



CAD PROJEKT K&A

operation manual

# CAD Decor PRO

comprehensive system for designing, valuation  
and visualization of various types of interiors







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# CHAPTER 1

## System and hardware requirements

### 1. System requirements

- Operating system: Windows XP (required version SP2) - 32-bit, Vista - 32/64-bit, Windows 7 - 32/64-bit or Windows 8 - 32/64-bit;
- IntelliCAD program (delivered with CAD Decor PRO software, free of charge).

*Note! CAD Decor PRO does not operate in Linux or Mac OS systems.*

### 2. Minimum hardware requirements

- single-core processor 2,0 GHz
- minimum RAM memory: for Windows XP: 2 GB, for Windows Vista/7/8 – 4 GB;
- graphic card with NVIDIA GeForce chip, minimum GeForce series 8600 GT (512 RAM) and better models in this series(cards supporting OpenGL 3.0 and GLSL 1.3 or higher);

### 3. Recommended hardware requirements

- dual-core or multi-core processor 2,6 GHz
- RAM memory: 4GB;
- graphic card with NVIDIA GeForce chip (card memory 768 MB and more);
- exemplary models are given in the table below:

*Note! By the graphic card series the following sequence is understood: GT/GTS/GTX sign and the first number in the cards name, e.g. GeForce GT 3xx. The following numbers, marked by xx, stand for the model of the graphic card. For example, GeForce GT320 comes from series GT 3xx, and is a model GT 320.*

*Note! The proper operation of the program is not guaranteed with other graphic cards than listed in the table on the next page.*

*Note! As a optimal choice, we recommend the card GTX 470 or GTX 560 Ti.*

For desktop computer:		For notebooks:
<b>GT</b>	GeForce 8600 GT and better models in this series* GeForce 9600 GT and better models in this series* GeForce GT 220 and better models in this series* GeForce GT 420 and better models in this series* GeForce GT 630 and better models in this series*	GeForce 8600M GT and better models in this series* GeForce 9600M GT and better models in this series* GeForce GT 120M and better models in this series* GeForce GT 220M and better models in this series* GeForce GT 320M and better models in this series* GeForce GT 420M and better models in this series* GeForce GT 520M and better models in this series* GeForce GT 620M and better models in this series*
		GeForce MX 130 and better models in this series* GeForce MX 150 and better models in this series*
<b>GTX</b>	GeForce GTX 550 and better models in this series* GeForce GTX 670 and better models in this series* GeForce GTX 780 and better models in this series*	GeForce GTX 660M and better models in this series* GeForce GTX 770M and better models in this series* GeForce GTX 1060 and better models in this series* GeForce GTX 1060 Max-q and better models in this series*

## 4. Requirements for a Professional Rendering module

- quad-core processor, e.g. Quad Core i5, i7 (on a dual-core processor the program operates slower);
- minimum RAM memory: for Windows 32-bit – 4GB (does not guarantee proper calculation results in big scenes), for Windows 64-bit - 8GB (optimal RAM in case of big scenes: 16GB)
- recommended optimal configuration: Windows 7 64-bit, RAM memory: 8-16GB, Processor Intel Core i5 2500 K, i7 2600 K, graphic card GeForce GTX 470 or GTX 560 Ti.

## 5. Other elements

- DVD-ROM driver for software installation (required DVD drive min. 8x);
- hard disc space 2048MB (or more, dependant on number of installed databases);
- Internet access (to enable iUPDATE system operation);
- color printer, minimum resolution - 1200dpi and more (e.g. Canon i560, Canon i455; the usage of inkjet paper is recommended);
- large display is also recommended (17", 19").

## CHAPTER 2

# Installation of CAD Decor PRO software

### 1. Introductory remarks

*Note! For Windows XP, 2000, NT, Vista, 7 and 8 administrator rights are required.*

*Note! In Windows Vista, 7 and 8 the program should not be installed in the location: C:\Program Files.*

### 2. Changing settings for Windows Vista

Before starting the installation of CAD Decor PRO in Windows Vista it is necessary to change system setup to enable correct program operation. In order to do so:

- open **User Accounts** in menu **Start** → **Control Panel** (Fig. 1) (or **User Control and Family safety** and then **User Accounts**);
- select the option **Turn User Account Control on or off** (Fig. 2);
- if necessary, enter the administrator password or provide confirmation;
- unselect the option **Use User Account Control (UAC) to help protect your computer**.



Fig. 1 - Control Panel



Fig. 2 – Turn User Account Control on or off



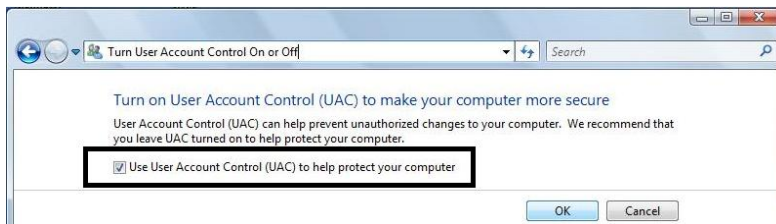



Fig. 3 – Use User Account Control (UAC) to help protect your computer

### 3. Installation of CAD Decor PRO program

#### 3.1. Introduction to installation of CAD Decor PRO

Before the installation it is highly recommended to close all running applications and to make sure that the HASP key is not connected to the computer. It is also necessary to uninstall a database server, if it is in a version other than required (this is: **Firebird** older than 2.5 or any **Inter Base** server). If the inappropriate version of a server is present on the disk at the moment of initiating installation of CAD Decor PRO, the program will demand to uninstall it in the way described in this chapter (pages 15 and 16).

To begin installation of CAD Decor PRO, insert the disc in the DVD-ROM drive. The installation should start automatically. If the **autostart** option is disabled, start the installation manually. To do this, find the file called **Setup.exe** (*My computer* → *DVD drive* →  **Setup**) and run it.

- a dialog box with information about the installation wizard will be displayed first (Fig. 4) - please read the information carefully,
- in order to proceed press **Next >>**;

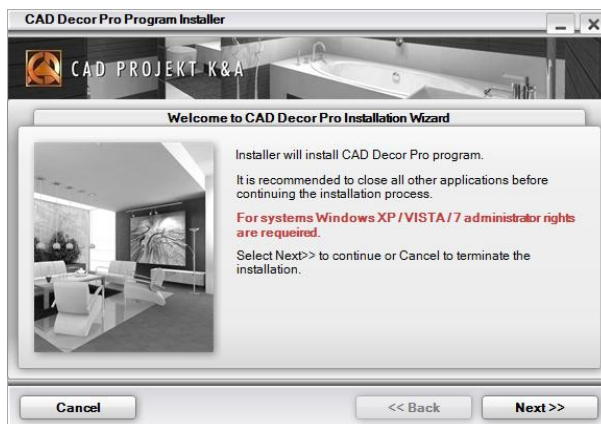



Fig. 4 – CAD Decor PRO installation wizard

- the **License Agreement**

dialog box (Fig. 5) will display;

- please read the agreement carefully;
- tick the checkbox to accept the terms of the agreement - otherwise the installation process will be cancelled;
- to print the agreement use the icon .

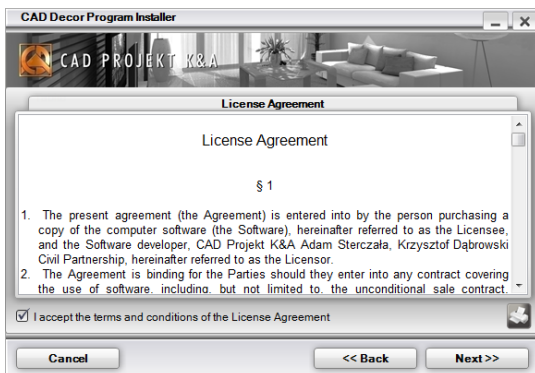


Fig. 5 – License Agreement dialog box

Installation can be aborted in any moment by clicking the **Cancel** button in the bottom left corner of the installer dialog box. The program will ask if the user really wants to abort the installation (Fig. 6). If **Yes** is chosen the installation will be then aborted. In such case the program will not operate properly.

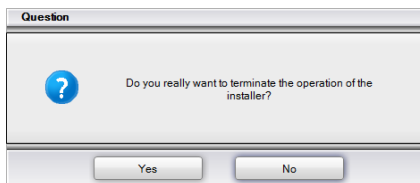


Fig. 6 – request for confirmation of aborting the installation

After accepting the terms and conditions of the **License Agreement** and clicking **Next>>** in a new dialog the type of installation should be chosen w (Fig. 7). Four available options are described below:

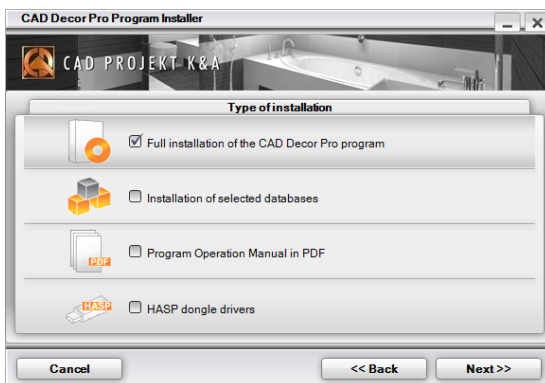


Fig. 7 – selection of the type of an installation

- **Full installation of CAD Decor PRO program** - initiates the complete standard installation of CAD Decor PRO, described in subchapter 2.3;
- **Installation of selected databases** - allows to add selected databases available on DVD to an already existing application. This option is active only if CAD Decor PRO has been already installed; after selecting this option the program will calculate the size of databases available for installation to check, if it does not exceed free disk space (recommended free space on the disk is about 2 GB – dependant on the number and size of databases);
- **Programs Operation Manual in PDF** - installs an electronic operation manual for CAD Decor PRO program with Adobe Acrobat Reader viewer, if there is no program for viewing PDF files already installed on the computer;
- **HASP dongle drivers** - installs the drivers for the HASP key.

If there is a **Firebird** server installed on the computer in a version older than 2.5, or any server **Inter Base**, then after selection of installation option and clicking **Next >>** the program will inform about this problem and propose its solution, this is deinstallation of the server (Fig. 8).

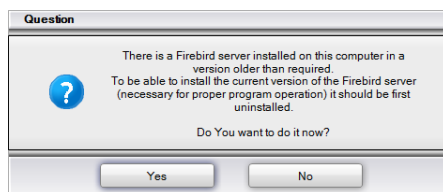


Fig. 8 – a communicate about the necessity of deinstallation of the Firebird server in an inappropriate version

After clicking **Yes** a new dialog box will automatically open – **Uninstall or change a program** (Windows 7) or **Add / Remove programs** (older versions of Windows), in which the user should select the Firebird item and click **Uninstall** (Fig. 10 on the next page). If No is chosen, then the installation of CAD Decor PRO will not be continued.

After clicking **Uninstall** the program will ask to confirm that the selected program is to be uninstalled (Fig. 9).

After confirming by clicking **Yes**, the process of deinstallation of an inappropriate version of a server will begin. When it is completed, close the dialog box **Uninstall or change a program** and proceed to the next step of the installation of CAD Decor PRO.

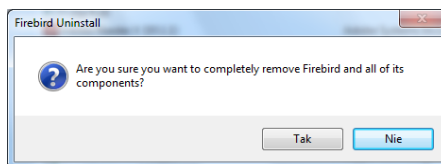


Fig. 9 – a request for confirmation of the deinstallation of a Firebird server

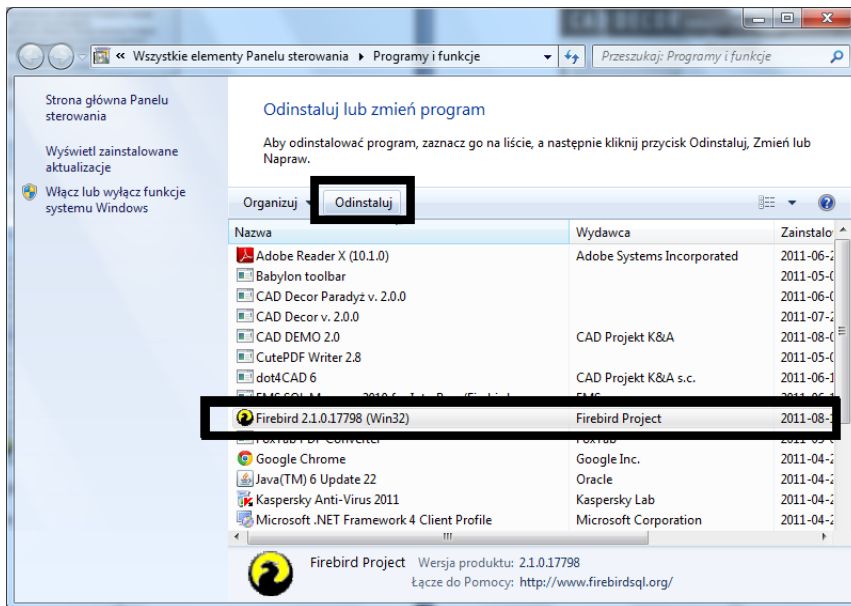


Fig. 10 – Uninstall or change a program dialog box

### 3.3. The process of full installation of CAD Decor PRO

After selecting the first option of installation (**Full installation of CAD Decor PRO program**) and clicking **Next >>**, the program will estimate the overall size of databases, available to install from the installation disk (Fig. 11). The required amount of free disk space is about 2 GB.

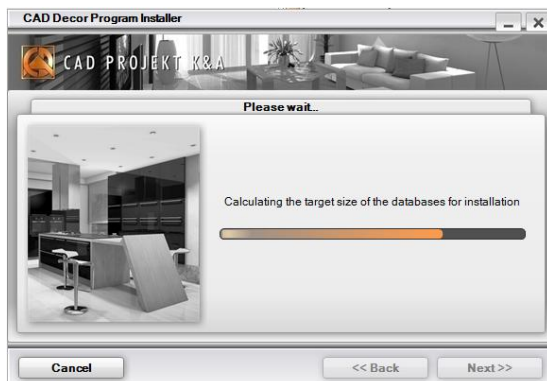




Fig. 11 – estimation of the overall size of the databases on the disk

The first step to install the program is the selection of databases to be installed, on which the projects will be based. On the list of available libraries there are categories of databases included on the installation disk (Fig. 12), that can be expanded in order to present the list of all databases they include (Fig. 13). To see the list of databases in a particular category click  besides its name. To hide the list – click in the same box, which will now look like this: .

In the same dialog box the

user can also select other elements to be installed (this is the Operation Manual and the HASP key drivers). All elements are by default selected (symbol ☒) – so to omit installation of any of them, it is necessary to unselect the particular item by clicking the checkbox beside its name (unselected box: ☐). It is possible to select and unselect the whole groups of items (e.g. the category of databases).

There are two ways of installing the databases in CAD Decor PRO. They can be either installed from the installation disk or imported from other owned programs from CAD Projekt family, already installed on the computer: CAD Kitchens or CAD Decor.

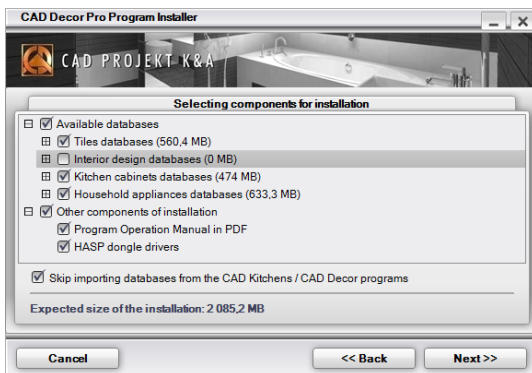


Fig. 12 – selection of bases and other elements for installation – default view, collapsed lists of databases

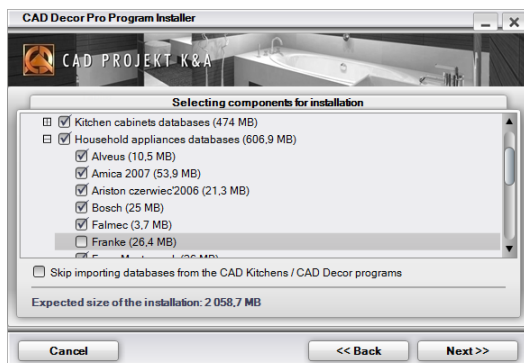


Fig. 13 – selection of elements for installation – an expanded list of databases

Import of databases from other CAD Projekt's programs is skipped by default (the checkbox **Skip importing databases from the CAD Kitchens / CAD Decor programs** is selected – Fig. 12). To enable importing, unselect this checkbox (Fig. 13).

The purpose of importing databases is to complete the collection of libraries of those databases, that are not available on the installation DVD, and are present in already installed programs CAD Decor or CAD Kitchens (e.g. databases of kitchen furniture manufacturers). Importing also enables you to copy databases, in which you already had made some changes, e.g. in pricelists (modified prices, margins or discounts).

If the user decides to import databases and unselect the option **Skip importing...**, then after clicking **Next >>** the **Selection of paths for importing databases** window will appear (Fig. 14), in which you can indicate sources of databases for importing (one or two).

The installation wizard will automatically indicate suggested import sources (paths for programs will be selected by default). If various versions of CAD Kitchens and CAD

Decor programs (e.g. both the newest versions 6.0 and 2.0, and the earlier ones – 5.6 and 1.9), the wizard will choose the most recent versions as the import sources.

However you can select other versions of these programs as import sources. To do so, click **Browse** and indicate location of the wanted version. Please note, that it is not possible to indicate paths to two versions of the same program (e.g. to CAD Kitchens 5.6 and 6.0).

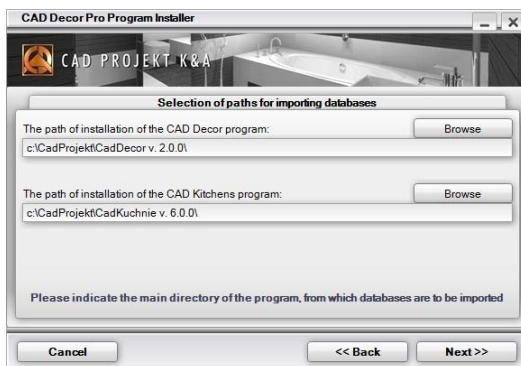


Fig. 14 – selection of paths for importing databases

If none of the selected paths is correct (in such case you will see a notice: **This path is not a proper location of the ... program**) or if none of them is selected at all, then instead of the **Next >>** button the **Skip** button will appear, and the consequent screens relating to the import will not be displayed – the setup wizard will go directly to the window in which you can select the installation path for the program (Fig. 18 on page 21).

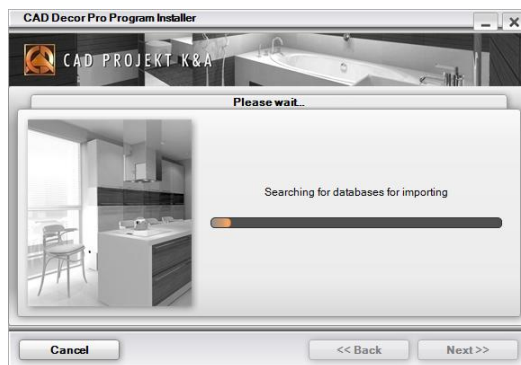


Fig. 15 – searching for databases for importing progress bar

After confirmation of the (correct) paths for importing databases, the installation wizard will first search for all databases available for importing (Fig. 15), and then will estimate their total size (Fig. 16).

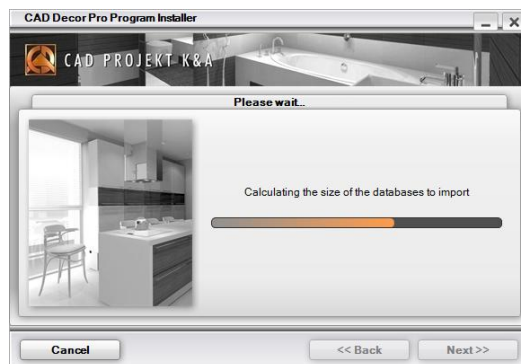


Fig. 16 - estimation of the overall size of databases available for importing

The list of databases found in indicated programs will be displayed on the next screen (Fig. 17). Beside each database's name the information will be given about the program from which it comes from (the name of the catalogue containing the particular base) ( Fig. 17).

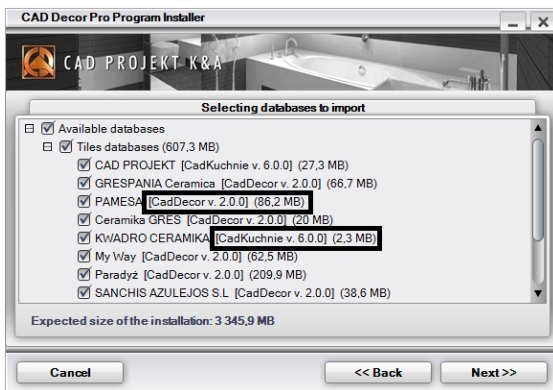


Fig. 17 – the list of databases available for importing

If the user does not unselect a particular database, available for installation from the DVD (in the **Selection of components for installation** window) (in other words: does not resign from its installation), and the database of the same name will be found as available for importing from the selected import source, the database will be imported (and not installed from the installation DVD).

If the installation wizard finds two databases of the same name, it will import the newer of the two. If the newer database is available on the installation DVD, then the older version of this database will be imported from the indicated import source (import shall prevail over installation from the disk).

To resign from importing any of the databases, available in chosen CAD Decor or CAD Kitchens locations, simply unselect the checkbox beside its name on the list. It is possible to select and unselect the whole groups of items. When the selection of databases is completed, click '**Next >>**' to start installation and importing.

The next required action is the selection of the CAD Decor PRO destination location on the computer disk, in which program files are to be installed (in other words – program's installation path) (Fig. 18).

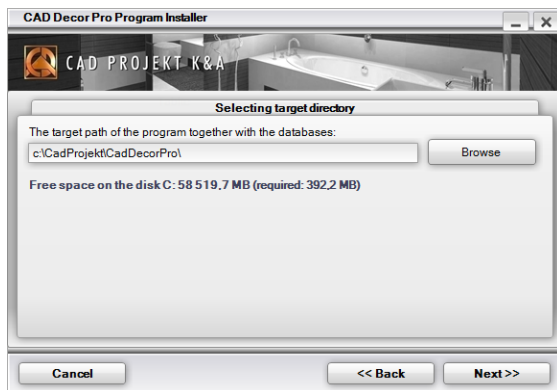


Fig. 18 – indication of the installation path

After clicking **Browse** a new window will open – **Browse for folder** (Fig. 19), in which the desired location can be indicated. If this action is skipped, the program will be installed in a default location, this is on disk **C:** in the **CadProjekt** folder, in the **CadDecorPro** subfolder.

*Note! Please remember that in Windows Vista and 7 the CAD Decor PRO program MUST NOT be installed in C:\Program File location!*

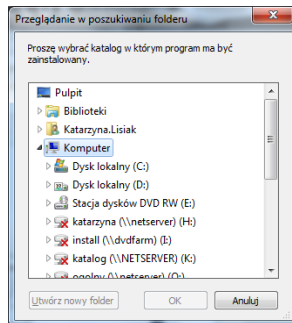


Fig. 19 – browsing for the folder

If CAD Decor PRO has been already installed in the indicated location, the installer will inform about this and ask for confirmation, that the program is to be installed in the same location, overwriting its content (Fig. 20). If the user chooses **Yes** the files in the indicated folder will be overwritten with the new files. However it is recommended to indicate a different location for installation, because overwriting the files may result in some problems with program operation.

If the user chooses **No**, then the installer will go back to the indication of the destination location window, providing the possibility to indicate a different location.

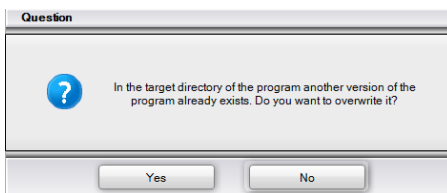


Fig. 20 – information about a previous version of the program present in the selected installation location

An analogical communicate will be displayed if in the selected folder any other files are found. In this case the communicate presented on Fig. 21 will appear.

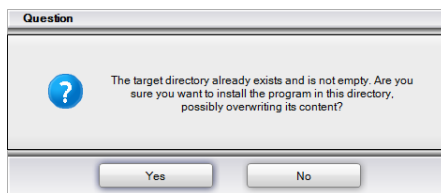


Fig. 21 – the installer detected some files in the indicated installation location

If in the destination location or in the location of other programs from CAD Projekt's family, previously installed on the computer disk, any user databases are found (it can be user's 3D models, kitchen cabinets, ceramic tiles or tiles sets database), a window called **Files from previous installations** will open, in which you can decide what to do with these databases – whether they should be left, copied from the previous version or installed in the new (empty) version (Fig. 22).



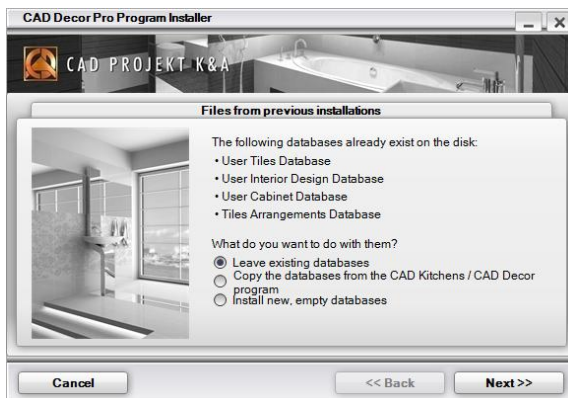


Fig. 22 – resignation from the installation of new, empty user databases

- **Leave existing databases** – leaving user databases in the destination locations, what prevents them from losing the content that was previously saved in them (this is 3D models, tiles and tiles sets added by the user);
- **Copy databases from CAD Kitchens / CAD Decor program** – copying user databases existing in installations of CAD Kitchens or CAD Decor, present on the computer; elements saved in these databases will be maintained. If both of the above programs are installed on the computer, the installation wizard will copy user databases from the CAD Kitchens program.
- **Install new, empty databases** – installation of completely new databases from the installation disk (they will not contain any elements).

If in the selected location of the database (e.g. in the folder of the previous program installation) some base is not present (e.g. user databases of tiles sets), the particular database from some other location will be considered to be installed, accordingly to the following rules:

- If the option **Copy databases from the previous version of the program** has been chosen, but the particular base does not exist in the previous version of the project, and is in the destination location – the installer will use the one from the destination location;
- If the option **Leave existing databases** (in the destination location) has been chosen, but the particular database is not present there, then the installer will copy a new database from the installation DVD – even, if it exists in the location of program previous version;
- If one of the above variants has been chosen, but the particular database is not present neither in the destination location, nor in the location of the previous program version, then it will be copied from the installation disk;
- If the option **Install new, empty databases** has been chosen, then all databases will be copied from the installation disk.

Now the installation wizard will search for CAD work environment on the computer disks (Fig. 23). CAD environment is necessary for program installation and operation.

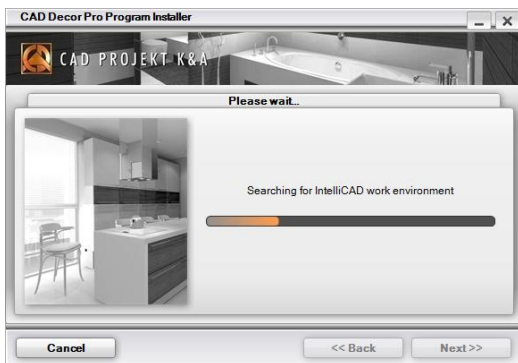


Fig. 23 – searching for work environment

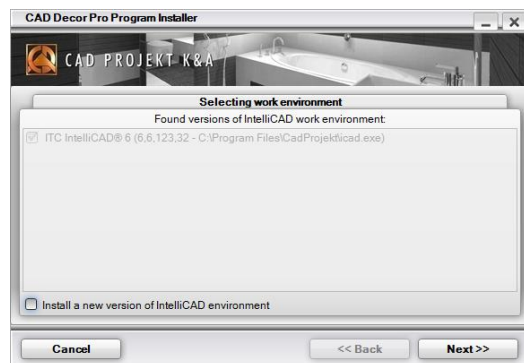


Fig. 24 – selection of work environment version

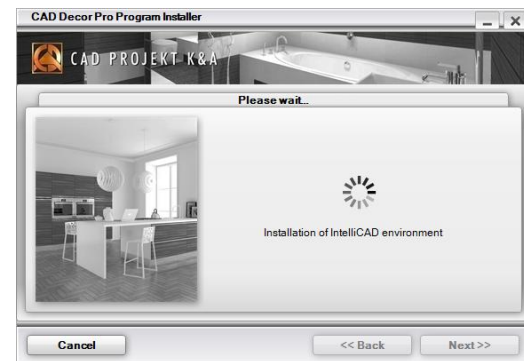


Fig. 25 – the initiation of installation of work environment

Currently used environment is **.4CAD (dot4CAD)** which is CAD Projekt's version of the platform **IntelliCAD** (names IntelliCAD, dot4CAD and .4CAD are used interchangeably). If **dot4CAD** is not found on the disk, or is in a version other than required, then it will be automatically installed from the DVD disk.

All found versions of work environment will be displayed on the list in the following window (Fig. 24). If there is more than one version present on the disk, you will be able to choose which one of them is to be used by the program. If the installation wizard does not detect any CAD environment (e.g. because it was never installed), its installation will start automatically.

Even if some version of work environment is detected on the computer disk, the user can still decide to install a new version from the installation DVD. To do so, select the option **Install a new version...** and click **Next >>** to begin the installation (Fig. 25).

*Note! The entire process of installation of work environment is described in details in point 4 of this chapter (p. 29).*

After installation of .4CAD environment, the installation wizard will begin the proper

installation of CAD Decor PRO. The following steps will be performed automatically.

Currently realized process is marked in bold on the list and indicated by an orange arrow: ➡. Awaiting points are marked with grey triangles ▼, and actions already completed are designated with a green ticks: ✔. The progress of the consequent stages can be monitored on the bars in the bottom part of the window (Fig. 26).

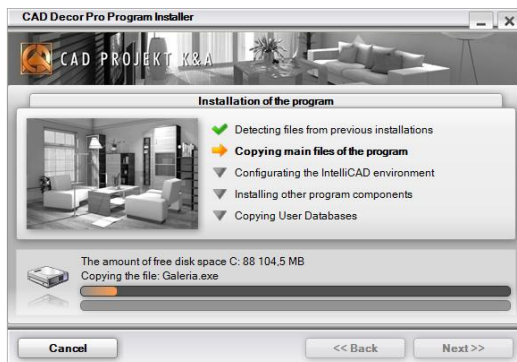


Fig. 26 – the following steps of the installation process

During the installation and import of the databases, you will be informed which category of databases is currently copied (in the central part of the window), what particular database is being installed or imported at the moment, and what is the amount of free space left on the disk (in the bottom part of the window) (Fig. 27).

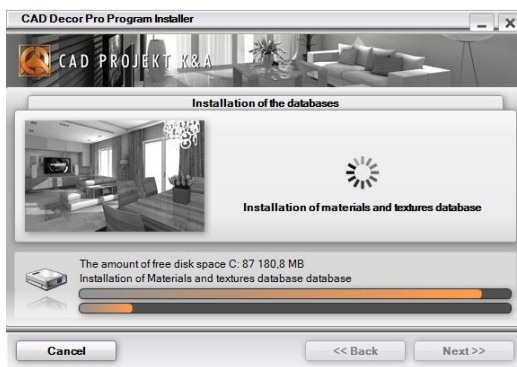


Fig. 27 – the progress of tiles databases installation

The installation is performed automatically. However, if the CAD Decor PRO program has been already installed before, it is possible that the installation wizard will detect an existing database of the same name, as the one currently installed. In such case there will be 3 options to choose from (Fig. 28).

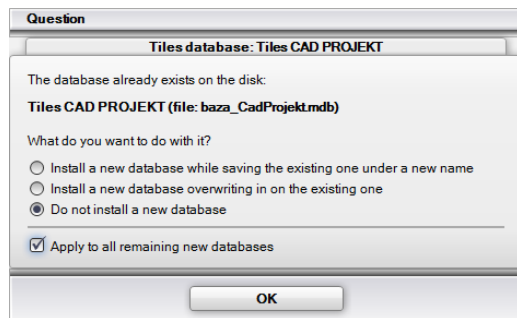


Fig. 28 – installation of a database when an existing database of the same name has been detected

If one of these solutions is to be applied to all databases, then select the option **Apply to all remaining new databases** – the installer will then stop asking each time when

another already existing database is detected, and will apply the selected option to all following databases.

Available options are as follows:

- **Install a new database while saving the existing one under a new name** – a newer version of the database will be installed, but it will be not overwritten on the older one, because the name of the older base will be automatically changed. It will allow the user to use both bases simultaneously (in case of interior design databases and kitchen cabinets databases) or will create copies (in case of tiles databases – the old version will be not available in the program at the same as the new one);
- **Install a new database overwriting in on the existing one** – the older version will be replaced by the newer, currently installed one.
- **Do not install a new database** – the installation of the newer database will be skipped, so the unchanged older version will stay on computer disk.

When copying of databases is completed, the installation wizard will begin the installation of additional components (Fig. 29), this is: system files, MDAC environment, Visual C++ package, Firebird database server and Adobe Reader, which will enable the user to open the Operation Manual (if on the computer there are no programs to read PDF documents).

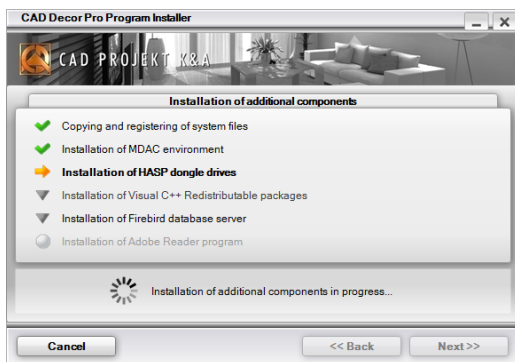


Fig. 29 – installation of additional components

Steps of the installation of additional components can be monitored. The current action is marked in bold and indicated by an orange arrow: . Positions designated with a grey circle: have not been selected for installation at all. Remaining actions are marked with grey triangles , and the completed ones with a green ticks: .

It may happen that the installation of some of the additional components fails. In such situation the installation wizard will enable you to try to install them again (Fig. 30). If the problem persists and the particular component still cannot be successfully installed, please contact our technical support (contact details can be found at the last page of the Manual).

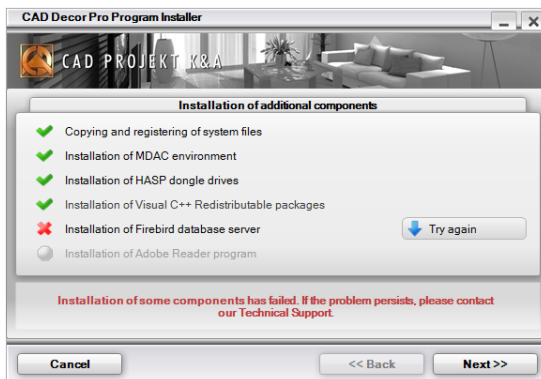


Fig. 30 – installation of a Firebird server failed – Try again option available

After the installation of additional components, which is the last step of the entire installation of CAD Decor PRO, a registration screen will appear, in which the registration code to the program should be entered (Fig. 31).

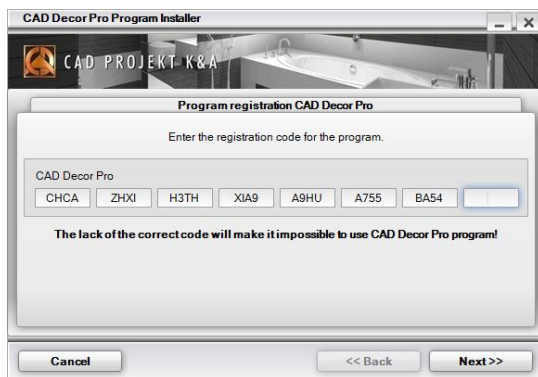


Fig. 31 – entering the registration codes during the

Unlike other programs from CAD Projekt's family, in CAD Decor PRO there are none additional modules, because all of them are included in the program as its integral parts. The only exception is CAD Cut, but the activation for this module is entered directly in it.

The code can be found on the **Registration Card**, which you have received together with the program. After entering the code click **Next >>**. You will be then informed that the installation was successfully completed (Fig. 32).

*Note! On the last screen, informing about the installation being completed, an additional message may appear, asking to restart the computer before running the program. In such situation please restart the computer.*

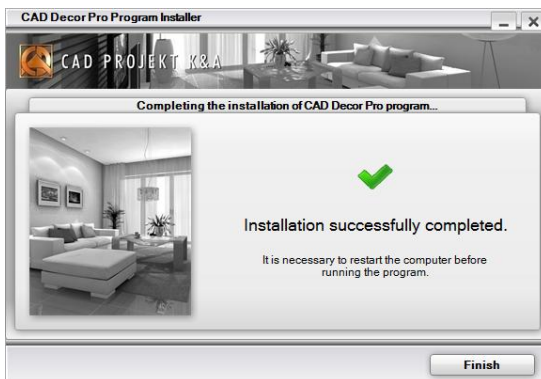



Fig. 32 – successful completion of the installation

The activation code may be also entered later – when the program is launched for the first time. In this situation, after running the program, the **Encoding** window will open (Fig. 33) (available also under the **Access codes**  icon in the **Standard** icon bar). In this dialog the code for CAD Decor PRO program should be entered in the 'CAD DECOR' field. An incorrect or incomplete code is displayed in yellow, and the correct one – in white.

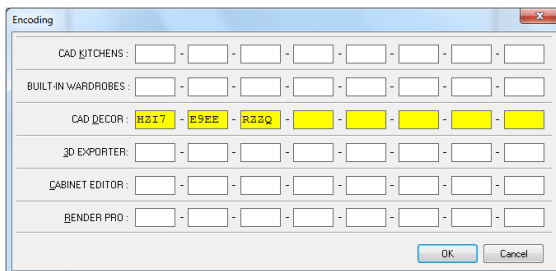


Fig. 33 – entering the registration codes after running the program for the first time

When the code is correctly entered, click **Ok** to confirm. You will be asked to restart the program (Fig. 34). Please do so.

To be able to use the program, it is necessary to insert the HASP key into one of the available USB ports. Otherwise you will see a message presented on Figure 35 and the program will not start.

If the LED on the dongle (informing about its proper operation) is off, try another port. If this does not help, check if the USB port drivers are properly installed.

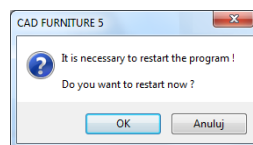


Fig. 34 – restart request

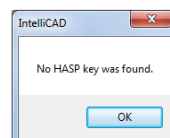


Fig. 35 – communicate about a missing HASP key

## 4. The installation of the work environment – IntelliCAD

The IntelliCAD program is an excellent Computer Aided Designing system of capacities comparable with world's standards in this group of applications — AutoCAD system family. It is one of the vital elements of the whole design system.

When purchasing CAD Decor PRO, our customer receive a licensed version of the IntelliCAD software on the installation disk together with the program. The author version of the IntelliCAD environment by CAD Projekt K&A is called **dot4CAD** (or **.4CAD**). Setup of the CAD environment runs automatically during the installation of CAD Decor PRO.

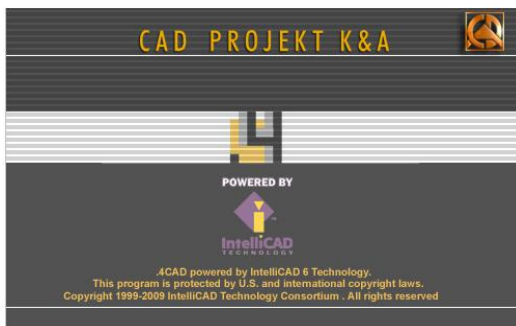


Fig. 36 – IntelliCAD dialog box

If necessary, you can run the dot4CAD installer manually. In order to do so, go to the **SetupIcad** directory (on the installation disc), find the **dot4CAD\_setup\_6.6.xxx.xx.exe** file and run it. Also, if the CAD Decor PRO installation wizard detects an older version of the environment already existing on the computer disc, the user will be able to proceed installation of the newest version, using the option **Install a new version of IntelliCAD environment**.

In each case the installation of the work environment proceeds as follows:

- First of all, the dot4CAD installation wizard will ask to choose the language (Fig. 37);
- After choosing the language, click **Ok**;
- You will see the welcome screen of dot4CAD's installation wizard (Fig. 38 on the next page);
- If any other applications are open, close them before beginning the installation;
- Click **Next >** to begin installation or **Cancel** to abort it (Fig. 38);

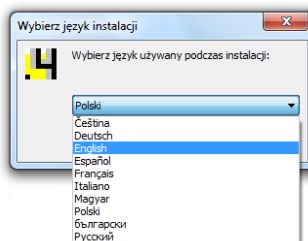


Fig. 37 – language selection

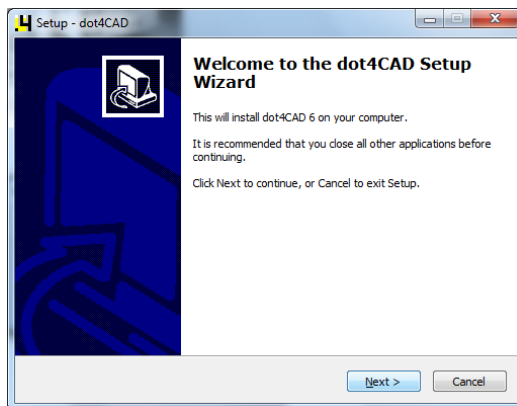


Fig. 38 – dot4CAD Setup Wizard

- Installation can be aborted in any moment by clicking the **Cancel** button in the bottom right corner of the dialog box, but in such case program will not be installed. This is why the program will ask if the user really intend to abort the installation (Fig. 39);

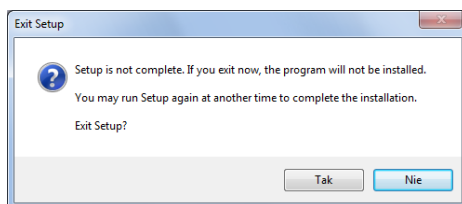


Fig. 39 – request for confirmation of aborting the installation before it is complete

- In the next window (Fig. 40) you can select the location on the computer disk, where the environment is to be installed – by default it is the **dot4CAD** subfolder created in the main folder of CAD Projekt's programs, this is **C:\CadProjekt\**;
- To change the localization choose **Browse**, select the location and click **Ok**;
- Then press **Install**.

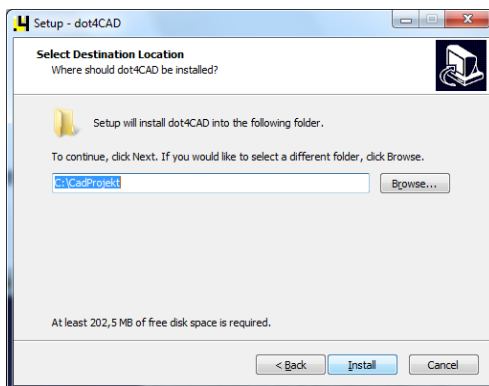


Fig. 40 – selection of the destination location for IntelliCAD



- The time left to complete the installation can be viewed on the progress bar (Fig. 41);

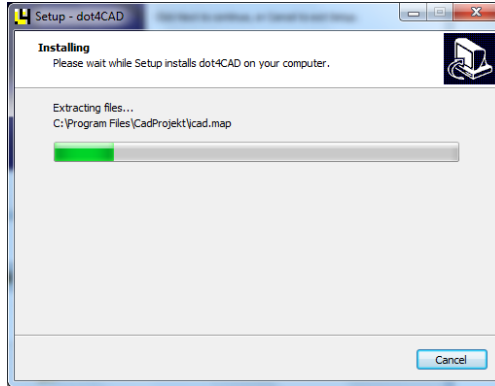


Fig. 41 – installation progress

- After completing the installation, the wizard will ask the user to close the **Setup – dot4CAD** dialog – by clicking **Finish** (Fig. 42);

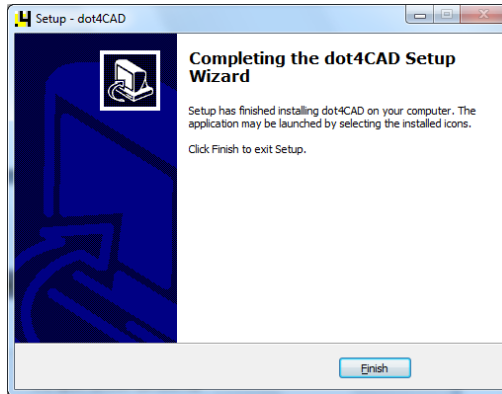


Fig. 43 – new version of dot4CAD successfully installed

- The installation of the IntelliCAD environment is then completed.

## CHAPTER 3

### Running the software for the first time

#### 1. Introductory remarks

The tools described in this chapter which use the IntelliCAD features, are based on version 6. If a previous version of the environment is used, there can be slight differences in the details of the described functions.




After running the program – by a double left-click on the shortcut icon on the desktop or the **CadDecorPRO.exe** file in the program location (C:\CadProjekt\CadDecorPro), a welcome screen will appear (Fig. 43) and then the dialog box called **Project selection** will automatically open (Fig. 44 on the next page).



Fig. 43 – a splash screen of CAD Decor PRO

#### 2. Project selection window

The **Project selection** screen (Fig. 42) is displayed straight after the start of the program. This dialog is designed for creating new designs and opening the existing ones. In order to open an existing project, select the required file in the displayed table and press **Open document** button. In order to create a completely new project,

click the **New design**  button. You can also open designs saved in other locations (the **Browse**  button) or import projects from other locations to the currently used location (the **Import**  button).

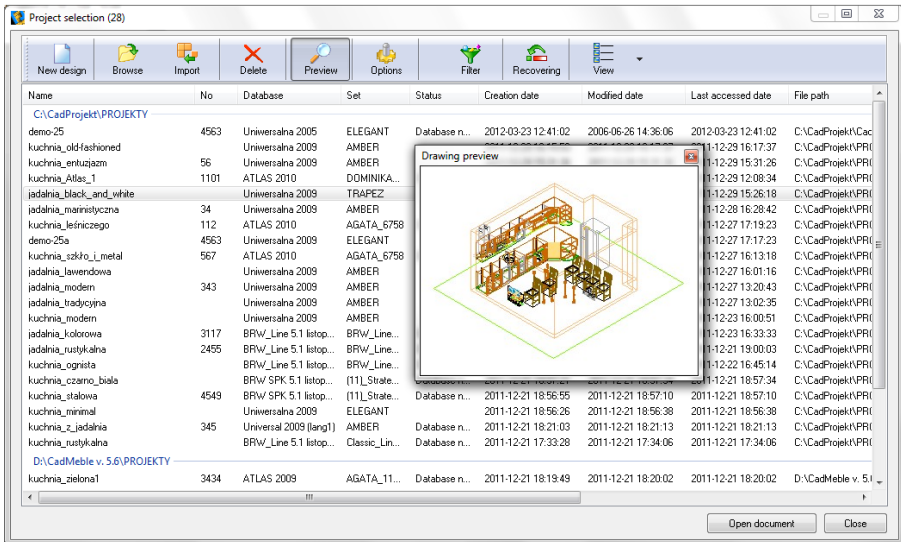








Fig. 44 - Design selection window

Additional functions of **Design selection** window:

- deleting designs that are no longer needed: the **Delete**  button;
- previewing the designs selected in the table: the **Preview**  button;
- choosing the archive folder location and changing the autosaving interval: the **Options**  button (note: the **autosaving** runs automatically every 20 minutes in CAD environment and visualization – this time interval can be freely changed);
- searching designs using various criteria (name, number, used kitchen database, creation or modification date, file path etc.): the **Filter**  button;
- restoring lost designs (thanks to **autosaving**): the **Recovering**  button;
- toggleing between icon and list view, display projects in groups (determined by their location), refresh the view, display all or only recent projects: the **View**  button;

Additionally, if you select one or more positions in **Design selection** window, you will access the following context menu by clicking the right mouse button (Fig. 45).

There are some additional items in this menu:

- Export document(s)** - saves the design(s) as a ZIP archive in a selected folder,
- Send document(s)** - sends an e-mail with attached design(s).

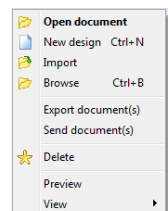


Fig. 45 – Design selection window context menu

### 3. Creating a new design


In order to create a new design, press **New** button. A new window will open (Fig. 44). You have to enter some data in provided fields. Positions in bold font are necessary.


- **Design drawing name** – do not use any special characters (= ". \ , ; \* < > / | ' ~ ` ? ");
- **Working folder** – this is the users folder for saving designs. In order to select the folder location press **Define folders** button;
- **Subdirectory name** – if there are some subdirectories in **Working folder**, they will be displayed after **Subdirectory name** field expanding. If you want to create a new subdirectory, enter its name into the field. If you leave the field empty, a drawing will be saved in the working folder;
- **Designers name & ID** – these are the designers data – once entered they will be saved for the future use.

Fig. 46 - New design details window

### 4. Icon layout and toolbars

Icons are very useful elements of the program - they make it possible to issue most of the commands only with a mouse. Placing the cursor over any icon without clicking it will display the name of the function represented by the icon. Icons are group into several icon bars (toolbars). Their layout can be easily customized. Toolbars can be moved freely to save space and to ensure comfort of usage, in the following ways:

- In order to move a toolbar click on  bar with the left mouse button and – holding it – drag the toolbar into new location.
- In order to minimize space, you can place the toolbars side by side, in the appropriate areas: under the menu list, just over the window lower edge and on the window sides (recommended especially if a wide screen monitor is used). It will maximize the workspace.

- When a toolbar is moved into the design area the bar  will disappear and the toolbar header with its name will display. A toolbar in such a form can be closed if it is not needed at the moment.
- If a toolbar happens to be accidentally closed or the user just want to get it back after closing it, it is easy to restore it using the right mouse button clicking on the toolbar area. Then find the needed toolbar name in a context menu (it is easy to locate, because it is not marked with v) and click on it (Fig. 47).

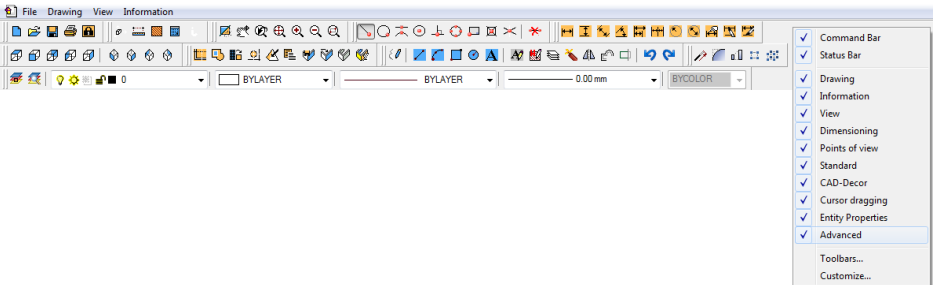
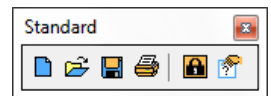


Fig. 47 –managing toolbars

### CAD Decor PRO icons are grouped into following toolbars:

The icon bar called **Standard** (presented below ) is used for creating new drawings, opening existing ones (from the disk and from the list), saving or printing the designs and to enter the activation codes for program.



Icons available in the **Elements edition** toolbar enable you to move, copy, rotate, mirror, offset, trim, explode and delete objects in the project, as well as to undo and redo undertaken actions.



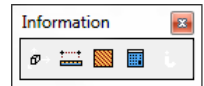
Icons available on the **View** toolbar, is used to zoom the drawing in or out and to refresh it, as well as to save or load the interior and to go to the visualization mode (quick preview and the proper interactive visualization).



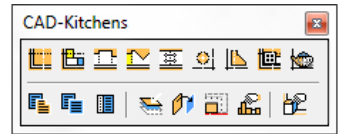
Icons of the **Points of view** toolbar allow to switch between perpendicular and axonometric views.



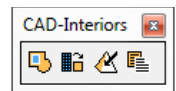
Icons on the **Information** toolbar enables to check coordinates of a selected point or measure distance or area, as well as use the calculator and check basic information about any element.



Icons in the **CAD-Kitchens** toolbar enable to insert walls with their elements, insert and edit kitchen cabinets and worktops, create posts of various shapes, generate skirting boards, insert household appliances, generate the project valuation, display producer's price-list, edit layers, change sets of kitchen furniture, create documentation and go to Cabinet Editor.



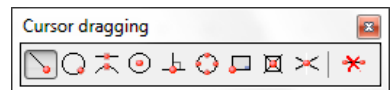
Thanks to Icons on the **CAD-Interiors** toolbar you can design your own elements (e.g. platforms), convert 3D models in many formats to DWX, insert elements of interior design to the project and value them.



The icons from the **Drawing** toolbar are used to draw polylines, lines, arches, rectangles or circles, as well as to insert and edit text, modify layers, explode entities and other actions. Note: Polylines are red and are based on the POLYLINE\_T layer, while the lines, arches and circles are purple, and belong to the layer called TECHNICAL\_T



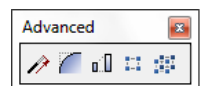
The icons of the **Cursor dragging** toolbar enable you to use characteristic points (entity snaps) of elements in the drawing (e.g. end, central or perpendicular points) to ensure precision of drawing and inserting elements.



The **Dimensioning** toolbar offers icons which will help you dimension elements in the project. Horizontal, vertical, diagonal, angular, diameter and other dimension lines are available, as well as setting options.



In the **Advanced** toolbar some icons from IntelliCAD are available to facilitate your drawing. Available are the functions of editing length of already drawn lines, filleting and aligning element, as well as creating 2D and 3D arrays (circular or rectangular).



## 5. IntelliCAD toolbars

### Command Bar

The **Command Bar** is used for entering keyboard commands and reading the prompts provided by the program (they should always be carefully followed). It can be moved in exactly the same manner as icon toolbars. In the stationary mode (by default on the bottom of the screen) 3 lines of last entries are shown on it (Fig. 48), but you can display any number of them if you move the bar in the project area (Fig. 49).

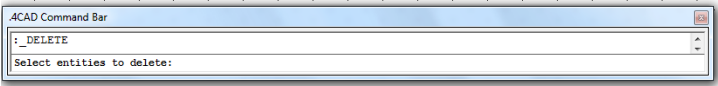


Fig. 48 – .ACAD Command Bar

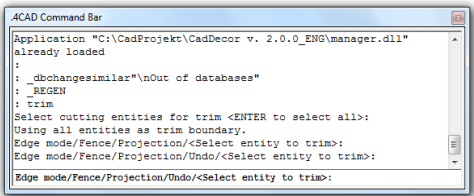


Fig. 49 - .ACAD Command Bar - expanded

### Status Bar

It is a grey line placed at the bottom of the screen that includes IntelliCAD options. The most important ones are: **documentation, dimensions, ORTHO** and **ESNAP**. To access a required function double-click on it. Inactive functions are displayed in grey and active in black (Fig. 50).

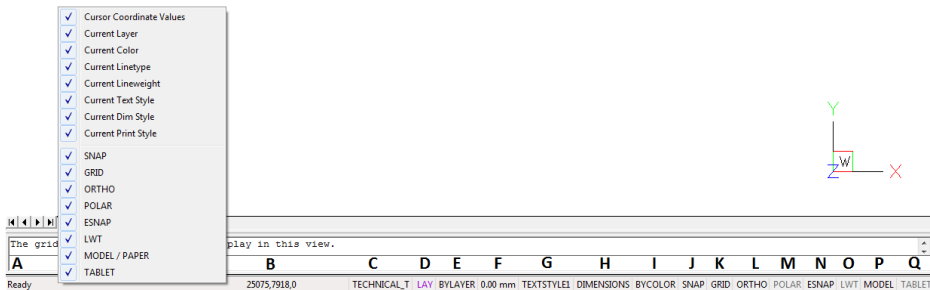


Fig. 50 – IntelliCAD Status Bar

- A** — **information** about the current command;
- B** — **coordinates** of the mouse cursor,
- C** — **name** of the current layer (double left-click to change the layer);
- D** — **colour** of the current layer (double left-click to change the layer colour);
- E** — **linetype** - by default: **BYLAYER** (double left-click on the type name to change it);
- F** — **line thickness** – by default: **BYLAYER** (double left-click to select other thickness);

**G — text styl** - the standard style setting is **documentation** (Fig. 51),

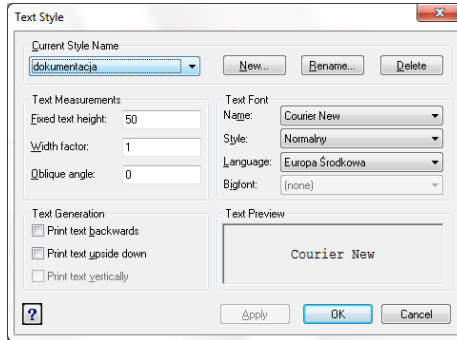



Fig. 51 – Text Style dialog box

**H — dimensions style** - double left-click to open the **Dimension Settings** window (Fig. 52) (available also at the icon  in the **Dimensioning** toolbar). It is possible to modify dimensioning arrows, formats, line types, texts, tolerances, units and alternative units, and to save new settings as a new profile.

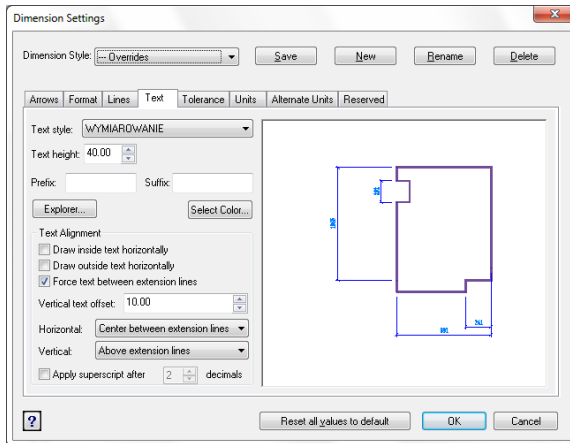


Fig. 52 – Dimensions Settings dialog box

**I — printout style** – available only for drawings that use named printout style tables.

**J — snap** - can be enabled or disabled by double-clicking the SNAP button,

**K — grid settings** - double left-click switches it on and off, also at **[F7]**;

**L — orthogonal mode** - when on, lines can be drawn only at right angles - when off, lines can be drawn at any angle, responsible for drawing, copying and moving objects in an orthogonal mode; can be switched on/off by clicking **[F8]** key. Temporary deactivation is possible by pressing and holding **<Shift>** key – when on the lines can be drawn in any direction.



- M** — **polar tracking** – enables drawing at any angle (increment angle); enter the angle in **Drawing settings** dialog available at **Settings** in the context menu under the right mouse button; option analogical to ORTHO, which enables drawing at right angles (90°) – they cannot be both active at the same time,
- N** — **esnap** - turns characteristic points of elements on and off; also at **[F3]**;
- O** — **showing line thickness** – double left-click turns it on/ off;
- P** — **switching between 3D and 2D view** – changes the mode from 3D to 2D and the other way around, analogically to **Model** and **Layout** tabs on the left hand side;
- R** — **tablet** – switches a tablet digitizer on or off.

## 4. How to enter and edit text in the project

- To enter the text indicate its location with the cursor (by dragging a frame diagonally) where the text is to be entered and click the **Text A** icon;
- The **Multiline Text** dialog will display (Fig. 53);
- Set the type and the size of the font and other formatting parameters (e.g. bold – in the **Properties** tab (Fig. 54);
- In the **Text** tab (Fig. 55) enter text which you want to be displayed in the design or documentation, and then click **OK**.
- Added text will be displayed in the indicated place in the design.

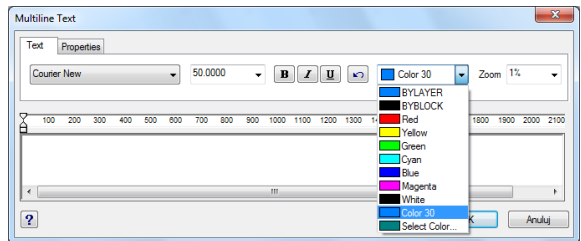


Fig. 53 - Multiline Text dialog box

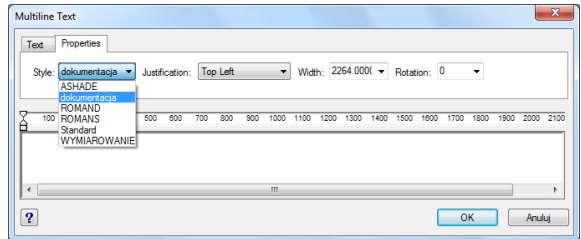


Fig. 54 - Multiline Text dialog box – Properties tab

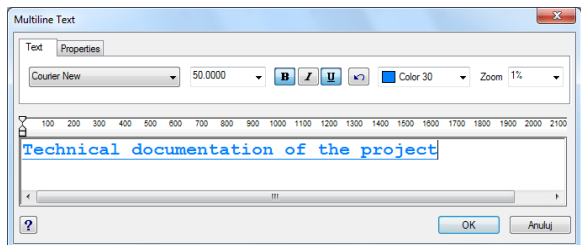



Fig. 55 - Multiline Text dialog box – Text tab

Technical documentation of the project

*Note! During entering text, the zoom should be set at 1%.*

- To edit the text select the text to be edited and click the **Edit text**  icon;
- In the dialog presented below enter the changes (font, bold, colour etc.)(Fig. 56).

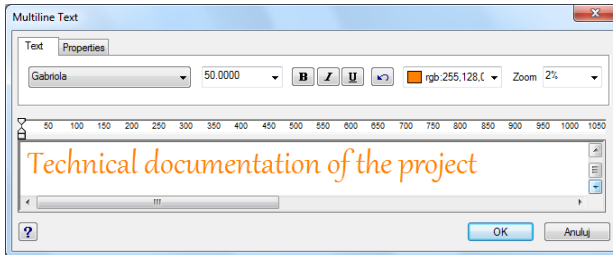



Fig. 56 - Multiline Text dialog box – text edition

*Note! Detailed information on the icon menu buttons will be presented in Chapter 38: The list of icons and their functions (on page 288, at the end of this manual).*

## 6. Selection of kitchen furniture database

If you want to create a kitchen interior, then you should, after running the program and starting a new project, click the **Cabinets**  icon, to select the database of kitchen furniture.

The **Available databases** window will open, in which you can select the database, on the basis of which the project will be created (Fig. 57).

After clicking on the name of the chosen base, confirm your choice by clicking **OK**.

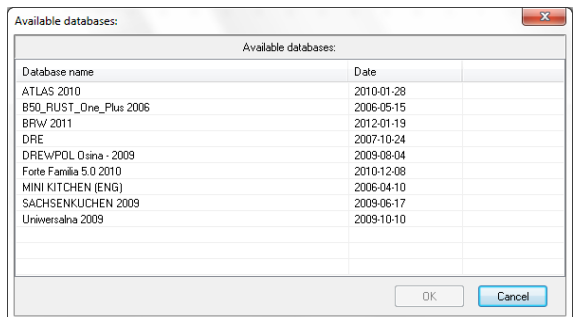


Fig. 57 – kitchen furniture database selection window

Another window will open called **Colouring change**, in which the set should be chosen from a drop-down list (Fig. 58). After choosing the set, the colouring of all cabinet elements can be specified (bodies, plinths, fronts, glass, worktops, edgings, panels, cornice) as well as type of handles and cornices profiles (Fig. 59).

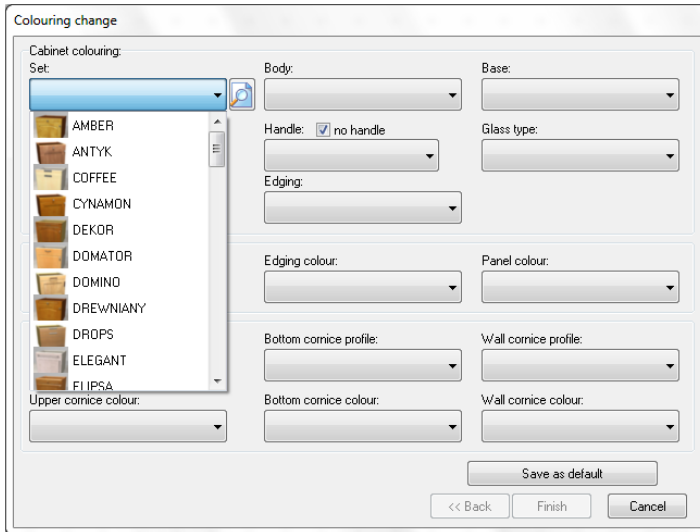


Fig. 58 – set selection

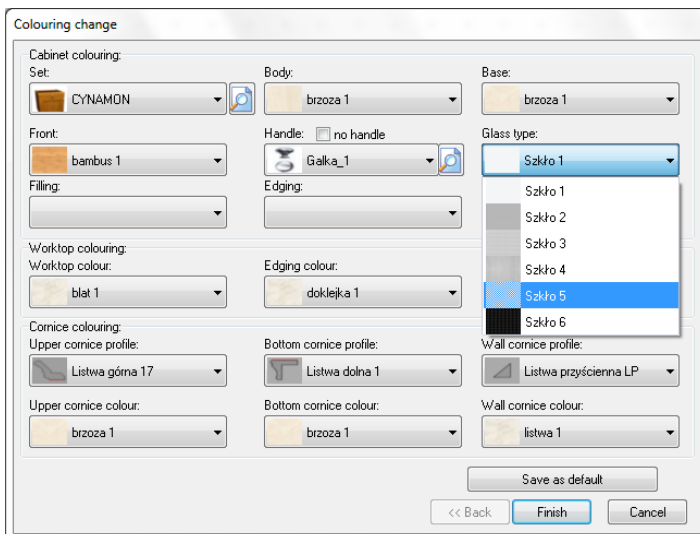



Fig. 59– selection of colours and types of cabinet elements

During selection of colours of cabinet elements, it is possible to see the big preview of elements marked with the icon  with a **magnifying glass** (fronts and handles) (Fig. 60). Previews are displayed in the upper part of the window. To hide them, click the icon again.

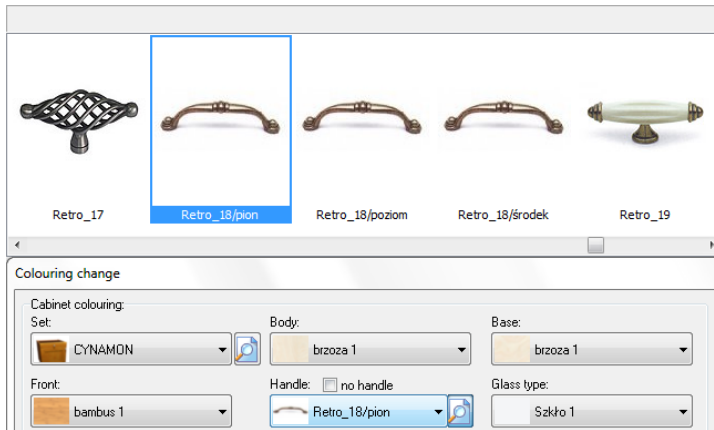


Fig. 60 – selecting your own composition of the chosen set – handle type selection

To start projecting, after selecting the composition of the set (and optionally saving them as default for the set – the **Save as default** button), click the **Finish** button. The **Colouring change** window will close, and a new window will open – **Inserting cabinets** (Fig. 61). Features available here are described in details in **Chapter 13 Inserting kitchen cabinets** (p. 92).

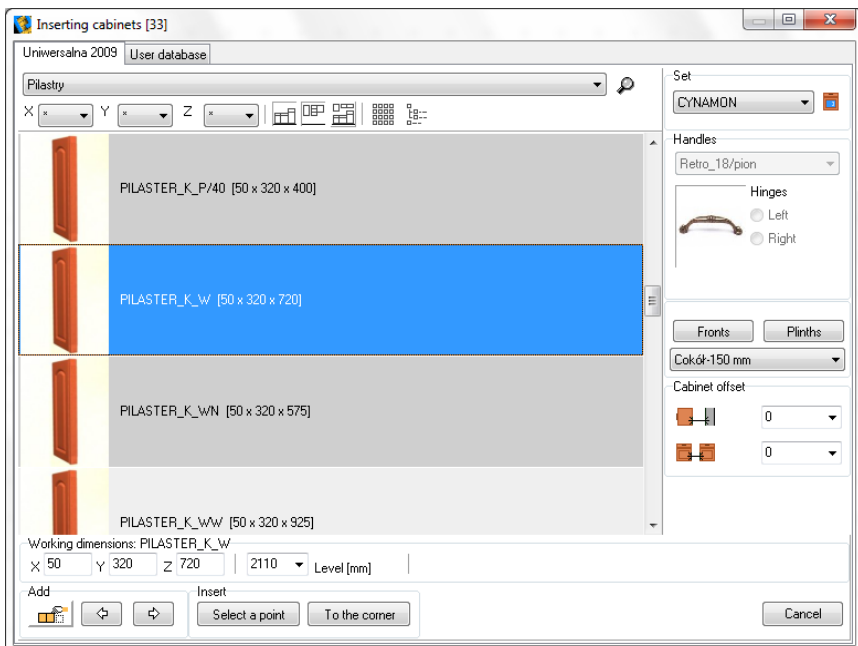
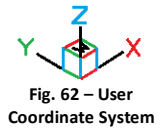


Fig. 61 – Inserting cabinets window open automatically after selecting the database, set and colour

## 7. User Coordinate System

User Coordinate System (UCS) is a schematic representation of the three dimensions of space (Fig. 62). It is displayed in the right bottom corner of the screen.



**Fig. 62 – User Coordinate System**

Axes marked X, Y and Z relate to length, width and height, and the letter W to the world and it shows the current position of the object. For example in the perpendicular view from above both the project and the 'world' are beneath the designer. It facilitates the orientation of 3D space of the project.

## CHAPTER 4

### Display control


#### 1. Introductory remarks

Controlling the way in which the project is displayed can be done with using the icons from the **View** toolbar (Fig. 63) as well as using the mouse and keyboard commands.




Fig. 63 – View icon bar

#### 2. Refreshing the drawing



The icon **Refresh**  regenerates the design by clearing it of remains of deleted objects and such. It should be also used when the activated entity snaps do not display during drawing. This function is also available by entering the command **RE** and confirm by pressing **Enter** and also by a delicate movement of the mouse scroll..

#### 3. Previewing the whole project


To see the entire project with all elements that have been created or inserted, click the icon **Show all** .

#### 4. Zooming in/out

These options significantly facilitate working with the program. The zoom level can be changed in 3 ways:


- by clicking the icon **Zoom in**  or **Zoom out**  – as a result the program will move the view twice as close or twice as far;
- by simultaneously pressing **<Shift + Ctrl + left mouse button>** and moving the mouse: up - zoom in, down – zoom out;
- by moving the cursor to the point to which you want to zoom in (or zoom out) and rolling the mouse scroll (up or down).

#### 5. Zooming to the window

This option enables to directly zoom in some part of the drawing by indicating an area (window) including it. To enlarge the chosen part select the icon **Zoom window**  and then draw a rectangle including that part of the project: click in the starting point - move the mouse diagonally – click in the opposite corner. After the second click the


framed area will be zoomed in. This function is also available by simultaneously pressing **<Z + Enter>** and marking the window in the analogical way.

## 6. Going back to the previous view

To go back to the view previously displayed (e.g. before zooming in) click the icon **Previous view** . As a result the program will go back to the previous way of displaying the project.

## 7. Moving the current view

Moving the area on which the project is created can be done in 3 ways:

- by clicking the icon **Move view**  and pressing the left mouse button with the cursor in the project area and moving the mouse to the left/right and up/down.
- by simultaneously pressing **<Shift + Ctrl + right mouse button>** and moving the mouse;
- by pressing and holding the mouse scroll and moving the mouse to the left/right and up/down;

## 8. Ways of selecting objects

To be able to proceed any operation on any object or objects, first they have to be selected. It can be done in a few ways, described below.

When the object is selected, the way it is displayed in the project changes – from this moment on it will be presented as a white dotted line with marked insertion points (green squares) (Fig. 64). To deselect the object press **<Esc>** on the keyboard.

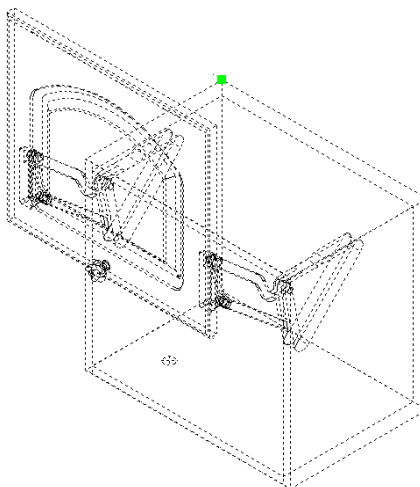


Fig. 64 – a selected object

The first method of selecting the object is by **clicking on the object** – to be precise: on any of the lines it consists of. The object will be marked with an intermittent line with green dots. If you want to select more objects, just click on them successively.

The second way is **Area selecting** - drawing a rectangle area which includes required objects. Left-click in the rectangle first corner, release the mouse button, move the cursor along the rectangle diagonal to the place where the next corner is to be, and left-click again. Objects that happen to be inside such a rectangle will be selected.

Area selecting has **2 variants** – **from the left to the right** and **from the right to the left**. Depending on which side the drawing of the rectangle selection area will be started, you can regulate which objects will be selected. This means: when You start drawing from the right to the left then all objects that are at least crossed by the rectangle area line will be selected.

And when you are drawing the selection area from the left to the right only those objects will be selected, which are entirely contained in the rectangle (and not only cross by its line). This is more selective way than the previous one. Effects of both ways of selecting objects are presented below (Fig. 65 and 66):

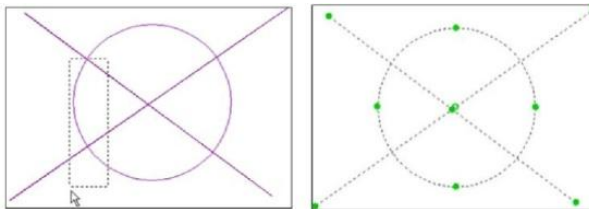


Fig. 65 – a method of object selection from the right to the left and its result

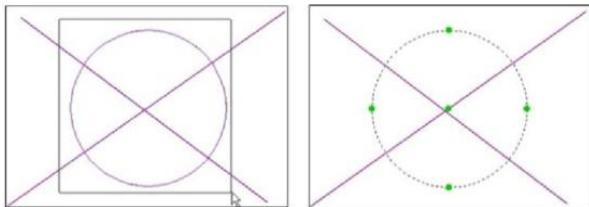


Fig. 66 – a method of object selection from the right to the left and its result

## 9. Changing the colour of the design background

In the .4CAD environment there are two colours of the drawing background available – black and white. It only depends of Users preferences which one is used during the designing. To change it, please open the **Information** menu and choose the option



**Settings** (Fig. 65). Another submenu will display, in which functions of changing the background colour are available – **White screen** and **Black screen**. Using the same menu it is also possible to display or hide all toolbars at once, show or hide line thickness and check the version of the environment.

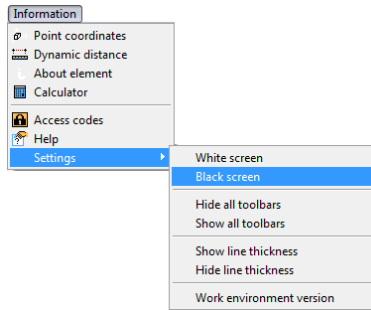


Fig. 67 – changing the colour of the background

## CHAPTER 5

### Using entity snaps

#### 1. Introductory remarks

While designing interiors it is often required to use specific points of elements to ensure full precision. For instance, while shifting or copying elements the user should specify their base and target points, which could be respectively – a back bottom corner of the element and the corner of the room. It is sometimes needed to place entities in a exact specific location in relation to other entities, and the upmost possible accuracy is vital for the proper realization of the project.

In order to help you maintain this kind of precision, CAD Decor PRO menu contains a number of icons for indicating **entity snaps**, which are the **characteristic points** of entities. These points are also called **location modes**. The icons are located on the **Cursor dragging** toolbar (Fig. 68), which is called this way, because the mouse cursor snaps to the point of the selected type.



Fig. 68 – Cursor dragging icon bar











Thanks to these icons it is possible to select exact geometric points on existing entities without having to know the exact coordinates of these points (e.g. the end point of the line or arc, the center point of the circle, the intersection of any two elements). We suggest to use entity snaps any time the programs prompts the user to specify a point (e.g. an insertion point of a block).

It is enough to move the cursor close to the place, where the characteristic point is located (e.g. the end of the line) and when the yellow symbol of the point displays – click the left mouse button. The cursor does not have to be placed precisely at the point - it will be automatically dragged to the active snap.

At the same time any number of entity snaps can be active but sometimes some of them can be mutually exclusive.

### 3. Entity snaps – overview

The active characteristic point display as a yellow symbol when the cursor is moved close to it. The shape of the yellow symbol depends on the type of the point which is selected – each one has its own symbol. One or more active points may be ON simultaneously, but sometimes they may eliminate each other.

Snap point types:	Description
 <b>End point</b>	- indicates the closest end point of the object, e.g. the end point of the edge of a shower cabin, (displays in the project as a <b>yellow square</b> );
 <b>Nearest</b>	- marks the point which is the closest one to the pointer arrow, but belongs to the indicated element, e.g. any point belonging to a bathtub edge line (displays as a <b>yellow hourglass</b> );
 <b>Midpoint</b>	- finds a point located directly in the middle (half way) of an indicated line (stretch), e.g. the middle of the edge of an element, ( <b>yellow triangle</b> );
 <b>Central point</b>	- points out the middle of an arch or circle; it is very useful when indicating the characteristic points of custom elements, ( <b>yellow circle</b> )
 <b>Perpendicular</b>	- shows a point which is located perpendicularly to line is crossing the object, ( <b>yellow right angle symbol</b> );
 <b>Quadrant</b>	- shows four circle points in the rectangle mode, ( <b>yellow rhombus</b> )
 <b>Insertion point</b>	- shows insertions point of the block, ( <b>yellow rhombus with 2 cut corners</b> );
 <b>Point</b>	- drags the cursor to any points drawn before ( <b>yellow X on the circle</b> );
 <b>Intersection point</b>	- indicates the point in which objects cross one another ( <b>yellow X</b> );
 <b>None</b>	- switches all active snap points OFF

*Note! While selecting characteristic points of elements, alternatively to using the icons from the Cursor dragging toolbar, the user can use the keyboard shortcut <Shift + right-click>.*

## CHAPTER 6

### Dimensioning elements

#### 1. Introductory remarks







Dimensions of different objects can be created using the icons provided on the **Dimensioning** toolbar (Fig. 69). Dimensioning is being performed in 2D system (X & Y axes) by default. It is necessary to use the snap points during dimensioning.










