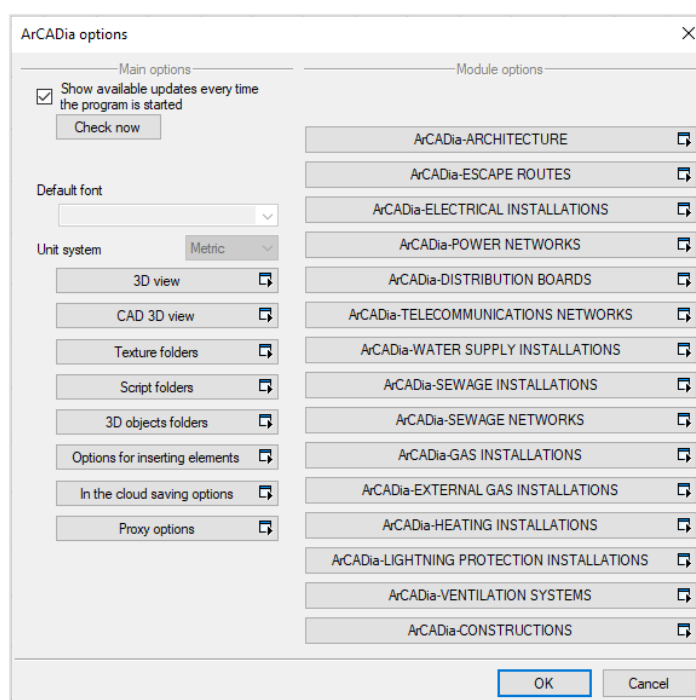



Fig. 191. ArCADia Options dialog box



3.1.1. 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 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.

Options

Activation:

- *Manage* ribbon ⇒ logical group *Options* ⇒  *Options* ⇒ *3D view*
- *ArCADia-SYSTEM* toolbar ⇒  *Options* ⇒ *3D view*

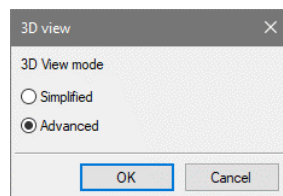


Fig. 192. Window of changing 3D view mode

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).

3.1.2. 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).



Fig. 193. Sample project in the CAD 3D view

Options

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

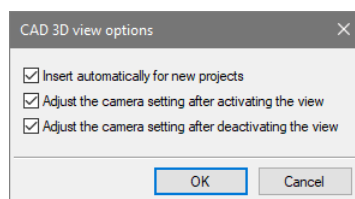


Fig. 194. Window with settings of the CAD 3D view

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.

3.1.3. 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.

The ArCADia-ARCHITECTURE module offers the possibility of importing .aco objects from ArCon software. These objects are saved with the information on the texture of a given object (i.e. whether the texture is not saved in the object). Therefore, what is important is that before importing the first object or project from ArCon software, you input in the *Texture folders* the path to the *Textures* catalogue in the installed ArCon software. Otherwise, introduced objects will be downloaded and saved to the library without textures.

Options

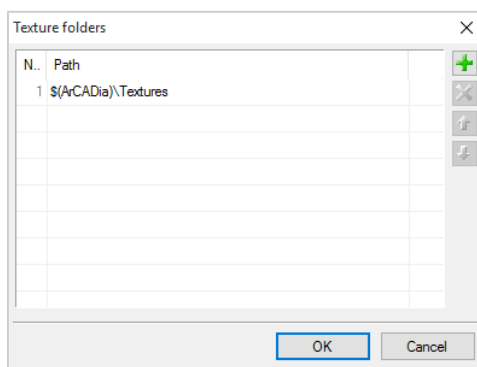


Fig. 195. Path options dialog box

3.1.4. 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 floating 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.

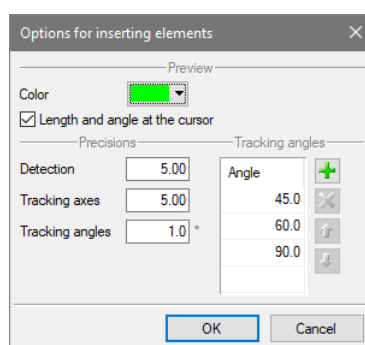


Fig. 196. Tracking Options and element insertion dialog box

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.

Options

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.

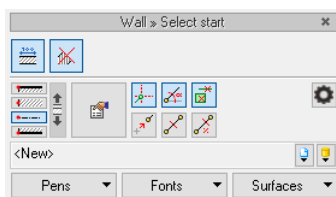


Fig. 197. Example of wall insertion window

Tab. 11. 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 and 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>Options for inserting elements</i>	Brings up the settings window.

Options

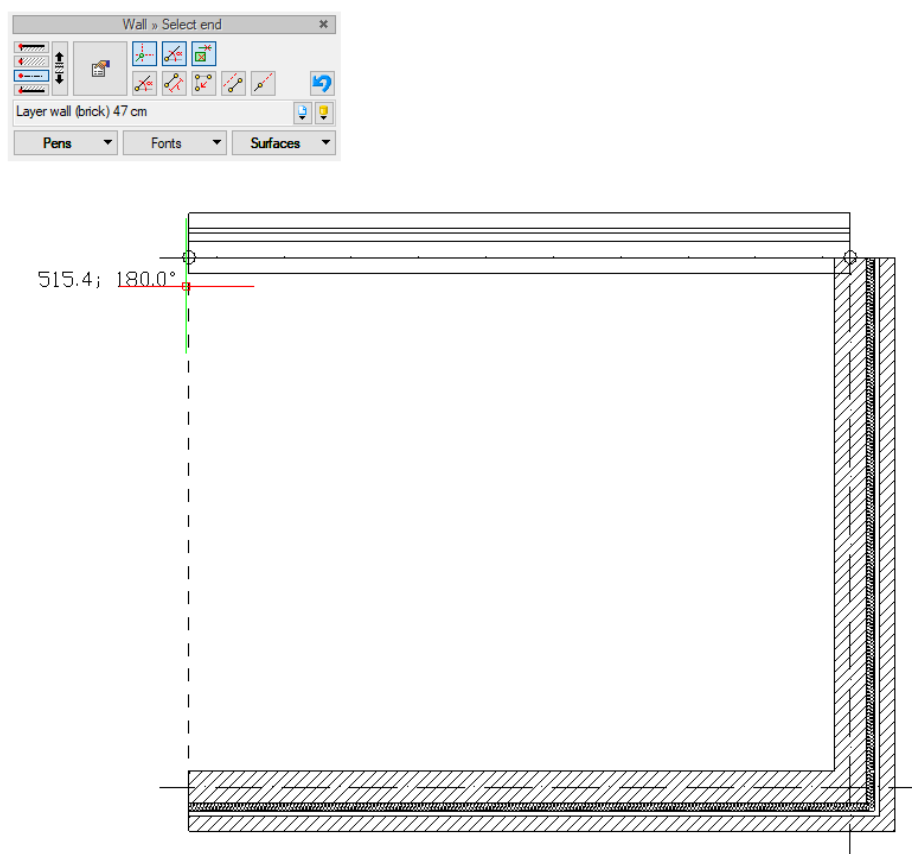


Fig. 198. Example of drawing walls with tracking axes option disabled

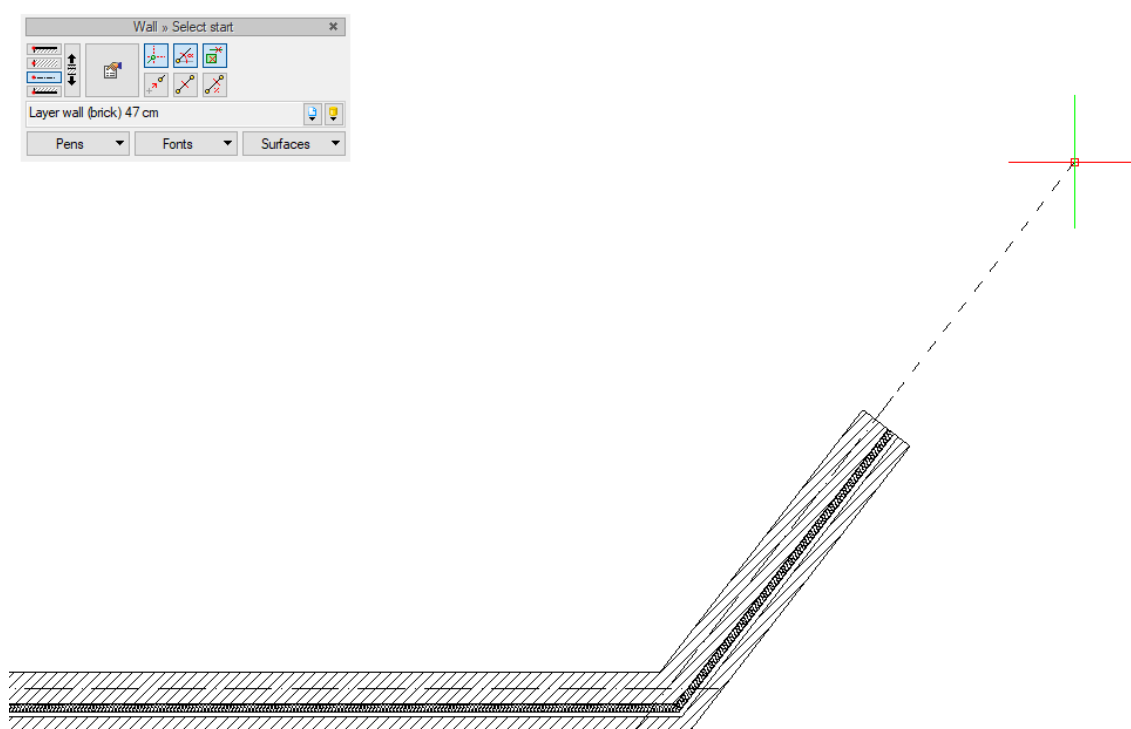


Fig. 199. Example of drawing walls with tracking axes option enabled

Options

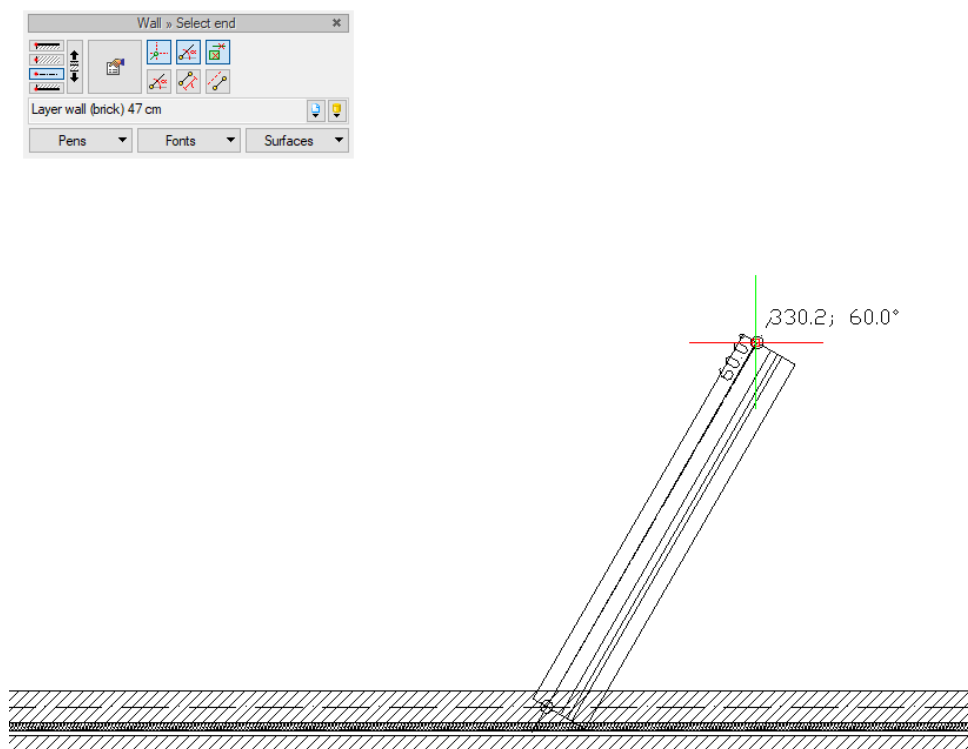


Fig. 200. Example of drawing walls with tracking axes and tracking angles options enabled

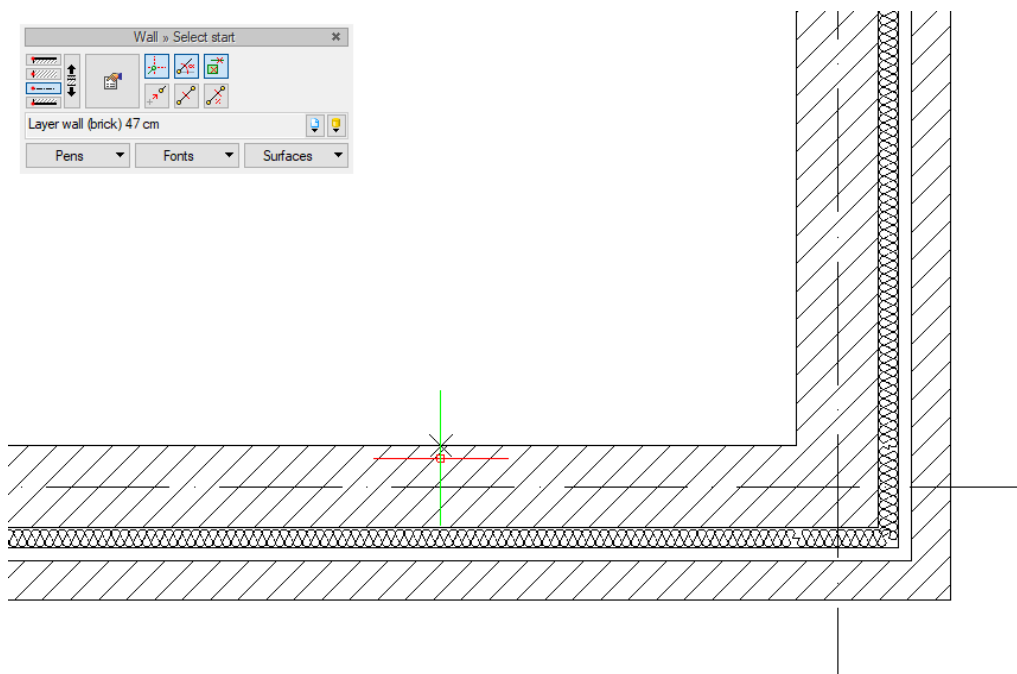


Fig. 201. Example of drawing walls with elements detection enabled

Options

3.1.4.1. Saving in the cloud options

The ArCADia-3D MAKER module has the ability to save the project presentation in the cloud, thanks to it, a 3D project model can be viewed from any mobile device without having to have the ArCADia program on this device.

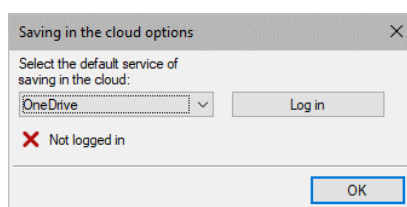


Fig. 202. Saving in the cloud window

The above window will be displayed after clicking the *Save in the cloud option* from the *Options* window. If there is a message about the lack of a connection with the server before displaying that window, the message *No authorization* appears in the lower part of the window. In that case the Internet access should be checked.

In the above window, we can choose one of the available servers: *OneDrive*, *Google Disc* or *Dropbox*. After the selection, click the *Authorize* button and go to the login window in which you must allow the application to save the presentation in the cloud. After logging in you will be able to save the project.

Changing the saving in the cloud service, i.e. replacing the default server, the saving is done in the above window accessible from the *Options* window. The project presentation saving is available in the *Collaboration* ribbon and is described in the *Saving presentation in the cloud* chapter.

If despite having Internet access, the program cannot obtain authorization, the settings must be changed in the *Proxy Options* window. If you do not know them, please contact your network administrator.

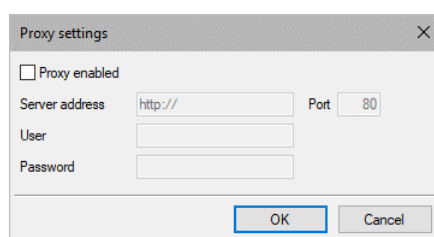



Fig. 203. Changing Proxy Options window

3.2. Material library editor

The material library is an editable item, available in the ArCADia-ARCHITECTURE module.

Activation:

- *Manage* ribbon ⇒ logic group *Libraries* ⇒  *Materials*

Options

- *ArCADia-SYSTEM* toolbar  *Material database*

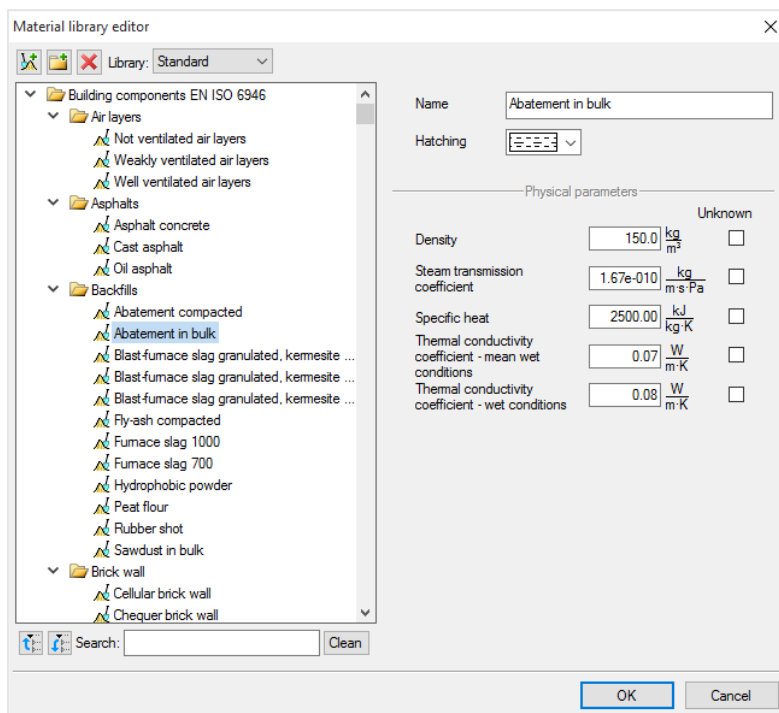





Fig. 204. Material library editor dialogue box

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

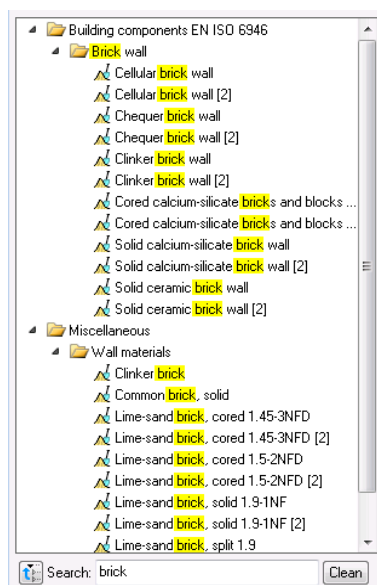


Fig. 205. Searching for materials by inserting key words

3.3. 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.

NOTE: if the project is to be opened in the older version of ArCADia, it should be flattened before this operation. Only after removing all system elements (with the mentioned Flatten option), leaving only a flat drawing, can the project be opened in the older version.

Activation:

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

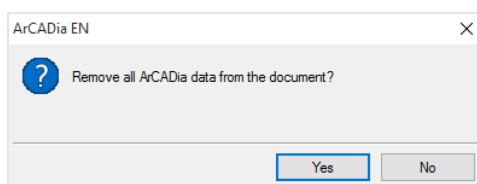


Fig. 206. Question confirming the flattening of the project

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



Options

editing with ArCADia options, you would not be able e.g., to shorten a wall, since it was broken down 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.

3.4. 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:

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

Objects

4. 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.

4.1. 2D objects in the projection

4.1.1. 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:

- *Insert* ribbon ⇒ logic group *Insert* ⇒  *Object Explorer* ⇒ tab *2D objects*
- *ArCADia-SYSTEM* toolbar ⇒  *Insert object Explorer* ⇒ tab *2D objects*

On activation the below object file selection window will be displayed:

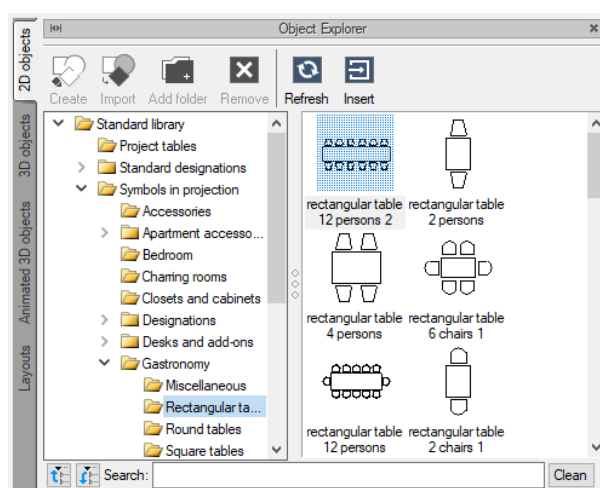


Fig. 207. Software library, 2D objects tab

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.

Objects

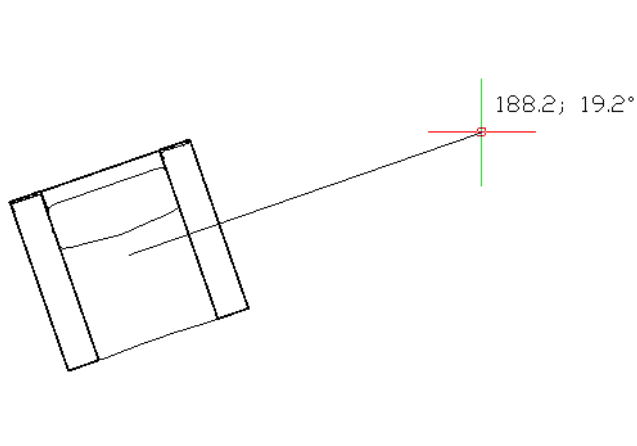


Fig. 208. 3D object insertion

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:

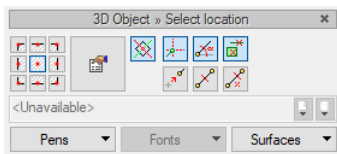


Fig. 209. Object insertion window

Before inserting the object, the *Object properties* window can be activated:

Objects

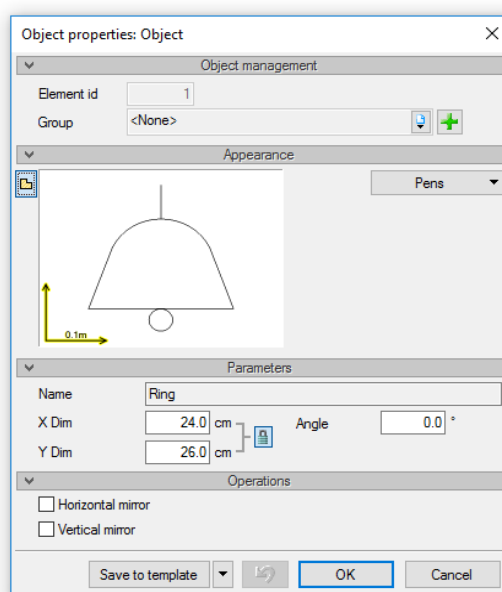


Fig. 210. 2D objects properties window

The following parameters can be defined in the window:

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.
- *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.

Objects

- *Inserting elements options* – opens the track and underlay settings window. More detailed description of this window can be found in the *Options* chapter.
- *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).

4.1.2. 2D symbol editing

2D elements may be modified by copying, moving or deleting. Additionally, the following are available on the edit toolbar:

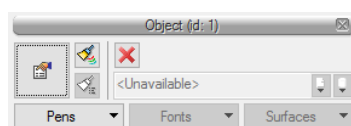






Fig. 211. 2D object editing window


Tab. 12. 2D object modification tools

	<i>Go to Properties dialog box</i>	Opens <i>Properties</i> dialog box.
	<i>Font and pen painter</i>	Takes over the type of the floor slab and transfer it to the selected slabs.
	<i>Delete selected object</i>	Removes the selection.
	<i>Pens</i>	Definition of type of the lines with which the inserted element is drawn.

4.1.3. 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*

Objects

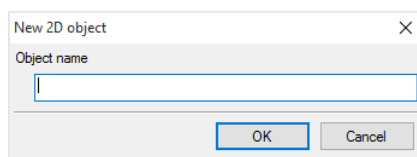


Fig. 212. Creating new 2D object window


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.

4.1.4. 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**

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. 213. Substitute preview of the 2d object

Objects

4.2. 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.

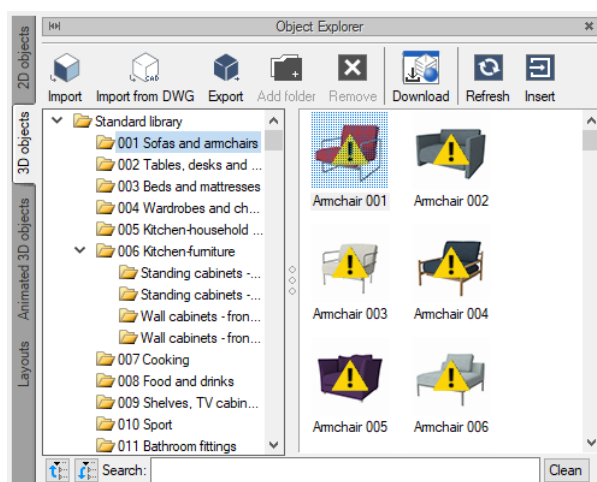




Fig. 214. 3D objects prior to downloading

Objects can be downloaded in accordance with the instructions in the *Additional content* chapter or by clicking on the icon  *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.

4.2.1. 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:

- *Insert* ribbon ⇒ logic group *Insert* ⇒  *Object Explorer* ⇒ tab *3D objects*
- *ArCADia-SYSTEM* toolbar ⇒  *Show Object Explorer* ⇒ tab *3D objects*

Objects

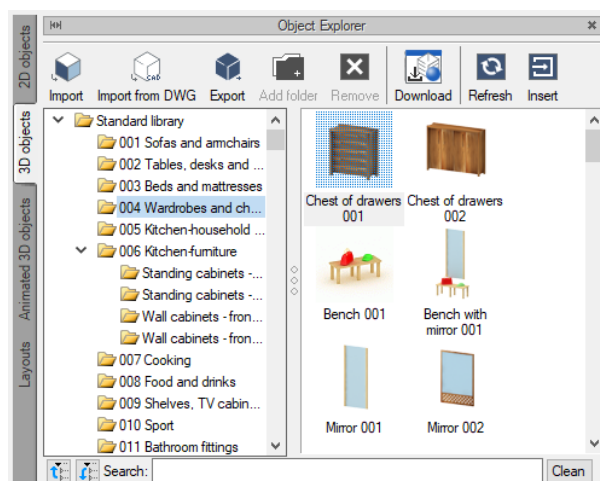


Fig. 215. Software library, 3D Objects tab

The selected element is highlighted by indication and then inserted in the Layout with the [Insert](#) button. You can also double-click the selected object (then you do not need to click on [Insert](#)). The location and angle of insertion on the view are 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, an option to create lists of 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.

4.2.2. 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.

Activation:

- [Insert](#) ribbon ⇒ logical group [Insert](#) ⇒  [Object explorer](#) ⇒ [Animated 3D objects](#)
- [ArCADia-SYSTEM](#) toolbar ⇒  [Show Object explorer](#) ⇒ [Animated 3D objects](#)

Objects

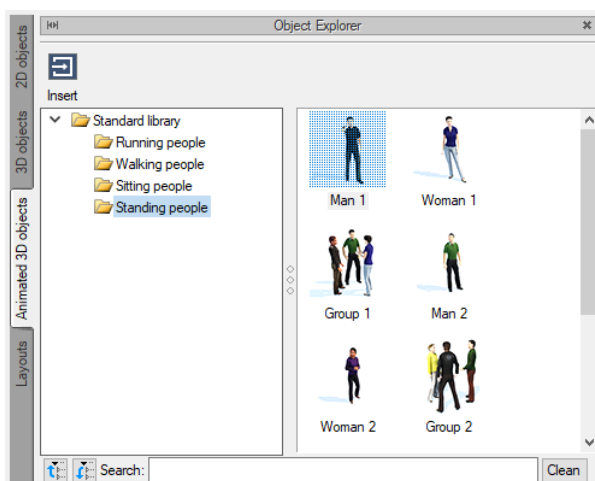


Fig. 216. Program library, animated objects

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

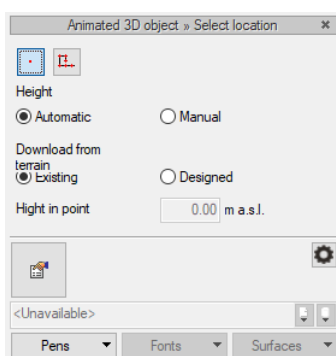


Fig. 217. Window for inserting 3D animated objects

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.

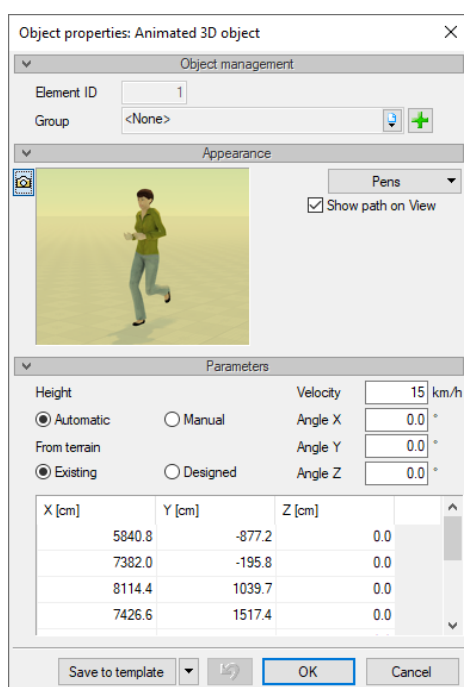


Fig. 218. The window of the animated object with a set path

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.

Objects

If it is an object that moves e.g., while walking, then the path will have as many rows filled in the table 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.

4.2.3. Editing static 3D objects

3D static elements are modified similarly to 2D symbols.

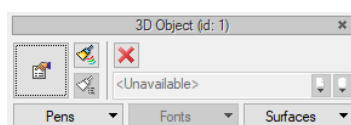


Fig. 219. Software library, 3D objects editing window

Tab. 13. 3D objects modification tools.

	<i>Go to Properties dialogue box</i>	Opens <i>Properties</i> dialog 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 object</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 surfaces 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

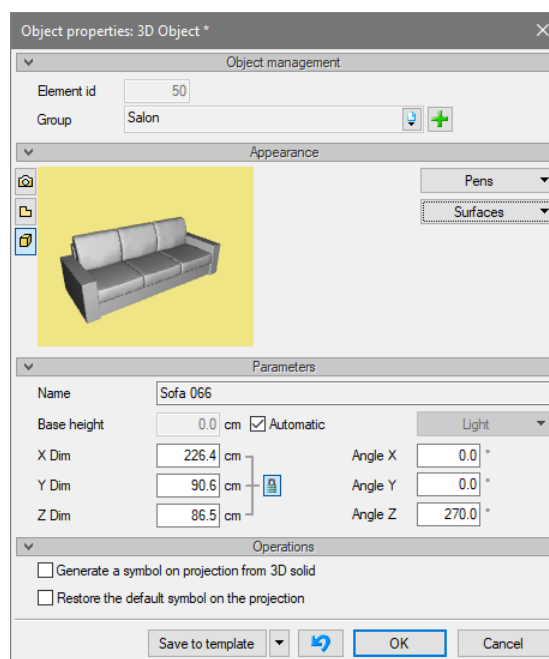


Fig. 220. 3D object properties window

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 a symbol on the projection from 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.

NOTE: To change the 3D object size only in one axis, e.g., height, click icon , letting you modify each value separately.

After saving in the library, the user-defined objects inserted as 3ds, .obj, o2c or aco files can be additionally modified in the *Object Explorer* window through the option *Properties* of the context menu.

Objects

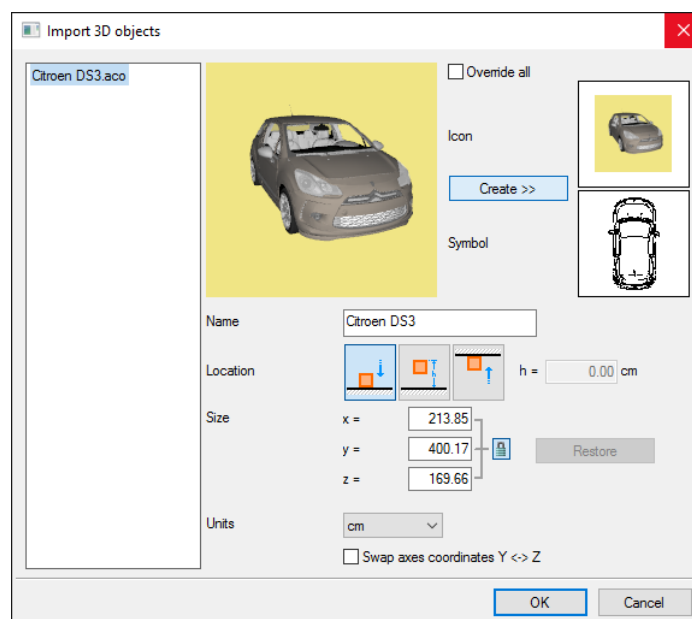


Fig. 221. 3D objects import window

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.

4.2.4. Saving the 3D objects

NOTE: Option available only in the ArCADia-ARCHITECTURE module.

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.

Objects

After selecting the option, mark the elements that are to create a new object and approve them by hitting *Enter* or right-clicking.

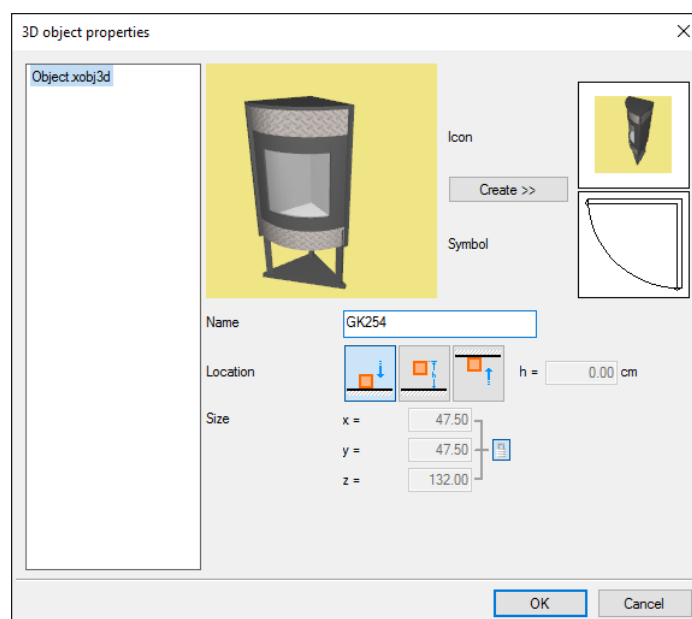


Fig. 222. Window of saving own object

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.


4.2.5. 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.

4.2.5.1. 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

Objects

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 3D DWG object*.

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*.

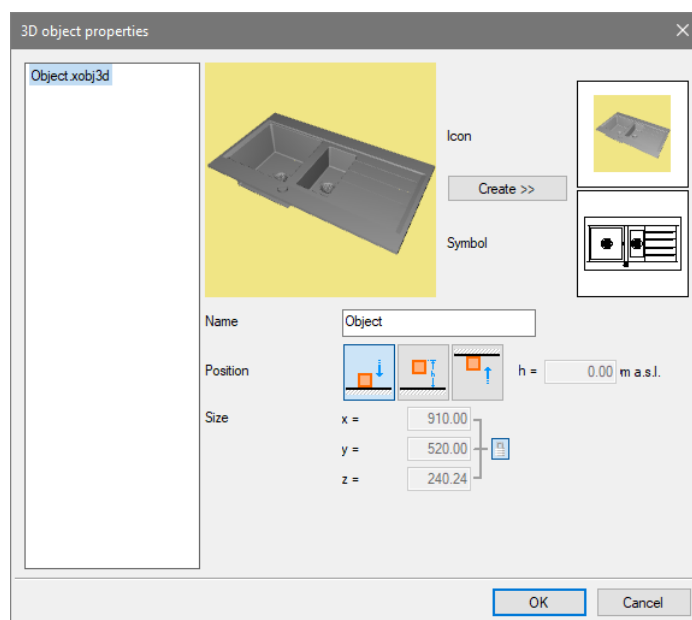


Fig. 223. A sample 3D object imported into a library

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.

Objects

4.2.5.2. 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, 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*

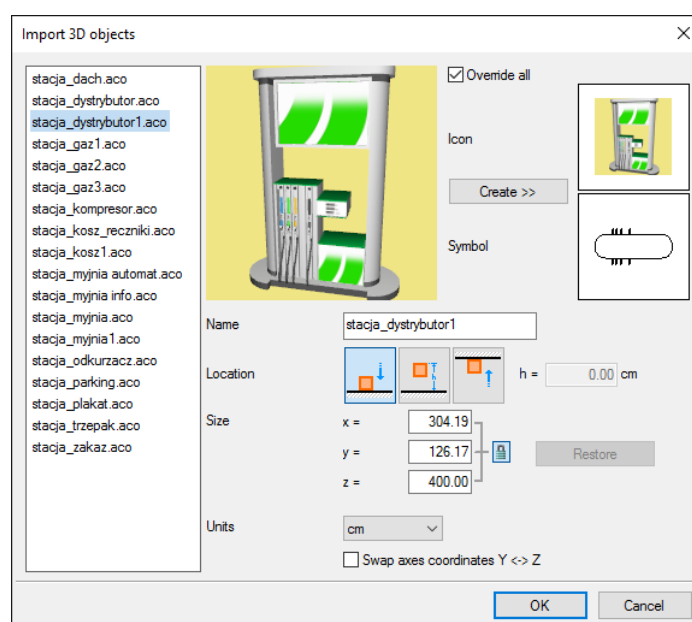


Fig. 224. 3D objects import window

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.

Objects

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.



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).

4.3. Saving a project with objects added to the library

If we have introduced our own 2D or 3D objects to the 3D object library and used them in a project that we want to transfer to another computer, then we have to transfer our own elements with the project. To do this, after saving the project, use the *Project package* option and move the created directory with the file with the same name as the project.

Activation:

- *Colaborate* ribbon ⇒ logic group *Export* ⇒  *Project package*
- *ArCADia-ARCHITECTURE* toolbar ⇒  *Create project package*

After transferring the project to another computer, the project and the catalog must be in the same location. Then, when opening, the program will read the additional libraries, textures and templates while loading the project together with additional elements.

NOTE: Elements entered into the project are saved to the **Project package**: from the **Object Explorer** from the **Use Library**; textures that were not installed with the program, but were selected from any directory on the computer and a drawing template if it was modified.

5. DESIGN TOOLS

Design Tools



5.1. Title block

As of ArCADia BIM system a title block describing the drawings included in the document was introduced. 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.

5.1.1. Inserting a table from the library

The feature is available from the toolbar as *Title block*.

Activation:

- *Insert* ribbon ⇒ logical group *Insert* ⇒  *Title block*
- *ArCADia-SYSTEM* toolbar ⇒  *Insert 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*.

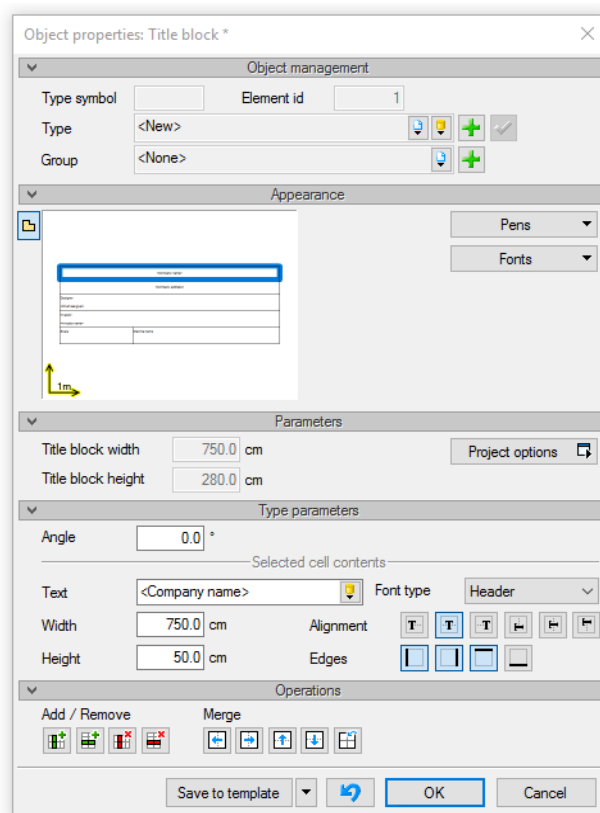


Fig. 225. Title blocks properties window



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.

Design Tools

5.1.2. Designing a title block

The feature is available from the toolbar as *Design title block*.

Activation:

- *Insert* ribbon ⇒ logical group *Insert* ⇒  *Design title block*
- *ArCADia-SYSTEM* toolbar ⇒  *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.

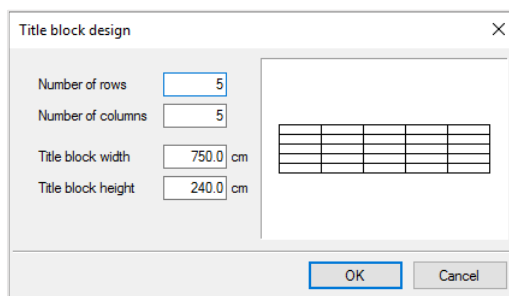


Fig. 226. Defining table window

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*.

Design Tools

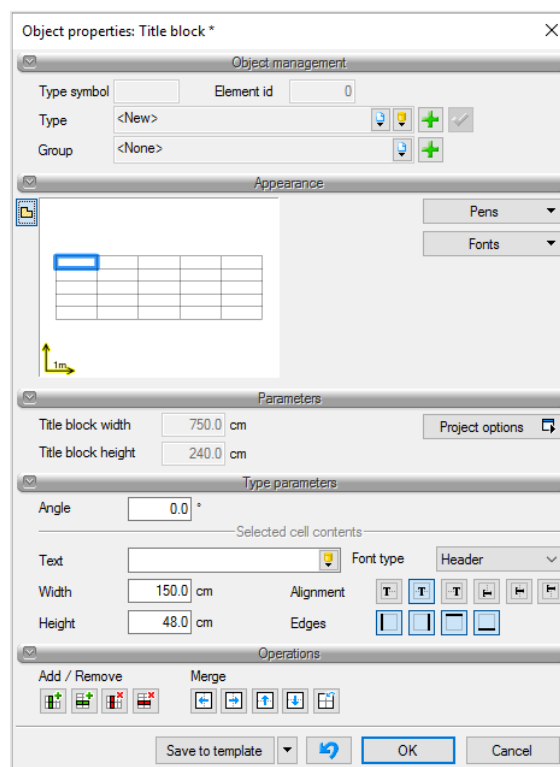


Fig. 227. Created table properties window

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:

Text — a field where you can input any text or select an **Automatic** or **Defined** text from the software resources.