Fig. 69 – Dimensioning icon bar

*Note! When dimensioning objects it is necessary to use entity snaps (see Chapter 5).*

#### 2. Dimensioning icons:

Dimension	Description
 <b>Horizontal</b>	- enables to dimension object horizontally. In order to use it, click the start and end points of the horizontal dimension with the pointer. Next you can select the dimension value position by means of the mouse clicking on the desired place. Then accept dimension's location by pressing <b>&lt;Enter&gt;</b>
 <b>Vertical</b>	- enables to dimension objects vertically. Do it in the same way as in case of the horizontal dimensioning;
 <b>Rotated</b>	- enables to dimension the angle between selected lines;
 <b>Angular</b>	- enables to dimension an angle. Click the angle lines and then select the angle value position by means of the mouse moving. Click the left mouse button to accept;
 <b>Reference Line</b>	- enables to enter various object dimensions with the same start point. First you have to select the dimensioning direction. In order to do it, enter the first dimension: horizontal, vertical or rotated. Then press <b>reference line</b> button and click subsequent dimensioning end points. To finish the procedure press <b>Esc</b> ;
 <b>Sequence</b>	- enables dimension objects in line series. Do it in the same way as in case of the <b>reference line</b> dimensioning

 Radius	enables to define radius of a circle or an arc. In order to do it click on the object edge with the left mouse button and then on the point where you want to place the dimension value;
 Diameter	- enables to define a diameter of a circle or an arc. Do it in the same way as in case of the <b>radius</b> ;
 Dimension Settings	- enables to change dimension settings (description in Chapter 2);
 Edit Dimension Text	- it is possible to replace selected dimension text with new text. When replacing the selected text, first click the icon  , then specify the change first, and then select one or more dimensions to which to apply the change – and then press <b>&lt;Enter&gt;</b> . All the selected dimensions are updated simultaneously.
 Apply Style	- enables to quickly apply new style to a selected dimensioning after some settings have been modified (the icon Dimension Settings  ); Dimension styles provide a way to change various settings that control the appearance of dimensions. Those settings can be saved for reuse. If the style is not defined before creating dimensions, the program uses the Standard dimension style, which stores the default settings. Each option in the Dimension Settings dialog box relates to a variable that can be set manually

### 3. Examples of dimensioning

The pictures below illustrate examples of dimensioning:

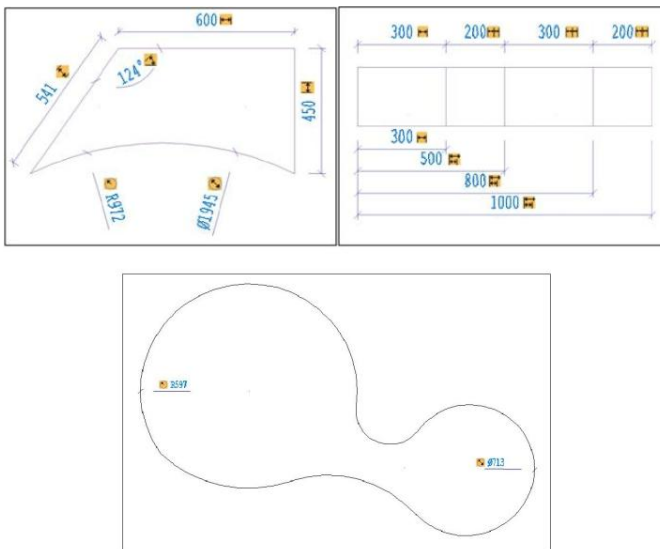



Fig. 70 – examples of dimensioning

# CHAPTER 7

## Drawing the interior

### 1. Introductory remarks

There are four ways of drawing walls available in CAD Decor PRO: the **Walls Wizard**, the **Draw walls** function, the **Select** function and the **Wall editor**.

The first one - **Walls Wizard** - is activated during creating a new design. In order to access the wizard and remaining two functions it is necessary to select the icon **Walls**  that can be found on the CAD-Kitchens toolbar (Fig. 71).

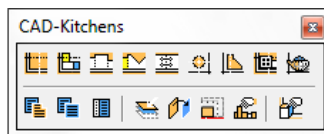


Fig. 71 – CAD-Kitchens icon bar

This icon opens a dialog box presented below (Fig. 72).

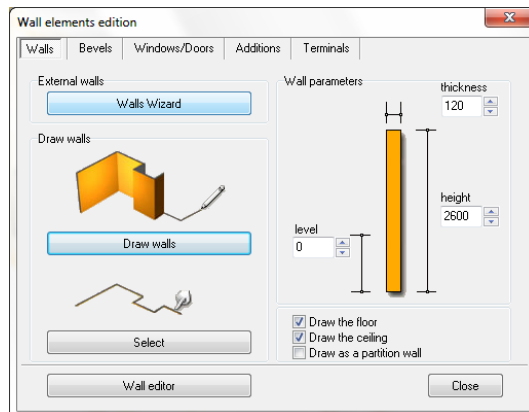


Fig. 72 – Wall elements edition dialog box

In this window you can also change parameters of walls – their thickness, height and insertion level. There are also 3 checkboxes available – **Draw floor**, **Draw ceiling** and **Draw as partition wall**. Two first of them are responsible for automatic insertion of a floor and ceiling, after drawing walls with any of provided methods.

If you select the third checkbox – **Draw as partition wall**, the currently drawn wall will be recognized by the program as a partition wall, this means it will be not hidden in visualization when it is 'between' the user and the middle of the room, and it will be possible to change its thickness independently from the thickness of other walls (the thickness of the load-bearing walls can be changed only for all of them at once).

It is possible to change the shape of the premises being drawn. You can change the room shape at any moment by means of the **Wall editor** (described at the end of this chapter). Please note, however, that such changes may result in losing some information or objects, such as inserted bevels of wall or ceramic tiles.

## 2. Drawing walls using the Wall Wizard

When beginning working with a new project the first thing to see is the dialog box of **Wall Wizard** (Fig. 73). In this dialog it can be decided what will be the shape of the room – there is 4 templates to choose from. Selected shape can be modified by **specifying interior dimensions** (A, B, C, D, E) and **rotating the interior** (90, 180 or 270 degrees). Also height and thickness of walls can be established here (by default it is: height=260cm and thickness=12cm)

In the right part of the **Wall Wizard** dialog box you can see the current preview of the created room. Any introduced changes will be visible on this preview.

If some of the walls are not to be present in the design, they can be hidden here. To do it, click on the on the preview. The wall indicated with the cursor displays in red, and when you click on it – it will change its look in the way presented below (Fig. 73).

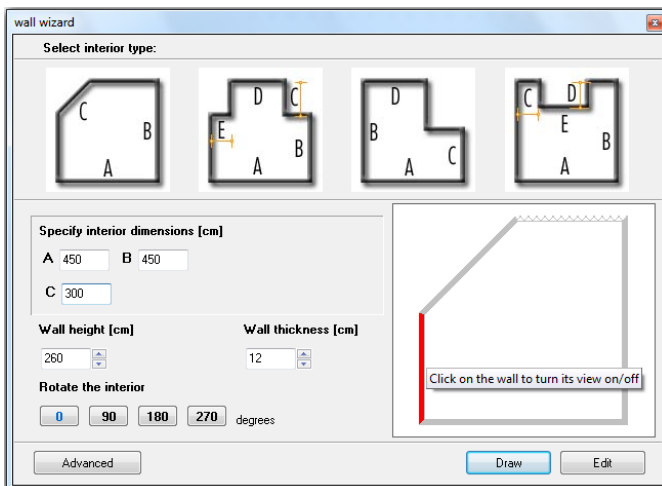


Fig. 73 – Wall Wizard dialog box

After setting these basic wall parameters you can either go to the **Wall Editor** by clicking the **Edition** button, or click **Draw**, which will result in creating the room of the selected shape and parameters, together with the default floor and ceiling (unless these options have been deselected) (the default floor displays in the project as a green rectangle surrounding the room).


If presented options do not meet all your requirements, then click on the button **Advanced** to go to the **Wall elements edition dialog** (Fig. 73 on the previous page), where you can find some more functions of drawing walls.

*Note! Dimensions here should be given in centimeters – but this rule relates only to Wall Wizard – in all other places in the program millimeters are used.*

*Note! The Wall Wizard cannot be used when the walls already exist. To be able to open it again you should remove all walls from the project, click the Walls icon and select Wall Wizard.*

### 3. Drawing walls using the function Draw Walls

This option enables you to create a contour of the room yourself. The procedure is as follows:

- click the **Walls**  icon;
- in the new window (Fig. 72 on page 52) define the thickness and height of the walls and the level of the room;
- if you do not want the default floor to be drawn, unselect the checkbox **Draw the floor**;
- click on **Draw walls** button – you will be moved to the project space, where you have to draw a contour for walls;
- to do so click in the project in the spot where you want to start to draw the walls, and then move the mouse in the direction, in which the wall is to be drawn (the direction has to be clockwise!);
- after indicating the direction give the length of the segment (in millimeters!) by typing it (the value will appear on the Command Bar) and accept with **<Enter>**;
- then direct the mouse cursor to the direction of the second segment, type the length and confirm it with **<Enter>**;
- keep following these instructions until the contour of the room is ready;
- during drawing walls this way the attention should be paid to the values being shown at the beginning of each line (Fig. 74 on the next page);
- information about the length and angle of the currently drawn segment will be shown there;



- to draw a line of 1500 mm length at the angle of **45°** you should type: **1500<45** and confirm the command with **<Enter>** or place a mouse cursor in the point in which the required parameters will be shown in Command Bar and then click the left mouse button;
- it is recommended to type the values instead of using the mouse because it is easier and more precise;
- you can also use minus values of – e. g. the angle of **315°** can be typed as **- 45°**;
- to make it possible to draw segments at angles different than right angles (multiplicity of **90°**) you should switch off the orthogonal mode – by deactivating the **ORTHO** function on Status Bar or by pressing one of the keys: **<P>** and **<O>** (it will switch off drawing at right angles and when you press it again it will be switched back on);
- to finish the contour use a single right-click – the walls will be inserted to the project.



Fig. 74 – length and angle of the currently drawn lines - examples

*Note! In order to draw a wall at an angle other than 90° press the **<P>** key; to get back to the right angle mode press the **<P>** key once again. Every operation can be undo by pressing the **<C>** key. In order to finish drawing the walls click the right mouse button.*

#### 4. Drawing walls using the function Select

Before you use this button, you have to determine the path for the interior – in other words: draw the contour of the room using the **Draw path** drawing tool:


- click the icon **Draw path**  on the **Drawing** icon bar (Fig. 75).
- click in the starting point of the path;
- move the mouse in the direction in which the wall should be drawn and type the value of the length of the new segment and confirm it with **<Enter>**;
- in the same way as in the previous case (**Draw Walls** function) you can define the length of the segment by clicking the left mouse button, but this method does not guarantee the precision;



Fig. 75 – Drawing functions

- in an analogical way (typing the length value + **<Enter>**) draw all consequent segments until you complete the whole contour of the room;
- to finish – right-click;
- after you finish the contour go to the dialog **Wall Elements Edition** and in the **Wall** tab select the option **Select**;
- you will be taken back to the project when you should indicate the path by a single left-click;
- after indicating outline of the room the program will create wall of a defined thickness and height;
- if the option **Draw floor** was marked, the default floor will be generated;
- this technique is particularly useful when the modification of the shape of the already drawn room – in this case it is enough to click in the corners of the room; it is necessary to use the snap end point;
- the picture below presents the path for walls (Fig. 76): 1 – start point of the path, 2, 3, 4, 5 – points in consequent corners of the room, 6 – the final point of the path;
- if the path is incorrectly drawn you will be informed about it in the communicate (Fig. 77).

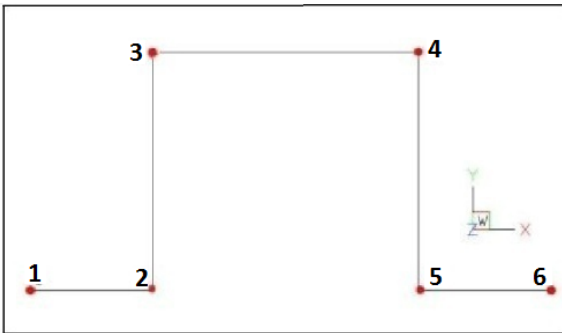


Fig. 76 – the path of the walls contour

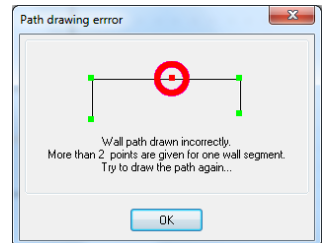
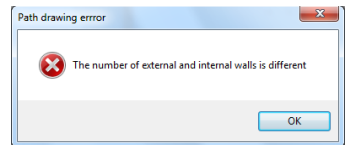




Fig. 77 – communicates about the incorrectly drawn path for walls

*Note! Advanced methods of drawing any shapes using the path tool have been described in Chapter 9: Creating and using elements.*

*Note! When using the Draw walls function remember to draw successive walls clockwise. It is needed for keeping internal wall dimensions of the designed room.*

## 5. Drawing walls using the Wall Editor

The **Wall Editor** enables you to create new interiors and modify any existing room at any designing stage. The only risk resulting from editing the existing room is the fact that you can lose the tile and bevel data during the new room arrangement in the **Wall Editor**. The editor can be accessed in a few ways:

- by selecting the **Wall Editor** button in the **Walls Wizard** window — it creates a new interior in the editor;
- by selecting the icon **Walls**  and then the **Wall Editor** button ;
- by selecting the existing wall and choosing the **Edition** menu by means of the right mouse button — the existing room may be modified or a new one may be created from the beginning in a new window.

### 5.1. Drawing and editing walls dialog box menu

The wall selected will be displayed in navy blue and its corners in green or red (Fig. 78). The colourful designations makes defining the wall parameters easier. Most of the wall editor functions use these colours.

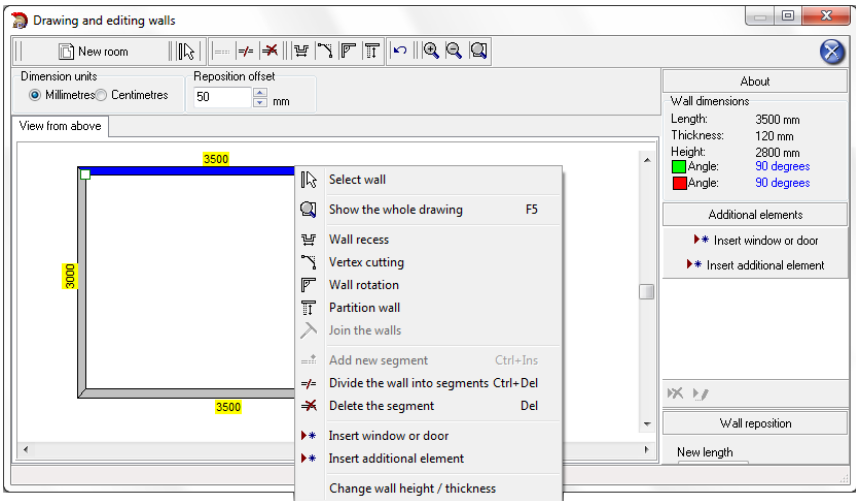

















Fig. 78 – Wall editor and the context menu

The functions of the buttons in the main **Wall Editor** menu, that activate after selecting the wall by a left-click, are described in the table below. They are also available in a pop-up menu under the right mouse button (the wall has to be indicated first by a left-click).

*Note! The maximum length of the wall in Wall Editor is 46 m (46 000 mm).*

Function	Description
 <b>New room</b>	- enables to draw a new wall arrangement (also under <b>&lt;Ctrl+N&gt;</b> ); in the dialog box (Fig. 79) the room dimensions can be entered and walls to be drawn can be selected;
 <b>Select a wall</b>	- selects the wall for edition (selected wall turns navy-blue);
 <b>Add a new segment</b>	- adds a new wall segment at a selected angle and assigned length (also under <b>&lt;Ctrl + Ins&gt;</b> ) (Fig. 83);
 <b>Divide the wall into segments</b>	- divides a wall into two segments with a different length or into three ones of the same length; each new segment may be divided, too (Fig. 84);
 <b>Delete the segment</b>	- after selecting the chosen wall and this icon, any segment of the wall can be deleted (also under <b>DELETE</b> button),
 <b>Walls recess</b>	- adds walls that create a recess shape on the basis of four available recess types. It is possible to place a pedestal into the recess (Fig. 80);
 <b>Vertex cutting</b>	- after choosing the appropriate wall and this icon, you can define the corners of the interior for cutting in this dialog box (Fig. 81);
 <b>Wall rotation</b>	- enables you to rotate a wall relative to the adjacent one at any angle (Fig. 82);
 <b>Partition wall</b>	- creates a partition wall; it is possible to add new segments to it, with a specified angle and length (Fig. 85);
 <b>Connect walls</b>	- context menu option, connects wall open corners by placing a new segment between them (Fig. 86);
 <b>Undo the last operation</b>	- reverts the previous operations done on the walls (also under <b>&lt;Ctrl + Z&gt;</b> );
 <b>Zoom in/ Zoom out</b>	- zooms the view in or out
 <b>Show the whole drawing</b>	- displays the whole drawing (also under <b>[F5]</b> );
 <b>Insert window or door</b>	- context menu option; enables to insert doors and windows to the project;
 <b>Insert additional element</b>	- context menu option; enables to insert additional wall elements (protrusions, orifices, nishes)
<b>Change wall height/ thickness</b>	- context menu option; enables to change the height of the selected segments and the thickness of all walls altogether;

*Note! It is not possible to change the thickness of particular selected load-bearing walls – the thickness can be changed only for all walls at once. This limitation does not concern partition walls, their parameters can be freely changed independently from one another.*

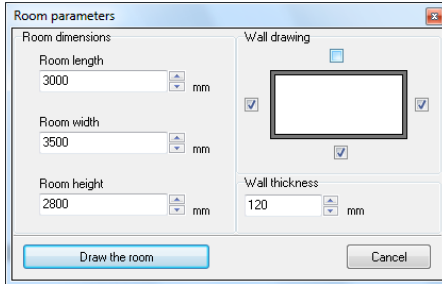


Fig. 79 – Room parameters dialog box

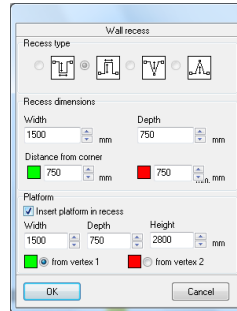


Fig. 80– Wall recess dialog box

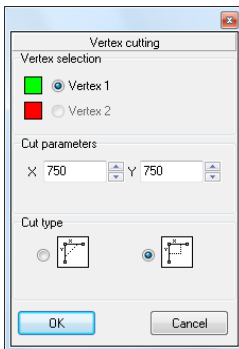


Fig. 81 – Vertex cutting dialog box

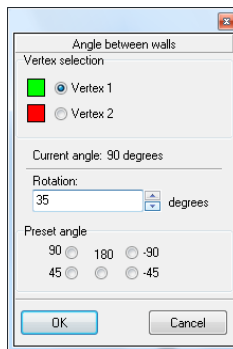


Fig. 82 – Angle between walls dialog

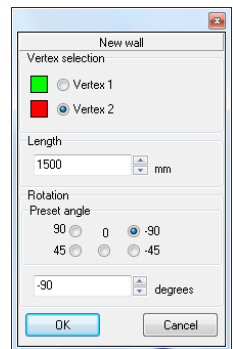


Fig. 83 – New wall dialog box

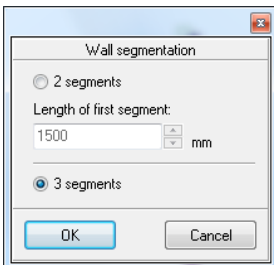


Fig. 84 – Wall segmentation dialog

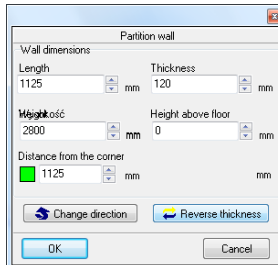


Fig. 85 – Partition wall dialog box

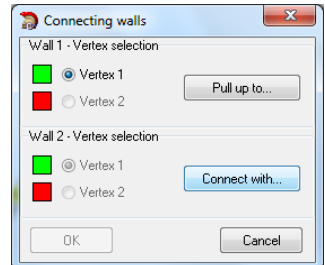



Fig. 86 – Connecting walls dialog box

*Note! Besides all functions described above, Walls Editor also enables you to switch between centimeters and millimeters.*


## 5.2. Reposition offset

The option shown in figure 87 enables the user to enter a value of the distance by which the room's size should be to increased or decreased. The function helps to move or lengthen (or shorten) the whole wall by the given offset.

For example, to change the room dimensions (in millimeters) 4500x4500 to 3900x4500 it is necessary to:

- enter the offset value (difference between the existing and demanded room length – in this case 600mm);
- click the chosen wall in order to mark it (the wall will be displayed in navy blue);
- place the cursor over the selected wall and move it until it look changes to this: ;
- click on the wall, push and hold the left mouse button and move the wall inwards until it reaches the dotted offset line;
- while moving the wall you can check the current parameters in the panel **Wall reposition (Displacement)** where the step value is presented (on the right side);
- when the wall reaches the desired location, release the mouse button.

In order to shorten / lengthen the wall by the given value:

- select it and move the cursor until it changes into the indicator ;
- click at the wall corner and move it along the wall, watching the parameters in the area at the right side of the dialog box **Wall reposition (New length)**;
- when you reach the wanted length, release the mouse button.

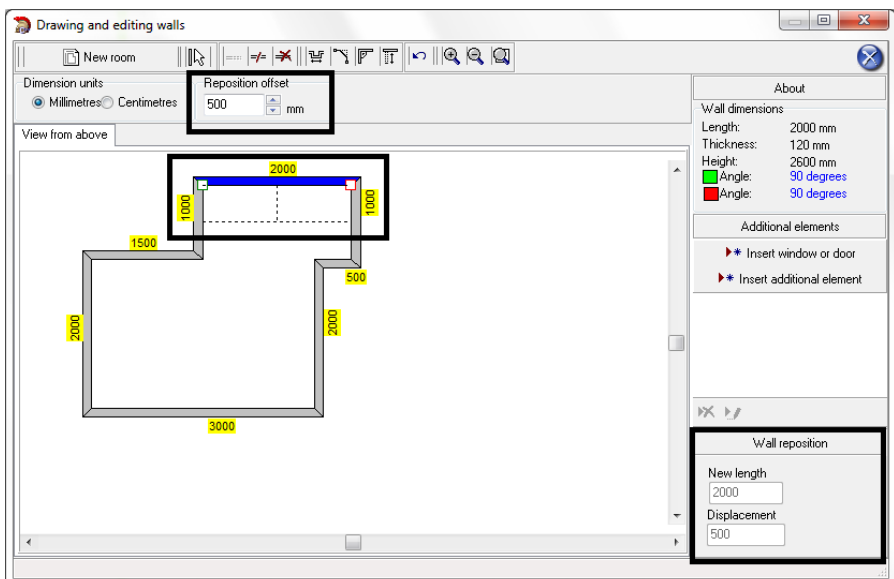


Fig. 87– moving the wall of a given length using the reposition offset

## 6. Drawing a new walls arrangement

In order to draw a new room select the **New interior** button. Enter the new walls dimensions in the displayed dialog box (Fig. 88) and select the walls to be drawn. Confirm the parameters with the **Draw the room** button. These walls, like all the other ones, may be edited and modified.

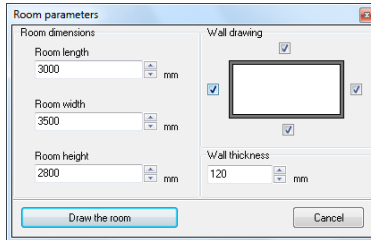


Fig. 88 – establishing new interior parameters

After each change of walls layout in **Wall Editor** you will see the message presented below (Fig. 89) when you attempt to close the **Editor** to go back to work environment. To confirm that the walls should be modified, click **Yes**. To drop the changes click **No**. To go back to **Editor** and introduce more changes click **Cancel**.

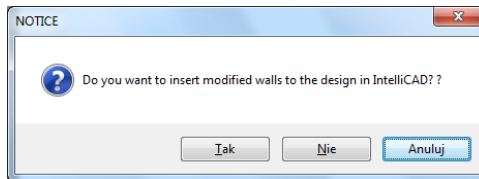



Fig. 89 – confirmation of changes introduced to walls

If you start to draw new walls layout in the project (in which walls are already inserted) and to this you select the icon **Walls** , you will not have access to **Wall Wizard** (until you delete all already existing walls), but you can use **Draw Walls**, **Select** and **Wall Editor** options.

If you choose **Draw Walls**, the program will ask if you really want to draw the walls again (Fig. 90). Choosing **Yes** will begin drawing a new path for walls and as a result there will be outlines of two rooms in the project.

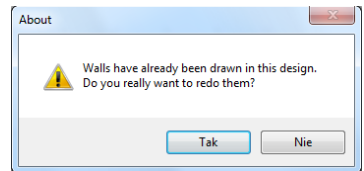



Fig. 90 – information about already existing walls

# CHAPTER 8


## Inserting and editing elements of walls

### 1. Introductory remarks

The **Wall Elements Edition** dialog box (opens when the **Walls**  icon is selected) provides tabs for the selection and edition of windows, doors, additions and terminals (note: bevels cannot be edited). Parameters of all these elements can be freely modified – while inserting them and after they are already inserted, using edition option.

### 2. Inserting bevels

To insert a bevel:

- click on the **Walls**  icon and go to **Bevels** tab (Fig. 91).
- click the **Select wall** button and indicate a wall in a design where the bevel it to be located;
- go back to the **Wall Elements Edition** window and select one of the bevels' types (bevel **of the wall** or **of the corner**);
- then define bevel's parameters:
  - **A** - distance from the floor to the bottom edge of the bevel,
  - **B** - distance from the ceiling to the upper edge of the bevel,
  - wall **rotation angle**,
  - bevel **distance** from the left and right edge of the wall;
- you can also define the type of the bevel's edge: straight connected to the wall, straight separated from the wall or oblique (Fig. 92);
- when all parameters are set, click **Insert** - the bevel will be inserted in the project.

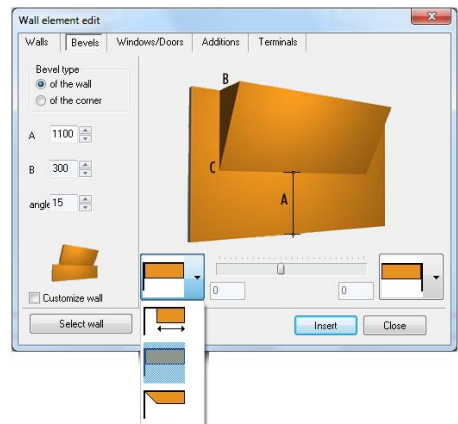


Fig. 91 – inserting the bevel of the wall

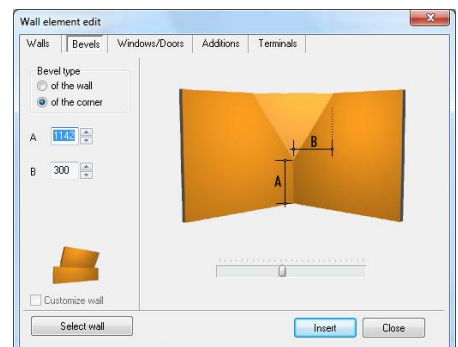


Fig. 92 – inserting the bevel of the corner



*Note! It is possible to set the offset from the end of the wall for the bevel — if it is designed to be only placed on the part of the wall. To do that select on of the checkboxes below the bevel's image and move the slider to set the desired offset.*

*Note! Bevels cannot be edited. If the user wants to change their parameters, he/she should delete them and insert again. Please note that if the option Adjust the wall had been selected, the wall on which the bevel has been placed would be lowered and its height needs to be changed back to the original one. Therefore it is recommended to undo the operation (using Undo button or <Ctrl+Z> keyboard command).*

If you want to insert a window in a bevel, then select the option **Adjust the wall** while defining bevel's parameters. It will result in lowering the wall on which the bevel is placed to the level of the bottom of the bevel after clicking **Insert**, and thanks to this the background will be visible through the window.

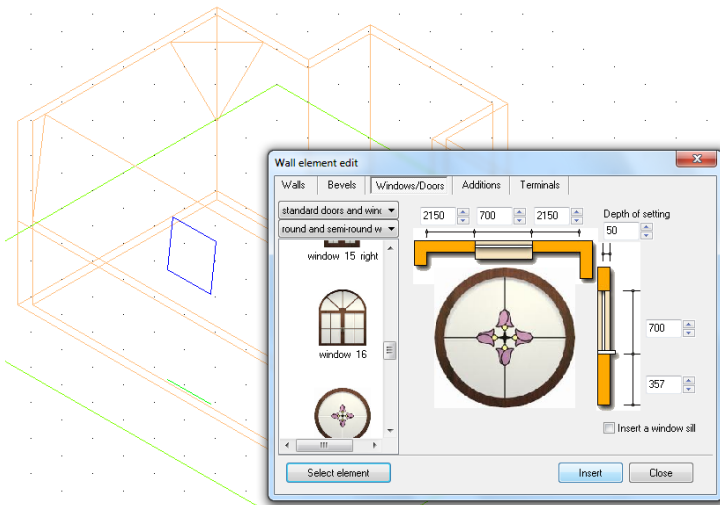



Fig. 93 – inserting a window into a bevel – edition dialog and the preview in the work environment

### 3. Inserting windows and doors

To insert standard doors and windows please follow the procedure described below:

- click the **Walls**  icon and go to the tab **Windows and doors**;
- click **Select element** and after returning to the design select the line of the wall or bevel where the window or door is to be inserted (by left-clicking it);
- when the **Wall element editing** dialog automatically opens again - select a particular object (a window or door) to be inserted;
- to facilitate the selection of the element, you can use the filter in the upper left corner of the window;

- when the model is selected, set its parameters:
  - distance from the left or right edge of the wall and the edges of the object;
  - object's width and height;
  - distance between the floor and the windowsill/door (the level of insertion);
  - the depth of the embedment of the object's setting in its frame;
  - windowsill depth (if the optional **Insert windowsill** option is selected);
- while the parameters are being set, the schematic preview of the object is displayed, so the settings may be verified in real time;
- when all the parameters are set, press the **Insert** button — the window or door will be inserted in the project;
- if the parameters are specified incorrectly resulting in inserting an element in the location of an element previously inserted one, a collision message will display (Fig. 89).

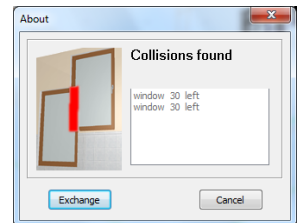


Fig. 94 – information about a collision of two windows

*Note! If you want the model to be perfectly centred on the wall, right-click its preview and select Centre horizontally or Centre vertically option. Note, that this option is not available for models which have been already inserted (during their edition).*

It is also possible to insert parametrical windows. To do so, select position **Parametrical windows** from the filter in the upper left corner (Fig. 95) and then:

- select a parametrical window (by default they are square and have different number of bars) – there are 4 types to choose from, which can be freely modified;
- select the element (a wall or a bevel), in which the window is to be inserted;
- define the number of vertical and horizontal bars and their width;
- define the dimensions and location of the window and its embedment depth;
- set up the width, thickness and offset of the window frame;
- optionally the windowsill can be inserted as well;
- confirm the settings by clicking the **Insert** button.

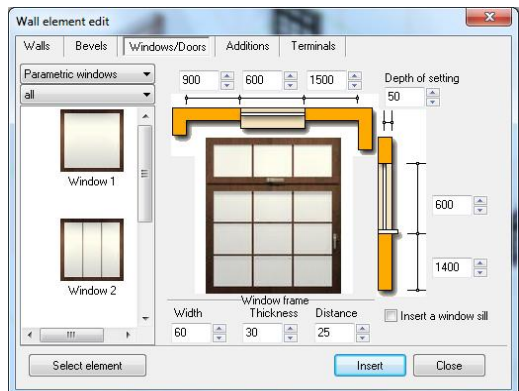


Fig. 95 – inserting parametrical windows

## 4. Additions

Models of decorative additional wall elements (orifices, recesses and protruding elements) can be found in the **Wall elements edition** dialog, in the **Additions** tab (Fig. 96). These elements are inserted in the similar way as windows and doors – the only difference is that the type of the element can be defined:

- **protrusion** – has a defined depth; sticks out from the wall into the room;
- **orifice** – in other words: a hole; it has no thickness at all;
- **recess** – in other words: a niche; its thickness cannot be bigger than the thickness of the wall;

## 5. Terminals

These elements may be used in design documentation. Inserting procedure for terminals is the same as for the other wall elements (Fig. 97)

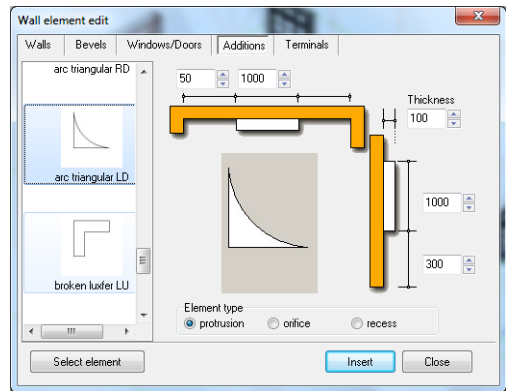


Fig. 96 – edition of additional elements of walls

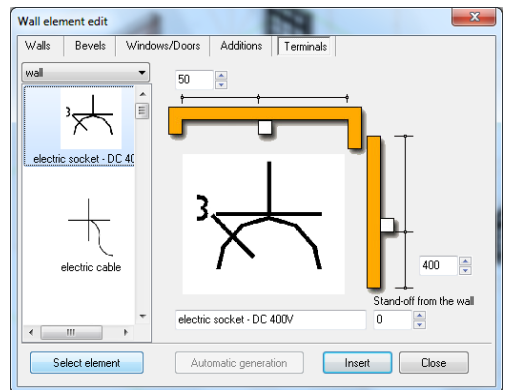


Fig. 97 – edition of terminals

*Note! It is possible to edit windows, doors, additions and terminals inserted into the design. In order to do it select the given object with a left-click, then click the right mouse button and choose the **Edition** position from the drop-down menu.*

# CHAPTER 9

## Creating and using any elements

### 1. Introductory remarks


**Any elements**  is the first icon of the **CAD-Interiors** toolbar (Fig. 98). It enables you to use any drawn outline as a template to create various objects (dynamic 3D modeling). To draw templates, use icons available in the **Drawing** toolbar (Fig. 99), which offer various drawing tools (e.g. path – in other words: polyline, line, arc, rectangle, circle) and operations (e.g. exploding, mirroring, offsetting, trimming).





Fig. 98 – CAD-Decor icon bar



Fig. 99 – Drawing icon bar

### 2. Creating any elements

Drawing of templates for elements should be proceeded with the use of entity snaps. The most commonly used entity spaps are the **End point**  and the **Midpoint** . It is recommended that they are active all the time if possible.

Attention should be also paid to the information and commands displayed on the Command Bar. A schematic preview of the currently drawn object is visible in the project. There are 6 types of elements to choose from: **floor**, **case**, **platform**, **plinth**, **ceiling** and **user's** own element, available in **Any elements** dialog box (Fig. 100).

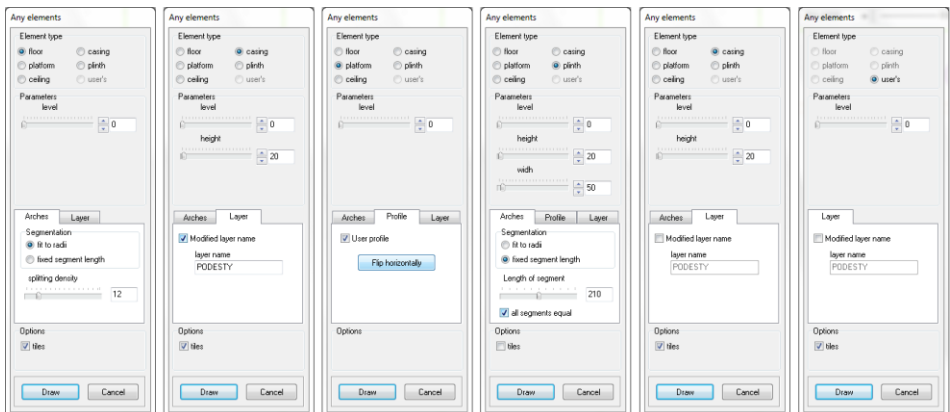



Fig. 100 – any elements – all variants (dimensions given in millimeters)

The particular types of any elements and functions used for their creation are described in the following points of this chapter. Presented techniques can be freely combined so you can create elements of various level of sophistication. The most demanding type of element is the **user's** own one, because to create it you have to use draw the template for the element using faces.


*Note! Using any elements creation functions it is possible to generate a floor or a ceiling in the shape exactly matching the dimensions of the room – to do so click the Autogeneration button, available after selecting the floor or the ceiling element category.*

### 3. Examples drawing techniques

#### 3. 1. A rectangle with dimensions of 800x1500 mm

- select the top view and switch the ORTHO mode ON;
- select the **line** drawing tool ;
- left-click in the project and move the cursor to the right to indicate the drawing direction;
- type the value 800 using the keyboard and accept it with **<Enter>**;
- the typed value will appear on the Command Bar in the bottom of the screen;
- move the mouse down, enter 1500 and accept it with **<Enter>**;
- move the mouse to the left, enter 800 value and accept it with **<Enter>**;
- move the mouse up, towards the first point of the object. When the yellow square appears, left-click on it and move the mouse away, and then right-click to finish.

#### 3. 2. Circle with the radius of 400 mm

- select the top view;
- select the **circle** drawing tool ;
- click the design area where the circle centre is to be;
- move the mouse away from the selected point in any direction;
- enter circle's radius (400) and accept it by pressing **<Enter>**;

*Note! If you wish to use circle's diameter instead of the radius, press <D> character first and then <Enter>. Then you can type the diameter value.*

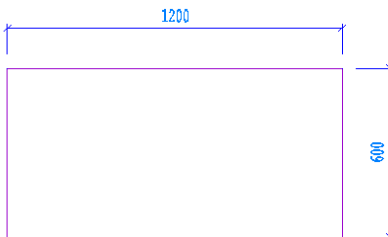


Fig. 101 – rectangle

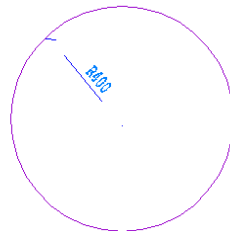





Fig. 102 – circle

### 3. 3. Rectangular bathtub enclosure, one side is an arc:

- draw a rectangle in accordance to Example no. 3.1.;
- with an active **Midpoint snap**  select the **line** drawing tool ;
- move the mouse cursor close to the centre of the line where an arc is to be added. when a yellow triangle lights up, click it and then move the mouse away. Enter the arc inclination value: 200 mm and accept it by pressing **<Enter>**. Click the right mouse button to finish drawing the auxiliary line;
- now select the **arc** tool ;
- it is necessary to indicate 3 arc points. In order to do it, click subsequently: yellow square at the corner of the rectangle (the beginning of the arc), the end of an auxiliary line (this will be the top of the arc, a so-called **second point**) and the opposite rectangle's corner (the end of the arc);
- after the arc is finished, remove unnecessary lines from the template.

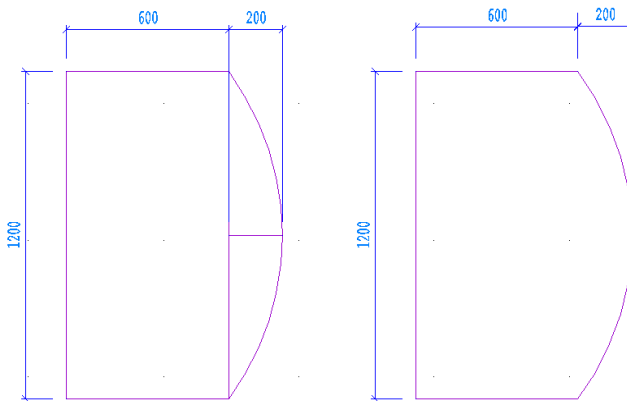



Fig. 103 – bathtub casing

### 3. 4. Trapezoid with given dimensions of sides and angles

- drawn with the **path** drawing tool (polyline) , without using the ORTHO;
- select the path tool and click in the project area;
- draw a segment 1200 mm long to the left – in order to do so, type **@1200<180** (it will appear in Command Bar in the bottom of the screen) and press **<Enter>**;
- type the next segment parameters: **@600<55** and press **<Enter>**;
- enter the consequent segment's parameters **@512<0** and press **<Enter>**;
- move the cursor close to the start point and, when a yellow square appears, left-click it, and then right-click to finish work.

*Note! The angles are being calculated on the basis of the math formulas. Data should be entered in the following way: segment length, 'less than' character (<), angle value. The whole entry should be preceded by the @ symbol.*

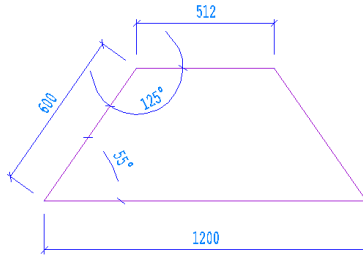



Fig. 104 – trapezoid

### 3. 5. Trapezoid with an arc

- drawn on the basis of the shape created in the Example 3.4.;
- select the **path** drawing tool  and click in the project;
- draw a segment 1200 mm to the left by typing **@1200<180** and pressing **<Enter>**;
- type the next segment parameters: **@600<55** and press **<Enter>**;
- then press **<A>** (for English word **ARC**) and press **<Enter>** (or space key). When the mouse is moved now, the arc's preview is visible in the project. If the ORTHO mode is on, it will be drawn only in multiplicity of 90°, so if it is to be drawn freely in any direction (at any angle), press and hold the **<Shift>** key;
- enter the length of the arc's base **@512<0** and press **<Enter>** to confirm;
- go back to line-drawing mode by entering **<L>** (for English word **LINE**) and pressing **<Enter>** and then follow the descriptions given in the previous Example to finish the figure.

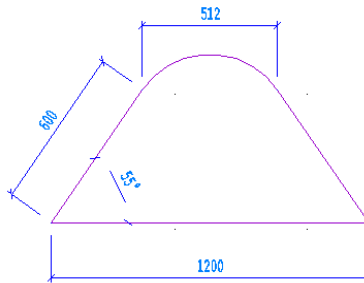



Fig. 105 – trapezoid with and arc segment

*Note! The height of an arc is remembered by the program. To define new value, after indicating arc's first point press <S> (for second point), then <Enter> and left-click to indicate the 2nd point. Then left-click once more in 3rd point to define the end of an arc.*

## 4. Types of elements and a short description of solids

Examples of elements in the environment and visualization view are presented on the illustration below (Fig. 106, page 69 - from the left to the right: a floor, a platform, a casing and a plinth). A ceiling has not been presented because it looks exactly the same as floor – the only difference between them is the insertion level.

Type	Description
<b>floor</b>	<ul style="list-style-type: none"> <li>- a flat element, used for drawing floors of various shapes. The only parameter to define while creating this object is the <b>insertion level</b>. Usually rooms generated by means of any technique of drawing walls have a default floor (marked by a green square), automatically generated (the function <b>Draw the floor</b> is selected by default). The autogenerated floor can be removed and replaced with the floor of any shape, drawn by the user (e.g. of the exact shape of the room).</li> </ul>
<b>platform</b>	<ul style="list-style-type: none"> <li>- it is a block with sides, a bottom and a top. While creating it the user has to define the <b>insertion level</b> and platform's <b>height</b>. Platforms are often used to draw partition walls of any shape, steps, suspended ceilings, bathtub casings and worktops.</li> </ul>
<b>casing</b>	<ul style="list-style-type: none"> <li>- the block with sides but without bottom or top surface. It is similar to the floor, but rotated vertically. A single polyline segment is enough to create the casing (the template do not have to be a closed figure). Used to create background behind windows (it can be a big square surface on which some picture in placed).</li> </ul>
<b>plinth</b>	<ul style="list-style-type: none"> <li>- it can be either a frame or a ring (when created from the outline – e.g. rectangular or circular) or a cuboid (when created from a single polyline segment).</li> </ul>
<b>ceiling</b>	<ul style="list-style-type: none"> <li>- a flat element similar to the floor, but inserted on a different level (by default 2600 mm). The ceiling of the same shape as the outline of the room is generated automatically when the visualization mode is opened for the first time.</li> </ul>
<b>user's</b>	<ul style="list-style-type: none"> <li>- spatial element of a shape defined manually by the user, created on the basis of faces (and not lines or polylines). Useful to create untypical corner bevels and decorative elements.</li> <li>- to draw a face type the <b>3dface</b> command on the Command Bar and confirm it with <b>&lt;Enter&gt;</b>, and then define the shape of the face, left-clicking in points, where consequent vertexes of the face are supposed to be placed. To finish, use a single right-click. Faces can have 3 or 4 vertexes, not more. Because they are used to create 3D objects, it is necessary to use an orthogonal view. It is also recommended to use entity snaps to ensure precision.</li> <li>- when all the faces are drawn, select them and click the <b>Any elements</b>  icon. You can define the insertion level and whether or not it should be adjusted to be covered with tiles (tiles checkbox is selected by default).</li> <li>- when you create elements from polylines, lines, arcs or circles, the user's option is inactive, and when you are creating an element using faces, all other options are unavailable.</li> </ul>



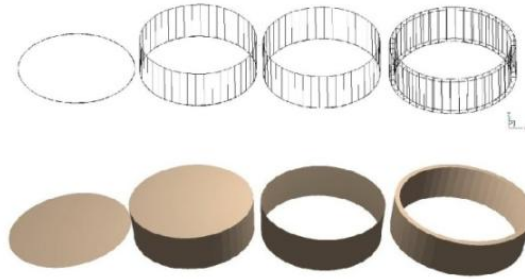





Fig. 106 – examples of various elements


## 5. Tabs of the Any elements dialog

Tab	Functions
<b>Layer</b>	<ul style="list-style-type: none"> <li>- this tab is active for all entity types. If you tick <b>Modified layer name</b> option, you can save the object on other layer than current one.</li> </ul>
<b>Arcs</b>	<ul style="list-style-type: none"> <li>- this tab is available for plinths, casings and platforms. It is closely connected with tiles  <b>tiles</b> option. By the means of this tab, the user can define dimensions and quantity of rectangular segments creating a single arc. If the given object is to be covered with ceramic tiles, the User should tick the <b>tiles</b> option - otherwise the object, when visualized, will seem to be smooth, and if a texture is applied to it, it will be covered on its circumference, not like in a case of the tile usage — segment by segment.</li> <li>- when the object is to be tiled, the <b>Fixed segment length</b> option should be selected, and the tile horizontal dimension should be entered. The parameters can be edited during the overall block edition. The function enables to cover oval solids with complete (not cut) tiles.</li> <li>- optionally, the option <b>fit to radii</b> can be chosen – then the tiles will be adjusted to the radius and cut in equal pieces.</li> </ul>
<b>Profile</b>	<ul style="list-style-type: none"> <li>- this tab appears for platforms and pedestals. It enables the user to form any object's edge on the basis of a previously drawn polyline (so-called <b>user profile</b>). In order to do so, the profile should be prepared with the use of the <b>Path</b>  drawing tool.</li> <li>- after clicking the <b>Any elements</b>  icon and selecting a type of an element and its dimensions, open the <b>Profile</b> tab and select the <b>user profile</b> option. Then left-click on the prepared profile to indicate it and again – left-click to define its main point (the point of the connection between the profile and the outline of the element). You can rotate the profile inwards or outwards by 180° (option <b>flip horizontally</b>) if it happens to be directed the wrong way.</li> </ul>

## 6. Examples of practical use of any elements

### 6.1. Drawing an element with orifices

To draw such an element:

- draw a contour of the object using any drawing tool;
- draw outlines of the orifices inside the contour;
- select the **Any elements**  icon and left-click inside the contour;
- in the new dialog select the type of the element (a floor or a platform) and define its parameters.

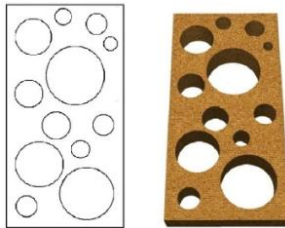



Fig. 107 - an element with orifices – the design and the result in visualization

### 6.2. Drawing a platform using the user profile

- draw a contour of the object using any technique;
- beside the contour draw the profile using the polyline;
- select the **Any elements**  icon and left-click inside the contour
- in the new dialog select type of the element – platform;
- open the **Profile** tab and select the option **User profile** – back in the project left click on the profile line, and then indicate the point of connection with the contour with a second left-click;
- back in **Any element** dialog click the **Draw** button;
- a platform with a defined profile will be inserted in the project;
- if necessary, it is possible to rotate the profile inward or outwards – using the option **flip horizontally**.

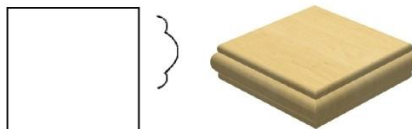



Fig. 108 – a platform with a defined profile

### 6.3. Drawing a plinth using the user profile

- draw the route for the plinth using the **path** drawing tool and draw the outline for the profile;
- select the **Any elements**  icon and left-click on the prepared route;
- define the type of the element in the new dialog – select **Plinth**;


- open the **Profile** tab and select **User profile** option;
- back in the project left-click on the profile line and then indicate the connection point with a second left-click;
- when back in **Any element** dialog, click **Draw**;
- a plinth with a defined profile will be created in the project.



Fig. 109 – a plinth with a defined profile

Each of these elements can be freely edited and rotated in space. Both of these functions are available after selecting the block (by a left-click on one of its lines) and clicking the right mouse button. From the context menu select **Edition** or **Rotate / 3D Rotate**. To change the shape of the element the new template for it has to be drawn .

## 7. Drawing a rectangle or a square using the Rectangle icon

Thanks to the **Rectangle**  icon you can quickly and easily draw rectangles. After clicking the icon, indicate the first vertex of the rectangle with a left-click, and then the indicate opposite one. The preview of the currently drawn rectangle will be visible in the project. After the second left-click the rectangle will be drawn.

This function enables also to draw squares (Fig. 110). To do so, straight after clicking on the icon and before indicating the first vertex, type the **square** command on the Command Bar and confirm with **<Enter>**. Then follow the steps of drawing a rectangle. The program will ensure the same length of all sides of the square.

Rectangles and squares can be drawn at any angle. To draw them at angles different then the multiplicity of 90°, press and hold **<Shift>** while indicating the second corner (it will temporarily switch off the ORTHO mode).

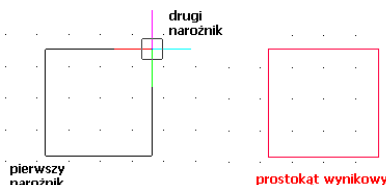


Fig. 110 – a square drawn by the means of the Rectangle function

## CHAPTER 10

### Basic operations on elements

#### 1. Introductory remarks

In order to display the context menu (Fig. 111), which enables quick and efficient work with the program is necessary to do the following:

- click on the object with the left mouse button (select it);
- click on empty space of the drawing with the right mouse button.

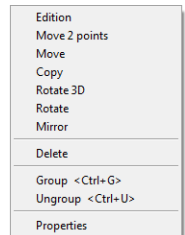


Fig. 111 – pop-up menu

#### 2. Edition

Option of edition is available for elements such as: walls, windows, doors, additional wall elements (protrusions, orifices, recesses), any elements created by the user, posts and arc walls, and objects from interior equipment databases used in the project. To edit an element, first select it – by a single left -click or by area selection, and then click the right mouse button to gain access to the context menu, and select the position of **Edition**. A new dialog will open (different for each type of elements), in which some basic characteristics of the edited object can be modified or the object can be exchanged for a different one (available options are dependant on the element type). For more details about edition see the next chapters of the manual.

#### 3. Move 2 points

To move an object using this option:

- select the element to move with the mouse cursor;
- choose **Move 2 points** option in the context menu under the right mouse button;
- using the cursor select (left-click) the point of reference for the movement (it can be either a point on the element or any other point in the project);
- if the point on the object has been selected, then with the second left click indicate the point in which the selected point of reference is to be placed (using the **Entity snaps** is recommended for precision);
- when using this method the object can be sometimes accidentally moved in Z axis (change the insertion level), so it is recommended to always make sure it is on the desired level after the movement;
- if any point in the project has been selected, then move the mouse in the direction in which the element is to be moved, and click when it reaches the desired location;

- while using the second method the particular value can be entered on the Command Bar, e.g. if the mouse is moved to the left and a value **1000** is typed and confirmed with **<Enter>**, the element will be moved 1 meter to the left;
- to move the element at an angle different than the multiplicity of 90°, press and hold **<Shift>** to temporarily switch off the ORTHO mode.

#### 4. Move

To move the element:

- select the object to be moved with the cursor (by a left-click or area selection);
- select the **Move** function in the pop-up menu;
- the **Moving** dialog box will appear (Fig. 112);

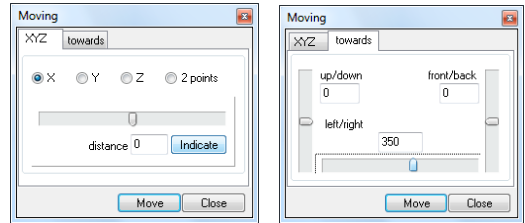


Fig. 112 – Moving dialog box – XYZ and towards tabs

The **Moving** dialog has got 2 tabs:

- **the XYZ tab** allows to move objects along a specified axis (X, Y or Z) by a specified value, indicated with the slider or entered manually;
- the **towards** tab allows to move elements freely: by moving one of 3 sliders choose the direction (up/down, front/back, left/right) and the distance (you can also enter the value manually in the proper field);
- when the direction and distance is set up, click the **Move** button;
- the object will be moved, but the dialog will stay open, so the procedure can be repeated, either to move the object once again in the same direction and by the same distance (to do so, click **Move** again, without changing any settings – this can be repeated over and over again) or to move the same object also in another direction or by a different distance (to do so, change the settings and then press **Move**);
- to finish moving the object, after clicking **Move** for the last time, click **Close**.

There is one more method of moving objects – using the option **Indicate**:

- when some of the axis is selected (e.g. X) the object will be moved in this axis;
- if the option 2 points in selected, the object will be moved in reference to the indicated points;
- after clicking the **Indicate** button, two points of reference should be indicated, analogically to the procedure described in point 3: **Move 2 points**.

#### 5. Delete

To remove an object from the project select it, then right-click and select the **Delete** position from the context menu. Selected element will be removed from the project. Alternatively, press **<Delete>** key after selecting the object to be removed.

## 6. Copy

To copy the chosen element:

- select the element to be copied using the mouse cursor;
- in the pop-up menu choose **Copy**;
- select the point or reference for copying – on the object or any point in the project;
- then click in the point in which the copy is to be inserted;
- the function operates the same way as **Move 2 points** option;
- an unlimited number of copies can be created in one session – just keep clicking the left mouse button in desired points in the project or type new distance values in Command Bar and confirm with **<Enter>**;
- copies can be inserted in equal interspaces, typing the distance from the original element in Command Bar (e.g. for 1<sup>st</sup> copy: 1000, for 2<sup>nd</sup> copy: 2000, for 3<sup>rd</sup>: 3000);
- to locate copies around the original element in angles different then the multiplicity of 90°, press and hold **<Shift>** to temporarily switch off the ORTHO mode;
- to finish copying click the right mouse button or press **<Enter>** twice or press **<Esc>**.

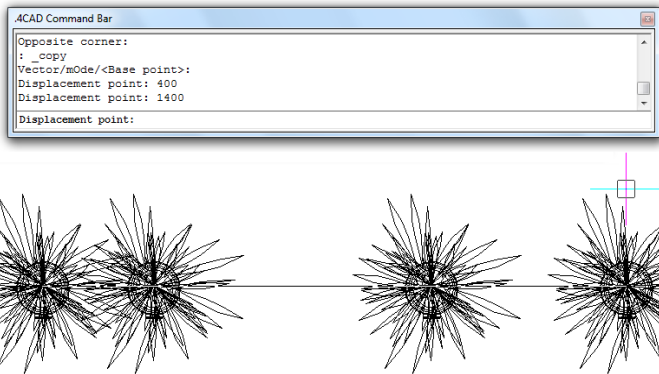


Fig. 113 – copying a decorative element

## 7. Rotate

To rotate the chosen element:

- select the element for rotation;
- in the pop-up menu choose **Rotate**;
- select the rotation base point;
- indicate the rotation angle;
- left-click to end the operation.

## 8. 3D Rotate

This feature enables to rotate object in 2 or 3 dimensions. After selecting the element and choosing this option from a pop-up menu, the **Rotation** dialog will appear. There are two tabs in this dialog: 2D and 3D (Fig. 114 and 115).

## 2D rotation

- rotation in 2 dimensions is performed only in relation to the Z axis;
- in the **rotation angle** box indicate or type the angle by which the object is to be rotated or select one of the given values (90°, 180°, 270°);
- a preview of a rotated object is displayed to help decide whether or not the set value is proper;
- to confirm click the **Rotate** button;
- the element will be rotated and the dialog will stay open – so the procedure can be repeated (to repeat it, set up the parameters of a new rotation and click **Rotate**);
- exit the **Rotation** dialog box by clicking **Close**;

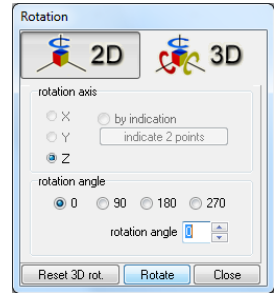


Fig. 114 – Rotation dialog, 2D tab

## 3D rotation

- can be performed in relation to any of the 3 axes – X, Y or Z;
- rotation in the particular axis is done along the same rules as the 2D rotation;
- by indication — select 2 points** — click in the first and last point of the reference line, on the basis of which the element is to be rotated, establish the rotation angle and confirm by clicking the **Rotate** button.

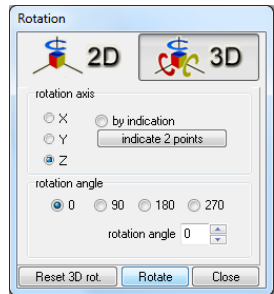


Fig. 115 – Rotation dialog, 3D tab

*Note! To restore the settings prior to the rotation, press Reset 3D rotation.*

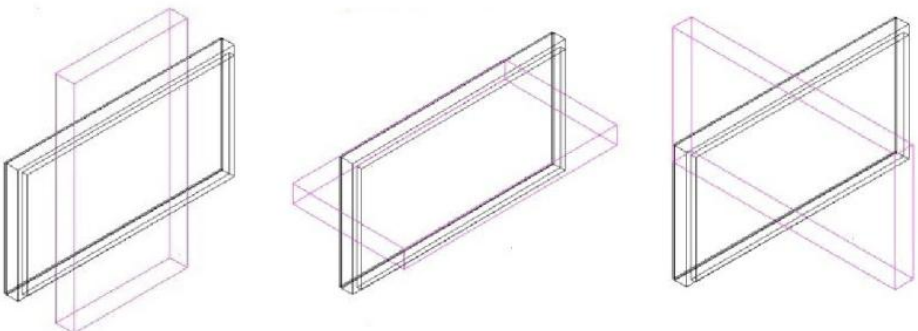


Fig. 116 – 3D Rotate function – examples

## 9. Mirror

This function is used to create an object that is a mirror reflection of an original object. In order to do that follow this procedure:

- select an object to be mirrored;
- select the **Mirror** function from the pop-up menu;
- left-click in the starting point of the reference line;
- the outline of the mirrored element will be visible in the project;
- left-click the second time in the second (and last) point of the reference line;
- to confirm, click the right mouse button;
- the reversed copy will be created.

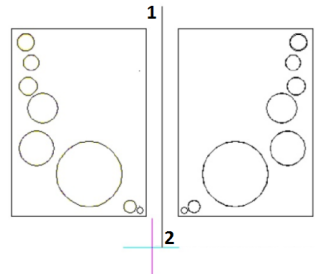


Fig. 117 – example of using the Mirror function

## 10. Group / Ungroup

Grouping of elements is useful when the user wants to create a group of objects (e.g. a table with chairs or a shelf with books) to be able to perform actions such as moving, copying or rotating on all of them at the same time.

To group elements:

- select the elements which are to be parts of the group (by left-clicking or area selection);
- in the pop-up menu select **Group** or use the keyboard command **<Ctrl +G>**;
- selected elements will be grouped and from now on, can be moved / copied / rotated or mirrored together.

To ungroup elements than have been previously grouped, it is necessary to:

- select the group (by clicking on one of its components or area selection);
- in the pop-up menu choose the command **Ungroup** or use the keyboard command **<Ctrl +U>**;
- the group will be divided into separate elements.

## 11. Entity Properties dialog box

**Entity Properties** dialog box (Fig. 118) contains information about a particular selected entity or entities. If several entities that all have different properties are selected, the default value initially is **Varies**.

Changes made in **Layer**, **Colour**, **Thickness**, **Lineweight**, **Linetype**, **Linetype Scale** and **Print Style** (if using named print style tables) fields affect all selected entities.



The most often changed parameters are the **Insertion coordinates** of the object (X, Y, Z axis values in the **Insertion Point** boxes) and its scale in the **Scale Factor** boxes (each object can be enlarged or shrunk in one of the three axes by choosing an appropriate scale factor). In the **Layer** box the parameters of the layer to which the object belongs are displayed and can be modified.

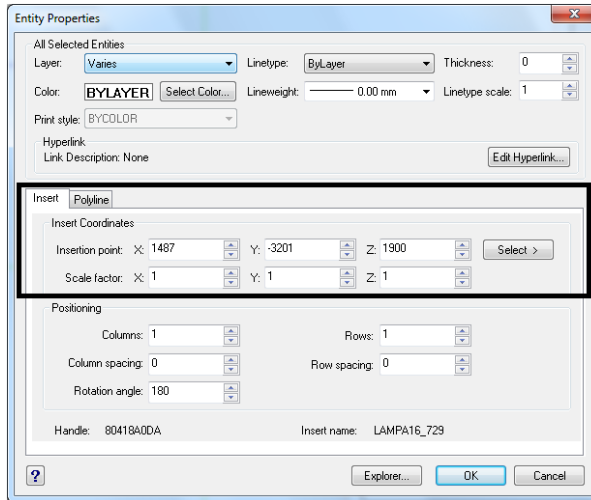


Fig. 118 – Entity Properties dialog

## 12. Entity Properties toolbar

Properties of particular objects can be also edited and modified using the tools available in **Entity Properties** bar which can be found under the toolbars with icons (Fig. 119).

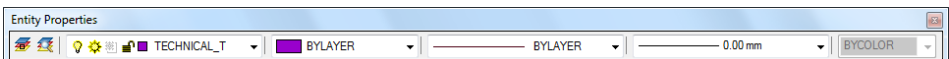


Fig. 119 – Entity Properties bar

Functions available in this toolbar enable to manage the properties of the layer, to which the particular object belongs. It is designed for advanced users of CAD environment.

Layers in IntelliCAD are like the transparent overlays used in manual drafting. They are used to organize different types of drawing information. In IntelliCAD, each entity in a drawing exists on a layer. Every drawing has at least one layer, the default layer, named "0." Each drawing can also contain an unlimited number of additional layers. When an entity is drawn, it is created on the current layer.





The visibility of layers can be controlled. When a layer is turned off, it is no longer visible and it do not print. Although a layer may be invisible, it can be still selected it as the current layer, in which case new entities are also invisible until the layer is turned back on. Entities on invisible layers can also affect the display and printing of entities on other layers. For example, entities on invisible layers can hide other entities when you use the Hide command to remove hidden lines.

Layers can be also frozen and thawed. Entities drawn on frozen layers do not display, do not print, and do not regenerate. When you freeze a layer, its entities do not affect the display or printing of other entities. For example, entities on frozen layers do not hide other entities when you use the Hide command to remove hidden lines. In addition, you cannot draw on a frozen layer until you thaw it, and you cannot make a frozen layer current. You cannot freeze the current layer. If you attempt to freeze the current layer, a dialog box appears prompting to specify a different layer.

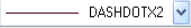

You can also lock or unlock layers. Entities on a locked layer are visible and will print, but cannot be edited. Locking prevents from accidental modification of entities.

Each layer has its own color, linetype, and lineweight. For drawings that use named print styles, layers can also have their own print style. Entities you draw on a particular layer are displayed in the color, linetype, and lineweight associated with that layer unless you override these settings. You control all of the associated settings for layers using the **Layers** elements in the **IntelliCAD Explorer**. You can also access layer settings for entities using the **Entity Properties** toolbar or edit a layer's properties by right-clicking it and choosing **Properties**.

The following features are available in the **Entity Properties** toolbar:

-  **Set layer by entity** – sets a new layer as the current layer. Select entity to set the current layer: select an entity in the layer that is to be the current layer.
-  **Explore layers...** – opens the **IntelliCAD Explorer** with the **Layer Name** list displayed (Fig. 122); in which all settings for layers can be modified;
-  **Layer change field** – in here the layer can be turned on or off, frozen or thawed, locked or unlocked or the layer of the selected entity can be changed (click on the element, select the layer, press **<Enter>** to confirm);
-  **Colour change field** – in here the colour of the layer of the selected element can be modified; in a new drawing, entities are created in the colour **BYLAYER**, which adopts the colour of the current layer. Initially, layer 0 is both the only layer and the current layer. Its default color is white, so your entities appear as white. There are index colors, which contain two additional colour properties that are often referred to as **colours**, **true colours**, and **colour book colours** (Fig. 121). The two additional color properties are **BYLAYER** and **BYBLOCK**. These colour properties cause an entity to adopt the color either of the

layer or of the block in which it is a member. A new colour can be chosen from the given colours or specified by the user – by clicking the position **Select colour**; a new dialog opens then in which the colour can be selected in 3 ways (Fig. 115);

-  **Linetype Control field** – defines linetypes (sequences of alternating line segments, dots, and spaces), loads them from libraries, and sets the current linetype (e.g. continuous, dashed, dotted, center (one dot and one dash) and phantom linetype (two dots and one dash));
-  **Lineweight Control field** – the line thickness can be changed here, e.g. to improve visibility of print or to meet the standards of a technical drawing; after changing the lineweight to make it visible in the project use the function **Show line thickness** in main menu (**Information** → **Settings** → **Show...**).

The illustration below presents all fields of **Entity Properties** toolbar with expanded lists (please note that in reality only one list can be expanded in one time) (Fig. 120).

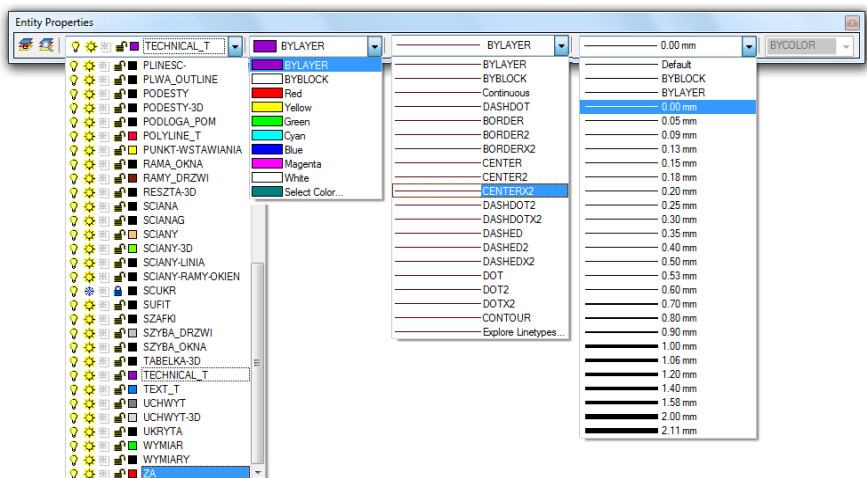


Fig. 120 – presentation of functions available in Entity Properties toolbar

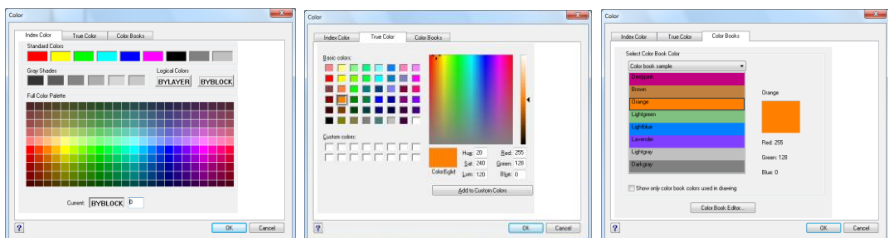


Fig. 121 – Selection of layer colour – tabs: Index Color, True Color, Color Books

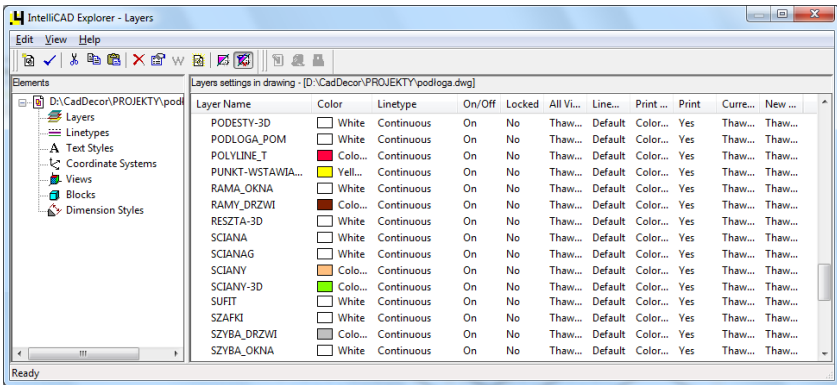




Fig. 122 – IntelliCAD Explorer – Layers

### 13. Offset

Creates a parallel copy of curves and lines.

- After clicking the **Offset**  icon (or typing *offset* and confirming with **<Enter>**) the program will ask to specify the distance between the original entity and the parallel copy;
- Type the value and press **<Enter>** or indicate it by left-clicking in 2 points;
- Select the entity to be offset;
- Select the side where the parallel entity is to be located (type *both* to locate in on both sides of the original entity and press **<Enter>**);
- The function is active until the **<Esc>** is pressed, so after one cycle a new entity to offset can be chosen straight away.

To specify a point through which the parallel copy is to intersect, type **Through point** and press **<Enter>** after clicking the **Offset**  icon. Then select the entity and click in the point through which the new line is to go through. Another entity can be selected straight away. To finish press **<Esc>**.

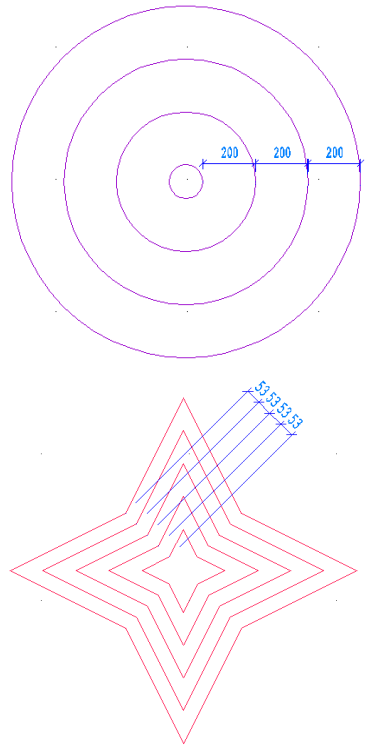



Fig. 123 – examples of shapes created using the Offset function

## 14. Trim

Entities such as arcs, circles, lines, open 2D and 3D polylines, and rays as can be clipped, or trimmed, so they end at one or more implied cutting edges defined by other entities, and also to the point at which they would intersect an implied cutting edge. When trimming entities, first select the cutting edges and then specify the entities to trim. Arcs, circles, lines, polylines, rays, infinite lines can act as cutting edges. An entity can be both a cutting edge and one of the entities being trimmed. To trim an entity:

- Click the **Trim** tool  or type **trim** and then press **<Enter>**;
- Select one or more cutting edges, and then press **<Enter>** (to select all entities in the project, press **<Enter>** twice);
- Select the entity to trim by clicking on it;
- Trimming will last until all the entities left can be deleted in a regular way;
- To finish trimming press **<Esc>**.

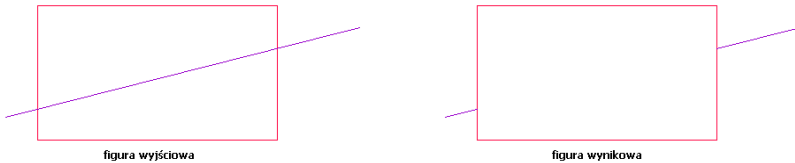



Fig. 124 – an example of using Trim function

## 15. Explode

Ungroups a block, polyline, polyface mesh, solid, or hatch, creating separate entities for each element. You can use the Explode command to break apart a block or polyline into separate elements. You may need to explode nested blocks more than once (but newer more than twice, because it will be not possible to block them back again). To explode an entity:

- Click the **Explode** icon  or type **xplode** and then press **<Enter>**;
- Select the object to be exploded and press **<Enter>** or right-click;
- The functions works once, so if more than one entity is to be exploded, they should be selected for exploding altogether;
- The entities to explode can be also selected before choosing the command;
- Wide polylines break apart into zero-thickness lines and arcs;
- Polylines break apart into separate line and arc segments;
- Multilines break apart into two separate line segments;
- Rectangles and other polyline entities break apart into line segments;
- Hatched entities created with IntelliCAD break apart so that each line in the hatch is a separate entity;
- Blocks break apart into separate entities.

## CHAPTER 11

### Advanced operations on elements

#### 1. Introductory remarks

In order to facilitate the work with the program, some advanced icons of IntelliCAD have been added to the standard icon menu of CAD Decor PRO . They are available on the Advanced icon bar, which is hidden by default while running the program for the first time. To open it, right-click in the toolbars area and tick the Advanced position of the list.

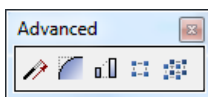



Fig. 125 – Advanced toolbar

#### 2. Edit Length

The length of entities can be quickly and easily changed, using the **Edit length** tool . After clicking this icon, several options will be available on the Command Bar to chose from (Fig. 126).

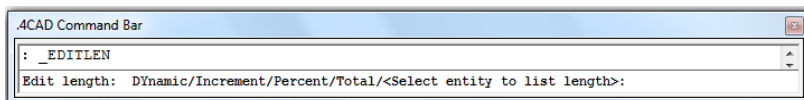


Fig. 126 – the communicate in Command Bar after selecting the Edit length function


Use any of the following methods to change the length of an entity:

- **Dynamic:** dynamically drag the endpoint or angle;
- **Increment:** specify an incremental length or angle measured from an endpoint;
- **Percent:** specify the new length as a percentage of the total length or angle.– e.g. 50% will shorten the existing section by half, and 150% - will prolong it by half;
- **Total:** specify a new length by typing the value and pressing **<Enter>**.


To select one of the above options, type its name and press **<Enter>**. Then type the value, confirm with **<Enter>** and select the entity. When using a dynamic option, do not type anything, just click on the entity and then click in its new endpoint.

This feature is particularly useful to change the length of entities drawn at an angle different than the multiplicity of 90°.

### 3. Fillet

The **Fillet** tool  connects two entities with an arc of a specified radius to create a rounded edge. If both entities you are working with are on the same layer, the fillet is drawn on that layer. If they are on different layers, then the fillet is drawn on the current layer. Entities that can be filleted are: pairs of line segments, straight polyline segments, arcs, circles, rays, infinite lines and parallel lines. When filleting a polyline, multiple segments between two selected segments can be filleted, as well as entire polyline.

#### To fillet two entities

- Click the **Fillet** tool  or type **fillet** and then press <Enter>;
- In the prompt box (Command Bar), choose **Fillet Settings** (Fig. 127);
- In the **Drawing Settings** dialog box (Fig. 128), specify the fillet radius and click **OK**;
- Select the first entity and then the second entity;
- An example result is presented on the illustration below (Fig. 129).

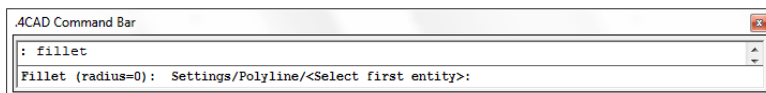


Fig. 127 – the communicate in Command Bar after selecting the Filler function

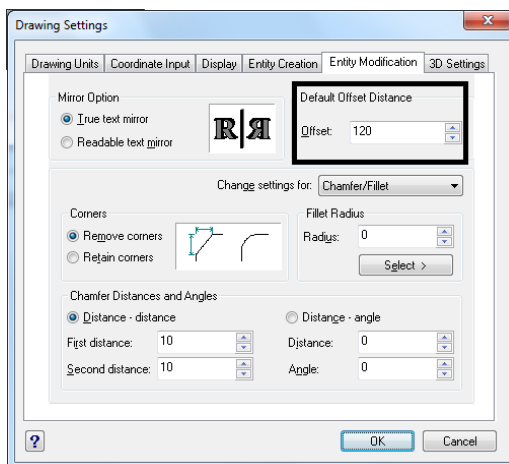


Fig. 128 – Drawing Settings dialog box

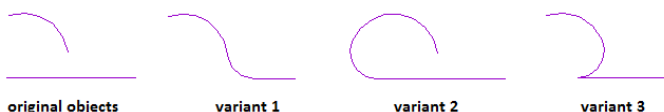




Fig. 129 – an example of using the Fillet function for a line and an arc

### To fillet an entire polyline

- Click the **Fillet** tool  or type **fillet** and then press <Enter>;
- In the prompt box, choose **Polyline** and press <Enter>;
- Select the polyline.
- An example result is presented on the illustration below (Fig. 130).