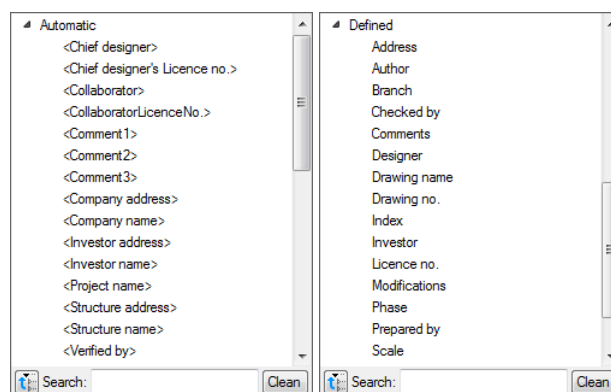


Fig. 228. List automatic and defined texts for insertion into the table

Design Tools

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

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.

Design Tools

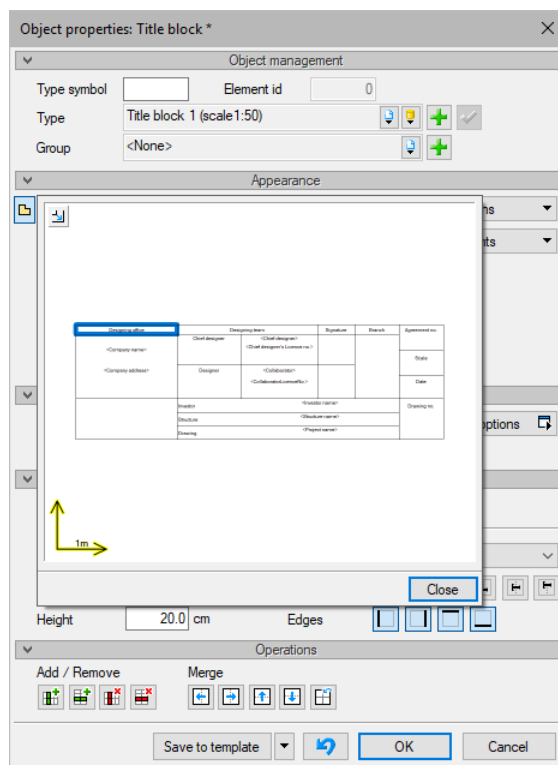


Fig. 229. Example title block in the view properties

Designing office	Designing team		Signature	Branch	Agreement no.
ArCADiasoft Sienkiewicza 85/87	Chief designer				Scale
	Designer				Date
	Investor				Drawing no.
	Structure				
	Drawing		Projekt		

Fig. 230. Table defined above inserted on the projection

The title block defined above is introduced into the projection.

Part of the information that is repeated may be input in the *Object properties: Project*.

Design Tools

Fig. 231. 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>*.

5.1.3. 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.

Design Tools

5.2. Auxiliary options

New options have been introduced in ArCADia 12 to help in designing, among others, in measuring, sketching and determining dependencies with auxiliary lines.



Fig. 232. Auxiliary options are located by default on the left side of the work screen

These options are placed on the toolbar on the left side of the work screen and after using them they are automatically placed in the *User elements – Auxiliary* group. Thanks to this, they can be quickly blocked or turned off before printing.

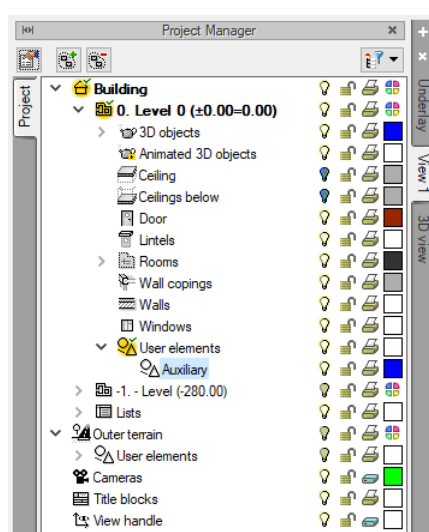


Fig. 233. An example of a project tree with auxiliary elements introduced

Length *Measurement* and *Area and perimeter* options are temporary and remain valid until right clicked. Then the options are turned off and the values that were displayed disappear. To check the value, after switching on 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.

The *Area and perimeter* option, while selecting the area, shows the length of each segment, after clicking on the end of the second segment, in the middle of the designated triangle, the field and perimeter values will appear, which will be changed with each subsequent click with the left mouse button, i.e. with each change of the entered area. The right key exits the option and turns off the measurement display.

Compatibility with other programs

6.COMPATIBILITY WITH OTHER PROGRAMS

Compatibility with other programs

Communication with other software is divided into different modules. The basic functions of the ArCADia system include *XML export*, i.e. saving of a file in text format. On the *Collaboration* ribbon, the *Export* group contains:



- *Create and Save data to ArCADia-3D VIEWER* – options available in the ArCADia-3D MAKER module (they are on the *Collaboration* ribbon and their description is available in the *Project presentation saving* chapter).
- *ArCon Import* and *ArCon export* – options available in the ArCADia-ARCHITECTURE software (located on the *Insert* and *Collaboration* ribbon and their description in the Cooperation with ArCon software chapter).
- *IFC Import* and *IFC* – options available in the ArCADia-IFC RVT module (located on the *Insert* and *Collaboration* ribbon and their description is in the *Cooperation with software supporting the IFC format* chapter).
- *RVT Import* – option available in the ArCADia-IFC RVT module (located on the *Insert* and *Collaboration* ribbon and its description is in the *Cooperation with software supporting the RVT format* chapter).
- *OBJ* and *ArCADia-RAMA underlay* – options available in the ArCADia-ARCHITECTURE software (they are located on the *Collaboration* ribbon, and their description is available in the *ArCADia-RAMA (R3D3-Rama 3D) Błąd! Nie można odnaleźć źródła odwołania.* chapter).
- *Import F3D* – option available in the ArCADia-ARCHITECTURE module (it is located on the *Architecture* ribbon and its description is in the ArCADia-RAMA (R3D3-Rama 3D)) chapter).
- *Export strip footing* – the option is available in the ArCADia-RAMA program (in the R3D3 RAMA 3D version) and transfers the data of the spread footing to the ArCADia-REINFORCED CONCRETE COMPONENT module (accessible from the Results of checking load capacity window in ArCADia-RAMA and described in the program help).
- *DRAFTER import* – the option available in the ArCADia system allows you to transfer the data of the inventoried building from the mobile application (it is located on the *Insert* ribbon, and is described in the ArCADia-SURVEYOR modules help).

6.1. Support for other IFC-capable programs

6.1.1. IFC Converter

Projects saved in the IFC format are input using the command *IFC Converter*.

Activation:

- *Insert* ribbon ⇒ logical group *Data* ⇒  *IFC Converter*
- *ArCADia-IFC RVT* toolbar ⇒  *Import data from IFC format*

This feature is to enable working with projects created in other software (ArchiCAD, Revit, Allplan), re-creating the objects of the above-mentioned programs with ArCADia objects. This means that projections defined in other programs will not be composed of lines representing walls, windows,

Compatibility with other programs



doors, but will be those objects. They will ensure full functionality and editing possibilities. This means that the imported wall will be a wall subject to edition, and will include windows and doors, and the next ones, if necessary, can be added.

NOTE: The ArCADia system processes the imported objects into logical system elements, if when defining the project in a different program, they are not introduced in accordance with the principles of creating the building body in the system, these elements will not be loaded. An example will be ceilings for all storeys introduced only on one floor. The imported walls and ceilings will have, in the properties window, the data with defined layers, material type, thickness, but since the software libraries vary, hatching of materials will not be shown. You should either define new materials for these compartments according to the software library or enter new materials to this library.

6.1.2. Import

Projects saved in the IFC format are introduced using the *IFC Import* format command.

Activation:

- *Insert* ribbon ⇒ logical group *Data* ⇒  *IFC Import*
- *ArCADia-IFC RVT* toolbar ⇒  *Import data from IFC format*

After the command is used, a Data import dialog box appears on the screen, where the project file is selected:

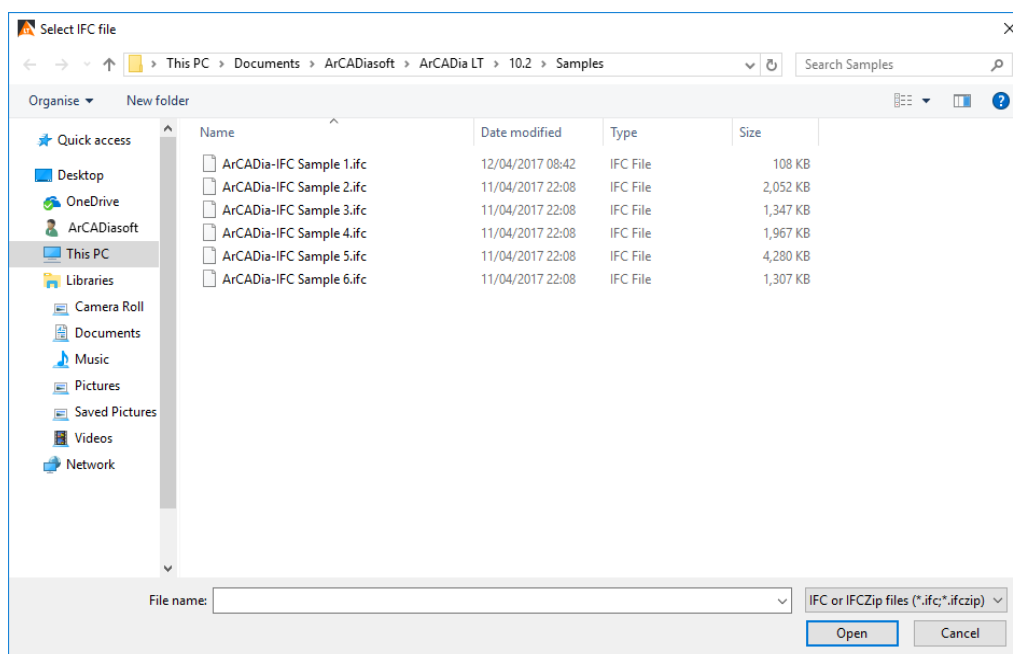


Fig. 234. Window for project import from the IFC file

You can select the .ifc or .ifczip file format

After selecting the file, the IFC model is loaded.

Compatibility with other programs

6.1.3. Work on IFC model

After uploading the IFC model on the *Project Manager* window, on its left side, the tab with the name of the uploaded model will be visible.

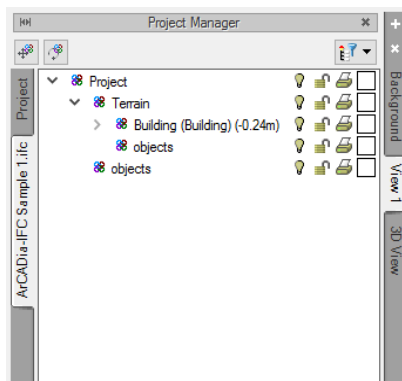




Fig. 235. Project manager window, view of the IFC model tab

Tab. 14. Options available in the Project Manager window for IFC model

	<i>Shift IFC model</i>	After pressing this icon, the program will ask you to indicate the point of reference in respect of which it will shift this object. Indicate this point by clicking the drawing area, e.g., the corner of external walls, and then indicate new location after shifting. You can also use the option of shifting by a particular value or indicate the coordinates.
	<i>Rotate IFC model</i>	After pressing this icon, the program will ask you to indicate the point of reference around which the rotation will take place, and the rotation angle. You can also indicate the location after rotation on the drawing area.

After dropping down the IFC model tree, other functions are available. If the user selects the objects, e.g., walls, the *Project Manager* window will show the icon *IFC format properties*.

Compatibility with other programs

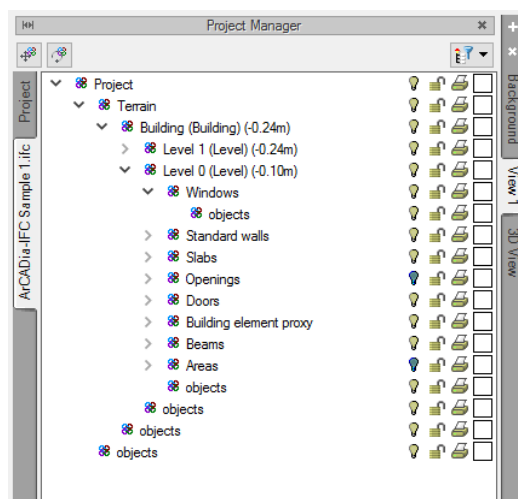


Fig. 236. Project manager window, IFC model tab after dropping down and selecting the objects

Tab. 15. Options available in the Project Manager window for the IFC model

	<i>IFC object properties</i>	After clicking this icon, you will open the element properties window or the window with the list of all elements from this object group, along with the possibility to move to the properties window .
--	------------------------------	--

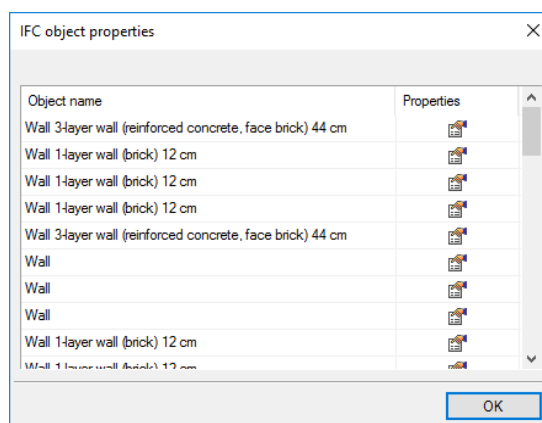


Fig. 237. IFC objects properties window

After clicking the icon, you can use the *Element properties* window, e.g., for a wall. Depending on the software from which a given IFC element was exported and the sent parameters, the properties window will have variable number of tabs. Below, there is an example of a window for an imported element from Tekla Structures software.

Compatibility with other programs

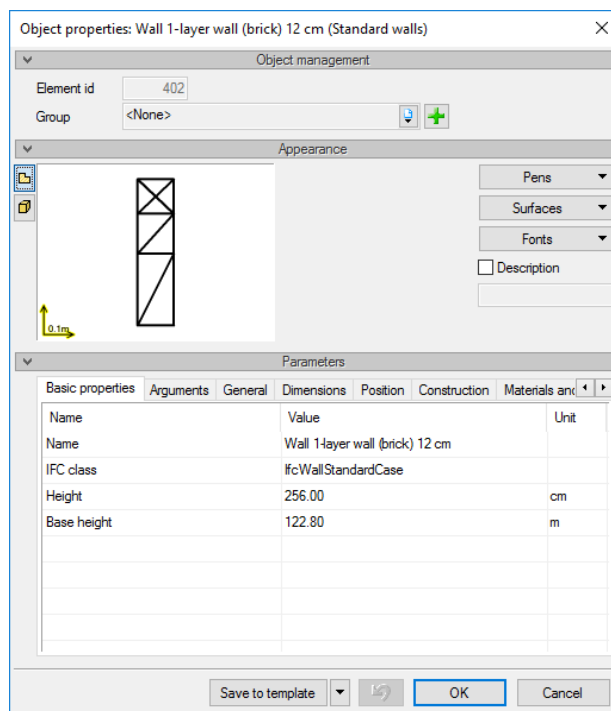




Fig. 238. IFC element properties window

Tab. 16. Options available in the Manager window after selecting the Elements item

	<i>Add group</i>	Lets you add a group for the selected elements.
	<i>Select elements</i>	Selects the highlighted elements on the projection.

The same functions can be activated by right-clicking the *Elements* on the *Project Manager* window tree.

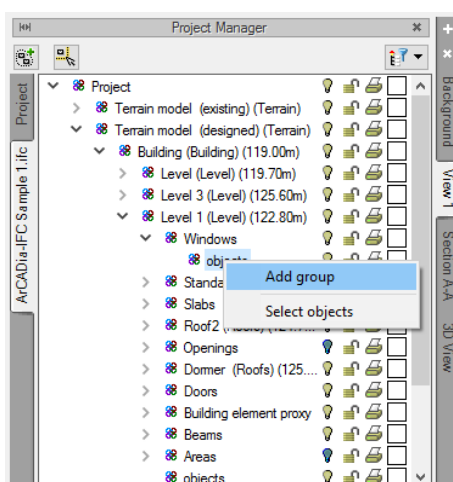



Fig. 239. View of the *Project Manager* window and the element context window

Compatibility with other programs

In order to enter ArCADia objects on the IFC model, on the *Project* tab you should create proper levels, adapting the data to the ArCADia system. To facilitate entering data on the ArCADia-IFC licence, you are given two useful functions.

In the *IFC model* of the building, you can insert a section with zero depth.



Activation:


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

Indicate the beginning and the end of the section line, and then its location in the drawing area.

On the section, you can insert elevation anchors, which will easily help you set the levels of storeys in the project. They can be inserted on the section, e.g., on ceilings or on the floors.

Activation:

- *Description* ribbon ⇒ logical group *Dimensions* ⇒  *Spot height*
- *ArCADia-ARCHITECTURE* toolbar ⇒  *Insert spot height*

The below example explains the manner of introducing levels in the ArCADia system, to make them compliant with the IFC model. After introducing the zero section and elevation anchors in respective places, basic elevations and total elevations of the storey are already known. On the project manager window, click the *Project* tab and the *Add new building*  icon. You can enter the name for the new building.

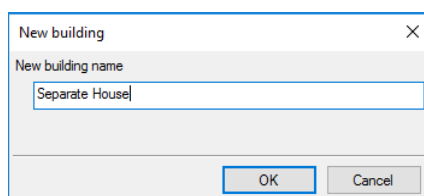


Fig. 240. Window for entering the new building name

After clicking the *OK* button, in the project tree, the new building will appear, along with the default level. After right-clicking the level, you can use the context menu. Select *Level properties*.

Compatibility with other programs

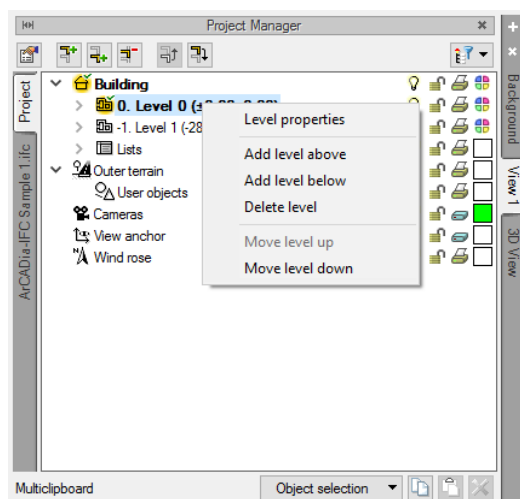


Fig. 241. Project Manager window with a new building and level

The level properties window will open. Start from the lowest level and enter in the edition window *Basic height (Po)* – *absolute* in m asl. Then, in the *Total height (Hc)* field.

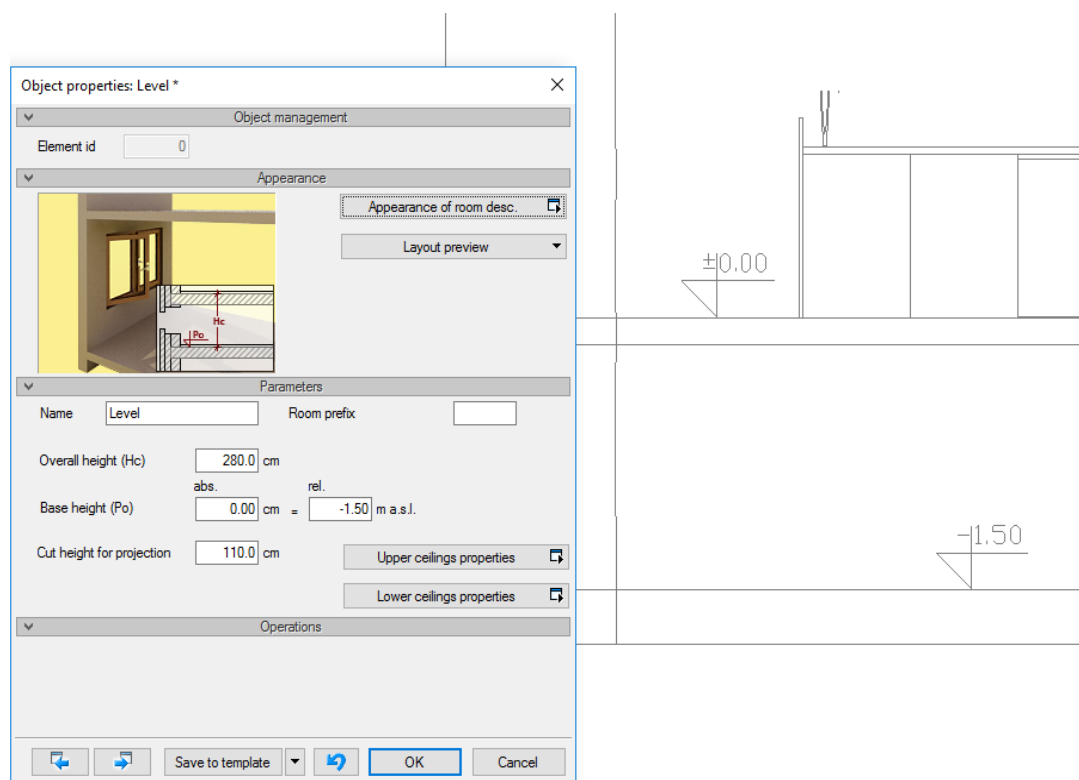


Fig. 242. Element properties window view: Level with entered height values

Add new levels by entering respective heights from the section.

Compatibility with other programs

Then, you can enter elements, e.g., sanitary systems as in the case of traditional work with the ArCADia system

NOTE: IFC model elements are subject to collision check similarly to the ArCADia system objects

You can upload several IFC models to one project. They can be added or removed using the *IFC model manager* command

Activation:

- *Insert* ribbon ⇒ logic group *Data* ⇒  *IFC model manager*
- *ArCADia-IFC RVT* toolbar ⇒  *Start IFC model manager*

After clicking the icon, the *IFC model manager* will be available. The columns will display the names of the: *IFC Model*, *IFC File* and whether the IFC model is uploaded. The IFC model name may be changed from the manager window level, or you can introduce a new one. Other columns are non-editable.

On the right side, there are two buttons: one for adding, and the other for removing the *IFC model* from the file.

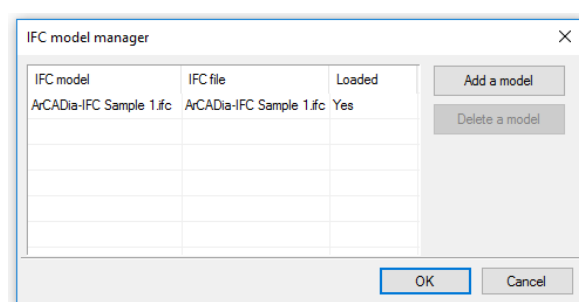




Fig. 243. IFC model manager window view

6.1.4. Export

Exporting IFC data is possible by selecting the Export data to *IFC export* format command.

Activation:

- *Colaborate* ribbon ⇒ logical group *Export* ⇒  *IFC*
- *ArCADia-IFC RVT* toolbar ⇒  *Export data to IFC format*

After this option is selected a project save and data export window is displayed, containing data which can be exported to .ifc or .ifczip formats:

Compatibility with other programs

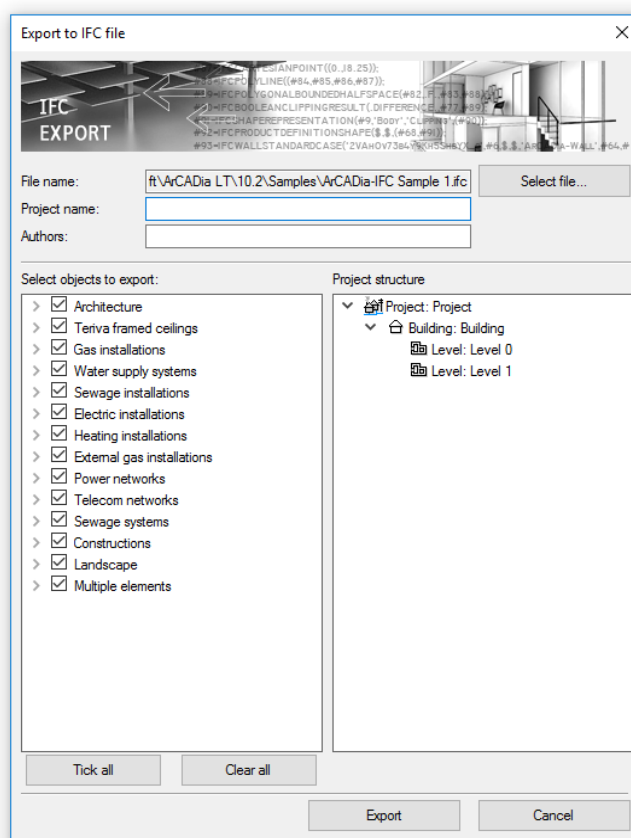


Fig. 244. IFC file data export window



The window above will allow for the selection of elements to be exported by selecting subsequent items in a list. By default the entire project is exported, together with all the ArCADia software elements. After selecting the export option, use the [Export](#) button

6.2. Cooperation with programs that support the RVT format

6.2.1. Import

Loading projects saved in the RVT format is done by the command [RVT Import](#).

Activation:

- [Insert](#) ribbon ⇒ logical group [Data](#) ⇒  [RVT Import](#)
- [ArCADia-IFC RVT](#) toolbar ⇒  [Import data from the RVT format](#)

After calling the command, the data import dialog window appears on the screen in which the project file is selected:

Compatibility with other programs

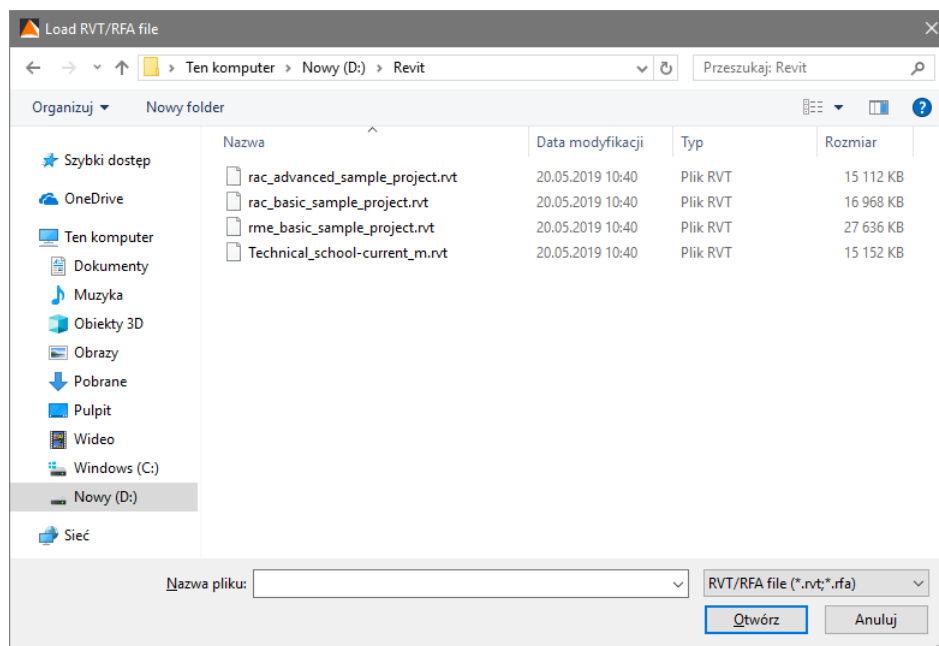


Fig. 245. Window for project import from RVT file

The .rvt file format can be chosen.

NOTE: The RVT Import option also supports RFA files.

6.2.2. Working on the RVT model

After reading the RVT model, on the left side of the Project manager window there will be a tab available with the name of the downloaded model.

Compatibility with other programs

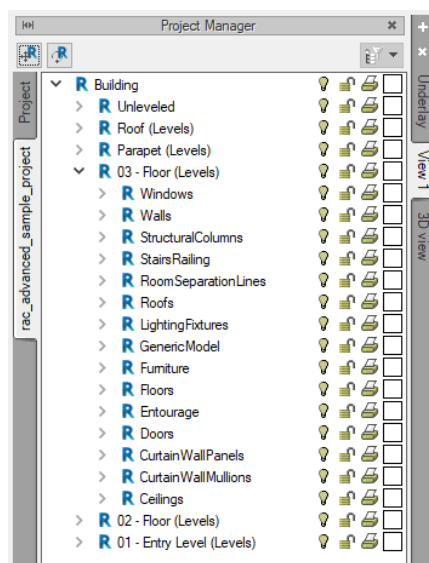


Fig. 246. Project manager window tab view of the rvt model

We add new levels by entering the appropriate heights from the cross-section.

Then we can insert elements such as sanitary installations for example, in the same traditional way of working with ArCADia.

We can load several models in .rvt format into one project, and in order to delete or add them we use the *RVT Model Manager* command.

Activation:

- *Insert* ribbon ⇒ logical group *Data* ⇒  *RVT model manager*
- *ArCADia-IFC RVT* toolbar ⇒  *RVT model manager*

After clicking on the icon, the RVT Manager window will be available. The following column names will be displayed: RVT *Model*, RVT *File* and whether the RVT model is *Loaded*. The name of the *RVT Model* can be changed from the manager window or a new name can be entered. The remaining columns are not editable.

There are two buttons on the right side, one is used to add and the other to remove RVT models from the file.

Compatibility with other programs

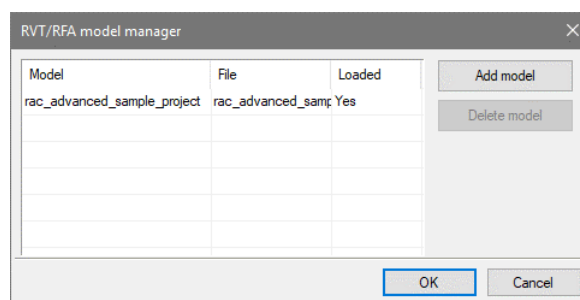


Fig. 247. RVT Model Manager window

6.3. ArCADia-RAMA (R3D3-Rama 3D)

The ArCADia-ARCHITECTURE module has various possibilities of communication with the ArCADia-RAMA program in the R3D3-Rama 3D version. From the ArCADia-RAMA program, it is possible to export the roof geometry and return to the module together with the roof truss inserted in the roof (from version 12); the bar structure can be imported (from version 17) and all roofs of the project along with the underlays of modular axis grids can be exported to R3D3-Rama 3D (from version 17). From version 17, the ArCADia-RAMA program has the ability to read the actual building model and display the static model in it.

6.3.1. F3D file import

NOTE: Option available only in the ArCADia-ARCHITECTURE module.

The option imports framework of the structure created in ArCADia-RAMA software (in R3D3-Rama 3D version) 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 ⇒ logic group *Building* ⇒  *F3D Import*
- *ArCADia-ARCHITECTURE* toolbar ⇒  *Import the bar framework from the 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: Bare frame structure*:

Compatibility with other programs

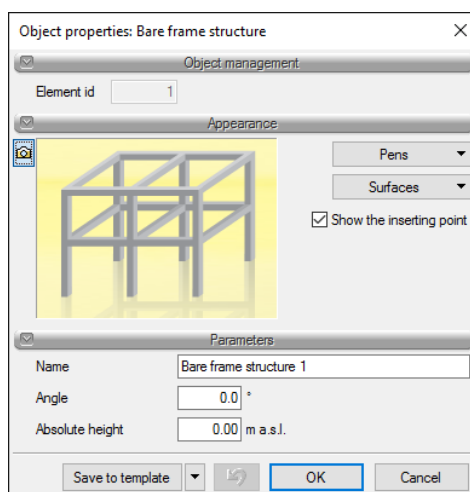


Fig. 248. Properties window for the introduced framework

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.

Base height – the height of location of the input structure.

Save in the 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 preset percentage division of the indicated distance (the distance is given by indicating two points).
- **Cancel** – aborts the function without the inserted element.

Compatibility with other programs

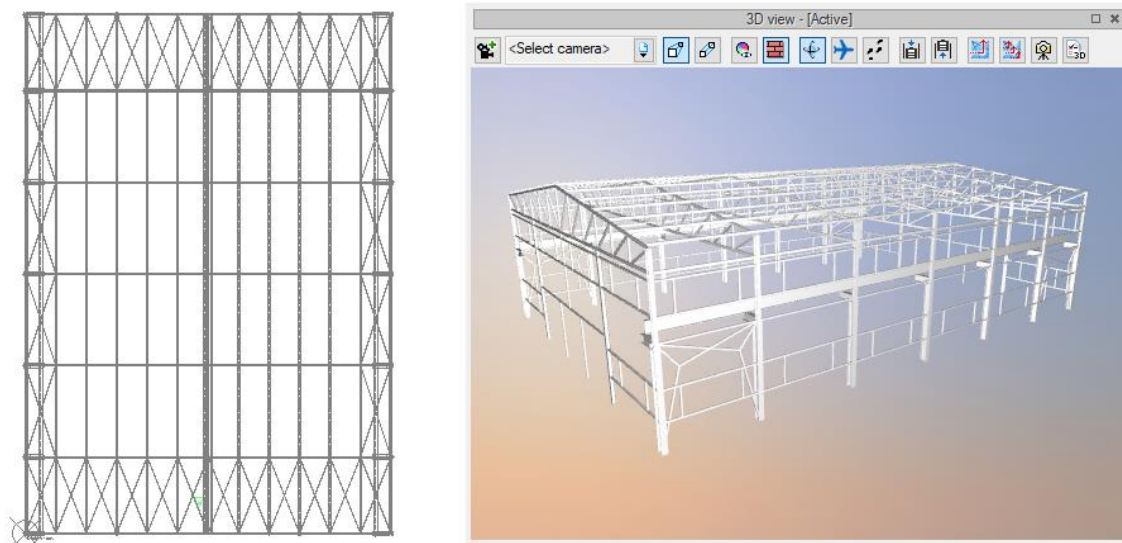


Fig. 249. Example of the framework structure imported to the software

6.3.1.1. 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

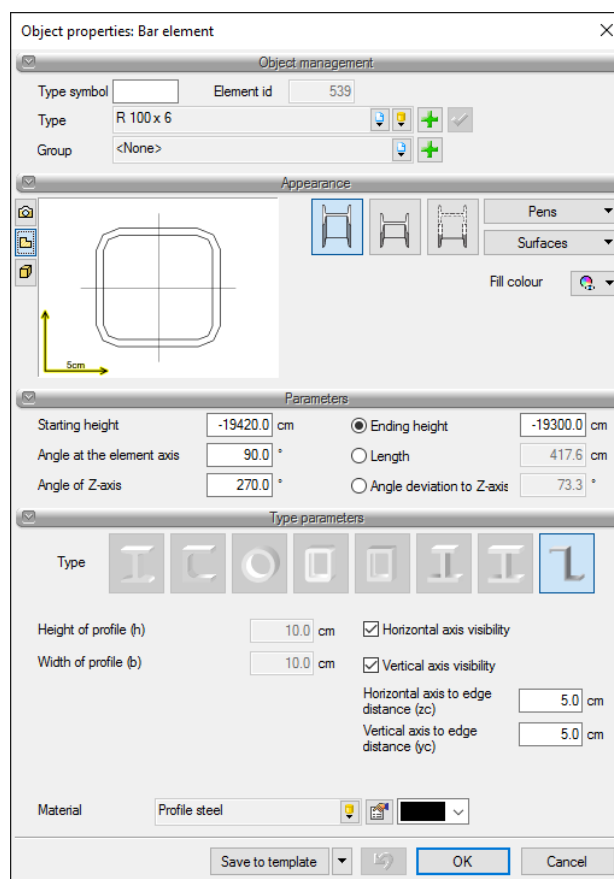


Fig. 250. Window of one of elements of the split framework of the imported bar structure

6.3.1.2. 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:

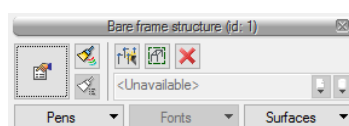





Fig. 251. Edition window of the bar structure framework

Tab. 17. Structure modification tools

	<i>Properties</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>Split the bar framework</i>	Divides the imported structure into different part which from now on will be separate elements.
	<i>Show element properties in the bar framework</i>	Shows the properties window of the indicated structure element, without the need to split it.

Compatibility with other programs

	<i>Delete selected elements</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 surfaces of to introduced element.

6.3.2. Initial drawing export to ArCADia-RAMA

NOTE: Option available only in the ArCADia-ARCHITECTURE module.

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:

- *Collaborate* ribbon ⇒ logical group *Export* ⇒  *ArCADia-RAMA underlay*
- *ArCADia-ARCHITECTURE* toolbar ⇒  *Trace export to ArCADia-RAMA*

Initial drawing export does not save file, opens the ArCADia-RAMA software and moves axes and roofs.

Compatibility with other programs

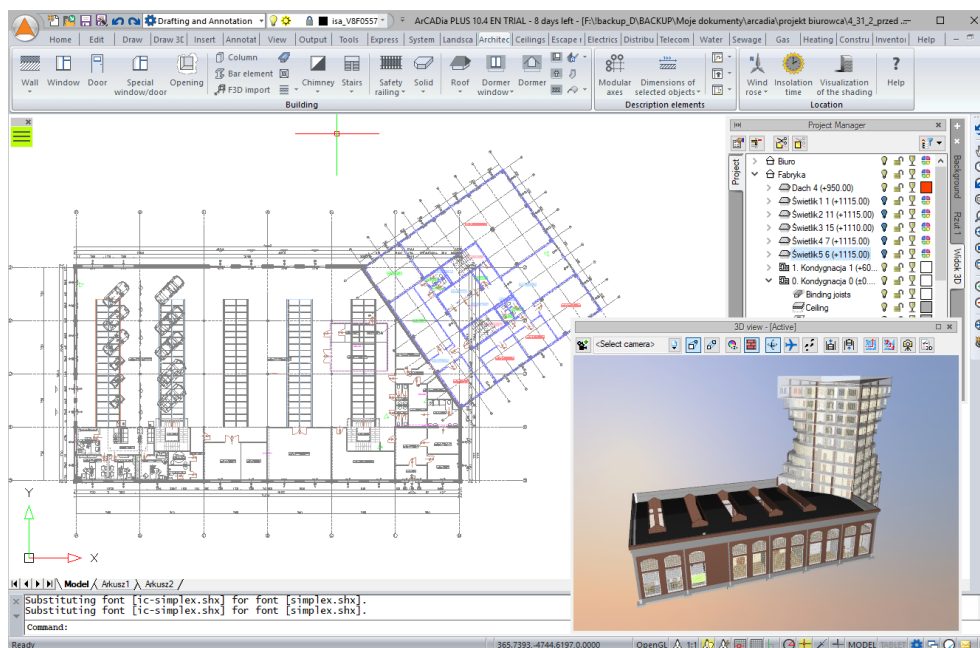


Fig. 252. Sample project exported to ArCADia-RAMA software

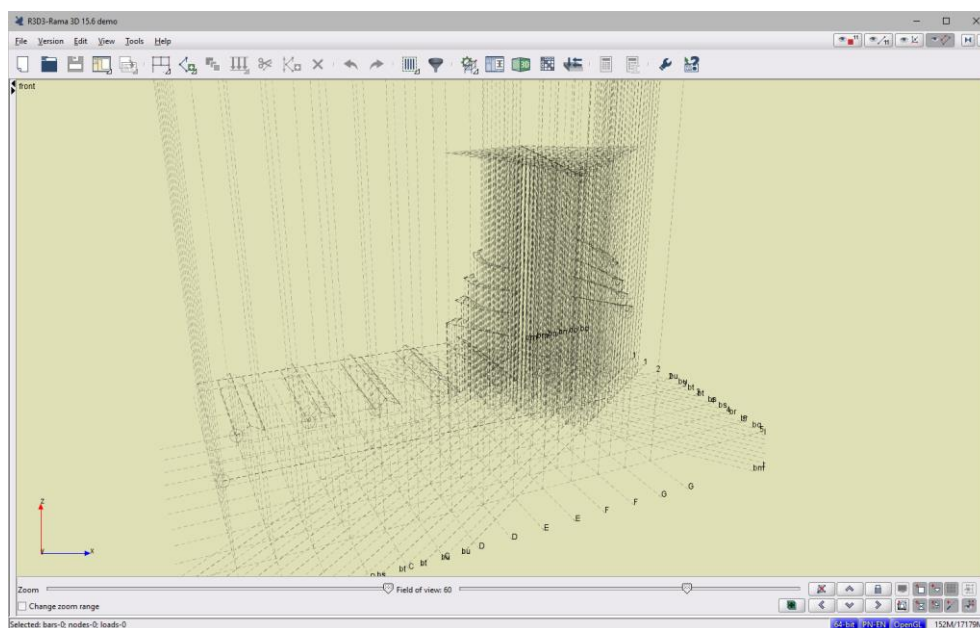





Fig. 253. Sample initial drawing in the ArCADia-RAMA software

6.3.3. 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.