### To fillet selected vertices in a polyline

- Click the **Fillet** tool  or type **fillet** and then press <Enter>;
- Select the polyline along the segment where you want to begin the fillet;
- Select the polyline along the segment where you want to end the fillet.

When you fillet circles and arcs, more than one fillet can exist between the entities. The point at which you select the entities determines the fillet.

You can fillet parallel lines, rays, and infinite lines. The first entity must be a line or ray; the second entity can be a line, ray, or infinite line. The diameter of the fillet arc is always equal to the distance between the parallel entities. The current fillet radius is ignored.

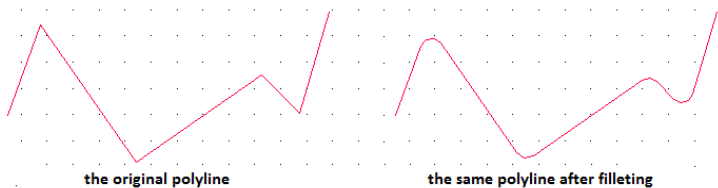



Fig. 130 – an example of using the Fillet function for a polyline

## 4. Align

Selected entities can be aligned with other entities in three-dimensional space. To do so, select the entities you want to align, and specify one, two or three pairs of points to align the selected entities.

To align an entity an entity with another

- Click the **Align** tool  or type **align** and then press <Enter>;
- Select the entities, and then press <Enter>;
- Specify the first source point (on the illustration below: A1);
- Specify the first destination point (on the illustration below: A2);
- Specify additional source and destination points if desired (up to three pairs);
- After selecting 1 or 2 pairs of points, press <Enter> or right-click to complete;
- After selecting 3 pairs of points, the command will be completed automatically;
- In which axis the object will be rotated depends on the selected pairs of source and destination points.



The illustration below (Fig. 131) presents example results of using the **Align** function.

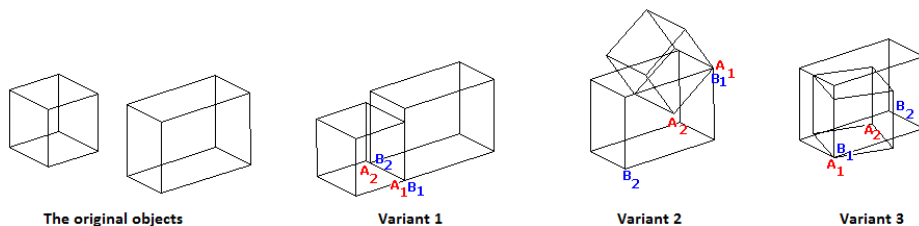



Fig. 131 – examples of using the Align function


## 5. Array

Using this feature it is possible to copy an entity in a rectangular or polar (circular) pattern, creating an array. For a rectangular array, the number of copies in the array can be controlled by specifying the number of rows and columns. Also the distance between each row and column can be specified. For a polar array, the number of copies that compose the array can be controlled, as well as whether to rotate the copies.

To create a polar array:

- Click the **Array** tool  or type **array** and then press **<Enter>**;
- Select the entities and press **<Enter>**;
- In the prompt box (Command Bar), choose **Polar** and press **<Enter>**;
- Specify the center point of the array;
- Specify the number of items to array, including the original selection set.
- Specify the angle the array is to fill, from 0 to 360 degrees (the default setting for the angle is 360 degrees. Positive values create the array in a counterclockwise direction; negative values create the array in a clockwise direction);
- In the prompt box, choose one of the following:
  - **Yes, Rotate Entities** – rotates entities as they are arrayed.
  - **No, Do Not Rotate** – retains the original orientation of each copy as it is arrayed.
- A polar array will be created (Fig. 132 – illustration on the left and in the middle).

To create a rectangular array:

- Click the **Array** tool  or type **array** and then press **<Enter>**;
- Select the entities and press **<Enter>**;
- In the prompt box (Command Bar), choose **Rectangular** and press **<Enter>**;
- Type the number of rows.;
- Type the number of columns.
- Specify the distance between the rows.

- Specify the distance between the columns.
- A rectangular array will be created (Fig. 125 – illustration on the right).

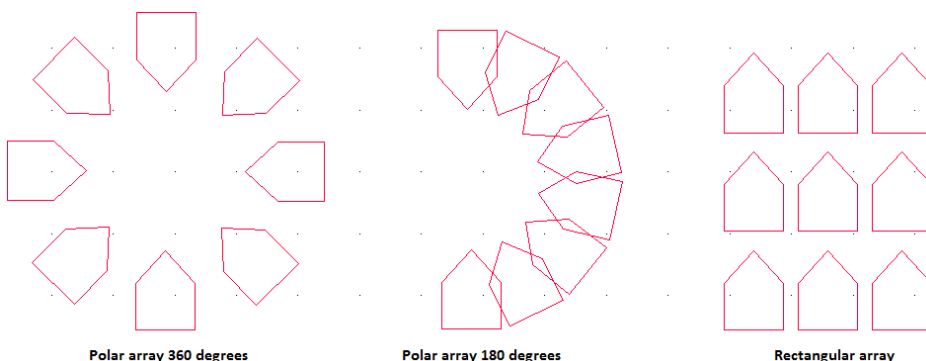



Fig. 132 – examples of arrays in 2D


## 6. 3D Array

It is also possible to proceed arraying in three dimensions. Using the tool **3D Array** it is possible to copy selected entities and arrange them in a three-dimensional rectangular or polar (circular) pattern. For a rectangular array, the number of copies in the array can be controlled by specifying the number of rows and columns and the number of levels, and the distance between each of them can be specified as well. For a polar array it is necessary to specify the axis around which to array the entities, the number of copies of the entities to create, and the angle subtended by the resulting array.

To create a three-dimensional rectangular array:

- Click the **3D Array** tool  or type **3darray** and press **<Enter>**;
- Select the entities and press **<Enter>**;
- In the prompt box (Command Bar), choose **Rectangular** and press **<Enter>**;
- Type the number of rows in the array, the number of columns and the number of levels.
- Specify the vertical distance between the rows, the horizontal distance between the columns and the depth between the levels.
- A rectangular three-dimensional array will be created.

To create a three-dimensional polar array;

- Click the **3D Array** tool  or type **3darray** and press **<Enter>**;
- Select the entities and press **<Enter>**;
- In the prompt box (Command Bar), choose **Polar** and press **<Enter>**;
- Type the number of copies to make, including the original selection set;

- Specify the angle the array is to fill, from 0 to 360 degrees;
- The default setting for the angle is 360 degrees. Positive values create the array in a counterclockwise direction; negative values create the array in a clockwise direction;
- In the prompt box, choose one of the following:
  - **Yes-Rotate Entities** to rotate entities as they are arrayed.
  - **No-Do Not Rotate** to retain the original orientation of each copy as it is arrayed.
- Specify the center point of the array;
- Specify a second point along the central axis of the array;
- A polar three-dimensional array will be created.

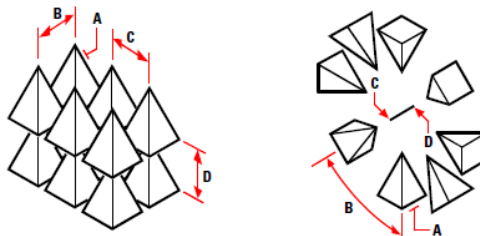



Fig. 133 – examples of arrays in 3D

*Note! It is important to carefully follow the instructions provided in the Command Bar while performing advanced operations on elements.*

## CHAPTER 12

### Creating and using posts and arc walls

#### 1. Introductory remarks

**Posts and walls** (available under icon ) are used for creating basic solids without preparing templates for them. They are cuboids or pyramids of different bases (also: upturned pyramids). This function of dynamic 3D modeling can be used for creating various decorative elements. Various objects: posts, columns, pilasters and partition walls of different kinds - are created on the basis of a single point indicated by the user directly after clicking the **Posts and walls** icon, and the parameters defined in the dialog displayed below (in all possible variants - Fig. 134).

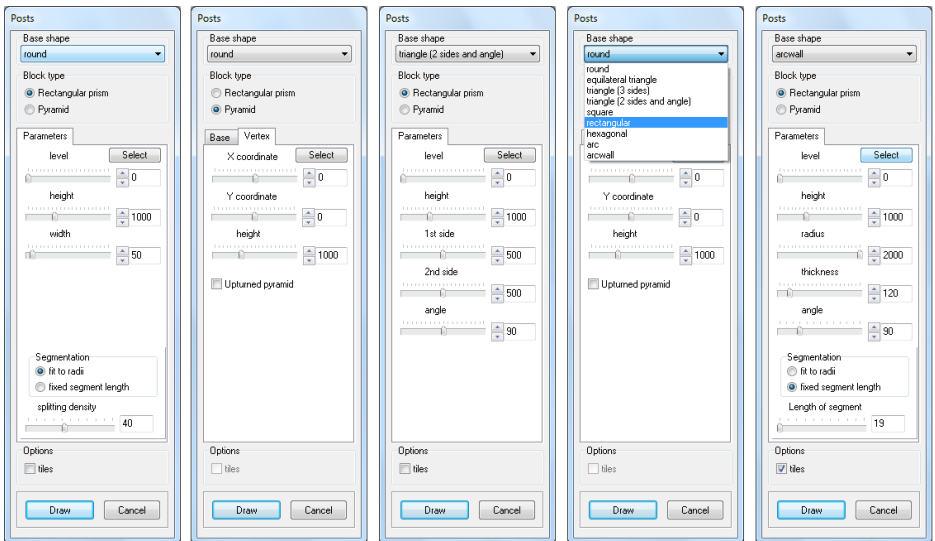



Fig. 134 – various variants of options available in Posts dialog

Posts can be covered with tiles in visualization. To divide their rounded surfaces into segments, select the **tiles** option and then choose the suitable option: **fit to radii** or **fixed segment length**, and move the slider to define the number of segments or the density of the division. Please note, that the **tiles** option is not available for pyramids.

#### 2. Inserting posts

To insert a post follow the procedure below:

- Select an appropriate view (top orthogonal seems to be the most convenient);
- Select the icon  and indicate the point in which the post is to be inserted;

- In the new dialog box (Fig. 127 on previous page) choose the type of the post and define its parameters (there are two main types to choose from - cuboid (default) and pyramid, and a number of various basis: round, square, triangle etc.);
- The preview of the created post is visible in the project, so the user can control what are the results of currently set up parameters and modify them if needed;
- When all parameters are correct, confirm them by clicking the **Draw** button.

### 3. Types of posts

Available sections of blocks and their definable parameters are listed in the table below, and examples of created blocks are presented on the illustration (Fig. 135).

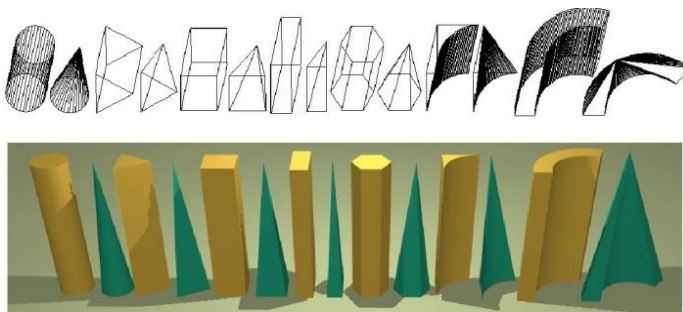



Fig. 135 – examples of posts (the view in the project and in the visualization)

Section	Parameters	Characteristics
<b>Round</b>	level, height, width	round base; width is equal to the diameter;
<b>Triangle</b>	level, height, width length of each side	3 options of base shape: equilateral triangle, 3 sides defined, 2 sides and an angle defined; the length of each side of the triangle can be defined;
<b>Square</b>	level, height, width,	Square base; width is equal to the side's length;
<b>Rectangle</b>	level, height, width length	Rectangle base; particularly useful for creating partition walls and suspended ceilings;
<b>Hexagonal</b>	level, height, width	Hexagonal base; the width is equal to the diameter of the figure;
<b>Arc</b>	level, height, width	The base is $\frac{1}{4}$ of a circle contained in $\frac{1}{2}$ of a square; useful for creating concave arc walls; the back of this block matches 90° wall corners; the width is equal to the radius of $\frac{1}{4}$ of a circle;
<b>Arc wall</b>	level, height, radius, angle, thickness,	The base is created by 2 parallel segments of a circle of various radii but identical angles; useful for creating concave or convex arc walls;

## CHAPTER 13

### Inserting kitchen cabinets

#### 1. Introductory remarks

After clicking the **Cabinets**  icon on the **CAD-Kitchens** toolbar, you will gain access to the kitchen furniture insertion module. If it is the first time when you launch the cabinets module, you will be asked to select one of the available kitchen furniture databases (Fig. 136).

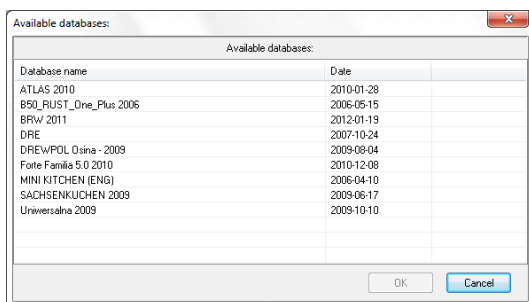


Fig. 136 – kitchen furniture database selection window

After left-clicking on the name of the chosen base, confirm your choice by clicking the **Ok** button.

A new window will open, in which the set should be chosen from a drop-down list (Fig. 137).

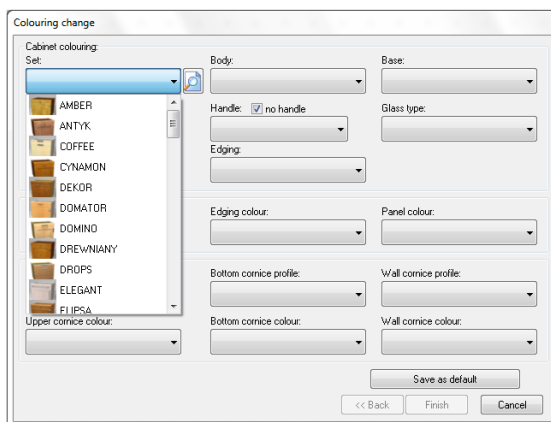


Fig. 137 – cabinets' set selection

After choosing the set, the colouring of all cabinet elements can be specified (bodies, plinths, fronts, glass, worktops, edgings, panels, cornice) as well as type of handles and cornices profiles (Fig. 138).

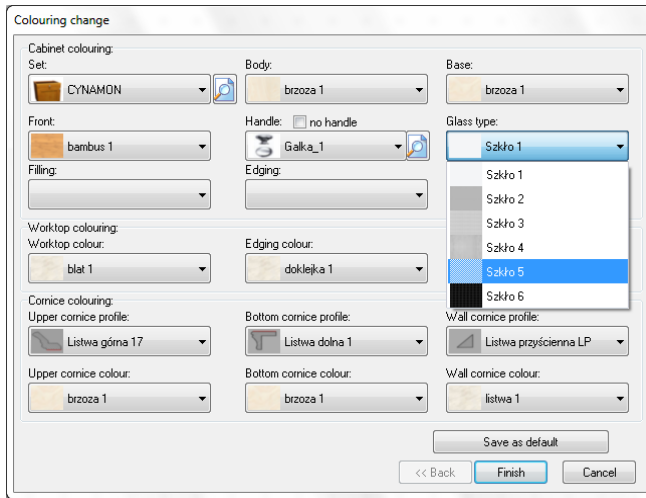


Fig. 138 – selection of colours and types of cabinet elements

During selection of colours of cabinet elements, it is possible to see the big preview of elements marked with the icon with a **magnifying glass** (fronts and handles) (Fig. 139). Previews are displayed in the upper part of the window. To hide them, click the same icon again.

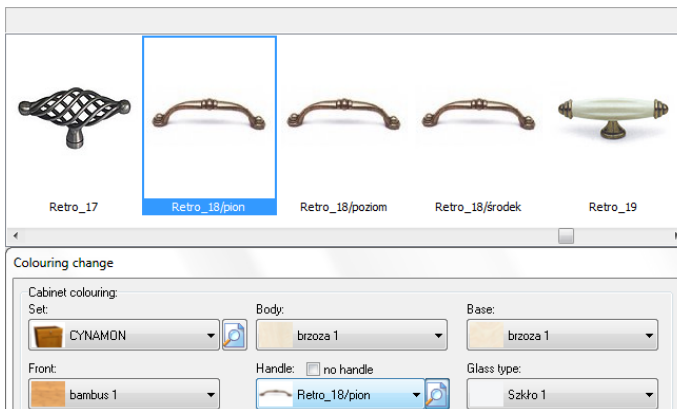


Fig. 139 – selecting your own composition of the chosen set – handle type selection

To start projecting, after selecting the composition of the set (and optionally saving them as default for the set – the **Save as default** button click the **Finish** button. As a result, the **Colouring change** window will close, and a new window will open – **Inserting cabinets** (Fig. 140).

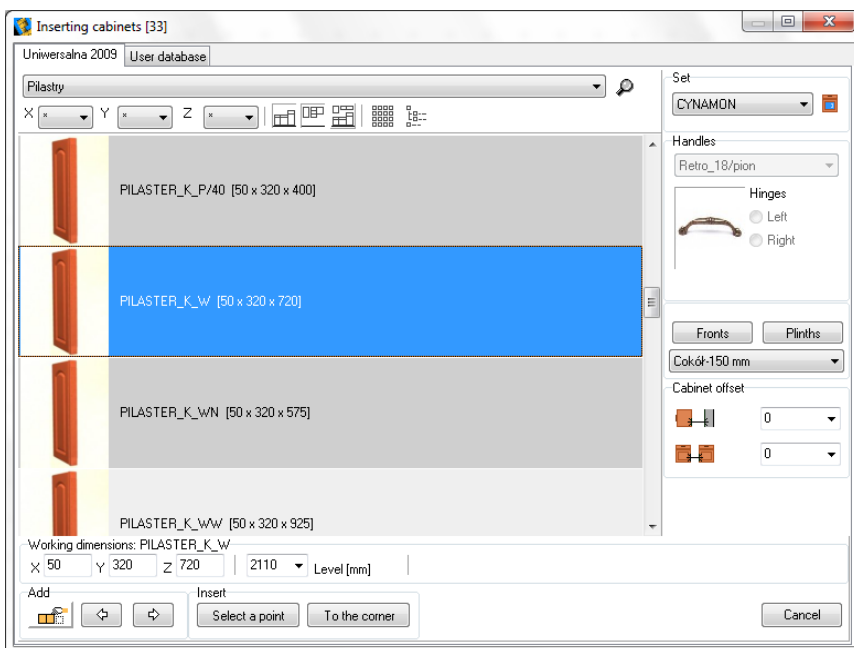




Fig. 140 - Inserting cabinets window open automatically after selecting the database, set and colour

Each next time when you click on the **Cabinets**  icon (in the same project), you will see the Inserting cabinets window. In each new project the database, set and colouring will have to be defined again.

## 2. Set preview

In the **Inserting Cabinets** window (Fig. 140 above) you can view and change the set, on which the project will be based (Fig. 141). To do so, click the **Set preview** button:  and expand the list of available sets.

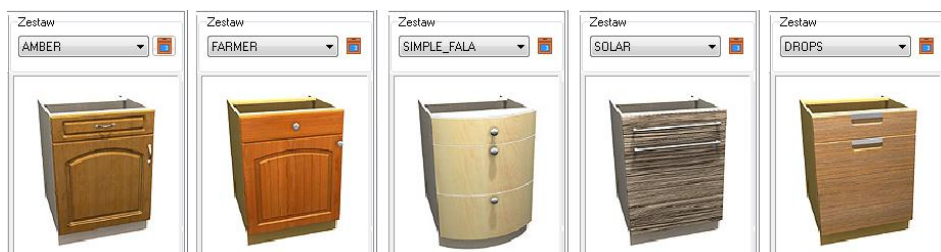



Fig. 141 – sets preview



*Note! It is possible to exchange a kitchen set to another one, as a whole or just some of its components (e.g. front, handles types, skirting boards colours) by clicking the  Exchange set icon, which opens the Colouring change dialog box. The set exchange causes valuation update.*

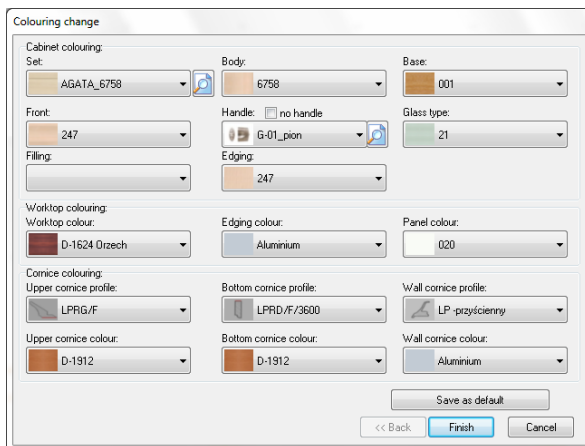





Fig. 142 – Colouring change dialog box

### 3. Preview of cabinets in the set

Cabinets can be browsed in a few ways. To change views click icons , , or  - **Change view** and **Turn on/off sorting by preview** (icons change their look when activated). The first one shows a gallery of cabinets without descriptions (Fig. 143):

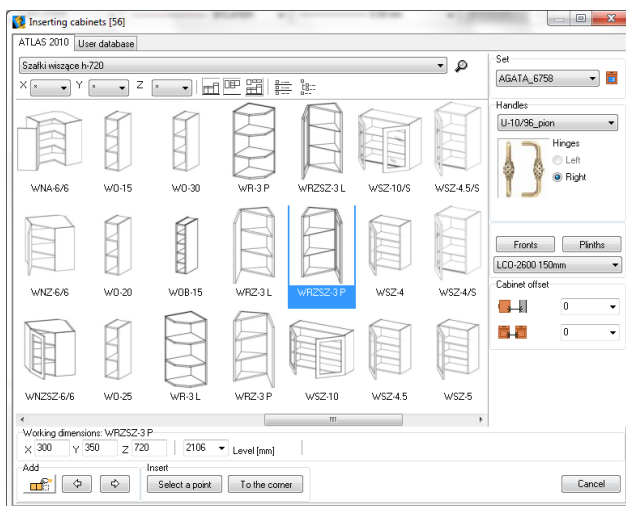


Fig. 143 – the gallery of cabinets

The second way of displaying cabinets previews is a list their description (Fig. 144),

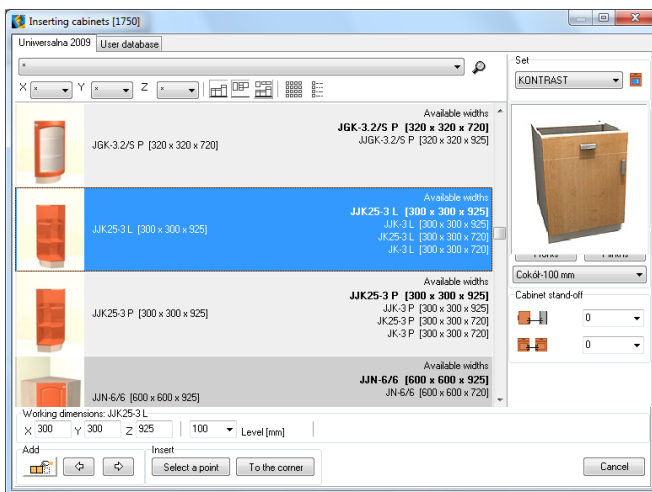



Fig. 144 – previews of cabinets with descriptions

## 4. Cabinets selection

### 4.1. Filters

The main filter helps you to browse only cabinets of a particular group (Fig. 145). It can be found in the upper part of the dialog. What groups are available depends on the database construction, based on producers catalogue offer. It is also possible to use filtering icons: , which show only bottom, upper or basic cabinets.

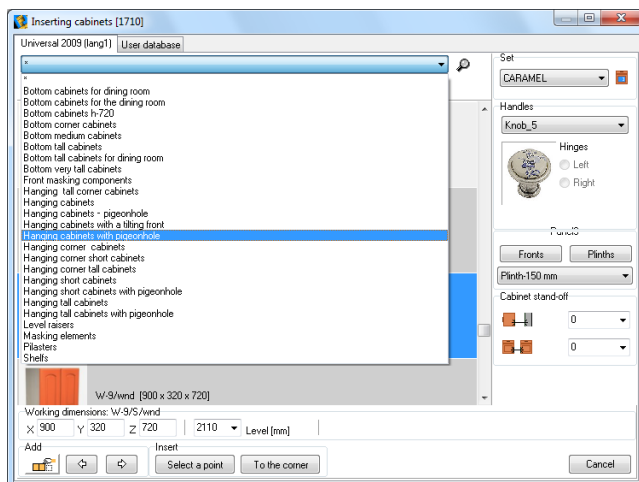


Fig. 145 – cabinets filtered by the type

*Note! You can combine features of displaying cabinets and filtering sets to facilitate your search for a particular type of a cabinet in the chosen database.*

## 4.2. Searching for cabinets by dimensions

Cabinets can be also sorted by their size by setting wanted values in boxes presented in illustrations below (Fig. 146 and 147).

- In the upper part of **Inserting cabinets** window you will see coordinates that will help you to find a cabinets of particular dimensions;
- In fields X, Y, Z select dimensions you are looking for and you will see only cabinets that meet these criteria.

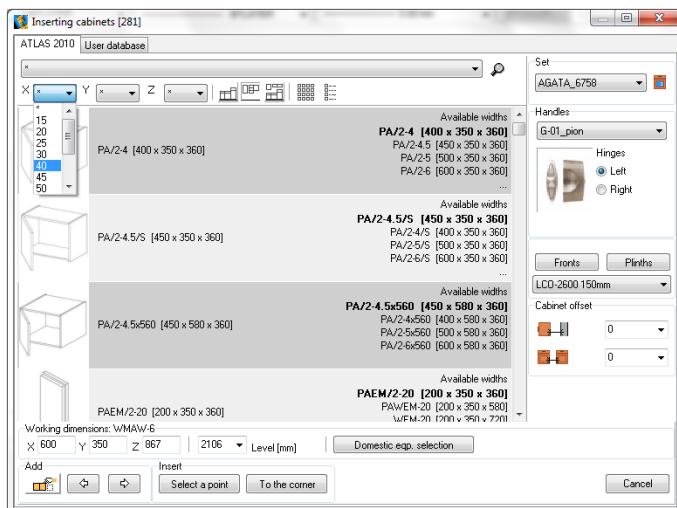


Fig. 146 – filtering cabinets by one dimension

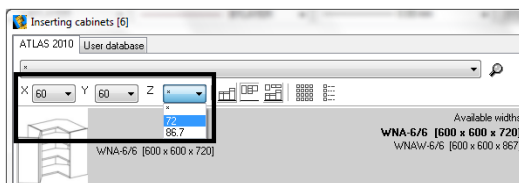



Fig. 147 – filtering cabinets by all dimensions

## 4.3. Searching for a particular model

If you know the code of the cabinet you are looking for, then it is the best to use **Searching for a cabinet symbol**, hidden under this icon: , or simply use the keyboard command <Ctrl+F> (Fig. 148). In the **Find** field enter first letters of the code or name of the cabinet (or the whole code – option: **Only whole words**) – found matches will be displayed on the list.

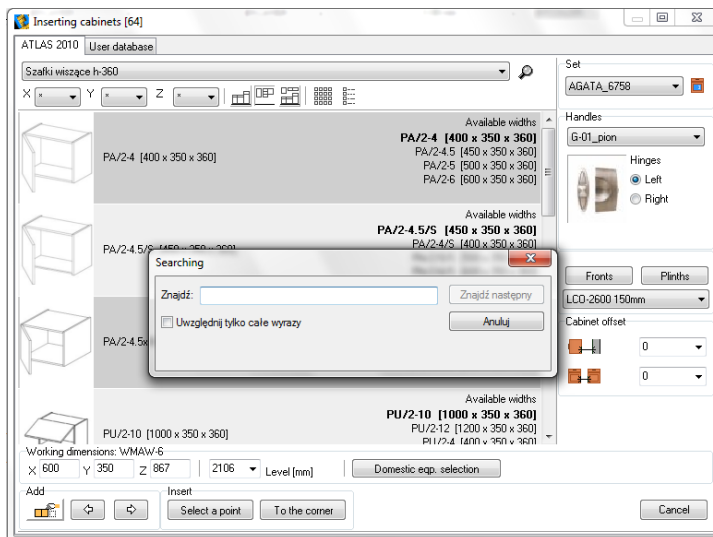


Fig. 148 – searching for a cabinet using its code

#### 4.4. Selection of additional cabinet components

When creating a project the Inserting cabinets window enables you to view and add additional elements of cabinets, such as handles, hinges (left or right), plinths, side fronts, legs (only in some producer databases). To add fronts or plinths an element to the cabinet click the button **Fronts** or **Plinths** and select the side on which there are to be added (Fig. 149).

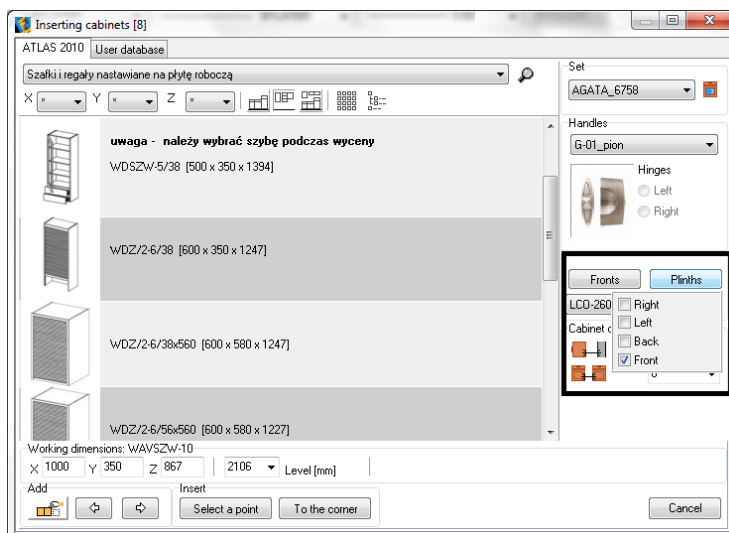


Fig. 149 – inserting an additional plinth

The procedure is similar for the handles – expand the list of available types, select the one you want and check on the preview if it suits you (Fig. 150).

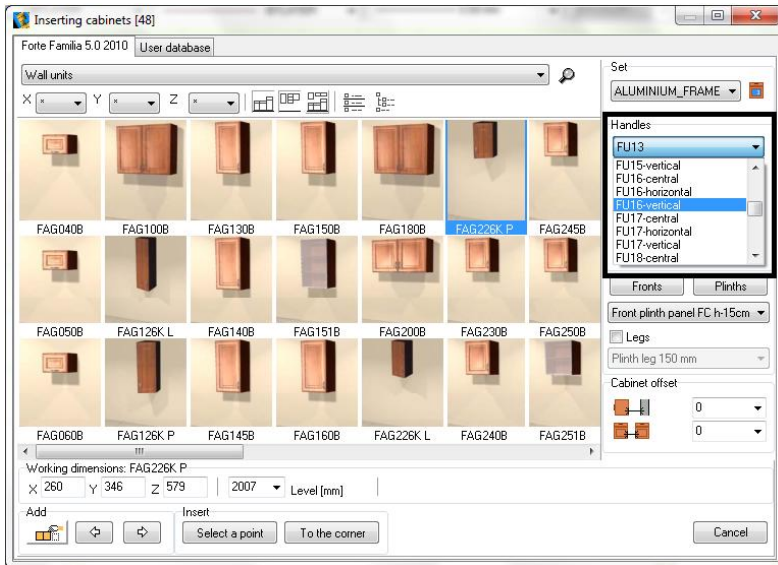


Fig. 150 – changing the handle type

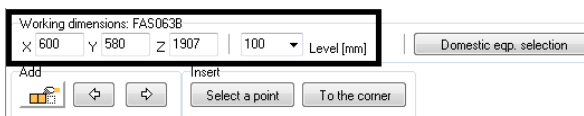
*Note! The possibility of inserting handles depends on the used database. For some types of cabinets it is not possible to mount any handles.*

## 5. Inserting bottom cabinets

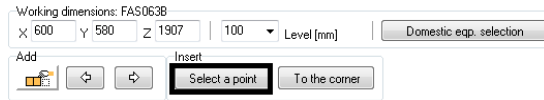
Inserting cabinets to the project can be performed in 4 ways: **Select a point** (a cabinet will be inserted in the indicated point), **to the corner** (click on the wall and the cabinet will be placed in its corner), **Add to last** (a new cabinet will be placed next to the previously inserted cabinet) and **Add to left/ right** (a new cabinet will be placed next to the indicated cabinet – on its left or right side).

### 5.1. Inserting the first cabinet using the Select point function

- select the appropriate cabinet.
- set its parameters (width, depth and height) if the ones displayed for the chosen cabinet need to be adjusted:



- set the plinth's height in the **Level** field;
- press the **Select a point** button:



- select the place in the design where the cabinet will be inserted by clicking it.
- set the rotation angle of the cabinet.
- click to confirm the place of cabinet's insertion.

## 5.2. Inserting the first cabinet using the To the corner function

- select the appropriate cabinet.
- set its parameters (as described above).
- set the plinth's height in the **Level** field.
- press the **To the corner** button;
- the cabinet will be inserted against the wall you selected (Fig. 151):



Fig. 151 – inserting a cabinet using the To the corner option

## 5.3. Inserting more bottom cabinets – 1<sup>st</sup> method



- use the toolbar at the bottom of the **Inserting cabinet** dialog:

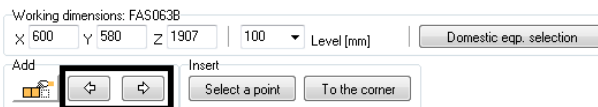


- click the **Add to last** button.
- if you want to insert the cabinet on the right side of the already inserted cabinet, click **To the right** button. In order to place a cabinet on the left side, click the **To the left** button.

- the cabinet will be inserted on the right of the existing cabinet.
- do the same with other cabinets.

#### 5.4. Inserting more bottom cabinets – 2<sup>nd</sup> method

- click the **To the right**  or **To the left**  button (dependant on the side on which the new cabinet is to be added),
- click the edge of the cabinet to which the currently inserted cabinet is to be added.
- the next cabinet will be inserted next to the existing cabinet.



#### 5.5. Inserting cabinets with household appliances

Some of the cabinets are designed to be used with the household equipment. Each such cabinet has a special marking to inform you what type of equipment it is designed for (e.g. ZLEW – for sink, PIEKARNIK – for oven), and a special button **Domestic eqp. selection** will appear (Fig. 152). When you click it, a new window will open – **Selection of built-in equipment for cabinets**, in which you can access a list of devices available for this type of cabinet (Fig. 152). In tall cabinets it may be possible to insert more than one model of household equipment (e.g. oven and microwave).

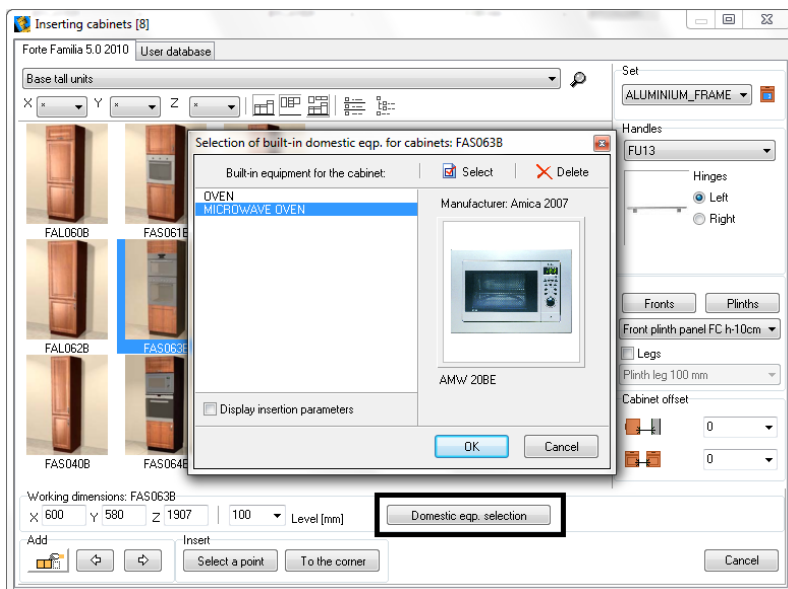


Fig. 152 – selection of household appliances for the cabinet

To insert a particular cabinet together with the sink or oven:

- select the appropriate cabinet.
- click the **Domestic eqp. selection** button and then press the **Select** button in the equipment management window (Fig. 152 on the previous page) to go to the **Household equipment** module;
- in this module select the manufacturer's database and then the desired object to insert, and press **Insert** (Fig. 153);
- you can check dimensions and additional elements for each model (Fig. 153);
- you can confirm the selection of the equipment in the **Selection of built-in equipment for cabinets** window (**OK** button) or remove it from the insertion list (**Delete** button):
- after confirming the equipment with **OK**, go to the **Inserting cabinets** dialog, choose one of the insertion options and insert the cabinet in the design first. The household equipment will be inserted in it automatically.

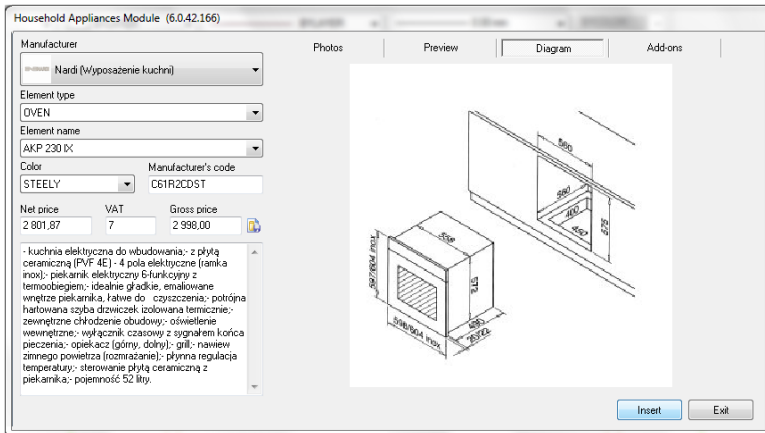



Fig. 153 – checking the assembly scheme for cabinets dimensions

*Note! For more details about inserting household equipment see Chapter 19 (p. 140).*

## 6. Inserting upper cabinets

The upper cabinets are selected from the same set and in the same way as the bottom ones (Fig. 155).

- click the  **Cabinets** icon,
- the **Inserting cabinets** dialog will be displayed,
- select the appropriate hanging cabinet,
- select handles and hinges — left or right (Fig. 155),



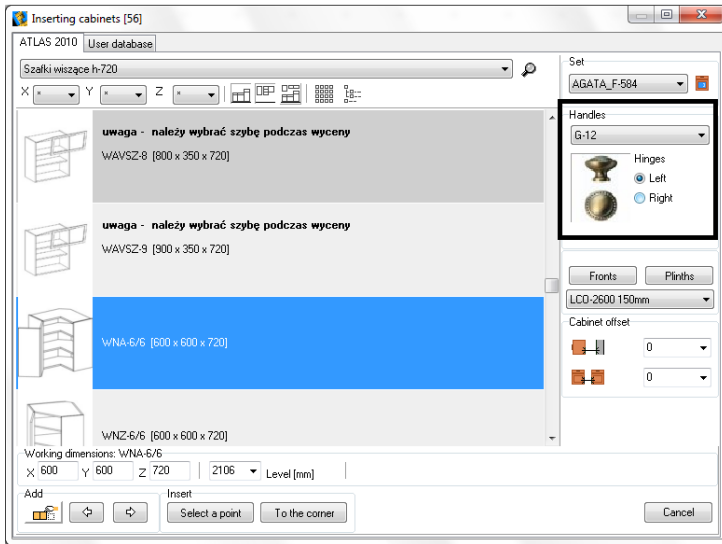
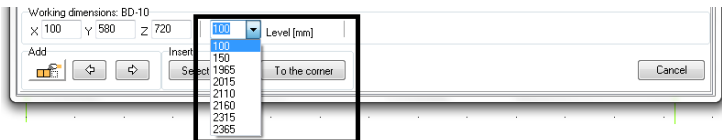


Fig. 155 – upper cabinets

- set the object insertion level:



- the drop-down list contains several standard heights, but you can also specify the height yourself by clicking the edit box of the **Level (mm)** option and input the appropriate height,
- when all the parameters are set, press the **Select a point** or **To the corner** button,
- use the mouse pointer to select the corner of the wall where you want to hang the cabinet,
- set the cabinet rotation angle (the outline of the cabinet including the front changes orientation according to the movement of the mouse pointer),
- when the cabinet is in the right place, click to confirm,
- the cabinet is then hung at the level previously specified by the user.

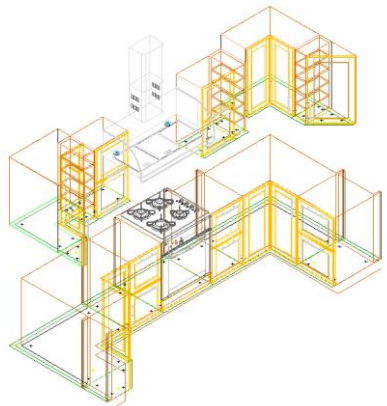







Fig. 156 – cabinets inserted in the project

## 6.1. Inserting more upper cabinets – 1<sup>st</sup> method

To insert the next hanging cabinets, you need to follow a similar procedure as in the case of the bottom cabinets, adding to the last cabinet inserted.

- select one of the hanging cabinets from the **Inserting cabinets** dialog.
- the system will remember the level at which the previous cabinet was hung, so it is not necessary to change it.
- click the  **Add to last** icon.
- depending on whether you want to insert the cabinet to the right or left of the previous one, click the arrow **To the right**  or **To the left** .

## 6.2. Inserting more upper cabinets – 2<sup>nd</sup> method

You can also insert cabinets using the **To the right**  or **To the left**  button. In order to do this:

- use the mouse pointer to select the left or right edge of the cabinet to which you want to add the next cabinet,
- the cabinet you selected will be hung,
- do the same with the next cabinet.

## 7. Additional parameters of cabinets insertion

While inserting cabinets using any method there is possible to define offset value which is distance from cabinet's back to the wall or from cabinet's side to another cabinet. To define this value please click on the edition field which is under the plinth choosing button (Fig. 157).

First edition field defines the distance between a cabinet and the wall, second – between cabinets. Choosing offset value we can use default values or enter our own by clicking on the edition field. For example to insert a cabinet in a distance of 200 mm from the wall, you should choose a proper value from the drop-down list (Fig. 158). Then insert cabinet by using any indicated above method. A cabinet will be inserted 200 mm from the wall (Fig. 159 on the next page).



Fig. 147 – cabinets offset

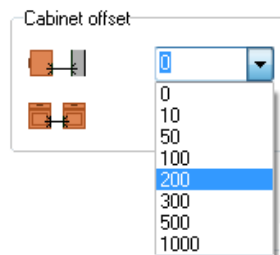


Fig. 148 – offset from the wall = 200 mm

Consequently inserted cabinets will have exactly the same offset value – until the settings are changed by the user (Fig. 159).

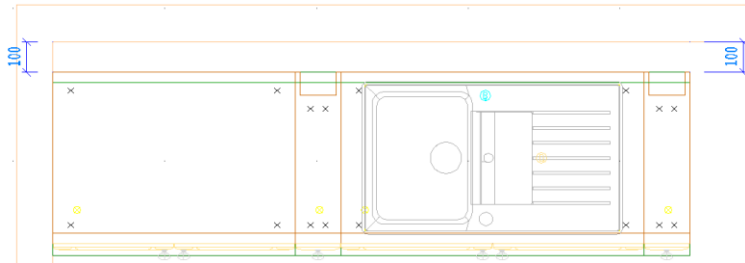


Fig. 159 – cabinets inserted 100mm from the wall. – each next cabinet will have the same offset

## 8. Automatic auxiliary dimensioning

While inserting cabinets using any method program automatically generates auxiliary dimensioning (Fig. 160).

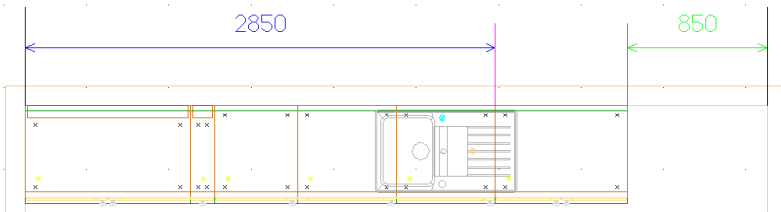


Fig. 160 – auxiliary dimensioning

Additional dimensioning has been provided to facilitate inserting next cabinets. Displayed dimensions are calculated on the basis of actually inserted cabinet and disappear after refreshing the drawing. It displays also during cabinet's edition. Every dimension is represented by a different colour:

- **blue** – indicates distance from current cabinet to the wall in direction opposed to the direction in which we are designing;
- **green** – indicates distance left to insert another cabinet;
- **red** – indicates the same distance as green but if it has turned red it means that there is no more space to locate chosen cabinet (Fig. 161).

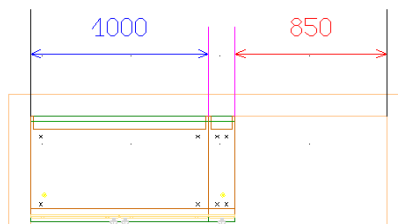


Fig. 161 – not enough room to insert a cabinet wider than 850 mm

## 9. Cabinet edition

Each of the inserted cabinets can be edited. To do this:

- select the cabinet you want to edit,
- right-click to display the context menu,
- select the **Edit** button (Fig. 162);
- the **Cabinet edit** window, presented below, will display (Fig. 163);
- In here you can change the basic cabinet's parameters: width, depth, height, insertion level, left or right hinges.

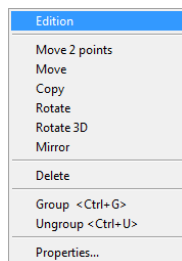


Fig. 162 – context menu

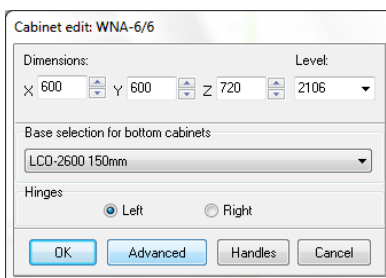


Fig. 163 – Cabinet edition

- If you want to apply changes, press **OK**.
- You can also go to the advanced edition of elements features – to do it, press the **Advanced** button;
- the **Inserting cabinets** window will be displayed in which you can make the following changes:
  - width, depth, height of the object,
  - cabinet's insertion level,
  - left/right hinges,
  - handle change,
  - adding/removing bases/fronts,
  - change the cabinet within one set,
  - change the cabinet within two sets.
- To apply changes press **Change**.

It is also possible to edit handles here. In order to do so:

- Press the **Handles** button in the window presented above (Fig. 153) and the next dialog box will appear (Fig. 164 on the next page);
- In this dialog you can choose the handle to be modified (chosen handle will be highlighted in green). And then you can:
  - **move handle** – both vertically and horizontally
  - **rotate handle** – multiplication of 90° freely defined angle;

When all the changes are introduced to selected handles, you can either confirm them by clicking the **Confirm changes** button, or decide to drop them by simply closing the window (the **Close** button – modifications will be not saved in this case).

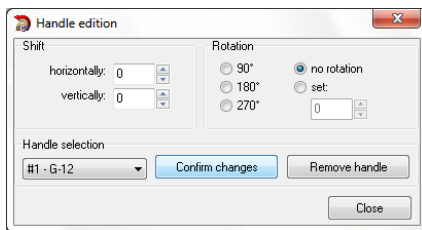



Fig. 164 - Handle edition dialog box

## CHAPTER 14

### Cabinet Design and Edition Module

#### 1. Introductory remarks

After clicking the **Cabinets Editor**  icon on the **CAD-Kitchens** toolbar launches the **Cabinet Design and Edition Module**, in which you can modify existing and create new cabinets.

After clicking the icon in the **Data editing** dialog box there are 2 options to choose from (Fig. 165):

- **Kitchen Cabinet Database Editor** in which you can modify models from the base;
- **User Cabinet Editor** in which you can design a completely new cabinet.

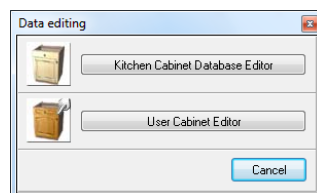


Fig. 165 – Cabinet Editor dialog box

#### 2. Kitchen Cabinet Database Editor

Using this module (Fig. 166) you can edit cabinets from producer databases distributed together with the CAD Decor PRO program or downloaded from our website. Available are functions of adding or removing cabinets from sets in a database, changing cabinets' parameters and data, restoring default parameters in the entire database and edition of sets names.

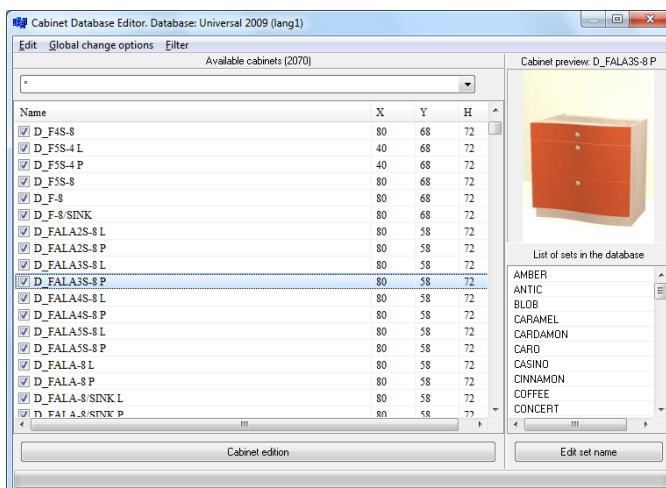


Fig. 166 – Kitchen Cabinet Database Editor

## 2. 1. Main menu of the Kitchen Cabinet Database Editor

**Edit** – there is one option available in this tab:

**Search** – enabling to quickly find a particular cabinet in the database by using its code (Fig. 167) (available also under a keyboard shortcut <Ctrl+F>).

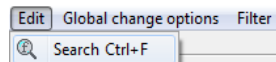


Fig. 167 – main menu options - search

**Global change options** – in this tab available are the following 3 options:

- **Select/ Deselect all sets for all cabinets** – assigns (or deletes) all cabinets to all sets in the base;
- **Quick assignments** - it assigns the selected cabinets to the indicated sets (Fig. 168); after entering assignments press the **Enter changes** button in order to confirm modifications,
- **Restore default cabinets dimensions** – it restores factory settings for all cabinets from the database.

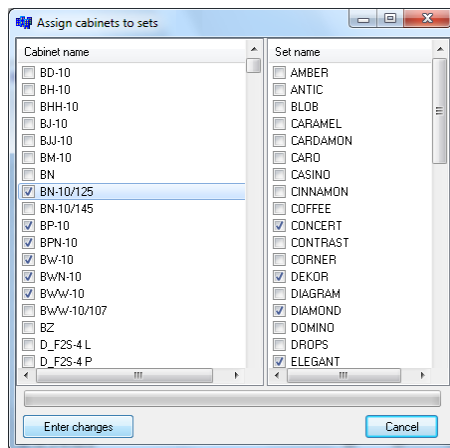


Fig. 168 – assigning cabinet to sets

**Filter** – in this tab there is one function available: **Show unused cabinets** – when on, all cabinets, also those which were not used, are displayed.

## 2.2. Other features of Cabinets Database Editor

- **Available cabinets** field – containing all cabinets included in the database;
- **Cabinets filter** – it is possible to display only cabinets of one selected type at one time instead of the full list of them;
- **Preview** – when you click on a position on the list of cabinets, a preview of a cabinet will be displayed in the upper right corner of the window (Fig. 170).

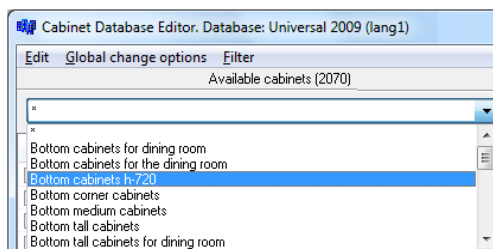


Fig. 169 – cabinets filter

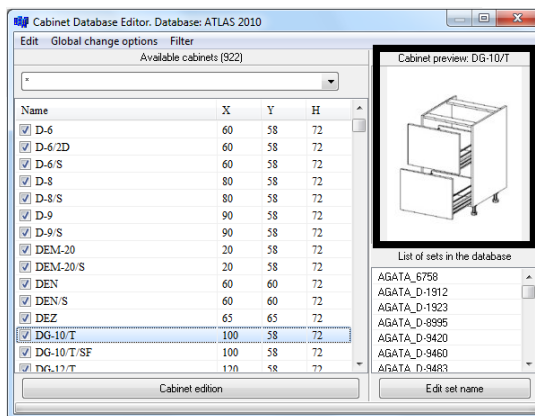


Fig. 170 – cabinet preview

### Cabinet edition button

Available functions:

- changing the name of the cabinet;
- assigning the cabinet to another group available in the filter;
- assigning or deleting the cabinet from the basic group;
- changing cabinet's parameters;
- assigning the cabinet to selected sets (Fig. 171).

### Edit set name button

Each name of sets listed in the List of sets in the database can be changed (Fig. 172).

To do so, first click on the name which is to be changed, then click the **Edit set name** button, and then enter the new name in the **Edit set name** dialog box. After adding a new name in the edition field **Set name** confirm changes by clicking the **Enter changes** button.

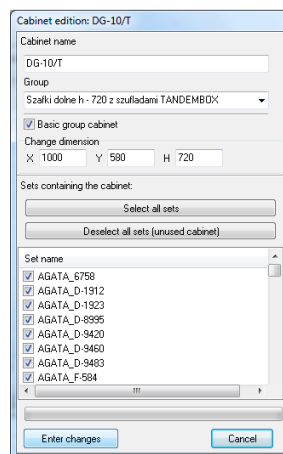


Fig. 171 – edition of a single cabinet

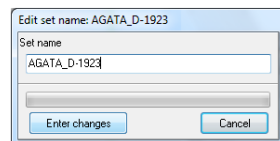


Fig. 172 – edition of set name

## 3. User Cabinets Editor

**User Cabinet Editor** offers a function of a flexible 3D modeling of your own cabinets. Your models are created using a simple, parametric method. Simply select cabinet's type and then define its parameters – the model will be automatically generated by the program. This way it is possible to create any number of untypical, unique cabinets, which cannot be found in producer databases.



Your new models can be saved in the User Database and used during projecting. It is also possible to quickly create their **components summary**, which can be used in CAD Cut application to generate an optimal cutting pattern for the cabinet.

### 3.1. Main menu of the User Cabinets Editor –the Database tab

- **Save the changes made to the cabinet (<Ctrl+S>)** - enables you to save a new cabinet in the database;
- **Save cabinet as...** - enables you to rename and save the cabinet in the database;
- **Set edition** - causes the **Sets** dialog box to be displayed, in which a new set can be added to the User Database (**Create new** button), parameters of an existing set can be modified (**Edit** button) or remove an existing set (**Delete** button) (Fig. 174).

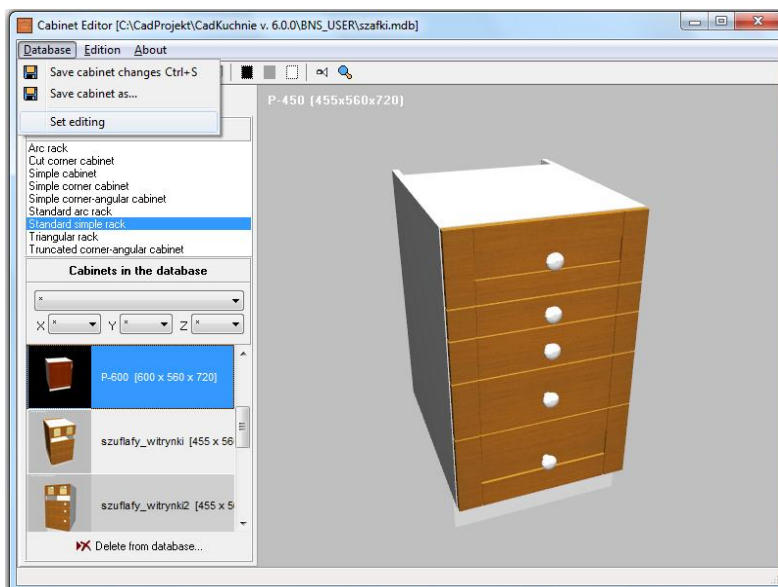


Fig. 173 – User Cabinet Editor window

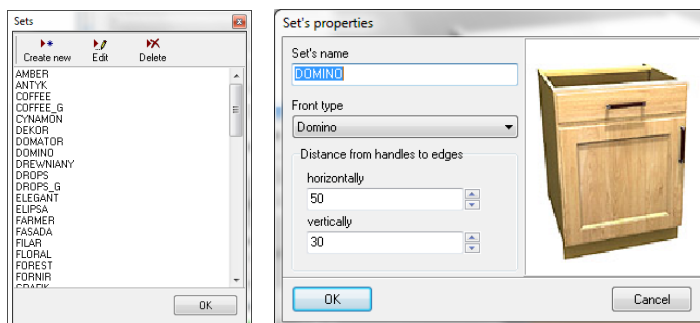





Fig. 174 – edition of a set in the User Cabinet Database

### 3.2. Main menu – the Edition tab



When you click on the second tab in the **User Cabinet Editor** window, you will see a list of available functions (Fig. 175).

After selecting the **Body edition** option (also under the icon  or [F2] key) a new window will open – **Body's parameters**. In here the user can set any dimensions (in the **Dimensions** tab – Fig. 176) and additional parameters (Fig. 177). The depth of cuts (**Truncation depth** tab – Fig. 178). It is also possible to define the cabinet as bottom or upper and to set the distance of the body from the wall (**Offset from the wall** field).

The second function available in the **Edition** tab is the **Shelf edition** (also under the icon  or [F3] key) (Fig. 179 on the next page). It enables the user to add shelves – horizontal or vertical, as well as to edit or delete them. Location, withdrawing value, thickness and type of material (plate or glass) can be defined here.

When you open this dialog for the first time, the list of shelves is empty. To add shelves click  and fill in the fields in the **Add** window (Fig. 180).

For racks is possible to add up to 3 shelves in one time. After adding new shelves, they will be added to the list. When you click on a position on the list, it will be marked in red on the preview (Fig. 179 on the following page) and ready to be edited. To do so, select the **Edit** option and change parameters in the edition dialog box (Fig. 181).

To add or remove a shelf use these buttons:  and . They are also available under the right mouse button (after selecting a position on the list). You can insert as many shelves as you want. Their orientation – vertical or horizontal, depends on the option marked in the **Type** field.

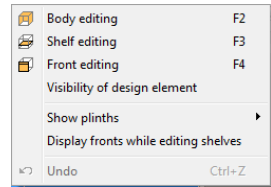


Fig. 175 – features available In the Edition tab

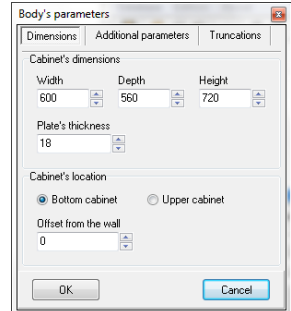


Fig. 176 – setting cabinet's body parameters - dimensions

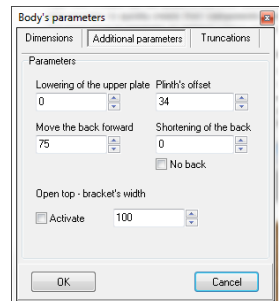


Fig. 177 – setting cabinet's body additional parameters

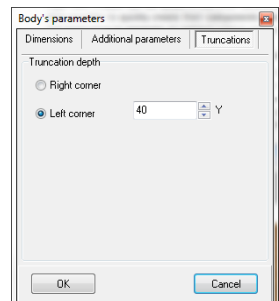


Fig. 178 – setting cabinet's body parameters - truncations

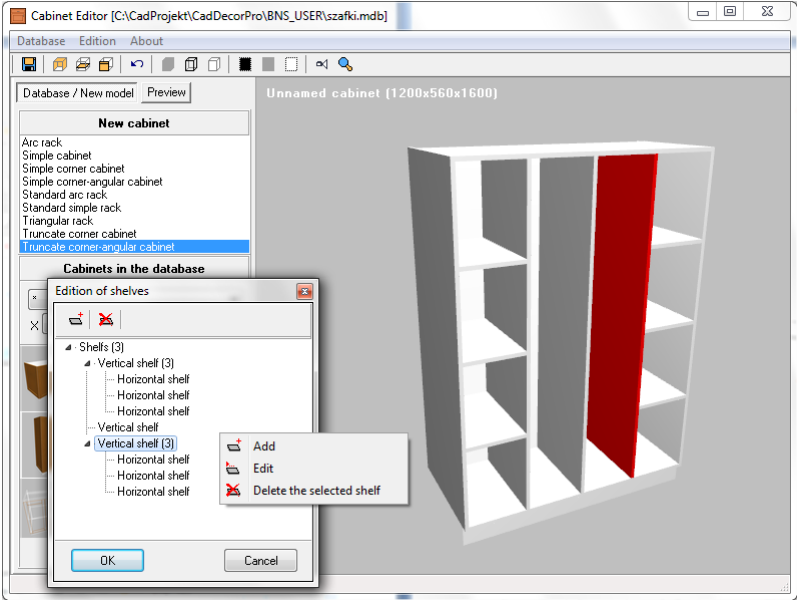


Fig. 179 – adding, deleting, editing shelves

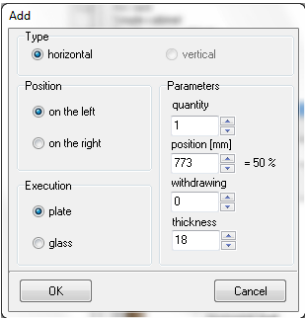


Fig. 180 – adding shelves

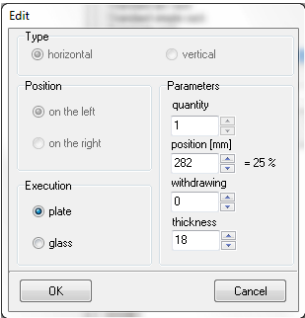



Fig. 181 – shelf edition

The third option, available in the **Edition** tab, is the **Front edition** (also under the icon:  or [F4] key). In the first displayed dialog box (Fig. 182) you can select additional fronts (side or back) – in the **Active fronts** field. You can define the hinges location. To go to the actual front edition, select the front on the list which is to be edited (it will be marked in red on the preview) and click the **Edit** button, which will then become active. As a result a new window will open – **Edition of fronts** (Fig. 183).

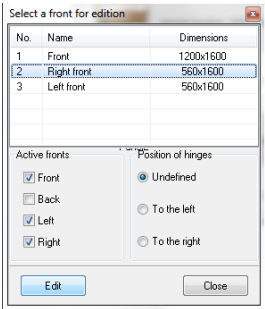


Fig. 182 – selecting the front for edition

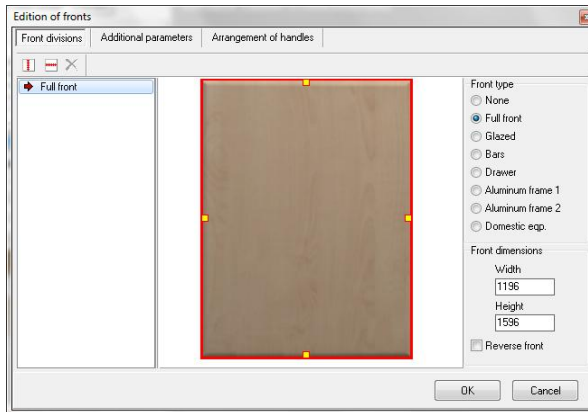




Fig. 183 – Editoon of fronts window

To modify a front, click on its position on the list. First you have to divide the front – horizontally or vertically – using the icons:  or  (or using these options in the context menu under the right mouse button) (Fig. 184).

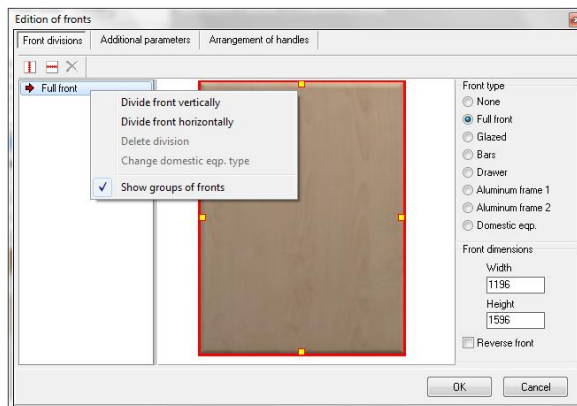


Fig. 184 – front division functions

When you choose one of these options, a new window will open, in which you can:

- set the number of divisions (if you divide into 2 parts – then you can indicate the place when the division line will go (in % or millimeters; if you divide into more parts – you cannot decide about the location of the division line – the program sets it automatically);
- this is why if you want to divide the initial front into many parts of different size, you have to make these divisions one after another (Fig. 185 and 186);
- the results will be visible on the preview in the central part of the window;
- to delete a division mark a particular group of fronts on the list, right-click and select the **Delete division** option (Fig. 187), and then click **Yes** (Fig. 188).

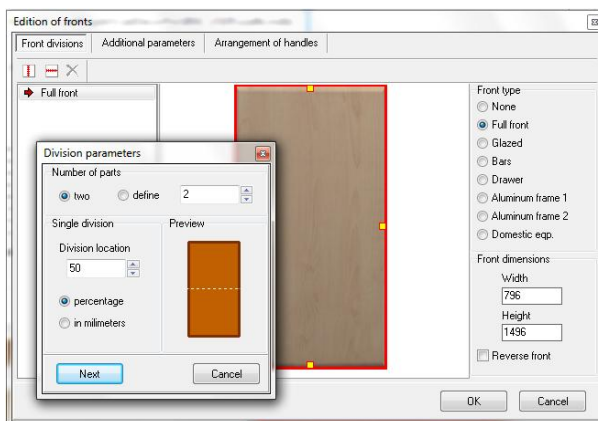


Fig. 185 – front division parameters

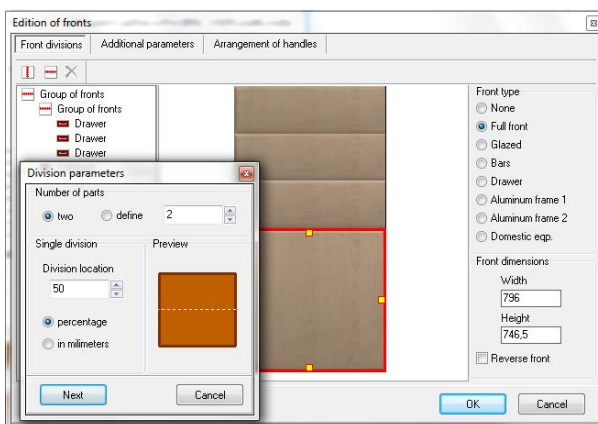


Fig. 186 – example divisions of fronts

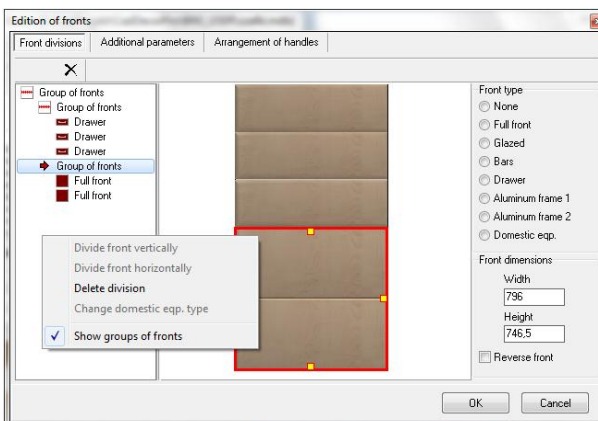


Fig. 187 – deleting front division

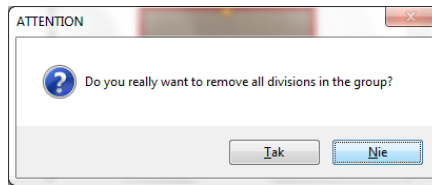


Fig. 188 – request for confirmation that the front division is to be deleted

After diving the fronts you can define their types, clicking on a particular part and selecting the type in the right side of the window (Fig. 189).

There are the following types at your disposal: none (empty), full, glazed, bars, drawers 2 kinds of aluminium frame, and a front for inserting household appliances. After defining a front as a **Domestic eqp.**, the user will be asked to define the type of the device (Fig. 190).

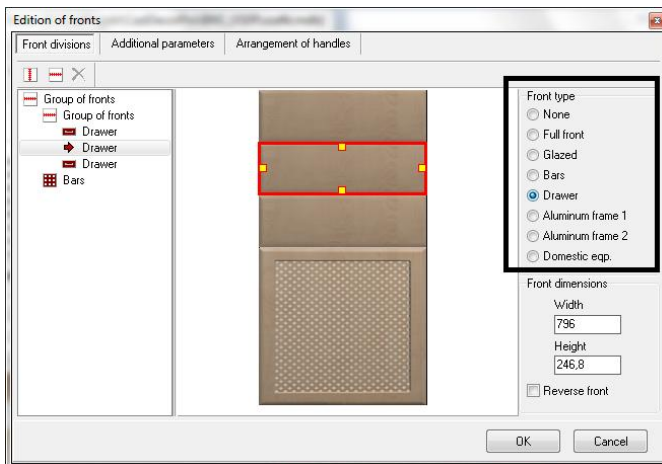


Fig. 189 – selection of a front type

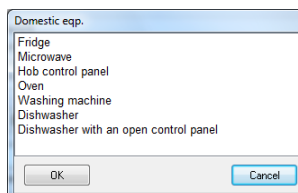


Fig. 190 – selection of the Domestic equipment

In the Editing front window there are 2 more tabs – **Additional parameters** and **Arrangement of handles** (Fig. 191 and 192 on the next page). The first one is designed for setting the value of margins on the front and for defining the distance between the fronts in the group.

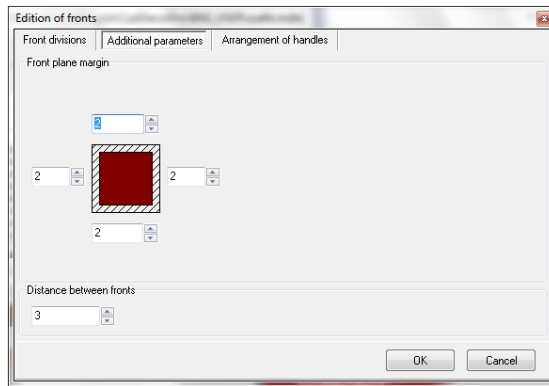


Fig. 191 - Additional parameters tab

The **Handle spacing** tab enables you to:

- define the number and location of handles on the front;
- save the scheme in a form of 3 different diagrams which can be used as various options for the same front, which can be used when working in the project;
- define the hinges location.

Handles are placed on the front by left-clicking in the chosen field, marked with dotted line (Fig. 192). In the **Handle parameters** field you can set:

- the angle of rotation of a handle;
- orientation – vertical or horizontal;
- handle type (fixed or replaceable) and length of bar handles;
- you can also delete an inserted handle (**Delete handle** button).

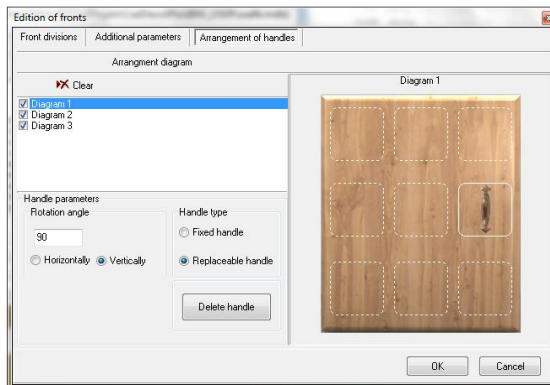


Fig. 192 – defining handles diagrams

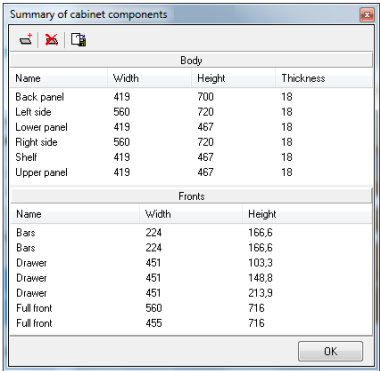
When you finish the edition, you will be brought back to the **Select the front to edit** window, in which you can choose another front. If you completed edition of all fronts, click **Close**, which will confirm all introduced changes.

3.3. Main menu – Information tab

About the program – shows information about the version of the module.

Summary of cabinet’s components – generates the specification of construction elements of the created cabinet, which can be saved to the file format, recognized by the CAD Cut application. Thanks to this, in CAD Cut a list of formats necessary to produce the cabinet can be easily obtained and an optimal cutting pattern can be generated. The **Summary** contains information about components of the body (sides, upper and bottom plates, shelves) and types of fronts (Fig. 193). This data is provided separately, because CAD Cut does not use information about fronts. Positions of the summary can be deleted or new ones can be added.

Each component can be edited, and its name, dimensions and material can be changed. It is also possible to add a veneer or to skip the element while exporting the summary to CAD Cut file (Fig. 194).

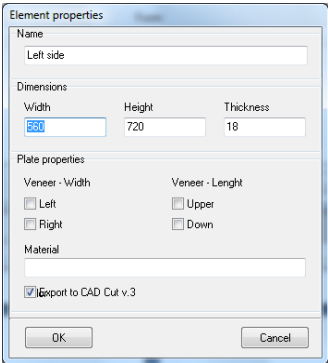
The dialog box titled "Summary of cabinet components" contains two tables. The first table, "Body", lists components like Back panel, Left side, Lower panel, Right side, Shelf, and Upper panel with their dimensions. The second table, "Fronts", lists components like Bars, Drawer, and Full front with their dimensions.

Body			
Name	Width	Height	Thickness
Back panel	419	700	18
Left side	560	720	18
Lower panel	419	467	18
Right side	560	720	18
Shelf	419	467	18
Upper panel	419	467	18

Fronts		
Name	Width	Height
Bars	224	166.6
Bars	224	166.6
Drawer	451	103.3
Drawer	451	148.8
Drawer	451	213.9
Full front	560	716
Full front	495	716

Fig. 193 – summary of cabinet components

The "Element properties" dialog box allows editing a selected element. It includes fields for Name, Dimensions (Width, Height, Thickness), Plate properties (Veneer - Width, Veneer - Length, Left, Right, Upper, Down), and Material. There is a checkbox for "Export to CAD Cut v.3".


Name: Left side

Dimensions: Width: 560, Height: 720, Thickness: 18

Plate properties: Veneer - Width, Veneer - Length, ☐ Left, ☐ Right, ☐ Upper, ☐ Down

Material: ☒ Export to CAD Cut v.3

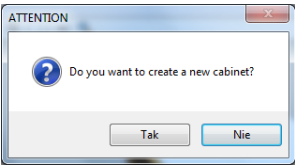
Fig. 194 – element properties

To save the elements specification, click the **Save the summary to CAD Cut file** . Such file can be then imported to CAD Cut and used as a basis for optimization of the cutting pattern for the particular cabinet.

3.4. New model/ Database tab

In this tab you can start creating a new cabinet:

- double click on the cabinet type in the **New cabinet** field;
- you will see a message (Fig. 195), and when you click **Yes** a new cabinet will be created, which can be freely modified using the features described above.

A small dialog box titled "ATTENTION" with a question mark icon. It asks "Do you want to create a new cabinet?" and has two buttons: "Tak" (Yes) and "Nie" (No).


ATTENTION

Do you want to create a new cabinet?

Tak Nie

Fig. 195 – request for confirmation



- to save a new cabinet in the database, click the **Save the cabinet as...**  button (also under the keys <Ctrl+S>), and then confirm the changes by clicking **Yes**
- in the new window (**Save the cabinet to the database**) you can enter basic data about a cabinet (name, group, insertion level) and assign it to a basic cabinet group or choose handles' type (**Basic data** tab – Fig. 196);
- in the **Series of types** tab (Fig. 197) you can assign the cabinet to selected groups in regards to the width, in which it will be available;
- when the cabinet is assigned to a few types series (e.g. 500, 1000, 1500) to the cabinet in the base additional, proportionally 'stretched' cabinets will be added (with the same front configuration and other settings, but different width);
- in the **Sets** tab (Fig. 198) it is possible to assign a cabinet to the selected sets in the database (e.g. with wanted front patterns), and set the price for the cabinet – identical for all sets or individually (Fig. 199);
- to confirm all these settings, click **Save**.

*Note! Each newly created cabinet needs to be assigned to at least one set, because otherwise it will not be visible in the database in the CAD Decor PRO program.*

After saving the cabinet to the database, it is still possible to modify its parameters. To do it, double click on its position on the **Cabinets in the database** list. You will see the cabinet's preview and will be able to edit it, and then save the changes (**Save the cabinet changes** option in the main menu → **Database** tab) or add a new cabinet, created this way, to the database (**Save the cabinet as...** option).

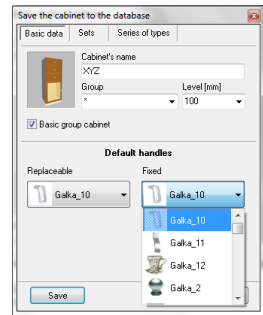


Fig. 196 – entering basic data

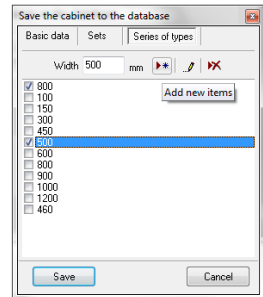


Fig. 197 – choosing the series of types

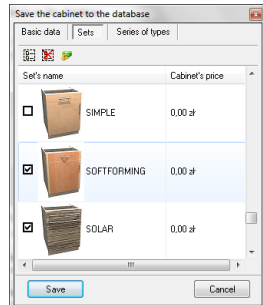


Fig. 198 – assigning the cabinet to sets

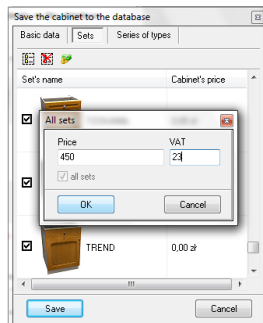


Fig. 199 – setting the price

To remove a chosen cabinet from your library, use this option:  Delete from database...