Compatibility with other programs

Activation:

- **View** ribbon \Rightarrow logical group **View** \Rightarrow  **Construction view**
- **ArCADia-SYSTEM** toolbar \Rightarrow  **Show construction view**

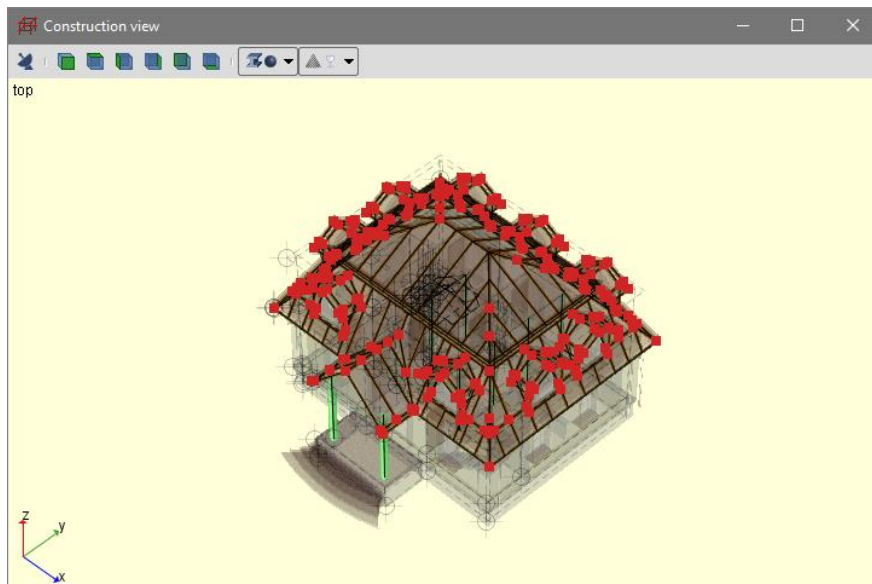


Fig. 254. A sample project in construction view

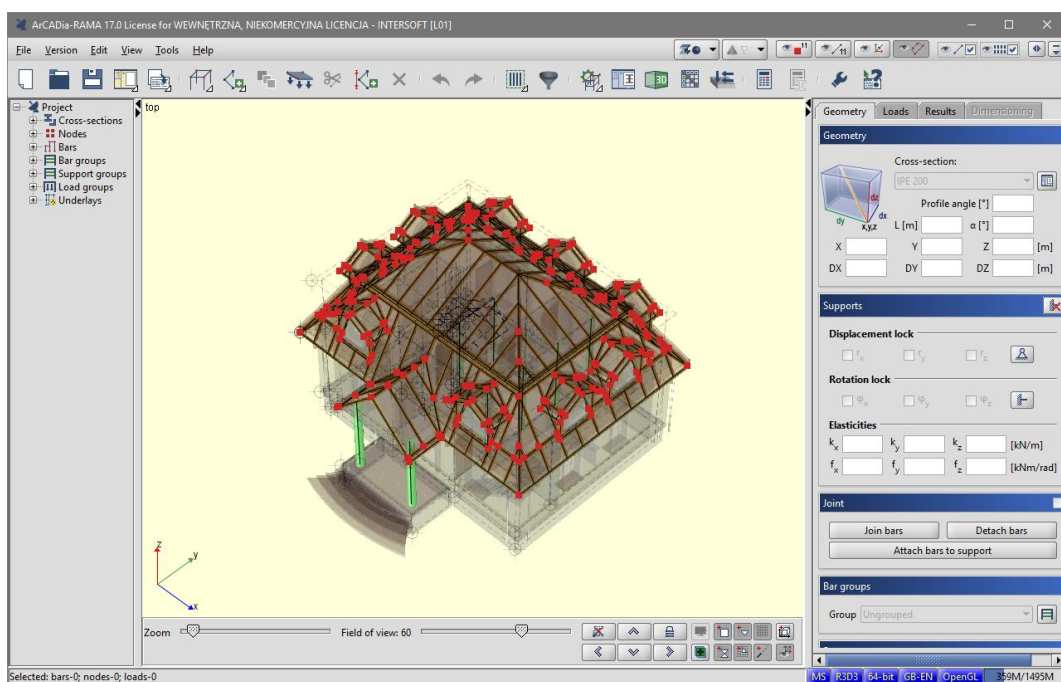


Fig. 255. Sample project after switching to the ArCADia-RAMA program

Compatibility with other programs



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.

6.4. Export project to OBJ format

NOTE: Option available only in the ArCADia-ARCHITECTURE module.

A building designed in the ArCADia-ARCHITECTURE software may be transferred to advanced 3D visualization programs (Maja, 3D Studio etc.). 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:

- *Colaborate* ribbon ⇒ logical group *Export* ⇒  *OBJ*
- *ArCADia-ARCHITECTURE* toolbar ⇒  *OBJ Export*

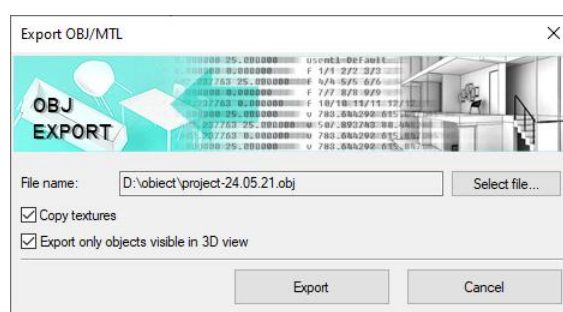


Fig. 256. OBJ file data export window

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.

6.5. Saving a project presentation

NOTE: Option available only in the ArCADia-MAKER module.

New version of the ArCADia 6.0 software includes new module: ArCADia-3D MAKER which enables to save 3D projects and ArCADia-3D VIEWER which allows for viewing saved 3D projects without the necessity to have the ArCADia software installed. In the 6.7 version there is also a new option to save

Compatibility with other programs



the presentation to the cloud, thanks to which the project model can be viewed on a three-dimensional browser on mobile devices.

Initially there were two options for saving a project presentation: with or without a browser. The browser, i.e. ArCADia-3D VIEWER can be downloaded from the website www.arcadiasoft.eu. Now, the third option saves the project model and provides a link that you click on any phone or tablet in your web browser and it will allow you to view the saved model.

6.5.1. Saving a 3D presentation

This option enables to save a project and include the browser. It means, that a presentation saved in this way can be given to someone who wants to see the project but doesn't have ArCADia software. The browser will open the ArCADia-3D VIEWER window and enable to view the saved project from every direction but without the possibility to make any changes or save.

Activation:

- *Colaborate* ribbon ⇒ logical group *Presentation* ⇒  *Create*
- *ArCADia-3D MAKER* toolbar ⇒  *Save 3D presentation*

After invoking the command, the save presentation window will open, where you need to indicate the saving directory and name, and confirm by clicking *OK* button.

Presentation will be saved in an .exe file which can be opened on any computer, without ArCADia software installed.

To view the presentation double-click the file and the ArCADia-3D VIEWER will open.

NOTE: Before the ArCADia-3D VIEWER window will open, a message may appear to inform that some necessary components are missing. In this case, choose No to answer the question whether to continue, then the software will open a website from which you should download and install a given patch for your operating system.

Compatibility with other programs

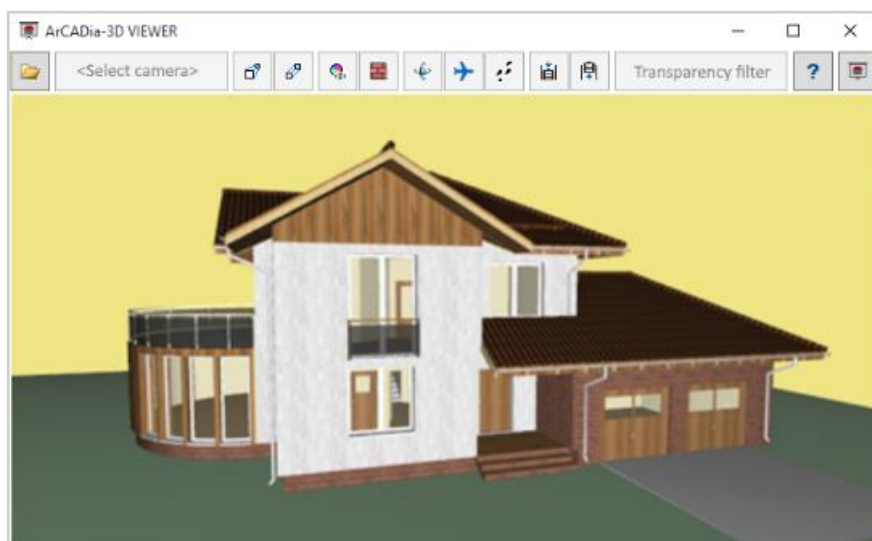


Fig. 257. ArCADia-3D VIEWER window with a sample project

Tab. 18. ArCADia-3D VIEWER or project browser options


	<i>Open file</i>	Opens a file containing 3DS presentation data (.a3d files)
	<i><Select a camera></i>	Shows the default camera views.
	<i>Perspective view</i>	Shows the perspective view of the building.
	<i>Axonometric view</i>	Shows the axonometric view of the building.
	<i>Show layer colours from Project Manager</i>	Displays the building with colors for the elements selected for groups.
	<i>Show surfaces defined in elements</i>	Shows the building with selected materials and textures.
	<i>Orbit mode</i>	Project viewing mode in which the camera is set on an orbit around the project.
	<i>Flight mode</i>	Project viewing mode in which the camera can be placed inside the project and move in the direction determined by the mouse.
	<i>Walk mode</i>	Project viewing mode which enables a tour of the project.
	<i>Lower the camera position</i>	Lowers the observing position.
	<i>Raise the camera position</i>	Raises the observing position.
	<i>Transparency Filter</i>	It enables to glaze an entire branch, e.g., Architecture, to show some other branch, e.g., inside the building.


Compatibility with other programs

6.5.2. Saving the 3D presentation data

To save a project presentation for someone who already has the ArCADia-3D VIEWER project browser it is enough to save the data for the presentation (this allows for a project file to be significantly smaller in size and sent by e-mail).

Activation:

- *Colaborate* ribbon ⇒ logical group *Presentation* ⇒  *Save data to ArCADia-3D VIEWER*
- *ArCADia-3D MAKER* toolbar ⇒  *Save data of 3D presentation*



After invoking the command, the save presentation window will be displayed where you need to indicate the file saving directory and name. The created presentation may be opened from ArCADia-3D VIEWER window by choosing the  *Open file* icon.

6.5.3. Project Model on mobile devices

6.5.3.1. Saving Presentation in the Cloud

An option to save the 3D Presentation in the Cloud has been added to the ArCADia-3D MAKER module, in other words on an external server: Dropbox, Google Disc or OneDrive.

Activation:

- *Colaborate* ribbon ⇒ logical group *Presentation* ⇒  *In cloud*
- *ArCADia-SYSTEM* toolbar ⇒  *Presentation in the Cloud*

After enabling this option, the program checks access to the server. If you are not logged in, the following message will be displayed.

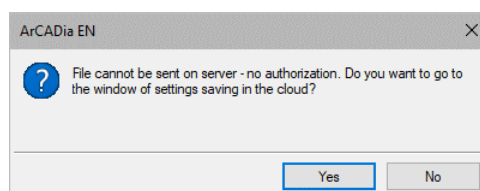


Fig. 258. The window will inform about lack of authorization for in cloud saving

The choice of the server for saving and logging in should be done in the *Options* window under the *Saving in the Cloud options* button and described in the *Options chapter*. You can also choose a storage location and log in by clicking *Yes* in the above window.

Compatibility with other programs

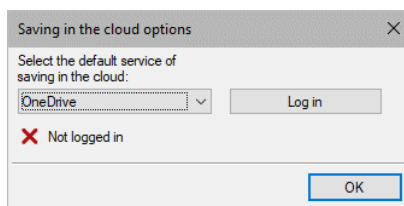


Fig. 259. Okno Opcje zapisu w chmurze

From the list which is on the left side of the window, select the cloud server on which you want to save the model. Then, by clicking the [Authorize](#) button, we go to the login page, where apart from the user and password, we must agree to the transfer of data by the ArCADia SYSTEM program. Then a window will appear in which you should enter the name of our model. By default, the name of our file will be displayed.

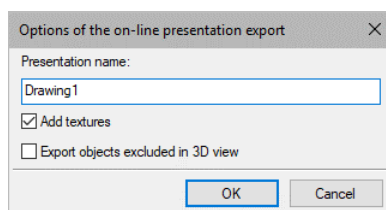


Fig. 260. Saving model option Opcje zapisu modelu

[Presentation name](#) – a name, under which the 3D model will be saved.

[Add textures](#) – Attaches added textures to the model. Deselecting the option will save a white model.

[Export objects excluded in 3D view](#) – this option skips the export of excluded elements in the 3D view, they will not be visible in the cloud browser.

After clicking [OK](#) the following window will appear:

Compatibility with other programs



Fig. 261. On-line presentation window

Scan the QR code for presentation in cloud – it is possible to scan the displayed code, e.g., with a telephone, to quickly open the model on a mobile device.

Copy to the clipboard – this option allows you to copy and later send the presentation link to another person.

Open in browser – this option opens the ArCADia Obj Viewer window with the saved model.

6.5.3.2. Presentation on mobile devices

After receiving the link with the saved model, after clicking on it, the web browser will be launched with the project model in it.

Compatibility with other programs

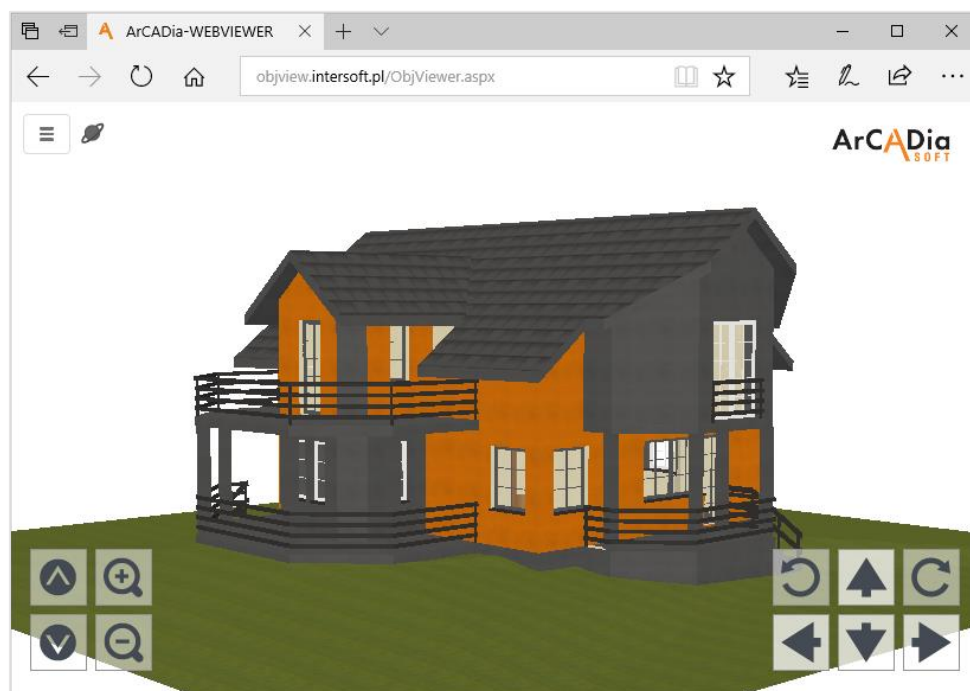


Fig. 262. The building model in the browser

The above browser can be run both on a computer and on a mobile device. The navigation options are located on the right side of the window, on the left side there are options for zooming in and zooming out the model

The browser has options analogous to the 3D view located in the ArCADia system and the ArCADia-3D VIEWER browser.

In the menu, you can change the *Work mode*, in other words how to navigate the presentation. We have an *Orbit mode*, which is, a rotation of the whole model, *Flight mode*, which is the view of the model in accordance with the current view direction, and a *Walk mode*, which is walking around parallel to the level of the storey level.

The menu also contains filters that allow, for example, to turn off or make transparent a selected industry and cameras, by default those stored in the project as well.

NOTE: Switching between cloud storage services is available from the **ArCADia Options** window.

6.6. Compatibility with ArCon - Visual architecture

NOTE: Option available only in the ArCADia-ARCHITECTURE module.

Compatibility with other programs

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.

6.6.1. Import

All projects created in ArCon can be introduced to ArCADia 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:

- **Insert** ribbon ⇒ logical group **Data** ⇒  **ArCon Import**
- **ArCADia-ARCHITECTURE** toolbar ⇒  **Import data from ArCon**

Compatibility with other programs

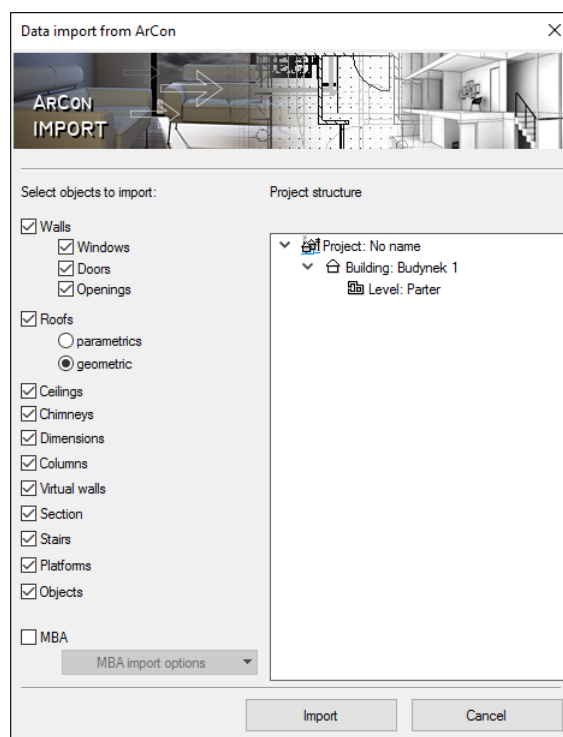


Fig. 263. Importing data from ArCon software window

NOTE: It is required that ArCon and ArCADia-ARCHITECTURE 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](#).

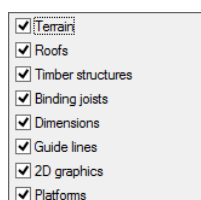


Fig. 264. List of elements imported as a 2D drawing

Compatibility with other programs

NOTE: Drawings created as mba import are available at import only on ArCADia-INTELLICAD 6 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.

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 case of very complex roofs or roofs which were in modified in ArCon using macro there may occur a situation where such roof will not be captured. Then it is necessary to attempt to import again, selecting the Geometric \Rightarrow roofs option in the import window.

6.6.2. Export

NOTE: Option available only in the ArCADia-ARCHITECTURE module.

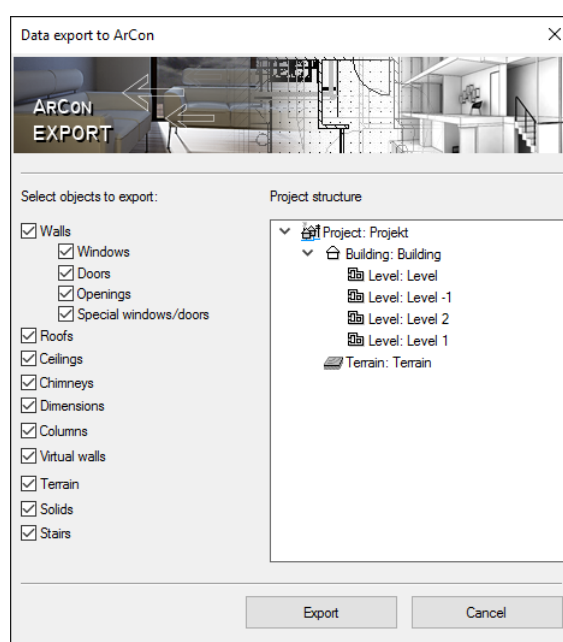




Fig. 265. ArCon software data export window

Modifications in elements transferred as ArCADia objects may be taken over into ArCona. To do that, use the command [ArCon Export](#).

Compatibility with other programs

Activation:

- *Collaborate* ribbon ⇒ logical group *Export* ⇒  *ArCon*
- *ArCADia-ARCHITECTURE* toolbar ⇒  *Export data to ArCon*

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.

6.7. Export to Ceninwest software (not available in English version)

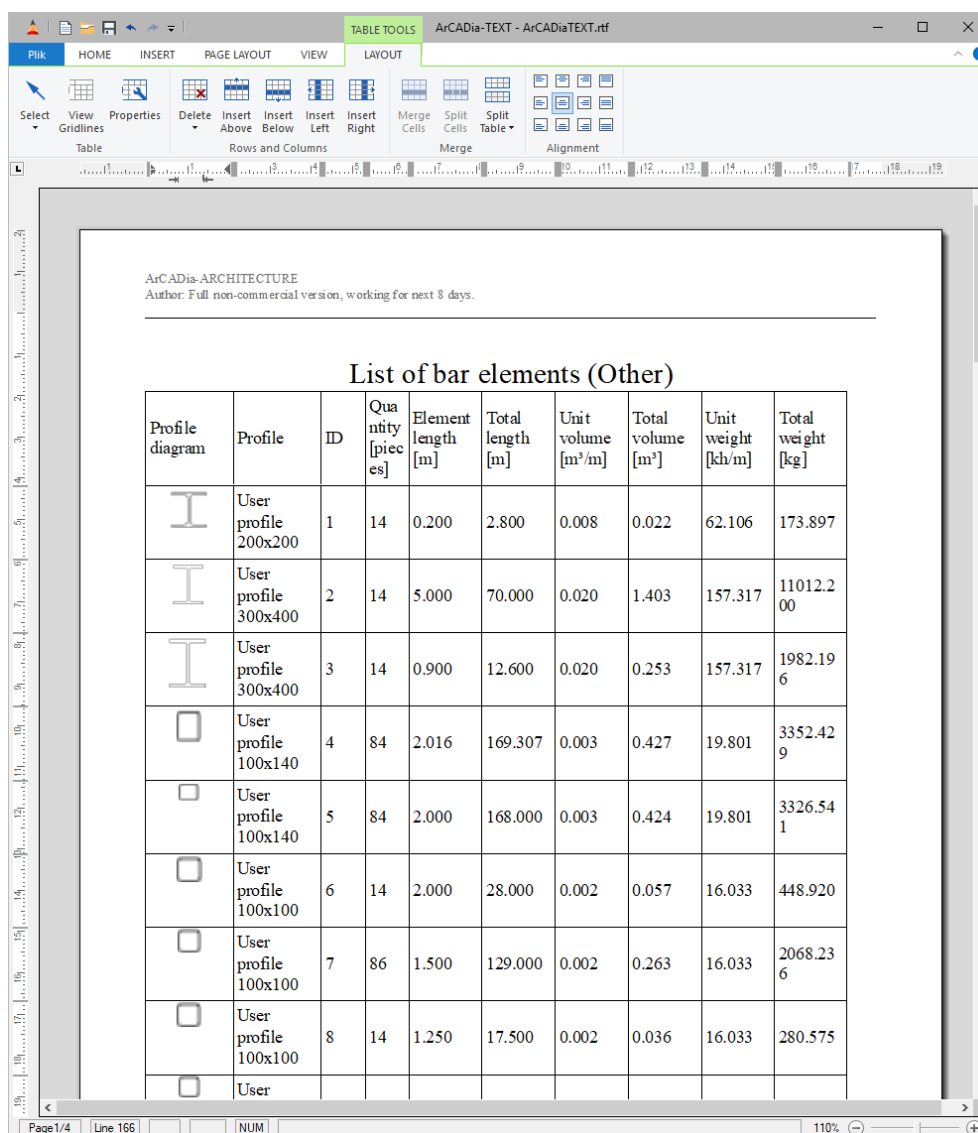
Ceninwest allows for the comprehensive forecast of an investment project value, in line with the applicable regulations, which includes, among others, purchasing a plot, design and preparatory works, construction of standard objects, installations and equipment. From for ArCADia system to the cost estimate software, you export the element and material lists inserted in the project.