### 3.5. The Preview tab

This tab is used to see cabinets with various fronts patterns (dependant on the selected set) (Fig. 200). It is also possible to change the handle here (Fig. 201) and to add hinges (left or right).

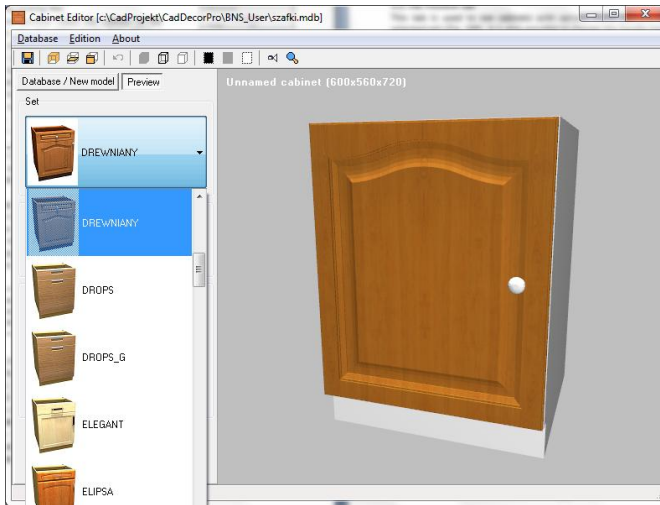


Fig. 200 – previewing the fronts in particular sets

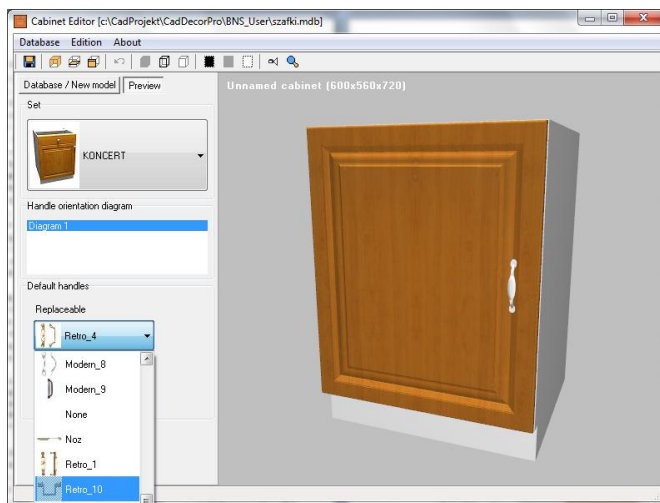











Fig. 201 – selecting a handle

### 3.6. Other functions of the User Cabinet Editor

-  **Undo** – undoes the last operation;
-    **Shaded model with textures, Grid model, Grid model with shading** – determine the way the model is displayed (Fig. 202);
-    **Background** – changes the background colour to black, grey or white (Fig. 202);
-  **Set cabinet centre view** – points the camera on the central point of the model (also under the **[F5]** key);
-  **Turn on/off the constant preview** – shows introduced modifications in real time or only when they are completed.

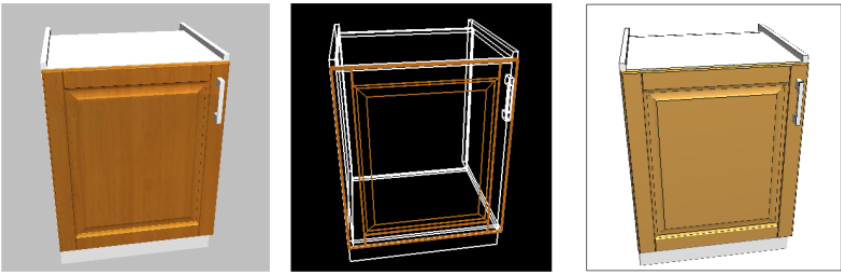



Fig. 202 – various ways of displaying the model

## CHAPTER 15

### Typical worktops

#### 1. Introductory remarks

Click the **Worktops**  icon to launch a module of drawing typical worktops (Fig. 203).

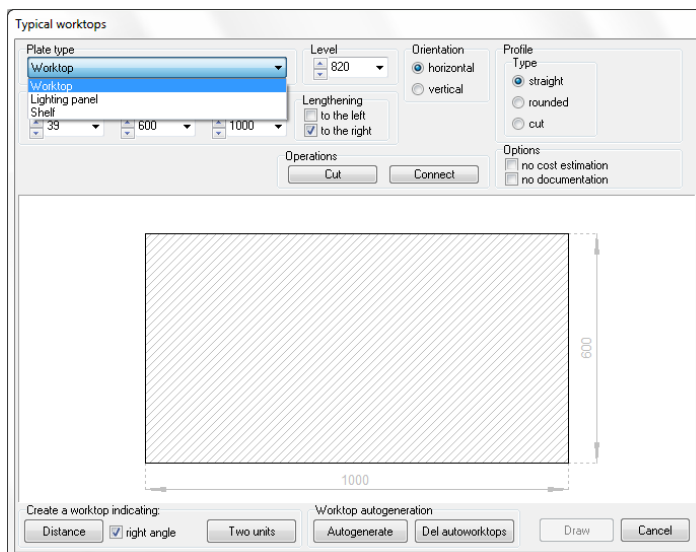


Fig. 203 – Worktops window

If this module is launched for the first time before the database of kitchen cabinets and their colouring are selected, the **Available databases** window will open, in which you can select the base you want to use in the current project, and then the Colouring change window, in which you can select types and colours of particular cabinets' components. The procedure of database and colouring selection is described in details in **Chapter 3 Running the software for the first time** (p. 30) and in **Chapter 13 Inserting kitchen cabinets** (p. 90).

**The Typical Worktops** module was created to help you quickly and easily generate worktops on kitchen cabinets, inserted in the project. It can be also used to create shelves and lighting panels (while working with the Universal database of kitchen cabinets), or other types of boards, provided by manufacturers of kitchen furniture in their bases. The drawing scheme of all board elements (worktops, shelves, lighting panels and specifid producer's boards) is the same, regardless of the type of element.

## 2. Drawing worktops using the Autogeneration function

- you can set the thickness of the worktop to be inserted by entering the specified value in the appropriate field (Fig. 204).
- there is no need to change the insertion level while inserting worktops on the bottom cabinets, because the level is set at a standard height by default.
- click the **Autogenerate** button.
- the system automatically inserts the worktops over all bottom cabinets which are lower than 1700 mm.

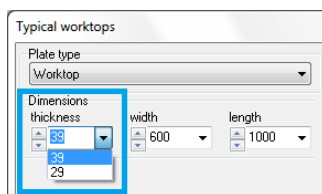



Fig. 204 – worktop edition

*Note! Worktops drawn by using Autogenerate option can be edited, for example to modify their thickness (but the Cut and Join functions are unavailable). However, once edited worktop is no longer defined as automatic and the Delete auto worktops function is disabled.*

## 3. Drawing worktops by specifying the distance

This method can be used, when the surface that will be covered by the worktop is not equal to the length of cabinets (e.g. there is a gap between them) (Fig. 205). The best view to change the length of a worktop is the top projection. To draw a worktop using the **Distance** method:

- click the **Worktops**  icon and **Distance** in the **Typical worktops** dialog;
- specify the starting and end point of the worktop,
- correct (if necessary) the insertion level, thickness and other parameters of the worktop in the **Typical worktops** dialog,
- then click the **Draw** button.

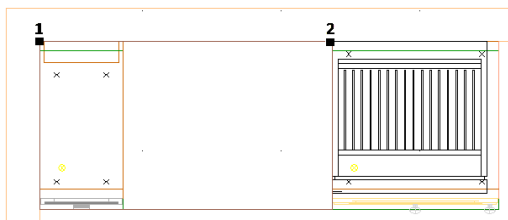



Fig. 205 – drawing a worktop by indicating the distance – top view

## 4. Drawing worktops using the Two cabinets method

This method is used when the length of the worktop equals the total length of cabinets (Fig. 206).

- click the **Worktops**  icon and then the **Two units** button;
- use the mouse pointer to select in the design the edges of the first and last cabinet in the sequence over which (and between which) the worktop will be inserted,
- correct (if necessary) the insertion level, thickness and other parameters of the worktop in the **Typical worktops** dialog, and then click the **Draw** button.

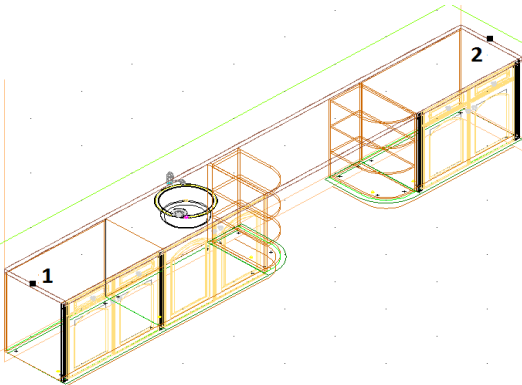


Fig. 206 – drawing a worktop using Two cabinets method

*Note! You can prevent the drawn worktop from being included in the overall design price (e.g. when worktops are used for drawing custom elements that do not exist in the database) — select no valuation or no documentation option before you generate the particular worktop or other board element.*

## 5. Operations on typical worktops

### 5. 1. Extending worktops

Normal worktops can be extended in any direction. To do this:

- select the worktop you want to lengthen,
- in the **Typical worktops** dialog select the direction in which you want to extend the worktop (**to the left/to the right**) (Fig. 207).
- use the buttons in the **length** box to adjust the worktop to the desired length,
- a preview of changes resulting from changing the parameters of the edited worktop are visible in the project (Fig. 208);
- once the desired worktop length is set, click the **Draw** button;



Fig. 207 – indicating the direction for worktop lengthening



Fig. 208 – lengthening a worktop

### 5. 2. Connecting worktops

The worktops lying on a single series of cabinets can be joined into a single worktop. To connect the worktops:

- select and edit a worktop, then click the **Connect** button:
- select the worktop you want to join with the one you previously selected,
- indicated worktops will be connected.



### 5. 3. Cutting worktops

To divide a worktop into two sections:

- select and edit a worktop, then click the **Cut** button:



- the worktop cut preview is visible in the design together with a dialog where you can enter the length of one of the worktops (Fig. 209),
- confirm the length with the **Ok** button.

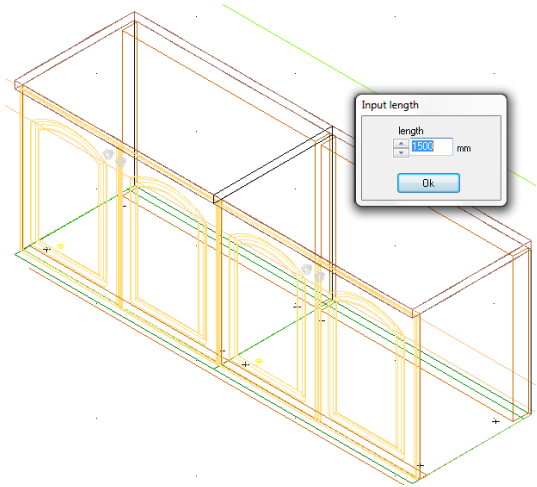


Fig. 209 – cutting typical worktops – project view

#### 5. 4. Editing worktop corners

You can define each corner of the worktop:

- edit the worktop,
- click the corner for which you want to define one of the available technological cuts (Fig. 210);

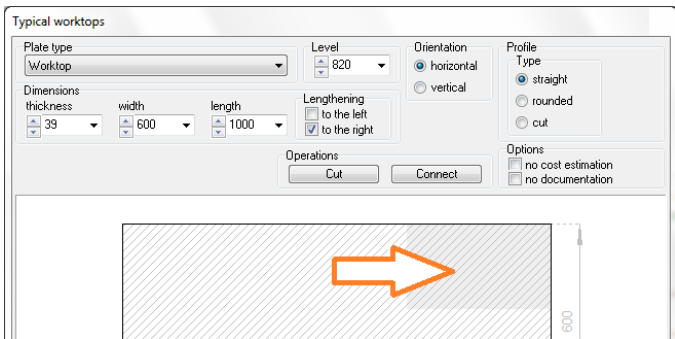


Fig. 210 – editing a corner

- then go to the window in which you can select the type of cut (Fig. 211).
- a detailed description of corner types can be found in the following points of this chapter (5.5, 5.6, 5.7 and 5.8).

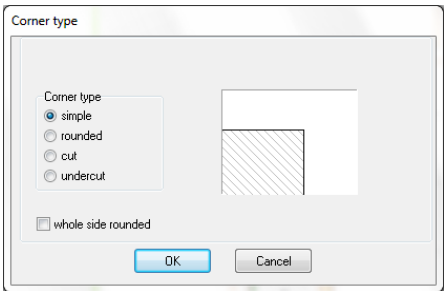


Fig. 211 – types of corners

### 5. 5. Overview of types of corners - roundings

- select the second corner type: **rounded**.
- enter the radius of the rounding in the appropriate edit box (Fig. 212).
- the preview allows for correcting the rounding effect until the desired shape is obtained, click **OK**, and then **Draw**.

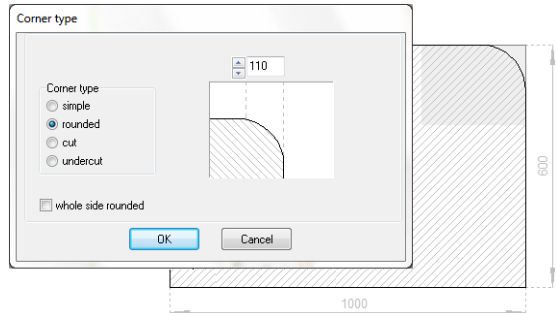


Fig. 201 – rounded corner

### 5. 6. Overview of types of corners - cuts

- select the third corner type: **cut**;
- enter the appropriate cut values (if both values are to be identical, select  $x=y$ ) (Fig. 213);
- the preview allows for correcting the cutting effect until the desired shape is obtained, then click **OK**, and then **Draw**.

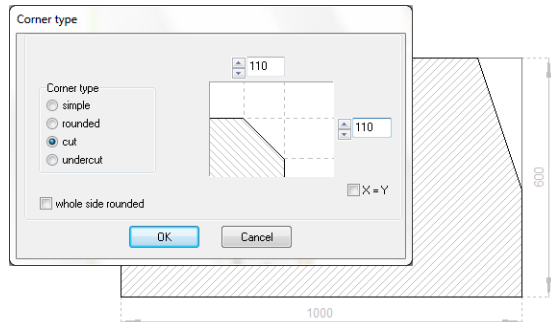


Fig. 213 – cut corner

### 5.7. Overview of types of corners – undercuts

- select the fourth corner type: **undercut**.
- enter the undercut parameters in the appropriate edit box (if the undercut values are to be identical, select  $x=y$ ) (Fig. 214);
- the preview allows for correcting the undercutting effect until the desired shape is obtained, then click **OK**, and then **Draw**.

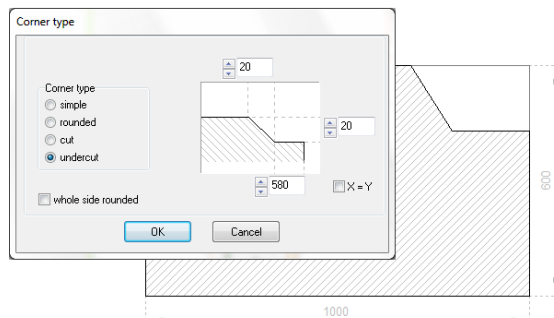


Fig. 214 – undercut corner



## 5.8. Overview of types of corners – rounding of a whole side

- select the last type of the corner: **Whole side rounded** (Fig. 215);
- the preview allows you to check the result of rounding— once complete, click **OK**, then click **Draw**.

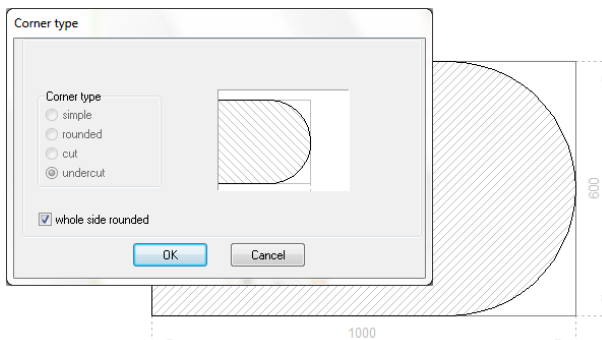


Fig. 215 – a whole side of a worktop rounded

## 5.9. Changing worktops dimensions

The **Edition** option enables the user also to freely modify worktops dimensions. If the maximum dimensions established by the producer are exceeded, the user will be informed about this in a communicate (Fig. 216). In this situation it will be impossible to select the colour for the worktop and it will be not possible to valueate it (option available only for databases with an automatic worktop valuation) (Fig. 217).

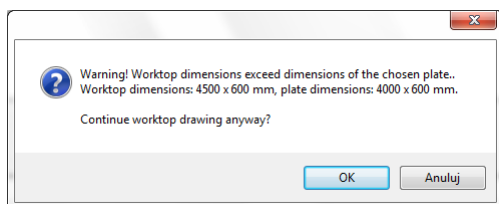


Fig. 216 – information about exceeded expected dimensions

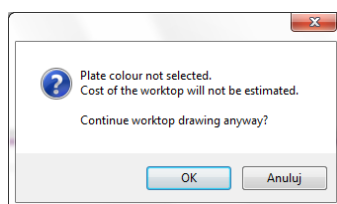


Fig. 217 - information about the expected limitations for a worktop with exceeded dimensions

## CHAPTER 16



### Untypical worktops

#### 1. Introductory remarks

It is possible to create custom worktops of any shapes in the Untypical Worktops module. To be able to generate any custom worktop, it is necessary to first create its outline – instructions of how to do it can be found in points 2 and 3 below.


If the **Untypical Worktops** module is launched before the kitchen cabinets database is chosen, you will see the **Available databases** window, in which you should indicate the base you want to use in the currently created project. Then in next window called **Colouring change** you will be able to define colours and types of various cabinet elements (such as fronts, handles, glass, cornices and skirting boards etc.). The procedure is described in details in **Chapter 3** (p. 30) and **Chapter 13** (p. 90).

#### 2. Drawing a path for untypical worktop – general information

- The best way to draw a path is in the top perpendicular view, so before you start drawing, select this icon:  from the **Points of view** toolbar;
- Select the **Draw path**  icon and click in the point where you want to start the path, and then use the following commands (they can be combined):
  - A+ENTER - draws a 2-point arc,
  - S+ENTER - draws a 3-point arc (available only in the arc drawing mode),
  - L+ENTER - draws a straight line,
  - U+ENTER - undoes previous operation,

*Note! The path should be drawn so that its end meets the beginning, because the profile needs to be closed. Do not click more than once in a single point. Straight sections cannot contain intermediate points.*

#### 3. Drawing a path for untypical worktop – step by step

1. select the **Draw path**  icon,
2. point 1 - starting point of the path,
3. points 1-2 - drawing a line (L+ENTER),
4. points 2-4 - drawing an arc (A+ENTER - 2, S+ENTER - 3, arc end - 4),
5. points 4-5 - drawing a line (L+ENTER),
6. points 5-7 - drawing an arc (A+ENTER - 5, S+ENTER - 6, arc end - 7),
7. point 7 - the end point of the path (at exactly the same location as point 1)
8. an outline created this way (Fig. 218 on the next page) can be used for generating an untypical worktop.

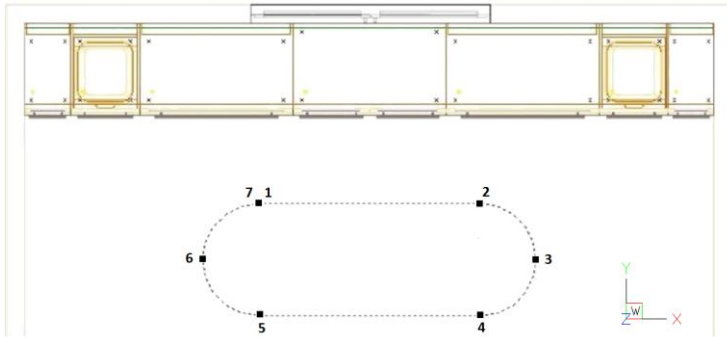



Fig. 218 – Drawing a path for untypical worktop – project view

*Note! Worktop outline can be drawn using lines and arcs instead of path (polyline). In this case there must not be any gaps between them, and when you are indicating the outline to generate the worktop, click in the middle of it, and not on its lines.*

#### 4. Drawing untypical worktops

- draw an outline for the worktop, following the instructions given above;
- then click the **Untypical worktops**  icon;
- select the previously drawn path for the worktop or the area in the middle of the prepared outline (if it was drawn using lines and/or arcs).
- the outline for a worktop will be loaded and the **Untypical worktops** window will open (Fig. 219);

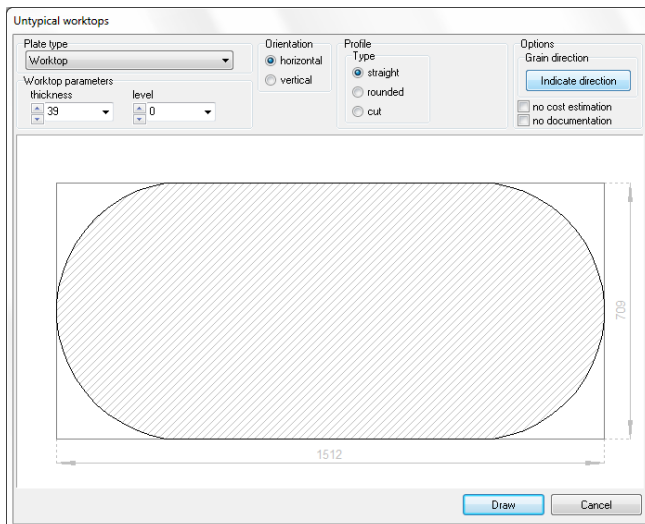


Fig. 219 – Untypical worktops window

- in this window you can change worktop's thickness and insertion level, as well as its orientation (it can be either placed vertically or horizontally);
- you can also choose the type of the profile (edging): straight, rounded or cut;
- the grain direction can be also defined – use the **Indicate direction** button;
- untypical worktops can be omitted in project's valuation and documentation – in this case, it is necessary to tick the checkbox **no valuation** or **no documentation**.

## 5. Additional worktop information

- you can specify the thickness and insertion level of an untypical worktop in the **Worktop parameters** fields;
- you can set the direction of wood rings in the furniture plate you will use for cutting the worktop; to do this: press **Select direction** and select the appropriate axis of wood rings direction on the drawing;
- you can prevent the drawn worktop from being included in the design appraisal (among others when worktops are used for drawing custom elements, that do not exist in the database) — select **no appraisal** option before generating the worktop;
- profiles — the edge of the worktop can be finished with two types of profiles — while drawing or editing the worktops select the profile type (**rounded/cut**) and parameters (**radius** or **cut value**), to have the worktop drawn with the edging;
- when all the necessary worktop information is entered, click **Draw**.

## 6. Drawing edgings

Edgings can be drawn for both standard and custom worktops. The same rules apply in both cases (see the previous chapter for more details). Edgings can be defined on finished worktops (during edition) or during preparing them for insertion:

- in the window used for creating and editing the worktops select edges, to which an edging is to be defined,
- define the edging profile in the upper part of the window (cut/rounded + rounding radius);
- when all the parameters are set, press **Draw**.

*Note! If you do not want the edging to be applied to one of the previously selected edges, deselect it with the mouse pointer.*

Illustrations below present edgings settings for an untypical worktop in the edition window, their graphic representation in the CAD environment and their visualization (Fig. 220, 221 and 222).

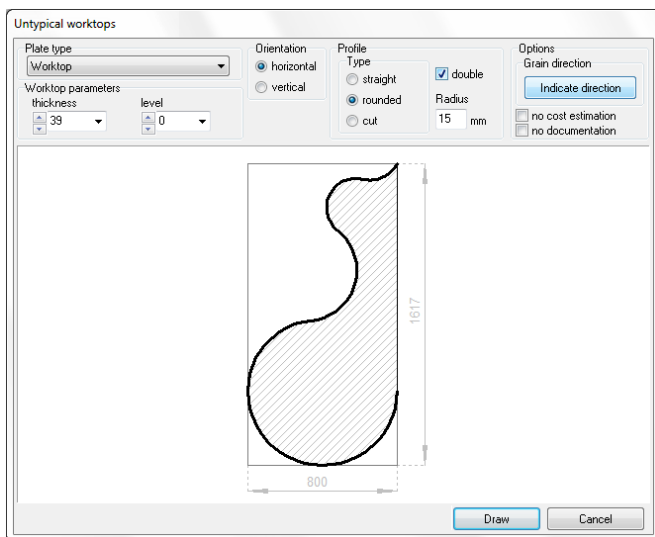


Fig. 220 – edgings – edition and a schematic preview in the edition window

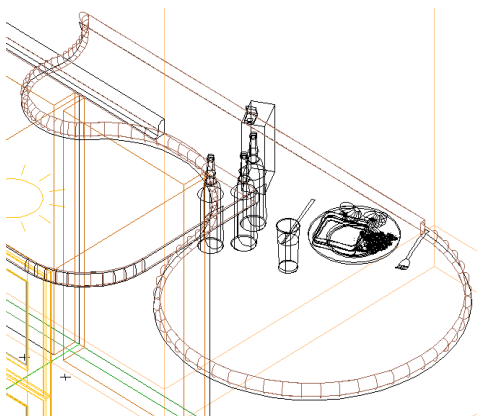


Fig. 221– edgings – view in the CAD environment




Fig. 222 –edgings –view in the visualization

## CHAPTER 17

### Worktops documentation

#### 1. Introductory remarks

After clicking the **Worktops documentation**  icon, you will gain access to worktops drawings editor (Fig. 223), in which you can create and edit technical drawings of worktops, existing in the project, which can be added to the overall technical documentation.

Worktops selected for previewing on the list display in the following way:

- their outlines appear on the background;
- worktops not selected for edition is white and selected (by a single left-click) will cover with a navy-blue mesh;
- selected edges turn red, and connections between worktops – green (Fig. 223).

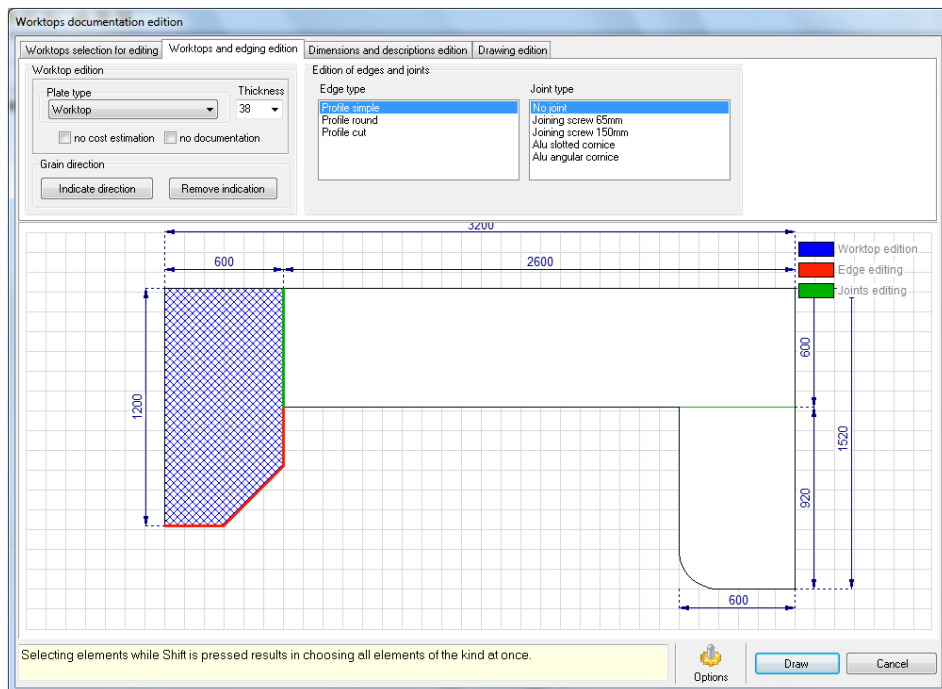
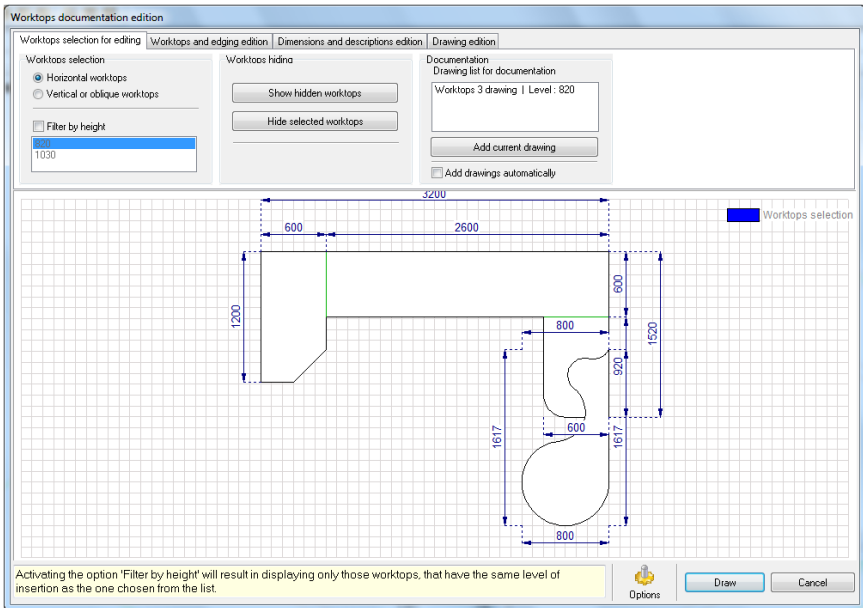


Fig. 223 – Worktops documentation window

## 2. Worktops selection for editing

In this tab you can sort worktops by their position (**horizontal** or **vertical** and **oblique**) and level (**Filter by height** option) (Fig. 224).



**Fig. 224 – sorting by height turned off – all worktops visible**

Single selected worktops may be also hidden or displayed (options: **Hide selected worktops** or **Show hidden worktops**).

In this tab it is also possible to manage the drawings – you can add new or delete existing, deciding, which ones should be added to the overall project documentation (options: **Add current drawing** and **Remove current drawing** – note: the button name changes). When a new drawing is created (e.g. new filter is chosen), the option Add current drawing will become available. If you click on an existing drawing on the list, the function Remove current drawing will become active instead.

### 3. Worktops and edging edition

In this tab you can edit worktops (and choose the kind of the plate they are made of and their thickness, as well as colour – but this is possible only in some producers' databases), edgings (their description will appear on the drawing – Fig. 225, and the effect will be visible in visualization mode) and connections between worktops (each connection type has its own graphic symbol – Fig. 226). It is also possible to exclude a worktop from valuation or documentation.

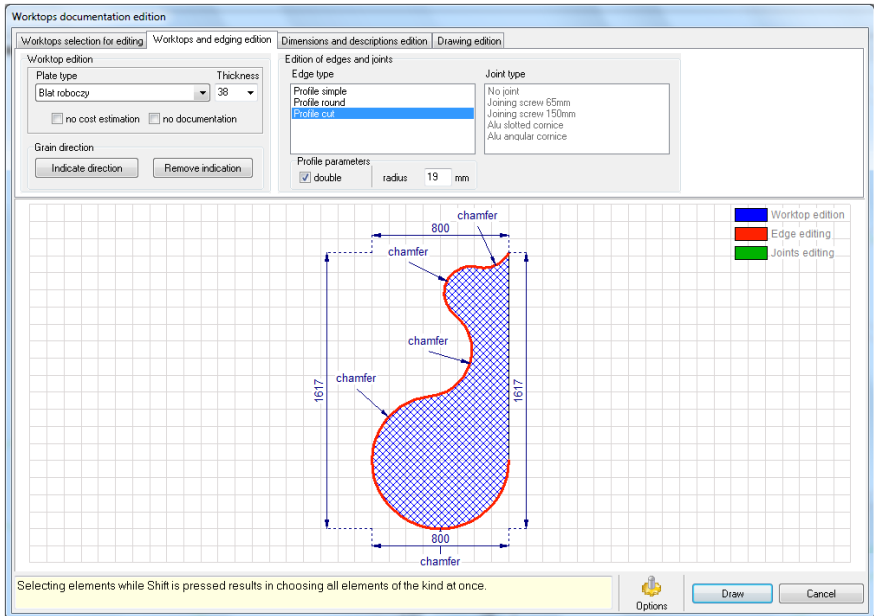


Fig. 225 – edging type selection

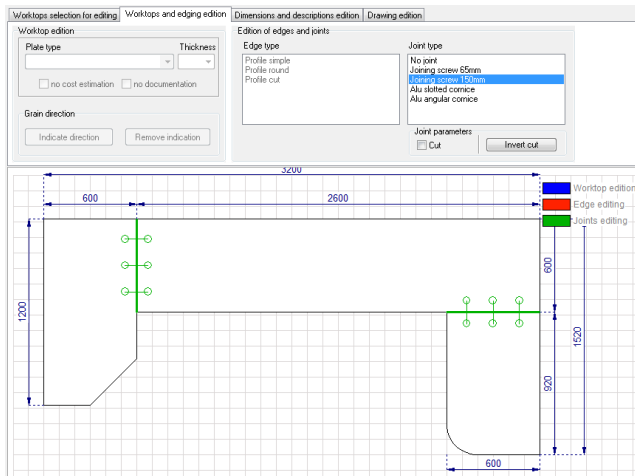


Fig. 226 – connection type selection

In the **Worktops and edging edition** tab it is also possible to set the grain direction (Fig. 227). To do this:

- select worktops by a left-click and select the **Indicate direction** button;
- set the direction using the mouse and confirm with a left-click;
- a grain symbol in the indicated direction will appear on the worktops.



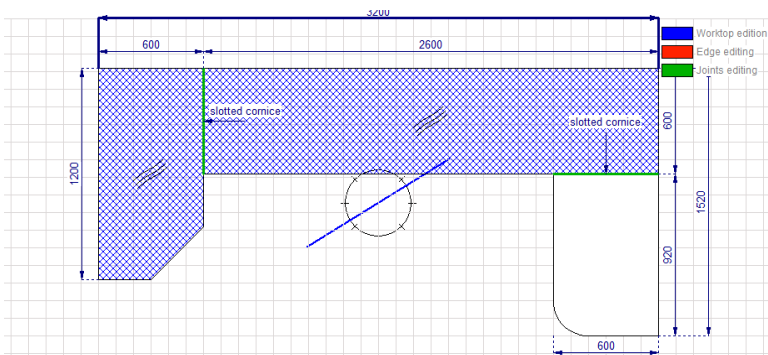



Fig. 227– setting the grain direction for selected worktops

#### 4. Dimensions and descriptions edition

In this tab it is possible to make changes in the technical description of the drawing – this is location and amount of dimension lines and descriptions, as well as change the style, type, colour or size of font. A dimension line, selected by a single left-click, turns navy blue, and the description text displays in red (Fig. 228).

After clicking the Font selection  icon (available in **Dimensions edition** and **Descriptions edition** fields), you can change dimensions texts and descriptions styles and colours (Fig. 228).

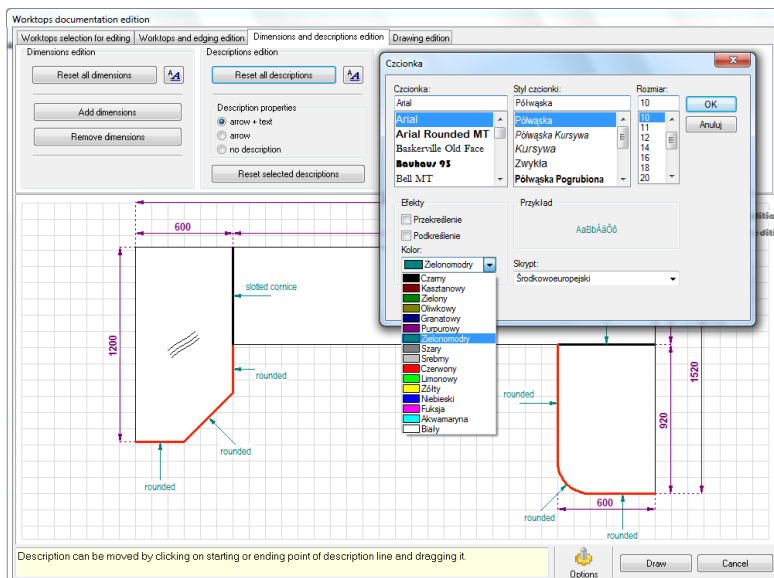


Fig. 228 – descriptions settings – font style and colour selection

## 5. Drawing edition

The last tab in the **Worktops documentation** window enables you to modify the look of the drawing, that will be visible in the overall project documentation. You can set the margins, change the background (visibility of auxiliary lines and changing their subdivision size), change the worktops filling (hatch or plain colour) and the visibility and location of a table, containing basic information about the worktops (Fig. 229).

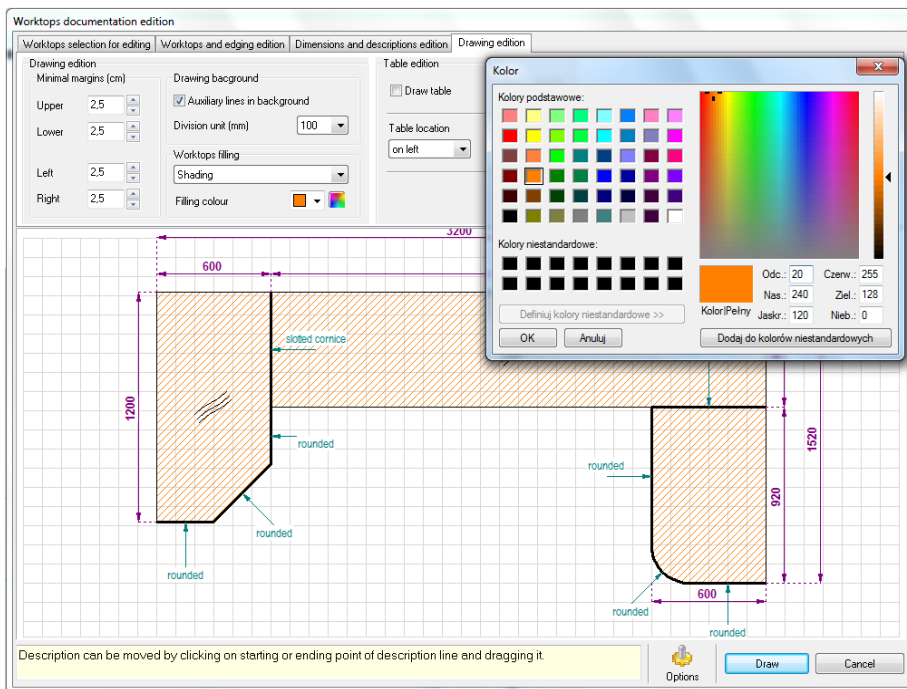



Fig. 229 – features available in the Drawing edition tab – changing the hatch colour

## 6. Additional options of the Worktop documentation editor

After clicking the **Options**  icon, you will see the **Worktops options** window (Fig. 230), in which you can make some additional settings of the worktop documentation. In the case of selected producers' databases, you can set the parameters of worktop and accessories valuation.

If the currently used database does not allow to conduct an automatic valuation, you will see an appropriate message and the relevant features will be inactive (Fig. 230).

In here you can also set some drawing and interface parameters.

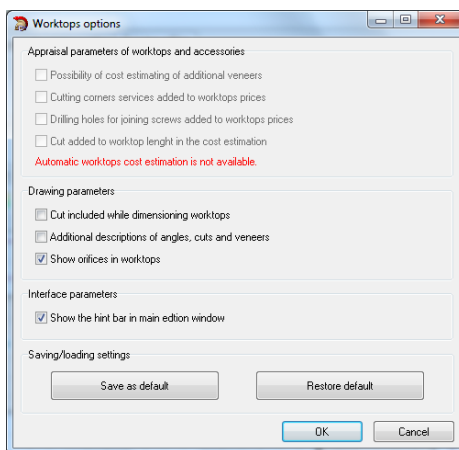



Fig. 230 – Worktops options window

## 6. Finishing work with the Worktop documentation editor

When you finish your work with this module and want to add the created drawings to the main technical project documentation, click the **Draw** button. If you click **Cancel**, all made changes will be lost.

After clicking the **Draw** button, the list of all saved worktop drawings will be available in the **Design documentation setup** window. When you click the **Documentation**  icon, select the checkbox Worktop documentation views (Fig. 231). You can then select drawing you want to include in the overall documentation. When you are finished, click **Next >>**, and the chosen drawings will be added to the final documentation. For more information about the project documentation, see the **Chapter 26** (p. 180).

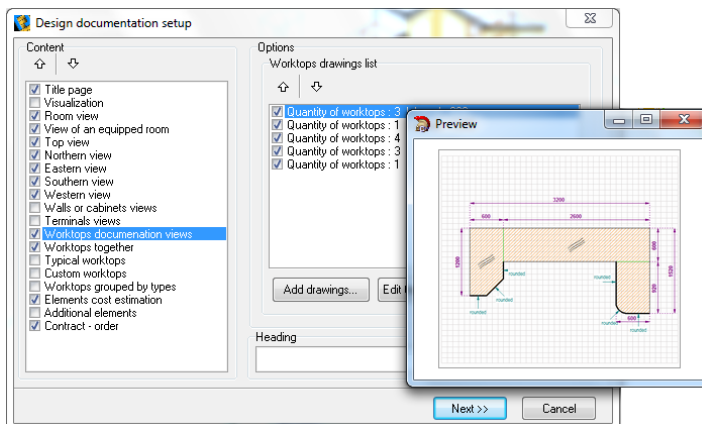


Fig. 231 – Design documentation setup window

## CHAPTER 18


### Drawing cornices and skirting boards

#### 1. Introductory remarks

Cornices and skirting boards are used to decorate the kitchen an. It is possible to select various cornices (upper, lower and skirting boards), plinths, sticking elements, rails, aluminium pedestals and user's profiles. If the user opens this module without having previously defined the database, set and colouring of all elements, then the program will ask the user to do so (procedure described in **Chapter 3** and **Chapter 13**).

#### 2. Drawing cornices using the Autogeneration function

The autogeneration of upper and lower cornices and skirting boards operates. To apply them:

- click  **Cornices and skirting boards** icon to open the **Cornices and skirting boards** window (Fig. 232);
- select types of cornices to be drawn (you can select all or only some);
- selecting all types results in displaying all tabs with the appropriate profiles for all types: **upper cornices**, **lower cornices**, **skirting boards** (Fig. 233);
- select profiles in each tab, choose colours for each type (Fig. 233) and press the **Generate** button;
- cornices and skirting boards will be automatically applied to all cabinets.

*Note: Automatically drawn cornices can be removed using the Delete auto-cornices button.*

*The automatically drawn cornices can be edited by changing their profile, but they will no longer be defined as automatically generated elements.*

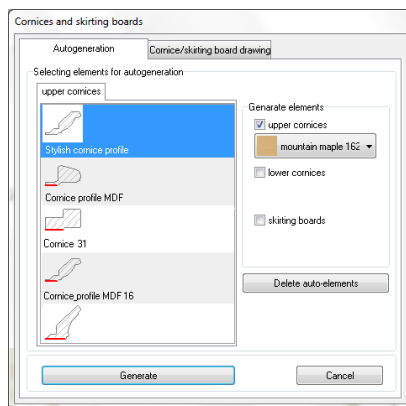


Fig. 232 – Cornices and skirting boards window

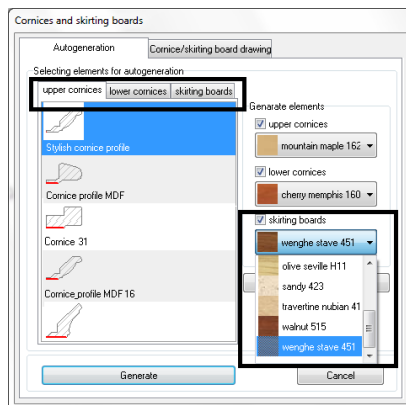




Fig. 233 – selection of cornices for autogeneration

### 3. Drawing cornices manually

To insert a manually drawn cornice into the design, first draw the path to which the particular cornice profile will be applied. To draw a polyline:

- prepare the drawing so that the elements blocking the view are hidden, and in the case of upper cornices, so that the fronts are removed from the cabinet - in order to do so click the  - **Show — hide element** icon in the **CAD-Kitchen** toolbar and then select the **Fronts** button in the **Layer hider** window (Fig. 234);
- set the appropriate axonometric view in which drawing the polylines will be most comfortable,
- select the **Draw a path**  icon, and outline all the cabinets by clicking each bend of the cabinet sequence:
- In the drawing below point **1** is the starting point of the drawn path (**2, 3, 4**) are the further bending points of the sequence of cabinets, point **6** is the end point of the polyline.

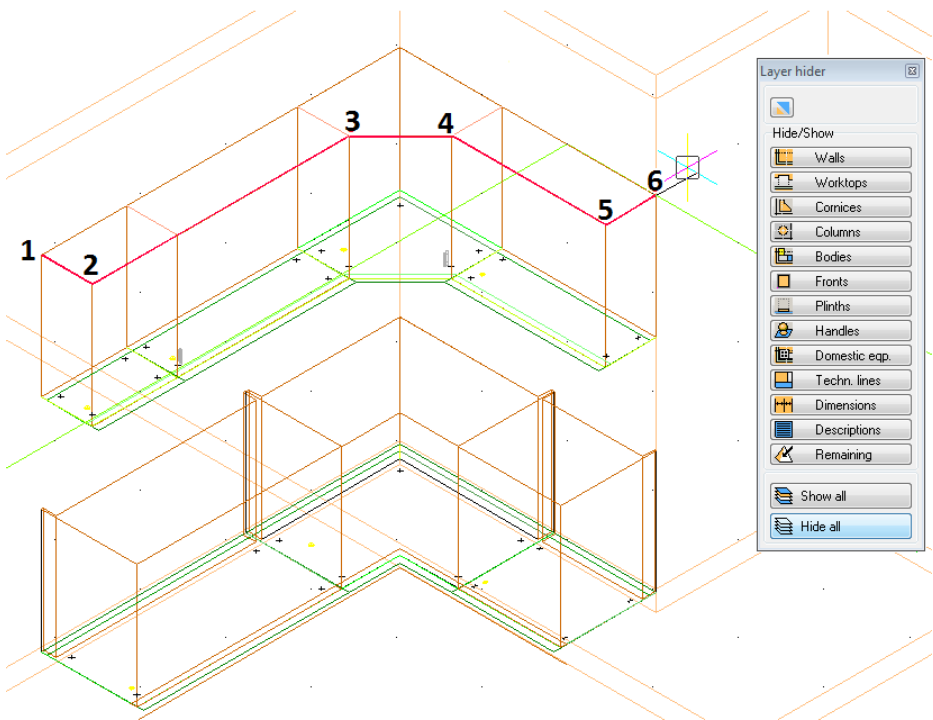



Fig. 234 – drawing a polyline on upper cabinets and Show – hide element window

- when polylines are complete, go to the **Cornices and skirting boards** dialog (under this icon: ) , and open the **Drawing cornices** tab.

- select appropriate cornice type (when you select an upper cornice only appropriate profiles will be filtered) in the drop-down list box,
- then select a profile for cornice and press the **From polylines** button at the left lower corner of the **Cornices** dialog box (Fig. 235);
- select the path previously drawn on the cabinets and click **Draw** which makes it possible to draw a cornice for any element with parameters and contour defined by the customer.

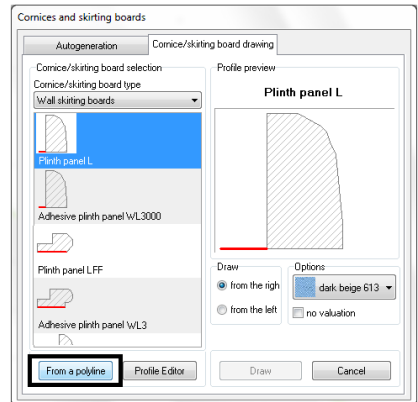


Fig. 235 – Cornices... window, Drawing cornices tab

- during modification each selected object is displayed in pink in the design;
- the example result of using this option is presented below (Fig. 236),

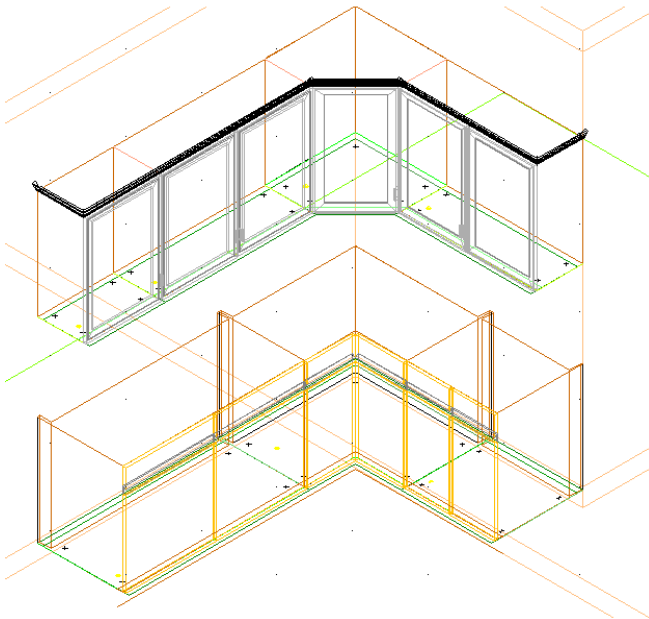



Fig. 236 – upper cornices created on the basis of a drawn path

#### 4. Drawing user's profiles for cornices

The **Profile Editor** function enables you to create a stripe with any profile and add it to the database (to create your own profile on the basis of the previously drawn polyline).

In order to create your own profile:

- draw a polyline (example presented on figure 237);
- click the **Cornices and skirting boards icon**: ;
- select the **Cornice/skirting board drawing** tab and click the **Profile editor** button (Fig. 238);
- in the new dialog box click **From a path** button (Fig. 239);
- select the previously drawn path and define a point, in which the profile should be in contact with a worktop or cabinet (the touch-point) by left-clicking in this point;
- you will see the selected point on the preview (Fig. 240);
- if you want to change it, click the **Change point** button and indicate another touch-point;
- you can save a new profile by clicking the **Add profile <<** button after defining the profile parameters (name, length) or delete a profile previously saved by clicking the **Delete X profile** button;
- to go back to **Cornices...** window close the **User profiles** dialog box by clicking **Ok**;
- you can immediately use your new profile in the project.

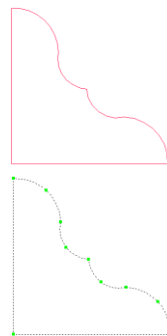


Fig. 237 – a path for user's own skirting board profile

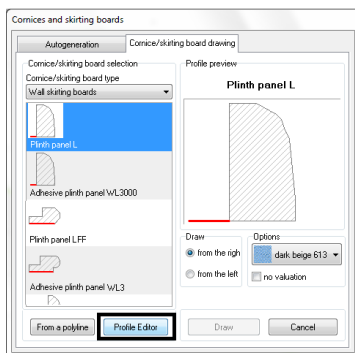


Fig. 238 – in the Profile Editor

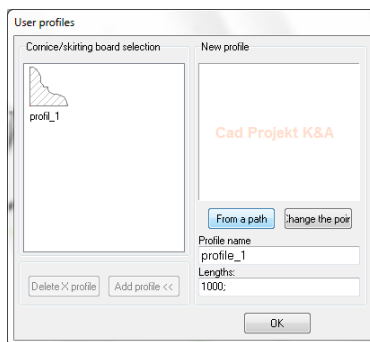


Fig. 239 – selecting a path for the profile

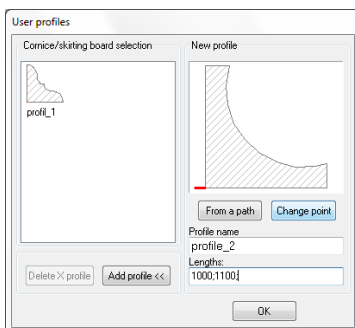


Fig. 240 – profile with selected touch-point

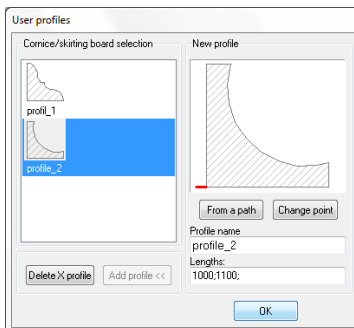



Fig. 241 – added profile

## CHAPTER 19

### Household equipment

#### 1. Introductory remarks

The  **Household equipment** icon is placed in the **CAD-Kitchen** toolbar and makes it possible to insert a chosen piece of built-in household equipment by a preferred manufacturer from one of the household equipment databases. The module includes a complete catalogue offer of well-known manufacturers. Appliances such as sinks, kitchen hoods (absorbers), microwaves, ovens, hobs, refrigerators and cookers are available, and it is possible to quickly insert their 3D models into the design (Fig. 242).

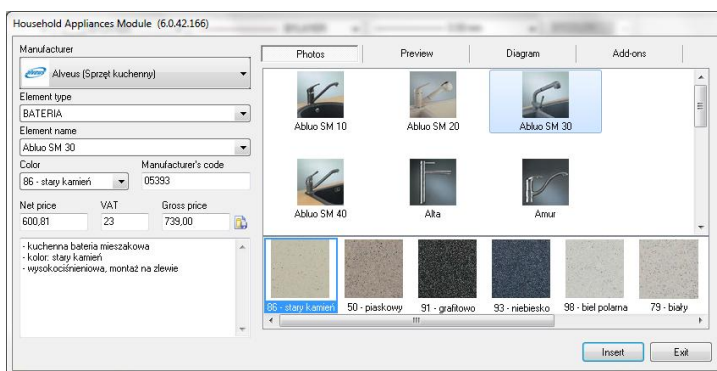


Fig. 242 – Household Appliances Module

#### 2. Structure of the module

You can choose the producer from among many well-know brands available in the CAD Decor PRO libraries in the **Manufacturer** field (Fig. 243).

The **Element type** field (Fig. 244) is used for sorting a specific group of models, e.g. only sinks or only kitchen hoods.

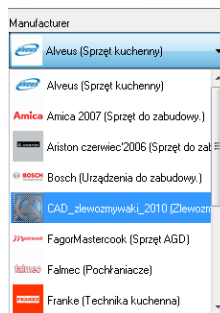


Fig. 243 – brand selection

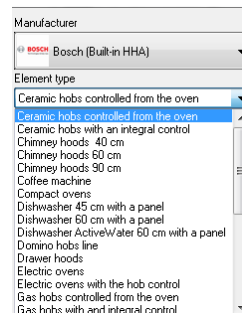


Fig. 244 – element's type selection

Once the manufacturer and element type are selected, you can search for a particular model (in the **Name** field or based on **photos** located to the right-hand side of the dialog window) (Fig. 245 on the next page).



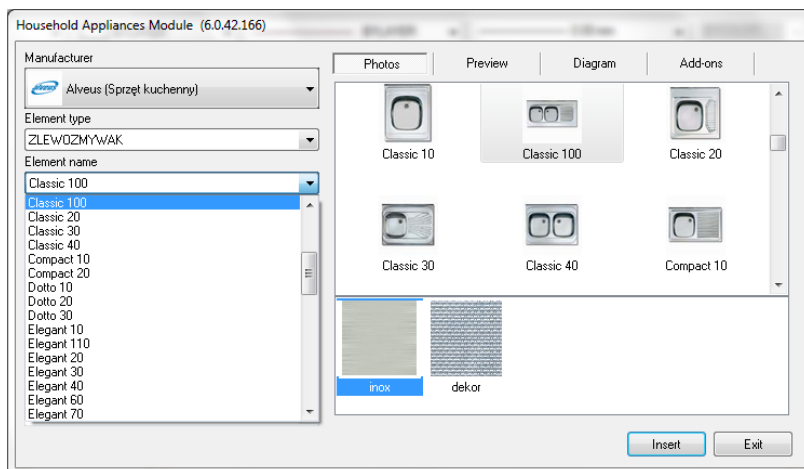


Fig. 245 – selecting a model from a database

Each model has:

- an appropriate colouring (located below the photos of the equipment and in the **Colour** field),
- manufacturer's code,
- prices (net and gross),
- catalogue description,
- preview (allowing to view the model on a higher-resolution photo – Fig. 246);
- assembly diagram of the equipment (Fig. 247);
- additions (optional) — can be inserted together with the household equipment (they need to be 'ticked' ☒ - otherwise they will not be inserted) (Fig. 248).

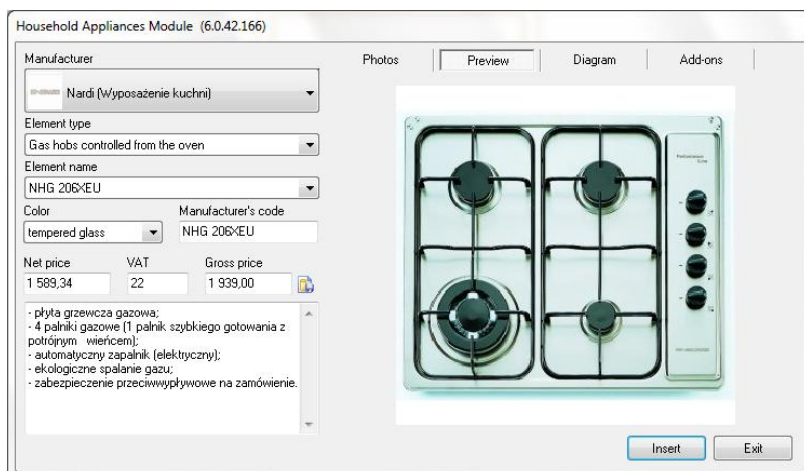


Fig. 246 – element's preview

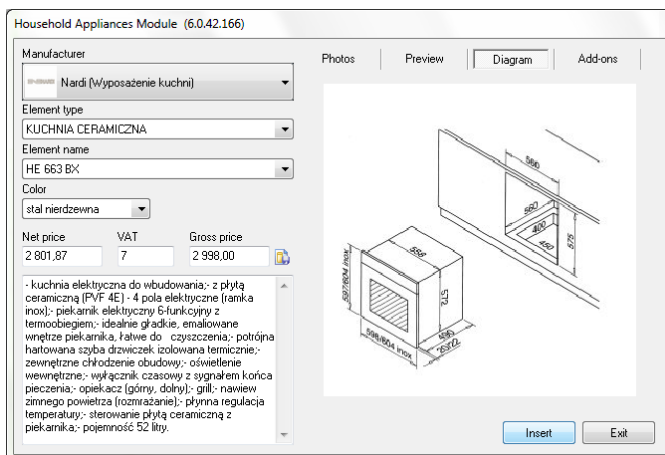


Fig. 247 – assembly diagram

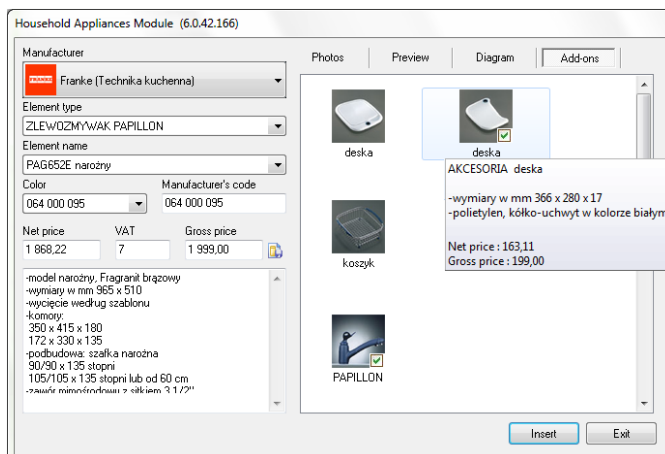


Fig. 248 – additions for a particular model

### 3. Inserting sinks and hobs

- select (as above) a specific model of the sink or ceramic hob;
- when there is more than one colour available for a model, you can select the colour, so that the sink is inserted in the previously selected colour;
- select additions you want to insert together with the equipment;
- click **Insert**;
- the **Element in the worktop** dialog is displayed (Fig. 249), in which insertion parameters for a model can be set, such as:
  - **x, y** — offset from the side/back of the cabinet,
  - **Centre horizontally** — the program centres the element in the cabinet;

- **Automatic level** — the height at which the element will be inserted is calculated by the program, you do not have to perform any additional operations,
- **Automatic level** value can be changed by entering another into the appropriate edit box,
- **Set rotation angle** — this function is useful for inserting elements into corner cabinets,
- **Under worktop** — this function is useful for the sinks inserted under the top;

- when all the parameters are set, press **Insert**, and select the cabinet's front where the element will be inserted — the sink or hob will be inserted into the design.

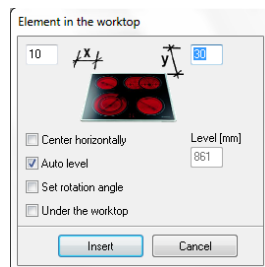


Fig. 249 – Element on a worktop window

#### 4. Inserting standalone equipment

- the technique for selecting the standalone elements is the same as above;
- after selecting the appropriate device, press **Insert**.
- in the **Various elements** dialog set the insertion level of the model (Fig. 250);
- if the object is to be placed in the corner of the interior, select the **Set rotation angle** option;
- when the model parameters are set, press **Insert**;
- select a location in the design where the object will be inserted with a mouse click;
- the object will be inserted.

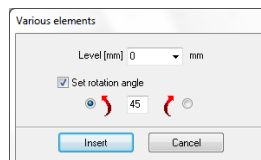



Fig. 250 – Various elements dialog box

#### 5. Fitting batteries to the sinks

If you do not insert a tap that is part of a sink set, you can do it later, by selecting one of the elements of a given manufacturer available in the library:

- look for the battery using the mechanism described above;
- press the **Insert** key;
- use the mouse pointer to select the sink to which you want to fit the battery;
- the battery is inserted.

#### 6. Inserting built-in equipment

Some of the cabinets in the furniture databases were designed for inserting the models of equipment of the particular manufacturers. Each cabinet has a designator which gives information about the household equipment type it is designed for. Additionally the **Domestic eqp. selection** button will appear (Fig. 251 on the following page). After clicking it you will see a new dialog: **Selection of built-in domestic eqp. for cabinets...** (Fig. 251). When you mark the type of element and click  **Select**, you will be brought to the **Household Appliances Module**, in which you can search for a particular models from producers' database, available in the program (Fig. 252).

Household appliances can be inserted while inserting cabinets (together with them), or after the cabinet has been already inserted in the project.

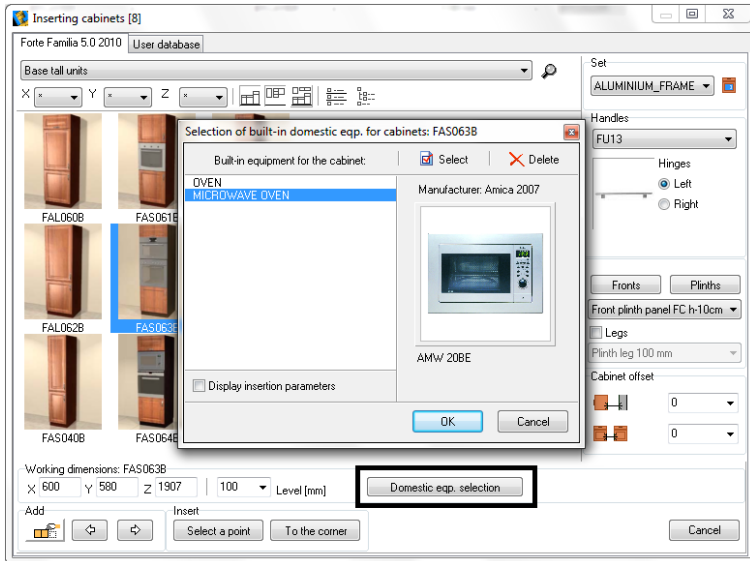


Fig. 251 – selection of household equipment for cabinets

- when you find a specific in-built household appliance model, suitable for the previously selected cabinet, mark it and click the **Insert** button;
- if you are in the process of inserting a cabinet, simply confirm your choice by clicking **Ok**, and then insert the cabinet – the device will be placed in the project at the same moment, as the cabinet;
- if you are inserting the equipment in a cabinet already existing in the project, use the mouse pointer to indicate the appropriate cabinet (by left-clicking on its front).

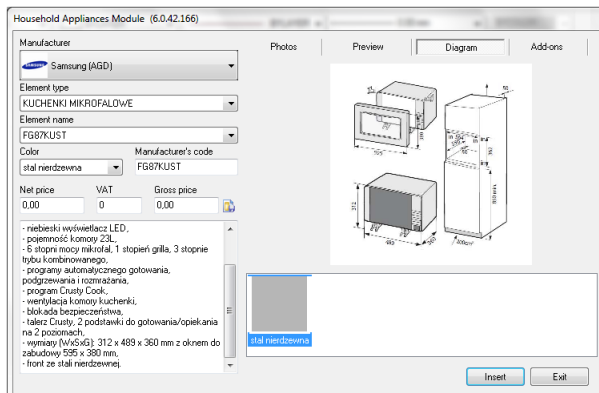


Fig. 252 – selection of built-in equipment

*Note! In the case of ovens designed to be installed with heating panels, the panels are inserted using the method described in the 'Inserting sinks and heating panels' subsection.*

## 7. Inserting hoods

- find the appropriate hood model in the Household Equipment module and press the **Insert** button.
- the following dialog will display (Fig. 253);
- in this dialog box you can change the hood insertion level and choose the way in which you will place the hood in the project:
  - **hood insertion height** – by default 1540 mm - measured from the floor to the bottom edge of the model; you can change the level by inserting a new one into the edit box.
  - **Indicate a unit / Indicate a point** - buttons enabling to choose preferred insertion method (using the first one, you left-click on cabinet's front, and the hood will be placed directly over that cabinet; using the second method you in fact indicate 2 points with 2 single left-clicks – the 1<sup>st</sup> point determines, where the lower left back corner of the hood will be inserted, and the 2<sup>nd</sup> one is used to indicate the direction of insertion – the second method can be used when the hood is to be placed between two cabinets).

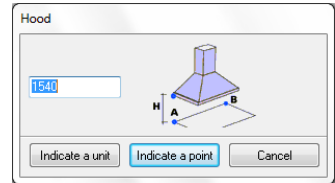



Fig. 253 – Hood dialog box

## CHAPTER 20

### Inserting interior equipment

#### 1. Introductory remarks

CAD Decor PRO has been equipped with databases of various elements of interior design, both universal and producers'. To place these elements in the project, choose the icon **Interior design elements**  from the **CAD-Interiors** toolbar. The **Interior design elements** window will open, in which all databases loaded in the program are available (Fig. 254). The databases are available on the installation DVD as well as on our website (completely new or updated databases).

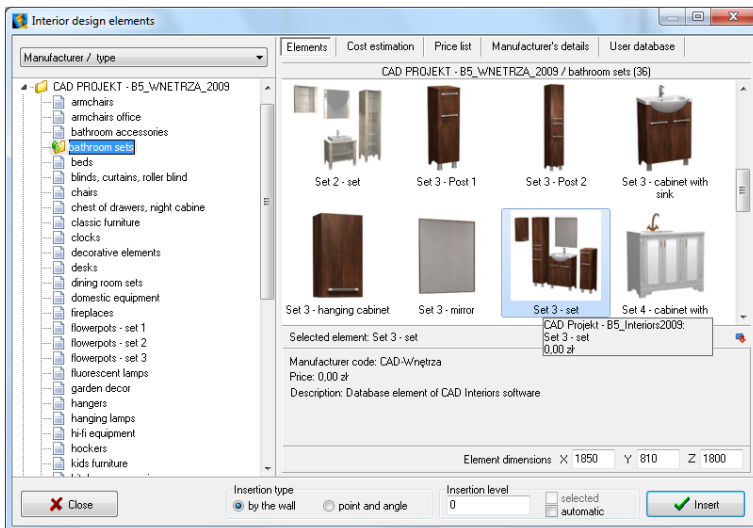


Fig. 254 – Interior design elements dialog box

#### 2. Options of the Interior Design Elements dialog box

On the left hand side of the window a list of available databases is displayed. After a double left-click on a name of a particular database, the list of types of elements included in it will display. After a single left-click on the particular category, elements' previews will display in the upper right part of the dialog.

The list of databases and types of elements can be filtered in 3 ways: by the **manufacturer and type**, by the **manufacturer** or by the **type** only (Fig. 254).

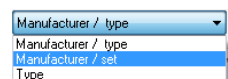


Fig. 254 – filtering the list of household equipment

To select a particular model please use the previews of models. After clicking on a chosen preview, information provided by the producer about the model will display in the bottom part of the dialog, including: manufacturer code, price and a description and element's dimensions (in millimeters) or scale factor. On the very bottom of the window various options of inserting models are available (described below in point 3).

### 3. Inserting elements

When the model is chosen the insertion level has to be specified (it is the height on which the element will be inserted).

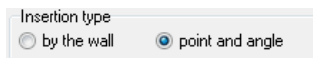
It can be done in a few ways:

- in the **Insertion level** field the value for the current model can be entered;
- in this field a default level given by the producer for a particular element is displayed, e.g. 2600 mm for ceiling lamps, 850 mm for washbasins etc.;
- alternatively the **Automatic** button can be selected – then the element will be inserted on the level, on which the program finds an obstacle, e.g. a worktop;
- the last possibility is the selection of the **indicated** option – in this case the axonometric view should be chosen because the insertion will be proceeded on the basis of the particular point indicated by the user in the project;
- the last method requires the highest precision.



After defining the insertion level the way of inserting the model should be selected:

- if the element is to be placed directly against the wall at an angle which is a multiplicity of  $90^\circ$ , the **by the wall** option should be selected – the object will be located next to the indicated wall (used for coaches, pictures, shelves etc.);
- if the model is to be placed at any angle and in any spot in the project, the **point and angle** option should be selected (this method requires two left-clicks – first of them defines the main point of the insertion, which is at the same time the axis for the object rotation, and the second left-click defines the angle – to establish the angle, move the mouse around the rotation axis);




- after the insertion level and the way of insertion are defined, click **Insert**;
- the best view in most cases for inserting models is the orthogonal view from above because it is the most precise to establish the point and angle of insertion of the model and properly locate the adjacent objects.

## CHAPTER 21

### Valuation of used elements and the price-list

#### 1. Introductory remarks

The **Elements specification**  icon opens the **Interior design elements** dialog box, open on the **Valuation** tab (Fig. 255). The specification is currently actualized each time a new model is used in the project. It enable the user to instantly view and change the prices of particular elements of interior design inserted in the project.

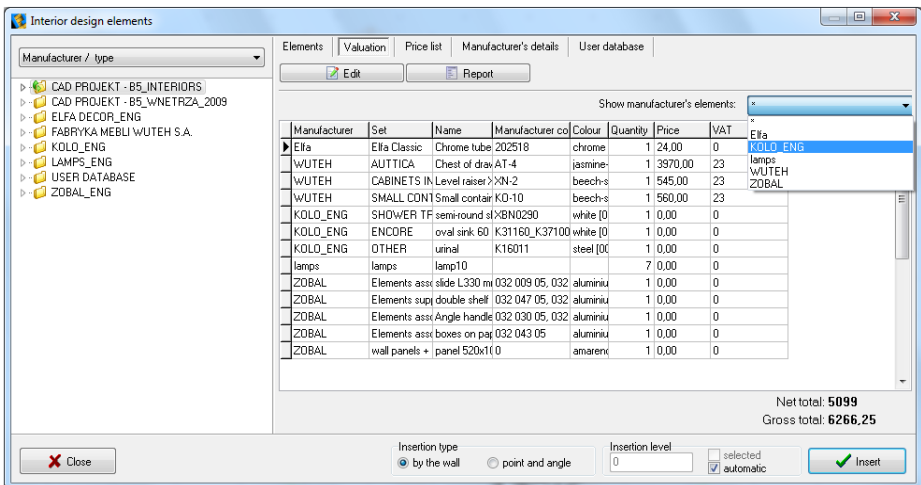



Fig. 255 – valuation of interior design elements

#### 2. Edition of valuation elements

Prices of elements included in databases can be freely modified. To do it, click on the particular position in the specification and select the **Edit**  button.

A new window will open (Fig. 256), in which element's price and VAT rate can be changed

In the bottom part of the **Valuation** tab total net and gross prices of whole equipment and furnishings used in the project are presented.

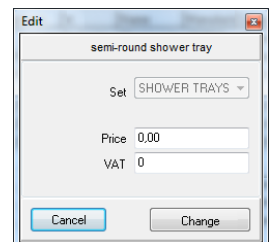





Fig. 255 – price change



### 3. Report generation

The specification can be presented in a form of a report, which can be saved to the disk as a HTM file or printed.

To do it, simply click the **Report**  button. A list of available reports will appear – a standard or producer's ones (Fig. 256). Select the report to be created and click **Next>>** - the report will be generated (Fig. 257 on next page). To save the report, click the icon  in upper left corner and select the location for the HTM file to be saved (Fig. 258), and to print it click .

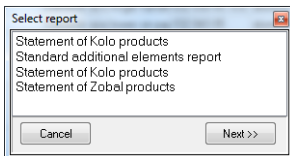


Fig. 256 – list of reports

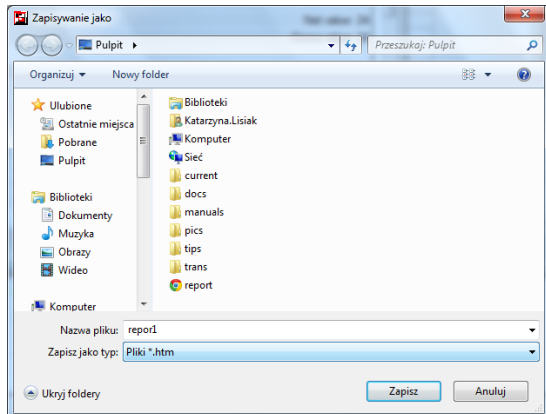



Fig. 257 – selecting the location for the report to be saved

### 4. Price-list – singular and global edition of elements

In the next tab of the **Interior design elements** dialog – **Price-list** (Fig. 258)– the prices of all elements included in databases can be viewed and edited. To view the prices, left-click on a database's folder in the left part of the dialog to select it.

Elements are added to the price-list when they are added to the database. To change one particular element from the price-list, left-click on it to select it and then press the **Edit**  button.

A new window will open (Fig. 259), in which the price, VAT rate, discount and margin can be modified, updated or supplemented. To save the changes click **Add**. To drop the changes click **Cancel**.

Standard additional elements report							
Element summary							
Name	Arrangement	Manufacturer code	Colour	Quantity	Price	Net value	Gross value
<b>Elfa</b>							
Chrome tube 180 cm	Elfa Classic	202518	chrome [chrom]	1	24	24	24
						Net value: 24	
						Gross value: 24	
<b>KOLO_ENG</b>							
urinal	OTHER	K16011	steel [000]	1			
oval sink 60 cm with a hole	ENCORE	K31160_K37100	white [000]	1			
semi-round shower tray	SHOWER TRAYS	XBN0290	white [000]	1			
						Net value: 0.00	
						Gross value: 0.00	
<b>lamps</b>							
lamp10	lamps			7			
						Net value: 0.00	
						Gross value: 0.00	
<b>WUTEH</b>							
Small container KO-10	SMALL CONTAINERS	KO-10	beech-silver []	1	560	560	688.8
Level raiser XN-2	CABINETS INOX	XN-2	beech-silver []	1	545	545	670.35
Chest of drawers AT-4	AUTTICA	AT-4	jasmine-silver M-8582 [1704, M-8582]	1	3970	3970	4883.1
						Net value: 5075	
						Gross value: 6242.25	
<b>ZOBAL</b>							
panel 520x1000 mm	wall panels + aluminium profil		amareno manorial-aluminium [0]	1			
boxes on paper towels L235 mm	Elements associate	032 043 05	aluminium [0]	1			
Angle handle + glass	Elements associate	032 030 05, 032 031	aluminium-bicchiere [0]	1			
double shelf on bottles L200 mm	Elements supplementary	032 047 05, 032 024 05	aluminium [0]	1			
slide L330 mm + haczyk L6 (6szt.)	Elements associate	032 009 05, 032 010 05	aluminium [0]	1			
						Net value: 0.00	
						Gross value: 0.00	
				<b>Quantity: 19</b>			
				<b>Net value: 5099</b>			
				<b>Gross value: 6266,25</b>			

Fig. 257 – standard report of additional elements

Interior design elements

Manufacturers / type

CAD PROJEKT - B5\_INTERIORS

CAD PROJEKT - B5\_VNETRZA\_2009

ELFA DECOR\_ENG

FABRYKA MEBLI WUTEH S.A.

KOLO\_ENG

LAMPS\_ENG

USER DATABASE

ZOBAL\_ENG

ElementsValuationPrice-listManufacturer's detailsUser database

EditEdit globally

Manufacturer	Group	Type	Name	Manufacturer	Price	VAT	Margin	Discount
WUTEH	OTHERS	Beams	Beam BL-1	BL-1	86.00	23	0	0
WUTEH	OTHERS	Beams	Beam BL-2	BL-2	110.00	23	0	0
WUTEH	OTHERS	Beams	Beam BL-3	BL-3	135.00	23	0	0
WUTEH	AVANT	Blendes	Blend AV-2	AV-2	596.00	23	0	0
WUTEH	STEEL BLENC	Blends and div	Blend BB-2	BB-2	165.00	23	0	0
WUTEH	STEEL BLENC	Blends and div	Blend BB-3	BB-3	180.00	23	0	0
WUTEH	STEEL BLENC	Blends and div	Blend BB-4	BB-4	195.00	23	0	0
WUTEH	STEEL BLENC	Blends and div	Blend BB-5	BB-5	195.00	23	0	0
WUTEH	STEEL BLENC	Blends and div	Blend BB-6	BB-6	210.00	23	0	0
WUTEH	STEEL BLENC	Blends and div	Blend BB-7	BB-7	145.00	23	0	0
WUTEH	STEEL BLENC	Blends and div	Blend BB-8	BB-8	160.00	23	0	0
WUTEH	STEEL BLENC	Blends and div	Blend BB-9	BB-9	189.00	23	0	0
WUTEH	PANEL BLENC	Blends and div	Blend BP-2	BP-2	120.00	23	0	0
WUTEH	PANEL BLENC	Blends and div	Blend BP-3	BP-3	130.00	23	0	0
WUTEH	PANEL BLENC	Blends and div	Blend BP-4	BP-4	140.00	23	0	0
WUTEH	QUATTRO	Blendes	Blend QT-8	QT-8	200	23	0	0
WUTEH	OFFICE DESK	Bookshelves	Bookshelf A-35	A-35	260	23	0	0

Insertion type

by the wall

point and angle

Insertion level

0

selected

automatic

Insert

Fig. 258 – Price-list tab in Interior design elements dialog box

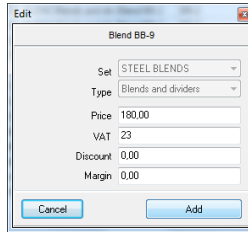



Fig. 259 – singular edition of a selected price-list position

To change the VAT, discount or margin globally, for all elements in the selected set or type in the chosen database, click the **Change globally**  **Edit globally** button and in the newly opened dialog box select the **Set** or the **Type** of elements, for which the changes are to be introduced (Fig. 260). Then enter new value of VAT rate, discount or margin. Confirm the changes by clicking **Add** (Fig. 261). To close the dialog without saving changes, click **Cancel**.

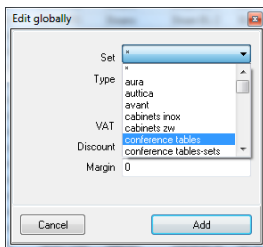


Fig. 260 – global edition – Set selection

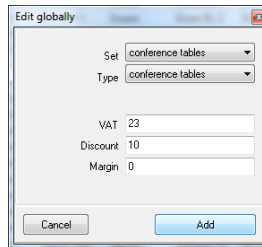



Fig. 261 – global edition – introducing changes

## CHAPTER 22

### Conversion of 3D models

#### 1. Introductory remarks

**Converter 3D** module makes it possible to convert files in many various formats, not used by CAD Decor PRO program, and in a DWG format (used by AutoCAD and read by CAD Decor PRO) to the CAD Projekt K&A's format: DWX. Thanks to this functionality, users of our software have a great freedom of using models created in other applications to create their own unique user database of 3D models. The module is available under the icon  **Converter 3D** in **CAD-Interiors** toolbar. It can be also opened by typing the **konw** command and pressing **<Enter>**.

#### 2. Adding files to the conversion list

First thing to do while working with **Converter 3D** is loading the files for conversion to the list. To do it, click the **Add files** button in the upper left corner of the Converter's window and select the localization of those files on a computer disk (Fig. 262).

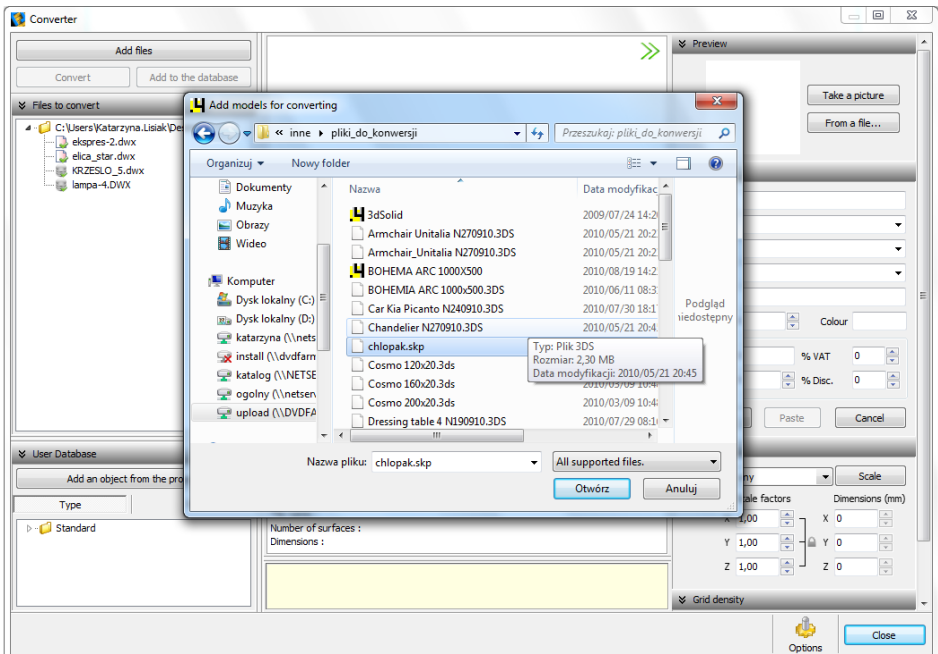


Fig. 262 – adding files to the list for conversion

Converter offers the possibility to convert files in the following formats:

- **DWG** – AutoCAD' file format; already read by CAD Projekt's programs but only in its 3Dface version; now also the 3Dsolid models can be read and converted, under the condition of using IntelliCAD work environment (.4CAD) – the option does not operate in BricsCAD);
- **DXF** – a very popular format created by Autodesk, read by AutoCAD and 3D Studio and other programs;
- **3DS** – a format used by 3D Studio Max and other programs;
- **SKP** – Google Sketch Up's file format;
- **PLY, STL, OBJ, LWO, OFF, DAE** – standard formats used in many 3D computer graphics programs;
- **CTM** – Open CTM's file format.

When the files are loaded to the list they are marked in the way presented on the illustration beside (Fig. 263). The directory tree is located in the left-hand side of the module's dialog and divided in the same directories as those in which the files are saved on the disk. Under the list there is a field in which the content of User Database is displayed.

To manage the list left-click on a selected position in it and when its marked in navy blue – right-click. The context menu will display, in which the following options are available: to clear the entire list, to remove a particular position from the list and to remember the state of the list after restarting the program (Fig. 264).

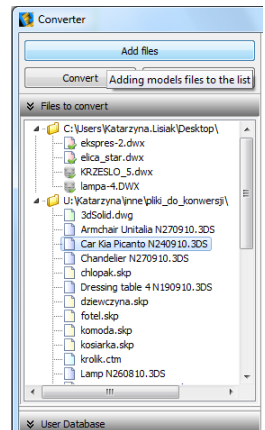


Fig. 263 – a list of files for conversion

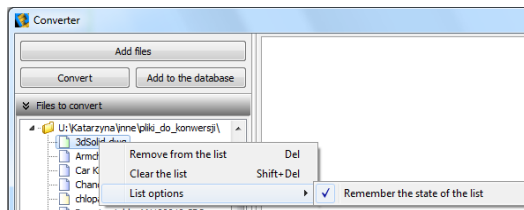


Fig. 264 – a list of files and its options

### 3. The layout and features of Converter 3D dialog box

As it was mentioned before, in the left part of the converter dialog the lists of files are displayed – files for conversion (in the upper part) and files added to the User Database (in the bottom part).


In the central part of the dialog box a visualization of the converted model is displayed. It can be moved and rotated in the same way as standard visualization of the entire project. Three dimension axis (X, Y, Z – 1 m long each) are presented in the visualization, to help estimate the size of the model and possibly decide to scale it.


In the bottom central part the following features are also displayed:

- information about last actions and their effects;
- information about the model currently being converted (its name, number of surfaces of which it consists of and dimensions);
- options of taking (or not) into account transformations of 3DS objects, that occur during the conversion.


*Note! In case of some 3DS files taking the geometry transformations into account helps to obtain better visual effects, but with others it has the opposite results. It is up to a user to decide whether or not the transformation should be taken into account.*

In the right part of the **Converter 3D's** dialog several panes are located:

Pane	Functions
<b>Preview</b>	<ul style="list-style-type: none"> <li>- a photo of a current view of a visualized model may be taken (option <b>Take a picture</b>) or a picture file (e.g. found in the internet) can be downloaded from the disk (option <b>From a file</b>) to serve as a preview, which will be used as model's illustration in the User Database;</li> </ul>
<b>Data</b>	<ul style="list-style-type: none"> <li>- information about the model can be entered here before adding it to the User database or during the edition;</li> <li>- the procedure is described in point 6 of this chapter;</li> </ul>
<b>Scale</b>	<ul style="list-style-type: none"> <li>- parameters of a model's scale can be modified here, if it is required (if the model is too big or too small in relation to reality);</li> <li>- this pane is hidden by default when the <b>Converter</b> is opened for the first time – to open it, click  beside the name of the pane;</li> </ul>
<b>Rotation and mirror image</b>	<ul style="list-style-type: none"> <li>- in here converted model can be rotated in X, Y or Z axis by an indicated angle or a mirror image of the model can be created, based on selected axis;</li> <li>- there are 4 buttons available in this pane: <b>Rotate</b>, <b>Mirror image</b>, <b>Undo</b> and <b>Restore original</b>;</li> <li>- for the <b>Rotate</b> option it is possible to set an angle and select a rotation axis;</li> <li>- for the <b>Mirror image</b> option it is possible to select an angle, which will determine the direction of reflection (changing the angle will not have any influence on it);</li> <li>- the rotation is performed to the right, so if e.g. 90° is selected, the object will rotate to the right by this angle around the selected axis;</li> </ul>


- to easily imagine it, clench your right hand into a fist and direct the thumb up – the thumb represents the axis and other fingers show rotation direction;
- the rotation can be undone – option **Undo rotation** (1 step back) or you can go back to the original position of the model – option **Restore**;
- this pane is closed by default – to open it click the  button;

### Insertion point



- used to establish an insertion point on the model, on the basis of which the insertion of the model to the project will be performed;
- this point will be inserted first to the project when the **Point and angle** method of insertion is used, and it designate the axis of rotation;
- the insertion point locates itself in the project on a defined level (it can be established in the **Data** pane – by default it is 0 mm – the floor level);
- there is 7 available types of points – **the original point of the object**, **upper and bottom corner**, **upper and bottom central** and **upper and bottom edge**;
- **the original point of the object** is a point that has been originally designated for the given model by its drawer (useful if it is untypically located, this is when it cannot be attributed using any of the points described below);
- all other points are located in characteristic points of a hypothetical cuboid outline of the object;
- **corner points** are located in left end points of the sides of the hypothetical rectangle which is a back side of the outline;
- **central points** are points located on the axis of symmetry of the model (looking from above or from beneath) this is in the intersection of the diagonals of the rectangle being the 'base' or the 'top' of the model outline;
- **edge points** are located exactly in the middle of the side of the rectangle, which is a back side of the hypothetical outline;
- examples: **bottom corner**: rectangle bathtubs, bottom cabinets; **upper corner**: upper cabinets; **bottom central**: table lamps, human figures; **upper central**: ceiling lamps; **bottom edge**: sofas, standard toilets and bidets; **upper edge**: washbasins, mirrors, suspended toilets and bidets;
- the **Insertion point** pane is by default closed when the **Converter** is run for the first time – to open it, click  beside its name;
- if the converted model (or a model which is being added to the User Database) has wrong insertion point (located far away from the object), the program will inform about this and suggest to change this parameter;

### Grid density

- in this pane model's grid (mesh) can be minimized, which is recommended for objects with too many faces;
- the limit number of surfaces is 100 000 – when it is exceeded a message will be displayed in the bottom central part of the dialog, informing that the minimization of the grid is recommended;
- it is suggested to minimize the grid of converted models as much as possible until it starts to negatively influence their appearance, because the biggest is the number of surfaces in the project, the slower is the program operation;
- the grid can be minimized up to 70% at once;
- the operation results in reducing the number of faces of which the model consists;

- the minimization can be performed many times;
- to undo introduced changes click the **Restore** button – the model will be restored to the original form;
- the pane is hidden by default – to open it, click  beside the name of the pane;
- the slider of the **Grid density** minimization becomes active after the conversion of the model;

All panes described above can be freely hidden or opened (examples presented on the illustration on the next page – Fig. 265).

When the module is run for the first time only two panes (**Preview** and **Data**) are open. To open another pane, click  beside its name. To hide a pane, click the same button (it will look this way this time: ).

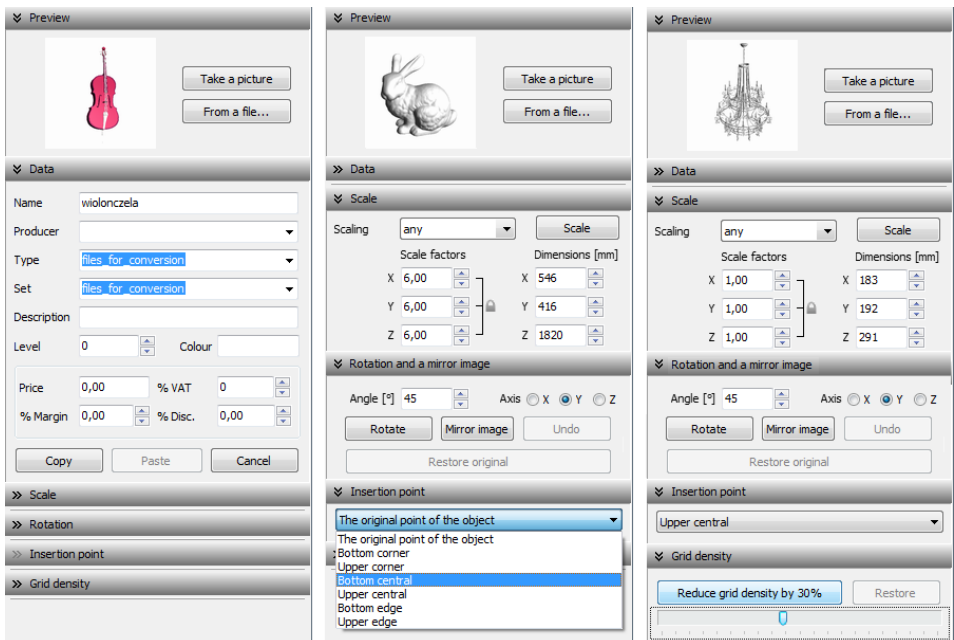


Fig. 265 – various configurations of panes in right side of Converter's dialog (the default view presented on the left)

It is possible to close the whole right-hand part of the **Converter's** dialog to gain more space for visualization of the model. All parts of the dialog can be freely moved and adjusted, accordingly to current user's needs. (Fig. 266 and 267).



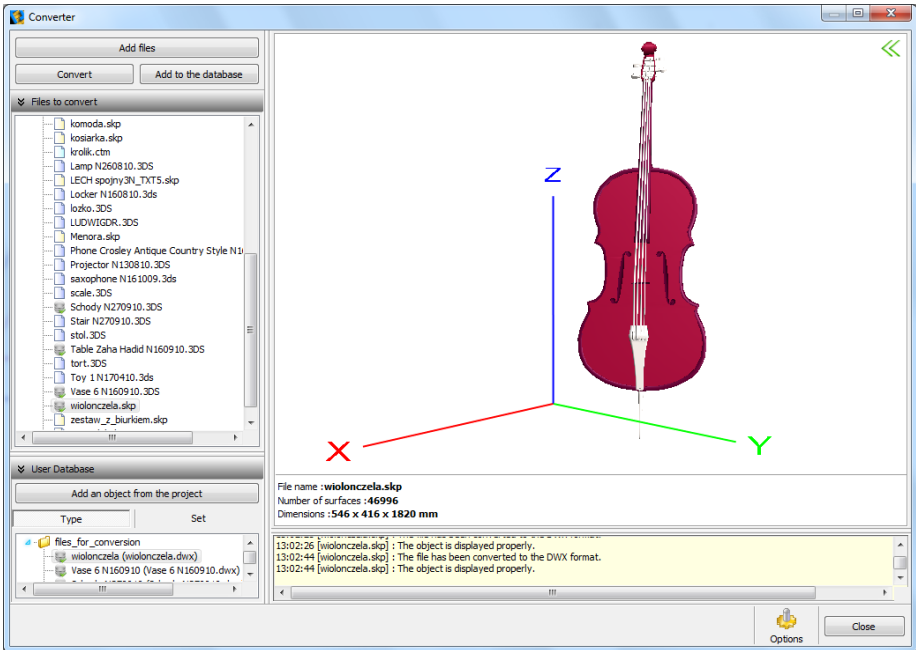


Fig. 266 – right part of the dialog is closed, and the list of files added to the User Database is hidden

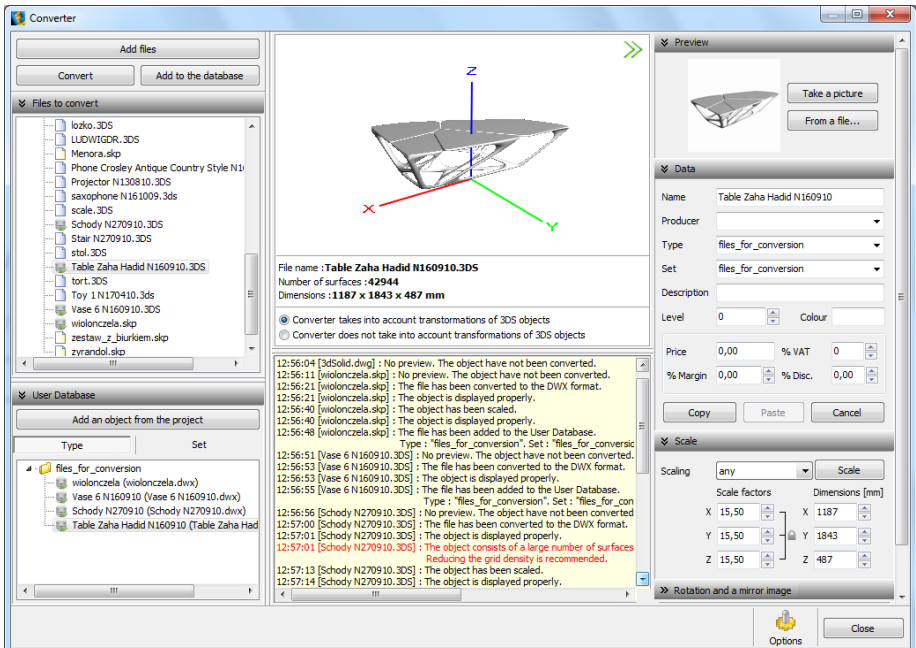
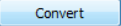



Fig. 267 – right part of the dialog is open and the part with information about undertaken actions is expanded

## 4. Conversion of 3D models

During the conversion reading of model's geometry is performed. There are 2 procedures of conversion available.

Firstly, files can be added to the list for conversion and then converted in any order by left-clicking on a selected file and then clicking the **Convert**  button.

Secondly, an automatic conversion of each added model can be set up (it will be converted straight after loading to the list).

This function is available at the **Options**  button in a bottom right corner of the dialog box, which opens another dialog box, presented below (Fig. 268).

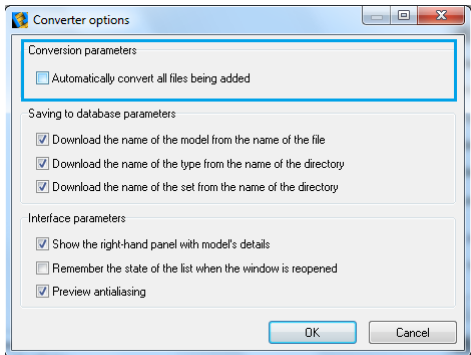


Fig. 268 – additional converter's options

During the conversion in the bottom of the dialog progress bars are displayed for each conducted operation (Fig. 269).

After the conversion is successfully completed in the central part of the dialog the visualization of the converted model will be displayed, and below there will be information given: **time: [file's name]: The file has been converted to the DWX format** and **time: [file's name]: The object is displayed properly** (Fig. 270).

### Note!

*When you try to convert the file you may see this message: 'The \_INSERT command for the <file name> file could not be properly realized. Change the name of the file, so it is different from the name of the block, which is saved in it', then you should modify the name of the file, because it is most likely identical with the name of the block, saved in this file, and this makes it impossible for the program to correctly realize the \_INSERT command nad conversion.*

*You can check the name of the block. To do so, open the problematic DWG file, using the ICOPEN command. Then select the block, type the LIST command and confirm with <Enter>. In the newly opened dialog box, among other information about the block, you will see its name.*

*There are other possible reasons for the failure of the \_INSERT command, and they will be all listed in the communicate.*

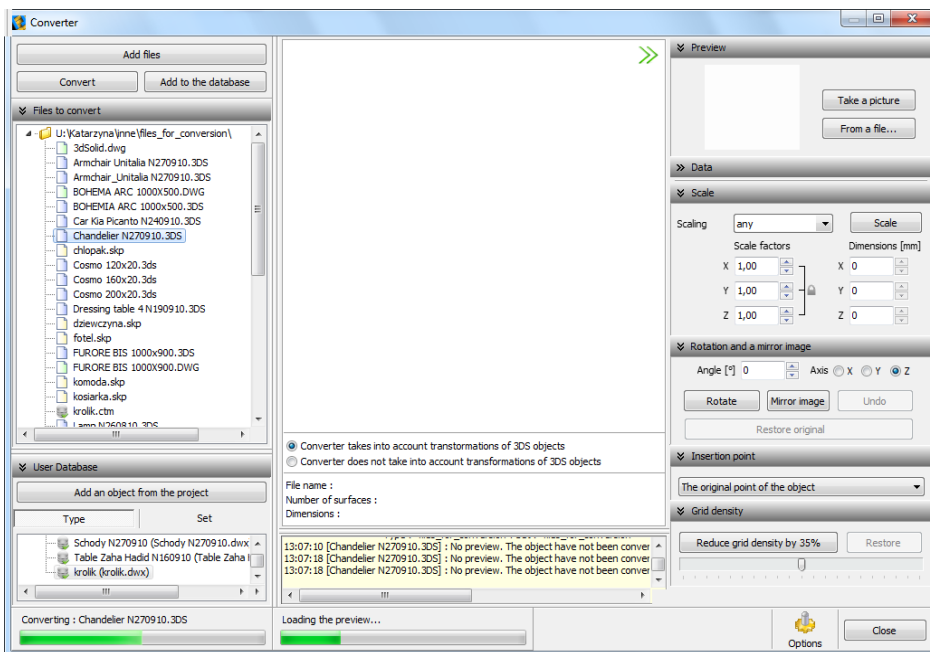


Fig. 269 – conversion in progress

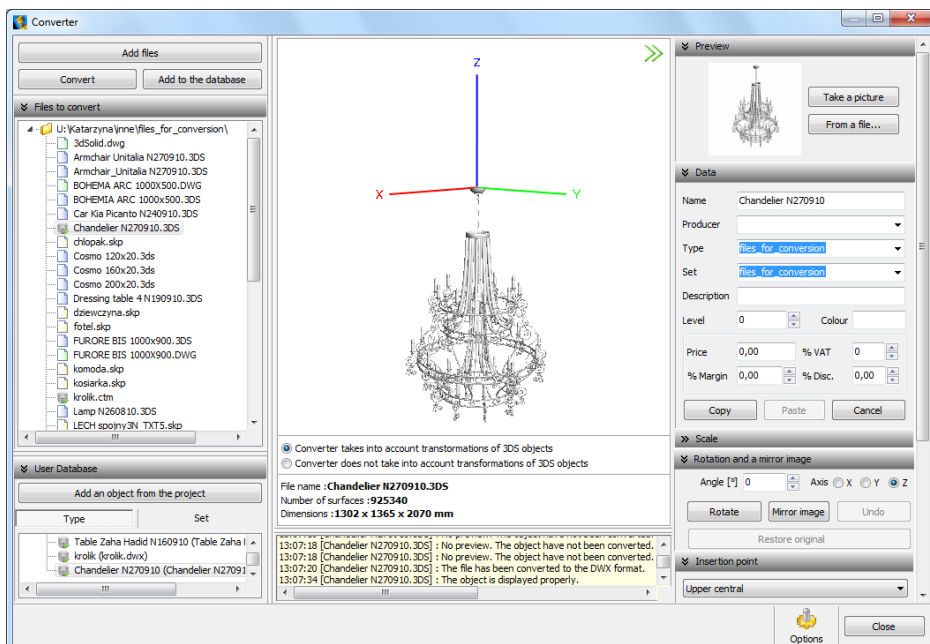


Fig. 270 – an example converted model

In case of some files an information about recommended scaling or minimizing the object's grid may display (Fig. 271). This will happen if the converted object has been recognized by the program as too big or too small or if it consists of too many surfaces.

If the model with a very big number of surfaces is used in the project, it significantly slows down program operation because time-consuming calculations of all those surfaces are necessary.

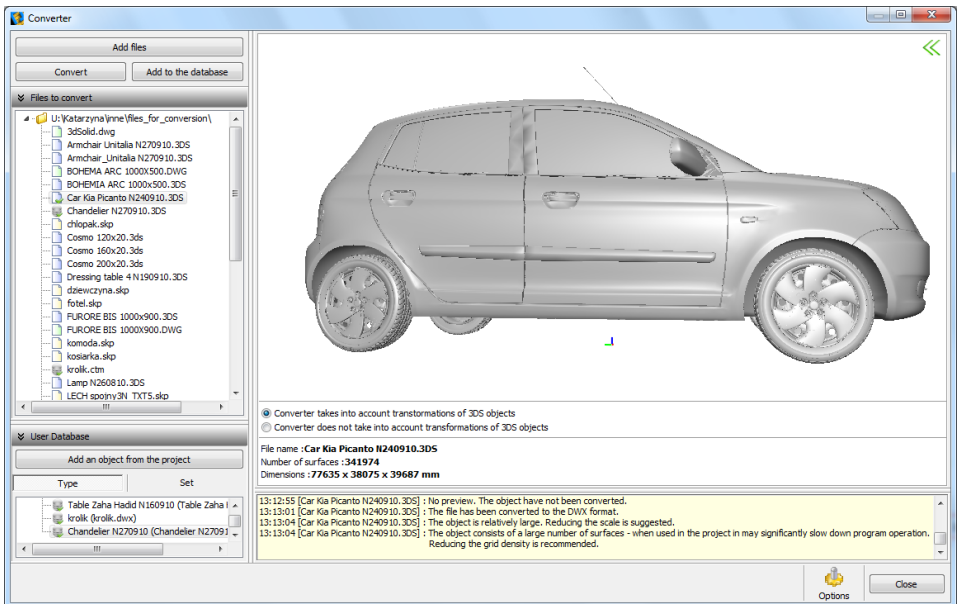




Fig. 271 – recommended scaling and grid minimization

Beside the file that has been successfully converted, this symbol:  appears on the list of files for conversion. The visualization of the model can be saved as a preview of the object and use as illustration of this model in the database (option **Take a picture** in the upper right corner). The axis of dimensions will not be visible on the picture.

As a preview in the database also any JPG or BMP file can be used, e.g. downloaded from the Internet together with the 3D file for conversion. In this case use the option **From a file** .

During the conversion reading of object's geometry is performed. If information about different colours is saved in this geometry, the program will recognize these differences and divide the converted model to a few layers, accordingly to those original colours.

Various layers can be attributed with various textures and properties in visualization (after inserting the object to the project – the procedure described in the next chapter). And so the object in visualization can have e.g. wooden, metal and glass parts, if the original model had been properly drawn.

## 5. Scaling converted models

Converted models can be freely scaled, accordingly to user's needs. If no scale is selected, the program will perform default scaling.

The scale can be defined before the conversion or after it, if the size of the model is inappropriate, this is: too big or too small in relation to reality. The user will be informed about this is a communicate displayed in the bottom central part of the dialog (Fig. 272). Model's dimensions are given below the list of available scales and below the visualization of the model.

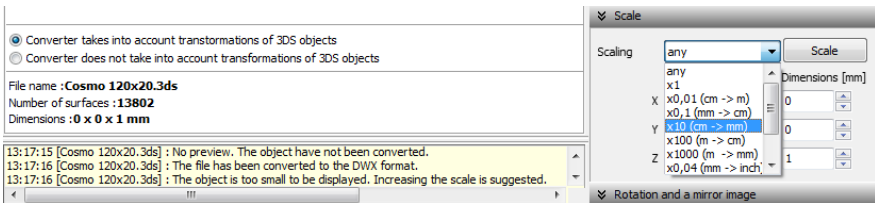



Fig. 272 – a communicate about a necessary scaling and selection of the scale

By default all dimensions are changed simultaneously and proportionally (Fig. 273). To change dimensions independently from each other (this is: establish the values of X, Y and Z separately), select **any** on the list of available scales, and then click on the **locker**  (option **Keep aspect ratio**) beside the **Scale factors**.

Illustrations present the mode of keeping proportions and not taking the proportions into account (Fig. 273 and 274). To perform scaling, click the **Scale** button.

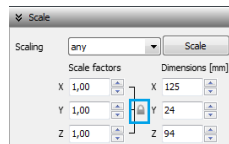


Fig. 273 – Scale pane – keeping during scaling turned off

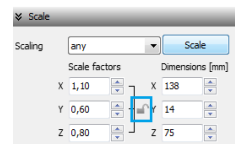


Fig. 274 – keeping proportions proportions turned on

If the user sets new aspect ratio for a model but then clicks on another model on the list of files for conversion without clicking the **Scale** button, program will ask if the previous model (for which the ratio has been changed) should be scaled, to prevent the user from forgetting to do it (Fig. 275).

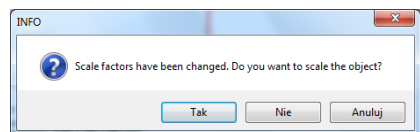
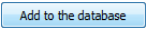





Fig. 275 – a request for confirmation if the model should be scaled

## 6. Adding converted models to the User Database

After performing the conversion the models can be quickly and easily added to the user's own database by clicking the button **Add to the database**  in an upper left corner of the **Converter's** dialog box.

Added models are available to use them in the current project straight away. Beside the position of the file added to the database on the list a new symbol displays: , and at the same time a new position is added on the list of the models saved in the database in the bottom left corner.

While adding a model to the User Database enter the information about the model in the **Data** pane in the right part of the **Converter's** dialog:

- **models name** – may be copied from the name of the file which has been converted (this option is active by default - to disable this function click the **Options**  button and deselect the position **Download the name of the model from the name of the file**);
- you can enter your own name for the model as well as change the name during the edition of the element;
- in the **producer** field the name of the company from which offer the model comes from can be entered;
- in the **Type** and **Set** fields the name of the directory in which the file has been located on the disk is displayed by default (option is active by default - to disable this function click the **Options**  button and deselect positions **Download the name of the type from the name of the directory** and **Download the name of the set from the name of the directory**);
- you can also enter your own names of the type and set of the element;
- each new position entered in fields **Producer**, **Type** or **Set** is added to the drop-down list and can be selected from this list in the future instead of being entered again (Fig. 276);
- if the type and the set are not defined, the program automatically creates a directory called **Standard** in the database, to which all models without specified set or type will be added;
- a short characteristic of the product can be added – up to 70 signs – in the field **Description**;
- for some models it is recommended to set the insertion level (e.g. mirrors, washbasins, suspended toilets, ceiling lamps etc.);
- the default insertion level is 0 mm (a level of a standard floor in the project);

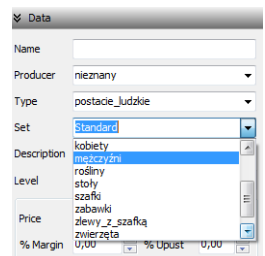


Fig. 276 – drop-down list of sets

- available colours for the model can be also given – in the field **Colour**; the designation entered here has no real influence on the colour of the object but is added as an information in the summary of used elements stating in which colours the model can be purchased;
- a model saved in the User Database can be attributed a palette compatible with the designed colour – the procedure is described in Chapter 23 (page 166).

If the user wants to supplement some data later on, it will be possible after editing the model saved in the User Database. The **Converter's** dialog will open and it will be possible to enter new information or change the entries in the **Data** pane.

To actualize the information, click in some other field in this pane than the one you modified. It will result in modification visible on the list in User Database field in bottom left corner of the module's dialog (e.g. after adding a new type a new directory will appear on the list, and if the name of the model has been changed – the new name should be displayed on the list). Closing the Converter's dialog after entering modifications will also update the data in the base.

## 7. Removing objects from the User Database in Converter 3D module

To remove a single object from the **User Database** from the Converter's level, click on the chosen position on the list first with the left, and then right mouse button and select the position **Remove from the database** in the expanded menu (or press **<Delete>**).

To remove a few objects at the same time, press **<Ctrl>** or **<Shift>** and then left click on all chosen positions on the list to select them, then right-click to open a context menu and select the position **Remove from the database** in it (or press **<Delete>**).

To remove all objects from the database right-click in any position on the list and select the option **Clear the User Database** (or press **<Shift + Del>**).

In each case selected objects will be removed from the database. After selecting the **Clear the User Database** option the user will have to confirm that all the elements really should be deleted (Fig. 277).

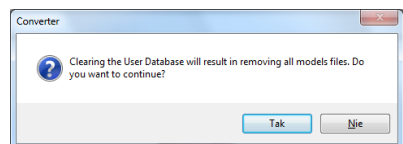


Fig. 277 – a request for confirmation that the database should be cleared

## 8. Importing and exporting the User Database in Converter 3D module

The User Database can be exported or imported as a whole from the converter window. To do it, right-click in the User Database list and select one of the following options: **Export database** or **Import database** (available also under keys **<Ctrl+I>** and **<Ctrl+E>**) (Fig. 278).

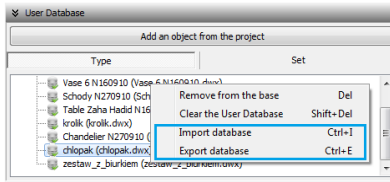


Fig. 278 – options of export and import of a User Database

After selecting the **Export database** option a dialog called **Saving as** will open, in which the location for the packed copy of the database should be defined. By default the program will use the following location to save the exported database: **c:\CadProjekt\CadKitchens v. 6.0.0\dodatk\B\_USER\EXPORT\b\_user**, but it may be changed to any other location (Fig. 279).

After selecting the Import database option a dialog called **Opening** will open, in which the location of a packed copy of the User Database should be indicated and the **Open** button should be clicked (Fig. 280).

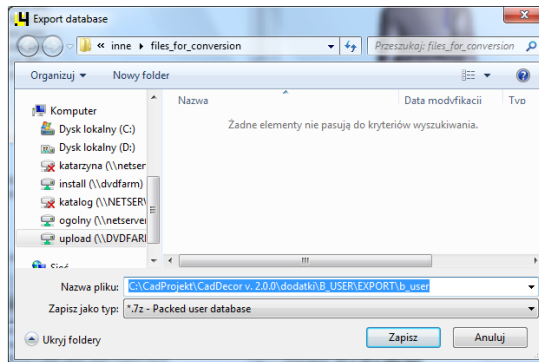


Fig. 279 – exporting a User Database

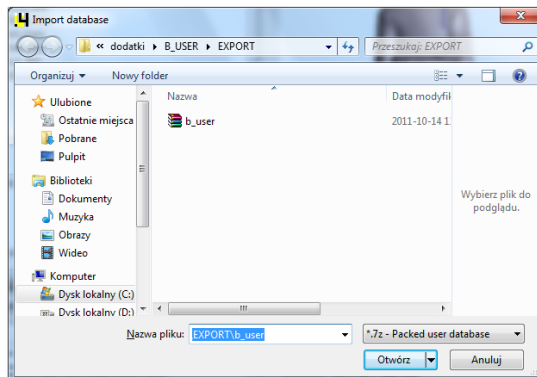


Fig. 280 – importing a User Database



Elements already existing in the **User Database**, different then the ones from the imported database, will remain unchanged. If the file of the same name as an existing one is detected, the program will ask what to do with it – whether it should be overwritten on the existing file or omitted (Fig. 281).

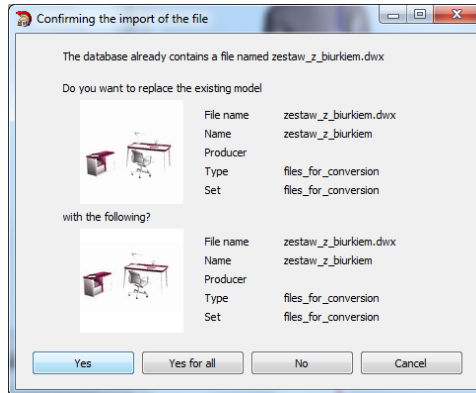



Fig. 281 – confirming an import of a file with a name identical with the one already existing in the database

Options of import and export of the **User Database** of 3D models are available also in the **Interior design elements** dialog box, available under the icon  (Fig. 282). The procedure is analogical to the one described above.

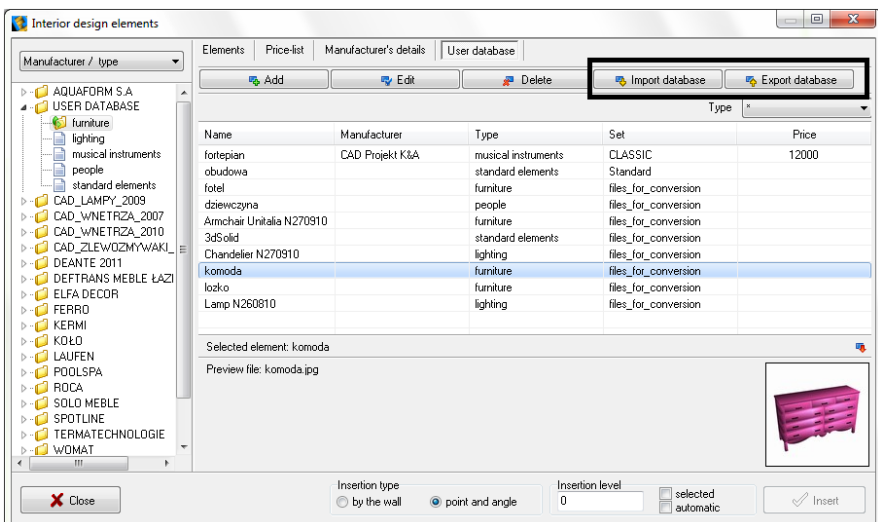


Fig. 282 – Import database and Export database in Interior design elements dialog box

## CHAPTER 23



### The User Database of 3D models

#### 1. Introductory remarks

In CAD Decor PRO it is possible to create user's own personal database of various elements, which can be edited. **User Database** is closely related to the **Converter 3D** module, described in the previous chapter of this manual. The access to the **User Database** can be gained in the **Interior design elements** or in the **Converter 3D** dialog box. Models that are being added to the database have to be saved in DXW format, which is an original CAD Projekt K&A's file format.

#### 2. Creating a User Database

To gain the access to a **User Database** follow one of the procedures below:



- click the icon **Interior Design Elements**  located on **CAD-Interiors** icon bar;
- click the icon **Converter 3D**  located on the same icon bar.

In the first case functions of adding, editing and deleting elements from the database, as well as options of importing and exporting the whole base, are available in the **User Database** tab (Fig. 283 on the next page). After clicking the **Add** button, the **Converter's** dialog will open. If the list of files for conversion is empty (when the program is run for the first time or when run without an active option of remembering the list), the dialog called **Add models for conversion** is automatically opened to enable selection of files which are to be converted or simply added to the database (Fig. 284 on page 170).

In the second case the current content of the database is displayed in the **User Database** field in the lower left corner of the **Converter's** dialog box.

*Note! Not all files that are being added to the User Database have to be converted – this refers to models downloaded from our website, which are saved in DWX format, and inserts – this is blocks used in the project, which can also be added to the database.*

To add a file in a format different than DWX:

- run the module **Converter 3D** (icon  or the **Add** button  in the **User Database** tab in the **Interior design elements** dialog box);
- if the list of models for conversion is empty, the dialog **Add models for conversion** will open (if not, click the button **Add files**);

- select a file (or any number of files) in a format subject to conversion (DXF, 3DS, DWG 3dFace and 3dSolid, SKP, DAE, STL, PLY, OBJ, LWO, OFF, CTM) and click **Open**;
- selected files will be downloaded to the **Files for conversion** list, displayed in the left part of the **Converter's** dialog;
- before saving a file in the **User Database** it should be converted;
- if necessary also scaling and or minimization of the grid should be performed;
- these procedures have been described in **Chapter 22** (page 152);
- after conversion and possible modifications of the model, it is recommended to fill up the information in the **Data** pane in the right part of the **Converter's** dialog (name, type, set, description, insertion level, colour, price, margin, Vat and price) and then click the button **Add to the database**;
- information can be also entered or modified later, while editing an element from the database;
- the object added to the base it available to be used in the project straight away – to do it, close the **Converter**, open the Interior design elements dialog (**Elements** tab), select **User Database** on the list of libraries in the left part of the dialog box, then select the model you want to use and click Insert (procedure of inserting objects in the project has been described in **Chapter 20** on page 146);

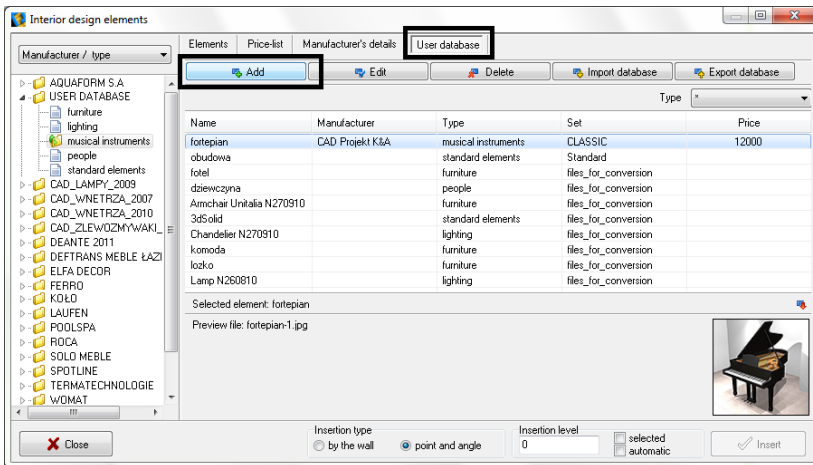


Fig. 283 – Interior design elements dialog, User Database tab

To add a file in a DWX format, downloaded from the **Bank of 3D models** on our website: [http://www.cadprojekt.com.pl/strefa\\_projektantow/bank\\_modeli\\_3d.html](http://www.cadprojekt.com.pl/strefa_projektantow/bank_modeli_3d.html)

- download the file and save it in a convenient location on the computer disk;
- run the **Converter 3D** module and click the **Add files** button;
- in the **Add models for conversion** window select the DWX file;
- when the file appears on the list, complete its data and click **Add to the database**;
- the model is saved in the **User Database** and can be used in a project straight away.

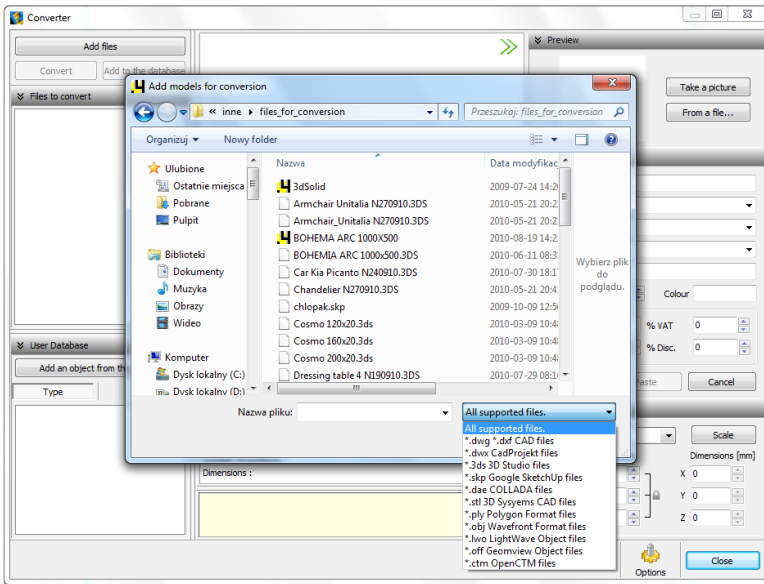


Fig. 284 – Converter 3D and a dialog of selecting files for conversion

To add an object from the project (e.g. modified model from a producer database, such as bathtub with removed battery):

- run **Converter 3D** module and click the **Add to the database** button;
- the **Converter's** dialog will close to make it possible for the user to select an object in the project, that is to be saved in the **User Database**;
- it can be any 3-dimensional object, also a self-created element, generated post or arc wall, as well as any model from producer or universal database;
- selected object will be added to the base with the same name, as is the name of the original object;
- the name and other data can be changed or completed – they will be immediately updated;
- to insert a model to a project, close **Converter**, go to **Interior design elements** dialog (**Elements** tab), click on the **User Database** position on the list of bases, select a type or set and finally – indicate the model and click **Insert** (Fig. 285).

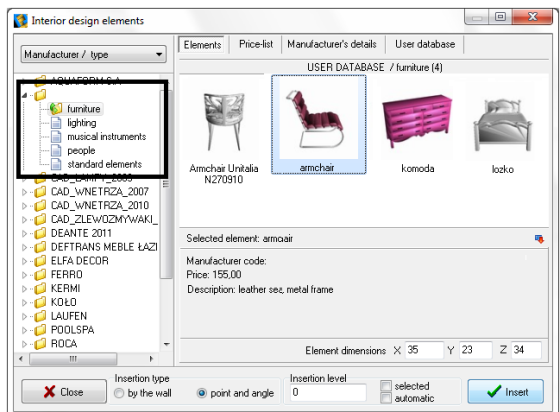



Fig. 285 – example models saved in the User Database

### 3. Editing and removing elements from a User Database

All elements saved in the **User Database** can be edited, e.g. to complete or change their data. After clicking the **Edit**  button the Converter's window will open. In its right part the modification of data can be performed (name, producer, the directories of type and set to which the model belongs, description, price etc.), as well as scaling the object and minimizing the grid of faces of which it consists. Introduced changes are saved immediately.

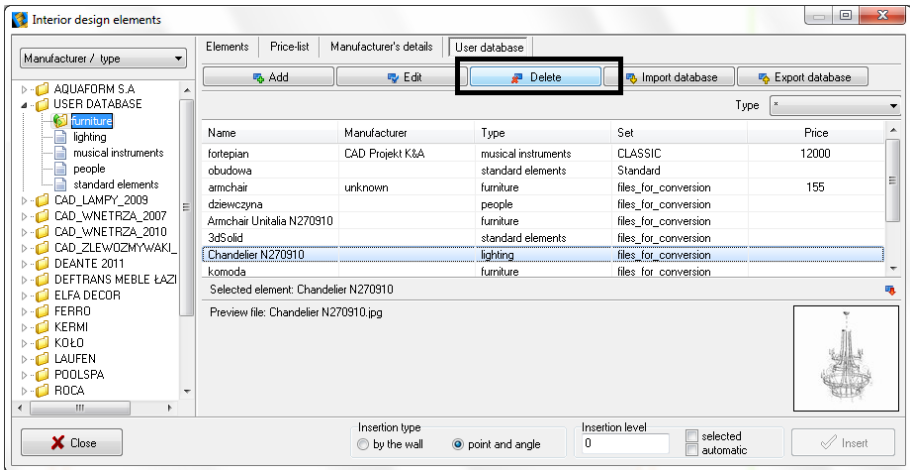



Fig. 286 – deleting a model from the User Database

Selected elements can be also removed from the database – by left-clicking on them and then selecting the **Delete**  button (Fig. 286). The program will request a confirmation that the object should be deleted (Fig. 287).

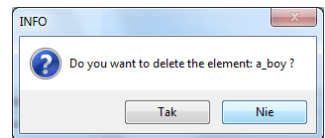




Fig. 287 – request for confirmation that the element is to be deleted




### 4. Import and export of a User Database in the Interior design... dialog

The database of models can be imported or exported by using the buttons **Import database**  or **Export database**  in the **Interior design elements** dialog. During exporting the content of the database is copied and packed (to a 7z format) and saved to a selected location.

During importing this procedure is reversed – the user has to select the location of the packed base and click **Open** – the individual files saved in the imported database will be unpacked and saved to the **User Database**. If the program detects a file of the same name as the model already existing in the base, the user will be asked what to do with such file – whether it should be overwritten or omitted. A detailed description of these procedures can be found in **Chapter 22**.

## 5. Defining colours and properties – attributing palette to the object

To attribute a palette to an object from the **User Database** of 3D models (as a result it will have the same colours and properties in visualization each time it is used in the project), follow the procedure described below:

- insert a selected object to the project using any method described in **Chapter 20**;
- go to visualization ([F12] or icon );
- using the 'drag-and-drop' method apply textures and colours to the object, using materials provided with the program or your own, available in **Materials** tab;
- attribute various layers of the object with appropriate properties, e.g. emission (glow effect), gloss, transparency (glass effect) or reflections (metal or mirror effect);
- to do so, double click on the selected object with a left mouse button and then click the right button to develop a context menu, in which select the **Properties** position (Fig. 288);
- in a new dialog box define the properties of the object accordingly to your needs and preferences (Fig. 289);
- to check the result click  or [F1] to turn on the lights (all attributed properties will then become visible);
- after setting all properties save the palette by clicking the **Save the palette**  button in the right bottom corner of the **Material properties** dialog;
- the object with a palette saved this way will look exactly the same each time it is inserted in the project.

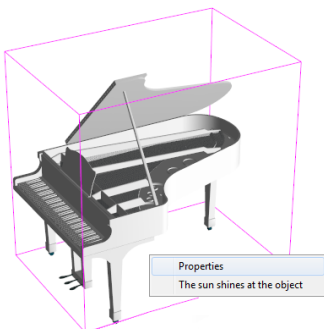


Fig. 288 – an object without textures in visualization – invoked context menu

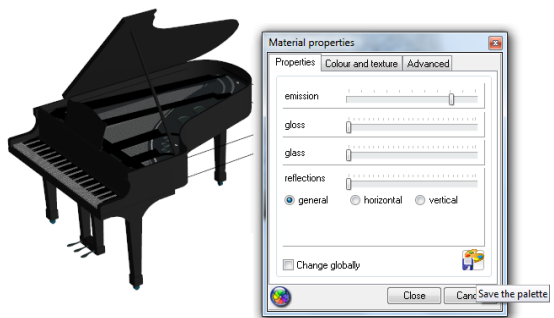


Fig. 289 - object with attributed textures, defining the properties and saving the palette

## 6. Scaling objects

Models used in the project sometimes are slightly too small or too big, so the program offers the possibility to quickly scale them in axes X, Y and Z (all of them or only selected ones);

To scale the object in the project follow the procedure presented below:

- in the work environment mode click on the object – first with the left, and then right mouse button;
- select the **Properties** position from the context menu;
- in newly open dialog **Entity Properties** in the **Insert** tab and in the **Scale factor** field change the values of axes – X, Y or Z;
- confirm the changes by clicking **Ok** (Fig. 290);
- the scale can be changed independently in each of 3 dimension axes (as a result the object will change its size in particular dimensions – e.g. it will get taller but no wider or longer if only the value for Z axis is increased);
- entering decimal values use dots - .4CAD does not recognize commas!
- in this dialog also the insertion point location can be changed – in the **Insertion point** field;

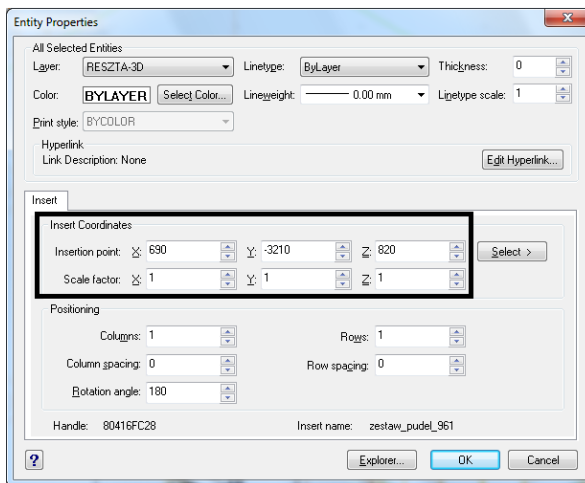


Fig. 290 – Entity properties dialog box

- an example of the object scaled in one axis only (Z) is presented on the illustration below (Fig. 291).

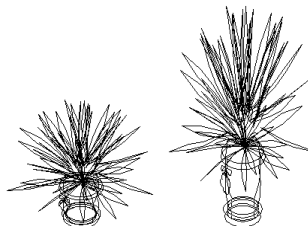


Fig. 291 – an example object in 1:1 and scaled

## CHAPTER 24

### Valuation of the project

#### 1. Introductory remarks

The kitchen equipment **Valuation** module enables you to do the following:

- to generate complex valuation and summary of kitchen furniture and accessories (cabinets, wash-basins, worktops, skirting boards etc.) used in the current design;
- to add your own or customer's elements and descriptions;
- to obtain a summary of dimensions of objects in the project,
- to obtain project's valuation with net and gross prices with discounts and margins,
- to save the project's valuation as the XLS or CSV file,
- to print the valuation report together with producer's logo.

#### 2. Valuation window

To open the module, click the **Valuation**  icon on the CAD-Kitchens bar (Fig. 292).

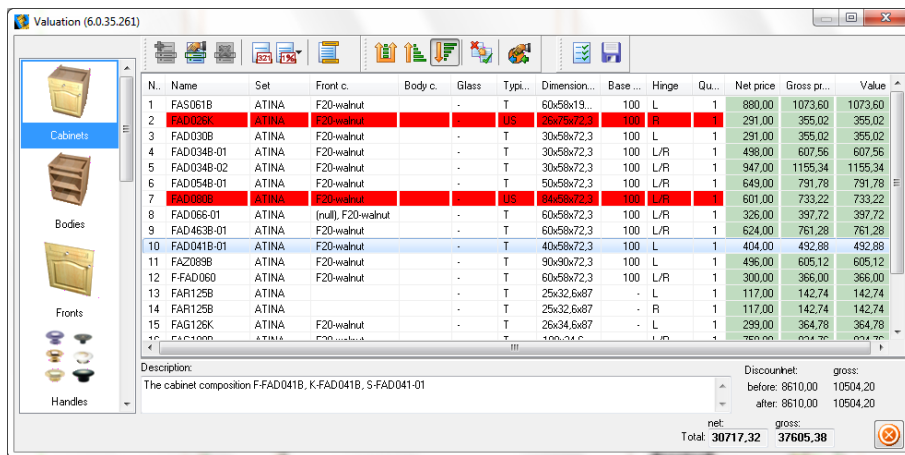


Fig. 292 – Valuation window

#### 2.1. Navigating in the Valuation module














Left part of the window is designed for selection of valued elements: click the name of a particular group (e.g. cabinets, handles, worktops) to see their valuation summary. The main part of the window contains a list of elements used in the current project. When a particular element is selected, it is possible to add its description in the field at the bottom of the window (Fig. 293). In the right bottom corner you will see net and gross price of the currently viewed group of elements and of the entire project.



Description: The cabinet composition K-FAD066B; F-FAD066B; S-FAD061-01		Discountnet: gross: before: 8610,00 10504,20 after: 8610,00 10504,20	
net: Total: 30717,32		gross: 37605,38	

Fig. 293 – description edition field

## 2.2. Icons of the Valuation window

Icon	Function
 <b>Add element</b>	- use it to add a new element (from the pricelist) to the appraisal — adding elements is optional, depending on the manufacturer's database in use;
 <b>Modify element</b>	- takes you to the cabinet edit window or pricelist editor, where you can modify elements or their working;
 <b>Delete element</b>	- deletes the selected element from the design valuation;
 <b>Modification of the price of an element</b>	- enables element price modification for the current design only; - available also under the <b>[F2]</b> key;
 <b>Modification of the discount for the customer</b>	- enables modification of the discount for a particular element in the current price; - available also under the <b>[F3]</b> key;
 <b>Element grouping</b>	- enables grouping of elements of one type; - available also under the <b>&lt;Ctrl+G&gt;</b> command;
 <b>Show database prices</b>	- displays prices stored in the manufacturer's database
 <b>Show studio prices</b>	- displays database prices including discounts;
 <b>Show customer prices</b>	- displays database prices including margins and discounts;
 <b>Show prices without VAT</b>	- displays prices without tax (net prices);
 <b>Currency exchange rate</b>	- enables entering new currencies in which the design will be priced;
 <b>Prints a summary report</b>	- the button makes it possible to print a report - available also under the <b>&lt;CTRL+P&gt;</b> command;
 <b>Save XLS report</b>	- the button makes it possible to save the valuation report as the XLS file (Microsoft Excel spreadsheet) or as CVS format (supported by the majority of spreadsheet and database programs).

## 3. Valuation of particular elements – cabinets valuation

The prices of cabinets in manufacturers' databases have been entered in the price-list

(Fig. 294). Cabinets marked in red colour are untypical – in regards to colour (designated by UC) and size (designated by US).

N.	Name	Set	Front c.	Body c.	Glass	Typ.	Dimension...	Base...	Hinge	Qu.	Net price	Gross price	Value
5	FAD034B-02	ATINA	F20-walnut		-	T	30x58x72.3	100	L/R	1	947.00	1155.34	1155.34
6	FAD054B-01	ATINA	F20-walnut		-	T	50x58x72.3	100	L/R	1	649.00	791.78	791.78
7	FAD080B	ATINA	F20-walnut		-	US	84x58x72.3	100	L/R	1	601.00	733.22	733.22
8	FAD066-01	ATINA	(null) F20-walnut		-	T	60x58x72.3	100	L/R	1	326.00	397.72	397.72
9	FAD463B-01	ATINA	F20-walnut		-	T	60x58x72.3	100	L/R	1	624.00	761.28	761.28
10	FAD041B-01	ATINA	F20-walnut		-	T	40x58x72.3	100	L	1	404.00	492.88	492.88
11	FAD089B	ATINA	F20-walnut		-	T	90x90x72.3	100	L	1	496.00	605.12	605.12
12	F-FAD060	ATINA	F20-walnut		-	T	60x58x72.3	100	L/R	1	300.00	366.00	366.00
13	FAR125B	ATINA			-	T	25x32,6x67		L	1	117.00	142.74	142.74
14	FAR125B	ATINA			-	T	25x32,6x67		R	1	117.00	142.74	142.74
15	FAG126K	ATINA	F20-walnut		-	T	26x34,6x67		L	1	299.00	364.78	364.78
16	FAG100B	ATINA	F20-walnut		-	T	100x34,6...		L/R	1	758.00	924.76	924.76
17	FAG160B	ATINA	F20-walnut		-	T	60x34,6x67		L	1	546.00	666.12	666.12
18	FAG230B	ATINA	F20-walnut		-	T	30x34,6x...		L	1	233.00	284.26	284.26
19	FAG230B	ATINA	F20-walnut		-	US	34x34,6x...		L	1	233.00	284.26	284.26

Description:  
The cabinet composition F-FAD034B, K-FAD034B, S-FAD034-01

Discount net: gross:  
before: 8610.00 10504.20  
after: 8610.00 10504.20

net: gross:  
Total: 30717.32 37695.38

Fig. 294 – valuation of kitchen cabinets

### 3.1. Editing cabinets in the Valuation module

When editing cabinets you can use the active valuation icons:

- **Modification of the price of an element** – icon (Fig. 295)
- **Modification of the discount for the customer** – icon (Fig. 296)
- **Modify element** – icon (Fig. 297)

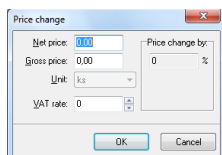


Fig. 295 – changing a cabinets price

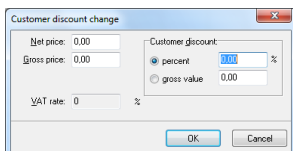


Fig. 296 – changing a discount

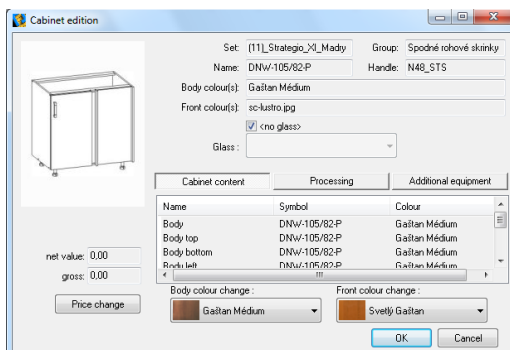



Fig. 297 – editing a cabinet

### 3.2. Functions of the Cabinet Edition window

- **Price change** – changes the price of the cabinet in the current valuation,
- **Change body or front colour** – available in the **Cabinet content** tab (Fig. 298);
- **Cabinet content** – in this field all components of the cabinet are listed (Fig. 299).

- **Processing** – the second tab of the **Cabinet edition** window – in here you can: add components or their processing;
- **Additional equipment** – in this tab there is an icon  **Add equipment**, which enables you to select elements to be added from the price-list.

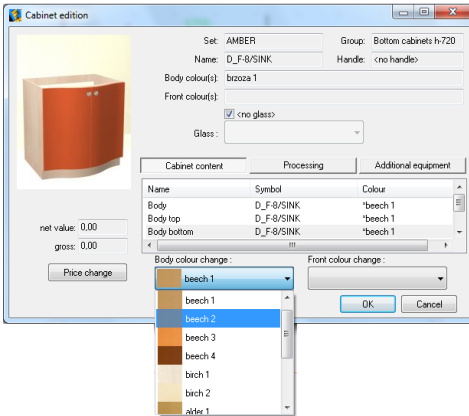







Fig. 298 (on the left) – changing front colouring

Fig. 299 (below) – a list of cabinets components in the Cabinet content field

Cabinet content		
Name	Symbol	Colour
Front		F20-walnut
Front		F20-walnut
2xFU1	FU1	

### 3.3. Content of the Processing dialog box

- **Add item processing**  – adds a new processing item (Fig. 300);
- **Change element items**  – enables edition of existing processing items;
- **Delete selected items**  – deletes processing item from the valuation,
- **Move selected items up/down**  – moves items up or down on the list;

**Save to the database as default for this element**  – the processing item will always be added to this particular edited element in each design.

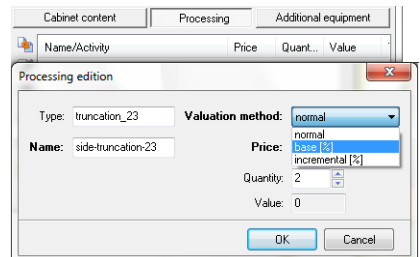



Fig. 300 – adding a processing item to the valuation

### 3.4. Contents of the Additional equipment dialog

**Additional equipment** – adds additional elements to the cabinet (cuts, size changes etc.) from the database. Just as in the case of the **Working** tab elements of equipment can also be added, modified, deleted and added as default.

## 4. Valuation of particular elements – worktops valuation

In some kitchen furniture databases, worktops are elements which you need to valueate on your own (the price boxes in the **Worktops** tab are empty) (Fig. 301). To do so:

- double-click the worktop to be priced,
- you are taken to the price-list of worktops (Fig. 302) (available also under the icon  after selecting a position on the list of worktops);

- find the desired item in the pricelist and press **OK**;
- then go to the worktop processing window in which you can:
  - modify worktop's parameters;
  - choose another element from the pricelist (**Open price list** button);
  - add worktop's equipment and processing;
  - change the price of the worktop.

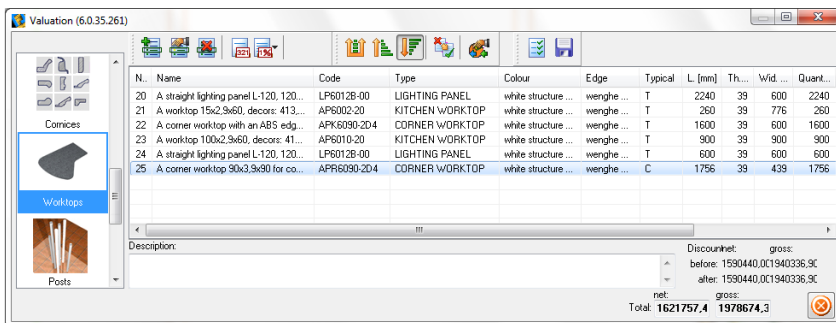


Fig. 301 – worktop valuation – database without an automatic valuation

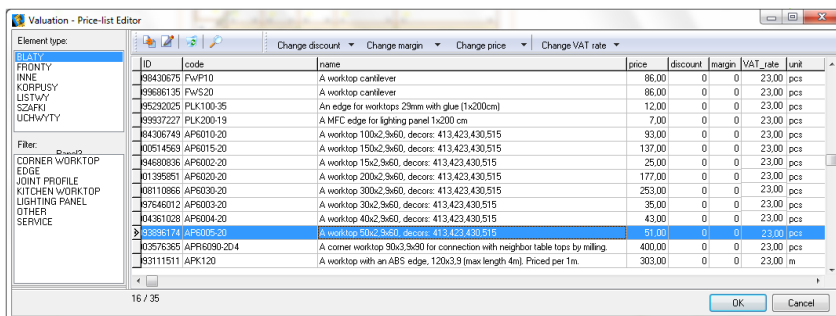


Fig. 302 – price-list editor

## 5. Valuation of particular elements – appliances and other

Elements in these tabs basically have default manufacturer prices, which also can be changed using the same method as in other groups. It is possible to introduce your discounts for the customer as well (Fig. 303).

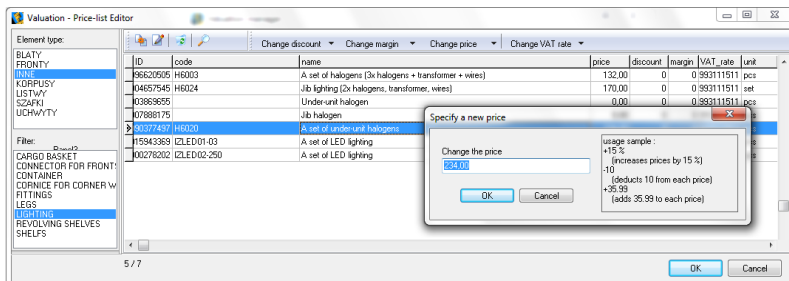



Fig. 303 – project valuation – Other tab

## 6. Valuation manager

The **Valuation manager** (icon  in the CAD-Kitchens toolbar) contains all the design valuations (**active** - the last one saved valuation, and **inactive** - saved some time ago, which were followed by the new appraisals of the same design) (Fig. 304).

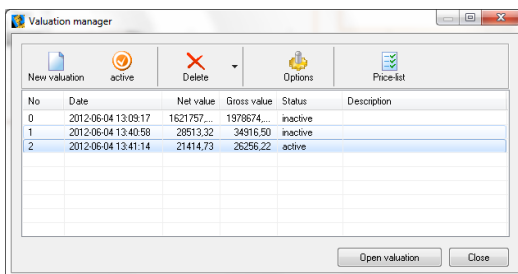





Fig. 304 – Valuation manager window

### 6.1. Features of the Valuation manager

**New valuation**  - saves the new appraisal file in the **Valuation manager** dialog;


**Active**  - activates the inactive valuation (the most recent appraisal of a design is active as default);

**Delete**  - deletes valuations - one by one or all previously saved;


**Options**  - opens the appraisal setup dialog;

**Price-list**  - opens the price-list of the currently used producer;

**Open valuation**  - opens the currently selected valuation;

**Close**  - closes the **Valuation manager**.

### 6.2. Functions of the Valuation options dialog

In the **Valuation options** window (Fig. 305) (under the **Options** icon ) it is possible to enter the details of your studio: name, address, telephone, fax, e-mail and website, tax ID. This data can be saved as default (**Save as default** button) - they will be visible in each following design valuation, or you can restore factory data (**Default**).

You can also set the appropriate parameters for the valuation:

- handles included in cabinet's price,
- bar handles included in cabinet's price,
- plinth included in cabinet's price,
- valuation of side plinths,
- plinths optimization (priced per piece),
- cornices and skirting boards optimization,
- fronts priced per sq. metre.

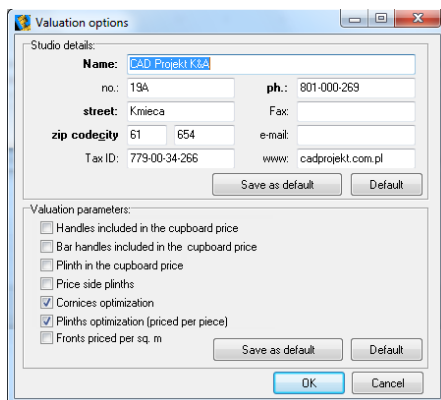



Fig. 305 – Valuation options window

## CHAPTER 25

### Price-list of the kitchen furniture database

#### 1. Introductory remarks

In order to open the pricelist of all elements in kitchen furniture database, click the **Price-list**  icon. The **Valuation - Price-list editor** window will display (Fig. 306).

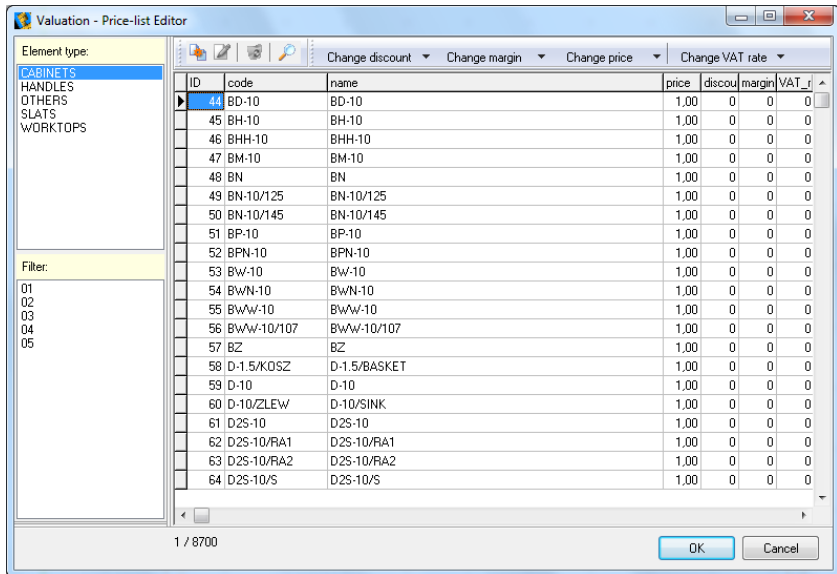


Fig. 306 – Valuation – Price-list editor window

The **Element type** box contains the pricelists of particular groups: worktops, fronts, other, bodies, cornices, cabinets handles, equipment. To go to the chosen part of the pricelist, select the appropriate element type and, if needed, enable the filter (e.g. worktops, and then the lighting or working panels).

#### 2. Icons and features in the Valuation – Price-list editor window



- adds a new item to the price-list (you need to complete the details) (Fig. 307);



- edits the selected element in the price-list (Fig. 308);



- deletes the selected item from the price-list; before deleting confirm that you really want to delete the given element;

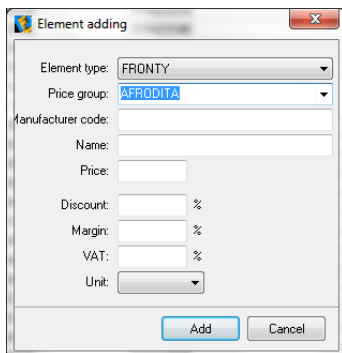


Fig. 307 – adding an item to the price-list

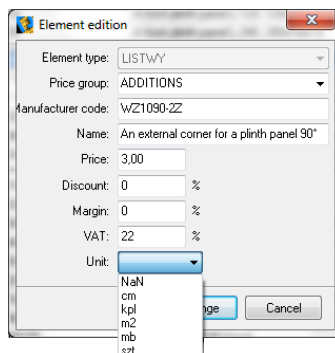
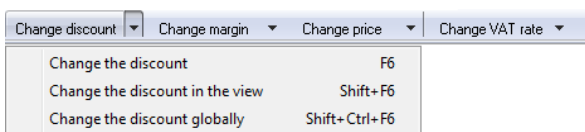


Fig. 308 – editing item's details

### 3. Changing discounts, margins, prices, VAT

This method is the same for all options. Here, it is demonstrated with the **discounts** as the example. These features are available under the buttons in the windows menu and under the function keys: [F6], [F7], [F8], [F9].



- **Change discount [F6]** — changes the discount for the selected element or a group of selected elements (use the **CTRL** key and the mouse pointer to select the elements),
- **Change discount in the view [Shift + F6]** — changes discount for one type of the elements (and a specified group, e.g. for all worktops, fronts, cornices, etc.
- **Change discount globally [Shift + Ctrl + F6]** — changes discount for all elements in the price-list.

Margins, prices and VAT can be changed in the same way as discounts (Fig. 309, 310, and 311).

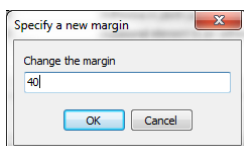


Fig. 309 – changing a discount

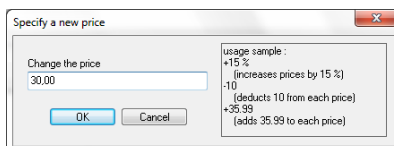


Fig. 310 – changing a price

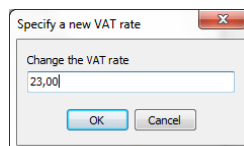


Fig. 311 – changing VAT rate


## CHAPTER 26

### Technical project documentation

#### 1. Introductory remarks

In the CAD Decor PRO program you can automatically generate a professional and complete project documentation. This documentation may contain: a title page, an example visualization of the project, selected views of the interior with and without furniture and equipment, worktops drawings created in the **Worktop documentation** module, project's valuation and a **Contract – Order** form. You can select these elements in the documentation configurator – **Design documentation setup** dialog box. All pages of the documentation can be edited and adjusted to your personal requirements and preferences.

#### 2. Design documentation setup dialog

To open the Technical Documentation Module click the **Documentation**  icon - it opens up the **Design documentation setup** window (Fig. 312).

Here you can define the contents of the generated documentation:

- decide whether the title page should be included
- select projections of the appropriate walls;
- determine types of generated projections (e.g. wall or cabinets views);
- determine if the top projection of typical worktops (the projection of all worktops in the design) will be generated;
- determine if the drawings of typical worktops will be generated, or if all worktops will be grouped on separate page;
- attach (optionally) the design drawing (colour or black-and-white) saved in the visualization in the JPG, BMP, EMF or WMF format — by selecting a drawing file,
- attach (optionally) the price estimate of the order (if previously prepared);
- determine whether the elements from the CAD Interiors plug-ins will be included in the documentation — **Additional elements**;
- attach **Contract - Order** (optionally).

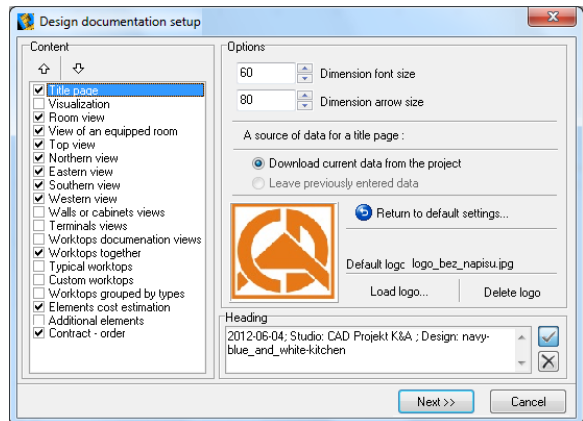


Fig. 312 – Design documentation setup



In this dialog you also need to specify additional options:

- dimension font and arrow size,
- increased line hiding precision,
- select the path of the company logo file (or delete it if the logo already exists),
- input the information to be displayed in the documentation header.

*Note! To return to the default settings of the documentation wizard, select Return to default settings... option.*

Enter the necessary information and press **Next>>**. This will open the projection generator, and move you to a preview of technical documentation (Fig. 313).

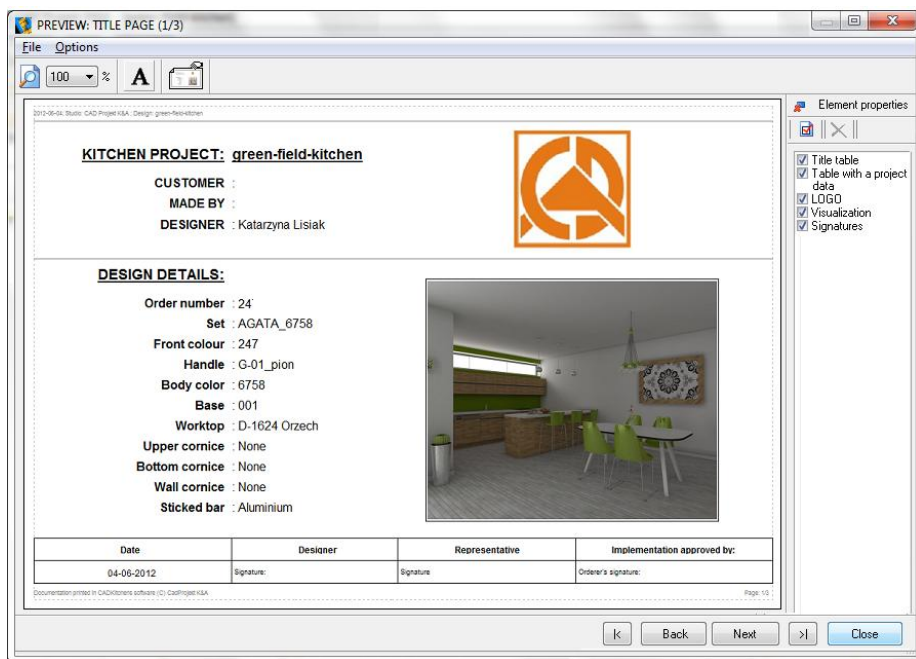


Fig. 313 – Preview... window

On the first page of documentation it is possible to place company logo-sign (right upper page corner). A photography of the project can be added as well (file format BMP or JPG) just under the logo-sign. To add one of these click in the proper place (red highlighted rectangle will appear) and by right click open menu where select element to paste (Fig. 314).