6.8. Save RTF file

All the lists and tables from the ArCADia BIM may be exported into RTF format.

After selecting the list, in the edition window, select the icon  *Saving to the text editor file (RTF)*, the ArCADia-TEXT editor will open. 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



ArCADia-TEXT - ArCADiaTEXT.rtf

ArCADia-ARCHITECTURE
Author: Full non-commercial version, working for next 8 days.

List of bar elements (Other)


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								

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Fig. 266. ArCADia-TEXT editor will open window

6.9. Save CSV file

All the lists and tables from ArCADia BIM 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.

Compatibility with other programs

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.

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).

Once conversion is finished the exported list will be properly displayed in Microsoft Excel.

Commands table

7.COMMANDS TABLE

Commands table















Below is a list of the commands available in the basic program version (marked as **BIM*) and options that expand this functionality with division into industry modules:

ArCADia-ARCHITECTURE, ArCADia-LANDSCAPE ARCHITECTURE, ArCADia-3D MAKER, ArCADia-IFC RVT, ArCADia-CEILINGS TERIVA, ArCADia-ESCAPE ROUTES, ArCADia-ELECTRICAL INSTALLATIONS, ArCADia-ELECTRICAL INSTALLATIONS PLUS, ArCADia-POWER NETWORKS, ArCADia-DISTRIBUTION BOARDS, ArCADia-TELECOMMUNICATIONS NETWORKS, ArCADia-WATER SUPPLY INSTALLATIONS, ArCADia-SEWAGE SYSTEMS, ArCADia-SEWAGE INSTALLATIONS, ArCADia-GAS INSTALLATIONS, ArCADia-EXTERNAL GAS INSTALLATIONS, ArCADia-HEATING INSTALLATIONS, ArCADia-VENTILATION SYSTEMS, ArCADia-LIGHTNING PROTECTION INSTALLATIONS, ArCADia-REINFORCED CONCRETE SLAB, ArCADia-REINFORCED CONCRETE COLUMN and ArCADia-REINFORCED CONCRETE COMPONENT and ArCADia-SURVEYOR.






7.1. Basic options

The following options are described in the help file of the ArCADia system, the icon is on the ribbon: *Manage*.

Tab. 19. The basic functions (no licence required, always available even in the demo version) located on the Manage, View and Description ribbon









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 BIM objects into appropriate CAD layers.
	<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
	<i>About ArCADia BIM</i>	Information about installed version.
	<i>ArCADia BIM Help</i>	Displays help window.
	<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>Licenses</i>	Status information of installed version (licensed or demo
	<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.

Commands table

	<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>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. 20. The basic functions of ArCADia-SYSTEM system located on the Manage ribbon

Icon	Option	Description	*BIM
	<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 option 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>Define</i>	Shows collisions/intersections between elements of the entire ArCADia BIM (e.g., between elements of gas and electrical networks).	✓
	<i>Display</i>	Displays report of colliding/intersecting elements.	✓
	<i>Remove</i>	Removes all occurrences of collisions/intersections from the project.	✓

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



Commands table

Tab. 21. The basic functions of ArCADia-SYSTEM system located on the Insert ribbon

Icon	Option	Description	*BIM
	<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.	✓



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

Tab. 22. The basic functions of ArCADia-SYSTEM system located on the Architecture ribbon

Icon	Option	Description	*BIM
	<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.







Tab. 23. The basic functions of ArCADia-SYSTEM system located on the Colaborate ribbon

Icon	Option	Description	*BIM
	<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.	✓

Commands table



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

Tab. 24. Basic functions of ArCADia system 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. 25. Basic functions of ArCADia system from 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.	✓




7.2. ArCADia-MAKER

The following options are described in the help file of the ArCADia BIM system, the icon is on the *Manage* ribbon.

Commands table

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

Tab. 26. The basic functions of ArCADia-3D MAKER located on the Colaborate ribbon







Icon	Option	Description	*BIM
	<i>Create</i>	Saves the file together with the browser, which allows for viewing the project in a 3d window without the ArCADia software installed.	X
	<i>Save data to ArCADia-3D VIEWER</i>	Saves file to a 3D presentation, without including the browser in the file.	X
	<i>In cloud</i>	Saves the project to the selected cloud, thanks to which the 3D model can be viewed from any mobile device.	X

7.3. ArCADia-IFC RVT

The following options are described in the ArCADia system help file, the icon is located on the *Manage* 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. 27. The functions of ArCADia-IFC RVT module located on the Insert and Colaborate ribbon

Icon	Option	Description	*BIM
	<i>IFC Import</i>	The ArCADia-IFC module, imports all or selected design elements from an IFC format file.	X
	<i>IFC Converter</i>	Imports elements from the IFC project by converting them into ArCADia system objects.	X
	<i>IFC</i>	ArCADia-IFC module, exports all or selected elements of the project to a file in the IFC format .	X
	<i>IFC model manager</i>	Opens a window which manages the models entered into the project.	X
	<i>RVT import</i>	The ArCADia-IFC RVT module, imports the project and Revit family and insert it as a project underlay.	X
	<i>RVT model manager</i>	The ArCADia-IFC RVT module, opens the window which manages models imported from .rvt and .rfa files.	X

Commands table








7.4. ArCADia-LANDSCAPE ARCHITECTURE

The following options are described in the ArCADia-LANDSCAPE ARCHITECTURE help system file, the icon is located on the *Terrain* ribbon.

Tab. 28. 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.	✓
	<i>Terrain opening</i>	Cuts hole in the ground surface.	✓
	<i>Automatic terrain opening</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>External pipe</i>	Terrain existing systems during collision checking by representing them in all the Views.	✓
	<i>External 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.	✗

Commands table


	<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.	X
	<i>Reservoir by point</i>	Defines the area such as a waterhole, pond, lake, etc. where the bottom is given by indicating the point.	X
	<i>Reservoir by area</i>	Defines the area such as a waterhole, pond, lake, etc. where the bottom is given by indicating the area.	X
	<i>Plant List</i>	Table of inserted plants, their type and amount.	X
	<i>Fence List</i>	Table showing the measured fence length and the number of posts.	X
	<i>Area List</i>	Table showing the areas and volumes of areas entered into the project (sidewalks, rebates, etc.)	X
	<i>Help</i>	Display help.	X

7.5. 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. 29. The functions of the ArCADia-ARCHITECTURE module located on the Manage ribbon



Icon	Option	Description	*BIM
	<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. 30. Functions of the ArCADia-ARCHITECTURE module located on the Insert ribbon




Icon	Option	Description	*BIM
	<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.	✓

Commands table

	<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. 31. Functions of the ArCADia-ARCHITECTURE module located on the Colaborate ribbon




Icon	Option	Description	*BIM
	<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.





















Tab. 32. Functions of ArCADia-ARCHITECTURE module from Architecture ribbon

Icon	Option	Description	*BIM
	<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>Walls</i>	Inserts layered walls one by one on the view. The walls are introduced with an edge or an axis	✓
	<i>Curved wall</i>	Inserts curved wall by selecting 3 points on the arc.	X
	<i>Insert wall by 3 points</i>	Draws walls by indicating its width and length in the drawing.	X
	<i>Virtual wall</i>	Inserts virtual walls defining the room area into the level Layout.	✓
	<i>Convert line into wall</i>	Converts selected polyline/line into the user-defined wall. Selected polyline/line defines insertion edge/axis.	X
	<i>Convert line into virtual wall</i>	Converts selected polyline/line into virtual wall.	X
	<i>Window</i>	Inserts window opening into the walls, including symbol and description.	✓

Commands table

	<i>Door</i>	Inserts door opening into the walls, including symbol and description.	✓
	<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>Opening</i>	Creates opening in the wall.	✗
	<i>Column</i>	Inserts rectangular or round section column into the Layout.	✓
	<i>Bar element</i>	Inserts steel columns and steel elements as horizontal, vertical, or diagonal elements.	✗
	<i>F3D Import</i>	It introduces the structure designed in the ArCADia-RAMA software (in version R3D3-Rama 3D).	✗
	<i>Insert binding joist</i>	Inserts binding joist into the Layout.	✓
	<i>Pad footing</i>	Inserts a reinforced concrete spot footings into the foundation layout.	✗
	<i>Strip footing</i>	Inserts a reinforced concrete substructure benches into the substructures layout.	✗
	<i>Convert line into strip footing</i>	Convert a polyline/line into substructure bench by selecting polyline/line and edge/insertion axis.	✗
	<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.	✗
	<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.	✗
	<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.	✗
	<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.	✗
	<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.	✗
	<i>Main beam</i>	Element of customizable suspended ceiling, inserted by indicating two points.	✗

Commands table

	<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
	<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.	✓

















Commands table

	<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.	✓
	<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.	✗

Commands table

	<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).	X
	<i>Rectangular solid length and width</i>	Inserts plate of any rectangular shape.	X
	<i>Opening</i>	It introduces the hole in the body.	X
	<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.	X
	<i>Dormer window</i>	Inserts a window into selected roof slope	✓
	<i>Roof hatch</i>	Inserts a roof hatch on a roof piece.	X
	<i>Collector</i>	Inserts a solar collector on the roof slope.	X
	<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.	X
	<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.	✓










Commands table

	<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 the 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
	<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 file for the ArCADia-ARCHITECTURE module.	✓
	<i>Help – Teriva ceilings</i>	Displays the help file describing inserting and modifying 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.


Commands table

Tab. 33. Functions of ArCADia-ARCHITECTURE module from Description ribbon

Icon	Option	Description	*BIM
	<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 dimensional 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



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

Tab. 34. Functions of ArCADia-ARCHITECTURE module from Object Explorer window

Icon	Option	Description	*BIM
	<i>Export to xobj3d file</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 LT or ArCADia PLUS.

Tab. 35. 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

Commands table

7.6. ArCADia-ESCAPE ROUTES



The following options are described in the help file of the ArCADia-ESCAPE ROUTES systems, the icon is at the *Escape* 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. 36. Functions of ArCADia-ESCAPE ROUTES module from Escape ribbon

Icon	Option	Description	*BIM
	<i>Escape plan</i>	Inserts an escape plan border.	X
	<i>Fire plan</i>	Inserts a fire plan border.	X
	<i>Polygonal escape plan</i>	Inserts a polygonal escape area by indicating the number and position of its corners.	X
	<i>Polygonal stairs area</i>	Inserts a polygonal stairs area by indicating the number and position of its corners.	X
	<i>Polygonal passable area</i>	Inserts a polygonal passable area by indicating the number and position of its corners.	X
	<i>Polygonal impassable area</i>	Inserts a polygonal impassable area by indicating the number and position of its corners.	X
	<i>Polygonal danger area</i>	Inserts polygonal hazardous area by indicating a number of position of its corners.	X
	<i>Polygonal extinguishing water area</i>	Inserts a polygonal extinguishing water area by indicating the number and position of its corners.	X
	<i>Rectangular escape plan</i>	Inserts a rectangular escape plan area by indicating its length and width.	X
	<i>Rectangular stairs area</i>	Inserts a rectangular stairs area by indicating its length and width.	X
	<i>Rectangular passable area</i>	Inserts a rectangular passable area by indicating its length and width.	X
	<i>Rectangular impassable area</i>	Inserts a rectangular impassable area by indicating its length and width.	X
	<i>Rectangular danger area</i>	Inserts a rectangular specific hazard by indicating its length and width.	X
	<i>Rectangular extinguishing water area</i>	Inserts a rectangular extinguishing water area by indicating its length and width.	X
	<i>Automatic evacuation area</i>	The option automatically detects the shape of the room and fills it with the evacuation area.	X

Commands table

	<i>Automatic stair area</i>	The option automatically detects the shape of the room and fills it with the area of the stairs.	X
	<i>Automatic passable area</i>	The option automatically detects the shape of the room and fills it with the drive-through area.	X
	<i>Automatic impassable area</i>	The option automatically detects the shape of the room and fills it with impassable area.	X
	<i>Automatic hazardous area</i>	The option automatically detects the shape of the room and fills it with a hazardous area.	X
	<i>Automatic extinguishing water area</i>	The option automatically detects the shape of the room and fills it with extinguishing water.	X
	<i>Any area</i>	Inserts a user-defined polygon area, which can be any color and hatch.	X
	<i>Escape route</i>	Enters an escape plan with the width specified when entering.	X
	<i>Observer</i>	Inserts an observer.	X
	<i>Automatic direction by two points</i>	Inserts directional arrows of the evacuation route automatically determined by indicating the beginning and end point.	X
	<i>Automatic direction</i>	Automatically inserts direction arrows.	X
	<i>Left</i>	Inserts a left direction arrow.	X
	<i>Right</i>	Inserts a right direction arrow.	X
	<i>Straight</i>	Inserts a straight direction arrow.	X
	<i>Left and Right</i>	Insert a bidirectional arrow	X
	<i>Symbol explorer</i>	Displays the symbol explorer window.	X
	<i>Description</i>	Inserts a description with a leader line, the description text can be multiline.	X
	<i>Title block</i>	Inserts an Title block with information concerning the project.	X
	<i>general plan</i>	Inserts a general plan for the project.	X
	<i>Legend</i>	Inserts a legend with a list an descriptions of the elements used in the plan.	X
	<i>Help</i>	Displays the help window.	X
















Commands table

7.7. ArCADia-ELECTRICAL INSTALLATION

The following options are described in the help file of the ArCADia-ELECTRICAL INSTALLATIONS module, the icon is at the *Electric* 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. 37. Functions of ArCADia-ELECTRICAL INSTALLATIONS module from Electric ribbon

Icon	Option	Description	*BIM
	<i>Distribution board</i>	Inserts a distribution board with a description.	✓
	<i>Socket</i>	Insert electric socket with a description.	✓
	<i>Lighting fixture</i>	Inserts a lighting fixture with a description.	✓
	<i>Connector</i>	Inserts an electric switch with a description.	✓
	<i>Cable</i>	Insert an electric conductor with a description.	✓
	<i>Gang box</i>	Inserts a distribution box with a description.	✓
	<i>Ceiling cable conduit</i>	Inserts a ceiling cable conduit with a description.	✓
	<i>Schematic diagram</i>	Generates a schematic diagram of the installation	✗
	<i>Material list</i>	Inserts a symbols legend with a description.	✓
	<i>Selected elements material list</i>	Inserts symbols legend along with item labels of the items selected in the projection	✓
	<i>Item list</i>	Generates quantitative lists of materials used in the project.	✓
	<i>Selected elements list</i>	Generates a quantitative material list for the elements selected in the projection	✓
	<i>Report</i>	Generates a report presenting technical calculations and the validity of the designed network.	✗
	<i>Options</i>	Displays the options window.	✓
	<i>Help</i>	Displays the help window.	✓









7.8. ArCADia-ELECTRICAL INSTALLATION PLUS

The following options are described in the help file of the ArCADia-ELECTRICAL INSTALLATIONS PLUS module, the icon is at the *Electric* ribbon.

Commands table

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

Tab. 38. Functions of ArCADia-ELECTRICAL INSTALLATIONS PLUS module from Electric ribbon








Icon	Option	Description	*BIM
	<i>Cable tray</i>	Inserts a cable tray.	X
	<i>Vertical cable tray</i>	Inserts a vertical cable tray.	X
	<i>Cable ladder</i>	Inserts a cable rack.	X
	<i>Vertical cable ladder</i>	Inserts a vertical cable rack.	X
	<i>Cable channel</i>	Inserts a cable duct.	X
	<i>Vertical cable conduit</i>	Inserts a vertical cable duct.	X
	<i>Export DIALux</i>	Exports the room table to DIALux software.	X
	<i>Import DIALux</i>	Imports .stf files from DIALux software.	X

7.9. ArCADia-POWER NETWORKS













The following options are described in the help file of the ArCADia-POWER NETWORKS module, the icon is at the *Electric* 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. 39. Functions of ArCADia-POWER NETWORKS module from Electric ribbon

Icon	Option	Description	*BIM
	<i>Distribution board</i>	Inserts a distribution board along with a description.	X
	<i>Transformer</i>	Inserts a transformer station along with a description.	X
	<i>Connection point</i>	Inserts a connection point along with a description.	X
	<i>Cable connection</i>	Inserts a cable joint along with a description.	X
	<i>Cable joint box</i>	Inserts a cable joint box along with a description.	X
	<i>Column</i>	Inserts a power pole along with a description.	X
	<i>Buried line</i>	Inserts a buried line along with a description.	X

Commands table





	<i>Overhead line</i>	Inserts an overhead line along with a description.	X
	<i>Survey point</i>	Inserts survey points on a projection along with a description.	X
	<i>Protective pipe</i>	Inserts a protective pipe along with a description.	X
	<i>Schematic diagram</i>	Generates a schematic diagram of the designed network.	X
	<i>Material list</i>	Generates a list of materials used in the design.	X
	<i>Selected elements material list</i>	Inserts material list from the installation elements selected on the projection.	X
	<i>Item list</i>	Inserts an item list of the sewage installation along with the graphical symbols, names, markings and quantity.	X
	<i>Selected elements list</i>	Inserts a list of installation elements selected on the projection.	X
	<i>Network verification report</i>	Generates a report presenting technical calculations and the validity of the designed network.	X
	<i>Survey points</i>	Generates a report containing the X, Y survey coordinates in a RTF file.	X
	<i>Option</i>	Enables the use of standard options for the entire project.	X
	<i>Help</i>	Displays the help window.	X

7.10. ArCADia-DISTRIBUTION BOARDS



The following options are described in the help file of the ArCADia-DISTRIBUTION BOARDS module, the icon is at *Distribution board* 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. 40. Functions from ArCADia-DISTRIBUTION BOARDS module from Distribution board ribbon

Icon	Option	Description	*BIM
	<i>Connection</i>	Make is possible to create electrical connections between items.	X
	<i>Earthing</i>	Inserts the symbol of a earthing along with a description.	X
	<i>Breaker switch</i>	Inserts the symbol of a circuit breaker along with a description.	X
	<i>Load switch</i>	Inserts the symbol of a load switch along with a description.	X

Commands table

	<i>Surge arrester</i>	Inserts the symbol of an arrester along with a description.	X
	<i>Fuse</i>	Inserts the symbol of a fuse along with a description.	X
	<i>Contactor</i>	Inserts the symbol of a contactor along with a description.	X
	<i>Frequency inverter</i>	Inserts the symbol of an inverter along with a description.	X
	<i>Soft start</i>	Inserts the symbol of a soft start along with a description.	X
	<i>Relay</i>	Inserts the symbol of a relay along with a description.	X
	<i>Switch</i>	Inserts the symbol of a switch along with a description.	X
	<i>Programmer</i>	Inserts the symbol of a programmer along with a description.	X
	<i>Controller</i>	Inserts the symbol of a controller along with a description.	X
	<i>Transformer</i>	Inserts the symbol of a transformer along with a description.	X
	<i>Current transformer</i>	Inserts the symbol of a current transformer along with a description.	X
	<i>Sensor</i>	Inserts the symbol of a sensor along with a description.	X
	<i>Signaling</i>	Inserts the symbol of a signalling device along with a description.	X
	<i>Socket</i>	Inserts the symbol of a socket along with a description.	X
	<i>Electricity meter</i>	Inserts the symbol of an electrical energy meter along with a description.	X
	<i>Network analyser</i>	Inserts the symbol of an analyser along with a description.	X
	<i>Voltmeter</i>	Inserts the symbol of a voltmeter along with a description.	X
	<i>Ammeter</i>	Inserts the symbol of an ammeter along with a description.	X
	<i>Material list</i>	Generates quantitative lists of materials used in the project.	X
	<i>Selected elements material list</i>	Generates quantitative lists of materials used in selected elements.	X
	<i>Exterior wall view</i>	Insert a real view of a box along with a description.	X
	<i>Casing</i>	Inserts a new distribution board design.	X
	<i>Option</i>	Enables the use of standard options for the entire project.	X
	<i>Help</i>	Displays the help window.	X

Commands table

7.11. ArCADia-TELECOMMUNICATIONS NETWORKS


















The following options are described in the help file of the ArCADia-TELECOMMUNICATIONS NETWORKS, the icon is at the *Telecommunication* 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. 41. Functions of ArCADia-TELECOMMUNICATIONS NETWORKS module from Telecommunication ribbon

Icon	Option	Description	*BIM
	<i>Chamber</i>	Inserts and edits the properties of a cable chamber along with its symbol and description.	X
	<i>Cable container</i>	Inserts and edits the properties of a cable container along with its symbol and description.	X
	<i>Outdoor cabinet</i>	Inserts and edits the properties of an outdoor cabinet along with its symbol and description.	X
	<i>Column</i>	Inserts and edits the properties of an overhead line pole along with its symbol and description.	X
	<i>Distribution frame</i>	Inserts and edits the properties of a telecommunications distribution frame along with its symbol and description.	X
	<i>Fibre optic distribution frame</i>	Inserts and edits the properties of a fibre optic distribution frame along with its symbol and description.	X
	<i>Cable post</i>	Inserts and edits the properties of a cable post along with its symbol and description.	X
	<i>Casing</i>	Inserts and edits the properties of a line terminal casing along with its symbol and description.	X
	<i>Cable joint</i>	Inserts and edits the properties of a cable joint along with its symbol and description.	X
	<i>Route marker</i>	Inserts and edits the properties of a routing marker along with its symbol and description.	X
	<i>Survey point</i>	Inserts and edits the properties of a survey point along with its symbol and.	X
	<i>Guard pipe</i>	Inserts and edits the properties of a conduit along with its symbol and description.	X
	<i>Primary drainage system</i>	Inserts and edits the properties of a primary cable duct along with its symbol and description.	X
	<i>Cable pipeline</i>	Inserts and edits the properties of a cable subway along with its symbol and description.	X
	<i>Cable</i>	Inserts and edits the properties of a cable along with symbol its and description.	X