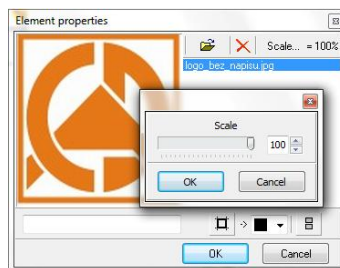





Fig. 314 – scaling the logo


### 3. Functions of the Preview... dialog

#### 3.1. File menu

**Save**  – the save documentation function is used for creating archives; an EXE file is created while saving (which is stored in the selected location on the disk) which can be opened by double-clicking (Fig. 315);

**Send**  - enabling to send the documentation via e-mail (Fig. 316);

**Page settings**  - page parameters of the generated documentation; input the information in the box below (Fig. 317);

**Print**  – prints the design, this function can also be accessed with <Ctrl+P>;

**Close** – closes the documentation preview; this function can also be accessed with <Ctrl+Q>.

**Show properties panel** – shows the panel of element properties, where they can be edited (added or removed from the page) (Fig. 318);

#### 2.2. Other functions of the Preview... dialog

**Selecting enlarged view:** settings available in the box presented below.

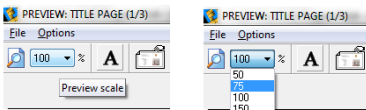


Fig. 318 – changing a scale of a documentation page preview

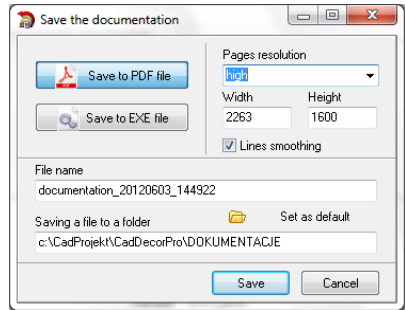


Fig. 315 – saving the documentation to PDF format

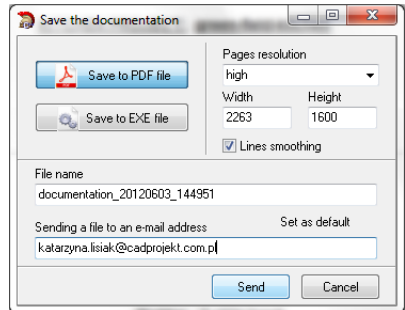


Fig. 316 – sending the documentation via e-mail

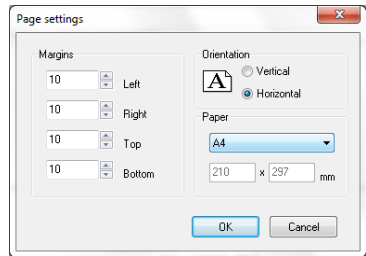


Fig. 317 – Page setting window

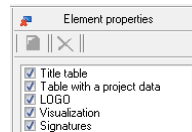



Fig. 318 – Element properties pane

#### Inserting new text on the page:

- click the **text** symbol: , and then the documentation preview (you can select any place in the documentation, because the text can be moved),
- set the text parameters in the **Element properties** dialog (Fig. 319): font, text border, border colour, text background, frame colour and background colour;

- then confirm the text parameters with **OK** or click **Cancel**, if you do not want to insert the text in the documentation.

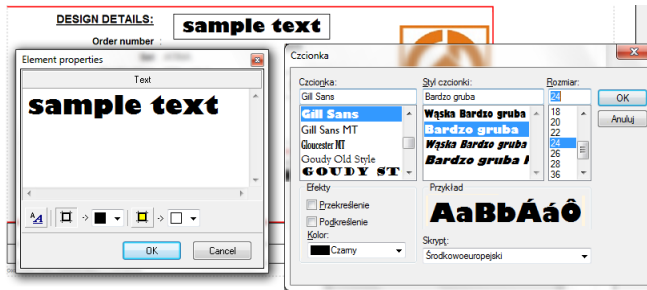


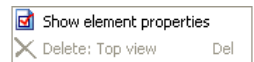
Fig. 319 – inserting an additional text – font selection

### Moving added text:

- click the **text** symbol: **A** and use the mouse pointer to select text (it will be marked with a red outline when selected), and holding the left mouse button, move it to another place.


### Editing added text:

- use the mouse pointer to select the text and right-click anywhere in the screen, select **Show element properties** option from the context menu:
- change the available text parameters in the **Element properties** window;
- confirm the changes with **OK**.



## 3.3. Title page settings

Another icon in the title page preview is **Title page settings**

icon . After clicking it window will appear (Fig. 320). This window is purposed to choose the style of the title page. There is six default styles to choose from (in the left side of the window).

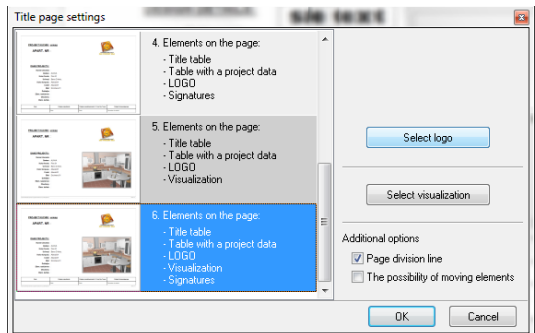


Fig. 320 – Title page settings window

In the right side by using two buttons it is possible to place **logo** or **visualization** from visualisation. Some additional options are placed in the right-bottom corner of the window:

- placing a **page division line**, separating title table from table with project's data;
- allowing to shift (move) elements of the page anywhere you like.

### 3.4. Title page elements edition

After right-clicking on the title table or table with project data select **Show element properties** option. Window with **Element properties** will appear (Fig. 321).

Both columns **Name** and **Value** are subject to edition. If any changes are made in the **Name** column, it will be saved and will appear in the next project documentation. Font size can be changed here. The **value** column can be left empty or filled with dots (first unselect the option **Fill in value column**). When all changes are done, press **Ok** to save them.

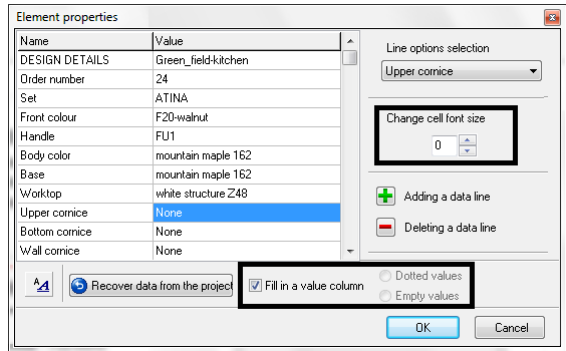


Fig. 321 – editing a table with project data

## 4. Elements properties tab

The technical documentation preview window is equipped with the **Element properties** panel. It can be collapsed using the **Hide properties panel** icon. To display it again, go to **Options** position in main menu and click **Show properties panel**. Each element present on the currently opened page of documentation is detailed in the list of objects available for preview and edition.

Depending on the currently opened page of the preview, various available layers of documentation are listed (Fig. 323 on the next page). Each element can be removed from the page (by deselecting it) To display the given element on the page again, select it on the list.

Each object in the documentation can be edited in the window relevant for this element type. To do this:

- select the desired layer in the properties panel,
- click the **Show element properties** icon or double click on the element,
- in the new window (Fig. 322) you can modify data, enable or disable layers, change the look of the view and save it to the disk (the **Save the projection** option) and scale the view (from 1:100 up to 1:1).

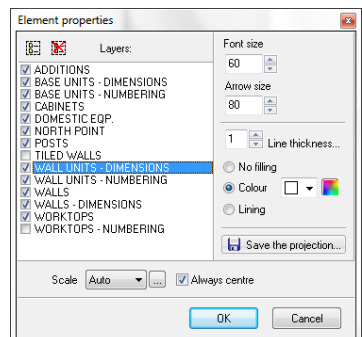


Fig. 322 – Element properties edition dialog

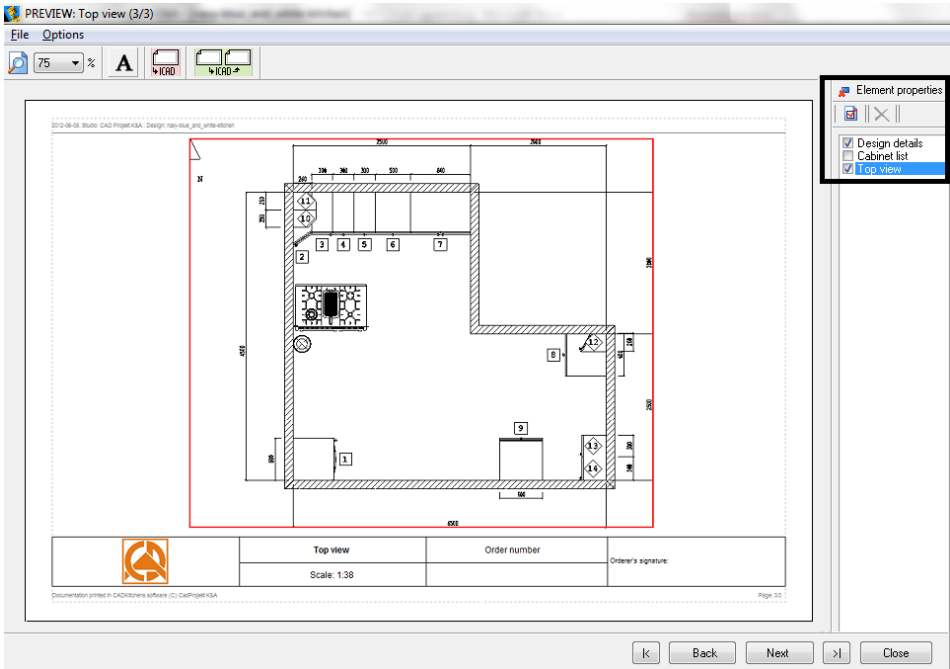




Fig. 322 – Element properties pane – on the right hand side of the Preview window

## 5. Documentation in the IntelliCAD program

While generating documentation you click the **ICAD**  to switch to IntelliCAD and modify the current documentation view in it. After clicking this icon, you will be brought to the CAD environment, when you can insert the current documentation view. You will be brought back to documentation straight away.

The exported view can be accessed after closing the documentation module and switching to the **LAYOUT\_PRINT** tab at the bottom of the screen (the project is located on the **Model** tab).  **Model** **Layout1** **LAYOUT\_PRINT** **LAYOUT\_EDIT** /

Then you can remove elements or add new ones to the exported documentation view (e.g. dimension lines, descriptions) and then print it directly from the work CAD environment (Fig. 323). Note: none of the applied changes in this case will not have any influence on the original view in the documentation - it will not change.

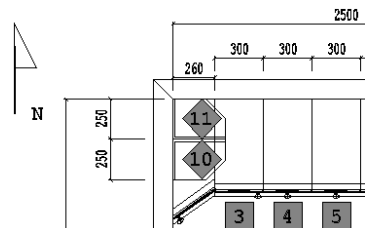



Fig. 323 – a fragment of a sample projection from the documentation in the CAD environment

Next **ICAD** icon  enables you to temporarily transfer a view from documentation to CAD work environment (to the **LAYOUT\_EDIT** tab), where it can be modified (e.g. additional dimensioning can be added and some unnecessary objects can be removed from the view).

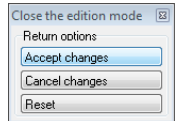


Fig. 334 – Close the edition mode window

This tool is useful when it is necessary to make changes to the view in documentation to make it more legible and clear. When changes are completed, you can either accept them, cancel or simply reset drawing to the original form (Fig. 334). You will be brought back to the documentation. Note: if the introduced changes were saved, the view in documentation will be modified.

## 6. Valuation and the Contract - Order

The last few pages of the documentation contain tables with specification of all elements used in the project (Fig. 325), which can be also edited. Each table contains information on one type of elements (e.g. cabinets, handles, worktops etc.). They can be freely hidden or displayed in the **Element properties** pane.

2012-06-06, Studio: CAD Project KSA, Design: ray-clau, jno\_ynto-ettien

Cabinets													
No.	Name	Set	Front c.	Body c.	Glass	Typical	Dimensions [cm]	Base height	Hinge	Quantity	Net price	Gross price	Value
The cabinet composition F-FAG130, K-FAG120K													
17	FAG230B	ATINA	F20-walnut	-	T		30x34,6x57,9	-	L	1	233,00	284,26	284,26
The cabinet composition F-FAG230, K-FAG230B													
18	FAG230B	ATINA	F20-walnut	-	US		34x34,6x57,9	-	L	1	233,00	284,26	284,26
The cabinet composition F-FAG230, K-FAG230B													
												Gross value: 7 482,26 zł	

Plinths, cornices, skirting boards													
Name	Type	Colour	Profile	Quantity	Unit	Height [mm]	Sections	Net price	Gross price	Value			
Adhesive plinth panel VL3000	Wall	alu X83	WL3000-00	8	NaN		1000	12,00	14,84	117,12			
Lighting cornice MDF	Bottom	cherry memphis 160	KP3014-00	3	NaN		1400	42,00	51,24	153,72			
Stylish cornice profile	Upper	mountain maple 162	KP1014-00	5	NaN		1400	50,00	61,00	305,00			
												Gross value: 575,84 zł	

Worktops and panels elements														
No	Name	Code	Type	Colour	Edge	Typical	L. [mm]	Th. [mm]	Wid. [mm]	Quantity	Unit	Net price	Gross price	Value
19			Worktop	white structure Z48	wenghe 196	C	1756	39	439	1756	NaN	0,00	0,00	0,00
20			Worktop	white structure Z48	wenghe 196	T	2240	39	800	2240	NaN	0,00	0,00	0,00
21			Worktop	white structure Z48	wenghe 196	T	260	39	776	260	NaN	0,00	0,00	0,00
Chamfer - Corner chamfer #3 (200,132)														
22			Worktop	white structure Z48	wenghe 196	T	600	39	600	600	NaN	0,00	0,00	0,00
23			Worktop	white structure Z48	wenghe 196	T	600	39	600	600	NaN	0,00	0,00	0,00
24			Worktop	white structure Z48	wenghe 196	T	260	39	600	260	NaN	0,00	0,00	0,00
Chamfer - Corner chamfer #2 (260,141)														

Elements cost estimation

Order number

Orderer's signature:

Documentation printed in CAD/Clients software (C) CADProject KSA

Page: 5/7

Documentation printed in CAD3DSystems software (C) CasProject KSA

Page: 57

Fig. 325 – a page from documentation with elements valuation

The very last page of the documentation is the **Contract – Order** form (Fig. 326).

It can be edited and filled out with all necessary data.

Your logo can be added in the upper left corner, and additional comments on the contract and its realization can be added (Fig. 327).

**CONTRACT - ORDER** ☒ PRIORITY PHONE NUMBER FOR DELIVERY ADVISING

NAME AND SURNAME: DATE: 2012-06-05

HOME ADDRESS:  
street:  
street:  
street:  
CONTACT:

Order number: ATINA Set type: Delivery time (weeks): 5 Annexes

CONTRACT TERMS AND CONDITIONS:

FURNITURE INSTALLATION: ☒ Contractors ☐ by Customer TRANSPORT: ☒ Contractors ☐ by Customer

FURNITURE PRICE: 7 482,26 zł DOMESTIC EQP. PRICE: 19 116,00 zł FITTINGS PRICE: 0,00 zł EQUIPMENT PRICE: 190,18 zł PRICE: .....

SET PRICE: 27 366,28 zł DISCOUNT: 0,00 zł SET PRICE AFTER DISCOUNT: 27 366,28 zł

☐ cash ☐ transfer ☐ cash ☐ transfer ☐ cash ☐ transfer ☐ cash ☐ transfer

Advance Second payment Due by: ..... Payment before unloading until: ..... at-payment on a delivery until: .....

COMMENTS:

Legisla Contractor signature: ..... Legisla Customer signature: .....

Fig. 326 – the look of the Contract – Order form

**CONTRACT - ORDER**

☒ PRIORITY PHONE NUMBER FOR DELIVERY ADVISING

NAME AND SURNAME: DATE: 2012-06-05

HOME ADDRESS:  
street: postal: post office:  
street: postal: post office:  
street: postal: post office:

DELIVERY DESTINATION:  
street: postal: post office:  
Tel: Tel:  
Fax: E-mail:

Order number: Set type: ATINA Delivery time (weeks): ... Annexes: 5

**CONTRACT TERMS AND CONDITIONS**

FURNITURE INSTALLATION: ☒ Contractors ☐ by Customer TRANSPORT: ☒ Contractors ☐ by Customer

FURNITURE PRICE: 7 482,26 zł DOMESTIC EQP. PRICE: 19 116,00 zł FITTINGS PRICE: 0,00 zł EQUIPMENT PRICE: 190,18 zł PRICE: .....

SET PRICE: 27 366,28 zł DISCOUNT: 0,00 zł SET PRICE AFTER DISCOUNT: 27 366,28 zł

ADVANCE: ☒ cash ☐ transfer SECOND PAYMENT: ☒ cash ☐ transfer DUE BY: ..... ☒ cash ☐ transfer

PAYMENT BEFORE UNLOADING UNTIL: ..... ☒ cash ☐ transfer AFTER-PAYMENT ON A DELIVERY DAY UNTIL: ..... ☒ cash ☐ transfer

COMMENTS:

OK Cancel

Fig. 327 – editing the Contract – Order form

## CHAPTER 27


### Printing the project

#### 1. Introductory remarks

In CAD Decor PRO the project can be printed directly from the CAD environment. It is very useful when preparing an additional technical documentation.

#### 2. Print settings

To print a project in a form of a linear drawing, follow the procedure below:

- go to CAD environment and select the view that is to be printed;
- from the main **File** menu select the option **Print project** or click the **Print**  icon on the **Standard** icon bar (Fig. 328);
- the **Print** dialog box will open (Fig. 329);
- in the **Scale / View** tab, (**Print area** field) select **Window**;
- in the upper right part of the window the option **Save changes to layout** can be selected, to save the current print settings;
- in here it can be also determined, which settings should be displayed – of the current or of the previous layout (Fig. 330);

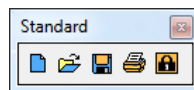


Fig. 328 – the Standard icon bar

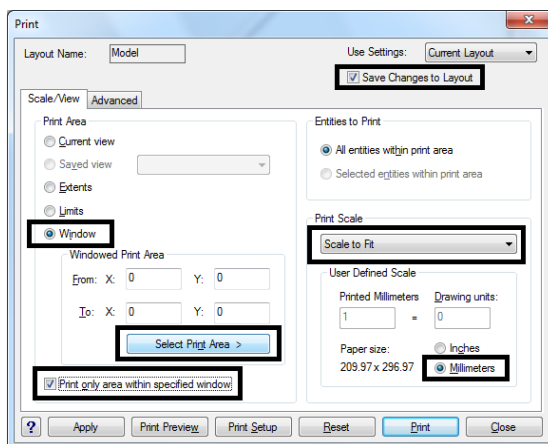


Fig. 329 – Print dialog box

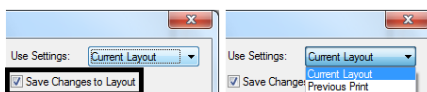


Fig. 330 – selecting a print layout – the current or the previous one



- to select an area for printing click **Select Print Area** and indicate the area in the project from the left to the right (e.g. a whole project);
- in the **Print Scale** field the **Scale to fit** position should be selected;
- in the **User Defined Scale** select **Millimeters**;
- then go to the second tab of the **Print** dialog box - **Advanced**;
- in this tab it is necessary to select the **Center on page** option in the **Print Offset** field (Fig. 331) to place the printout directly in the middle of the page;

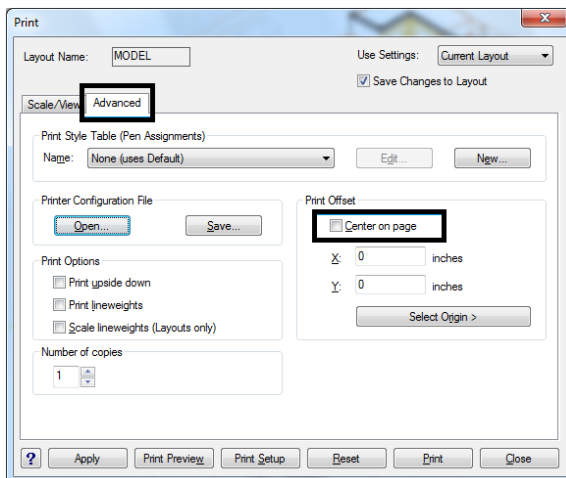


Fig. 331 – Advanced tab – Center on page option

- then click the **Print Setup** button and select the printer, size of the page (e.g. A4, A3) and orientation - vertical or horizontal (Fig. 332) – and then click **Print**.

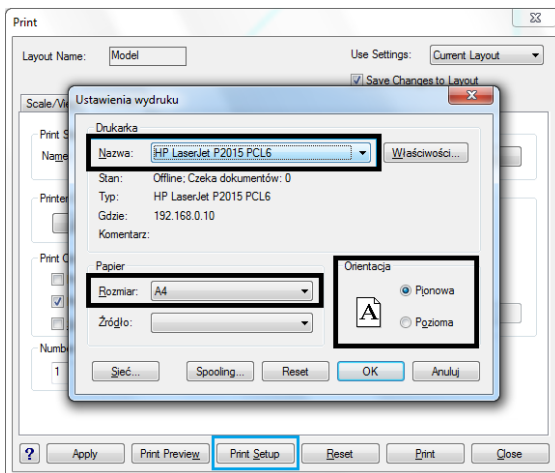


Fig. 332 – printout settings

### 3. Defining parameters of lines in IntelliCAD 6

In some cases it is necessary to modify the thickness or colour of the lines on the printout (e.g. to fulfill the required standards of a technical drawing or when the lines are drawn with light colours and because of that – not visible after printing). To do it:

- select the position **default.ctb** in the **Print** dialog box → the **Advanced** tab → the **Print style table (Pen Assignments)** section → the drop-down menu of the **Name** option (Fig. 333);
- then click **Yes** in .ACAD dialog and then – click the **Edit** button;

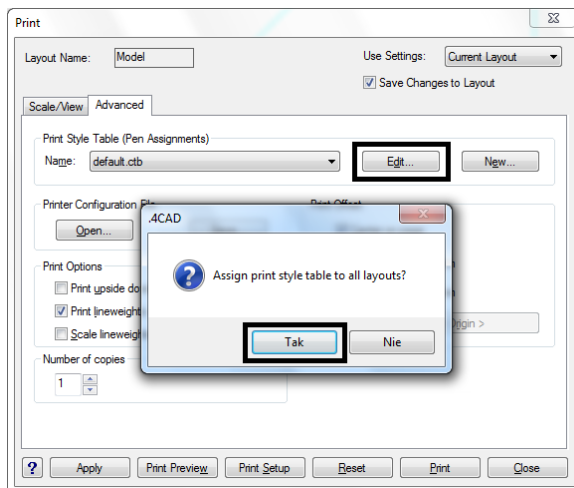


Fig. 333 – Print style table option

- in a newly opened dialog called **Print Style Table Editor – default.ctb** (Fig. 334), exactly in the **Print styles** section, click on the first **Color** position, press **<Shift>** and then press the last position (not releasing the **<Shift>** button);
- as a result, all positions will be selected at the same time (Fig. 335);
- in the **Style Properties** section → field **Color**, select the black colour and in the **Lineweight** – the thickness of 0.100 mm;
- new settings should be confirmed with **Save & Close** button, what will result in saving them until the user decides to change them again.

*Note! The lineweight for walls can be optionally changed to e.g. 0,200mm, to distinguish them from other lines in the printout. To do it, select the position Color\_31 from the list and attribute it with a new thickness value.*

*Note! Settings can be saved to the disk (using the option Save as) in a form of a CTB file, and loaded when another project is printed.*

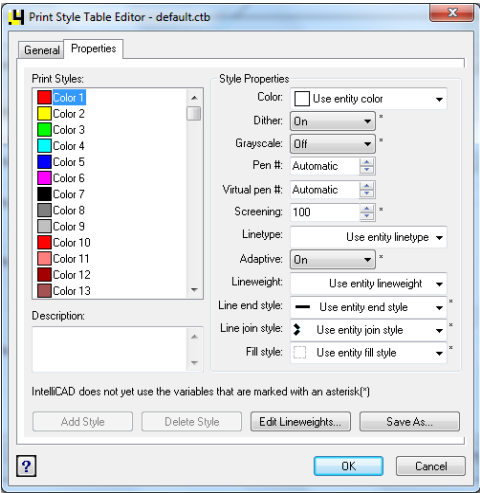


Fig. 334 – Print Style Table... dialog box

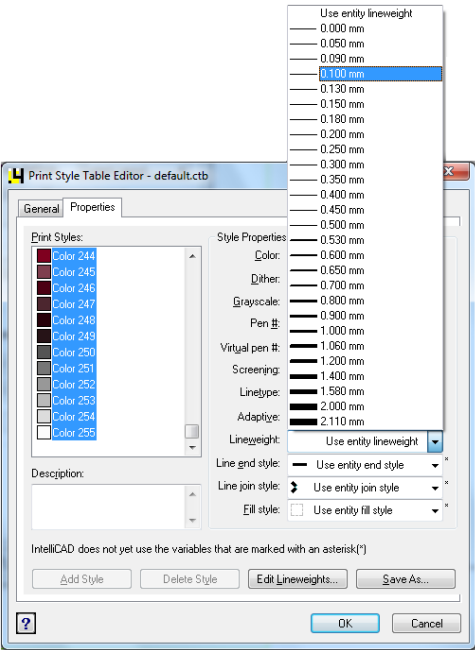


Fig. 335 – marked list of colours and lineweight selectio

## CHAPTER 28

### Visualization – introduction

#### 1. Introductory remarks

Visualization is the part of the program, in which the realistic view of the project is attained. It is a very important module in which processes vital for the final visual effects take place, such as: the designing arrangements of ceramic tiles, application of paints and textures to walls and objects, setting various parameters for objects, modification of light sources settings and adjusting render parameters.

In the earlier stages of designing the main focus was on precision of the project in regards to dimensions, shapes and used elements. Close attention should be paid to colours and materials, proper light distribution and the look of particular objects, to ensure optimal results of visualization.

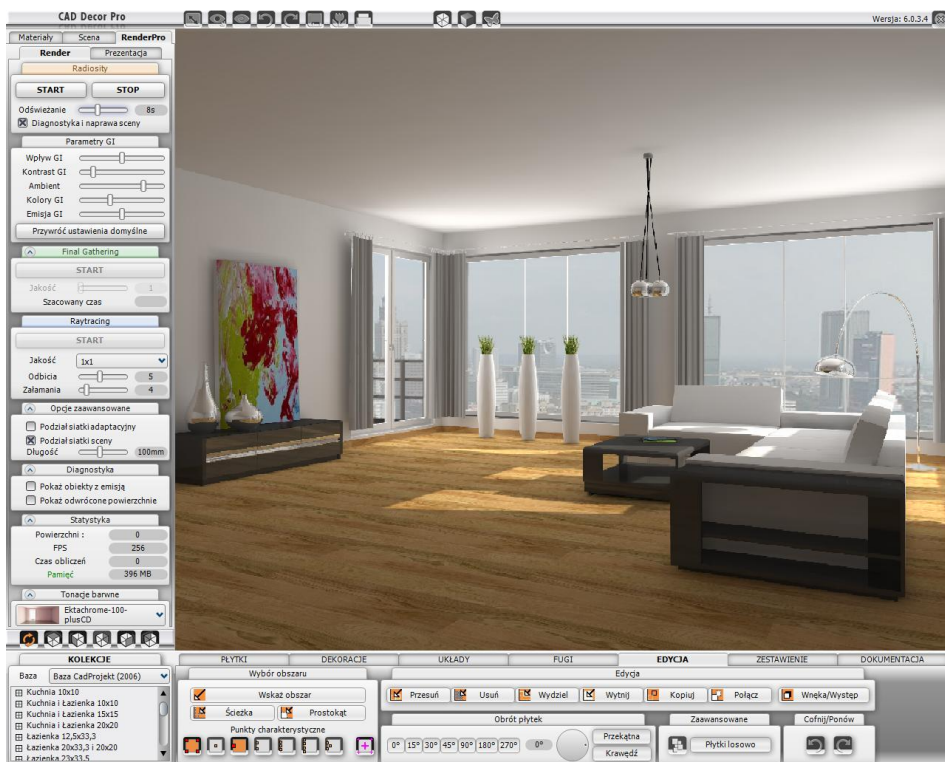




Fig. 336 – Visualization window

To go to visualization mode click the **Visualization**  icon or **[F12]** key. To see a simple preview of the project (simplified visualization of one view only, without a possibility to move in the space) click the **Quick preview**  icon or **[F11]** key.

In the visualization window there are 3 toolbars – the iconbar on the top border of the screen, side panel with 3 tabs on the left hand side and a bar with tile application, edition and valuation functions on the bottom of the screen.






On the right hand side of the **CAD Decor PRO** bar on the top of the screen a label with program's version is displayed (Fig. 336 on page 194).

*Nore! When the visualization mode is entered for the first time, a dialog box will display, in which the level of anti-antialiasing quality, responsible for the quality of visual effects, especially the look of edges in visualization. The high level of anti-aliasing is recommended for computers with a efficient graphic card.*

## 2. Parts of the visualization window and available features

### 2.1. Icon bar

In the upper part of the visualization window an icon bar can be found, containing the features listed in the table below.

Icon	Function
	- <b>Select element</b> – option used for selecting objects for edition. After clicking on this icon the cursor becomes red. A single left-click on the object makes it ready for edition – a single right-click opens a context menu;
	- <b>Hide element</b> – option used for hiding objects that obstruct the view needed for a particular operation. The icon changes its look after clicking on it. To hide objects click the icon and the click consequently on the objects that are to be hidden. Remember to click the icon again to inactivate it, because otherwise more objects than necessary can be hidden. This action can be undone as a whole, and not in single steps;
	- <b>Show hidden</b> – option used to show all the objects hidden by the means of the <b>Hide element</b> option; all elements are displayed at once, and not one after another;
	- <b>Undo</b> – option used to undo the actions taken in visualization (function available also under the keys <b>&lt;Ctrl+Z&gt;</b> ); up to 20 actions can be undone;
	- <b>Redo</b> – option used to redo the actions previously undone (also under the keys <b>&lt;Ctrl+Y&gt;</b> ); up to 20 actions can be redone;



- **Export 3D scenes** – saves the visualization as a picture in a format: JPG, PNG, 3DE or JPS (Stereo 3D JPS). After selecting this button a new dialog will open, in which the location for the file should be defined. After confirming the location, another dialog will open, in which the resolution can be chosen (from the screen resolution up to Full HD) and add a copyright sign. To confirm – click **Save**. The entire procedure has been described in detail in **Chapter 37** (page 282).

*Note! Saving a scene to a picture file or animation should be taking place after turning on the lights, because until then the room does not look realistic.*



- **Gallery of completed projects** – opens a viewer of graphic files and videos. Using the **Gallery** all created illustrations and videos can be quickly and attractively presented to the audience. At the same time further works in visualization can be conducted, e.g. to present the customers some alternative solutions.



- **Print current view** – prints out directly from the program the current view of the visualized room.



- **Display without colours and textures** – presents the project only in black-and-white mode, without colours, only with outlines of the objects and ceramic tiles marked. To go back to colourful mode can be done by clicking the icon the second time.



- **Display without colours and textures** – operates in a similar way to the icon described above, but presents also various shades of grey colour to present shadows;



- **Show lights** – shows the photorealistic view of the project presenting lights, shadows, reflections and other defined material properties; option available also at the function key **[F1]**.

## 2.2. Tabs in the side pane

On the left-hand side of the visualization window there is a pane with 3 tabs, described in the table below.

Tab	Functions
<b>Materials</b>	<ul style="list-style-type: none"> <li>– enables the user to select paints and textures to use in the project;</li> <li>– this tab is divided into 4 parts: <b>Paints</b>, <b>Materials group</b>, <b>Materials</b> and a bar with views icons;</li> <li>– <b>Paints</b> - the <b>Tikkurila</b> button opening the <b>Paint Module</b>, in which a particular paint or other coating in any colour can be found and used in the project;</li> <li>– <b>Materials group</b> – in this part of the tab lists of directories of textures are displayed;</li> <li>– <b>Materials</b> – previews of textures included in selected directory are shown here;</li> </ul>

	<ul style="list-style-type: none"> <li>– <b>Icons of views</b> – presented in table in point 4 in the current Chapter, allow to switch between different views and also save some chosen ones;</li> </ul>
<b>Scene</b>	<ul style="list-style-type: none"> <li>– enables the user to edit and modify light parameters and basic render settings;</li> <li>– the tab is divided into 5 parts: <b>Lights</b>, <b>Render – parameters</b>, <b>Scene</b>, <b>Camera</b> and <b>Views</b>;</li> <li>– <b>Lights</b> – light sources edition pane: halogens, fluorescent lights, spotlight and sunlight (switching the visibility on and off, switching the chosen light on or off, colour of the light and its intensity, range and cone angle, as well as selection of a style (shape of the light field generated by the source) – IES file;</li> <li>– <b>Render – parameters</b> – basic render settings; showing defined effects of mirror, metal, basic emission, option of simplified render or high quality, and ambient occlusion – its range, intensity and brightness;</li> <li>– <b>Scene</b> – the information about the total number of faces in the project and an option of changing the screen background colour is available here;</li> <li>– <b>Camera</b> – sliders located in this field enables the changes of camera's angle and speed;</li> <li>– <b>Views</b> – view display control functions, described in point 4 of this Chapter.</li> </ul>
<b>Render PRO</b>	<ul style="list-style-type: none"> <li>– enables the User to modify advanced render settings and creating AVI videos;</li> <li>– the tab is divided into 2 main part - <b>Render</b> and <b>Presentation</b>;</li> <li>– in the <b>Render</b> tab the following features are available: <b>Radiosity</b>, <b>GI Parameters</b>, <b>Final Gathering</b>, <b>Raytracing</b>, <b>Advanced options</b>, <b>Diagnostics</b> and <b>Statistics</b>;</li> <li>– they are advanced rendering algorithms, enabling to quickly create realistic and impressive visualizations;</li> <li>– all these features has been described in detail in <b>Chapter 36: Visualization - advanced rendering</b> (p. 258);</li> <li>– in the <b>Presentation</b> tab options of creating videos are available - please see <b>Chapter 37: Presentation of a project – creating illustrations, animations and videos</b> for more information) (p. 282);</li> </ul>

### 3. Navigating in the visualization mode

Navigating through the project in the visualization is done with the use of mouse and keyboard. In the table below all navigation options have been described.

<b>Movement</b>	<b>Necessary actions</b>
<b>Rotation</b>	<ul style="list-style-type: none"> <li>– obtained by simultaneously pressing the left mouse button and moving the mouse to the right/left or up/down;</li> <li>– pressing the arrow ← or → on the keyboard results in revolving to the left or to the right;</li> <li>– pressing the arrow ↑ or ↓ results in moving the camera up or down;</li> </ul>

- pressing the **<Ctrl>** key results in switching from the rotary mode to the movement mode;







*Note: To rotate the camera around its own axis (on the spot, and not on a circle) press the **<H>** (for 'head') key on the keyboard and then user arrows ← or →. The camera will then rotate in a way as if the user standing inside the room was turning his head around. When you press the **<H>** key again you will go back to the regular roatation mode (based on a cicrle).*

<b>Zooming in / out</b>	– pressing and holding the <b>&lt;Shift&gt;</b> key and the left mouse and moving the mouse up and down;
<b>Movement</b>	<ul style="list-style-type: none"> <li>– pressing and holding only the right mouse button and moving the cursor in any direction results in a movement of the entire scene;</li> <li>– movements can be also conducted using the arrows: ↑↓ and ←→</li> <li>– to switch between moving and rotating press the <b>&lt;Ctrl&gt;</b> key;</li> </ul>
<b>Changing camera's angle</b>	– in the <b>Scene</b> tab, in <b>Camera</b> pane the angle of the camera (and its distance from the project) can be regulated;
<b>Changing camera's speed</b>	– in the same location camera's speed can be altered (the velocity with which it moves or rotate).

#### 4. Views of the room in the visualization mode

This function is used most often during the creation of project documentation for tilers. It enables the user to switch between the orbital mode, in which the camera moves freely in the projected space in any direction and the whole room can be rotated, and flat perpendicular views on the floor and walls.


To do so, select an appropriate icon (icons described in the table below).

Icon	Function
	– the orbital mode – it is possible to freely change the position of the camera;
	– the perpendicular view from above (top view);
	– the perpendicular view from the left (west view);
	– the perpendicular view from the right (east view);
	– the perpendicular view from the back (north view);
	– the perpendicular view from the front (south view);



You can also set and save 4 chosen views which you find particularly useful or attractive, and come back to them at any moment of further work.

The procedure is as follows:

- select a position on the list of views (Fig. 337) by a single left-click (e.g. **View 1**);
- set up the camera in a chosen location and in the optimal angle;
- click the **Save**  icon;
- the chosen view is saved and the user can go back to it at any time by clicking the appropriate position on the list of views (e.g. **View 1**);
- additionally, on the list is also available a default view (position: **View-default**), useful when the user loses control on the view display.

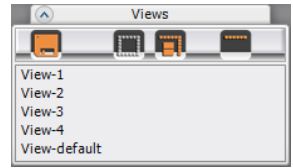







Fig. 337 – features in View pane

The table below contains a short characteristic of other icons in the **Scene** tab:

Option	Description
<b>Save</b> 	– saves a chosen view accordingly to the procedure described above; – function useful for creating alternative colour versions of the project, e.g. after replacing some tiles collections with other ones – a set of various illustrations of the same view can be created;
<b>Transparent walls</b> 	– the walls of the room which are between the User and the center of the room (which can obstruct the interior) are by default being hidden; – this button enables to switch their visibility on or off in a controlled way;
<b>Show the room with equipment</b> 	– enables to quickly hide all elements of interior design used in the project without selecting them one by one (as when the <b>Hide element</b>  icon is used);
<b>Show/ hide the ceiling</b> 	– enables to hide and show the ceiling of the designed room;

## CHAPTER 29

### Visualization - application and edition of textures

#### 1. Introductory remarks

It is recommended to begin work in visualization with application of textures to the various surfaces in the project. Properly chosen materials and colours are the key to satisfying final result. Besides various materials available in the materials database distributed with the program you can use your own materials and paints and other coatings, as well ceramic tiles and other wall and floor coverings available in databases, the use of which has been described in the following chapters of this manual (**Chapters 31 and 33**).

#### 2. Materials tab

Textures are available in the **Materials** tab in the pane on the left-hand side of the visualization dialog. In the **Materials group** field there are 2 main directories: **Standard materials** and **User materials**. In the first one the database included in the program is available, and in the second any user's own textures can be loaded from the disk in formats JPG, BMP or PNG. It can be any photos or pictures, if possible in high resolution, without shadows or light reflections, set perpendicularly.

To add your own picture files to the **User materials** list:

- click the **Add** button and indicate the location of a directory in which they are stored on the disk (Fig. 338 on the next page) (the pictures presented in the example are the property of the author of this manual);
- select one of the pictures and click **Open**;
- all files stored in this directory will be added to the **User materials** list in a new directory of the same name, as the original directory on the disk (Fig. 338);
- pictures are available to be used in the project right away;
- the number of added directories and files is limited only by the amount of free space on the disk;
- to remove a directory with user's own textures, mark it by a single left-click and then select the **Delete** button.

In the **Materials** tab besides the textures directories also a button opening the **Paints Module** is located (described in details in **Chapter 33**, p. 232) – in the **Paints** field, and a **Materials** section, in which previews of textures from currently selected directory are presented. In the bottom part of the pane there are icons of views, described in **Chapter 28** (point 4 p. 196), enabling the user to change and save views.

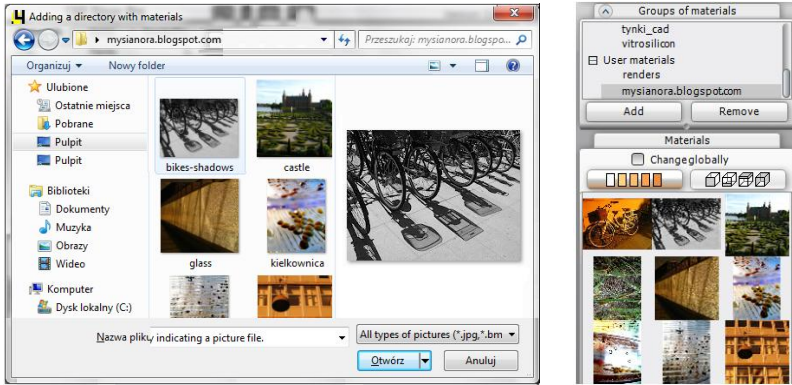


Fig. 338 – adding own picture files – indicating location and a new catalogue in User materials list

Previews of textures can be displayed in a various number of columns – from 1 to 6 – dependently on the current need (if the user wants to see the big pictures or the biggest possible number of small thumbnails at once to quickly find the wanted one).

The fields with textures directories and previews can be freely adjusted using the little round button between the **Add** and **Delete** buttons (Fig. 339).

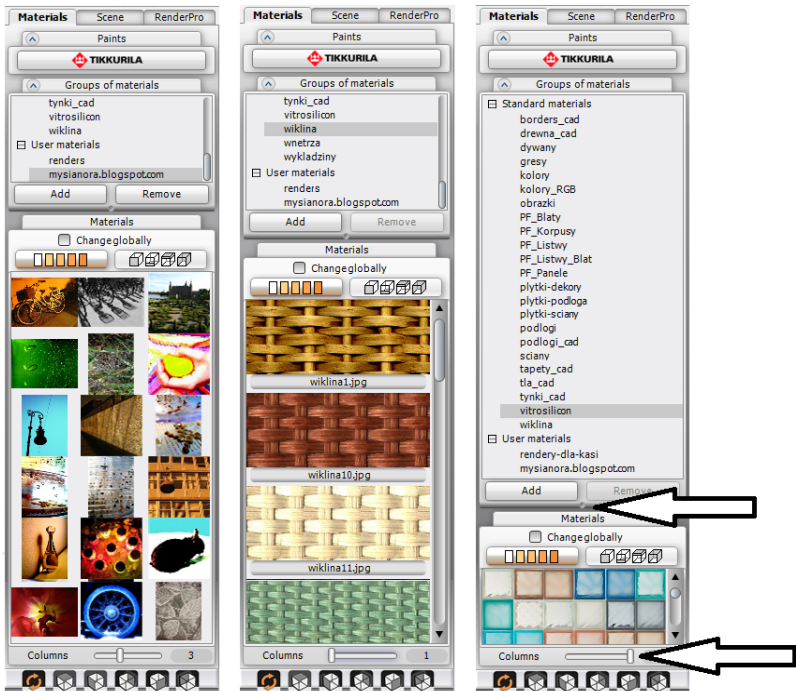


Fig. 339 – various layouts of the Materials tab

### 3. Application of textures

Application of textures to the particular objects in the project is easy and pleasant. It is enough to:




- select the directory from the list in the **Materials group** field and then left-click on the preview of the chosen texture in the **Materials** section;
- after clicking on a chosen texture, hold the button and move the cursor into the project space and direct it to the object or surface, to which the texture is to be applied – and then release the button (it is so called ‘drag-and-drop’ method, frequently used in our software);
- the material will be applied to the object;
- if the same material is to be applied to all elements of the same type in the entire project, mark the option **Change globally** before using the ‘drag-and-drop’ method.

### 4. Edition of textures

All textures used in the project can be edited in order to:

- change the dimensions of a single fragment of the texture in X or Y axis;
- move the pattern in X or Y axis or rotate the texture by any angle;
- adjust the texture meaning expanding it to cover the whole surface of the object (used e.g. for posters, background behind the window, wallpapers);
- change the colour of the texture – any colour can be chosen (Fig. 340);
- additionally the option **Change globally** is available – to introduce changes to all elements of the same type in the whole project at once.

These operations can be proceeded in the **Material properties** dialog box, in the **Colour and texture** tab. To do it:

- double click the left mouse button on the object to be edited (selected object will be marked with a pink cuboid outline) ;
- right-click anywhere to open a context menu;
- if clicking on the object does not bring the expected results, select the first icon in the main visualization menu:  **Select element** and click on the object once with the left mouse button, and then right-click anywhere to open the popup menu;
- in the context menu choose the option **Properties**;
- a new dialog will open – **Material properties** – in which in the **Colour and texture** tab parameters can be set up accordingly to individual preferences and needs;
- to adjust the parameters, select the particular option and move the slider beside it;
- to see the final result, click the **Show lights**  button;
- the lights be turned on and the selected basic effects will be visible;
- if further changes are required, continue the modifications of settings;
- to change the colour click the **Colour**  button and indicate the wanted shade on the palette (Fig. 340);

- if the changes are to be introduced to all objects of the same type, select the **Change globally** option;
- if the settings are optimal – confirm them by clicking **Close**;
- the **Material properties** dialog will close and further work can be proceeded;
- to anulate the whole operation click **Cancel** – changes will not be saved;

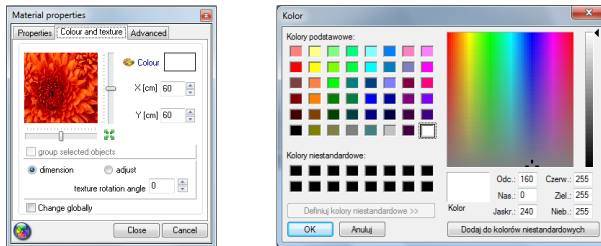


Fig. 340 – Colour and texture tab and the Colour dialog box with a colour palette

Possible combinations of texture settings are presented below (Fig. 341).

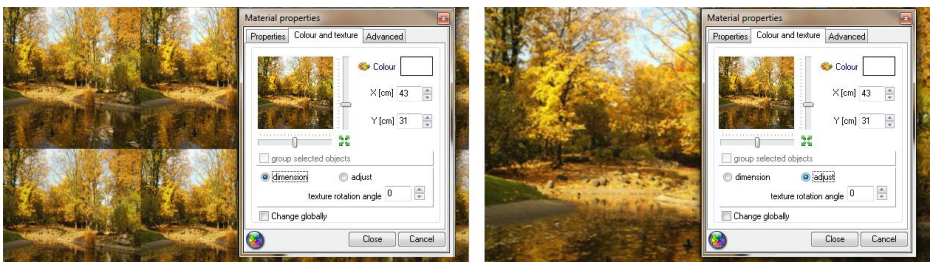




Fig. 341 – sample settings of textures applied to an object


## 5. Application of textures on elements of kitchen cabinets

In CAD Decor PRO apart from standard materials available are also textures for the kitchen furniture database, provided by the producer. To switch to this catalogue, click this button: , located below the **Material groups** field.

Textures for the kitchen furniture database are divided accordingly to cabinets' components – separately for fronts, bodies, cornices and skirting boards, plinths etc.

To switch between types of elements use these buttons: .

Using these textures enable you to change the look of the kitchen directly in visualization. Also the feature of **Set replacement** is available here – under this button:

. Sets can be also exchanged in the CAD environment (see a frame on page 93).

To go back to the database of standard materials, click this button: .

## CHAPTER 30

### Visualization - defining properties of objects

#### 1. Introductory remarks

In the visualization module besides application of textures, also other operations take place that are vital for the final look of the designed room. It is – among others – attribution and modification of various properties of particular objects and surfaces.

Each element of the interior design can be edited and attributed some basic effects: own light emission, gloss, mirror or metal effects, transparency (Fig. 342), as well as advanced properties such as bump mapping and real own light emission in any colour.



Fig. 342 – example of using the transparency effect

The proper use of these features guarantees a natural and photorealistic look of the room and decorations and furnishings used in it.

#### 2. Material Properties dialog

##### 2.1. Colour and Texture tab

This tab has been already described in **Chapter 29** (point 4 p. 200). It is used to modify settings of textures applied to various objects in the project (Fig. 343).

Textures can be rotated, moved up or down and right or left. Their size can be changed (independantly in X and Y axis) or adjusted (extended) to match the entire area of the object covered with the texture.

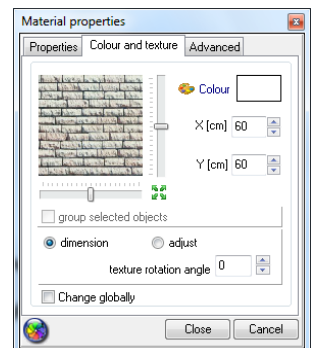


Fig. 343 – Colour and Texture tab

## 2.2. Properties tab

In this tab you can set the basic properties influencing the look of particular elements of interior design in visualization after the lights are turned on – in other words – the final effect your work. To change a chosen parameter simply move a particular slider beside the name of the function (Fig. 344).

Available properties have been briefly characterized in the table below work.

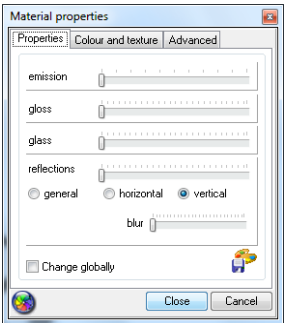


Fig. 344 – Properties tab

Effect	Description
<b>Emission</b>	<ul style="list-style-type: none"> <li>– attributing virtual own light emission effect;</li> <li>– with a maximum intensity the elements becomes snow-white and seem like it is emitting light;</li> <li>– to properly show the basic emission in visualization, turn on the <b>Show emission</b> function in the <b>Scene</b> tab;</li> <li>– as a result the objects with basic emission will glow, imitating the light emission (it is virtual though and has no influence on the light distribution in the whole scene);</li> <li>– this effect can be attributed to any elements – it is most commonly used for halogens, light tubes, window frames, ceiling skylights and other objects, that emit or let the light through in real life;</li> </ul>
<b>Gloss</b>	<ul style="list-style-type: none"> <li>– an effect used for polished, smooth surfaces such as plastic, wood, lacquer, ceramics or objects covered with enamel;</li> <li>– causes light reflection similar to the one of a porous plastic;</li> </ul>
<b>Glass</b>	<ul style="list-style-type: none"> <li>– attributing a transparency effect;</li> <li>– with a maximum intensity the object becomes totally invisible until the lights are turned on;</li> <li>– on lower level of this effect objects imitate cloudy, stained or matt glass;</li> <li>– a texture can be attributed the object with this property to achieve an effect of a pattern in the glass, e.g. graininess, grooving or some elements merged into glass;</li> <li>– to make the glass objects look good in visualization, meaning that they properly reflect and refract the light rays, use the <b>Raytracing</b> algorithm, available in <b>RenderPro</b> tab (<u>please note that his advanced feature is available only with <b>Professional Rendering Module</b></u>);</li> </ul>
<b>Reflections</b>	<ul style="list-style-type: none"> <li>– attributions of reflections, form subtle to mirror-like ones;</li> <li>– thanks to this feature it is possible to create mirrors and metal-imitating objects (e.g. chrome battery);</li> </ul>

	<ul style="list-style-type: none"> <li>– to achieve an appropriate level of reflections, their type should be defined first (general, vertical or horizontal);</li> <li>– reflections will be visible in visualization after marking the option <b>Mirror effect</b> or <b>Metal Effect</b> in the <b>Scene tab</b>;</li> </ul>
<b>General reflections</b>	– proper for elements of irregular or oval shape, imitating metal, e.g. batteries, flasks, chrome table legs, railings;
<b>Horizontal reflections</b>	– proper for horizontal surfaces, on which reflections should be seen, such as lacquered floors, worktops;
<b>Vertical reflections</b>	– proper for vertical surfaces that should reflect light, such as mirrors mounted on walls, window panes;
<b>Blurred reflections</b>	<ul style="list-style-type: none"> <li>– <b>blur</b> is an additional effect connected to reflections;</li> <li>– it becomes active when vertical or horizontal reflections are selected;</li> <li>– moving the slider to the right makes the reflections look irregular and blurry;</li> <li>– an example has been illustrated below (Fig. 345) – the blurred reflections are visible in the steamed up mirror;</li> </ul>



Fig. 345 – an example of blurred reflections

### 2.3. Advanced tab

It is a third tab of a **Material properties** dialog box.

In this tab some advanced features are available, such as **bump mapping**, **vertex smoothing**, **real light emission** in any colour and changing the material into **two-sided material** (Fig. 346). They have been described in the table below.

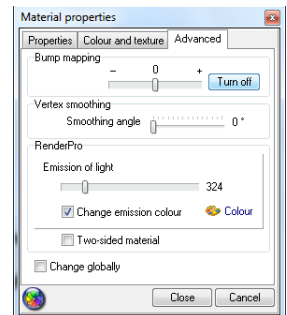



Fig. 346 – Advanced functions



Effect	Description
<b>Bump Mapping</b>	<ul style="list-style-type: none"> <li>– a specialist method of texturing of spatial objects, consisting in representing irregularities of their surfaces in order to achieve a natural distribution of shadows on their surface;</li> <li>– this technique is perfect for presenting porosity, bulging, roughness, convex patterns or smoothness of objects' surfaces;</li> <li>– moving the slider to the right (+) results in darker elements of the surface being presented as concave;</li> <li>– moving the slider to the left (-) will result in opposite recognition of the pattern – dark elements will be treated as convex parts;</li> </ul>
<b>Real light emission</b>	<ul style="list-style-type: none"> <li>– advanced emission of a real own light;</li> <li>– in this case, in contrast to the basic emission, the chosen objects will not only look like it is emitting light, but it will really emit it;</li> <li>– light emitted by objects with the advanced emission has a great influence on the general light distribution in the rendered scene;</li> </ul>
<b>Change emission colour</b>	<ul style="list-style-type: none"> <li>– the light emitted by various objects can have various colours (Fig. 346);</li> <li>– to change the colour, select the <b>Change emission colour</b> function, then click <b>Colour</b> and choose the colour on the palette – to confirm click <b>Ok</b>;</li> </ul> <div> </div> <p style="text-align: center;">Fig. 346 – real light emission in red colour</p>
<b>Change globally</b>	<ul style="list-style-type: none"> <li>– this option should be selected if some property is to be changed for all objects of the same type in one time;</li> </ul>
<b>Show lights</b> 	<ul style="list-style-type: none"> <li>– this button turns the lights on without closing the <b>Properties</b> dialog, so the results of attributed parameters for the currently edited objects can be quickly viewed;</li> </ul>
<b>Vertex smoothing</b>	<ul style="list-style-type: none"> <li>– this feature can be used for smoothing curves on objects, which were drawn in a way not ensuring a proper look of rounded, oval surfaces or lost their ideal shape during the conversion;</li> </ul>

- thanks to this option is it possible to diminish or remove sharp edges or corners in places, where objects should be smooth and rounded (Fig. 347 and 348);

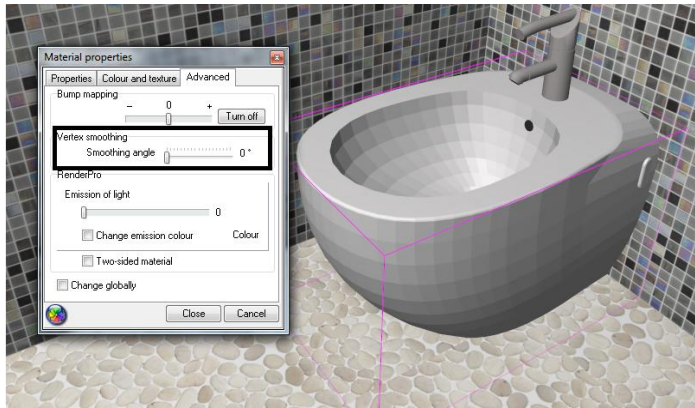


Fig. 347 – before using the function of vertex smoothing

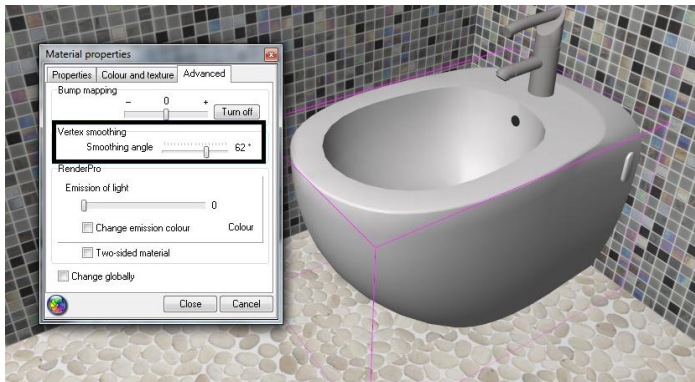


Fig. 348 – after using the function of vertex smoothing

### Two-sided material

- some elements should have exactly the same properties on both sides (on top and underneath);
- a good example is a window-blind – each of its parts has been drawn with a single face, so to achieve a proper light distribution, each side of it should be treated as 2 separate faces, drawn in opposite directions;
- in this case the **Two-sided material** feature should be used;
- it is also useful for models which has been incorrectly drawn and by some reason cannot be repaired with the use of functions of scene repair – turning this function on for them will result in proper light distribution on the object and in its environment;
- an example has been presented on the illustrations on the next page (Fig. 349 and 350);



Fig. 349 – window-blind as one-sided material

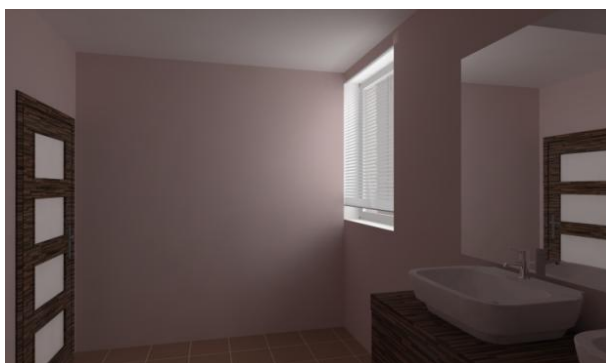


Fig. 350 - window-blind as two-sided material

# CHAPTER 31

## Visualization - using ceramic tiles in designing

### 1. Introductory remarks

CAD Decor PRO offers multiple features of application and edition of ceramic tiles, enabling to create an impressive arrangement of the room in a short time and convenient way. The project is created on the basis of wall and floor tiles, together with decorations and inserts, and other materials (e.g. wood panels), available in producers' databases or added by the user to his/her own individual database. The procedure of creation the User Database is presented in **Chapter 32: Tile database editor** on page 224. In the current chapter handling and use of all functions of projecting with tiles is described.

### 2. Collection selection

The first step in designing ceramic tiles is going to visualization mode (by clicking the **Visualization** icon or pressing **[F12]**). In the bottom of the screen a toolbar can be seen with tabs containing different features connected with tiles. After opening the visualization, the **Tiles** tab will be open (Fig. 351). Designing should be started from selecting a database by using the **Base** filter in the **Collections** tab in the left part of the toolbar.

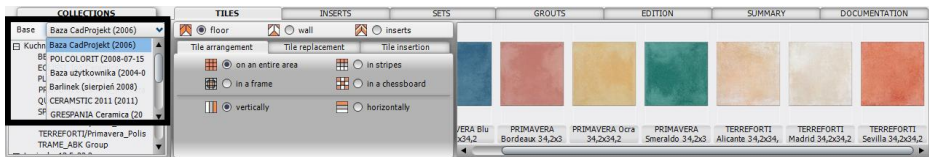


Fig. 351 – selection of the database and collection of tiles

To do it, develop the list and by a single left-click mark the database on the basis of which you want to create your project. In the section below the tree of collection types available in this base will display. To view the content of a particular collection type, simply left-click on it. You will see the list of all collections that belong to this particular type. Click on them to view the tiles they contain. Previews of tiles, together with their names and dimensions, will display in the right section of the toolbar. First only the floor tiles will be presented - to check what wall and decorative tiles are available in this collection, you can switch between tiles categories:

(Fig. 352). If you point the cursor over a tile, a label with its name and dimensions, as well as net and gross prices will appear.

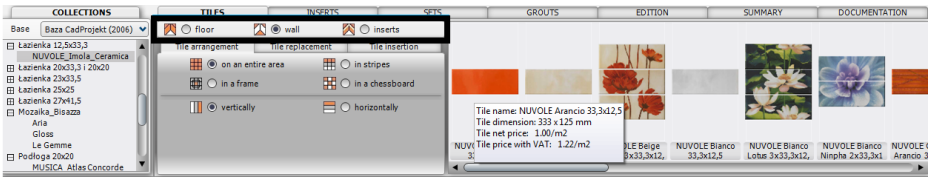






Fig. 352 – browsing through a collection – wall tiles displayed

### 3. Application of tiles

#### 3.1. Tile arrangement

Application of tiles to various surfaces in the project is performed by the ‘drag-and-drop’ method, similarly to applications of textures. To place selected tile on some surface, e.g. a wall, left-click on its preview, hold the button and move the cursor on the object in the project. When a pink outline around the object displays, release the button. Tiles will be placed on the object. There are 4 ways in which tiles can be arranged on the object, presented in the table below.

Arrangement	Description
<b>on the entire area</b> 	<ul style="list-style-type: none"> <li>– the whole surface of the selected object will be evenly covered with tiles;</li> <li>– it is a basic method of applying tiles, and the projecting should be always begun this way;</li> <li>– if the applied tiles are rectangular, it is possible to define the direction of their application – <b>vertically</b> or <b>horizontally</b>;</li> </ul>
<b>in a frame</b> 	<ul style="list-style-type: none"> <li>– tiles are applied on the perimeter of the selected area;</li> <li>– it is possible to define the offset from the border of the area and how wide should the frame be (in millimeters);</li> <li>– to be able to use this method of applying tiles the particular object has to be first covered with tiles <b>on the entire area</b> or with paint (by using the Paint Module, described in <b>Chapter 33</b>);</li> </ul>
<b>in stripes</b> 	<ul style="list-style-type: none"> <li>– tiles will be arranged in stripes – vertical or horizontal;</li> <li>– a necessary condition to use this option is to first cover the surface with paint or with tiles arranged <b>on the entire area</b>;</li> <li>– it is possible to define the offset from the boundary of the area (in mm) and the number of stripes (decimals also accepted);</li> <li>– alternatively the height of a stripe can be defined (in mm);</li> </ul>
<b>in a chessboard</b> 	<ul style="list-style-type: none"> <li>– tiles are applied alternately to the surface previously covered <b>on the entire area</b>;</li> <li>– new tiles have to have identical dimensions as the tiles used to cover the entire object – otherwise the operation cannot be performed.</li> </ul>

The look of the **Tile arrangement** tab in different settings is presented on the illustration below (Fig. 353).

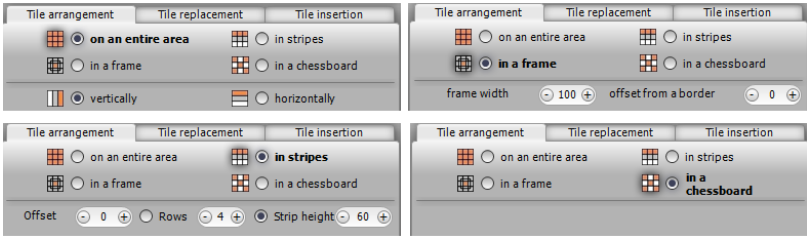


Fig. 353 – four methods of arranging tiles

When tiles are applied on surfaces, with which other objects overlap (e.g. on the wall against which adhere a bathtub casing) the program will display a proposed list of areas to be omitted – in order to save material (Fig. 354).

This message will be for sure displayed when tiles are being placed on the floor – the program will suggest to remove surfaces that are located under the walls or objects located directly on the floor. The user can decide whether or not these areas are to be removed or not. To check where a particular position from the list is located in the project, left-click on it. The particular area will be marked in red. If the tiles are to be placed on that surface, deselect the position on the list. To place tiles on all suggested surfaces, click **Skip all**.

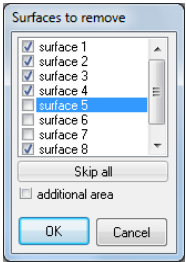



Fig. 354 – Surfaces to remove

*Note! Tiles classified as floor can be applied to walls - and the other way around.*

*Note! Mistakes can be easily undone by clicking the icon Undo  or using a keyboard command <Ctrl + Z> - up to 20 operations can be undone this way.*

### 3.2. Tile replacement

If it becomes necessary to replace tiles on some object with other tiles, it can be performed by simply applying a new tile to this surface. But if there is many areas on which tiles should be replaced, it would be time-consuming and inconvenient. And this is why the **Tile replacement** tab was created (Fig. 355).

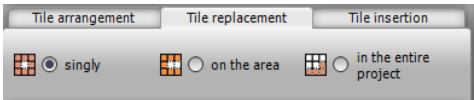





Fig. 355 – options of tiles replacement

This tab enables the user to quickly replace tiles with others in a three ways:

Way of replacement	Description
<b>singly</b> 	<ul style="list-style-type: none"> <li>– used to replace a single tile with another one;</li> <li>– after selecting this option, click on a tile and using the 'drag-and-drop' method apply it to the desired location;</li> <li>– a new tile will be placed directly on the area which was indicated by the cursors when the left mouse button was released (note! The pink outline will be displayed around the entire area and not only the indicated tile which is to be replaced);</li> </ul>
<b>on the area</b> 	<ul style="list-style-type: none"> <li>– exchanges all tiles of the same type as indicated on the entire area;</li> </ul>
<b>in the entire project</b> 	<ul style="list-style-type: none"> <li>– exchanges tiles of a the same type to the new ones in the entire project, no matter what object was indicated by the cursor when the mouse button was released;</li> <li>– particularly useful then the user wants to change the colours but maintain already existing arrangement of tiles;</li> </ul>

*Note! It is only possible to replace tiles of exactly the same dimensions!*

### 3.3. Tile insertion

The **Tile insertion** option is used while creating **sets** of tiles and applying so called **inserts**. When using this function, the point which will be an axis of rotation for an inserted tile during the application and an angle, by which the tile should be rotated (the program can recognize also negative values of angles (Fig. 356).

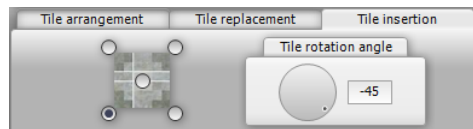


Fig. 356 – inserting individual tiles

If the tile is inserted on the objects already covered with tiles, the area beneath it will be recognized as a separate area. An example of use of the **Tile insertion** method is presented on the illustration (Fig. 357).



Fig. 357 – an example of use of Tile insertion option

#### 4. Applying decorations – working with inserts

Next tab – **Inserts** (Fig. 358)– is used for advanced application of decorative tiles (so called ‘decors’). Before the user begins to apply them, the following settings should be defined:

- location of the décor - over or below the grout (relates to the **stripes** option);
- the optional shifting of tiles already existing on the area (**no cutting**) or cutting them (**cut tiles**) to the width of stripe of the decoration (relates to the **stripes** option);
- optionally: the offset from the border of the area (in millimeters) (relates to all options of application of decorations);
- the way of applying decors – among 5 available methods:

Feature	Description
<b>stripes</b>	- arranges decors in vertical or horizontal stripes on a selected area;
<b>across the entire area</b>	- when this option is selected, the stripe of decorations will be placed on a whole object, e.g. through the whole width of the wall, even if it will require crossing the borders of several separate areas;
<b>frame</b>	- decors will be located on the internal side of an outline of the selected area; - it is possible to define the offset from the border;
<b>frame + corners</b>	- arranges decorations in frames together with corners; - it is recommended to use this option only in a case if the collection contains special corner tiles, which are being placed by the program automatically in suitable places – otherwise the corners will be empty;
<b>path</b>	- to be able to use this function, first draw a path on the area covered with tiles (to find out how to do it see the table in point 7 – description of the <b>Path</b> option); - decoration may be placed on the left of on the right side of the path – dependant on the direction in which it has been drawn (if it was drawn from the right to the left, decor will be located on the right side, and analogically – drawing from the left to the right will result in placing decor on the left side of the path).



Fig. 358 – the Inserts tab



# 5. Creating and saving sets of tiles

Creating user's own sets of tiles is one of the most difficult operations that can be performed during projecting ceramic tiles, because it requires to logically plan the arrangement of all elements of the set. It should be begun with creating a pattern of tiles on an area not covered with tiles (it is the best to use one of the walls), using the **Tile insertion** option. The pattern should consist of the smallest possible number of tiles. Examples of patterns and the following steps of sets creation are presented in the consequent points below.

The **Sets** tab is divided in 3 parts: **Insertion**, **Defining** and **Help** (Fig. 359):

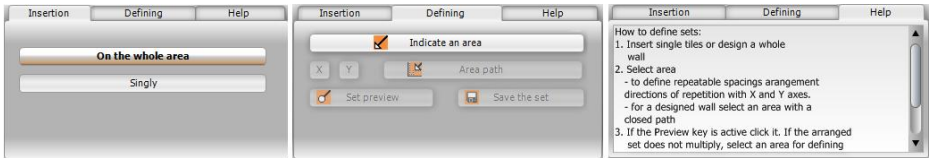



Fig. 359 – the Sets tab – various views

Feature	Description
<b>Insertion</b>	<ul style="list-style-type: none"> <li>- if in a selected producer's database there are available some ready-to-use sets, then beside the name of the <b>Sets</b> tab this symbol:  will be displayed;</li> <li>- the user can use those proposed ready sets, applying them in the project – either singly or (only tiles creating one copy of a set) or on the entire selected area;</li> <li>- application of sets created by the user is performed analogically;</li> </ul>
<b>Defining</b>	<ul style="list-style-type: none"> <li>- after composing a pattern using the function of <b>Tile insertion</b> (in <b>Tiles</b> tab) the user has to define the axis of repeatability of the set;</li> <li>- the consequent steps are described in point 5.1., below this table;</li> </ul>
<b>Help</b>	<ul style="list-style-type: none"> <li>- displays a short instruction of how to create tiles sets;</li> </ul>

## 5.1. Example 1: A rectangular set

To create a simple rectangular set:

- first open the **Tiles** tab and using the **Tile insertion** function create a pattern presented below (Fig. 360);
- go to the **Sets** tab and to the **Defining** part of it;
- click the **Indicate an area** button;
- click **X** and indicate the repeatability of the pattern in the **X axis** (red arrow), and then click **Y** and indicate the repeatability in the **Y axis** (green arrow);
- then click **Preview** to see the set on entire area to verify its correctness;

- properly prepared set should look like the one presented on the illustration below (Fig. 360);



Fig. 360 – creating a rectangular set of tiles

- if the preview looks satisfyingly, click the **Save** button and enter data in the **Save set...** dialog (Fig. 361);
- a set created this way can be used in the project after selecting the collection, on the basis of which it has been created, and then the **Sets** tab;

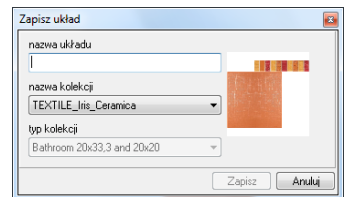


Fig. 361 – saving a set

## 5.2. Example 2: A set repeated diagonally

When creating this kind of a set, follow the procedure described in the previous point apart from the fact, that the tiles should be arranged in the way presented below. In the illustration you can see the pattern, marked repetitiveness axis X and Y and the final result (Fig. 362).

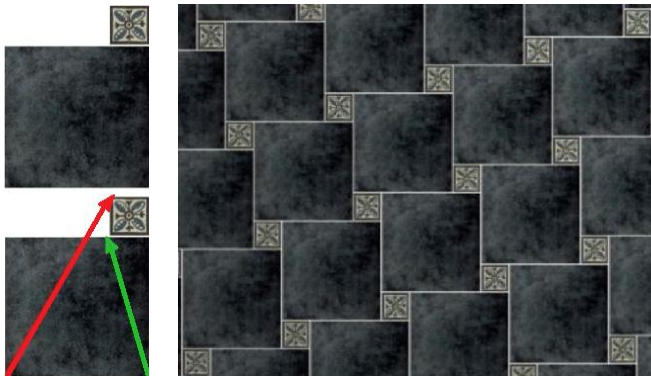


Fig. 362 – creating a set repeated diagonally

### 5.3. Example 3:

#### A 'herringbone' set

Follow the procedures described in previous points (5.1. and 5.2.) and arrange tiles in a way presented on the illustration beside (Fig. 363).



Fig. 363 – creation and a final result of creating a 'herringbone' set

### 5.4. Example 4: arranging tiles in stripes

Another way of creating sets is to arrange them in stripes on the entire wall (Fig. 364). To be able to reproduce the arrangement on other walls or different objects, this layout can be saved as a set. To do it:

- arrange tiles in stripes on one of walls;
- go to the **Sets** tab and click **Indicate an area**;
- click the **Area path** button (if the button is not activated automatically, click on any point in the area that will be indicated);
- select an area for reproduction by clicking in the consequent points of the path (the outline will be visible as a red line);
- save the set by clicking the **Save** button;
- after saving the set can be used on other walls in the project.

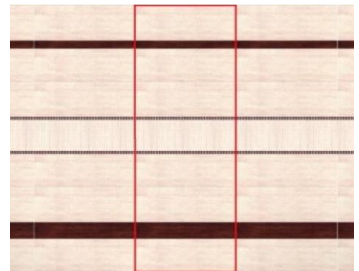


Fig. 364 – indicating the area for reproduction and a result of placing the set on all walls in the room

## 6. Grouts edition

By default each grout in the project is white and 2 millimeters thick. The user can change these parameters in any moment of projecting in the visualization mode. Functions enabling the modification of grouts properties are available in the **Grouts** tab (Fig. 365).

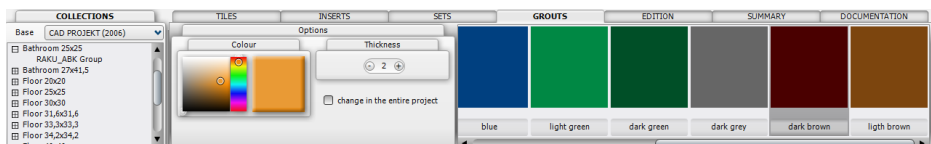


Fig. 365 – the Grouts tab

In producers' databases colours of grouts provided by particular producers are available. If none of the proposed shades is suitable to user's needs, then it is possible to choose any other colour – using the colour palette in the **Options** field.

After finding a proper colour apply it to the selected area in the project, using the 'drag-and-drop' method (left click on a pane with a colour, hold the button, move the cursor to indicate the area and release the button).

The thickness of the grout can be change in a similar way. First – define the new thickness using the arrows in the **Thickness** field, and then drag the grout to the selected area – it will be applied again with a new thickness and the tiles will be rearranged. To change parameters for all grouts in the whole project at once, select the option **change in the entire project**.

## 7. Edition of areas covered with tiles

Areas on which tiles have been arranged can be edited. To do it, double left-click on the particular area – a pink outline will mean that the area has been selected. The bottom toolbar will automatically switch to the **Edition** tab (Fig. 367). A context menu can be opened now – by a single right-click (Fig. 366). Options in the context menu are analogical to those available in the toolbar below.

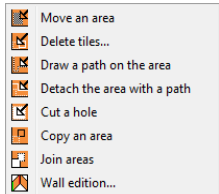


Fig. 366 – the context menu

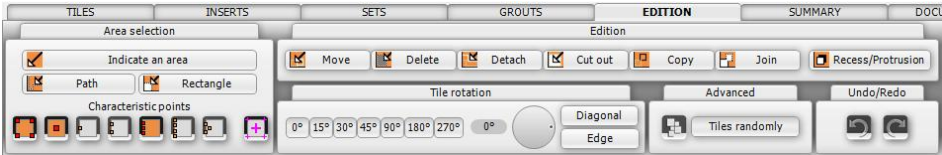
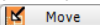
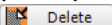
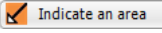
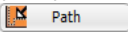
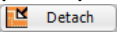
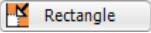

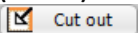


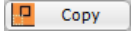
Fig. 367 – the Edition tab

Particular functions of edition are described in the table below:

Function	Description
<b>Move an area (Move)</b>  Move	<ul style="list-style-type: none"> <li>– allows to move the tiles so the grout lays in a particular location;</li> <li>– to do it select <b>Move</b> and then click on the edge of the tile, release the button and move the mouse to move them to a desired location;</li> <li>– after reaching the new destination, click the left mouse button again;</li> </ul>
<b>Delete tiles... (Delete)</b>  Delete	<ul style="list-style-type: none"> <li>– removes tiles in 3 ways:             <ul style="list-style-type: none"> <li>▪ only tiles from the selected area (e.g. from the indicated fragment of the wall);</li> <li>▪ all tiles from the object, which includes the indicated object (e.g. a whole wall);</li> <li>▪ all tiles from the entire project;</li> </ul> </li> </ul>

<b>Indicate an area</b> 	<ul style="list-style-type: none"> <li>– allows to indicate a new area for edition;</li> <li>– after selecting this button it is possible to draw a path or a rectangle on this area, and detach a new area based on this path or rectangle;</li> </ul>
<b>Draw a path on the area (Path)</b> 	<ul style="list-style-type: none"> <li>– draws a path on tiles;</li> <li>– is displayed as a red line with a red square at the end;</li> <li>– it is possible to draw any outline, using the characteristic points of tiles (e.g. corners);</li> <li>– directly after finishing drawing the outline click the right mouse button and select the <b>Detach the area with a path</b> option from the context menu – or click <b>Detach</b> in the <b>Edition</b> tab;</li> <li>– if the path is not to be closed, right-click and select the <b>Finish</b> option (a path drawn this way can be used to apply decors);</li> </ul>
<b>Detach the area with a path (Detach)</b> 	<ul style="list-style-type: none"> <li>– operates on the basis of previously drawn, closed outline (path);</li> <li>– separates the area outlined with the path from the rest of the object;</li> <li>– after detaching the area it will be possible to apply tiles to it;</li> </ul>
<b>Rectangle</b> 	<ul style="list-style-type: none"> <li>– draws a rectangle on the indicated area;</li> <li>– to draw a rectangle it is necessary to click in two points – the first corner and the opposite corner of the rectangle;</li> <li>– when the rectangle is being drawn, its current dimensions are displayed;</li> <li>– drawing is based on the characteristic points of tiles;</li> </ul>
<b>Characteristic points</b> 	<ul style="list-style-type: none"> <li>– it is possible to select various points on tiles, to which the cursor will be dragged and on the basis of which drawing of paths or rectangles on areas covered with tiles can be performed;</li> <li>– to define which points are to be taken into consideration click the appropriate icon (e.g. only corners, central points, 2 or 3 or more points on the edge etc.);</li> <li>– the choice depends on what shape the user wants to drawn;</li> <li>– the last icon displays the grid of selected points;</li> </ul>
<b>Cut a hole (Cut out)</b> 	<ul style="list-style-type: none"> <li>– used to create holes in bathtub casings and in tops around the under-counter washbasins;</li> <li>– to cut a hole in a bathtub casing follow these steps:             <ul style="list-style-type: none"> <li>▪ apply tiles to the object;</li> <li>▪ left-click twice on some element of the bathtub (e.g. its edge) to select it (you should see a pink cuboid outline)</li> <li>▪ left-click twice on the area covered with tiles on the top surface of the platform, which is a casing;</li> <li>▪ open the context menu and select the <b>Cut out</b> option;</li> </ul> </li> <li>– you can monitor the progress of the operation of cutting on beside the <b>Show lights</b> icon;</li> <li>– the procedure of cutting a hole in a washbasin top is analogical;</li> <li>– in each case 2 elements have to be selected at the same time – in this situation – the washbasin and the surface of the top covered with tiles;</li> </ul>

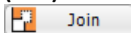
### Copy an area (Copy)



- to copy tiles from one area to another:
  - select the area to be copied and click **Copy**;
  - indicate the area, to which the tiles are to be copied with a single left-click;
- this function is very useful when applying tiles to cylindrical objects;
- you can use keyboard shortcuts:
  - first deselect all previously selected area by pressing **<Esc>**;
  - then move a cursor over a tile on the area to be copied and press the combination of keys **<Ctrl +C>**;
  - next indicate (do not click) the areas to which to copied tiles are to be applied, and – holding **<Ctrl>** all the time – move the mouse and press the letter **<V>** one time after another, applying single tiles this way;
  - only tiles of identical dimensions can be replaced.

*Note! Holding the **<V>** button for a longer time may result in cutting out a hole in an element!*

### Join areas (Join)



- used for connecting separate (previously disconnected) areas covered with tiles;
- to do it, double left-click on the first area, then select the **Join** button and left-click once on the area that is to be joined;
- the division between the areas will be removed and tiles from the first area will be copied to the joined area;
- differences in tiles dimensions do not matter;

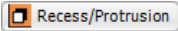
*Note! Joining areas will result in automatically moving tiles from the first area to the second one.*

### Wall edition...

- enables to shorten or lengthen a wall covered with tiles directly in visualization,
- useful when the user already arranged the tiles and then decides to modify the dimension of the room or to change the parameters of a partition wall (if these modifications were performed in **Wall Editor** all the tiles would be lost);
- to change the length of a wall: in a newly opened dialog called **Wall edition** in the **length change** field enter a new value or change it dynamically by moving a slider below;
- to select the side of the wall which is to be moved, mark an option in the modified side field (left = green or right=red);
- selecting the option adjust changes to tile size will result in changing the slider from a constant to an interval one (one interval will be equal with the width of a tile on the edited wall);
- this solution enables the user to precisely adjust the length of a wall to the size of the tiles so they do not have to be cut;

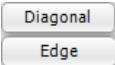
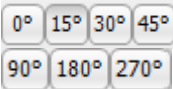
*Note! If there is a white area (without tiles) visible on the floor after shortening a wall, then remove all tiles from the floor – using an option: delete all tiles from the object, and then apply tiles again.*

### Recess/ Protrusion



- enables to create concave and convex decorative elements: recesses (niches) and protrusions, based on the outline of already applied tiles;
- significantly simplifies the process of designing interiors with ceramic tiles, because it enables to introduce modifications in walls after floor and wall coverings are already applied;
- to be able to create a recess or protrusion first specify the outline you want to use – marking it using the **Path** or **Rectangle** function;
- when the outline is specified, click the Recess/Protrusion button and define the size and the type of the element using the slider (when you move it to the left – you will get a recess, and to the right – a protrusion will be created);

### Tile rotation



- rotates tiles on a selected areas by an indicated angle;
- the angle can be specified by clicking the buttons of angles values: 0°, 15°, 30°, 45° etc.;
- alternatively it can be done dynamically by indicating a point on the circle in a wanted location;
- introduced changes are immediately visible in visualization, what helps to verify the results;
- **Diagonal** and **Edge** buttons can be used for blocks of irregular shapes that are covered with tiles;
- to adjust a grout to a diagonal or an edge of a block, select one of these options and left-click on the particular object or edge;

### Tiles randomly



- works on areas covered with identical tiles of an irregular pattern (e.g. imitating stone);
- arranges tiles in random order rotating them in different directions – to avoid the repeatability of their pattern;

### Undo / Redo



- used for cancelling (undoing) or repeating (redoing) individual operations;
- to undo an operation it is also possible to use a combination of keys **<Ctrl + Z>**, and to redo the operation: **<Ctrl + Y>**;
- it is possible to undo or redo up to 20 operations;

## 8. Summary

Can be prepared when all project works are finished. A detailed summary of all tiles used in the project is included in it (it is also possible to create a summary of used tiles by switching between the buttons **Tiles** and **Paints** on the left-hand side of the

## Summary tab (Fig. 368).

	TILES		INSERTS	SETS	GROUTS		EDITION		SUMMARY		DOCUMENTATION	
	No	Tile name		Size [whole/cut/reserve]	Area	Waste	Quantity	Unit	Net price			
Tiles	1	ESENCIA Azul 15x15		150x150 [622/153/0]=775	18.06 m2	1.0 m2	15.50	m2	1.00			
	2	Floor Sky 20x20		200x200 [108/22/3]=133	5.20 m2	0.4 m2	5.32	m2	1.00			
	3	Floor Ocean 20x20		200x200 [48/17/0]=65	2.60 m2	0.2 m2	2.60	m2	1.00			
	4	PROFUMI D'ESTATE Blu Tartan 40x40		400x400 [18/10/0]=28	3.90 m2	0.6 m2	4.48	m2	1.00			
	5	ESENCIA Ambar 15x15		150x150 [441/88/2]=531	11.94 m2	0.9 m2	10.62	m2	1.00			
TOTAL:					41.70 m2							

Documents

Print preview

Export to TXT

Gross total:  
47.00

Fig. 368 – a summary of tiles used in the project

The summary contains the following data:

- names of collections from which the tiles used in the project come from;
- dimensions of used tiles (whole or cut tiles);
- units in which tiles are sold;
- net and gross prices;
- weight of tiles used in the project;
- a number of boxes of tiles;
- an entire area covered with tiles in square meters.

When a particular position on the summary list is marked, a place in the project where indicated tiles have been used will be marked. A red colour is used to present whole tiles, and a pink colour – cut ones. Additionally – in a right part of the screen you can see a little preview of a marked tile.

Besides ordinal numbers in the left part of the screen there are little squares – red (if the tile is not optimized) or green (if the tile is optimized, this is – if the cut waste is used in another place in the project to save the material). By default all floor and wall tiles are optimized – and the decorative tiles are not (to ensure the proper pattern repeatability).

### 8.1. Optimization parameters for cutting tiles/valuation

Optimization is a unique functionality of CAD Decor PRO program, enabling the user to use a cut waste of tiles in another place in the project, to use less material. It can be freely turned on and off for particular tiles.

By default it is switched off for decorative tiles because in their case it is important to maintain a proper, recurrent pattern. Optimization helps to save the material and minimize the costs.

To change the optimization settings or add a reserve of tiles, double left-click on a particular tile position in the summary and change settings in a newly opened dialog box called **Optimization parameters for cutting tiles/ valuation** (Fig. 369).



A reserve of tiles can be given in percentage, units or units per m<sup>2</sup>. First and third option are not available for tiles that are not optimized (Fig. 370).

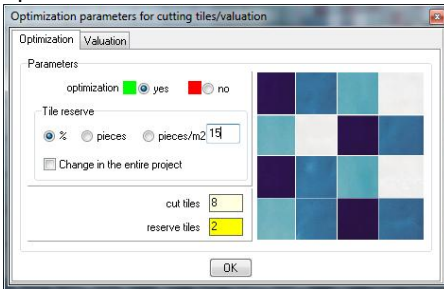


Fig. 369 – the amount of cut tiles with optimization

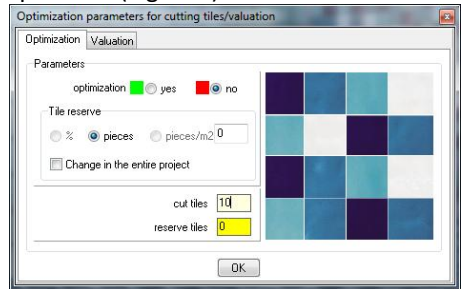






Fig. 370 - the amount of cut tiles without optimization

A reserve added for particular tiles will be marked in the **Summary** tab in a form of a yellow triangle besides the ordinal tile number:  or  and will be included in the summary.

Besides the function of optimization in the **Optimization parameters for cutting tiles/valuation** there is also a function of rounding to full boxes available (Fig. 371).

## 8.2. Summary printout

These 2 icons  **Print preview** and  **Export to TXT** enable the user to print a **Summary**.

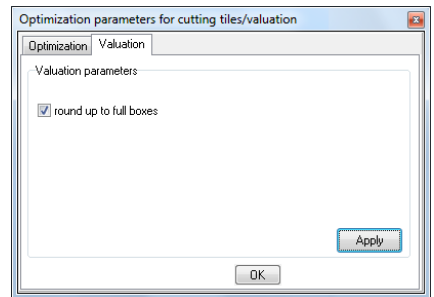





Fig. 371 – an option of rounding up to full boxes

The first one generates a valuation report in a graphic form (**CAD Decor Order Valuation** - Fig. 372), and the second one in a text file. After clicking on the first icon the user can enter project's or studio's data (the only one necessarily required information is a number of an order) and confirm it by clicking the **Save** button, and when the second icon is clicked – it is also required to indicate the location to save the file and specify its name.

*Note! Tile waste smaller than 2% of a total tile area is not included in the Summary.*

Icons in the **CAD Decor Order Valuation** dialog box perform the following functions:

-  - saves the valuation report to the disk (as HTML file);
-  - prints the valuation report;
-  - hides or displays previews of files;



- hides or displays prices of tiles;
- sends the valuation report by e-mail.

**CAD Decor Order Valuation**

CUSTOMER		COMPANY	
Valuation name: 555			Name: CAD Projekt K&A
Order Date: 2011-09-29			Krzysztof Dabrowski, Adam Sterczala
Name and surname: XXXXXXXXXXXXXXXXXXXXXXXX			Address: Kmiecica , 61 654
Address: XXXXXXXXXXXXXXX, XX-XXX XXXXXXXXXXXXXXX			Telephone: 801-000-269
		Net value	Gross value
1. PROFUMI D'ESTATE BLU TARTAN 40X40 from a collection: PROFUMI D'ESTATE_inis Ceramica Baza CadProjekt			
	Quantity: 4,48 m2 (28 pack. 0 pcs.)		
Unit Net Price: 1 zł	4,48 zł	5,47 zł VAT: 22%	
2. FLOOR OCEAN 20X20 from a collection: TEKNE TREND/Floor_Polis Ceramiche Baza CadProjekt			
	Quantity: 2,6 m2 (65 pack. 0 pcs.)		
Unit Net Price: 1 zł	2,6 zł	3,17 zł VAT: 22%	
3. ESENCIA AZUL 15X15 from a collection: ESENCIA_Vives Ceramica Baza CadProjekt			
	Quantity: 15,5 m2 (775 pack. 0 pcs.)		
Unit Net Price: 1 zł	15,5 zł	18,91 zł VAT: 22%	
Total valuation value:		net: 22,58 zł gross: 27,55 zł	

Fig. 372– a report about used tiles generated in CAD Decor PRO program

## 9. Documentation of tiles

In the **Documentation** tab it is possible to see which areas in the project are covered by tiles: of a surface smaller than x%, cut or whole. The position **without tiles** deselects previously selected options – no areas will be marked. Options of previewing tiles can be used together with various settings of wall display (transparent walls, non-transparent walls or tiles only) (Fig. 373).

**Display**

☐ tiles of a surface of < 2 %

☐ cut tiles

☒ whole tiles

☐ all tiles

**The visibility of walls**

☒ transparent walls

☐ non-transparent walls

☐ tiles only

Fig. 373 – Display and Visibility panes

### 9.1. Statistics

The **Statistics** pane (Fig. 374) enables to check the percentage of whole and cut tiles used in the current project.

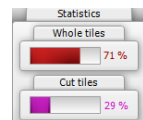




Fig. 374 – proportion between whole and cut tiles

### 9.2. Documentation

The function of technical documentation generation, available in the **Documentation** section, enables the user to copy the layout of the arranged tiles to the linear view (CAD environment). To generate documentation:

- hide all elements of the equipment and decoration in the room that block out the view at elements covered with tiles (walls, platforms, steps, casings etc.);
- then select the view that is to be generated in the work environment using the icons:  (e.g. a view of a selected wall); hide walls which are between you and the selected wall;
- go to the **Documentation** tab and select one of the options – **add legend** or **no legend** (dependant on your preferences regarding adding a list of tiles names to the generated projection) - click the **Generate** button in the appropriate field;
- the selected projection will be inserted to the project in CAD environment together with a short description of tiles – if the option **add legend** has been selected;
- now dimensions can be added.

If the orbital view has been selected (icon: ) at the moment when the **Generate** button is clicked, tiles will be presented in the environment as a mesh visible on walls and other elements covered with tiles. In this case a legend will not be generated.

### 9.3. Features in Information icon menu



**Distance** – shows the distance between two selected points – left-click the icon, then click in the first and then in the second point on the screen and you will see a message informing about a distance in 3 dimensions.




**About a tile** – shows an information about a tile (a name of a collection it comes from and a hyperlink to that collection) - click on the icon and direct the cursor to a tile; useful during the final corrections in the project; available also at **[F2]** key.




**Area** – shows the size of an area covered by tiles; available also at **[F3]** key.

## 10. Saving and loading the interior

It is possible to save a designed interior and insert it to the project again – as a result there will be 2 identical rooms in the same project.

To do it, click the **Save interior**  icon in the **View** toolbar (in work environment), select walls to be saved, and press **<Enter>**. Then indicate an insertion point for the saved interior. In the **Saving file** dialog box enter the name of the file and indicate location on the disk where it should be saved. 2 files will be created: **DWG** – file with information about the geometry of the interior, and **P3I** – file with data about layouts and colours of tiles.


When you click on the **Load interior**  icon, you will be able to open a DWG file of a previously saved interior and insert it in the current project. The DWG you want to open has to be created by using the **Save interior** function. Otherwise you will be informed that the file does not exist.

*Note! The name of the project with an inserted interior has to be different than the name of the DWG file of the interior. Otherwise you will be informed that the file already exists.*

## CHAPTER 32

### Tile Database Editor

#### 1. Introductory remarks

The **Tile Database Editor** module offers a possibility to edit prices in the existing tiles manufacturers' databases, as well as create your own tile library - by adding tiles to the User Database. To run the **Tile Database Editor** go to: **Start> All programs > CAD Decor PROPROv. 2.0. > Tile Base Editor**  **Tiles Base Editor**.

#### 2. Getting started

After running the **Editor** select a tile database for edition (Fig. 375). If you want to modify prices in producer's database, you should left-click on the producer's name on the list. If you wants to create your own collection of tiles, then the **User Database** position should be selected.

Under the name of the database a list of available collections will be displayed and in the right part of the dialog previews of all tiles included in the currently selected collection will be shown.

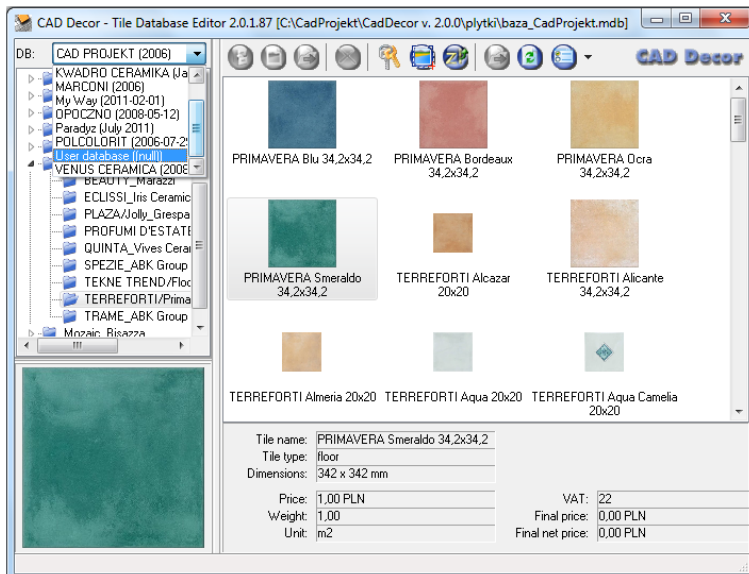

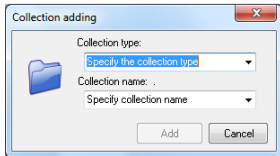

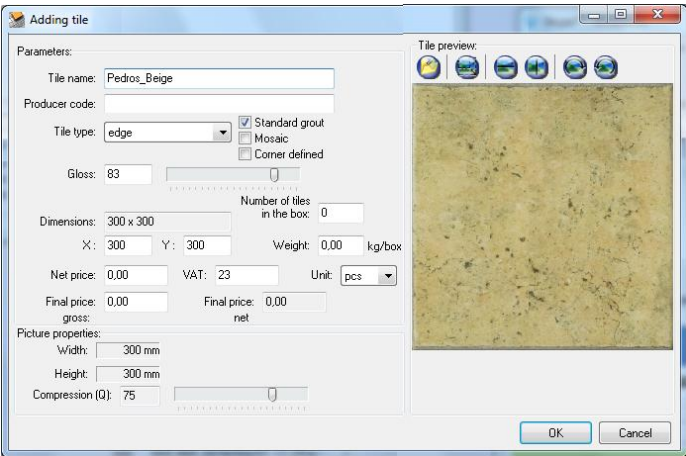

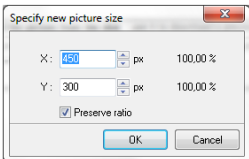

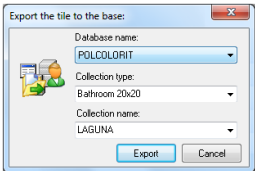


Fig. 375 – Tile Database Editor dialog – database selection

### 3. Tile Database Editor icons

Icon	Description
	<p>- <b>Add new collection or collection type</b> – creates a new collection in the <b>User Database</b> (available also under <b>&lt;Ctrl + K&gt;</b>); a name of a new collection type and of the new collection itself should be entered (Fig. 376);</p>  <p><b>Fig. 376 – adding a new collection to the User Database</b></p>
	<p>- <b>Add a new tile to the selected collection</b> – adds new tiles to the <b>User Database</b> (also under <b>&lt;Ctrl + N&gt;</b>); in the newly opened dialog necessary data about a tile should be entered (Fig. 377).</p>  <p><b>Fig. 377 – adding a new tile to the User Database</b></p>
	<p>- <b>Load the picture from the disk</b> - use it to download a preview file for the tile from any location (also under <b>&lt;Ctrl + O&gt;</b>); after loading the picture file other icons become active, this is: the scaling, flipping and rotation buttons. Scaling has been presented on the picture (Fig. 378).</p>  <p><b>Fig. 378 – scaling the preview</b></p>
	<p>- <b>Export the tile to User Database</b> – exports selected tile from another (producer) database to the <b>User Database</b> (Fig. 379); (also under the keyboard shortcut <b>&lt;Ctrl + E&gt;</b>);</p>  <p><b>Fig. 379– exporting a tile</b></p>



- **Delete selected object** – deletes the selected tile, collection or collection type (also under <Del>); each time a request for confirmation, that the selected element is to be deleted will be displayed, because it is not possible to undo this action (Fig. 380);

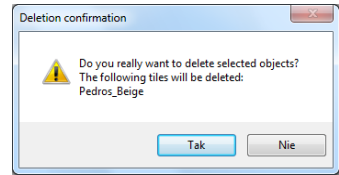


Fig. 380 – request for confirmation of removing a tile from the user database



- **Currency and exchange rate settings** – opens the **Database properties** dialog in which it is possible to change the currency of a producer's price and of a final price, as well as set the currency rate accordingly to the current rate and modify discount, margin and VAT values for prices in the whole database (Fig. 381), both the User Database and a producer's one.

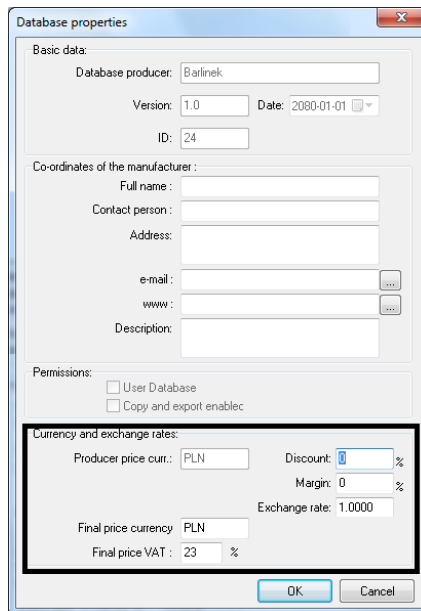


Fig. 381 – currency and exchange rate settings section



- **Grout editor** – opens a window in which you can define grouts colours and names, e.g. names conforming to the given producer's names. It is possible to add, copy, edit colours and names of grouts using the icons or the context menu (Fig. 382).

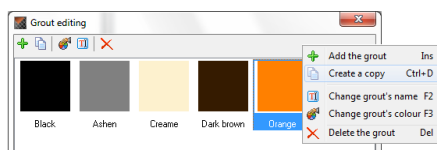


Fig. 382 – grout edition



- **Change price** – allows to modify a price for any tile in the User Database or in a producer's one (available also under the **[F3]** key); if the user does not select a particular tile, then the prices will be changed for all tiles in the selected collection; if an individual tile is selected, then only its price will be changed (Fig. 383).

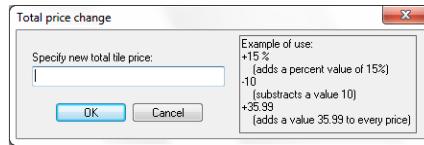


Fig. 383 – changing the final price of a selected tile



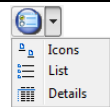
- **Import a database** – allows to import a database of tiles in MDB or XML file format from any location.



- **Reload the database from the disk** – refreshes the content of the database, including all recent changes, and makes the newest version available directly in the CAD Decor PRO program (available also under the **[F5]** key);



- **Views** – enables you to switch the view between: **Icons** (tiles thumbnail previews), **List** (tiles names only) and **Details** (detailed information about tiles: name, type, size, price, weight, unit, VAT rate, final price).



## 4. Edition of manufacturers' databases

The only element of producers' databases that can be modified is tile's price. To change the price of an individual tile, select the database from the list, then the type and name of the collection and double click on the preview of the selected tile. The edition dialog will open in which the only one editable position is the **Final gross price** (Fig. 384). After entering a new value, close the dialog by clicking **Ok**.

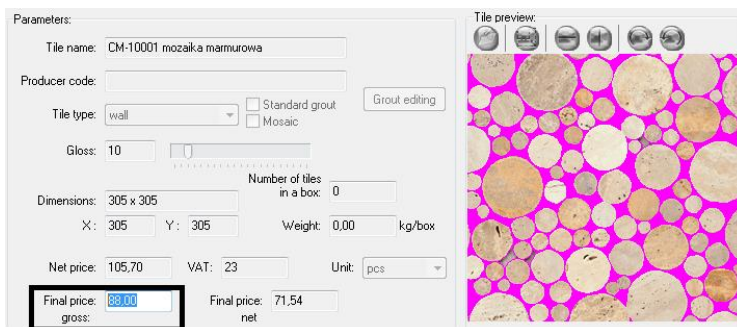



Fig. 384 – edition of a tile from a producer database

It is also possible to click the **Change price**  icon in the main dialog of **Tile Database Editor** (or **[F3]**) and enter a new value in the new dialog.

If only one, single tile is selected when the icon is clicked, the new price will be introduced only to that particular tile. But if the name of a collection on the list in the left part of the dialog is selected, changes will be introduced to all elements in this collection (Fig. 385). New prices will be introduced to the database available in CAD Decor PRO program.

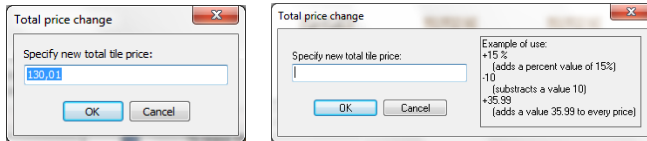




Fig. 385 – changing prices of tiles – of an individual tile and of all tiles in selected collection

To leave the edition dialog without introducing changes, click **Cancel** or .

## 5. Creating and editing the User Database of tiles

To create your own database of tiles, follow the procedure below:

- select the User Database from the list of available bases and click the  **Add new collection or collection type** icon;
- enter the type and the name of a new collection and click **Add**;
- a new position will be added to the list of collections in the left part of the **Editor**;
- click it and add tiles by clicking the  **Add a new tile to the selected collection** icon;
- in a new dialog **Adding tile** enter data about the new element and load the picture file with a preview of the tile;
- optionally you can drag-and-drop a few picture files to the Editor dialog without clicking the **Add a new tile...** icon – this will result in adding a few tiles at once;
- required information about a tile is:
  - a **name** of a tile, **producer code** and **type** of a tile - floor, wall or edge tiles;
  - **standard grout** - by default added around the tile; if this option is deselected, the button **Grout edition** becomes active and a new little dialog can be opened, in which the grout can be removed (Fig. 386) – it is necessary to deselect ALL edges (Fig. 387) – if only 1, 2 or 3 edges are deselected, the grout will be still added around a tile while applying tiles in the project;
  - **defined corner** – this option is available for collections that include edge tiles and allows to select a corner to add it to the edge tile (e.g. when creating a frame made of decorative tiles);
  - **gloss** – defined in the scale from 1 to 100;
  - **dimensions** – in axis X and Y (tiles in the program are flat objects with no thickness) – given in millimeters;
  - **the number of tiles in a box** – optional information;
  - **weight** – in kilograms per a box, optional information;
  - **net price, VAT, final net and gross price** – if the price is not defined, the tile will be not visible in the collection in CAD Decor PRO program;
  - **unit** – pieces or square meters.



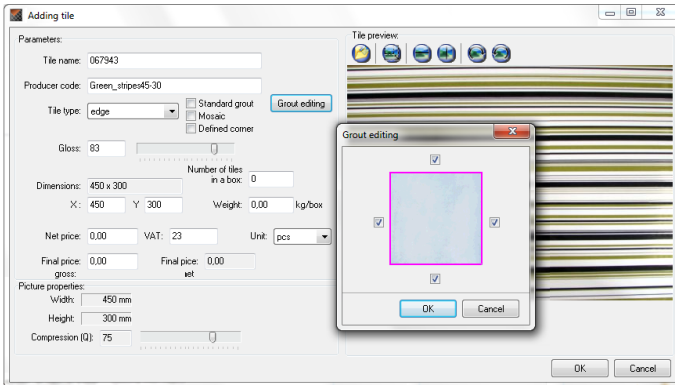


Fig. 386 – grout edition – this tile will have a grout

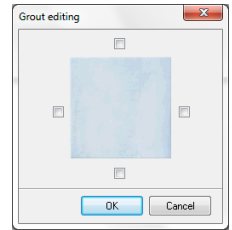


Fig. 387 – this tile will be applied in the project without a grout

*Note! It is possible to add more than 1 tile to the currently created collection in one time. To do it, after adding a new collection, without clicking the Add new... icon, move prepared picture files of tiles (in JPG format) to the Tile Editor dialog, using the 'drag-and-drop' method. It will result in opening a few new dialogs Adding a tile from a file, one for each picture file dragged to the editor's dialog. Fill out the data fields in each dialog (Fig. 388).*

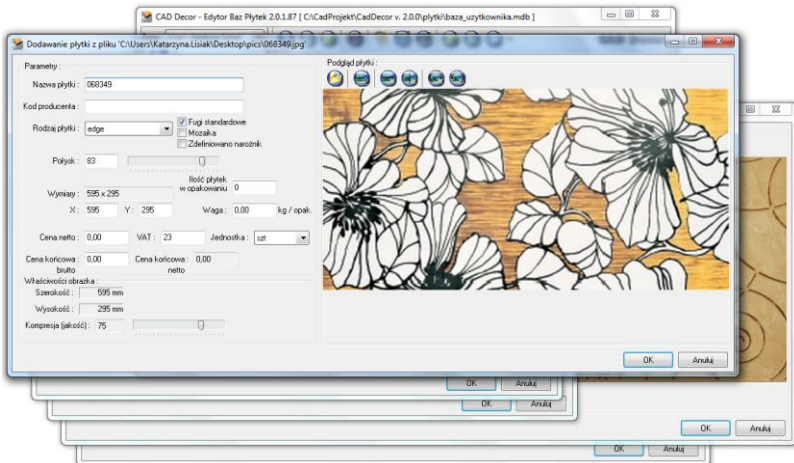


Fig. 388 – adding a few tiles in one time to the User Database

## 6. Adding mosaics to the User Database

To add a mosaic to your own database:

- prepare a picture in a resolution identical to a real size of a tile (**1 pixel = 1 mm**);
- the original resolution can be higher – it can be modified in a professional program for processing pictures;

- the picture should be in a perpendicular view with no shadows or reflections;
- using a tool for processing pictures draw grouts on the picture;
- it should be done in a following way: in places, when grouts are visible on the picture apply lines of the thickness the same as the thickness of the grout in reality (**1 pixel = 1 mm**), in the colour of a RGB sign code: **R=255, G=0, B=255** (magenta) (Fig. 389);
- it is really important to use exactly this colour because the program recognizes it as a grout;
- grouts should be drawn using a tool which guarantees a homogenous shade of the applied line - e.g. Pencil Tool or Rectangular Marquee Tool;
- therefore the Brush Tool does not allow to properly draw grouts;
- there is no need to draw grouts around a mosaic (on its edges);
- after the lines for grouts are applied, save the picture in a BMP file format;
- when saving a file make sure, that its settings are as follows: File Format: Windows, Depth: 24 Bit;
- a file prepared in this way should be drag-and-dropped to the **Editor** dialog (the collection to which the mosaic is to be added should be selected first)
- in a new dialog enter necessary information about a mosaic;
- options **Standard grout** and **Mosaic** should be selected;
- selected option **Standard grout** will result in adding grouts around a tile during application in the project;
- selected option **Mosaic** will result in an automatic optimization of the mosaic in the project, which is different than the optimization of other tiles, because the mosaic contains a number of small independent cubes, that can be easily used in another place in the project;
- the valuation of mosaics is therefore different than other tiles: only square meters covered with a mosaic are included in the valuation, after rounding up to full tiles (sets of mosaic cubes, established by the user when adding a mosaic to the database – e.g. a square of 12 rows and 12 columns of cubes – as presented in the illustration 222 ) necessary to cover the area;
- it is not necessary to change any other settings (of course the gloss should be attributed accordingly to requirements);
- to add a mosaic to the database click **Ok**.

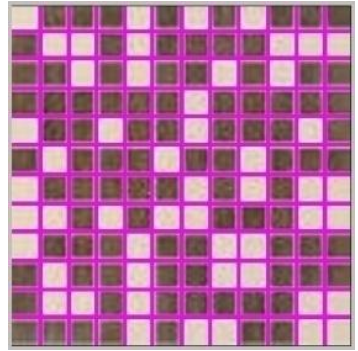



Fig. 389 – grouts drawn in a program for processing pictures

*Note! Remember that it is necessary to save a picture with drawn grouts in a BMP format.*

*Note! There is an alternative way of preparing mosaics – during processing the picture the grouts can be also drawn around the mosaic (on edges), but in this case it is necessary to:*

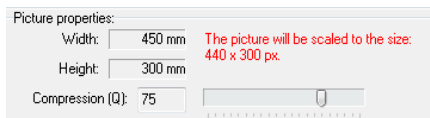
- *draw the grouts on the external edges by half more narrow than the rest;*
- *deselect the Standard grout option and uncheck ALL edges of a tile (see Fig. 220 on page 167) to prevent the program from adding grouts automatically.*

## 7. Picture properties

To load a file preview click the **Select picture**  icon and in a new dialog indicate the location of a proper picture file on the disk. A tile applied to the wall or other object in the project will have a good image quality only if the size of the picture in pixels is at least the same as the tile in millimeters. If the size of the tile in pixels is different then the size of a tile in millimeters, the program will inform the user that changing the scale of a picture is necessary (Fig. 390).





The parameters of the picture can be change by the user by clicking the **Scale**  and by using the **Compression** option in the **Picture properties** section (Fig. 390).

Compression (quality) of the picture is the level of its simplification in order to minimize its size in MB in a way that preserves the best possible visual quality but also saves the disk space.



**Fig. 390 – Picture properties section**

If the picture is loaded in a wrong position, it can be flipped or rotated, using:

-  or  - to flip horizontally or vertically;
-  or  - to rotate by 90° to the left or to the right.

## 8. Finishing work with the Add tile dialog

After entering all data and defining settings in the **Adding tile** dialog and confirming them by clicking **Ok.**, a new tile will be added to the collection, and its preview and name will be displayed in a right part of **Tile Database Editor** window.

A newly created collection can be used in the CAD Decor PRO program straight away. To do it, refresh the database by clicking in the **Collections** list in visualization (left side of the bottom toolbar) on a position of any producer's base, and then going back to the User Database. As a result the database will be reloaded from the disk and all newly added elements and changes will be introduced.

## CHAPTER 33


### Visualization - using paints in designing

#### 1. Introductory remarks

Users of CAD Decor PRO have a special Paint module at their disposal, enabling them to choose paints and other coatings for external or internal use in the project. Available are primers, enamels, paints and lacquers and other products, offered by one of the leaders on European decorative paint market – Tikkurila.

Paint selection is possible on every stage of designing in the visualization mode. The selection can be proceeded in a few different ways, which have been described in the following chapters of this manual. All products can be used in the project and saved to the individual **User Palette**. For each product the detailed technical description is available for downloading in PDF format from the producers website. It is also possible to create a final report, including all data necessary for preparing an order.

#### 2. First steps with the Tikkurila Colours module

The Tikkurila Colours module can be found in the visualization mode under the button **Tikkurila**  in **Materials** tab, in left upper corner of the screen. To get started, the User should click on it once, with the left mouse button.

The first step when working with the paints module is to choose the general kind of products, that will be used in the project. There are two main types of products – designed for the use on internal or external surfaces (Fig. 391). After indicating the proper type, click on the blue arrow pointing right, to proceed to the next step.

*Note! If the user indicates the icon that is already highlighted, the module will proceed to the next step automatically, and it will not be necessary to click the arrow button.*

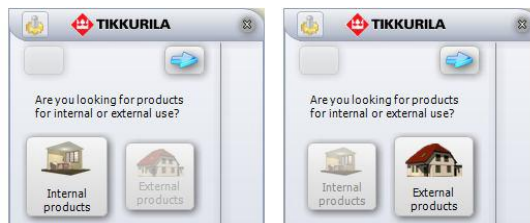


Fig. 391 – choosing the type of the products – interior or exterior

After this preliminary selection there are two available modes of module operation – the **Product selection** and the **Colour selection** mode (Fig. 392). If you are looking for a specific product (e.g. alkyd enamel, emulsion paint, acrylic lacquer or a decorative plaster) you should choose the **Product selection** icon, and then the blue arrow pointing right. But if you know what colour interests you, but are not sure, for which products it is available, you should click on the **Colour selection** button and then the arrow. If the arrow pointing left is selected, the user will be taken back to the first stage of choosing the internal and external products.

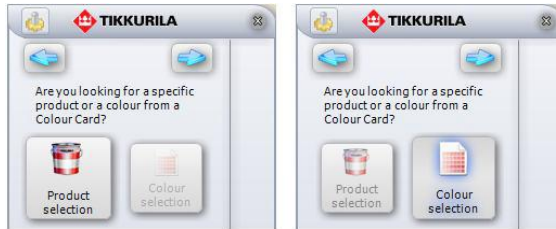


Fig. 392 – selection by the product or by the colour

### 3. Operating the paints module in the Product selection mode

Browsing the producer offer using the product criterion is the first possible way of working with the module. After choosing this mode - by selecting the option **Product selection** and proceeding to the next stage - the next step is to indicate the chosen group of products on the drop-down list called **Products of a group**. This will show all the products, belonging to the given group, on the list below named **Selected products**. You should point out the particular product on this list. To do it, you should left-click on the tick-box beside the name of the chosen product. The navy cross will then appear (Fig. 393).

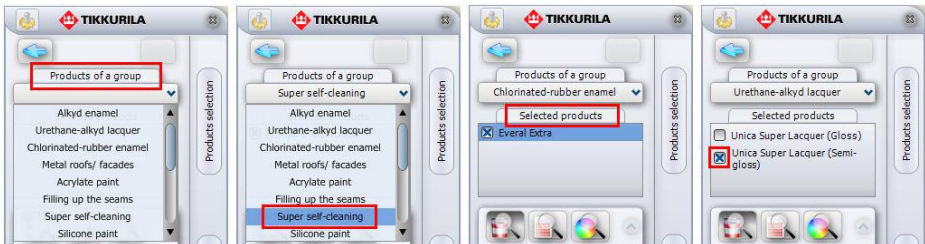





Fig. 393 – product selection

At this moment, the following 3 methods of proceeding further selection will become available:

- the option **Available for a Colour Card** - icon 
- the option **Search by the code from the template** – icon 
- the option **Search by the colour** – icon 

### 3.1. Product selection using Colour Cards

The first way of selecting the product is to do it by checking all colours available for this product in **Colour Cards** the product in question belongs to. Colour Cards contain products along with colours assigned to them, what allows the program to quickly scan the whole producer offer in order to find the material best suiting the criteria set up by the user.

In this case the procedure of selection is as follows:







- after selecting the icon  **Available for a Colour Card** the list of available colours will automatically show up;
- colours are displayed in a form of a vertical panels with codes, appearing under the name of each **Colour Card** the selected product is available in (Fig. 394);
- lists assigned to particular **Cards** can be collapsed or expanded using buttons , placed beside the name of the **Card**, on the left-hand side;
- the view of the closed **Cards** is shown on the second picture from the left in the illustration presented below (Fig. 394);



Fig. 394 – examples of available ways of displaying colours



- the view of the colour panels can be also changed using the icon on the right bottom corner of the module - **Change the view**  or  (dependent on the currently used view);

- to scroll the list, use the slider on the right-hand side;
- if the list of available colours is very long, the program will divide it into several tabs (pages); to move from one tab to another use the arrows on the bottom of the module window: ;
- the number of colours displayed in one tab can be changed using the **Settings** function, available after clicking on the **Options** icon  (detailed description in point 4.1);
- the numbers displayed on the bottom of the module window inform the User which tab is currently being shown;
- at this moment it is possible to save the chosen products in preferred colours to the individual **User Palette** (and at the same time to the computer disc) by simply using the 'drag-and-drop' method;
- to add the colour to the palette, first click on the button **User Palette** in order to expand the pane;
- then left-click on the product and holding the button, move the cursor to the pane and release the mouse button;
- the colour will be added to the palette and will be displayed in a form of a square (Fig. 395);
- at the same moment the colour will be saved to the computer disc in one of the following formats: JPG, BMP, PNG or GIF (more information on this subject can be found in point 4.4. of this chapter);
- selected colour can be also applied to any surface or object in the project.
- it is done in analogical way to described above - using the 'drag-and-drop' method.

### 3.2. Product selection using the code from the template

If the user knows the code mark of the particular product he/she would like to use in the project (for instance, he/she found it earlier on in the producer template), the option **Search by the code from the template** can be used.

In this mode the procedure of selection is as follows:

- after choosing the icon  the **Colour code** pane will appear;
- type the code in here and confirm by clicking  (Fig. 228) (the capitalization does not matter);
- in the same way as in the previously described case, **Colour Cards** will be scanned through, until the wanted product will be found and displayed under the name of the **Card** that contains it (as a colour pane with a code);
- at this stage it will be possible to add the product to the **User Palette**;
- this is also the moment when the user has an access to the basic information about the product: after placing the cursor over the square icon in the palette, the label with the following data will show up: the code, the name of the **Colour**



**Card** to which the product belongs, the name of the paint and also the file, which has been saved to the disk;

- it is also possible to go to the **Product** pane (by choosing the button **Product description** in which a short characteristic of the chosen paint is given;
- at this level there is also a detailed technical description available to download from manufacturer's website after clicking on the button **Product Card** (the detailed description of this function can be found in the subchapter 4).

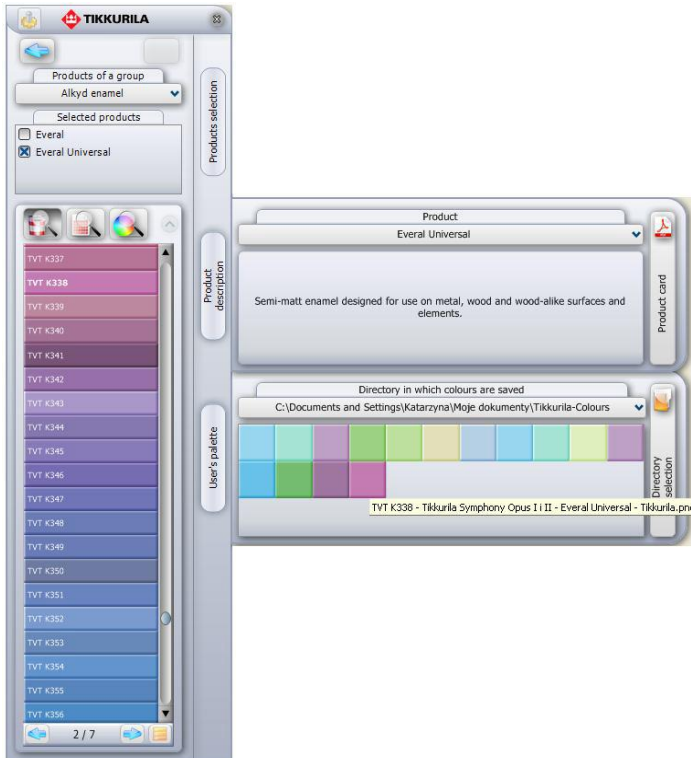


Fig. 395 – an effect of the selection by the code, and adding the product to the User Palette and the description display

### 3.3. Product selection using the indicated colour



After clicking the icon  **Search by the Colour** in the part of the dialog box below the three icons of selection type, the square colour palette will display (Fig. 396). The palette can be used by the user to indicate the colour of the wanted shade and intensity.



Fig. 396 – the colour palette

In this case the procedure of paint selection proceeds as follows:



- first you should indicate the colour you are looking for on the palette;
- in order to do so, please click on the vertical colour stripe on the right-hand side of the palette, marking the tint that should be used in the project (the little circle will appear in the marked point);
- then click on the square colour palette in the spot, where the intensity of the colour best suits users preferences (another little circle will appear there);
- the chosen shade will display on the horizontal stripe below the palette;
- when the displayed colour achieves proper parameters, the User should confirm the choice by clicking the button ;
- it will result in the program browsing the producer's offer in search of any products available in the chosen tint;
- this process includes searching for the most similar colours to the one indicated by the user in producer's **Colour Cards**;
- after it is accomplished, the list of Cards, in which the wanted colour has been found, will appear below the palette (Fig. 397);

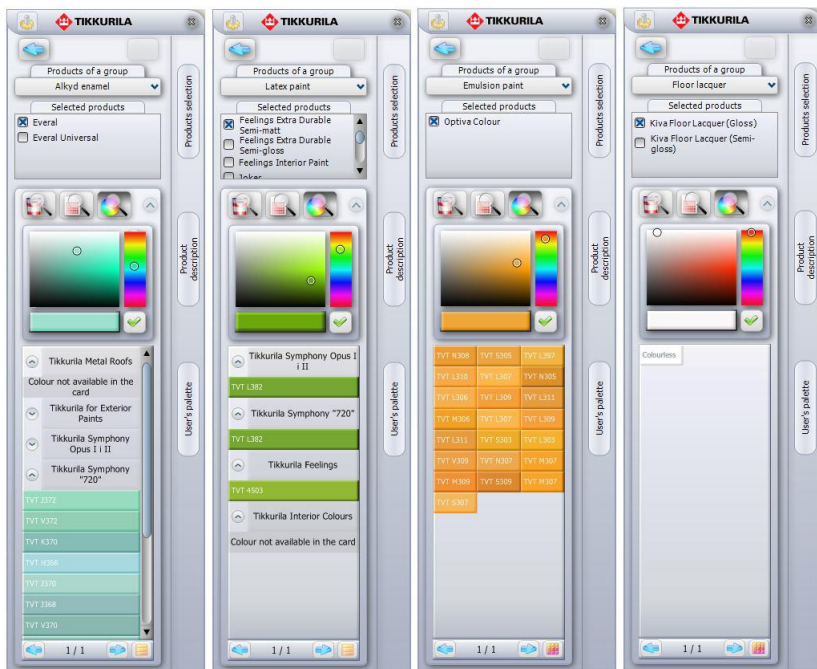


Fig. 397 – results of searching for the preferred colours for the chosen product

- below each **Card** information on available products in the sought tint will appear;
- the colours with the closest parameters to the tint indicated by the user on the palette will be listed in the form of the colour panels with the code of the product displayed;

- in one **Card** there may be more than one colour found to chose from;
- in the 'brick panels' view, the names of the **Colour Cards** will not be listed;
- an example result of this kind of selection has been illustrated on the illustration on the previous page (Fig. 397).

#### 4. Operating the paints module in the 'Colour selection' mode

This way of selecting works rather analogically to the procedures described above.

After choosing the option **Colour selection** at the second step of working with the program and after proceeding to the next window, the user will gain access to the list of all available **Colour Cards** in Tikkurila's offer, and also the three icons that determine the way the final selection will be operated (Fig. 398).

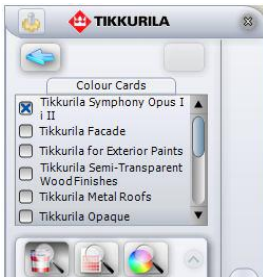


Fig. 398 - the list of Colour Cards and the three selection icons

The **Colour Card** that should be a filter for the final selection should be marked by clicking on the empty box beside its name – the navy cross will appear.

At this point there are 3 ways of running the final selection available, alike to the situation described in the previous part of this manual: **Available for a Colour Card**, **Search by the code** from the template and **Search by the colour**.

##### 4.1. Colour selection using Colour Cards

After clicking on **Available for a Colour Card** all the colours available in the previously marked card will appear on the list below. Among them you may find the ones that suit the character of the interior you are currently designing.

In this case the selection goes as follows:




- click the box beside the chosen **Colour Card** to mark it;
- then click the icon **Available for a Colour Card**;
- the list of available colours in the **Card** will appear (Fig. 399);
- as it has been mentioned before, there is a possibility to change the view of available colours as well as collapsing and expanding the lists (buttons:  or  and 
- after finding the proper colour, the user can add it to the **User Palette** as well as apply to any surfaces in the design.



Fig. 399 – example results of using Available for a colour card procedure

## 4.2. Colour selection using the code from the template

If the user knows the code of the colour he/she is looking for (for instance it has been found earlier in the producer's template), the option **Search by the code from the template** may be used.



- after choosing this icon, the **Colour Code** pane will appear (Fig. 400);
- enter the code of the wanted colour in it (letter capitalization does not matter);
- confirm by clicking 
- as it has been mentioned before, adding the colour to the **User Palette** will automatically result in saving it to the computer disc as well in one of the following formats: JPG, BMP, PNG or GIF (the format can be changed using the **Settings** option);
- the product saved to the **User Palette** will be an identical copy of the product in Tikkurila offer.



Fig. 400 – Colour Code pane

### 4.3. Colour selection using the indicated colour

When the **Search by the colour** option is chosen, in the part of the dialog box below the three icons determining the type of selection, the square colour palette will appear. In this palette the colour with the wanted shade and intensity should be indicated, in the same way as it has been described in subchapter 3 (page 235) (Fig. 401).

- after finding the colour that suits designers needs (it will be shown on the horizontal stripe below the square palette) it should be confirmed by clicking ;
- it will result in browsing the previously marked **Colour Cards** in search of the colours with maximally close parameters to the one indicated by the User in the square palette;
- in each **Card** there may be a few similar colours available – they will all be listed (Fig. 401);
- this procedure can be repeated for many times - until finding the proper shade;
- after finding a colour you can add it to your personal palette or use in the project.

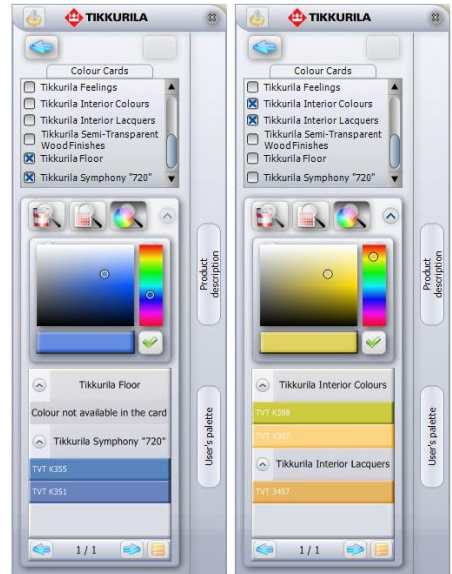

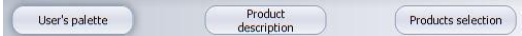


Fig. 401 - the results of Search by the colour procedure

## 5. Other options of the Tikkurila Colours module

Apart from the options discussed above, the user has an access to other functions, available via the icon **Options** , as well as to the collapsible panes, hidden under the three vertical buttons on the right-hand side of the module dialog box, presented in the following subchapters:



### 5.1. The Options icon


By clicking the **Options** icon , the following options become available: **Settings**, **Contact**, **Help** and **Report**. The **Contact** option provides access to basic data of the manufacturer: the helpline phone numbers (offices located in Poland); e-mail address and website (Fig. 402);



Fig. 402 - the manufacturer's contact details

The **Settings** option enables you to:

- modify the number of colours being shown at one time on the list (page) from 20 to 500 at one time (Fig. 403);
- modify the resolution of the JPG, BMP, PNG or GIF files being saved to the disc simultaneously to adding them to the **User Palette** (more information is provided in subchapter 4);
- restore default settings.

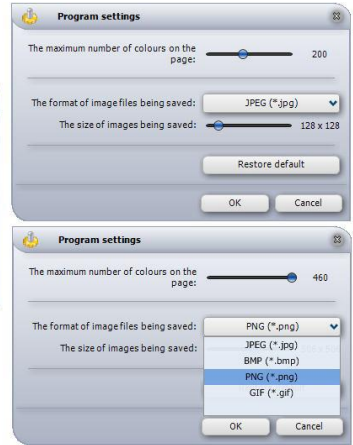
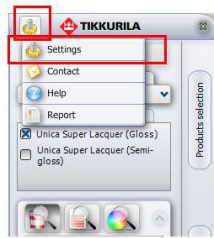


Fig. 403 – changing the settings

The exemplar settings modification has been illustrated above (Fig. 403).

The **Help** button opens the PDF file, containing module's manual. The **Report** option enables the user to create a report containing data of all paints used in the project – it has been described in the subchapter 6 – **Summary and report generation**.

## 5.2. Advanced product selection

The first of the collapsible side panes mentioned above is called **Products selection**. It is only available in the **Product selection** mode. It enables advanced paint selection based on various criteria.

First, the **Product type** or **Destination** (the type of the surface the coating will be applied to in the real world) should be chosen. Secondly, the **Key word** (for instance: acrylate lacquer or emulsion paint) or **Brand** (product family – for example: *Pure White*, *Feelings*). These positions are simply indicated by putting the navy cross in the adequate tick-box. Examples of possible configurations of selection criteria is being shown on the picture beside (Fig. 404).

In the last section of this pane products that meet the criteria are displayed.

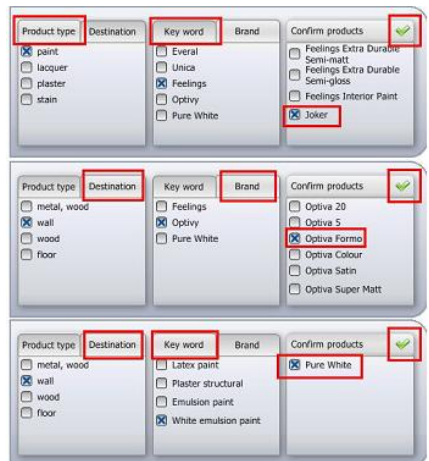




Fig. 404 – examples of configurations of selection criteria

After marking the products that interest the user by putting a navy cross beside them, and then consequently confirming the choice by clicking  button, the selected products will show up on the list **Selected product** in the left section of the module dialog box. It is necessary to indicate products on this list as well.

Then you should choose one of the icons determining the type of final selection and follow the rules described in the previous subchapters of this chapter.

### 5.3. Product technical specifications

The second of the side collapsible panes – **Product description** – is responsible for providing the User with the short product characteristic. It opens after left-clicking on the button **Product description**. In the upper part of the pane the name of the product is shown. The User can manually change the displayed product to another from the same group, for example to compare them. This pane also enables the User to gain access to detailed technical product specifications in PDF format, available online at Tikkurila's website. The access can be gained after left-clicking the button **Product Card**  (Fig. 405).

Of course, this option is only available when the connection with the Internet is established. The **Product Card** can be saved on a disc as a PDF file, printed directly from the website or shared with other Internet users.

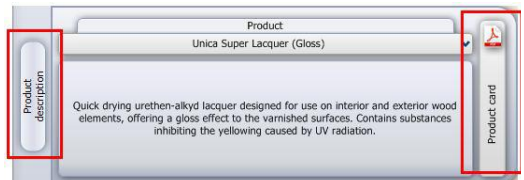


Fig. 405 – Product description pane

### 5.4. Saving colours to the User Palette

It has been already mentioned, while describing the several ways of proceeding the paint selection, that you have a possibility to add your favourite colours to your personal **Palette**. It can be done simply by moving the chosen colour from the list, where it is displayed, to the **User Palette** pane, with the use of the 'drag-and-drop' method. It will result, at the same time, in saving the colour in the form of JPG, BMP, PNG or GIF file to the computer disc.


Files will be saved in a default directory (**My Documents**), unless you manually change the location. To do so, click the **Directory selection**  button on the right-hand side of the expanded pane (Fig. 406).



Fig. 406 - User's palette' pane with the button enabling to select the directory in which colours will be saved



A new dialog will then open (Fig. 407), in which the destination directory should be chosen.

Thanks to the individual palette, it is possible for the User to create a library of the most commonly used colours and products from the producers database. Elements that have been once entered are remembered by the program and are available to use again in the future.

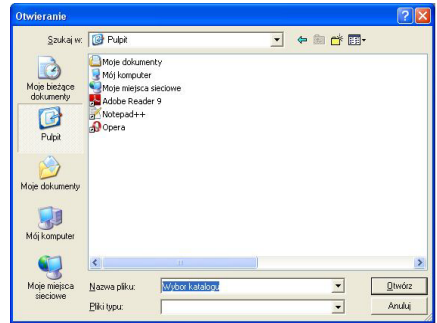


Fig. 407 – choosing the directory for saving elements of the User Palette in the new dialog box

Because it is possible to add multiple new directories for saving Tikkurila colours, you can create a few separate libraries (for instance for products designed to use in various interiors, such as bedrooms or bathrooms, as well as colours of diverse kinds – for example: cold or warm), and then, while operating the module, switch between them accordingly to his/her current needs. In this pane the user also gains access to the basic information about the product. After placing the cursor – without clicking – over the chosen colour in the palette, the label with the most important information, such as the code and the name of the Colour Card that contains the colour, will be displayed (Fig. 408).

In addition, after right-clicking the square icon of the chosen product in the palette, the user will gain access to the pop-up menu, enabling him/her to delete single or several items from the **Palette**, as well as to edit them in order to add the product to the chosen colour (if it had been previously saved without assigning this information). Functions available in the **User Palette** and the **Product selection** dialog box are presented on the illustrations below (Fig. 408 and 409).

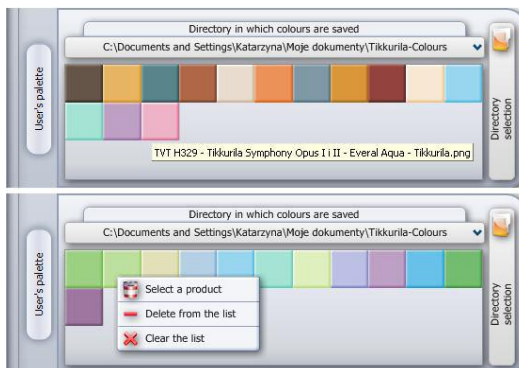


Fig. 408 – the look and features of the User Palette pane

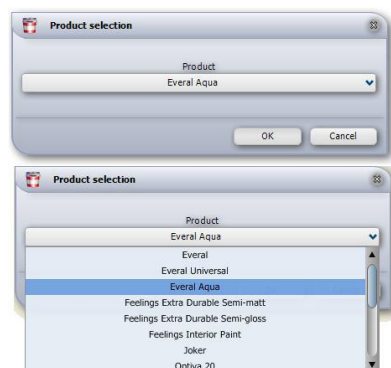


Fig. 409 – assigning the product to the selected colour in the User Palette

# 6. Applying chosen paints to the project

The **Paints Module** enables quick and simple application of the chosen coatings to any surfaces and object in the design. It depends only on user's abilities either the coating is correctly chosen as far as the material to which it will be applied is concerned, as well as its colour being harmonious with the overall view of the arranged interior. All necessary information can be obtained during working with the module, in particular with the use of the option giving the access to the on-line specifications document on Tikkurila's website (function described in subchapter 4).

The process of adding paints and other coatings to the project operates in an analogical way to textures application – using the 'drag-and-drop' method. When the suitable material is found, the user should left-click on the panel on the list (or the square in the **User Palette**) symbolizing it and – holding the left mouse button – drag it to the surface or object destined to be coated with it. Then release the button. The paint (or any other product) will be applied to the indicated area.

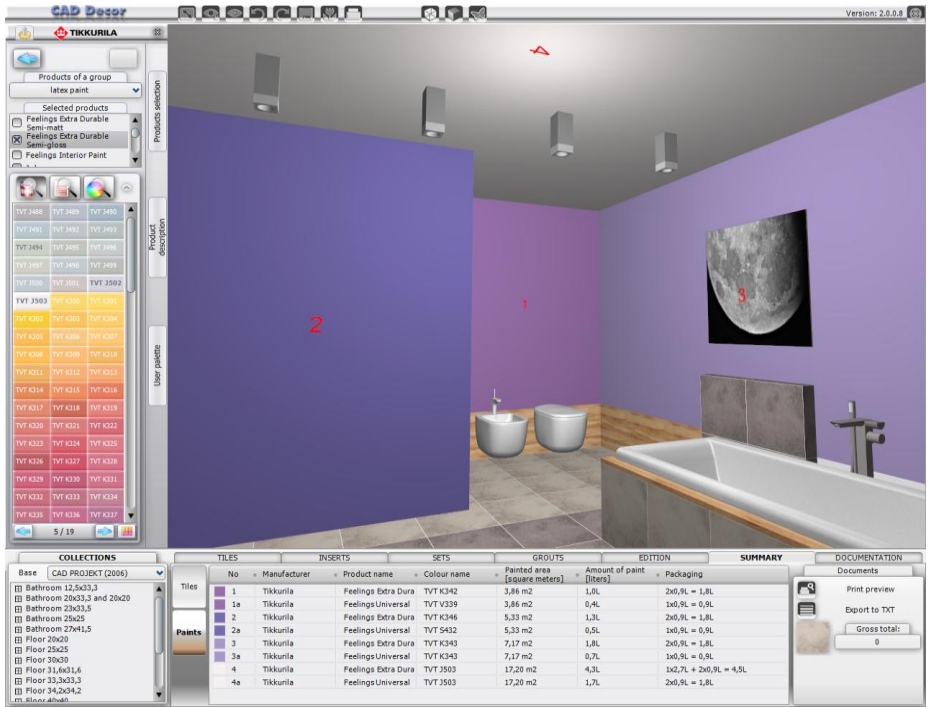


Fig. 410 - applying paints to surfaces in the project

As it can be seen on the illustration above (Fig. 410), after applying a new paint to some area in the project, a new red ordinal number will appear. These numbers are also listed in the **Paints Summary** beside the appropriate product. For example paint



applied to the wall on the left-hand side of the screen has been marked with a number '5'. The same number is visible beside this paint's position in the **Summary**.

*Note! In case of the colourless coatings (e.g. floor lacquer) it is not possible to apply them to any surfaces that have been previously covered by any other of Tikkurila products. They can be only applied to the objects, on which any other coating has not been laid. At the same time it is necessary to apply any kind of texture to go underneath them.*

Please note that some products in Tikkurila's offer require to use the primer first, before applying them (in real world – there is no need to apply primers in the project). For those products an additional position will be added in the **Summary** and relatively numbered, with a letter 'a' added – in this case '5a'. So the position '5a' means a primer from the Tikkurila offer that have to be used underneath the chosen paint with a number '5' assigned in the project.

*Note! If the user wants only a define part (area) of the wall to be coated, and the other part to be omitted during the paint application, he/she should, before dragging the chosen paint to the surface in question, apply ceramic tiles to this very wall and, accordingly to the rules of tiles edition, described in Chapter 20, detach the areas.*

## 7. Paints summary and report generation

During applying Tikkurila product to objects and surfaces in the project, each newly applied coating will be automatically added to the **Paints Summary** (Fig. 411), which is available in the tab **Summary**. In the same tab the user gains the access to the **Ceramic Tiles Summary** (described in **Chapter 31**). Switching between tiles and paints summaries is enabled by two buttons of the left side of the screen – **TILES** and **PAINTS**.

	TILES	INSERTS	SETS	GROUTS	EDITION	SUMMARY	DOCUMENTATION
	No	Manufacturer	Product name	Colour name	Painted area [square meters]	Amount of paint [liters]	Packaging
Tiles	1	Tikkurila	Feelings Extra Dura	TVT K342	3,86 m2	1,0L	2x0,9L = 1,8L
	1a	Tikkurila	Feelings Universal	TVT V339	3,86 m2	0,4L	1x0,9L = 0,9L
Paints	2	Tikkurila	Feelings Extra Dura	TVT K346	5,33 m2	1,3L	2x0,9L = 1,8L
	2a	Tikkurila	Feelings Universal	TVT S432	5,33 m2	0,5L	1x0,9L = 0,9L
	3	Tikkurila	Feelings Extra Dura	TVT K343	7,17 m2	1,8L	2x0,9L = 1,8L
	3a	Tikkurila	Feelings Universal	TVT K343	7,17 m2	0,7L	1x0,9L = 0,9L
	4	Tikkurila	Feelings Extra Dura	TVT J503	17,20 m2	4,3L	1x2,7L + 2x0,9L = 4,5L
	4a	Tikkurila	Feelings Universal	TVT J503	17,20 m2	1,7L	2x0,9L = 1,8L

Documents

Print preview

Export to TXT

Gross total:

0

Fig. 411 – the summary of all coatings used in the project

In the summary the following information will be given:






- the ordinal number and a colour sample of each product (as it has been mentioned, the program attributes a new number to each applied material, and the number is visible in the project in red colour; if the particular product needs a primer to be used underneath, in the summary there will be also included a position with attributed a number with an added letter 'a' (Fig. 411 above);


- the name of the manufacturer, used products and colour (usually a colour code);
- the size of the coated area (in square meters);
- the amount of paint necessary to coat this area (in liters);
- the number and volume of packages of paint needed.

*Note! Only in the Polish version of CAD Decor PRO the Gross Value and Total will be given.*

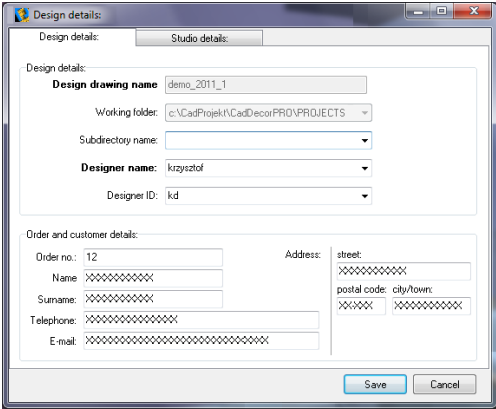
You can also create the **Paint Report**, containing the following data:

- Tikkurila's logo, e-mail address, website and helpline phone number;
- the name of the current report (it is the same as the number of the order assigned to the current project)
- the date of receiving the order;
- clients name and address;
- information about the company realizing the order (previously entered in the dialog box called **Projects Data**);
- Information about each product used in the project (codes and names);
- a colour sample;
- the painted area and the number of coatings (established by the manufacturer for each product, cannot be modified by the user);
- the amount of paint needed and the number of packages;
- optional: **Net** and **Gross Value** (only in Polish version);
- total summary: total area, total amount of paint, total value (in Polish version);

In order to create the **Report**, the left-click the **Print preview**  button in the **Summary** tab or choose the position **Report** under the **Options**  icon. Then fill in all necessary data in the newly open window (Fig. 412 and 413) and click the **Save** button. The **Tikkurila Paints Report** containing all basic information about paints used in the project will be generated (Fig. 414). The report can be saved to the disc (in HTML format), printed or send via e-mail. These functions are available under icons: ,  and  in the upper left corner of the **Tikkurila Paints Report** dialog.

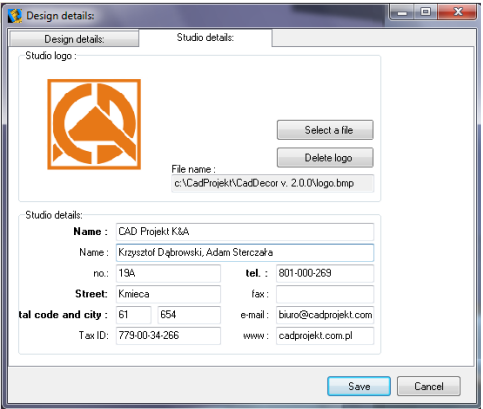
*Note! The icon  Show/hide prices enables to show or hide prices in the report. Please note that prices are only available in a Polish version of the Tikkurila paint library. Due to this it is recommended for our foreign customers to select the mode with the hidden prices.*

*Note! While working in the Tikkurila Colours Module it is possible to generate the Documentation – analogical to the technical documentation for tilers, available during designing with ceramic tiles. However it should be noted that both documentations look the same, so if both tiles and paints are used in the project, the attention should be paid not to mistake them with one another. For more information about the documentation in CAD Decor PRO program see Chapter 26 on page 180.*



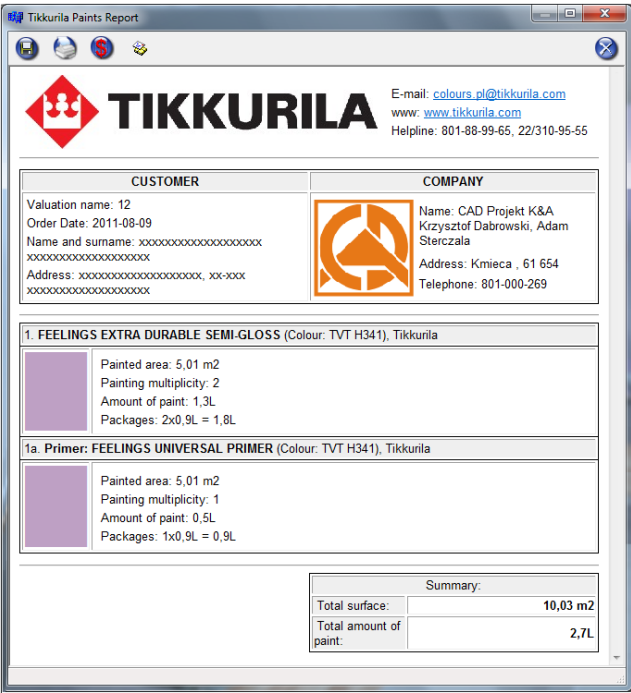
The 'Design details' dialog box, 'Design details' tab. It contains fields for 'Design drawing name' (demo\_2011\_1), 'Working folder' (c:\CadProjekt\CadDecorPRO\PROJECTS), 'Subdirectory name', 'Designer name' (krzysztof), and 'Designer ID' (kd). Below is the 'Order and customer details' section with fields for 'Order no.' (12), 'Name', 'Surname', 'Telephone', 'E-mail', 'Address' (street, postal code, city/town), and 'Address' (street, postal code, city/town).

Fig. 412 – Design details dialog box – filling up the data in Design details tab



The 'Design details' dialog box, 'Studio details' tab. It features a 'Studio logo' section with a logo image and buttons for 'Select a file' and 'Delete logo'. The 'File name' is c:\CadProjekt\CadDecor v. 2.0.0\logo.bmp. Below is the 'Studio details' section with fields for 'Name' (CAD Projekt K&A), 'Name' (Krzysztof Dąbrowski, Adam Sterczala), 'no.' (19A), 'tel.' (801-000-269), 'Street' (Kmieca), 'tal code and city' (61 654), 'Tax ID' (779-00-34-266), 'e-mail' (biuro@cadprojekt.com), and 'www' (cadprojekt.com.pl).

Fig. 413 – Design details dialog box - filling up the data in Studio details tab



The 'Tikkurila Paints Report' window. It displays the Tikkurila logo and contact information (E-mail: colours.pl@tikkurila.com, www: www.tikkurila.com, Helpline: 801-88-99-65, 22/310-95-55). Below is a table with 'CUSTOMER' and 'COMPANY' details. The 'CUSTOMER' section includes 'Valuation name: 12', 'Order Date: 2011-08-09', 'Name and surname', 'Address', and 'Address'. The 'COMPANY' section includes 'Name: CAD Projekt K&A', 'Krzysztof Dąbrowski, Adam Sterczala', 'Address: Kmieca, 61 654', and 'Telephone: 801-000-269'. Below the table are two sections for paint products: '1. FEELINGS EXTRA DURABLE SEMI-GLOSS (Colour: TVT H341), Tikkurila' and '1a. Primer: FEELINGS UNIVERSAL PRIMER (Colour: TVT H341), Tikkurila'. Each section includes a color swatch and details about painted area, painting multiplicity, amount of paint, and packages. At the bottom right is a 'Summary' table.

Summary:	
Total surface:	10,03 m2
Total amount of paint:	2,7L

Fig. 414 – Tikkurila Paints Report (with hidden prices)

## CHAPTER 34

# Visualization - defining parameters and edition of light

### 1. Introductory remarks

Light is an essential decorative element of the project, and its proper use not only helps to achieve a realistic look of designed room, but also emphasizes its aesthetic values. This is why the knowledge of how to properly set and edit light should be important for every professional designer. Technologically advanced solutions of computer 3D graphics used in CAD Decor PRO enables its users to create unique character of arranged interiors and accurately reflect reality in visualizations.

### 2. Types of light sources in the program

There are 4 types of light sources available in the program: halogens, fluorescent lights, spotlight and sunlight. Lighting (halogen and fluorescent lights) are placed in the project by the user while inserting elements of interior design, using objects from universal and producers' databases available in the program. Each element introduced to the project is displayed on the list of lights in the **Lights** pane, in the upper section of the **Scene** tab in visualization (Fig. 415).


Individual light sources on the list are numbered and assigned to particular categories. After left-clicking on a selected position on the list, in the preview of the room in visualization an outline of the light cone will be presented – the object is now ready for edition. The rules of edition of particular light sources are described in the following subchapters.

Apart from lights entered to the project by users, there are several default light sources (described in the table below).



**Fig. 415 – the list of lights used in the project**




Type of lights	Description
<b>4 halogens in the ceiling</b>	<ul style="list-style-type: none"> <li>– they appear in the project when the user switches to a visualization mode for the first time;</li> <li>– from that moment on they are visible in the CAD environment as 4 symbols of little 'suns';</li> <li>– while working in the environment they can be freely moved, copied or deleted, if they are not wanted;</li> </ul>

	<ul style="list-style-type: none"> <li>– the default halogens are necessary to light up the scene before the user inserts any other light sources;</li> <li>– they are invisible in visualization – they are only points emitting light in the ceiling of the room (no visible objects);</li> <li>– the default halogens can be edited in the same ways as halogens entered in the project by the user (see subchapter 3: <i>Edition of halogens</i>);</li> <li>– they light up after clicking the <b>Show lights</b> icon  or pressing <b>[F1]</b>.</li> </ul>
<b>Spotlight</b>	<ul style="list-style-type: none"> <li>– an element emitting very strong light used for lighting up the design while working with textures;</li> <li>– it is recommended to switch it off when the final view of the room is generated and the visualization is saved as illustration, animation or video, to avoid overexposure;</li> </ul>
<b>Sunlight</b>	<ul style="list-style-type: none"> <li>– intense light, penetrating orifices and glass objects and blocked by impenetrate (opaque) elements in the same way, as in the real world;</li> <li>– its hypothetical source is located far away from the project;</li> <li>– it enters the room through windows and orifices in walls, as well as doors with glass elements;</li> <li>– in the visualization (when edited) is presented as a cuboid with a red line in the middle, directed to the centre of the room;</li> <li>– can be used for additional decoration of the interior;</li> </ul>

### 3. Edition of halogens

Halogens are the light sources which emit pin light.

Their edition includes the following operations:

- selecting the element for edition by a single left-click on the position on the list;
- more than one element can be edited in one time;
- the button  helps to select all halogens visible at the moment in one move;
- to select all elements on the list click the first item, press **<Shift>** and click on the last item on the list; to select only some elements use **<Ctrl>**;
- selected lights can be switched on or off by clicking the symbol of a light-bulb ;
- light sources can be hidden (so they are invisible despite emitting light) by clicking the symbol of an eye  beside the name of the particular element on the list;
- to adjust the light parameters to your needs, use sliders and buttons in the section directly under the list of lights (Fig. 416);
- it is possible to modify the style of the light source (IES file), colour of the light, its intensity, range and an angle of a cone;

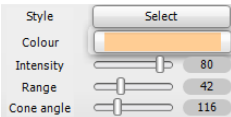






Fig. 416 – halogens edition pane

Particular edition features are presented in the table on the next page.

Parameter	Description
<b>Style</b>	<ul style="list-style-type: none"> <li>it is possible to change the shape of a light-field generated by a particular light source in the project (a style of distribution of light by a given light fixture);</li> <li>helps to obtain original, unique and realistic effects of illumination of the scene;</li> <li>IES files are a digital representation of an actually existing light sources - their intensity and geometry of light distribution;</li> <li>IES data is provided by lighting manufacturers in the form of texts files;</li> <li>there is 32 ready-to-use styles available to choose from (Fig. 418, next page);</li> <li>on the list of lights, beside halogens attributed with some IES style there will be a <b>IES</b> designation – after placing the mouse cursor over it, you will see a preview of the particular IES style;</li> <li>you can also download and use, your own IES files, e.g. created by you or found in the Internet (lighting manufacturers often make them available online).</li> </ul>
<b>Colour</b>	<ul style="list-style-type: none"> <li>this feature enables the user to attribute any colour to the light;</li> <li>after clicking it a small pane will open in which the wanted shade can be selected in 2 ways – by clicking on a palette or by indicating it on a colour scale (Fig. 417) (to switch between the palette and the scale click  / );</li> <li>selected colour will be displayed beside the <b>colour</b> button;</li> <li>to confirm click ; to close the without introducing changes, click .</li> </ul>
<b>Intensity</b>	<ul style="list-style-type: none"> <li>lights can have various intensity – the bigger intensity, the brighter light;</li> <li>the power of the light can be defined by moving the <b>intensity</b> slider;</li> </ul>
<b>Range</b>	<ul style="list-style-type: none"> <li>determines how broad are the borders of a particular light field;</li> <li>if the range is minimal, light will not reach the floor (e.g. for a ceiling lamp), and with at a maximal level light will fully fulfill the whole light cone and will create a visible light-circle on the floor;</li> </ul>
<b>Cone angle</b>	<ul style="list-style-type: none"> <li>determines the size of an area on which the light from a single source is spread;</li> <li>changes in this setting are clearly seen in the preview in visualization – when the slider is moved, the shape of an orange schematic outline of the edited light cone changes;</li> <li>if light is to be spread broadly on the biggest possible surface, move the slider to the right – and if the given light source is to emit light only on a very small area, move it to the left;</li> </ul>

All changes of light sources parameters can be currently viewed in the visualization. The program calculates new values and adjusts the view of the scene to the current settings, what enables direct verification and correction of effects.

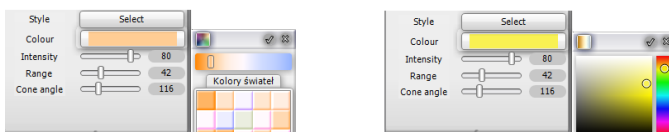


Fig. 417 – a pane of colour selection in two variants

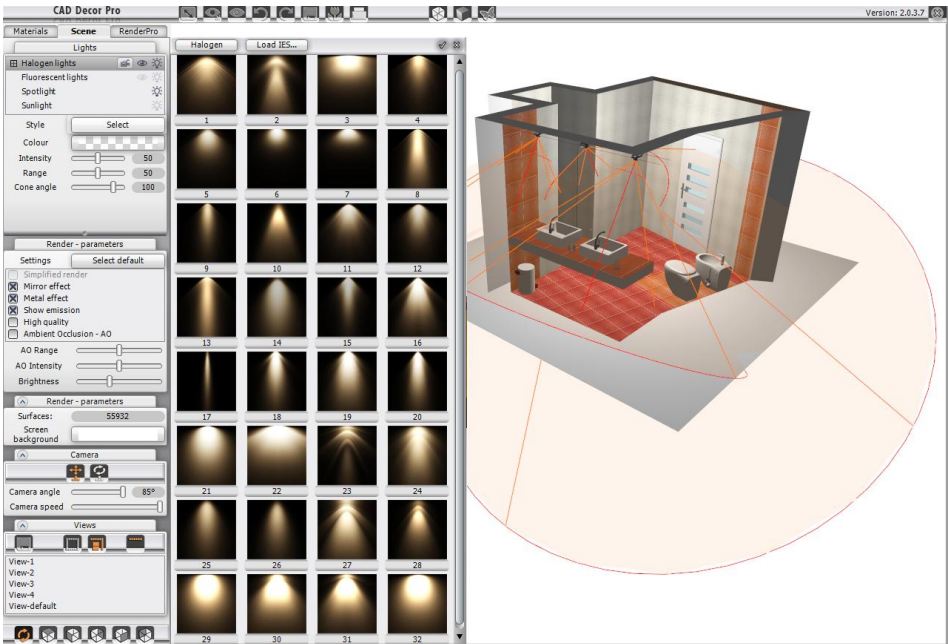


Fig. 418 – edition of the default halogens – selection of a style of a light fixture

#### 4. Edition of fluorescent lights

Fluorescent lights are light sources that emit linear light.