Commands table

	<i>Overhead cable line</i>	Inserts and edits the properties of an overhead cable line along with its symbol and description.	X
	<i>Change network elevation</i>	Changes the foundation altitude of an object used in the project.	X
	<i>Change object status</i>	Changes the status of an object used in the project: <i>designed/existing</i> .	X
	<i>Cable diagram</i>	Inserts and edits a selected diagram for the selected optical-fibre cable link designed in the project.	X
	<i>Fibre optic cable diagram</i>	Inserts and edits a selected diagram for the selected telecommunications cable link designed in the project.	X
	<i>Telecommunication cable diagram</i>	Inserts and edits a selected diagram for the selected primary cable duct route segment designed in the project.	X
	<i>Cable pipeline diagram</i>	Inserts and edits a selected diagram for the selected cable subway route segment designed in the project.	X
	<i>Material list</i>	Generates the bill of materials used in the project.	X
	<i>Selected elements material list</i>	Generates a quantitative material list for the elements selected in the projection.	X
	<i>Item list</i>	Inserts the legend of symbols along with a description.	X
	<i>Selected elements list</i>	Inserts the legend of symbols along with a description of elements marked on the projection.	X
	<i>List of wells</i>	Generates a list of cable chambers used in the project.	X
	<i>List of primary ducting system sections</i>	Generates a table summarizing the primary cable duct segments used in the project.	X
	<i>List of survey point coordinates</i>	Generates a table summarizing survey point coordinates for the objects used in the project and the points indicated.	X
	<i>Description of fibre optic cable route</i>	Generates a table summarizing descriptions of the selected optical-fibre cable link.	X
	<i>List of fibre-optical cable sections</i>	Generates a table summarizing the optical-fibre cable segments.	X
	<i>Analysis of fibre optic damping</i>	Generates a table in the form of a report with attenuation calculations for the selected optical-fibre cable.	X
	<i>Description of telecommunication cable route</i>	Generates a table summarizing descriptions of the selected optical-fibre cable link.	X
	<i>List of telecommunications cable sections</i>	Generates a table summarizing telecommunications cable segments.	X

Commands table







	<i>Analysis of cable circuit damping and impedance</i>	Generates a table in the form of a report with attenuation and impedance calculations for the selected cable path.	X
	<i>Telecommunications network verification</i>	Enables the user to run standard checks of the designed network for the project.	X
	<i>Option</i>	Sets standard options for the whole project.	X
	<i>Help</i>	Displays the help window.	X

7.12. ArCADia-WATER SUPPLY INSTALLATIONS



















The following options are described in the help file of the ArCADia-WATER SUPPLY INSTALLATIONS module, the icon is at the *Water* 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. 42. Functions of ArCADia-WATER SUPPLY INSTALLATIONS module from Water ribbon

Icon	Option	Description	*BIM
	<i>Connection point</i>	Inserts an installation connection point and allows to define installation and technical parameters of cold water supply necessary to perform the calculations further in the project.	✓
	<i>Set of connection points</i>	Inserts a connection point for a part of an installation and allows to define installation and technical parameters of cold water supply necessary to perform the calculations further in the project. Here you can change the purpose of a selected part of the building.	✓
	<i>Set</i>	Inserts a water supply pipe set from the groups of any configuration and/or allows you to define the parameters for a given pipeline set and to choose pipelines insulation from this set.	✓
	<i>Set of vertical</i>	Inserts a vertical water supply pipe set from the groups of any configuration and/or allows you to define the parameters for a given pipeline set and to choose pipelines insulation from this set.	✓
	<i>Cold</i>	Inserts a water supply pipe from the <i>Cold water</i> group and/or allows you to define the parameters for a given pipeline and to choose cold water pipelines insulation.	✓
	<i>Cold-vertical</i>	Inserts a vertical water supply pipe from the <i>Cold water</i> group and/or allows you to define the parameters for a given pipeline and to choose cold water pipelines insulation.	✓

Commands table

	<i>Convert line into pipe for cold water</i>	Converts a line into a cold water pipe, at the active level.	X
	<i>Hot</i>	Inserts a water supply pipe from the <i>Hot water</i> group and/or allows you to define the parameters for a given pipeline and to choose hot water pipelines insulation.	✓
	<i>Hot-vertical</i>	Inserts a vertical water supply pipe from the <i>Hot water</i> group and/or allows you to define the parameters for a given pipeline and to choose hot water pipelines insulation.	✓
	<i>Convert line into pipe for hot water</i>	Converts a line into a hot water pipe, at the active level	X
	<i>Circulation</i>	Inserts a water supply pipe from the <i>Circulating water</i> group and/or allows you to define the parameters for a given pipeline and to choose circulating water pipelines insulation.	✓
	<i>Circulation-vertical</i>	Inserts a vertical water supply pipe from the <i>Circulating water</i> group and/or allows you to define the parameters for a given pipeline and to choose circulating water pipelines insulation.	✓
	<i>Convert line into pipe – circulation</i>	Converts a line into a circulating water pipe, at the active level.	X
	<i>Faucet</i>	Inserts a draw-off faucet and allows you to select and/or define the characteristic faucet parameters.	✓
	<i>Draw-off tap</i>	Inserts a draw-off tap and allows you to select and/or define the characteristic tap parameters.	✓
	<i>Hydrant</i>	Inserts a hydrant and allows you to select and/or define the characteristic hydrant parameters, i.e. e.g., a hydrant cabinet.	✓
	<i>Cut-off valve</i>	Inserts a shut-off valve and allows you to select and/or define the characteristic valve parameters.	✓
	<i>Non-return valve</i>	Inserts a non-return valve and allows you to select and/or define the characteristic valve parameters.	✓
	<i>Control valve</i>	Inserts a control valve and allows you to select and/or define the characteristic valve parameters.	✓
	<i>Pressure reducing</i>	Inserts a pressure reducing valve and allows you to select and/or define the characteristic valve parameters.	✓
	<i>Balancing valve</i>	Inserts a balancing valve and allows you to select and/or define the characteristic valve parameters.	✓
	<i>Safety valve</i>	Inserts a safety valve and allows you to select and/or define the characteristic valve parameters.	✓
	<i>Water meter</i>	Inserts a water meter and allows you to select and/or define the characteristic water meter parameters.	✓
	<i>Manometer</i>	Inserts a manometer and allows you to select and/or define the characteristic manometer parameters.	✓

Commands table

	<i>Hot water preparation device</i>	Inserts a hot water preparation device and allows you to select and/or define the parameters characteristic for the device, e.g., exchanger.	✓
	<i>Heater</i>	Inserts a heater and allows you to select and/or define the characteristic heater parameters.	✓
	<i>Water mixer</i>	Inserts a central water mixer and allows you to select and/or define the characteristic mixer parameters.	✓
	<i>Pump</i>	Inserts a pump and allows you to select and/or define the characteristic pump parameters.	✓
	<i>Pressure booster</i>	Inserts a pressure booster and allows you to select and/or define the characteristic pressure booster parameters.	✓
	<i>Filter</i>	Inserts a filter and allows you to select and/or define the characteristic filter parameters.	✓
	<i>Connection wizard</i>	Automatically inserts connections with water outlets in three ways.	✗
	<i>Change height</i>	Moves water-supply installation vertically by a given value.	✓
	<i>Fittings</i>	Inserts pipeline moulds according to the project settings.	✓
	<i>Axonometry</i>	Inserts the axonometry of the water-supply installation.	✗
	<i>Branch axonometry</i>	Inserts the axonometry of installation sections (branches).	✗
	<i>Material list</i>	Inserts material list, allows you to export the drawing to RTF file and Ceninwest.	✓
	<i>Selected elements materials list</i>	Inserts the list of selected materials and enables its export to RTF and Ceninwest.	✓
	<i>Item list</i>	Inserts an item list with symbols used on the projection (drawing key).	✓
	<i>Selected elements list</i>	Inserts the list of selected elements along with symbols applied on the projection (drawing legend).	✓
	<i>Installation item selection</i>	Displays a window with options for selection and allows to perform an automatic selection.	✗
	<i>Calculation and report</i>	Displays the calculation of the water supply window: cold water, hot water and circulation.	✗
	<i>Check installation</i>	Displays a window with installation verification, possible errors, information and warnings.	✓
	<i>Option</i>	Display the options window	✓
	<i>Help</i>	Displays Help file.	✓









Commands table

7.13. ArCADia-SEWAGE INSTALLATIONS













The following options are described in the help file of the ArCADia-SEWAGE INSTALLATIONS module, the icon is at the *Sewer* 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. 43. Functions of ArCADia-SEWAGE INSTALLATIONS module from Sewer ribbon

Icon	Option	Description	*BIM
	<i>Outflow</i>	Enables defining the waste water outflow site, type of sewage line based on the type of waste water and the relative drain location altitude.	✓
	<i>Pipe</i>	Inserts a pipeline section with the option to determine relative altitudes and determine the function for the pipeline.	✓
	<i>Pipe with continuous route</i>	Inserts a set of sewage pipes with descriptions.	✓
	<i>Vertical pipe</i>	Enables inserting a vertical pipe section with a particular function (defining a stack) and defining the parameters.	✓
	<i>Insert connection and inspection well</i>	Inserts the connection well item with a description and parameters.	✓
	<i>Insert outflow point for a sanitary fixture</i>	Defines the sewage outflow from a sanitary fixture into the sewage installation pipes, especially the location, installation height, diameter.	✓
	<i>Insert inside drain</i>	Inserts an inside drain in the rainwater pipeline.	✓
	<i>Insert outlet pipeline fitting</i>	Inserts stop and shut-off fittings (e.g., backwater valve) along with a description, parameters and housing.	✓
	<i>Insert cleanout</i>	Inserts the cleanout item along with a description and parameters.	✓
	<i>Insert inspection opening</i>	Inserts an inspection opening along with description, parameters and housing, with the option to select a pipeline.	✓
	<i>Insert vent</i>	Inserts a vent in the sewage stack in the form of a soil vent or a vacuum relief valve.	✓
	<i>Inserting branch lines for sanitary fixtures</i>	Enables defining group branch lines from a stack to sanitary fixtures. Activates the branch lines organization configurator.	✗
	<i>Change installation height</i>	Enables changing the height of a sewage installation item group by the selected value.	✓
	<i>Insert sewage installation extension</i>	Enables generating an extension of the internal sewage installation.	✗

Commands table

	<i>Insert sewage installation branch extension</i>	Enables generating an extension of the selected sewage installation part.	X
	<i>Insert sewage profile</i>	Enables generating a profile for the internal sewage outlets.	X
	<i>Create an internal sewage profile</i>	Enables defining the organisation of side profiles from the main profile.	X
	<i>Insert material list</i>	Inserts a material lists table into the drawing.	✓
	<i>Insert material list from selected elements</i>	Insert material list from installation elements selected on the projection.	✓
	<i>Insert item list</i>	Inserts an item list of the sewage installation along with the graphical symbols, names, markings and quantity.	✓
	<i>Insert selected elements list</i>	Inserts the list of the installation elements selected on the projection.	✓
	<i>Determine diameters of outlet lines</i>	Displays the calculation tables and generates a report presenting the technical calculations and the validity of the designed sewage installation of outlet pipelines. Generates calculation reports.	X
	<i>Sewage installation verification</i>	Generates a list of items that have been designed with errors. Identifies pipe sections with the wrong functions in the sewage line.	✓
	<i>Selection of sewage stacks</i>	Enables the designer to easily verify whether sewage stacks were correctly selected. Generates calculation reports.	X
	<i>Option</i>	Displays project options.	✓
	<i>Help</i>	Displays the software help contents.	✓
















7.14. ArCADia-SEWAGE SYSTEMS

The following options are described in the ArCADia-SEWAGE NETWORK module help file, the icon is located on the Sewage ribbon.

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

Commands table





Tab. 44. The following options are described in the help file of the ArCADia-SEWAGE SYSTEM module, the icon is located on the Sewage ribbon.

Icon	Option	Description	*BIM
	<i>Building Terminal</i>	Allows to define the place of sewage outflow, the type of sewage system dependent of the sewage type and the relative elevation outflow positioning.	X
	<i>Free outlet</i>	Inserts the final object of the sewage system which represents the pipe outlet (eg rainwater to the field receiver).	X
	<i>Concrete chamber</i>	Inserts the concrete chamber connected with subparts (eg rings, manhole) together with the description and parameters.	X
	<i>Plastic Well</i>	Inserts a well made of plastic with with subparts (eg manhole, invert channel) together with the description and parameters.	X
	<i>Concrete inlet</i>	Inserts the inlet on the concrete chamber connected with subparts (eg grate) together with the description and parameters.	X
	<i>Plastic inlet</i>	Inserts the inlet on the plastic well with the components (eg grate) together with the description and parameters.	X
	<i>Linear drainage</i>	Inserts the linear drainage together with the description and parameters.	X
	<i>Tank</i>	Inserts the tank together with its dimensions and technological parameters.	X
	<i>Fat separator</i>	Inserts the fat separator together with its dimensions and technological parameters.	X
	<i>Petroleum derivative separator</i>	Inserts the petroleum derivative separator together with its dimensions and technological parameters.	X
	<i>Pumping station</i>	Inserts the pumping station together with its dimensions and technological parameters.	X
	<i>Fittings Insert casing pipe</i>	Inserts cut-off valves or non-return valves with their selected parameters.	X
	<i>Insert casing pipe</i>	Inserts a <i>casing pipe</i> in the map view on the section of the pipeline running with a slope or horizontal	X
	<i>Insert vertical casing pipe Survey point</i>	Inserts <i>vertical casing pipe</i> in the map view on the section of the the vertical pipeline	X
	<i>Survey point Sanitary</i>	Allows to insert anywhere on a given object (e.g., all corners of the tank) a point whose coordinates will be generated in the coordinate list in RTF format.	X
	<i>Sanitary</i>	Enables inserting pipelines with a given slope, ordinates or horizontal on the map underlay.	X

Commands table

	<i>Sanitary-Vertical</i>	Enables inserting only vertical pipelines with given ordinates on the map underlay.	X
	<i>Change line into sanitary sewer pipe</i>	Changes the line or polyline into the pipeline.	X
	<i>Stormwater</i>	Enables inserting pipelines with a given slope, ordinates or horizontal on the map underlay.	X
	<i>Stormwater-Vertical</i>	Enables inserting only vertical pipelines with given ordinates on the map underlay.	X
	<i>Change line into stormwater system pipe</i>	Changes the line or polyline into the a pipeline.	X
	<i>Combined sewer</i>	Enables inserting pipelines with a given slope, ordinates or horizontal on the map underlay.	X
	<i>Vertical combined sewer</i>	Enables inserting only vertical pipelines with given ordinates on the map underlay.	X
	<i>Change line into combined sewer pipe</i>	Changes the line or polyline into a pipeline.	X
	<i>Change of system height</i>	Allows to change a group of sewage system objects ordinates by a given value (eg by 0.5 m).	X
	<i>Sewage systems profile</i>	Enables the generation of a section profile of a sewage system.	X
	<i>Concrete wells drawing</i>	Allows to generate schematic drawings of concrete wells used in the project.	X
	<i>Drawing of selected concrete wells</i>	Allows to generate schematic drawings of only selected concrete wells used in the project.	X
	<i>Item list</i>	Inserts list of the sewage system elements along with graphic symbols, names, markings and quantity.	X
	<i>Selected elements list</i>	Inserts a list of sewage system elements selected on the view.	X
	<i>Material list</i>	Inserts a list of materials on the view.	X
	<i>Selected elements material list</i>	Inserts a list of selected elements materials on the view.	X
	<i>List of invert channels</i>	Inserts a list of concrete wells' invert channels in the drawing.	X
	<i>List of selected invert channels</i>	Inserts a list of selected concrete wells' invert channels in the drawing.	X
	<i>Verification</i>	Generates a list of incorrectly designed elements. Detects pipe sections with improper functions in the sewer line.	X

Commands table













	<i>Calculations and report</i>	Displays calculation tables showing technical calculations and correctness of the designed sewage system. The window is able to generate calculation reports in the RTF format.	X
	<i>Coordinate list</i>	Generates a report in the RTF format of coordinates of sewage system objects and inserted geodetic points.	X
	<i>Options</i>	Displays the options window.	X
	<i>Help</i>	Displays the help file.	X

7.15. ArCADia-GAS INSTALLATIONS














The following options are described in the help file of the ArCADia-GAS INSTALLATIONS module, the icon is at the *Gas* 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. 45. Functions of ArCADia-GAS INSTALLATIONS module from Gas ribbon

Icon	Option	Description	*BIM
	<i>Box</i>	Inserts a gas box along with a description	✓
	<i>Receiver</i>	Inserts a gas appliance along with a description	✓
	<i>Gas meter</i>	Inserts a gas meter along with a description	✓
	<i>Valve</i>	Inserts a gas valve along with a description	✓
	<i>Filter</i>	Inserts a gas filter along with a description	✓
	<i>Reducer</i>	Inserts a gas reducer along with a description	✓
	<i>Pipe</i>	Inserts a gas pipe along with a description	✓
	<i>Pipe with continuous route</i>	Inserts a section of gas pipes along with a description	✓
	<i>Vertical pipe</i>	Inserts a vertical gas pipe along with a description	✓
	<i>Convert line into gas pipe</i>	The CAD command line inserted (dash) will be changed into a gas pipe with the given parameters	✓
	<i>Change height</i>	Enables changing the height of a group of objects of a gas installation	✓
	<i>Fittings</i>	Inserts gas fittings in accordance with settings in the project options.	✓

Commands table




	<i>Extension</i>	Generates a gas installation extension	X
	<i>Branch extension</i>	Generates a gas installation branch extension	X
	<i>Axonometry</i>	Generates a gas installation axonometry	X
	<i>Branch axonometry</i>	Generates a gas installation branch extension	X
	<i>Material list*</i>	Inserts a material lists table into the drawing	✓
	<i>Selected elements material list</i>	Inserts a user defined material lists table into the drawing	✓
	<i>Item list</i>	Inserts a gas installation item list along with graphical symbols, names, markings and quantity	✓
	<i>Selected elements list</i>	Inserts a user defined gas item list along with graphical symbols, names, markings and quantity	✓
	<i>Installation item selection</i>	Allows for automatic selection of gas installation elements	X
	<i>Calculations and report</i>	Displays the calculation tables and generates a report presenting the technical calculations and the validity of the designed network	X
	<i>Gas installation verification</i>	Generates a list of erroneously designed elements	✓
	<i>Options</i>	Displays the options window	✓
	<i>Help</i>	Displays the help window	✓

7.16. ArCADia-EXTERNAL GAS INSTALLATIONS


















The following options are described in the help file of the ArCADia-EXTERNAL GAS INSTALLATIONS module, the icon is at the *Gas* 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. 46. Functions of ArCADia-EXTERNAL GAS INSTALLATIONS module from Gas ribbon

Icon	Option	Description	<i>*BIM</i>
	<i>Connection</i>	It allows the user to define the parameters for inserting the designed pipeline to the gas source (gas pipeline).	X
	<i>Hydrant box</i>	Inserts a gas cabinet along with a description and parameters.	X
	<i>Valve</i>	Inserts a gas cabinet along with a description and parameters.	X

Commands table

	<i>Pipe*</i>	Inserts a gas pipe along with a description and parameters.	X
	<i>Vertical gas pipe</i>	Inserts a vertical gas pipe along with a description and parameters.	X
	<i>Convert line into gas pipe</i>	The CAD command line inserted (dash) will be changed into a gas pipe with the given parameters.	X
	<i>Protective pipe</i>	Inserts a casing pipe onto a non vertical gas pipeline and defined the parameters.	X
	<i>Vertical casing pipe</i>	Inserts a casing pipe onto a vertical gas pipeline and defined the parameters.	X
	<i>Survey point</i>	Inserts a survey point providing information concerning coordinates of any element.	X
	<i>Change height</i>	Allows to change the vertical location of all selected elements.	X
	<i>Installation profile</i>	Generates outdoor gas installation profile.	X
	<i>Material list</i>	Generates quantitative lists of materials used in the project.	X
	<i>Selected elements material list</i>	Inserts a user defined material lists table into the drawing.	X
	<i>Item list</i>	Generates a quantitative list of elements used in the project along with their markings (legend).	X
	<i>Selected elements list</i>	Generates a quantitative list of the elements selected by the user.	X
	<i>Calculations and report</i>	Displays the calculation tables and generates a report presenting the technical calculations and the validity of the designed installation.	X
	<i>Outdoor gas installation verification</i>	Generates a list of erroneously designed elements.	X
	<i>Survey point coordinate list</i>	Creates a list of survey point coordinates in the RTF format.	X
	<i>Option</i>	<i>Displays a project settings dialog box.</i>	X
	<i>Help</i>	<i>Displays the help window. (Help is located on the left side of the ArCADia software menu).</i>	X

7.17. ArCADia-HEATING INSTALLATIONS

The options mentioned below can be found in the ArCADia-HEATING INSTALLATIONS's Help file. The icon is situated on the *Heating* ribbon.




