Parameter	Description
<b>Colour</b>	<ul style="list-style-type: none"> <li>– this button enables to change the colour of the light;</li> <li>– after clicking it a small pane will open in which the wanted shade can be selected by clicking on a palette or by indicating it on a scale;</li> <li>– selected colour will be displayed beside the <b>colour</b> button;</li> <li>– to confirm it, click  and to cancel the operation click ;</li> </ul>
<b>Intensity</b>	<ul style="list-style-type: none"> <li>– lights can have various intensity – the bigger intensity, the brighter light;</li> <li>– the power of the light can be defined by moving the <b>intensity</b> slider;</li> </ul>

#### 5. Edition of the spotlight

Spotlight is an additional light-emitting element in the project, used to light up the scene before other, physically existing light sources are inserted and adjusted, e.g. while applying textures to walls and objects. Its source is not visible in work environment or visualization, unless it is selected for edition (then it is represented by a yellow sphere).

It is recommended to turn the spotlight off when the final view of the scene is prepared, because it can distort the effects of illumination in the project (e.g. the room will look much brighter than in reality, or the direction of light will be different than it should, taking into account all existing light sources).

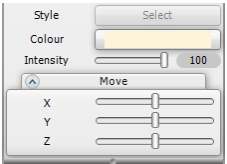


Fig. 419 – spotlight edition pane

To edit spotlight, left-click on its item on the list of lights. Parameters available for modification are described in the table below.

Parameter	Description
<b>Colour</b>	<ul style="list-style-type: none"> <li>the colour of the light emitted by the spotlight can be freely changed in the same way as in a case of other light sources;</li> <li>to make the scene look more natural, a warm shade of yellow or orange can be used (day scenes) or blue (night scenes);</li> <li>to do it, click the <b>colour</b> button and indicate the wanted colour;</li> <li>confirm your choice by clicking  ;</li> </ul>
<b>Intensity</b>	<ul style="list-style-type: none"> <li>intensity of spotlight can be modified in the same way as other light sources;</li> <li>it is recommended to make sure that the intensity is not too high, because it may result in overexposure of the scene;</li> </ul>
<b>Move</b>	<ul style="list-style-type: none"> <li>the spotlight can be freely moved by moving sliders, representing 3 dimension axis: X, Y and Z (Fig. 419 above);</li> <li>moving these sliders gives a direct result – the spotlight in the project moves (it can be seen because a yellow sphere representing the spotlight is visible);</li> </ul>

## 6. Edition of the sunlight

To edit sunlight, left-click on a appropriate item on the list of lights. Parameters that can be modified are: colour, intensity, height, direction and the size of beam of light.

When the sunlight is edited, it is represented by a large orange cuboid outline, simulating light coming from a very distant source. When the direction is changed, the source moves around in an orbit, the center of which is the same as the center of the room (marked with a red axis of symmetry of the cuboid).

The red axis in the middle of the cuboid may be moved to some particular object, so that object becomes a center of the rotation of an artificial ‘sun’ in the program (by selecting the option **Sun shines on the object**, available under the right mouse button after a double left-click on the particular object) (Fig. 420, next page).

If the sunlight is to be visible in the project, it has to be turned on by clicking beside its position on the list, because by default this light is turned off.



Parameter	Description
<b>Colour</b>	<ul style="list-style-type: none"> <li>– the modification of the sunlight colour can be performed in the same way as with all other types of lights;</li> <li>– recommended shade is a pale yellow, imitating a natural daylight, or shades of orange – to create an illusion of a sunset;</li> </ul>
<b>Intensity</b>	<ul style="list-style-type: none"> <li>– it is necessary to make sure that the intensity of the sunlight is not too high – the scene can be easily overexposed if this parameter is set at a maximal value;</li> </ul>
<b>Height</b>	<ul style="list-style-type: none"> <li>– this feature is responsible for placing the artificial ‘sun’ at a wanted height over the ‘horizon’;</li> <li>– if the sun is ‘rising’ or ‘setting’ or if the room is located e.g. on a hill or a top floor of a tall building, move the slider to the left - sunlight will fall from below;</li> <li>– to present a sun in its zenith, move the slider to the right – then the sunlight will fall almost vertically from above;</li> </ul>
<b>Direction</b>	<ul style="list-style-type: none"> <li>– determines the direction from which the sunlight falls into the room;</li> <li>– when setting it remember to keep in mind the actual position of the designed interior to the directions of the world;</li> </ul>
<b>Size</b>	<ul style="list-style-type: none"> <li>– determines the width of the beam of sunlight;</li> <li>– if the room is large and the default size of the beam is not enough to cover all windows, it should be increased by moving the slider to the right;</li> </ul>

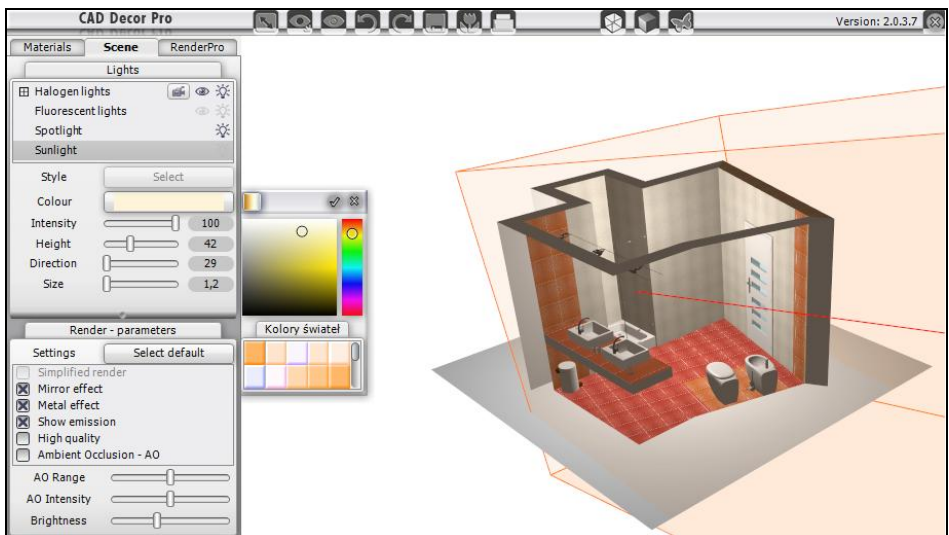


Fig. 420 – edition of sunlight

## CHAPTER 35

### Visualization - basic rendering

#### 1. Introductory remarks

Rendering determines the quality, contrast and depth of the visualization after turning the lights on. The key factor of obtaining superb final results are properly set rendering parameters. With this highly advanced module, it is easy to achieve very good visual results even with a minimal effort. This is so because of used solutions, based on the newest achievements of computer 3D graphics, in particular advanced algorithms for calculating light in the scene – **Ambient Occlusion** and **Bump Mapping** – on the basic level, and Global Illumination algorithms, used on the professional level (described in the following **Chapter 36: Visualization – advanced rendering**, on page 258).

#### 2. Standard rendering control panel

The control panel is located in the central part of the **Scene** tab. Selection and deselection of particular positions influence the look of the rendered scene. For example – selecting the **Mirror effect** option will result in showing the properties of vertical reflections on all objects, to which there properties have been attributed, and if the option is deselected, the objects will not look as mirrors.

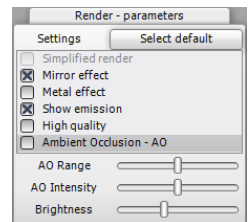



Fig. 421 – Render – Parameters control panel

#### 3. Standard rendering features – table

Function	Description
<b>Simplified Render</b>	<ul style="list-style-type: none"> <li>- more economical version of render, uses less memory</li> <li>- useful particularly with computers with weaker performance, with less processing power,</li> <li>- shorter time necessary to achieve the final effect,</li> <li>- worse appearance of the shadows – less realistic, more sharp, 'angular' and 'serrated'</li> <li>- less visible <b>Bump Mapping</b> effect – 'flattened' a devoid of shades.</li> </ul>
<b>Mirror effect</b>	- displays attributed properties of vertical reflections for objects imitating mirrors – all effects visible after the lights are switched on;
<b>Metal effect</b>	- displays attributed properties of general reflections for objects imitating metal when the lights are switched on.

<b>Show emission</b>	<ul style="list-style-type: none"> <li>- displays attributed properties of own light emission;</li> <li>- there are 2 kinds of emission available – <b>basic</b> and <b>advanced</b>;</li> <li>- the <b>basic light emission</b> is available in standard and makes the objects look like they glow, but in fact they do not emit the real light;</li> <li>- the <b>advanced light emission</b> is available on the professional level of rendering and gives an effect or a real light emission (see pages 261 and 275 for more details);</li> <li>- the <b>Show emission</b> function displays the basic emission (<b>glow effect</b>, also called <b>light bloom</b>, that creates an impression of the object glowing brightly with an intensive, white light);</li> <li>- as a result object which have been attributed the basic emission are surrounded by a halo that looks like they were emitting light;</li> </ul>
<b>High quality</b>	<ul style="list-style-type: none"> <li>- improves the quality of obtained effects of visualization, if only the processing power of the computer allows it;</li> <li>- most significant changes regard the quality of shadows in the project;</li> <li>- they become softer and natural, and more gradual – like in the real world;</li> </ul>
<b>Bump Mapping</b>	<ul style="list-style-type: none"> <li>- a specialist method of texturing, simulating even the smallest unevenness of the surface of objects,</li> <li>- gives an effect of a totally realistic look of the visualized surfaces, e. g. ceramic tiles, wood, printed wallpapers</li> <li>- thanks to <b>Bump mapping</b> all protuberances of textures and tiles gain natural gloss and roughness.</li> <li>- function available in <b>Material properties</b> dialog box, in the <b>Advanced</b> tab;</li> <li>- to open this dialog, select the object in visualization (double left-click or the icon , then right-click and select <b>Properties</b> from the context menu;</li> </ul>
<b>Ambient Occlusion</b>	<ul style="list-style-type: none"> <li>- a special method of shading the spatial objects, consisting of calculation of the degree in which the given fragment of the object's surface is expose to the ambient (diffused) light in the room,</li> <li>- gives the extra depth and perspective to the scene, increasing a reality of its look,</li> <li>- this option is responsible for a naturally looking shadows and shades, especially in the corners of the room and between the walls and the ceiling,</li> <li>- the level of the ambient occlusion can be regulated: <b>range</b>, <b>intensity</b> and general <b>brightness</b> of the entire scene;</li> </ul>
<b>AO Range</b>	<ul style="list-style-type: none"> <li>- changes the scope of the shadows created by ambient occlusion</li> <li>- when set to the minimum the shadows occupy the smallest possible space, and at maximum – stretch on a much wider area;</li> </ul>
<b>AO Intensity</b>	<ul style="list-style-type: none"> <li>- regulates the strength of the shadows;</li> <li>- at minimum they are pale and delicate, at maximum – dark and expressive;</li> </ul>
<b>Brightness</b>	<ul style="list-style-type: none"> <li>- defines the level of a general illumination in the scene and the contrast between light and dark objects;</li> </ul>

### Creating animations and project presentation

- function of recording and saving animations in AVI format;
- available in the **RenderPRO** tab → **Presentation**;
- animation is created on the basis of a freely defined path, at any angle and with changeable speed of the camera, which can be set before starting recording in the **Scene** tab → **Camera**;
- the speed and angle can be changed during recording – to do so, click **Pause**, go to **Scene** tab → **Camera**, change the settings and then go back to **Presentation** and resume recording;
- many levels of resolution are available to choose from – from the screen resolution up to Full HD;
- the number of frames per second can be changed;
- after recording the video turn on the lights, click on the **Save as AVI file** button and select the codec;
- in the result video the camera moves around the room with various speed and changes the view angle freely, and the scene in which it moves is rendered in the real time.

## 4. Ambient Occlusion

The use of Ambient Occlusion (global shading) improves the quality of the look of the scene by adding an effect of a soft shadow, which adds some depth to the image. The range and intensity of ambient occlusion can be modified by the user, as well as the overall brightness of the scene, what helps to set the contrast and the intensity of shades and shadows accordingly to preferences of the user.

## 5. Bump Mapping

Thanks to this specialist method of texturing, materials used on walls and floors and surfaces of all objects gain an impression of being 3-dimensional.

The program recognizes brighter and darker fragments of the texture and presents them as cavities or convexities (depending on the selected option + or -). When the lights are on it is clearly visible which surfaces are smooth, and which are rough and porous. Even when using the **Simplified render** option, which results in lower memory consumption, bump mapping is still visible, however it is much more flat. Bump mapping can be switched off by selecting the **Turn off** button (Fig. 422).

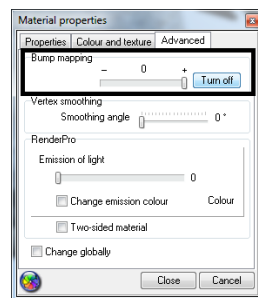


Fig. 422 –Bump Mapping slider

## 6. Basic emission (bloom effect)

In the previous versions of our software the function of own object's light emission used to cause some problems.

Even when setting this parameter to the maximum, the emission sometimes did not look convincing enough. Now it is improved and the objects to which this property has been attributed, glow with an intense white light (it looks the same as used in computer 3D graphics bloom or glow effect). This light is not real though, but only imitated, and it has no influence on the lighting in the entire scene (in opposition to advanced light emission, available in the **Advanced** tab (Fig. 424 below).

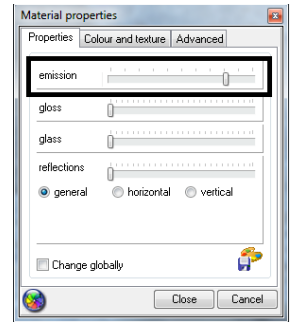


Fig. 423 – attributing basic emission

To attribute the basic emission to the object, double left-click on the object and then right-click to open a context menu, and select the **Properties** option. In the opened dialog **Material Properties** go to the **Properties** tab and move the first slider in the upper part of the dialog (Fig. 423 above). To make the effect visible in the visualization, select the **Show emission** option in the **Render-parameters** section in the **Scene** tab.

It will result in adding a special bloom effect – a glow around the object, which will look like emitting intense own light, but it will not influence the scene.

There is a possibility of attributing objects with a property of a real own light emission (in Watts per  $m^2$ ) which has an actual influence on the light distribution in the entire scene. This function is available in the **Material properties** dialog box, in the **Advanced** tab (Fig. 424).

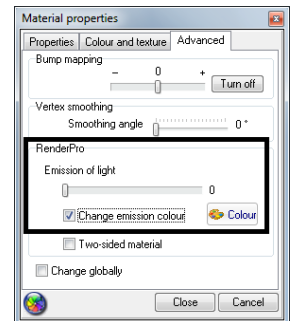


Fig. 424 – attributing an advanced (real) light emission

# CHAPTER 36

## Viasualization - advanced rendering

### 1. Introductory remarks

The module of Professional Rendering is a modern tool for a very advanced visualization. Its main task is to ensure a perfect quality of visualization in a relatively short time. The shortening of the time necessary for proceeding all calculation was possible thanks to cooperation of the graphic card processor (GPU) and a multi-core nature of a modern processor (CPU). Two main processes proceeded by this module are: **Radiosity** – in other words a global illumination algorithm, and **Raytracing** – a method of calculating the reflections and refractions of light rays.

### 2. Functionality of Professional Rendering module – table

Function	Description
<b>Radiosity</b>	<ul style="list-style-type: none"> <li>- a method of calculating the indirect light in 3D scenes, the main global illumination algorithm;</li> <li>- takes into consideration reflection and absorption of light by different objects and colours;</li> <li>- parameters of global illumination calculated this way are remembered by the program and used for visualization in a real time;</li> <li>- improves the efficiency of the rendering and enables to attain a natural look of the scene;</li> <li>- effects are independent on the position of the observer;</li> <li>- the calculation process has two stages – in the first one the program prepares data for analysis, in the second one – displays the calculated illumination of the visualization in cycles (their interval can be adjusted by the user from 0 to 20 seconds),</li> <li>- the final look is obtained by gradual improvement of the rendered scene;</li> <li>- edition of lights (in the <b>Scene</b> tab) can be performed after the beginning of <b>Radiosity</b> calculation – but the emission has to be attributed before they are started (emission cannot be changed during the calculation);</li> </ul>
<b>Scene diagnostics and repair</b>	<ul style="list-style-type: none"> <li>- each scene before the calculation has to be prepared and this is why this feature has been designed – it repairs errors in the scene, this it the reversed faces in 3D models, which can cause irregularities in the light distribution – objects with reversed surfaces are always much darker than they should after switching on the lights,</li> <li>- organizing all faces in the proper order is vital for the correct light distribution calculation and because of that this function is active by default.</li> </ul>

<b>Global Illumination Parameters</b>	<ul style="list-style-type: none"> <li>- available settings of global illumination are designed to adjust rendering to designer's preferences,</li> <li>- <b>Global Illumination</b> is a lighting model in which not only the direct light emitted by the light sources is taken into account (local light), but also beams reflected by objects such as walls, floors, furniture and equipment (indirect, global light),</li> <li>- ensures a realistic light distribution in the room.</li> </ul>
<b>GI Influence</b>	<ul style="list-style-type: none"> <li>- this function regulates the influence of the diffused light on the general light distribution,</li> <li>- when the slider is moved to the left, diffused light has no influence on the scene at all – only direct light is taken into account,</li> <li>- this parameter can be adjusted during the <b>Radiosity</b> calculations and after they are completed,</li> </ul>
<b>GI Contrast</b>	<ul style="list-style-type: none"> <li>- influences the way in which the number values are changed into components of RGB colours,</li> <li>- the <b>Global Illumination Contrast</b> can be changes in a real-time during or after the <b>Radiosity</b> calculations,</li> </ul>
<b>Ambient</b>	<ul style="list-style-type: none"> <li>- this term relates to the ambient light (light diffused in the scene), which illuminates the room evenly and without shadows,</li> <li>- ambient adds some white color to the scene, which makes it look brighter,</li> <li>- this function is useful in the scenes that should be bright but the current settings of light sources do not allow to attain such effect;</li> <li>- especially good results can be achieved when using both this parameter and functions of <b>Ambient Occlusion</b> in the <b>Scene</b> tab.</li> </ul>
<b>GI Colours</b>	<ul style="list-style-type: none"> <li>- increases the coefficient of light reflected by all surfaces in the scene (in other words: decreases the level of light absorption),</li> <li>- as a result the image gets brighter and at the same time there is stronger color bleeding effect (this phenomenon takes place when the light reflects from a diffusive surface and takes over its color),</li> <li>- this function determines the intensity of which the colors spread in the scene,</li> <li>- useful when there is a lot of dark materials (with a high level of absorption) used in the scene, and share little of their color with the rest of the scene.</li> </ul>
<b>GI Emission</b>	<ul style="list-style-type: none"> <li>- it is a multiplier of all emissive materials in the scene,</li> <li>- enables to quickly modify the intensity of advanced light emission of all emissive objects at once,</li> <li>- the scale for this factor is from 0 to 200 % (with default level of 100%);</li> <li>- to change the properties of each element one after another would be time-consuming, so instead of that the level of emission for all objects can be changed with one movement of this slider;</li> <li>- when the slider is set at 0% all emissive objects have no influence on the light distribution in the scene.</li> </ul>

<b>Final Gathering</b>	<ul style="list-style-type: none"> <li>- the final calculation of the distribution of light for the chosen objects,</li> <li>- if some little object in the project does not look properly, it can be subjected to an additional treatment – the program will proceed some extra calculations of the amount of light beams reaching its surface,</li> <li>- particularly useful with objects consisting of a big number of little surfaces – they may be not properly illuminated by the indirect light;</li> <li>- to do so, select the object or objects and start the <b>Final Gathering</b>;</li> <li>- there more objects is selected, the more time is needed to achieve a final result;</li> <li>- it is recommended also while creating illustrations of the project with close-ups of some concrete elements of interior design.</li> </ul>
<b>Raytracing</b>	<ul style="list-style-type: none"> <li>- it is an algorithm analyzing reflections and refractions of light rays, which reaches the observer of the scene,</li> <li>- it calculates reflections and refractions of light rays generated on mirror and glass objects,</li> <li>- adds to the scene those light rays, which have been omitted by <b>Radiosity</b>, which takes into account light diffused in the whole scene,</li> <li>- creates lusters on metal surfaces, refractions on glass and – what is worth noticing – multiple reflections in mirrors;</li> <li>- adds reflected or refracted rays to the scene, which were omitted by <b>Radiosity</b>, which is taking into account only indirect, diffused light;</li> </ul>
<b>Quality (Raytracing)</b>	<ul style="list-style-type: none"> <li>- there are 8 levels of <b>Raytracing</b> quality available: 1x1, 2x2, 3x3, 4x4 or 1x1 AA 2x2 AA, 3x3 AA, 4x4 AA (where AA stands for antyaliasing),</li> <li>- antyaliasing is a technique that minimizes distortion errors (aliasing), occurring while creating representations of the image of a high resolution in the lower resolution,</li> <li>- 1x1 mode is usually used to quickly see initial results of <b>Raytracing</b>,</li> <li>- computations in the 4x4 mode are 16 times longer then in 1x1 (to calculate 1 pixel program needs to make 16 samples – 4 horizontally and 4 vertically);</li> <li>- the level of quality of <b>Raytracing</b> depends on the processing power of the computer – the better quality the higher memory consumption and a longer time of performing the operation.</li> </ul>
<b>Reflections (Raytracing)</b>	<ul style="list-style-type: none"> <li>- <b>Raytracing</b> works on the basis of rays defined by the user;</li> <li>- rays are sent from the item to the scene and analyzed and user can decide how many rays should be taken into account,</li> <li>- the program can analyze from 1 to 10 reflected rays;</li> <li>- a standard setting is 1 reflected ray and 4 refracted ones.</li> </ul>
<b>Refractions (Raytracing)</b>	<ul style="list-style-type: none"> <li>- the user can define how many refracted rays will be analyzed,</li> <li>- the level of this function greatly influence the look of transparent objects such as glass,</li> <li>- the program counts how many rays go through such objects, so the more rays we decide to analyze, the more realistic will be the picture;</li> <li>- the program can analyze from 1 to 20 refracted rays;</li> </ul>



	<ul style="list-style-type: none"> <li>- the user decides how to set this parameter, accordingly to current needs;</li> <li>- in this case the program analyzes the rays going through transparent objects;</li> <li>- if there are 2 glasses located one next to another and each of them has 4 sides (it is necessary that glass has defined thickness), then for the proper result <b>Refractions</b> should be set for 8 rays.</li> </ul>
<b>Advanced options</b>	<ul style="list-style-type: none"> <li>- calculation of light distribution is done only for the corners of objects mesh,</li> <li>- the mesh for walls is by default established to fit the calculations and divided into faces of 100x100 mm,</li> <li>- the rest of the objects in the project is not divided automatically and they can require a modification of mesh density,</li> <li>- there are 2 options of mesh modification available:             <ul style="list-style-type: none"> <li>- <b>adaptive mesh division</b> – changes the division of walls and platforms, to which other objects adjoin (e.g. kitchen cabinets) and cover some of the corners of the mesh (what artificially increases the range of the shadow); this function enables to automatically subtract such corners from the calculation and improves the distribution of indirect shadow on the border between the wall and the object,</li> <li>- <b>scene mesh division</b> – thanks to this option You can choose by yourself the size of the mesh of the whole scene – from 40 mm to 200 mm (by default it is 100 mm) to improve the shadows distribution, the smaller size of a single face – the more faces and more memory and time needed to proceed calculations.</li> </ul> </li> </ul>
<b>Diagnostics</b>	<ul style="list-style-type: none"> <li>- there are 2 features of scene diagnostics available:             <ul style="list-style-type: none"> <li>- <b>show emissive objects</b> – marks objects which have been attributed with advanced light emission; useful if modification of light distribution in the room is necessary and it is not clear which objects are emitting the light,</li> <li>- <b>show inverted surfaces</b> – shows those faces which have been drawn in an opposite direction, what has a negative influence on the light distribution on the object; the surfaces can be drawn clockwise or counterclockwise and for the proper light distribution it is vital that all of them are drawn in the same way;</li> </ul> </li> <li>- to repair a scene (meaning: to revert wrongly drawn surfaces) select the <b>Scene diagnostics and repair</b> in the <b>Radiosity</b> pane and start the <b>Radiosity</b> calculations (click &lt;START&gt;);</li> </ul>
<b>Statistics</b>	<ul style="list-style-type: none"> <li>- <b>Surfaces</b> – provides an information regarding the overall number of faces in the project, including faces of walls and all inserted objects (this number changes when the mesh division is modified);</li> <li>- <b>FPS</b> – the number of frames per second that can be generated;</li> <li>- <b>Calculation time</b> – time necessary for calculation of the direct light sources, and when the <b>Radiosity</b> is turned on – the time from the beginning of the calculation process;</li> <li>- <b>Memory</b> – current memory consumption (<b>Radiosity</b> calculations are not taken into account, because they are run in another process). If the consumption is below 1GB, the colour is of the caption is green, and when</li> </ul>

	this value is exceeded, it changes the colour to red. It means that there may be not enough memory to perform new actions.
<b>Colour tones</b>	<ul style="list-style-type: none"> <li>- this function enables the user to quickly change the influence of the light distribution, calculated by the Radiosity process, on the overall colouring of the scene;</li> <li>- changes can be introduced during or after the completion of the Radiosity calculations, but the colour tones change the scene exposition, so it is worth it to set the lighting parameters to match the particular filter;</li> <li>- this feature gives the designer bigger flexibility in creating the final visualization.</li> </ul>
<b>Downloading IES files</b>	<ul style="list-style-type: none"> <li>- the selection of a style of the light sources (e.g. halogens) is available from the level of a basic render,</li> <li>- the style (saved in a form of an IES file) determines the way the light is distributed by a light source, e.g. a halogen);</li> <li>- there are 32 ready-to-use styles to choose from,</li> <li>- for owners of the Professional Rendering module also the option of downloading own IES files, found in the Internet or created by them, is available.</li> </ul>

### 3. Radiosity – introduction

**Radiosity** is one of the calculation methods, which is responsible for achieving a total distribution of light in the scene. It takes into account indirect, diffused light (in contrast to local illumination models, which analyze only direct light, simulating the way of rays between the light source and the surface).

Indirect light (**Global Illumination**) is reflected from one surface to another. It is enough to look around to realize that the majority of light that reaches our eyes is indirect. Indirect light can be divided into two categories:



- light reflected in a diffusive way by rough surfaces (e.g. painted walls);
- light reflected in a mirror-like way by smooth surfaces.

Because the processing powers of computers are relatively low in comparison to processes taking place in our environment, some simplifications have been applied, so the calculations are performed in an acceptable time. In case of the **Radiosity** process the scene is divided into a mesh of small surfaces, and the calculations are performed for this divided scene – exactly – at the corners of the surfaces.

These calculations are a very complex process. If the processed scene consists of 100 000 little surfaces, then to calculate the exact light distribution in it the scene, the interaction of all 100 000 surfaces has to be analyzed, what gives 10 000 000 000 single operations to perform! As you can see – so many necessary calculations have to take some time.

The main advantage of our method and the reason why it is better than similar **Global Illumination** calculation solutions is that once computed light distribution (at the corners of surfaces) is remembered by the program, so the scene can be viewed from any location and angle without any additional calculations. This characteristic is vital for creating videos, in which the camera moves freely in the designed space. Unfortunately there is also one serious drawback – the accuracy of the calculations depends on how many surfaces the project contains of (the more – the better), what significantly influence the calculation time and program's requirements in regards to available operational memory.

#### 4. Professional Rendering control panel

The **RenderPro** control panel contains several groups of features, divided accordingly to their functions (Fig. 425). They are arranged in a way that facilitates the intuitional use of particular options. The most important features are placed at the top of the panel, and the less significant can be found in its lower parts. Such arrangement suggests the recommended order of stages of work – use the top features first and consequently go down. All processes which require some calculation time are designed with a **<START>** button. To make it easier to identify the most important groups of features, they have been marked with colours. The less important groups can be hidden or displayed by using the arrow located at the left-hand side of the **Control Panel**:  (opened pane) or  (collapsed pane).

#### 5. Radiosity group

It is the most important feature which is responsible for main indirect light computations. This main calculation process is called 'an interactive **Radiosity**' because the calculation results are presented in real time.

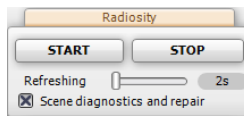


Fig. 426 – Radiosity pane

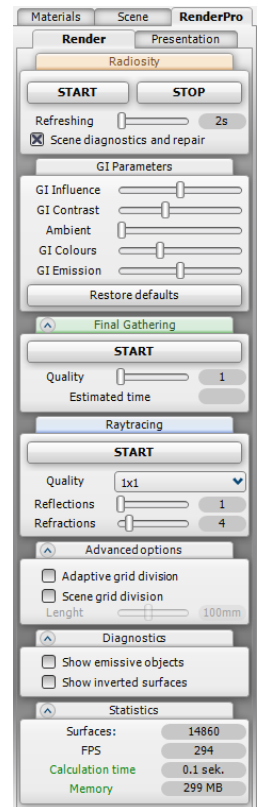


Fig. 425 - Professional Rendering module control panel

After pressing the **<START>** button the user can change the settings of lights in the project by switching to the **Scene** tab, and freely modify their parameters: colour, intensity, range and cone angle. Switching back to the **RenderPro** tab will result in actualization of the global illumination within a few seconds. It is possible to start the calculations even if there no lights on at all.

The **<START>** button begins the process of calculations. The process is performed in two stages. At the beginning the program gathers and prepares the data for calculations (it usually last for a few seconds), and in the second stage the results of calculations are cyclically displayed in visualization (the length of one cycle depends on the interval of refreshing the view that can be set by the user). The final look of the visualization is gradual improvement of the rendered scene.

Showing the new light distribution depends on two factors:

- an interval of refreshing the view set by the user:
  - it is possible to set the interval of refreshment of the look from 0 to 20 seconds;
  - when the interval is set to 0 seconds, then the program does not have to display the results and the whole processing power is used for calculations;
- changes made to the light distribution by the user during the calculations:
  - light sources parameters and settings (intensity, light colour, range, cone angle, visibility, turning on and off);
  - attributing new objects with a real light emission, changing light colour and intensity.

After some time the changes will have a minimal influence on the rendered scene, and the program will refresh the view with other frequency then the one set by the user.

Illustrations below present an example scene processed by the algorithm of calculation of the global illumination. This test scene contains about 110 000 surfaces and is lightened up with only 4 halogen lamps, which illuminates the worktop.



Fig. 426 – a scene with direct light only – to improve the visibility the scene has been slightly brightened up



Fig. 427 – a scene with direct and indirect light – it is clearly seen that the light falling on the worktop reflects from it and illuminates the bottoms of the upper cabinets. Radiosity calculation time - 8 seconds.



Fig. 428 – a scene with direct and indirect light after another 60 seconds – it is clearly seen that the inequalities on the ceiling has been replaced with the shadows of cabinets. The shadow was created by the indirect light.



Fig. 429 - a scene with direct and indirect light after 60 seconds – a different view without any additional calculations

*Note! When the program is run for the first time it may happen that the RadiosityProcess.exe will be blocked. The dialog box presented below (Fig. 430) will open – to be able to use the program click Unblock. Otherwise no Global Illumination calculations will be performed.*

*Sometimes after the Windows system update it is necessary to select the Unblock option again.*

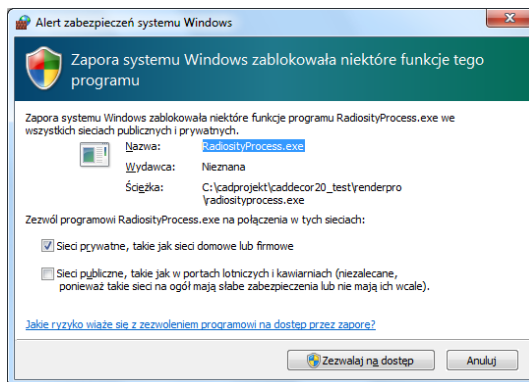


Fig. 430 – the dialog box blocking the Radiotisty calculations

## 6. Scene diagnostics and repair

Each scene which will be calculated has to be previously prepared for this. **Diagnostics** features help to do it.

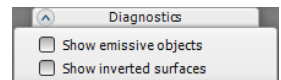


Fig. 430 – diagnostics options

The calculations performed by the program are an attempted to imitate the reality, and this is why the objects present in the scene are such an important element. These objects (3D models) consist of a grid of surfaces, from which each can be drawn either clockwise or counter-clockwise.

The **Diagnostics** option's task is to properly order all surfaces so they are all organized in the same direction.

It is a vital condition for the proper light distribution, and this is why this option is selected by default when the **RenderPro** tab is opened for the first time.

The program repairs (turn to the other side) all incorrectly drawn surfaces in the room. If there is more than one room in the project, it is recommended to use this function more than once – whenever any unnaturally dark surfaces appear (please compare Fig. 432 and 433).

The inversed surfaces should be seen from the camera to be detected and repaired.

To check, if there are any incorrectly drawn surfaces in the currently rendered scene, go to the **Diagnostics** tab and select the option **Show inverted surfaces**. All incorrect surfaces will be marked with magenta colour, as it is presented on the illustration at the top of this page (Fig. 431).



Fig. 431 – the look of the scene after turning on the function **Show inverted surfaces**



Fig. 432 – GI calculations for a scene with incorrectly drawn objects – it is clearly seen that the objects previously marked with a magenta colour are unnaturally dark



Fig. 433 – GI calculations in a repaired scene – all objects properly displayed

## 7. Global Illumination parameters

In this pane the rendering effect can be adjusted to user's individual needs and preferences. Use sliders to change the levels of particular effects (Fig. 434).

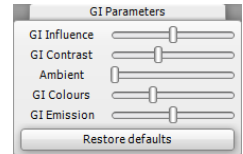


Fig. 434 – Global Illumination parameters

### 7.1. GI Influence

When this slider's locations is changed, then the influence of indirect light on the scene is lower or higher than the calculations results. When the slider is moved to the left – then indirect (diffused, reflected) light will have no influence at all on the scene. Only direct light will be seen. The default level is 50 % - so moving the slider to the right will increase the **Global Illumination Influence** on the scene (please see the pictures below for an example – Fig. 435, 436, 437).

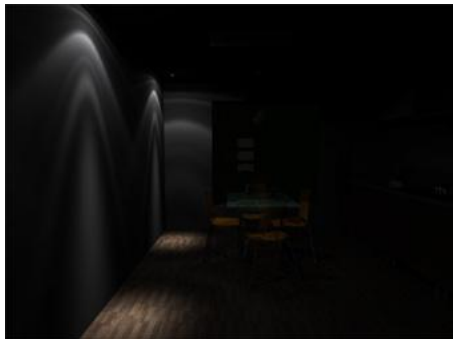


Fig. 435 – GI Influence set to 0%



Fig. 436 – GI Influence set to 50% - default settings



Fig. 437 - GI Influence set to 100% - maximum

## 7.2. GI Contrast

This parameter is responsible for converting numerical values into RGB colours components. The **Global Illumination Contrast** can be changed during the calculations, but the results of any its modifications will be visible after the global illumination is refreshed. An example presented below (Fig. 438 and 439).



Fig. 438 – standard contrast



Fig. 439 – increased contrast

## 7.3. Ambient

The term ‘ambient’ relates to the ambient light, this is: light which is diffused in the environment. This light is homogeneous and does not generate shadows. In the **Global Illumination** calculations **Ambient** is set to a zero value, opposite to the rendering using direct lights models. When you use ambient, you add a white colour to the scene that brightens it up – overallly and equally (compare Fig 440 and 441).

This feature is useful when the scene should be bright but the light settings do not ensure an appropriate level of brightness. In such case it is of course possible to stop the calculations and change the intensity of surfaces emitting their own light (attributed with an advanced emission), but sometimes it is just easier to add some ambient light to the scene.



Fig. 440 – windows emit daylight.  
The intensity of light has been purposely diminished.

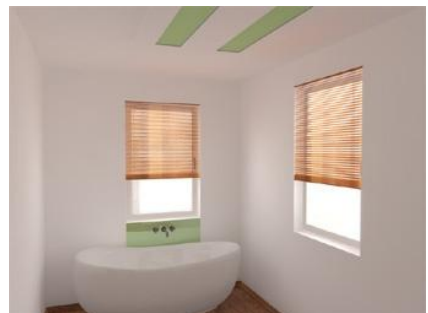


Fig. 441 – after adding 55 % of Ambient.  
It is clearly seen that the scene is much brighter



Particularly good results can be achieved when both the **Global Illumination Ambient** and the **Ambient Occlusion** features are used at the same time (Fig. 442) (the **Ambient Occlusion** feature is available on the basic rendering level - in the **Scene** tab).



Fig. 442 – this picture was created by adding some **Ambient Occlusion** to the scene brightened up with ambient light – when compared with the figure 441 it is clearly seen that some more details became visible

#### 7.4. GI Colours

As it has been mentioned before, all surfaces in the project interact with one another. Some part of energy coming from the light source is reflected, and some is absorbed by every object. Completely smooth surfaces reflects majority of the light rays falling on them, and absorb almost none. The best example of such a surface is a mirror. The ray that falls on it is reflected in one direction. This characteristic of a mirror was used in the past to transmit the sunlight to long distances (light signals). Diffusing surfaces, such as walls, behave differently. Light that falls on them is strongly diffused in all directions.

And there is one more regularity – the ratio of absorbed and reflected light depends on the colour of the object. Some colours absorb more energy than they reflect. It can be assumed that in general dark colours absorb more much more light than bright colours.

The colour with a property of a total absorption of light is black. This is why this colour is used in cinemas, when walls are painted black to prevent the audience from seeing any other light than coming directly from the screen. If the cinema is painted white it would be very difficult to focus on a movie, because the intensity of light reflected from walls would change all the time, distracting the spectators.

After this introduction we can explain, what are the consequences of changing the level of **Global Illumination Colours** parameter. When this effect is modified, the coefficient of light rays reflectivity is increased or decreased. When the slider is moved to the right, the black colour is recognized by the program as grey, so more energy is reflected and less is absorbed. It is the same with all other colours. As a result the scene becomes brighter and at the same time the effect or colour bleeding (transition of a colour from one object to another together with the reflected light rays) is more visible.

The colour bleeding effect occurs because light reflected from a surface change its colour to a colour of that surface. The transition of colours is visible most clearly at the junction between a wall and a ceiling – as you can see in the illustrations on the next page, white ceilings takes on a colour of a nearby wall.

It is worth mentioning that it is particularly recommended to change this parameter when there is a big number of dark colours used in the scene, which absorb a lot of light. It is not possible to modify this parameter during the **Radiosity** calculations.

The illustrations presented beside and below show the phenomenon described above (Fig. 443, 444, 445, 446 and 447).

We would like to draw your attention to the differences in the light distribution between the scenes in which exactly the same light parameters have been set.



Fig. 443 - basic visualization before increasing the GI Colours parameter



Fig. 444 - parameter GI Colours increased by 20 %

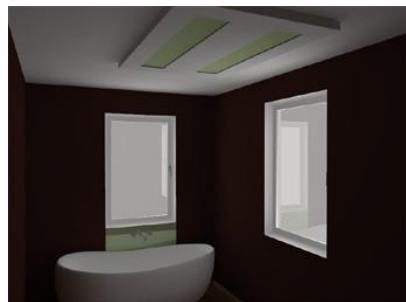


Fig. 445 – dark colour on walls, the room looks much darker

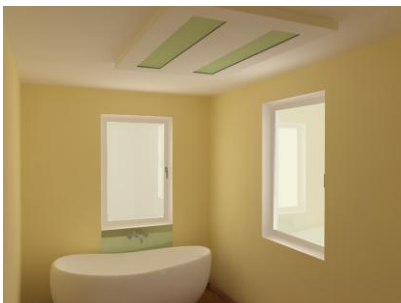


Fig. 447 – well visible the colour bleeding effect – yellow colour reflected by walls can be seen on the ceiling



Fig. 446 - parameter GI Colours increased by 50 %

## 7.5. GI Emission

This parameter can be understood as a multiplier of all emissive objects in a project.

In the **Material properties** dialog box – in the **Advanced** tab there is a slider for attributing selected objects with a real **light emission effect** (Fig. 448). This emission unit is  $\text{W/m}^2$ . It means that the bigger is the object, the more light it will emit. For example, if the user sets the emission of 100 Watts for a window of a surface  $1 \text{ m}^2$ , then this window will emit light with a power of 100 Watts. But if the same level of advanced emission is attributed to a surface with dimensions of  $10 \times 10 \text{ cm}$  (as presented on illustrations below), the emitted light will only have a power of 1 W.

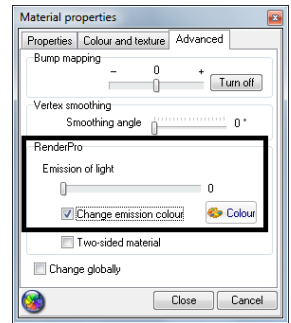


Fig. 448 – the Advanced tab in the Material properties dialog box

In illustrations beside (Fig. 449 and 450) 6 small emissive surfaces have been presented. Each of these luminescent surfaces of dimensions  $10 \times 10 \text{ cm}$  would have to be edited, if the user wanted to change the intensity of light produced by them.

To make it easier and quicker, we added an option of **Global Light Emission**, which influences all emissive objects in the room at the same time. This solution makes in a lot easier to set a proper level of advanced emission, achieving the best visual effects.

The **Global Illumination Emission** parameter can be changed in a range from 0 to 200 %. A default level is 100 %. When this option is set at 0, then the influence of all emissive objects in a project is totally switched off.

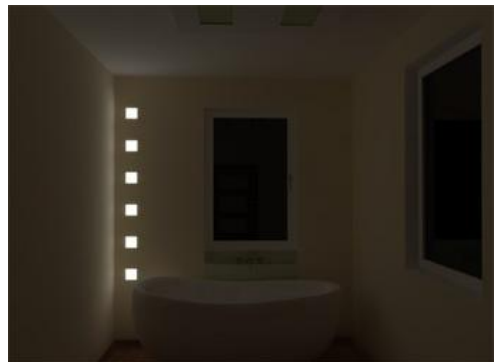


Fig. 449 – 6 small emissive objects – default GI Emission settings (100 %)  $6 \times 5 \text{ W} = 30 \text{ W}$

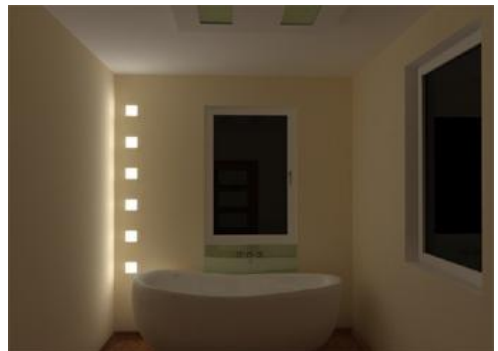


Fig. 450 – 6 small emissive objects – the maximum level of GI Emission (200 %)  $6 \times 10 \text{ W} = 60 \text{ W}$

## 8. Final Gathering

In case of object consisting of a big number of small surfaces it may happen, that they are not properly illuminated by the indirect light (Fig. 451). In such case it is recommended to use the functions of additional calculations, performed only for selected object or objects – **Final Gathering**. Its name relates to the fact, that the program 'gathers' information about the Global Illumination for each corner of each surface of this object. This process uses a lot of operation power and due to that it is recommended to use it only in exceptional circumstances (e.g. if the object is a very important element in the project and is to be presented in illustrations).

In contrast to the interactive **Radiosity** process, where all calculations are performed in small portions and it is possible to present the results in real time, **Final Gathering** uses the maximum computational power of all available CPU cores.

To check the estimated time of the **Final Gathering** calculations – move the slider. This time is proportional to a number of objects, for which the additional calculations will be performed. When the calculations for each object are completed, visualization will be refreshed. To stop the calculations press <Esc>.

If no particular object is selected then the program will estimate the time needed to proceed this calculations for an entire scene. Sometimes it is worth it to set the minimal quality and perform calculations for the whole scene to improve its overall visual quality.



Fig. 451 – before Final Gathering calculations



Fig. 452 - after calculations with a maximum quality.  
Time for the scene including 155 000 surfaces was about 200 seconds (100 seconds for one object)

## 9. Raytracing

This is a second one of the two most important processes in the Professional Rendering module. While **Radiosity** calculates the diffused light distribution and saves the results for the corners (vertexes) of surfaces in the project, **Raytracing** calculates reflections from mirror and glossy objects that reach the observer of the scene, as well as analyzes objects that refract light, such as glass and translucent plastic.



Fig. 453 – the Raytracing functions

Because the analyze of refractions and reflections lasts for relatively long time, there are 8 levels of **Raytracing** quality available.

- 1x1 – 1 ray send from the camera (the observer of the scene) goes through each pixel of the screen (this is the way the program analyzes the reflections – checks which rays go between the observer and the object – in reverted direction);
- 1x1 AA – through 1 pixel of the screen goes 1 ray from the camera and in places where there is not enough accuracy – the anti-aliasing algorithm is used;
- 2x2 – 4 rays go through each pixel;
- 2x2 AA – 4 rays per 1 pixel and anti-aliasing is used in case of lack of accuracy.
- 3x3 – 9 rays go through 1 pixel of the screen;
- 3x3 AA – 9 rays per 1 pixel and the anti-aliasing algorithm;
- 4x4 – program makes 4 samples vertically and 4 horizontally for 1 pixel of the screen;
- 4x4 AA – 16 samples and additional computations in those places, where vertexes are visible (anti-aliasing).

The 1x1 mode can be used for checking the initial results of **Raytracing**. It is also recommended to export illustrations using **Raytracing** in the **view** resolution (it is a screen resolution diminished by the toolbars visible in the visualization window). In such case the view is ready for saving without any additional calculations. If the illustration is to be exported in a higher resolutions, then **Raytracing** calculations will be performed many times, what will significantly prolong the export of a file.

Because the **Raytracing** algorithm's operation is based only on rays set by the user, it is possible to adjust the number of sent rays – both reflected and refracted. The reflected rays can be set from 1 to 10 and the refracted ones – from 0 to 20. Standard settings is 1 reflected ray to 4 refracted rays. The bigger number of rays is set to be analyzed in the program, the longer the calculation time.

It is recommended to perform calculations first on the standard settings and only in the final stage – just before saving the file as illustration – increase the number of analyzed reflections and refractions.



Fig. 454 – before using Raytracing



Fig. 455 – after using Raytracing – a perfect look of a glass table and translucent plastic chairs

In the case of refracted rays the program calculates the number of rays going through the translucent objects.

If two glasses are placed beside each other and each of them has 4 sides (it is required to define some thickness for glass objects), then to properly calculated the refractions the program will need to analyze 8 rays, and this is the value of refractions the user should set.

In illustrations (Fig. 456 and 467) present two examples of using the **Raytracing** function to make translucent objects look naturally have been presented.

To achieve such effects of refractions, properly drawn models have to be used – the glass and transparent plastic has to have some thickness.

The next illustration (Fig. 458) presents multiply reflections in mirrors, which are generated by the **Raytracing** function.



Fig. 456 – example of using Raytracing - 1



Fig. 457 – example of using Raytracing - 2



Fig. 458 – Raytracing of refracted rays is responsible for a natural look of the glass TV stand, and the multiple reflections in the mirror (10x)

## 10. Advanced options

As it has been mentioned before, the **Radiosity** calculations are performed only for the corners (vertexes) of surfaces. The grid of walls is prepared for calculations by default – it is divided into surfaces of dimensions 100x100 mm. Because of that it is possible to achieve a proper light distribution in a relatively short time.

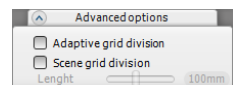


Fig. 459 – Advanced options



The program however, does not divide objects other than walls and platforms (created by the user by using the **Any elements** feature) automatically, and this is why an option of modification of the grid of other objects has been added.

### 10.1. Adaptive grid division

This function allows to automatically deduct walls and platforms from other objects, e.g. cabinets, what results in a better distribution of indirect shadows at the junction between the wall and the object.

In illustrations 460 and 461 the effect of using this option has been presented.

### 10.2. Scene grid division

Sometimes it happens that only one corner of some large surface is visible, and the rest of them is obscured by other objects.

Such situation has been presented in the illustration 462. Corners of the surface (a side of a tall cabinet) have been marked with red squares. It can be clearly seen that the side of the cabinet is too dark. This is an example to a big, almost totally obscured surface.



Fig. 460 – before using the Adaptive grid division – please see the unnaturally looking shadow between the wall and the suspended ceiling



Fig. 461 – after using the Adaptive grid division - the unnaturally looking shadows are gone



Fig. 462 – a scene before the division, clearly visible gray colour of the cabinet's side. The size of the scene - 103 000 surfaces.

In such case the option of **Scene grid division** can be used to divide the scene into smaller surfaces. In the illustration 463 the same scene has been presented, after using the option of **'Scene grid division'** – the length of a single surface has been changed to 40mm. Now the shadows between the cabinet and worktop can be seen. They appeared because some of the surfaces are located below the worktop, so light does not reach them.



Fig. 463 – the same scene after the division (new size of the surface: 40x40 mm). More details visible (e.g. delicate light reflected from the worktop). The size of the scene increased to 155 000 surfaces

The division of the scene grid prolongs the calculation time because the number of the surfaces to be analyzed increases.

## 11. Diagnostics

The option **Show emissive objects** is a tool used for graphic presentation of object which were attributed with a real emission.

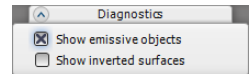


Fig. 464 – Diagnostics pane

Especially useful in big projects when the user defined many emissive objects and is not sure, which objects were the, and it is necessary to locate them to modify their parameters to change the overall light distribution in the scene.

All objects with advanced emission influence the global distribution of light even if the level of emission is low.

The result of using this function is presented in the illustration 464. The emissive objects are marked with purple colour.



Fig. 464 – using the function Show emissive objects (emissive objects are marked in purple colour)



The option shows inverted surfaces has been described in detail in the fragment of the manual referring to the **Scene diagnostic and repair** function, available in the **Radiosity** tab (subchapter 3 on page 262 and subchapter 5 on page 263).



Fig. 465 – an emission effect after turning on the lights

## 12. Statistics

In this pane (Fig. 466) the user is provided with a basic information about the current project and processes necessary to its proper operation:

- **Surfaces** – a current number of surfaces in the project. This number changes accordingly to the selected method of scene division. The amount of surfaces influences the time of calculations and system resources. Sometimes one object can have more surfaces than the entire scene.
- **FPS** – a number of frames per second that the program can present – the bigger, the better. This number is usually lower during the **Radiosity** calculations.
- **Calculation time** – the time of calculation of the direct light distribution, and when the **Radiosity** calculations are on – the time that passed from the beginning of calculations.
- **Memory** – a current memory consumption. Only occupied memory is shown, including CAD environment. The **Radiosity** calculations are performed in a separate process, so they are not included here. If the memory consumption is less than 1 GB the inscription **Memory** is in green colour, and if it exceeds 1 GB - the inscription changes to red. This may mean a possible lack of memory to perform following tasks. If there is not enough memory to perform the Radiosity calculations, then the program will stop them automatically and display the message: 'Radiosity calculations were stopped due to lack of memory!'.

Statistics	
Surfaces:	14860
FPS	294
Calculation time	0.1 sek.
Memory	299 MB

Fig. 466 – Statistics pane

## 13. Colour tones

This function enables the user to quickly change the influence of the light distribution, calculated by the Radiosity process, on the overall colouring of the scene. Changes can be introduced during or after the completion of the Radiosity calculations. There is 23 different filters available on users disposal.

The colour tones change the scene exposition, so it is worth it to set the lighting parameters to match the particular filter. This feature gives the designer bigger flexibility in creating the final visualization.



Fig. 467 – standard filter



Fig. 468 – filtr agfa-scala-200xCDPush1



Fig. 469 – filtr ektachrome-100-plusCD



Fig. 470 - filtr ektachrome-400XCD

## 14. Frequently Asked Questions - FAQ

### Question 1. Is it possible to change intensity of lights during GI calculations?

Yes. This is in fact a recommended way of adjusting lights. While the calculations are performed, it is possible to go to the **Scene** tab and modify lights parameters. Please remember, that the **[F1]** key refreshes the calculations of the direct light. When you go to the **Scene** tab, refreshing of results of **Radiosity** calculations is stopped (the calculations are still performed in the background – with a maximum speed). Going back to the **RenderPro** tab results in actualization of lighting results without a few seconds. Only the objects that influence the scene by emitting their own light have to be set before starting the calculations.

### Question 2. How long do the calculation of the direct light, Radiosity and Raytracing take?

The time of the direct calculations, e.g. of light emitted by halogen lights, is usually about a few seconds. It is difficult to establish the time of **Global Illumination**

calculations. The length of this process depends mostly on the number of surfaces and geometry of the scene itself. On the picture below an example kitchen scene after 70 seconds of calculations (including 10 seconds of **Raytracing** 1x1 AA). The Core2 Duo E 8400 processor was used (Fig. 471).



Fig. 471 – the look of an example kitchen scene after 70 seconds of calculations (including 10 seconds of Raytracing 1x1 AA). The Core2 Duo E 8400 processor was used

**Question 3. Are the calculations performed on the computer processor or on the graphic card?**

The **Radiosity**, **Raytracing** and **Final Gathering** calculations are performed in total on the processor (CPU).

**Question 4. Does the Professional Rendering module use the multi-core processors?**

Yes. It can be assumed, that the more cores, the faster are the calculations, especially in case of **Raytracing** and **Final Gathering**.

**Question 5. What is the most economically optimal processor in regards to Radiosity calculations?**

The most optimal processor is 4-core i5, available in a similar price Core2 Duo.

**Question 6. Does the refreshing time, set in the Radiosity pane, have any influence on the speed of performed calculations?**

Yes. Differences checked for a few different scenes are about 10-20%. If the calculations are to be sped up, it is recommended to set the refreshment time to 20 seconds. For the same scene a refreshing time of 2 seconds will have worse results in regards to time. It is understood, because the program does not have to render a scene, what can take more time than the CI calculations in more elaborated scenes.

**Question 7. Is it possible to change the time of refreshing the scene during the calculations of global illumination?**

Yes. It is recommended to set the time at the beginning to 2-4 seconds, because then the first results of calculations can be seen and it is possible to abort the calculations to change the settings, or to decide to continue them. If the first results are satisfying, then the time interval of refreshing the results can be prolonged, to maximally speed up the calculations.

**Question 8. Does the program use the 64 architecture?**

Yes, when the program recognizes, that Windows is a 64-bit system then the **Radiosity** calculations are performed in a 64-bit mode.

**Question 9. What are the advantages of using 64-bit Windows 64 in case of Professional Rendering module?**

The main advantage is the possibility of more efficient memory reserving. In 32-bit systems it is possible to reserve up to 3.3 GB of memory for all processes. It means that for one process it is possible to reserve not more than 1.5 GB. It is different with 64-bit systems. In this case for user's disposition is as much memory as has been installed on the computer. It means that in 32-bit Windows the calculations can be stopped because of the lack of memory. Scenes consisting of 500 000 surfaces and smaller can be calculated in 32-bit Windows. For bigger scenes it is recommended to use 64-bit Windows. An additional advantage is approximately 5-10% higher efficiency of calculations in 64-bit system.

**Question 10. Does the CAD environment work in the 64-bit mode?**

Unfortunately not. This is why the calculations are performed in other process, not to block the **Radiosity** calculations.

**Question 11. When the Radiosity calculations are finished?**

They are performed until the user clicks the **<STOP>** button.

**Question 12. What could be done if the calculations are performed for a long time and some important object in the project still does not look good enough?**

In this case the **Final Gathering** feature should be used. Select the object and click the **Final Gathering** button. The program will perform additional calculations for this object only.

**Question 13. Is it possible to record a video with previously calculated illumination?**

Yes. Calculations once performed are remembered by the program until some modifications are introduced, and they can be used multiple times to record the video frames or to export the scene to picture files as separate images.

**Question 14. How to divide a wall into surfaces of a different than standard (10X10 cm) size?**

To establish a division of the wall to surfaces of a different size than 10x10 cm you can use ceramic tiles. For example you can apply tiles of dimensions 5x5 cm to a selected wall or platform and then apply a texture or colour to the same object. The division 5x5 will be remembered. An additional advantage of this method is that the neighboring surfaces are subtracted, what results in better quality of shadows displayed in vertexes of surfaces.

**Question 15. Is it possible to change parameters of a rendered scene after pressing <STOP> (finishing Radiosity calculations) in a way preventing from losing the calculations results?**

Yes, but only two parameters can be changed this way – **GI Influence** and **Ambient**. These two parameters can be changed at any time, also after stopping the calculations (their results will not be lost). After moving sliders of these features the visualization is immediately displayed with the new settings. After stopping the calculations, it is also possible to change settings in **Render-parameters** group available in the Scene tab, and then to refresh the view by pressing Show lights button or **[F1]** key.

When these parameters are set in a satisfying way, the scene can be exported to JPG, PNG or JPS file or recorded as a video in an AVI file format.

**Question 16. Is it necessary to use the surfaces inversion algorithm?**

Yes. It may look like it would be easier to redraw the incorrectly drawn models, drawing all surfaces in a proper direction, but unfortunately this solution would not solve the problems with models created by users themselves, or downloaded from the Internet, which can be drawn in an incorrect way or just in a different direction than models created by CAD Projekt K&A.


**Question 17. What to do when this message appear: ‘The NVIDIA OpenGL driver lost connection with the display driver...’ during rendering calculations?**

Close the visualization mode and in the CAD environment type the ‘**anty**’ command in the Command Bar. In the new window click ‘**Slow rendering**’ button and go back to visualization. Rendering calculations will be slower, but it will protect you from switching the driver off. To switch to the slower mode, you do not need to restart the program, but if it is caused by the driver error, please do restart the program.

## CHAPTER 37

### Presentation of a project – creating illustrations, animations and videos

#### 1. Introductory remarks



Our software offers some very attractive ways of presenting the results of Your work to the clients – as illustrations (**JPG**, **PNG** or stereoscopic pictures – **JPS** file format), simple animations played in **Export 3D** module (**3DE** file format) or as real videos (**AVI** file format) of any length, created on the basis of defined path of the camera, that freely floats in the space which rendered in real time. The user can define the speed and angle of the camera, a number of frames per second, a resolution of the video and select an appropriate codec. Illustrations and videos can be presented in the **Gallery**, an application available under the icon  in visualization.

#### 2. Export of scenes in visualization – illustrations and animations

##### 2.1. Export to JPG, PNG and JPS

When the arrangement of the room is finished, and all textures, materials, paints and coverings are applied and all properties and effect are attributed to selected objects, and most of all – when the settings of lighting and render are established in the most visually attractive way, then the user can save any number of illustrations of the project, e.g. in various views and proposed alternative colour versions or presented.

In order to do it:

- set the view in the way ensuring the most attractive look of the room;
- turn on the lights (clicking the **Show lights**  icon) to make all attributed properties and lighting effects visible;
- click the **Export 3D scenes**  icon;
- in the **Saving as** window enter the name of a created file, choose its format and indicate the destination location (Fig. 472), then click the **Save** button.

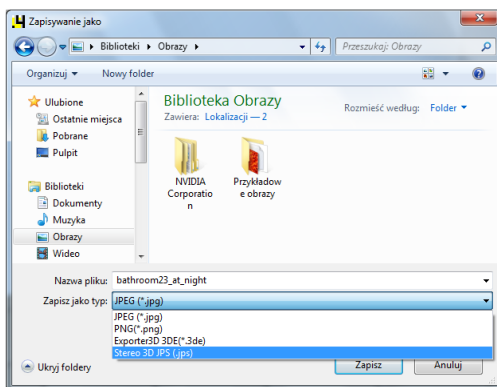



Fig. 472 – saving a file of an exported scene in visualization

- **Saving a scene to a file** window will open, in which you can add a signature or logo and set its location, size and percentage of filling (transparency level) (the **Copyright sign** tab) (Fig. 473);
- in here. In the **Save file** tab, you can also select resolution of the saved illustration: from the view resolution (this is screen one, diminished by toolbars) up to triple Full HD (5760x3240);
- the maximum available resolution offers quality of over 18 million pixels, which is more then in standard digital cameras and is intended for large format printing;
- after setting the sign or logo, click the **Save** button;
- it is also possible to save the scene to a file without adding a sign – to do so, stay in the **Save file** tab (do not switch to the **Copyright sign** tab) and click **Save**;
- the file will be saved in the indicated location



Fig. 473 – adding a copyright sign

Illustrations created this way can be quickly and easily presented using the **Gallery** module, under the icon  in visualization.

- to add a new directory with pictures to the list in the **Gallery**, click the button **Add a directory to the gallery** and then indicate the location of the directory with images on the disk (Fig. 474);
- to add a directory, click on a name of one of the files in it and then click the **Open** button (Fig. 474);
- the directory will be added to the list on the left side of the **Gallery** (Fig. 475);

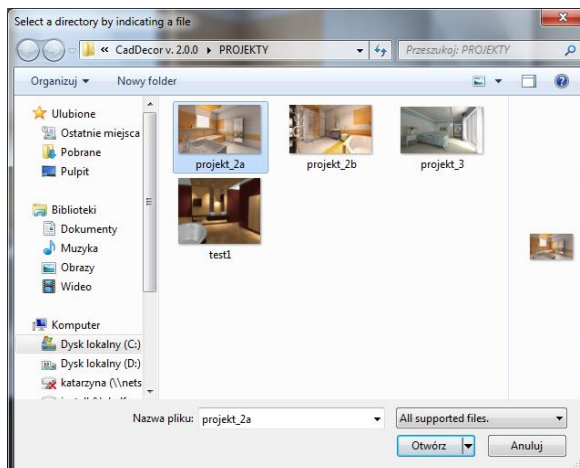


Fig. 474 – opening a new directory in the Gallery


- after clicking on a directory previews of illustrations will be presented in the bottom part of the dialog and a big preview of the first selected picture will be displayed in the main part;
- to switch between illustration use the arrows on the keyboard or click on the selected picture with a left mouse button.



Fig. 475 – the Gallery module















## 2.2. Export to 3DE and operation of the Export 3D module

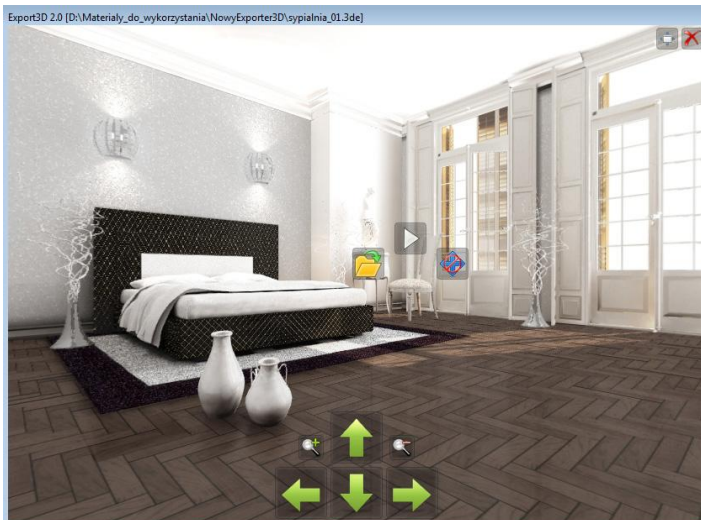
Exporting scenes in visualization as simple animations in a format of Export 3D model (3DE) is performed, in a similar way to saving them as JPG, PNG and JPS files. The only difference is that the camera should be carefully located in a suitable location (e.g. the center of the room), because during displaying the animation the room will rotate around the axis, based on the position of the camera in the moment of exporting the scene.

- after setting the camera in a suitable position, turn on the lights and click the  **Export 3D scenes** icon, enter the name of an animation file and its destination location and select the proper extension: **Exporter3D 3DE (\*.3de)**;
- click **Save** – a new dialog box will open (**Saving a scene to a file**), in which a



copyright sign or logo can be added to the animation (in the **Copyright sign** tab);

- click **Save** for a second time – a file will be saved in the indicated location and will be ready to display in the **Export 3D** module;
- to present the animation first locate the **Export 3D** module on the disk;
- if there is no icon on the desktop, it can be found in the program location;
- there is a few ways to do it – e.g. right-click on the shortcut icon of CAD Decor PRO on the desktop and:
  - in Windows XP – select from the context menu the **Properties** position, and then – **Find target element**;
  - in Windows Vista and 7 – **Properties** and then **Open file location**;
- you will be brought to the location of the installation of CAD Decor PRO, where you should find the **Export3D** directory, open it and double-click the position **Export3D.exe**, marked with this symbol: ;
- the **Export 3D** module will open;;
- to load an animation, left-click in any point of the module window, which will result in displaying buttons: to load an animation from the disk click  and indicate its location, and to play the animation, click: ;
- to switch to a full-screen mode, click  in the upper right corner of the window;
- to zoom in, click  and to zoom out: ;
- to rotate a scene into the right and left or up and down, use arrows:    ;
- to hide arrow, click , and to show them again: ;
- to stop the presentation click , and to close the module select: .











rys. 476 – Export 3D module

*Note! It is possible to view animations using the Export 3D application on computers on which CAD Decor PRO has not been installed. It is enough to save animations and the Export3D.exe file on this computer.*

### 3. Creating videos in AVI file format

Functions of recording and saving AVI videos are available in a control panel in the **RenderPro** tab → **Presentation** section (Fig. 477). Videos in visualization are created on the basis of freely defined path, and the whole procedure is as follows:

- first go to the **Scene** tab and in the **Camera** pane set the angle and the speed of the camera accordingly to your needs and preferences;
- it will be possible to change this setting during recording;
- if the path for a video is created at the same time as the **Radiosity** calculations are performed then it is recommended to set the interval of showing effects of calculations to zero (no current changes will be displayed), because this helps to reduce processor load and avoid slowdowns;
- after setting the camera parameters, go to **RenderPro** tab → **Presentation**;
- before recording set up the resolution – you can choose from: 320x240, 640x480, 800x600, 1024x768, 1280x720 and 1920x1080 – Full HD;
- also a number of frames per second can be changes – by default this parameter is set for 15 frames/sec, what is a value typical for computers (it the video will be played on TV it is recommended to change it to 24 frames/sec);
- the number of frames influences the time of recording and fluency;
- to start recording click **Record**:  - it will change the colour to red: .
- during recording move the camera freely in any directions you like, using the mouse, arrows on the keyboard ↑ ↓ ← → (moving or rotating to the left or to the right, up or down), <Ctrl> key (switching between moving and rotating and the other way around) and <Shift> (zooming in/ out);
- it is important that camera's movements are fluent;
- to change camera's angle or speed, click **Pause**  (it will change the colour ) and then go back to the **Scene** tab → **Camera** and change these settings;
- then go back to the **RenderPro** tab → **Presentation** and resume recording;
- to end recording click **Stop**:  (active: .
- recorded video can be played to check the result – click **Play** .
- to check the final result turn on the lights (press <F1> or **Show lights**  icon);

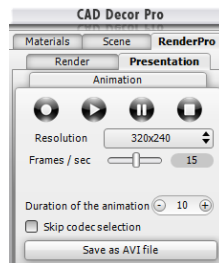


Fig. 477 – Presentation tab

- if the video meets the requirements, it can be saved to the disk in AVI format;
- before saving turn on the lights and then click the **Save as AVI file** button;
- enter the name of the file and select the destination location for it (Fig. 478);
- in the next step – if it is the first time that an AVI file is saved to the disk after running CAD Decor PRO program – it is necessary to select the codec (Fig. 479)

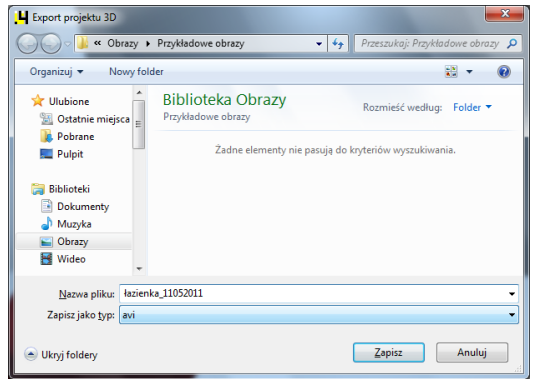


Fig. 478 – saving an AVI video to the disk

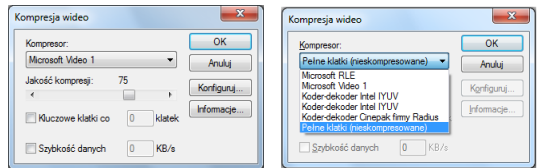


Fig. 479 – selecting a codec

- each next time when you will be saving another AVI video, the program will skip the codec selection (to the moment when the program is restarted – then it will ask you to select a codec again);
- it is possible to resign from skipping the codec selection, in order to change the codec without restarting the program – to do it, deselect the **Skip codec selection** checkbox, which is selected by default (Fig. 500) (after the first AVI video is saved, which mean the codec was selected).
- saving of an AVI video can last a few seconds;
- you will be informed when it is finished in a message including details of the saved video: number of frames, time of rendering of a whole video and of a single frame (Fig. 501);
- a video saved to the disk can be played directly by double left-click on its icon in its location using any media player;
- video of a project in visualization can be presented on any computer without installing CAD Decor PRO, using any media player supporting that supports AVI files.

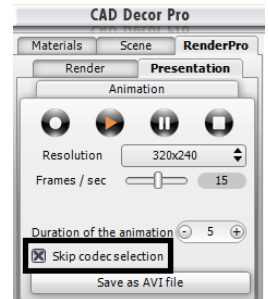


Fig. 500 – Skip codec selection checkbox

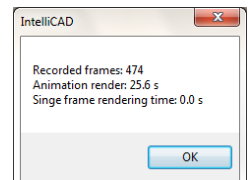


















































Fig. 501 – message informing that the AVI file has been saved to the disk





























## CHAPTER 38
























### The list of icons and their functions – table

All icons available in toolbars in CAD environment of the CAD Decor PRO program are listed and shortly described in the table below.

Name of an icon bar	Icon	Name of a function	Description of a function
Standard		<b>New drawing</b>	Starts drawing of a new project or DWG drawing
		<b>Open</b>	Opens an existing project or DWG drawing from the disk
		<b>Save</b>	Saves the current project or DWG drawing to the disk
		<b>Print</b>	Prints out the current project or DWG drawing
		<b>Access codes</b>	Allows to enter codes for the program and separate modules
		<b>Help</b>	Displays basic information about the program and keyboard shortcut commands
CAD-Kitchens		<b>Walls</b>	Allows to draw walls in a few ways and to insert wall elements
		<b>Cabinets</b>	Inserts kitchen cabinets from the currently used producer database
		<b>Worktops</b>	Generates typical worktops
		<b>Untypical worktops</b>	Generates untypical worktops based on user's outline
		<b>Worktops documentation</b>	Creates worktop technical drawings that can be added to project documentation
		<b>Posts</b>	Draws posts, columns and arc walls of specified parameters and shapes
		<b>Cornices and skirting boards</b>	Generates cornices and skirting boards and also enables you to create your own
		<b>Household appliances</b>	Inserts household equipment from producers databases
		<b>Additional kitchen elements</b>	Inserting additional elements from the currently used kitchen furniture producer database
		<b>Valuation</b>	Generates a valuation of the set from the kitchen furniture database, currently used in the project
		<b>Valuation Manager</b>	Switches between alternative valuations of different sets
		<b>Price-list</b>	Displays kitchen furniture producer's price-list
		<b>Show – hide element</b>	Hides or shows chosen categories of objects in the project
		<b>Exchange sets</b>	Changes one set of kitchen furniture to another – as a whole or selected elements
		<b>Edition</b>	Edits selected cabinet from the project

		<b>Documentation</b>	Generates an overall project technical documentation, with used elements valuation and Contract-Order
		<b>Cabinet Editor</b>	Opens Kitchen Cabinets Editor, enabling edition of the currently used database and creation of your own cabinets
<b>CAD-Interiors</b>		<b>Any elements</b>	Draws floors, casings, platforms, plinths and ceilings
		<b>Converter 3D</b>	Converts 3D models files in many formats to DWX
		<b>Interior design elements</b>	Inserts elements of interior design available in databases
		<b>Elements specification</b>	Creates a summary of interior design elements used in the current project
<b>Elements edition</b>		<b>Move element</b>	Moves selected object by an indicated distance in the chosen direction
		<b>Copy element</b>	Copies selected object any number of times and inserts copies in indicated location
		<b>Rotate element 3D</b>	Rotates selected object in the chosen rotation axis by indicated angle
		<b>Rotate element</b>	Rotates selected object around an indicated point and by indicated angle
		<b>Mirror</b>	Creates a reflected copy of an object based on an indicated reflection plane
		<b>Offset</b>	Copies objects (lines polyline, arcs etc) and locates them parallel to the original
		<b>Trim</b>	Deletes fragments of objects (lines, polylines etc) using other objects as a die
		<b>Explode element</b>	Explodes an object to its component parts
		<b>Delete element</b>	Deletes all selected objects
		<b>Undo operation</b>	Undoes the last operation (up to 20 steps backwards)
		<b>Redo operation</b>	Redoes the last undone operation (up to 20 steps forward)
<b>Drawing</b>		<b>Draw path</b>	Draws a path (polyline)
		<b>Line</b>	Draws a line
		<b>Arc</b>	Draws an arc
		<b>Rectangle</b>	Draws a rectangle (or square)
		<b>Circle</b>	Draws a circle
		<b>Text</b>	Allows to enter a text to a drawing
		<b>Edit text</b>	Edits a texts added to a drawing
		<b>Insert block</b>	Enables you to insert a block from an indicated location on the computer disk
		<b>Drawing settings</b>	Allows to change settings of a drawing
		<b>Layers</b>	Edits layers of a drawing

<b>Advanced</b>		<b>Edit length</b>	Allows to quickly and easily modify line section's length
		<b>Fillet</b>	Joins two elements with an arc or rounds corners
		<b>Align</b>	Places objects next to each other at specified angles (in 2D or 3D)
		<b>Array</b>	Creates symmetrical spatial arrangements of identical objects in 2D
		<b>3D Array</b>	Creates symmetrical spatial arrangements of identical objects in 3D
<b>Cursor dragging</b>		<b>End point</b>	Drags the cursor to the end point of an indicated object
		<b>Nearest</b>	Drags the cursor to the nearest point on the indicated object
		<b>Midpoint</b>	Drags the cursor to the middle of an indicated object
		<b>Central point</b>	Drags the cursor to the centre of an indicated arc or circle
		<b>Perpendicular</b>	Drags the cursor to the perpendicular line intersecting an indicated object
		<b>Point</b>	Drags the cursor to any previously defined point on the object
		<b>Insertion point</b>	Drags the cursor to the base point of an indicated object
		<b>Quadrant</b>	Drags the cursor to the corner of a quadrilateral inscribed in a circle
		<b>Intersection point</b>	Drags the cursor to the common point of two lines or arcs
<b>Dimensioning</b>		<b>None</b>	Turns off all cursor snaps
		<b>Horizontal</b>	Draws a horizontal dimension
		<b>Vertical</b>	Draws a vertical dimension
		<b>Rotated</b>	Draws a rotated dimension
		<b>Angular</b>	Draws an angular dimension
		<b>Reference line</b>	Draws a basic dimensional chain
		<b>Sequence</b>	Draws a dimension of a serial chain
		<b>Radius</b>	Draws a dimension of arc or circle's radius
		<b>Diameter</b>	Draws a dimension of arc or circle's diameter
		<b>Dimension Settings</b>	Allows to quickly modify style of dimension lines (e.g. arrows, line thickness or type etc.)
		<b>Edit Dimension Text</b>	Allows to quickly modify a text of a selected dimension line
<b>Information</b>		<b>Apply Style</b>	Applies a new style to selected dimension lines
		<b>Point co-ordinates</b>	Displays the co-ordinates of a selected point of the object
		<b>Distance</b>	Displays the distance between two selected points

		<b>Area</b>	Displays the total area of a project
		<b>Calculator</b>	Opens Windows calculator
		<b>About elements</b>	Provides information about an indicated object
<b>Points of view</b>		<b>Top view</b>	Sets the view from above
		<b>Front view</b>	Sets the view from the front
		<b>Back view</b>	Sets the view from behind
		<b>Left view</b>	Sets the view from the left
		<b>Right view</b>	Sets the view from the right
		<b>SW Isometric view</b>	Sets the view in southwestern axonometry
		<b>SE Isometric view</b>	Sets the view in southeastern axonometry
		<b>NW Isometric view</b>	Sets the view in northwestern axonometry
		<b>NE Isometric view</b>	Sets the view in northeastern axonometry
<b>View</b>		<b>Refresh</b>	Refreshes the overall view of the project
		<b>Move the view</b>	Moves the view
		<b>Previous view</b>	Goes back to the previously set view
		<b>Show all</b>	Displays an entire project
		<b>Zoom in</b>	Zooms in the view of the project
		<b>Zoom out</b>	Zooms out the view of the project
		<b>Zoom window</b>	Enlarges a fragment of a project in a specified window
		<b>Save interior</b>	Saves an interior to the disk
		<b>Load interior</b>	Loads an interior from the disk
		<b>Quick preview</b>	Presents the current project in a simplified visualization preview
		<b>Visualization</b>	Presents the current project in a visualization

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#### TECHNICAL SUPPORT

##### Any questions or concerns?

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