Commands table

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












Tab. 47. Functions of the ArCADia-HEATING INSTALLATIONS module

Icon	Option	Description	*BIM
	<i>Heat source</i>	Inserts a heat source and allows you to select and/or define the characteristic parameters of the heat source as the heating installation start point.	✓
	<i>Heating boiler</i>	Inserts a boiler and allows you to select and/or define the characteristic parameters of the boiler as the heating installation start point.	✓
	<i>Radiator-outline</i>	Inserts a radiator and allows you to select and/or define the characteristic heater parameters.	✓
	<i>FanCoilUnit</i>	Inserts a fan-coil unit and allows you to select and/or define the characteristic fan-coil unit parameters.	✓
	<i>Heater</i>	Inserts an air heater and allows you to select and/or define the characteristic air heater parameters.	✓
	<i>Radiant heating</i>	Inserts a Radiant heating and allows you to select and/or define the characteristic Radiant heating parameters.	✓
	<i>Divider</i>	Inserts a divider and allows you to select and/or define the characteristic divider parameters.	✓
	<i>Expansion vessel</i>	Inserts an expansion vessel and allows you to select and/or define the characteristic expansion vessel parameters.	✓
	<i>Hydraulic separators</i>	Inserts a hydraulic separators and allows you to select and/or define the characteristic hydraulic separators parameters.	✓
	<i>Filter</i>	Inserts a filter and allows you to select and/or define the characteristic filter parameters.	✓
	<i>Strainers</i>	Inserts a Strainers and allows you to select and/or define the characteristic Strainers parameters.	✓
	<i>Air separator</i>	Inserts an air separator and allows you to select and/or define the characteristic air separator parameters.	✓
	<i>Heat meter</i>	Inserts a heat meter and allows you to select and/or define the characteristic heat meter parameters.	✓
	<i>Vent valve</i>	Inserts a vent valve and allows you to select and/or define the characteristic vent valve parameters.	✓
	<i>Draining valve</i>	Inserts a draining valve and allows you to select and/or define the characteristic draining valve parameters.	✓
	<i>Thermostatic valve</i>	Inserts a thermostatic valve and allows you to select and/or define the characteristic thermostatic valve parameters.	✓
	<i>Cut-off valve</i>	Inserts a shut-off valve and allows you to select and/or define the characteristic shut-off valve parameters.	✓
	<i>Non-return valve</i>	Inserts a non-return valve and allows you to select and/or define the characteristic non-return valve parameters.	✓
	<i>Safety valve</i>	Inserts a safety valve and allows you to select and/or define the characteristic safety valve parameters.	✓

Commands table

	<i>Balancing valve</i>	Inserts a balancing valve and allows you to select and/or define the characteristic balancing valve parameters.	✓
	<i>Control valve</i>	Inserts a control valve and allows you to select and/or define the characteristic control valve parameters.	✓
	<i>Pump</i>	Inserts a circulating pump and allows you to select and/or define the characteristic pump parameters.	✓
	<i>Thermometer</i>	Inserts a thermometer and allows you to select and/or define the characteristic thermometer parameters.	✓
	<i>Manometer</i>	Inserts a manometer and allows you to select and/or define the characteristic manometer parameters.	✓
	<i>Fixture</i>	Inserts a fixture and allows you to select and/or define the characteristic fixture parameters.	✓
	<i>Power supply</i>	Inserts a heating pipe from the Supply group and/or allows you to define the parameters of the particular pipeline and select the supply pipeline insulation.	✓
	<i>Vertical heat pipe – feed</i>	Inserts a vertical heating pipe from the Supply group and/or allows you to define the parameters of the given pipeline and select supply pipeline insulation.	✓
	<i>Change line into a heating pipe – supply</i>	Converts a line into a supply pipe, at the active level.	✗
	<i>Return</i>	Inserts a heating pipe from the Return group and/or allows you to define the parameters of the given pipeline and select return pipeline insulation.	✓
	<i>Vertical heat pipe – return</i>	Inserts a vertical heating pipe from the Return group and/or allows you to define the parameters of the given pipeline and select return pipeline insulation.	✓
	<i>Change line into a heating pipe – return</i>	Converts a line into a return pipe, at the active level.	✗
	<i>Set</i>	Inserts a heating pipe set from the groups of any configuration and/or allows you to define the parameters for a given pipeline set and to choose pipelines insulation from this set.	✓
	<i>Vertical set</i>	Inserts a vertical heating pipe set from the groups of any configuration and/or allows you to define the parameters for a given pipeline set and to choose pipelines insulation from this set.	✓
	<i>Connection wizard</i>	Automatically inserts connections between heaters and pipelines in three possible ways.	✗
	<i>Change installation height</i>	Moves heating installation vertically by a given value.	✓
	<i>Fittings</i>	Automatically generates connection fitting sets on pipelines.	✓
	<i>Fastenings automatically</i>	Automatically inserts fixtures in the installation – sliding points.	✓
	<i>Axonometry</i>	Inserts the axonometry of the heating installation.	✗

Commands table




	<i>Branch axonometry</i>	Inserts the axonometry of installation sections (branches).	X
	<i>Room manager</i>	Displays the Room manager window, where you can define the rooms included in the project.	✓
	<i>List of heating</i>	Inserts a list of the heating types and room power.	✓
	<i>List of radiant heating at rooms</i>	Inserts a list of receivers based on the room, where they are designed.	✓
	<i>List of radiant heating at rooms</i>	Inserts a list of Radiant heating in the rooms.	✓
	<i>Item list</i>	Inserts an item list with symbols used on the projection (drawing key).	✓
	<i>Insert selected elements list</i>	Inserts a user defined item list with symbols used on the projection (drawing key).	✓
	<i>Material list</i>	Inserts a material list for the elements located in the projection.	✓
	<i>List of selected elements materials</i>	Inserts a material list for the elements selected by the user in the projection.	✓
	<i>Installation item selection</i>	Displays a window with options for selection and allows to perform an automatic selection.	X
	<i>Calculations and report for the heating system</i>	Displays a windows with the heating installation calculation for all circuits.	X
	<i>Heating system verification</i>	Displays a window with installation verification, possible errors, information and warnings.	✓
	<i>Options</i>	Displays project options window.	✓
	<i>Help</i>	Displays ArCADia – HEATING INSTALLATIONS help file.	✓

7.18. ArCADia-VENTILATION SYSTEMS

The options mentioned below can be found in the ArCADia-VENTILATION SYSTEMS's Help file.

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


















Tab. 48. Functions of the ArCADia-VENTILATION SYSTEMS module

Icon	Option	Description	<i>*BIM</i>
	<i>Air handling unit</i>	Inserts an air handling unit and enables selection and/or definition of parameters specific to air handling units.	✓
	<i>Intake</i>	Inserts an intake and allows the selection and/or definition of parameters specific to intakes.	✓
	<i>Outlet</i>	Inserts an exhaust and allows the selection and/or definition of parameters specific to exhausts.	✓








Commands table

	<i>Intake ventilator</i>	Inserts an intake ventilator and allows the selection and/or definition of parameters specific to intake ventilators.	✓
	<i>Uptake ventilator</i>	Inserts an exhaust ventilator and allows the selection and/or definition of parameters specific to exhaust ventilators.	✓
	<i>Fan</i>	Inserts a fan and allows the selection and/or definition of parameters specific to fans.	✓
	<i>Heater</i>	Inserts a heater / a cooler and allows the selection and/or definition of parameters specific to heaters / coolers.	✓
	<i>Filter</i>	Inserts a filter and allows the selection and/or definition of parameters specific to filters.	✓
	<i>Silencer</i>	Inserts a silencer and allows the selection and/or definition of parameters specific to silencers.	✓
	<i>Damper</i>	Inserts a damper and allows the selection and/or definition of parameters specific to dampers.	✓
	<i>Controller</i>	Inserts a regulator and allows the selection and/or definition of parameters specific to regulators.	✓
	<i>Plenum box</i>	Inserts a plenum box and allows the selection and/or definition of parameters specific to plenum boxes.	✓
	<i>Fire damper</i>	Inserts a fire damper and allows the selection and/or definition of parameters specific to fire dampers.	✓
	<i>Access door</i>	Inserts an access door and allows the selection and/or definition of parameters specific to access doors.	✓
	<i>Saddle branch</i>	Inserts a saddle branch and allows the selection and/or definition of parameters specific to saddle branches.	✓
	<i>Duct</i>	Inserts a ventilation duct and/or allows the user to define the parameters of a given duct and select the insulation.	✓
	<i>Vertical duct</i>	Inserts a vertical ventilation duct and/or allows the user to define the parameters of a given duct and select the insulation.	✓
	<i>Flexible duct</i>	Inserts a flexible ventilation duct and/or allows the user to define the parameters of a given duct and select the insulation.	✓
	<i>Reducer</i>	Inserts a reducer and allows the selection and/or definition of parameters specific to reducers.	✓
	<i>Bend</i>	Inserts an elbow and allows the selection and/or definition of parameters specific to elbows.	✓
	<i>Elbow</i>	Inserts a bend and allows the selection and/or definition of parameters specific to bends.	✓
	<i>Offset</i>	Inserts an offset and allows the selection and/or definition of parameters specific to offsets.	✓
	<i>Tee</i>	Inserts a tee and allows the selection and/or definition of parameters specific to tees.	✓

Commands table

	<i>Y-piece</i>	Inserts a Y-piece and allows the selection and/or definition of parameters specific to Y-pieces.	✓
	<i>Y-piece with bend</i>	Inserts a Y-piece with a bend and allows the selection and/or definition of parameters specific to Y-pieces with bends.	✓
	<i>Tee with take-off bend</i>	Inserts a Y-piece with a take-off bend and allows the selection and/or definition of parameters specific to Y-pieces with take-off bends.	✓
	<i>Pant Y-piece</i>	Inserts a pant Y-piece and allows the selection and/or definition of parameters specific to pant Y-pieces.	✓
	<i>Four-way tee fitting</i>	Inserts a four-way tee fitting and allows the selection and/or definition of parameters specific to four-way tee fittings.	✓
	<i>Duct connector</i>	Inserts a duct connector and allows the selection and/or definition of parameters specific to duct connectors. In the BIM version a duct connector is used as a duct.	✓
	<i>End cap</i>	Inserts an end cap and allows the selection and/or definition of parameters specific to end caps.	✓
	<i>Free fitting</i>	Inserts any user-defined fitting and allows the user to select and/or define its characteristic parameters.	✓
	<i>Change installation height</i>	Moves the ventilation installation vertically by a set value.	✓
	<i>Divide duct into segments</i>	Automatically divides ventilation ducts into segments of the lengths specified in the options.	✓
	<i>Insert virtual room</i>	Inserts a virtual room (not reflected in the geometry of the building) with user-specified parameters (temperature, volume, amount of ventilation air).	✓
	<i>Room manager</i>	Activates the Room manager window, in which the user can define room properties included in the project (the temperature, volume, and amount of ventilation air).	✓
	<i>Insert description</i>	Inserts a default or user-defined description of a selected ventilation element.	✓
	<i>Renumbr elements</i>	Assigns new numbers and rennumbers existing elements in a given ventilation installation to identify elements in the specification.	✓
	<i>Connector editor</i>	Activates the <i>Connector Editor</i> window, in which you can define the locations and parameters of custom object connector pipes.	✓
	<i>Object rotation</i>	Activates the Object rotation window, in which you can define any 3D rotation of the objects in the drawing.	✓
	<i>Material List</i>	Inserts the material list and enables its export to RTF and Ceninwest.	✓

Commands table







	<i>Selected elements material List</i>	Inserts the selected elements material list and enables its export to RTF and Ceninwest.	✓
	<i>Item List</i>	Inserts the item list with the symbols used in the projection.	✓
	<i>Selected elements list</i>	Inserts the selected elements list with the symbols used in the projection.	✓
	<i>Ventilation system calculations and report</i>	Displays the ventilation installation calculation window.	✗
	<i>Check the ventilation system</i>	Displays the window with the system check, errors (if any occur), information and warnings.	✓
	<i>Options</i>	Displays the project options window.	✓
	<i>Help</i>	Displays the help file for the program.	✓

7.19. ArCADia-LIGHTNING PROTECTION INSTALLATIONS











The following options are described in the help file of the ArCADia-LIGHTNING PROTECTION INSTALLATIONS module, the icon is located on the *Lightning* 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. 49. ArCADia-LIGHTNING PROTECTION INSTALLATIONS options

Icon	Option	Description	*BIM
	<i>Conducting cable</i>	Assembled on the roof, it is primarily placed along the roof ridge, on the side edges of the roof (baskets and corners), on the chimney and aerial mast.	✗
	<i>Air terminal</i>	Inserts the lightning rods on the roof, its purpose is to take a direct lightning strike and pass on the discharge further.	✗
	<i>Downlead</i>	Galvanized steel wire used to create horizontal conducting and down conducting cable.	✗
	<i>Control connector</i>	Connects the discharge cable to the earthing. It allows to spread the elements of the lightning protection installation from the <i>Earth electrode</i> and measure the resistance of the earthing	✗
	<i>Grounding wire</i>	Affixed on the wall of the building; It connects conducting cable with the control connector	✗
	<i>Surround earth electrode</i>	It acts as an artificial earth electrode. It borders the building at a fixed distance and at a fixed depth.	✗

Commands table


	<i>Grate earth electrode</i>	Also called net; It acts as an artificial earth electrode; usually used under power poles.	X
	<i>Earth rod</i>	Also called vertical; It acts as an artificial earth electrode; alternative to the surround earth electrode.	X
	<i>Item list</i>	List of elements used in the project.	X
	<i>Selected elements list</i>	List of selected elements used in the project.	X
	<i>Material list</i>	List of materials used in the project.	X
	<i>Selected elements material list</i>	List of materials of selected objects.	X
	<i>Installation verification</i>	Checks the correctness of the drawn installation.	X
	<i>Calculations and report</i>	Performs the necessary calculations for the drawn installation and displays the report.	X
	<i>Options</i>	Displays the options window	X
	<i>Help</i>	Displays the help file.	X

7.20. ArCADia-TERMO

The below options are described in the help file of the ArCADia-TERMO software.

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

Tab. 50. ArCADia-TERMO software functions on the Termo ribbon

Icon	Option	Description	<i>*BIM</i>
	<i>TERMO export</i>	Moves the building model to the ArCADia-TERMO software.	X

7.21. ArCADia-REINFORCED CONCRETE SLAB

The following options are described in the help file of the ArCADia-REINFORCED CONCRETE SLAB module, the icon is at the *Construction* ribbon.



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

Commands table

Tab. 51. Functions of the ArCADia-REINFORCED CONCRETE SLAB module

Icon	Option	Description	*BIM
	<i>Slab</i>	Inserts a slab contour of customized shape.	X
	<i>Rectangular slab</i>	Inserts a rectangular slab contour.	X
	<i>Slab from XML</i>	Inserts slab geometry from ArCADia-ARCHITECTURE software XML file.	X
	<i>Wall</i>	Inserts a slab support in the form of a wall.	X
	<i>Binding joist</i>	Inserts a slab support in the form of a binder.	X
	<i>Column</i>	Inserts a slab support in the form of a column.	X
	<i>Roof opening</i>	Inserts an opening into the slab.	X
	<i>Rebar</i>	Inserts a customized bar into the slab.	X
	<i>Net</i>	Inserts a reinforcing mesh of customized shape.	X
	<i>Mesh automatically</i>	Inserts a reinforcing mesh on the entire area of the slab.	X
	<i>Mesh opening</i>	Inserts an opening into the reinforcing mesh.	X
	<i>Mesh ratio</i>	Inserts a concentration into the reinforcing mesh.	X
	<i>Rebar details</i>	Inserts details for a single bar.	X
	<i>All rebar details</i>	Inserts all the details of the bars.	X
	<i>Space rebar details</i>	Inserts the details of a spacer bar (high chair).	X
	<i>Rebars description</i>	Inserts a description of the bars.	X
	<i>Aggregated rebars description</i>	Inserts a description of the aggregated bars.	X
	<i>Dimension</i>	Inserts any dimension.	X
	<i>Steel list</i>	Inserts a project steel list.	X
	<i>Item steel list</i>	Inserts a steel list for a single slab.	X
	<i>Cross-section</i>	Inserts a cross-section of the slab.	X
	<i>Bottom view</i>	Inserts a bottom reinforcement view of the slab.	X
	<i>Top view</i>	Inserts a top reinforcement view of the slab.	X

Commands table






	<i>Activate</i>	Activates the indicated construction view.	X
	<i>Help</i>	Displays the help window.	X

7.22. ArCADia-REINFORCED CONCRETE COLUMN







The following options are described in the help file of the ArCADia-REINFORCED CONCRETE COLUMN module, the icon is at the *Construction* 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. 52. Functions of the ArCADia-REINFORCED CONCRETE COLUMN module

Icon	Option	Description	<i>*BIM</i>
	<i>Column</i>	Inserts column.	X
	<i>Column from XML</i>	Inserts complete column from xml file.	X
	<i>Upper level column</i>	Inserts column of upper level.	X
	<i>Transom</i>	Inserts transom.	X
	<i>Set of stirrup</i>	Inserts stirrup block.	X
	<i>Stirrup</i>	Inserts single stirrup.	X
	<i>Group of rebar</i>	Inserts automatic rebar block.	X
	<i>Rebar</i>	Inserts single automatic rebar.	X
	<i>Any shape rebar</i>	Inserts user-defined rebar shape.	X
	<i>Rebar details</i>	Inserts rebar detail.	X
	<i>All rebar details</i>	Inserts details for all rebars.	X
	<i>Rebars description</i>	Inserts rebar descriptions.	X
	<i>Dimension</i>	Inserts freely chosen dimension.	X
	<i>Steel list</i>	Inserts list of steels used in the project.	X
	<i>Item steel list</i>	Inserts list of steels used in the structural element.	X
	<i>Front view</i>	Inserts front view.	X

Commands table











	<i>Back view</i>	Inserts rear view.	X
	<i>Left view</i>	Inserts left-side view.	X
	<i>Right view</i>	Inserts right-side view.	X
	<i>Cross-section</i>	Insert section.	X
	<i>Activate</i>	Activates selected construction view.	X
	<i>Help</i>	Displays the help window.	X

7.23. ArCADia-REINFORCED CONCRETE COMPONENT













The following options are described in the help of the ArCADia-REINFORCED CONCRETE COMPONENT module, the icon is on the *Construction* 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. 53. Functions of the ArCADia-REINFORCED CONCRETE COMPONENT module

Icon	Option	Description	*BIM
	<i>Script Explorer</i>	Runs the <i>Script Explorer</i> window.	X
	<i>Any shape rebar</i>	Allows inserting any reinforcing bar into the reinforced concrete model. The shape of the bar is defined on the active view/cross-section.	X
	<i>Stirrup</i>	Allows to insert stirrup/stirrup set into the the reinforced concrete model on the active view/cross-section.	X
	<i>Rebar detail</i>	Generates detail for the selected rebar/selected set of rebars.	X
	<i>Rebar details</i>	Generates details for all rebars instered in reinforced object.	X
	<i>Missing rebar details</i>	Generates missing details for all rebars instered in the project.	X
	<i>Rebar details from the view - horizontally</i>	Generates details of rebars visible on a given view/cross-section and distribute them horizontally.	X
	<i>Rebar details from the view - vertically</i>	Generates details of rebars visible on a given view/cross-section and distribute them vertically.	X
	<i>Rebar description</i>	Inserts a description for the selected rebar/selected rebars.	X
	<i>Dimension</i>	Inserts any dimension on the view/ cross-section	X

Commands table


	<i>Steel list</i>	Inserts steel lists of all reinforced concrete elements currently in the project, taking into account the number of pieces given in the properties of reinforced concrete elements.	X
	<i>Element steel list</i>	Inserts a rebar List for the one element of reinforced concrete.	X
	<i>Front View</i>	Inserts the front view for a reinforced concrete component.	X
	<i>Back View</i>	Inserts the back view for a reinforced concrete component.	X
	<i>Left View</i>	Inserts the left view for a reinforced concrete component.	X
	<i>Right View</i>	Inserts the right view for a reinforced concrete component.	X
	<i>Top View</i>	Inserts the top view for a reinforced concrete component.	X
	<i>Bottom View</i>	Inserts the bottom view for a reinforced concrete component.	X
	<i>Cross-section</i>	Starts inserting a cross-section (horizontal or vertical) at any point in the active view.	X
	<i>Activate</i>	Activates the view/cross-section.	X
	<i>Options</i>	Activates the project options window	X
	<i>Help</i>	Opens the module help window	X

7.24. ArCADia-SURVEYOR

The following options are described in the help file of the ArCADia-SURVEYOR module, the icon is at the *Surveyor* 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. 54. Functions of ArCADia-SURVEYOR module from Insert control ribbon

Icon	Option	Description	*BIM
	<i>DRAFTER Import</i>	Imports a project made in the ArCADia-DRAFTER mobile application.	✓

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

Commands table

Tab. 55. Functions of ArCADia-SURVEYOR module from Surveyor ribbon

Icon	Option	Description	*BIM
	<i>Turn on rangefinder</i>	Turns on rangefinder operation.	X
	<i>Turn off rangefinder</i>	Turns off rangefinder operation.	X
	<i>Navigator</i>	Opens window which displays the most important options necessary to make a drawing using the rangefinder.	X
	<i>Move/Join a group of rooms</i>	Enables moving the selected room or a group of rooms to be joined with other rooms.	X
	<i>Rotate left</i>	Rotates a room or group of rooms by 90o to the left.	X
	<i>Rotate right</i>	Rotates a room or group of rooms by 90o to the right.	X
	<i>Rotate freely</i>	Rotates a room or group of rooms by any angle.	X
	<i>Help</i>	Displays the help window.	✓